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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/079,397	03/16/2021	10951742	PMOR0120K	9756

92045 7590 02/24/2021

The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Robert Paul Morris, Madison, GA;
JENAM TECH, LLC, Longview, TX;

IR103 (Rev. 10/09)

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/079,397	10/23/2020	Robert Paul Morris	PMOR0120K	9756

92045 7590 02/09/2021

The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

EXAMINER	
ALI, SYED	

ART UNIT	PAPER NUMBER
2468	

NOTIFICATION DATE	DELIVERY MODE
02/09/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@appcoll.com
pcaldwell@thecaldwellfirm.com

Corrected ***Notice of Allowability***	**Application No.** 17/079,397	**Applicant(s)** Morris, Robert Paul	
	Examiner SYED ALI	**Art Unit** 2468	**AIA (FITF) Status** No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to Communication received on 01/11/2021.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 21-196 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/SYED ALI/
Examiner, Art Unit 2468

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/079,397	Morris, Robert Paul
	Examiner	**Art Unit**
	SYED ALI	2468

CPC							
Symbol						**Type**	**Version**
H04L	/	69	/	16		F	2013-01-01

CPC Combination Sets								
Symbol						**Type**	**Set**	**Ranking**	**Version**
	/		/						

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	176	
/SYED ALI/ Examiner, Art Unit 2468		O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	21	1

U.S. Patent and Trademark Office — Part of Paper No.: 20210203

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/079,397	Morris, Robert Paul
	Examiner	**Art Unit**
	SYED ALI	2468

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H04L	/	1	/	00

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	176	
/SYED ALI/ Examiner, Art Unit 2468		O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	21	1

U.S. Patent and Trademark Office — Part of Paper No.: 20210203

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/079,397	Morris, Robert Paul
	Examiner	**Art Unit**
	SYED ALI	2468

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1	6	26	42	51	67	76	91	101	144	126	169	151	121	176
	2	7	27	43	52	68	77	92	102	145	127	170	152	122	177
	3	8	28	44	53	69	78	93	103	146	128	171	153	123	178
	4	9	29	45	54	70	79	94	104	147	129	172	154	124	179
	5	10	30	46	55	71	80	95	105	148	130	173	155	125	180
	6	11	31	47	56	72	81	96	106	149	131	174	156	126	181
	7	12	32	48	57	73	82	97	107	150	132	175	157	127	182
	8	13	33	49	58	74	83	98	108	151	133	176	158	128	183
	9	15	34	50	59	14	84	99	109	152	134	104	159	129	184
	10	16	35	51	60	75	85	100	110	153	135	105	160	130	185
	11	17	36	52	61	76	86	101	111	154	136	106	161	131	186
	12	18	37	53	62	77	87	102	112	155	137	107	162	28	187
	13	19	38	54	63	78	88	103	113	156	138	108	163	29	188
	14	20	39	55	64	79	89	132	114	157	139	109	164	30	189
	15	21	40	56	65	80	90	133	115	158	140	110	165	31	190
	16	22	41	57	66	81	91	134	116	159	141	111	166	32	191
	17	23	42	58	67	82	92	135	117	160	142	112	167	33	192
	18	24	43	59	68	83	93	136	118	161	143	113	168	34	193
	19	25	44	60	69	84	94	137	119	162	144	114	169	35	194
	20	26	45	61	70	85	95	138	120	163	145	115	170	36	195
1	21	27	46	62	71	86	96	139	121	164	146	116	171	37	196
2	22	38	47	63	72	87	97	140	122	165	147	117	172		
3	23	39	48	64	73	88	98	141	123	166	148	118	173		
4	24	40	49	65	74	89	99	142	124	167	149	119	174		
5	25	41	50	66	75	90	100	143	125	168	150	120	175		

NONE	**Total Claims Allowed:**	
(Assistant Examiner) (Date)	176	
/SYED ALI/ Examiner, Art Unit 2468	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner) (Date)	21	1

U.S. Patent and Trademark Office Part of Paper No.: 20210203

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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

92045 7590 01/27/2021

The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

EXAMINER	
ALI, SYED	
ART UNIT	PAPER NUMBER
2468	

DATE MAILED: 01/27/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/079,397	10/23/2020	Robert Paul Morris	PMOR0120K	9756

TITLE OF INVENTION: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	04/27/2021

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

92045 7590 01/27/2021

The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/079,397	10/23/2020	Robert Paul Morris	PMOR0120K	9756

TITLE OF INVENTION: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	04/27/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
ALI, SYED	2468	709-201000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/079,397	10/23/2020	Robert Paul Morris	PMOR0120K	9756

92045 7590 01/27/2021

The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

EXAMINER	
ALI, SYED	
ART UNIT	**PAPER NUMBER**
2468	

DATE MAILED: 01/27/2021

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 17/079,397	Applicant(s) Morris, Robert Paul	
	Examiner SYED ALI	Art Unit 2468	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to Communication received on 01/11/2021.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 21-196 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/SYED ALI/
Examiner, Art Unit 2468

Notice of References Cited	Application/Control No. 17/079,397	Applicant(s)/Patent Under Reexamination Morris, Robert Paul	
	Examiner SYED ALI	Art Unit 2468	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20050223089-A1	10-2005	Rhodes, Lee	H04L43/0876	709/223
*	B	US-9843596-B1	12-2017	Averbuch; Amir	G06F21/552	1/1
*	C	US-20110213820-A1	09-2011	Morris; Robert Paul	H04L69/16	709/201
*	D	US-7801978-B1	09-2010	Susai; Michel K.	H04L29/06	709/224
*	E	US-6389010-B1	05-2002	Kubler; Joseph J.	H04L65/1069	370/353
*	F	US-20100220702-A1	09-2010	Hiroyuki; Satoh	H04L69/163	370/338
*	G	US-20070244987-A1	10-2007	Pedersen; Bradley J.	H04L67/06	709/217
*	H	US-20070019571-A1	01-2007	Stogel; Scott	H04L69/18	370/260
*	I	US-20070008884-A1	01-2007	Tang; Bob	H04L47/283	370/230
*	J	US-20060200849-A1	09-2006	Sundarrajan; Prabakar	H04L69/163	725/110
*	K	US-20050135248-A1	06-2005	Ahuja, Sadhna	H04L47/28	370/235
	L					
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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/079,397	Morris, Robert Paul
	Examiner	Art Unit
	SYED ALI	2468

CPC - Searched*		
Symbol	**Date**	**Examiner**
(G06F9/5027.cpc. H04L69/18.cpc. H04L69/16.cpc.)	12/03/2020	SA
(H04L029/06.cpc. G06F9/50.cpc. G06F9/5027.cpc. H04L69/18.cpc. H04L69/16.cpc.)	01/22/2021	SA

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

/SYED ALI/ Examiner, Art Unit 2468	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/079,397	Morris, Robert Paul
	Examiner	Art Unit
	SYED ALI	2468

Search Notes		
Search Notes	**Date**	**Examiner**
EAST, (USPAT, USPGPUB, EPO, USOCR, FERS, JPO, DERWENT, IBM_TDB) -See search history printout	12/03/2020	SA
Inventor search in EAST - See search history printout	12/03/2020	SA
Assignee search in EAST - See search history printout	12/03/2020	SA
Inventor name search for ODP	12/03/2020	SA
101 and 112 compliance check	12/03/2020	SA
EAST, (USPAT, USPGPUB, EPO, USOCR, FERS, JPO, DERWENT, IBM_TDB) -See search history printout	01/22/2021	SA
Inventor search in EAST - See search history printout	01/22/2021	SA
Assignee search in EAST - See search history printout	01/22/2021	SA
Inventor name search for ODP	01/22/2021	SA
101 and 112 compliance check	01/22/2021	SA
NPL(google and lp.com)	01/22/2021	SA

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	(H04L029/06.cpc. G06F9/50.cpc. G06F9/5027.cpc. H04L69/18.cpc. H04L69/16.cpc.)	01/22/2021	SA

/SYED ALI/ Examiner, Art Unit 2468	

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/079,397	Morris, Robert Paul
	Examiner	**Art Unit**
	SYED ALI	2468

CPC							
Symbol						**Type**	**Version**
H04L	/	69	/	16		F	2013-01-01

CPC Combination Sets								
Symbol						**Type**	**Set**	**Ranking**	**Version**
	/		/						

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	175	
/SYED ALI/ Examiner, Art Unit 2468	22 January 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	21	1

U.S. Patent and Trademark Office — Part of Paper No.: 20210122

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/079,397	Morris, Robert Paul
	Examiner	**Art Unit**
	SYED ALI	2468

INTERNATIONAL CLASSIFICATION				
CLAIMED				
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NON-CLAIMED				
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US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	175	
/SYED ALI/ Examiner, Art Unit 2468	22 January 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	21	1

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	17/079,397	Morris, Robert Paul
	Examiner	**Art Unit**
	SYED ALI	2468

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1	6	26	42	51	67	76	91	101	143	126	168	151	121	176
	2	7	27	43	52	68	77	92	102	144	127	169	152	122	177
	3	8	28	44	53	69	78	93	103	145	128	170	153	123	178
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	11	17	36	52	61	76	86	101	111	153	136	106	161	131	186
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	18	24	43	59	68	83	93	135	118	160	143	113	168	34	193
	19	25	44	60	69	84	94	136	119	161	144	114	169	35	194
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1	21	27	46	62	71	86	96	138	121	162	146	116	171	37	196
2	22	38	47	63	72	87	97	139	122	164	147	117	172		
3	23	39	48	64	73	88	98	140	123	165	148	118	173		
4	24	40	49	65	74	89	99	141	124	166	149	119	174		
5	25	41	50	66	75	90	100	142	125	167	150	120	175		

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	175	
/SYED ALI/ Examiner, Art Unit 2468	22 January 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	21	1

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	17079397
Filing Date	2020-10-23
First Named Inventor	Robert Paul Morris
Art Unit	2468
Examiner Name	ALI, SYED
Attorney Docket Number	PMOR0120K

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	Application Number	17079397
	Filing Date	2020-10-23
	First Named Inventor	Robert Paul Morris
	Art Unit	2468
	Examiner Name	ALI, SYED
	Attorney Docket Number	PMOR0120K

	1	Postel, J. "The TCP Maximum Segment Size and Related Topics," Network Working Group, RFC 879, available at https://tools.ietf.org/html/rfc879	
	2	Postel, John(ed.), Editor; "Transmission Control Protocol - DARPA Internet Protocol Specification", RFC 793, USC/ Information Sciences Institute, http://tools.ietf.org/rfc/rfc793.txt, September 1981	
	3	Protocol Enhancements for Intermittently Connected Hosts, Schütz et al., ACM SIGCOMM Computer Communication Review, Vol. 35, Number 2, July 2005, published in July 2005.	
	4	Real-Time Transport Protocol (RTP) Payload Format and File Storage Format for the Adaptive Multi-Rate (AMR) and Adaptive Multi-Rate Wideband (AMR-WB) Audio Codecs (aka Framing Parameters for GAN) ("RFC 3267"), published in June 2002, available at https://tools.ietf.org/html/rfc3267.	
	5	Requirements for Internet Hosts - Communication Layers RFC 1122 ("RFC 1122"), published in October 1989, available at https://tools.ietf.org/html/rfc1122.	
	6	Roskind, Jim "Multiplexed Stream Transport Over UDP," QUIC, 12/2/2013, 51 pages	
	7	S. Bradner "IETF Working Group Guidelines and Procedures," Network Working Group, RFC 2418, Sept 1998	
	8	S. Bradner, "The Internet Standards Process -- Revision 3" Network Working Group, RFC 2026	
	9	Stream Control Transmission Protocol (SCTP) – ("SCTP") RFC 2960, R. Stewart et al., published in October 2000, available at https://tools.ietf.org/html/rfc2960.	
	10	Sun Blade 1000 and Sun Blade 2000 Getting Started Guide, Part No. 816-3216-10, published in January 2002, available at https://docs.oracle.com/cd/E19127-01/blade1000.ws/816-3216-10/816-3216-10.pdf.	
	11	T Bova et al. "Reliable UDP Protocol" (Internet-Draft for the Internet Engineering Task Force, dated Feb 25, 1999	

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	Art Unit	2468
	Examiner Name	ALI, SYED
	Attorney Docket Number	PMOR0120K

	12	TCP Abort Timeout Option (draft-eggert-tcpm-tcp-abort-timeout-option-00), published April 14, 2004, available at https://tools.ietf.org/html/draft-eggert-tcpm-tcp-abort-timeout-option-00	
	13	TCP User Timeout Option RFC 5482, published in March 2009, available at https://tools.ietf.org/html/rfc5482	
	14	TCP/IP Illustrated, Volume 1: The Protocols, W. Richard Stevens, published in 1994.	
	15	The Federal Networking Council, The Networking and Information Technology Research and Development Program, Oct 10, 1997, available at https://www.nitrd.gov/historical/fnc-material.aspx	
	16	Transmission Control Protocol RFC 793, published in September 1981, available at https://tools.ietf.org/html/rfc793.	

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EXAMINER SIGNATURE

Examiner Signature	/SYED ALI/	Date Considered	01/22/2021

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Robert Paul Morris
	Art Unit	2468
	Examiner Name	ALI, SYED
	Attorney Docket Number	PMOR0120K

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Patrick Caldwell/	Date (YYYY-MM-DD)	2020-12-31
Name/Print	Patrick Caldwell	Registration Number	44580

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
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Filing Date	2020-10-23
First Named Inventor	Robert Paul Morris
Art Unit	2468
Examiner Name	ALI, SYED
Attorney Docket Number	PMOR0120K

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5371852	A	1994-12-06	Attanasio et al.	Entire Document
	2	5495480	A	1996-02-27	Yoshida	Entire Document
	3	6273622	B1	2001-08-14	Ben-David	Entire Document
	4	6412006	B2	2002-06-25	Naudus	
	5	6412009	B1	2002-06-25	Erickson et al.	Entire Document
	6	6674713	B1	2004-01-06	Berg et al.	Entire Document
	7	6704786	B1	2004-03-09	Gupta et al.	Entire Document
	8	6880013	B2	2005-04-12	Kashyap	Entire Document

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	First Named Inventor	Robert Paul Morris
	Art Unit	2468
	Examiner Name	ALI, SYED
	Attorney Docket Number	PMOR0120K

	9	7002917	B1	2006-02-21	Saleh	Entire Document
	10	7035214	B1	2006-04-25	Seddigh et al.	Entire Document
	11	7050940	B2	2006-05-23	Basso et al.	Entire Document
	12	7152111	B2	2006-12-19	Allred et al.	Entire Document
	13	7404210	B2	2008-07-22	Lin	
	14	7426569	B2	2008-09-16	Dunk	
	15	7428595	B2	2008-09-23	Deshpande	Entire Document
	16	7606191	B1	2009-10-20	Breau et al.	Entire Document
	17	7684346	B2	2010-03-23	Valli	
	18	7720989	B2	2010-05-18	Dunk	
	19	7729271	B2	2010-06-01	Tsuchiya et al.	

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	20	7848351	B2	2010-12-07	Kim et al.	Entire Document
	21	7962623	B2	2011-06-14	Undery et al.	Entire Document
	22	8031617	B2	2011-10-04	Mogul et al.	Entire Document
	23	8073964	B2	2011-12-06	Dunk	
	24	8219606	B2	2012-07-10	Morris	Entire Document
	25	8228830	B2	2012-07-24	Babin et al.	Entire Document
	26	8375134	B2	2013-02-12	Herzog et al.	Entire Document
	27	8483095	B2	2013-07-09	Hegde et al.	Entire Document
	28	8700695	B2	2014-04-15	Sundarrajan et al.	Entire Document
	29	8711851	B1	2014-04-29	Subramonian et al.	Entire Document

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	1	20050054347	A1	2005-03-10	Kakani	
	2	20050063304	A1	2005-03-24	Sillasto et al.	
	3	20060034179	A1	2006-02-16	Carter et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2020-10-23
	First Named Inventor	Robert Paul Morris
	Art Unit	2468
	Examiner Name	ALI, SYED
	Attorney Docket Number	PMOR0120K

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	1	1242882	EP	A2	2002-09-25	Hankinson et al.	Entire Document	
	2	2007069046	WO	A1	2007-06-21	Eronen et al.	Entire Document	

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Signature	/Patrick Caldwell/	Date (YYYY-MM-DD)	2020-12-09
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Bibliographic Data

Application No: 17/079,397

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

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Title: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/23/2020	709	2468	PMOR0120K
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APPLICANTS

JENAM TECH, LLC, Longview, TX, UNITED STATES

INVENTORS

Robert Paul Morris, Madison, GA, UNITED STATES

CONTINUING DATA

This application is a CON of 16914267 06/26/2020

16914267 is a CON of 16368811 03/28/2019 PAT 10742774

16368811 is a CON of 16040522 07/19/2018 PAT 10375215

16040522 is a CON of 15915047 03/07/2018 PAT 10075564

15915047 is a CON of 15694802 09/03/2017 PAT 9923995

15694802 is a CIP of 14667642 03/24/2015ABN

14667642 is a CIP of 13477402 05/22/2012ABN

13477402 is a CON of 12714454 02/27/2010 PAT 8219606

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Name/Print	Patrick Caldwell	Registration Number	44580

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	17079397
Filing Date	2020-10-23
First Named Inventor	Robert Paul Morris
Art Unit	2468
Examiner Name	ALI, SYED
Attorney Docket Number	PMOR0120K

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6757248	B1	2004-06-29	Li et al.	Entire Document
	2	7808941	B2	2010-10-05	Ramos et al.	Entire Document
	3	7876678	B2	2011-01-25	Ong	Entire Document
	4	8077737	B2	2011-12-13	Ji	Entire Document
	5	9060310	B2	2015-06-16	Ji	Entire Document
	6	9923996	B1	2018-03-20	Morris	Entire Document
	7	9923995	B1	2018-03-20	Morris	Entire Document

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	3	20080084826	A1	2008-04-10	Ong	Entire Document
	4	20080095124	A1	2008-04-24	Ramos et al.	Entire Document
	5	20100074273	A1	2010-03-25	Ji	Entire Document

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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	1		

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Examiner Signature	/SYED ALI/	Date Considered	01/22/2021

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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OR

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See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Patrick Caldwell/	Date (YYYY-MM-DD)	2020-12-31
Name/Print	Patrick Caldwell	Registration Number	44580

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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First Named Inventor	Robert Paul Morris
Art Unit	2468
Examiner Name	ALI, SYED
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	1	The Federal Networking Council (FNC), FNC Resolution: Definition of "Internet" (Oct. 24, 1995)	

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Examiner Signature	/SYED ALI/	Date Considered	01/22/2021

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Name/Print	Patrick Caldwell	Registration Number	44580

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	484,766	(transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:55
L2	1,957,298	(Internet near2 Protocol (IP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:55
L3	410,270	L1 and L2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:55
L4	1,563	((("MORRIS") near3 ("Robert"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2021/01/22 11:55
L5	3	((("JENAM") near3 ("TECH") near3 ("LLC"))).AS,AANM.	USPAT	OR	OFF	2021/01/22 11:55
L6	44,459	TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:55
L7	1,718	L6 and (Keep-alive keep adj alive)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:55
L8	530	L7 and (time-out time adj out)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:55
L9	135	L8 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:55
L10	263	(identifying analyz$3 classify$3 selecting establish$3) with metadata with (transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:55
L11	57,932	(H04L029/06.cpc. G06F9/50.cpc. G06F9/5027.cpc. H04L69/18.cpc. H04L69/16.cpc.)	US-PGPUB; USPAT;	OR	ON	2021/01/22 11:56

			USOCR; FPRS; EPO; JPO			
L12	4,400	TCP near10 active	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:56
L13	1,944	L12 and TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:56
L14	250	L13 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:56
L15	13	L14 and modify$3 near10 metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:56
L16	11	L15 and keep$1alive	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:56
L17	41	L10 and (other diverse distinct distant various different) same algorithm	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:56
L18	11	(idle inactive passive sluggish) near10 (transmission adj control adj protocol (TCP)) with (revis$3 repair$3 adjust$3 adapt$3 twik$3 correct$3 modify$3) near10 metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:56
L19	10,160	non near5 (transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L20	49,954	(G06F9/5027.cpc. H04L69/18.cpc. H04L69/16.cpc.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L21	291	L20 and idle near3 time near5 period	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L22	129	L21 and TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57

L23	18	L22 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L24	18	L23 and timeout	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L25	11	L24 and modify$3 near10 metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L26	287	(identifying analyz$3 classify$3 selecting establish$3) with (duration span extant) with (transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L27	950	(inactive passive sluggish) near10 (transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L28	16,533	keep$1alive	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L29	492	L28 and TCP near10 active	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L30	144	L29 and idle near3 time	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L31	144	L30 and packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L32	92	L31 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L33	88	L32 and TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L34	88	L33 and (parameter field)	US-PGPUB; USPAT;	OR	ON	2021/01/22 11:57

			USOCR; FPRS; EPO; JPO			
L35	83	L34 and connect$3 near5 established	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 11:57
L36	4,400	TCP near10 active	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 12:00
L37	1,944	L36 and TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 12:00
L38	250	L37 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 12:00
L39	13	L38 and modify$3 near10 metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 12:00
L40	129	L21 and TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/22 12:01
S1	0	"17079397"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/01 20:53
S2	10	"20050063304"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 09:43
S3	6,702,938	identi$5 near5 metadata near10 idle nea33time period	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 10:09
S4	3,965,776	identi$5 near5 metadata near10 idle nea3 time near5 period	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 10:09
S5	14	identi$5 near5 metadata near10 idle near3 time near5 period	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 10:09

S6	3	((("JENAM") near3 ("TECH") near3 ("LLC"))).AS,AANM.	USPAT	OR	OFF	2020/12/02 10:11
S7	1,558	((("MORRIS") near3 ("Robert"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/12/02 10:12
S8	49,313	(G06F9/5027.cpc. H04L69/18.cpc. H04L69/16.cpc.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:12
S9	289	S8 and idle near3 time near5 period	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:13
S10	189	S9 and TCP	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:13
S11	129	S9 and TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:14
S12	18	S11 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:15
S13	18	S12 and timeout	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:15
S14	11	S13 and modify$3 near10 metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:16
S15	11	S14 and keep$1alive	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:16
S16	4,363	TCP near10 active	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:18
S17	1,929	S16 and TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:18

S18	242	S17 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:18
S19	13	S18 and modify$3 near10 metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:19
S20	11	S19 and keep$1alive	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:19
S21	16,266	keep$1alive	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:13
S22	483	S21 and TCP near10 active	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:14
S23	139	S22 and idle near3 time	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:14
S24	139	S23 and packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:15
S25	87	S24 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:16
S26	83	S25 and TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:16
S27	83	S26 and (parameter field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:16
S28	78	S27 and connect$3 near5 established	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:17
S29	78	S28 and time$1out	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:17

S30	4	"12714063"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:19
S31	1	"16229540"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:34
S32	0	"17079397"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 13:16
S33	15	12/714063	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 13:17
S34	1	"71732959".FMID.	US-PGPUB; USPAT; FPRS; JPO	OR	OFF	2020/12/02 13:17
S35	44,064	TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 21:03
S36	1,698	S35 and (Keep-alive keep adj alive)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 21:07
S37	523	S36 and (time-out time adj out)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 21:07
S38	130	S37 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 21:08
S39	3	((("JENAM") near3 ("TECH") near3 ("LLC"))).AS,AANM.	USPAT	OR	OFF	2021/01/20 23:03
S40	0	"17079397"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:03
S41	57,918	(H04L029/06.cpc. G06F9/50.cpc. G06F9/5027.cpc. H04L69/18.cpc. H04L69/16.cpc.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:05
S42	18,327	idle near3 time near5 period	US-PGPUB; USPAT;	OR	ON	2021/01/20 23:06

			USOCR; FPRS; EPO; JPO			
S43	1,392	keep-alive near3 packets	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:06
S44	40	S42 and S43	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:06
S45	484,430	(transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:08
S46	1,956,364	(Internet near2 Protocol (IP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:09
S47	409,971	S45 and S46	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:09
S48	271	S47 and Time$1out near5 Option	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:10
S49	949	(inactive passive sluggish) near10 (transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:18
S50	1,882	(idle inactive passive sluggish) near10 (transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:19
S51	2,972	(duration span extant) with (transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:24
S52	18	metadata with (duration span extant) with (transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:25
S53	287	(identifying analyz$3 classify$3 selecting establish$3) with (duration span extant) with (transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:28

S54	601,936	(other diverse distinct distant various different) same algorithm	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:31
S55	56	S53 and S54	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:31
S56	56	S45 and S55	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:31
S57	23	metadata with (duration span extant) with (other diverse distinct distant various different) same algorithm	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:32
S58	10,158	non near5 (transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:32
S59	5	non near5 (transmission adj control adj protocol (TCP)) same Time$1out near5 Option	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:33
S60	11	(idle inactive passive sluggish) near10 (transmission adj control adj protocol (TCP)) with (revis$3 repair$3 adjust$3 adapt$3 twik$3 correct$3 modify$3) near10 metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:42
S64	262	(identifying analyz$3 classify$3 selecting establish$3) with metadata with (transmission adj control adj protocol (TCP))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:46
S65	41	S64 and(other diverse distinct distant various different) same algorithm	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:47
S66	41	S64 and (other diverse distinct distant various different) same algorithm	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:47
S67	4,398	TCP near10 active	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:56
S68	1,943	S67 and TCP near3 packet	US-PGPUB; USPAT;	OR	ON	2021/01/20 23:56

			USOCR; FPRS; EPO; JPO			
S69	249	S68 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:56
S70	13	S69 and modify$3 near10 metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:56
S71	11	S70 and keep$1alive	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:56
S72	16,510	keep$1alive	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:57
S73	491	S72 and TCP near10 active	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:57
S74	143	S73 and idle near3 time	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:57
S75	143	S74 and packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:57
S76	91	S75 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:57
S77	87	S76 and TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:57
S78	87	S77 and (parameter field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:57
S79	82	S78 and connect$3 near5 established	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:57

S80	44,440	TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:57
S81	1,717	S80 and (Keep-alive keep adj alive)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:57
S82	529	S81 and (time-out time adj out)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:57
S83	134	S82 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2021/01/20 23:57
S84	3	((("JENAM") near3 ("TECH") near3 ("LLC"))).AS,AANM.	USPAT	OR	OFF	2021/01/20 23:57
S85	1,562	((("MORRIS") near3 ("Robert"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2021/01/20 23:58

EAST Search History (Interference)

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1/22/2021 12:23:22 PM
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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	17079397
Filing Date	2020-10-23
First Named Inventor	Robert Paul Morris
Art Unit	2468
Examiner Name	ALI, SYED
Attorney Docket Number	PMOR0120K

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	11	7050940	B2	2006-05-23	Basso et al.	Entire Document
	12	7152111	B2	2006-12-19	Allred et al.	Entire Document
	13	7404210	B2	2008-07-22	Lin	
	14	7426569	B2	2008-09-16	Dunk	
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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2020-10-23
	First Named Inventor	Robert Paul Morris
	Art Unit	2468
	Examiner Name	ALI, SYED
	Attorney Docket Number	PMOR0120K

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Signature	/Patrick Caldwell/	Date (YYYY-MM-DD)	2020-12-31
Name/Print	Patrick Caldwell	Registration Number	44580

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Optimizing keepalive and other background traffic in a ...

In one embodiment, keepalives can be detected in real-time for keepalive optimization. Various algorithms can be used to detect keepalives. For example, one ...

Grant · Filed Sep 23, 2014 · Issued Feb 23, 2016 · Abhay Nirantar · Seven Networks, Llc

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www.google.com/patents/US8782222

Timing of keep-alive messages used in a system for mobile ...

The polling schedule (e.g., including a rate/frequency of polling) can be determined, for example, based on the interval between the polling requests directed to the ...

Grant · Filed Sep 5, 2012 · Issued Jul 15, 2014 · Michael Luna · Seven Networks

Overview · Related · Discuss

www.google.com/patents/US9560126

Stateless load balancing of connections

A load balancer receives a TCP SYN packet from a client, selects a server for a ... be configured to perform stateless detection and handling of TCP keep-alive packets. ... In this example, a value of ten (10) may be used for length A, such that the ... the TCP connection remains idle for a (configurable) period of time, the TCP ...

Grant · Filed May 6, 2013 · Issued Jan 31, 2017 · Jeroen van Bemmel · Alcatel Lucent

Overview · Related · Discuss

www.google.com/patents/US8731542

Dynamic adjustment of keep-alive message intervals in a ...

Systems and methods for dynamic adjustment of keep-alive message intervals in a mobile network are disclosed. One embodiment of maintaining an IP ...

Grant · Filed Mar 8, 2011 · Issued May 20, 2014 · Mikko Tervahauta · Seven Networks International Oy

Overview · Related · Discuss

www.google.com/patents/US20130067059

Keep Alive Management

The keep alive interval is used to maintain one or more notification channels ... of the network interface devices 112 may be accessed at a given point in time.

App. · Filed Sep 9, 2011 · Published Mar 14, 2013 · Srinivas Raghu Gatta · Srinivas Raghu Gatta

Overview · Related · Discuss

www.google.com/patents/US9148765

Push service without persistent TCP connection in a mobile ...

One skilled in the art will recognize that the session ID may be generated by any number of different ID generating algorithms for the purposes ...

Grant · Filed Nov 27, 2012 · Issued Sep 29, 2015 · Edward Grinshpun · Alcatel Lucent

Overview · Related · Discuss

www.google.com/patents/EP2037717A1?cl=en

Keep-alive for wireless network

At least one of the receiving devices transmits a keep-alive to the transmitting device. ... to a quantity of packets that are transmitted over a certain period of time.

App. · Filed Mar 31, 2008 · Published Mar 18, 2009 · Zhanfeng Jia · Qualcomm Incorporated

Overview · Related · Discuss

www.google.com/patents/US6304546

End-to-end bidirectional keep-alive using virtual circuits

Nodes respond to received keep-alive messages, or to timed-out failure to receive ... A first timeout interval determines a duration to be waited by the keep-alive ...
Grant · Filed Dec 19, 1996 · Issued Oct 16, 2001 · Shankar Natarajan · Cisco Technology, Inc.
Overview · Related · Discuss

www.google.com/patents/US8340109

Systems and methods for accelerating TCP/IP data stream ...

If not, processing may continue at act 1215. If the persist timer has expired, a probe (as described above with respect to the keep-alive timer) may be sent to the ...
Grant · Filed Oct 18, 2010 · Issued Dec 25, 2012 · Nhon T Quach · Juniper Networks, Inc.
Overview · Related · Discuss

www.google.com/patents/US20060182141

Apparatus and method for autonomic adjustment of connection ...

We assume for the sake of illustration that the keep-alive specification is specified as a time period. In the case of the first specific embodiment herein, where ...
App. · Filed Feb 17, 2005 · Published Aug 17, 2006 · Surya Duggirala · International Business Machines Corporation
Overview · Related · Discuss

www.google.com/patents/US20060013203

Methods and systems for communicating SS7 messages over ...

The TALI interface also includes SYNC and LENGTH fields for facilitating extraction of ... The keep-alive timer is reset every time a TCP segment is received.
App. · Filed Jul 19, 2005 · Published Jan 19, 2006 · Robby Benedyk · Tekelec
Overview · Related · Discuss

www.google.com/patents/US7839873

Systems and methods for accelerating TCP/IP data stream ...

The TCP/IP protocol slow processing path (110) processes the packet if the ... 315 may implement TCP packet re-transmission and congestion prevention algorithms. ... include an interval timer, a re-transmission timer, a persist timer, a keep-alive ... The re-transmission timer may determine the time interval the TCP/IP timer ...
Grant · Filed Jun 25, 2008 · Issued Nov 23, 2010 · Nhon T Quach · Juniper Networks, Inc.
Overview · Related · Discuss

www.google.com/patents/US6271658

Method and apparatus for a client connection manager

As the data structures grow, more computing time is needed to service each ... A Connection is a network level connection, such as a TCP socket, an HTTP ... initiate connections for the duration of a transaction (session) and then disconnect. ... or extended connection table description, and keep-alive signal management.
Grant · Filed Oct 31, 2007 · Issued Sep 18, 2012 · Curtis M. Allred · Digi International Inc.
Overview · Related · Discuss

www.google.com/patents/US7782787

Rapid fault detection and recovery for internet protocol ...

The keep-alive PMR packets may be transmitted on a regular basis (regular intervals) —all the time (i.e., with or without calls between a source PMR node and a ...
Grant · Filed Sep 29, 2004 · Issued Aug 24, 2010 · Mark John Karol · Avaya Inc.
Overview · Related · Discuss

www.google.com/patents/US7404210

Method and apparatus for defending against distributed ...

A Distributed Denial-of-Service (DDoS) attack by a TCP stateless hog is defeated with use of an enhancement to the keep-alive mechanism provided by RFC ...
Grant · Filed Sep 23, 2003 · Issued Jul 22, 2008 · Dong Lin · Lucent Technologies Inc.
Overview · Related · Discuss

www.google.com/patents/WO2014065056A1?cl=en

Push service without persistent tcp connection in a mobile ...

Methods, systems, and articles of manufacture for non-TCP push service in a mobile network comprise receiving, at a push server, registration information for a ...
App. · Filed Nov 8, 2013 · Published Jun 5, 2014 · Edward Grinshpun · Alcatel Lucent
Overview · Related · Discuss

www.google.com/patents/US20130246641

Method and apparatus for dynamic server client controlled ...

Each of the devices may keep a connection alive for a certain period of time according to an inactivity timer value. If the connection of the UE 101 is inactive for ...
App. · Filed Feb 22, 2013 · Published Sep 19, 2013 · Markku Vimpari · Nokia Corporation
Overview · Related · Discuss

www.google.com/patents/US20140066063

Heartbeat period determination method and apparatus for push ...

At this time, the keep-alive message transmission interval depends on the firewall timeout policy and is predetermined according to general practices and ...
App. · Filed Aug 30, 2013 · Published Mar 6, 2014 · Heyyoung PARK · Samsung Electronics Co., Ltd.
Overview · Related · Discuss

www.google.com/patents/WO2014155041A1?cl=en

Content delivery system and method

Optionally the switching decision algorithm may take into account data in the ... If the URI represents content that is available over a longer period of time, the ... average duration of the content playing out before the number of sessions fall ... Fourthly, PIM routers are kept alive using periodic Hello messages to each other.
App. · Filed Mar 27, 2014 · Published Oct 2, 2014 · Vidhyalakshmi Karthikeyan · British Telecommunications Public Limited Company
Overview · Related · Discuss

www.google.com/patents/US6519248

Packet data network having distributed database

Stored location information may be cleared by elapse of time or specific messaging. Location information for different kinds of terminals may be stored in a ...
Grant · Filed Jul 24, 1998 · Issued Feb 11, 2003 · András Valkó · Telefonaktiebolaget Lm Ericsson (Publ)
Overview · Related · Discuss

www.google.com/patents/US9565257

Method and apparatus for a client connection manager

In a typical Operating System (such as Solaris, Linux, Windows) the TCP/IP ... A keep-alive signal may be transmitted periodically by the client (using empty TCP ... as: 1) timeout periods--the amount of time before connections are transitioned to ... allocated when the connection is established and are kept for the duration of ...
Grant · Filed Oct 31, 2007 · Issued Feb 7, 2017 · Curtis M. Allred · Digi International Inc.
Overview · Related · Discuss

www.google.com/patents/EP2641384A1?cl=en

Transmitting keep-alive packets on behalf of a mobile ...

The settings are configured to be disabled by the NAT and/or firewall after a threshold period of traffic inactivity. An application server receives information ...
App. · Filed Nov 18, 2011 · Published Sep 25, 2013 · Kirankumar Anchan · Qualcomm Incorporated(1/3)
Overview · Related · Discuss

www.google.com/patents/US7991870

Method and apparatus for a client connection manager

At a defined time, connections that are not active may be put in an inactive state and ... after a specified time interval or in response to a system monitor alert, etc.
Grant · Filed Oct 31, 2007 · Issued Aug 2, 2011 · Curtis M. Allred · Digi International Inc.
Overview · Related · Discuss

www.google.com/patents/US9319441

Processor allocation for multi-core architectures

A first processor of a plurality of processors may define a new TCP connection to be opened. The first processor may apply a hash function to determine a ...
Grant · Filed Aug 15, 2014 · Issued Apr 19, 2016 · Maksim Pyatkovskiy · Ixia
Overview · Related · Discuss

www.google.com/patents/WO2015056920A1?cl=en

A method and system for selecting an optimal drx configuration

The method further comprises computing active time of the DRX configuration based ... In this case, the joint distribution of Y = W + X is not defined by a joint PMF or a joint ... For example, a typical TCP keep alive frame is of length 60 bytes, resulting in ... unit 704 is responsible for processing the instructions of the algorithm.
App. · Filed Oct 7, 2014 · Published Apr 23, 2015 · Arvind CHAKRAPANI · Samsung Electronics Co., Ltd.
Overview · Related · Discuss

www.google.com/patents/US9590887

Method and system for keeping interest alive in a content ...

The system receives a notification message which indicates a time period after which a ... and can further include a time duration (e.g., 30 seconds) which indicates an ... device to the content requesting device allows the system to "keep alive" the first ... multiplexer to dynamically allocate communication channel bandwidth.
Grant · Filed Jul 18, 2014 · Issued Mar 7, 2017 · Priya Mahadevan · Cisco Systems, Inc.
Overview · Related · Discuss

www.google.com/patents/US8819245

Processor allocation for multi-core architectures

The first processor may write data defining the new TCP connection to a ... by one device for a predetermined period of time, commonly called a "time-out".
Grant · Filed Nov 22, 2010 · Issued Aug 26, 2014 · Maksim Pyatkovskiy · Ixia
Overview · Related · Discuss

www.google.com/patents/US7020713

System and method for balancing TCP/IP/workload of ...

Although there are multiple timer threads like Delayed Ack Timer and KeepAlive Timer in some implementations, but most of the time, there is ...
Grant · Filed Oct 10, 2000 · Issued Mar 28, 2006 · Vipul Shah · Novell, Inc.
Overview · Related · Discuss

www.google.com/patents/US20040162992

Internet privacy protection device

The architecture is deterministic and totally programmable using single-cycle instructions to implement hard real-time functions as software modules to replace ...
App. · Filed Feb 19, 2003 · Published Aug 19, 2004 · Vikash Sami · Sami Vikash Krishna
Overview · Related · Discuss

www.google.com/patents/US6273622

Data communication protocol for maximizing the performance ...

The CEP of the present invention optimizes the interactions between transport protocols and applications by utilizing novel flow control algorithms so as to reduce ...

Grant · Filed Apr 15, 1997 · Issued Aug 14, 2001 · Ido Ben-David · Flash Networks, Ltd.

Overview · Related · Discuss

www.google.com/patents/US8402142

System and method for TCP/IP offload independent of ...

The at least a portion of the TCP/IP Offload Engine connection variables may be ... to implement various TCP algorithms for handling faster network connections, ... processing resources to be allocated or reallocated to application processing. ... time remaining for delay acknowledgement, time remaining for keep alive, time ...

Grant · Filed Dec 21, 2007 · Issued Mar 19, 2013 · Uri Elzur · Broadcom Corporation

Overview · Related · Discuss

www.google.com/patents/US7461173

Distributing timers across processors

Many network protocols use timers to mark points in time. For example, Transmission Control Protocol (TCP) uses a number of different ...

Grant · Filed Jun 30, 2004 · Issued Dec 2, 2008 · Sujoy Sen · Intel Corporation

Overview · Related · Discuss

www.google.com/patents/US20120134262

Resilient Data Communications with Physical Layer Link ...

The rapid channel failure detection algorithm inserts the keep-alive packets at a predetermined rate based on network traffic load. The rapid channel failure ...

App. · Filed Nov 28, 2011 · Published May 31, 2012 · Sergio Licardie · Harris Stratex Networks, Inc.

Overview · Related · Discuss

www.google.com/patents/US9143550

Graceful degradation of websocket connections to ...

For instance, during runtime through an API, one can determine a period of time that must elapse for Fast Dormancy to take effect.

Grant · Filed Dec 1, 2012 · Issued Sep 22, 2015 · Giridhar D. Mandyam · Qualcomm Innovation Center, Inc.

Overview · Related · Discuss

www.google.com/patents/US8089872

Efficient load balancing and heartbeat mechanism for ...

... the gatekeepers, based on current load distribution, select the currently least ... If the CS channel is not thereafter established within a selected time interval, upon ... This algorithm requires the primary server/gatekeeper always to initiate the ... a keepalive message failure, the receipt of a message (such as a TCP Finished ...

Grant · Filed Aug 29, 2008 · Issued Jan 3, 2012 · Mehmet C. Balasaygun · Avaya Inc.

Overview · Related · Discuss

www.google.com/patents/US6148410

Fault tolerant recoverable TCP/IP connection router

The TCP-CR forwards TCP/IP connection requests to multiple servers based on ... 2, the keep alive manager (KAM) 210 is in charge of monitoring the peer ...

Grant · Filed Sep 15, 1997 · Issued Nov 14, 2000 · Michael Edward Baskey · International Business Machines Corporation

Overview · Related · Discuss

www.google.com/patents/WO2014183582A1?cl=en

Distributed iptv multi-screen gateway and iptv multi-screen ...

Preferably, the transit server allocated to the set top box is set to: Establishing a transmission control protocol TCP link with the terminal;. Receiving a socket ..

App. · Filed May 7, 2014 · Published Nov 20, 2014 · 季健 · 中兴通讯股份有限公司
Overview · Related · Discuss

www.google.com/patents/US8549152

System and method for TCP/IP offload independent of ...

A TCP connection can be in any one of a plurality of states at a given time. To process the TCP connection, TCP software may be adapted to manage various ...
Grant · Filed Jun 10, 2010 · Issued Oct 1, 2013 · Uri Elzur · Broadcom Corporation
Overview · Related · Discuss

www.google.com/patents/US8788691

Method and apparatus for a client connection manager

A device server may be characterized as a large number of simultaneous connections, however, only a small number may be active at any one time. The present ...
Grant · Filed Nov 11, 2006 · Issued Jul 22, 2014 · Curtis M. Allred · Digi International Inc.
Overview · Related · Discuss

www.google.com/patents/WO2007106548A2?cl=en

System and method of network cryptography

[0033] KEP/HC defines another use for keep-alive datagrams. ... be capable of recovering context allocations that remain unused for a significant period of time.
App. · Filed Mar 15, 2007 · Published Sep 20, 2007 · Anthony C. Fascenda · Koolspan, Inc.
Overview · Related · Discuss

www.google.com/patents/US8572260

Predetermined ports for multi-core architectures

A TCP connection is defined by a source IP address, a destination IP address (fields in the IP header of each packet of the TCP connection), a source TCP port, ...
Grant · Filed Dec 16, 2010 · Issued Oct 29, 2013 · Maksim Pyatkovskiy · Ixia
Overview · Related · Discuss

www.google.com/patents/US20160094467

Application aware multihoming for data traffic acceleration ...

In view of the intensive setup, maintenance and key messaging of the TCP, SSL/TLS and HTTP/HTTPS protocols, these protocols can suffer from significant ...
App. · Filed Sep 25, 2015 · Published Mar 31, 2016 · Se Gi Hong · Hughes Network Systems, Llc
Overview · Related · Discuss

www.google.com/patents/US20140324973

Coordinated resource sharing in machine-to-machine ...

... device fails to transmit a keep-alive message before a timeout period expires, ... a standard Internet protocol suite (e.g., the Transmission Control Protocol (TCP) ... certain IoT devices may be dynamically allocated to ad-hoc IoT device groups ... a certain duration or time period, location, during owner presence, based on ...
App. · Filed Apr 23, 2014 · Published Oct 30, 2014 · Amit Goel · Qualcomm Incorporated
Overview · Related · Discuss

www.google.com/patents/US20150296505

Mobile traffic optimization and coordination and user ...

TCP connections, such as persistent TCP sessions and TCP connection pooling can be ... The proxy server can generate the keep-alive (heartbeat) messages ...
App. · Filed Jun 23, 2015 · Published Oct 15, 2015 · Michael Luna · Seven Networks, Inc.
Overview · Related · Discuss

www.google.com/patents/US7206286

Dynamic DCH allocation methodology for packet data services ...

9 . For the FIT and adaptive algorithms, the inverse of the DCH holding time is precisely the rate at which DCH's are available for new users. The results show that ...
Grant · Filed Jul 24, 2002 · Issued Apr 17, 2007 · Santosh P Abraham · Lucent Technologies Inc.
Overview · Related · Discuss

www.google.com/patents/US8619607

Method and system for verifying logical connection

In adaptive transparent pinging, a ping interval that defines a frequency at which ping ... Moreover, TCP "keep alive" messaging requires use of a specific ...
Grant · Filed Dec 17, 2010 · Issued Dec 31, 2013 · Harold Scott Hooper · Sharp Laboratories Of America, Inc.
Overview · Related · Discuss

www.google.com/patents/US7609847

Network interface device that can transfer control of a TCP ...

In order to keep the system CPU from having to process the packet headers or ... decide to implement the MTU discovery algorithm, which should prevent TCP ... The client will then allocate enough memory for the entire NetBIOS ... In this case we can not rely on a session level protocol to tell us the length of the transaction.
Grant · Filed Jan 4, 2005 · Issued Oct 5, 2010 · Laurence B. Boucher · Alacritech, Inc.
Overview · Related · Discuss

www.google.com/patents/EP2754001A1?cl=en

Wake pattern management

15 depicts a procedure in an example implementation in which a keep alive interval is calculated and used to maintain one or more notification channels.
App. · Filed Oct 10, 2011 · Published Jul 16, 2014 · David G. Thaler · Microsoft Corporation
Overview · Related · Discuss

www.google.com/patents/US9054913

Network protocol proxy

TCP also employs an algorithm that reduces a connection's bandwidth consumption when TCP detects congestion. In the aggregate, when multiple hosts on a ...
Grant · Filed Nov 29, 2010 · Issued Jun 9, 2015 · Michael Franke · Dell Software Inc.
Overview · Related · Discuss

www.google.com/patents/US7174393

TCP/IP offload network interface device

A system for protocol processing in a computer network has a TCP/IP Offload When a message packet or frame is received 47 from a network by the CPD, it is ... The time for categorizing a packet received at this rate and having a length of ... The INIC keeps a local copy of the register whenever it DMAs it to the host i.e. ...
Grant · Filed Mar 12, 2002 · Issued Feb 6, 2007 · Laurence B. Boucher · Alacritech, Inc.
Overview · Related · Discuss

www.google.com/patents/US20120256009

Power-preserving communications architecture with ...

The wireless communication module may be further configured to, in response to identifying a transmission of the second type during a time period in which the ...
App. · Filed May 8, 2012 · Published Oct 11, 2012 · Andrea Mucignat · Nest Labs, Inc.
Overview · Related · Discuss

www.google.com/patents/US20160373406

Tunnelling of Information

34 The method according to claim 32 , wherein the sending of the keepalive UDP datagrams serves solely to prevent the time out of the mapping. 35. The method ...

App. · Filed Sep 2, 2016 · Published Dec 22, 2016 · Tero Kivinen · Ssh Communications Security Oyj
Overview · Related · Discuss

www.google.com/patents/US6330602

Scaleable web server and method of efficiently managing ...

This architecture realizes a good granular scaleability of servers, and improved server throughput with a good response time. Multiple depots also realize ...
Grant · Filed Nov 7, 1997 · Issued Dec 11, 2001 · Eddie Ka Lun Law · Nortel Networks Limited
Overview · Related · Discuss

www.google.com/patents/CN100499477C?cl=en

Flow shaping processing method

When the speech data simultaneous interpretation, cause voice delay time to ...
Token bucket algorithm produces token with constant speed, leaks bucket and can ...
When frame relay burst and traffic shaping applied in any combination,, can take ...
Total byte length behind the burst=(forward rounds (fragmented message ...
Grant · Filed May 13, 2003 · Issued Jun 10, 2009 · 苏祖远 · 华为技术有限公司
Overview · Related · Discuss

www.google.com/patents/US7515525

Cooperative TCP / BGP window management for stateful switchover

Description translated from · make router-to-router decisions with routing algorithms using routing information obtained through exterior routing protocols such as ...
Grant · Filed Sep 22, 2004 · Issued Apr 7, 2009 · Chandrashekhar Appanna · Cisco Technology, Inc.
Overview · Related · Discuss

www.google.com/patents/US20040158640

Transferring control of a TCP connection between devices

Fortunately, TCP performs a Maximum Segment Size negotiation at connection establishment time, which should prevent IP fragmentation in nearly all TCP ...
App. · Filed Apr 30, 2003 · Published Aug 12, 2004 · Clive Philbrick · Philbrick Clive M.
Overview · Related · Discuss

www.google.com/patents/US20080037420

Immediate ready implementation of virtually congestion free ...

Here the uncongested RTTest (ie., a variable of the latest smallest minimum time period for a corresponding returning ACK received so far), is used in place of ...
App. · Filed May 25, 2007 · Published Feb 14, 2008 · Bob Tang · Bob Tang
Overview · Related · Discuss

www.google.com/patents/US8699377

System and method for implementing mesh network ...

... Response back. Node-A expects to get a response back within a time period established by the ... control the time distribution of Keep Alive Requests of ...
Grant · Filed Sep 4, 2009 · Issued Apr 15, 2014 · Michel Veillette · Trilliant Networks, Inc.
Overview · Related · Discuss

www.google.com/patents/US7002929

Wireless access system for allocating and synchronizing ...

According to still another embodiment of the present invention, the frame allocation is determined from the time duration of the longest downlink portion.
Grant · Filed Apr 20, 2001 · Issued Feb 21, 2006 · Paul F. Struhsaker · Raze Technologies, Inc.
Overview · Related · Discuss

www.google.com/patents/WO2013169376A1?cl=en

Handling mtc long drx cycle/sleep lengths

For example, the processor may be configured to determine a long sleep length, a clock drift rate for the WTRU, and a wake-up time. An adjustment window may ...
App. · Filed Mar 14, 2013 · Published Nov 14, 2013 · Ulises Olvera-Hernandez · Interdigital Patent Holdings, Inc.
Overview · Related · Discuss

www.google.com/patents/US6493316

Apparatus for and method of managing bandwidth for a packet ...

If the guaranteed minimum bandwidth is known and the round trip time ... transport system allows the access bandwidth to be dynamically allocated. ... any RTT period and that the connection is not stalled by lost packets but will keep ... C-WND: The size of the congestion window as computed by the existing TCP algorithm.
Grant · Filed Dec 1, 1998 · Issued Dec 10, 2002 · Alan Stanley John Chapman · Nortel Networks Limited
Overview · Related · Discuss

www.google.com/patents/US20050135248

Methods and applications for avoiding slow-start restart in ...

The "slow-start restart" entails contraction of the congestion window if the TCP connection between the client and the network proxy remains idle for a period of ...
App. · Filed Dec 19, 2003 · Published Jun 23, 2005 · Sadhna Ahuja · Nokia Corporation
Overview · Related · Discuss

www.google.com/patents/US20170070941

System and method for implementing mesh network ...

Sleeping End Device--A Sleeping End Device reduces it average power consumption by turning itself off for periods of time. It requires a Parent to store frames ...
App. · Filed Nov 17, 2016 · Published Mar 9, 2017 · Michel Veillette · Trilliant Networks, Inc.
Overview · Related · Discuss

www.google.com/patents/US20040064578

Fast-path apparatus for receiving data corresponding to a ...

The TCP/IP standard includes the lower four layers and application layers, but ... of a least-recently-used register that is employed for allocating cache memory. ... For the 802.3 case, those bytes instead indicate the length of the entire frame, and the ... The total time for processing this packet with the hardware logic 171 and ...
App. · Filed Sep 27, 2002 · Published Apr 1, 2004 · Laurence Boucher · Alacritech, Inc.
Overview · Related · Discuss

www.google.com/patents/US20110122771

Smoothing algorithm for round trip time (rtt) measurements

A smoothing algorithm for round trip time (RTT) measurements is provided to a network device to effectively deal with variations or other potential anomalies that ...
App. · Filed Jan 18, 2011 · Published May 26, 2011 · Prajakta S. Joshi · Brocade Communications Systems, Inc.
Overview · Related · Discuss

www.google.com/patents/US9098279

Methods and systems for data interchange between a ...

It is to be appreciated, however, that "keep-alive priority packet" is not to be construed as limited to TCP "ACK" packets, but rather can refer to any type of ...
Grant · Filed Oct 17, 2011 · Issued Aug 4, 2015 · Andrea Mucignat · Google Inc.
Overview · Related · Discuss

www.google.com/patents/EP2987304A1?cl=en

Distributed load balancer

If a load balancer node 110 has not received a connection publishing message indicating a particular packet flow within a period of time (e.g., ten seconds), then ...

App. · Filed Apr 16, 2014 · Published Feb 24, 2016 · James Christopher SORENSON, III · Amazon Technologies Inc.
Overview · Related · Discuss

www.google.com/patents/US20140006481

Methods for exchanging network management messages using udp ...

According to one embodiment, network access device 102 may delay a short period of time (e.g., 10-50 milliseconds) instead of immediately ...
App. · Filed Jun 29, 2012 · Published Jan 2, 2014 · Clifford A. Frey · Clifford A. Frey
Overview · Related · Discuss

www.google.com/patents/US7027415

Dynamic allocation and de-allocation of multiple ...

When a user terminal turns on, it scans the BCH carrier, a well-known, optionally pre-programmed, RF carrier 306 to find basic frame timing 308 and .
Grant · Filed Mar 20, 2001 · Issued Apr 11, 2006 · Douglas C. Dahlby · Arraycomm, Inc.
Overview · Related · Discuss

www.google.com/patents/US6578066

Distributed load-balancing internet servers

It is not necessary to use DSSP as a "keep-alive" or "hello-are-you-there?" protocol, because the normal periodic Real server health-checking protocol will ...
Grant · Filed Sep 17, 1999 · Issued Jun 10, 2003 · David B. Logan · Alteon Websystems
Overview · Related · Discuss

www.google.com/patents/US9621457

System and method for implementing mesh network ...

12/275,237 entitled "System and Method For Application Layer Time ... a Frame format: Keep Alive Request In accordance with an embodiment of the present ...
Grant · Filed Feb 17, 2014 · Issued Apr 11, 2017 · Michel Veillette · Trilliant Networks, Inc.
Overview · Related · Discuss

www.google.com/patents/US6487596

Adaptive modem connection lifetimes

When this time interval is longer than the preselected threshold, then the ... Intuitively, the answer to this question depends on the duration of the period of time.
Grant · Filed Jun 5, 1999 · Issued Nov 26, 2002 · Frederick Douglis · At&T Corp.
Overview · Related · Discuss

www.google.com/patents/US20060039279

Maintaining communication sessions

Communication occurs between a server and a terminal. The terminal establishes a first communication path with the server via a first allocated address.
App. · Filed Aug 27, 2004 · Published Feb 23, 2006 · Oliver Sturrock · Wecomm Limited
Overview · Related · Discuss

www.google.com/patents/US9277443

Radio-awareness of mobile device for sending server-side ...

In addition, the proxy server uses the various timing intervals to determine when to send keep-alive indications on behalf of mobile devices. The local cache ...
Grant · Filed Dec 7, 2012 · Issued Mar 1, 2016 · Ari Backholm · Seven Networks, Llc
Overview · Related · Discuss

www.google.com/patents/US20100124211

Reducing an occurrence of a voip call on hold from being ...

In block 511, RTCP keep-alive packets are sent over the radio link between AT 102, 112 and the RAN 120. In this embodiment, AT 102 may initiate sending ...

App. · Filed Nov 17, 2008 · Published May 20, 2010 · Ajith Tom Payyappilly · Qualcomm Incorporated
Overview · Related · Discuss

www.google.com/patents/EP2321983A1?cl=en

A system and method for implementing mesh network ...

[0132] Sleeping End Device - A Sleeping End Device reduces it average power consumption by turning itself off for periods of time. It requires a Parent to store ...
App. · Filed Sep 4, 2009 · Published May 18, 2011 · Michel Veillette · Trilliant Networks, Inc.
Overview · Related · Discuss

www.google.com/patents/US7664868

TCP/IP offload network interface device

This happens every time the CPU takes an interrupt from a standard NIC. ... In order to keep the system CPU from having to process the packet headers or ... may decide to implement the MTU discovery algorithm, which should prevent TCP ... a frame, it fills in a descriptor on the transmit queue with the address and length of ...
Grant · Filed Jan 23, 2007 · Issued Feb 16, 2010 · Laurence B. Boucher · Alacritech, Inc.
Overview · Related · Discuss

www.google.com/patents/US7975058

Systems and methods for remote access of network devices ...

The appropriate period between sending UDP Keep-Alive messages depends on the behavior of the NAT function in gateway 106. The appropriate period may ...
Grant · Filed Jan 31, 2006 · Issued Jul 5, 2011 · Anton Okmianski · Cisco Technology, Inc.
Overview · Related · Discuss

www.google.com/patents/US20030123481

Enhancements for TCP performance enhancing proxies

The invention eliminates the conventional TCP 3-way handshake and other associated time-delay procedures and replaces them with an ...
App. · Filed Nov 13, 2002 · Published Jul 3, 2003 · Jason Neale · Ems Technologies, Inc.
Overview · Related · Discuss

www.google.com/patents/US20080293413

System and Method of Registering with an Access Point

However, use of TCP/IP over wireless networks may be problematic. ... During the time the user is waiting for a response the uplink will be allocated to another ...
App. · Filed Jun 6, 2006 · Published Nov 27, 2008 · Seyed M. Sharif-Ahmadi · Mobidia, Inc.
Overview · Related · Discuss

www.google.com/patents/US20120327779

Systems and methods for congestion detection for use in ...

During periods of congestion, network devices must decide which data ... A scheduling algorithm can also use this information to decide which queues (and ...
App. · Filed Sep 7, 2012 · Published Dec 27, 2012 · David Geil · Cygnus Broadband, Inc.
Overview · Related · Discuss

www.google.com/patents/US8819187

End-to-end acceleration of dynamic content

1 , a block diagram of an embodiment of a content distribution system 100 is shown. ... with the CDN 110 through a cache, hosting, and/or pre-population algorithms. ... Adding to this latency is a congestion control strategy used by TCP ... backend POP 816 will stay alive for a predetermined amount of time, ...
Grant · Filed Oct 29, 2013 · Issued Aug 26, 2014 · Jason Hofmann · Limelight Networks, Inc.

Overview · Related · Discuss

www.google.com/patents/US7257731

System and method for managing protocol network failures in ...

However, the invention is not so limited, and virtually any period of time may be ... The interval between "master keepalive" messages is determined and ...
Grant · Filed Dec 23, 2003 · Issued Aug 14, 2007 · Peter Frederick Hunt · Nokia Inc.
Overview · Related · Discuss

www.google.com/patents/US8654681

Systems and methods for implementing multi-topology support ...

System and method for support multiple topology in Label Distribution Protocol of Multi-Protocol Label Switching (MPLS) network are disclosed. The system ...
Grant · Filed Jul 10, 2012 · Issued Feb 18, 2014 · Huaimo Chen · Futurewei Technologies, Inc.
Overview · Related · Discuss

www.google.com/patents/US6967927

Method of transmitting data flows over an ATM network and ...

The same will apply equally at the time when the TCP connection is ... If the ACK segment has not arrived by the end of the timed period, it returns a SYN ...
Grant · Filed Nov 21, 2000 · Issued Nov 22, 2005 · Olivier Dugeon · France Telecom
Overview · Related · Discuss

www.google.com/patents/EP0991244A2?cl=en

Apparatus for and method of managing bandwith for a packet ...

If the guaranteed minimum bandwidth is known and the round trip time ... in that a defined minimum bandwidth can be allocated between any pair of nodes. ... in any RTT period and that the connection is not stalled by lost packets but will keep ... Figures 11 to 14 show unmodified TCP algorithm and the overlay methods of ...
App. · Filed Sep 28, 1999 · Published Apr 5, 2000 · Alan Stanley John Chapman · Nortel Networks Corporation
Overview · Related · Discuss

www.google.com/patents/US8422370

Reducing retransmission of out of order packets

In turn, the transmitter may retransmit a packet if it does not receive an ACK for the packet within a certain period of time (a retransmission timeout interval or ...
Grant · Filed Jun 27, 2008 · Issued Apr 16, 2013 · Jos M. Accapadi · International Business Machines Corporation
Overview · Related · Discuss

www.google.com/patents/US7957268

Cooperative TCP / BGP window management for stateful switchover

Rather than the BGP message data of the sent TCP packet, the dummy packet includes a safe BGP message data, such as a KEEPALIVE or WITHDRAW ...
Grant · Filed Apr 6, 2009 · Issued Jun 7, 2011 · Chandrashekhar Appanna · Cisco Technology, Inc.
Overview · Related · Discuss

www.google.com/patents/US9294943

Resilient data communications with physical layer link ...

Since keep-alive packets are only inserted when the channel is idle the amount ... algorithm can be adjusted according to the different capacities allocated to the ...
Grant · Filed May 19, 2014 · Issued Mar 22, 2016 · Sergio Licardie · Harris Stratex Networks, Inc.
Overview · Related · Discuss

www.google.com/patents/US20040111523

Tcp/udp acceleration

NCM determines it is time to bring all the members of the current server set to a checkpoint. [0872]. [0872]. Figure US20040111523A1-20040610-P00001.
App. · Filed Nov 2, 2001 · Published Jun 10, 2004 · Howard Hall · Howard Hall
Overview · Related · Discuss

www.google.com/patents/EP1724684A1?cl=en

System and method for task scheduling, signal analysis and ...

... and a wireless sensor network device integrating all of said, wherein the method comprises : acquiring one or more ECG signals over a period of time; filtering ...
App. · Filed May 17, 2005 · Published Nov 22, 2006 · Julien Coudon · BUSI Incubateur d'entreprises d'AUVEFGNE
Overview · Related · Discuss

www.google.com/patents/US9191702

Data requesting and transmitting devices and processes

In an advantageous embodiment, the time limit for triggering the alarm is given by the expected period time increased by a duration depending on the ...
Grant · Filed Apr 19, 2004 · Issued Nov 17, 2015 · Gilles Gallou · Thomson Licensing
Overview · Related · Discuss

www.google.com/patents/US20150095739

Method & implementation for network coefficents selection

A method and apparatus that improves the performance of TCP (and other protocols) in a data network by implementing segmenting the TCP path and ...
App. · Filed Nov 11, 2014 · Published Apr 2, 2015 · Igor Zhovnirnovsky · Igor Zhovnirnovsky
Overview · Related · Discuss

www.google.com/patents/US8627127

Power-preserving communications architecture with ...

If no messages need to otherwise be sent to the thermostats 110/112 within the long-polling time interval, the protocol stack sends one or more "keep-alive" ...
Grant · Filed Jun 22, 2012 · Issued Jan 7, 2014 · Andrea Mucignat · Nest Labs, Inc.
Overview · Related · Discuss

www.google.com/patents/EP1464152B1?cl=en

Distributed computer system with acknowledgement accumulation

The keep-alive exchange sent by ODP element 220 performs data synchronization with the remote peer exchanging current sequence number and window ...
Grant · Filed Oct 8, 2002 · Issued May 9, 2007 · Margaret Ann Magnotta · Unisys Corporation
Overview · Related · Discuss

www.google.com/patents/US20020075857

Jitter buffer and lost-frame-recovery interworking

A loss rate at which data elements in the data stream are not received by their respective playout deadlines is monitored. A time interval extending from the time ...
App. · Filed Feb 15, 2002 · Published Jun 20, 2002 · Wilfrid LeBlanc · Leblanc Wilfrid
Overview · Related · Discuss

www.google.com/patents/US6434620

TCP/IP offload network interface device

The device provides a fast-path that avoids protocol processing for most messages, greatly accelerating data transfer and offloading time-intensive processing ...
Grant · Filed Aug 27, 1999 · Issued Aug 13, 2002 · Laurence B. Boucher · Alacritech, Inc.
Overview · Related · Discuss

www.google.com/patents/US8812695

Method and system for management of a virtual network ...

Many applications employ scheduled interval polling (e.g., every 4 hours or every 30 seconds, at another time interval). The client side proxy can detect ...
Grant · Filed Apr 3, 2013 · Issued Aug 19, 2014 · Michael Luna · Seven Networks, Inc.
Overview · Related · Discuss

www.google.com/patents/US7783880

Method and apparatus for secure internet protocol (IPSEC) ...

... message digest calculation, TCP segmentation, TCP retransmission and acknowledgment (ACK) processing, packet filtering to guard against denial of service ...
Grant · Filed Jan 14, 2005 · Issued Aug 24, 2010 · James T. Pinkerton · Microsoft Corporation
Overview · Related · Discuss

www.google.com/patents/US6876657

System and method for router packet control and ordering

An algorithm in processing block 101 determines whether an input packet has ... (either regular packet or keep-alive) within a programmable period of time, then ...
Grant · Filed Dec 14, 2000 · Issued Apr 5, 2005 · Tony M. Brewer · Chiaro Networks, Ltd.
Overview · Related · Discuss

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Confirmation No.: 9756
Robert Paul Morris	Examiner: Syed ALI
Application No.: 17/079,397	Art Unit: 2468
File Date: 2020-10-23	Docket No.: PMOR0120K
Title: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION	Date: Jan 27, 2021

EXAMINER INTERVIEW

Date of Interview	Dec 10, 2020; Dec 24, 2020; Jan 22, 2021
Type of Interview	Telephonic, Email
Name of Participants	Patrick Caldwell, Syed ALI
Exhibit shown?	Appendix A
Claims Discussed	Independent Claims
Prior Art Discussed	n/a
Substance of Interview	Reviewed proposed amendments with Examiner.
Agreement Reached?	Yes

APPENDIX A

For Filing

From: Patrick E. Caldwell <pcaldwell@thecaldwellfirm.com>
Sent: Thursday, December 10, 2020 1:51 PM
To: syed.ali@uspto.gov
Subject: 17/079,397 PMOR0120K Proposed Amendment
Attachments: PMOR0120K_Proposed Amendment_202012009.rtf

Examiner Syed,

Please consider the attached proposed amendment, which may be entered in exchange for an allowance.

--

Thanks,
Patrick

Patrick E. Caldwell, Esq.
The Caldwell Firm, LLC
PO Box 59655
Dallas, Texas 75229-0655
+1.214.734.2313 (mobile)
http://www.thecaldwellfirm.com/

APPENDIX A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Confirmation No.: 9756
Robert Paul Morris	Examiner: ALI, SYED
Application No.: 17/079,397	Art Unit: 2468
File Date: 10-23-2020	Docket No.: PMOR0120K
Title: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION (amended)	Date: December 09, 2020

PROPOSED AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

APPENDIX A

Preliminary Amendment

Amendments to the Title:

Please amend the Title as follows:

METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A ~~AN IDLE TCP~~ CONNECTION

Preliminary Amendment

Amendments to the Specification:

Please amend the Summary as follows on Page 12 of the Specification:

node is received by the first node. The system includes the packet generator component configured for generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. The system still further includes the net out-port component configured for sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node. The system includes the idle time period monitor component configured for detecting the first idle time period based on the first idle information. The system includes the connection state component configured for deactivating the TCP connection in response to detecting the first idle time period. In various embodiments, a method, apparatus, and computer program product are provided to: identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based; allocate a first resource for a first connection (e.g. a non-TCP connection, a TCP-variant connection, not a Transmission Control Protocol connection, etc.); generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period; set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period; in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; and in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection.

Preliminary Amendment

Amendments to the Abstract:

Please amend the Abstract as follows:

~~A computer-implemented method is provided, comprising causing access to be provided, to a client computer, to code that causes the client computer to operate in accordance with a protocol that is separate from TCP, in order to establish a protocol connection with another server computer, by: receiving a packet, detecting an idle time period parameter field in the packet, identifying metadata in the idle time period parameter field for an idle time period, where, after the idle time period is detected, the second protocol connection is deemed inactive, and creating or modifying, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.~~ In various embodiments, a method, apparatus, and computer program product are provided to: identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based; allocate a first resource for a first connection (e.g. a non-TCP connection, a TCP-variant connection, not a Transmission Control Protocol connection, etc.); generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period; set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period; in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; and in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection.

Amendments to the Claims:

The listing of amended claims follow:

1.-20. (Cancelled)

21. (New) An apparatus, comprising:

a non-transitory memory storing instructions; and

one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the

first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection; and

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection.

22. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is not negotiated between the first and second nodes during the first non-TCP connection set up, and the second duration is negotiated between the first and second nodes for the first non-TCP connection.

23. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first time period is only capable of being detected during the first non-TCP connection set up.

24. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the second time period is capable of being detected during the first non-TCP connection set up and thereafter during the first non-TCP connection.

25. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is exclusively used for detecting the first type of time period until being changed to the second duration.

26. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting, by the first node, a third time period during which no acknowledgement packet is received in the first non-TCP connection for a sent packet sent in the first non-TCP connection: at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection.

27. (New) The apparatus of Claim 26, wherein the apparatus is configured such that the first non-TCP packet also includes data for use in determining the third time period.

28. (New) The apparatus of Claim 26, wherein the apparatus is configured such that the third time period is detected independent of the detection of the first and second time periods.

29. (New) The apparatus of Claim 26, wherein the apparatus is configured such that the first duration is not negotiated between the first and second nodes during the first non-TCP connection set up, the second duration is negotiated between the first and second nodes for the first non-TCP connection, and a third duration of the third time period is negotiated between the first and second nodes for the first non-TCP connection.

30. (New) The apparatus of Claim 26, wherein the apparatus is configured such that the third time period is an acknowledgment timeout period.

31. (New) The apparatus of Claim 26, wherein the apparatus is configured such that the third time period is a second type of time period.

32. (New) The apparatus of Claim 26, wherein the apparatus is configured such that the third time period has a third duration determined using the first parameter field identifying the first metadata.

33. (New) The apparatus of Claim 32, wherein the apparatus is configured such that the third duration is determined based on the second duration.

34. (New) The apparatus of Claim 32, wherein the apparatus is configured such that the second duration is determined based on the third duration.

35. (New) The apparatus of Claim 32, wherein the apparatus is configured such that the third duration is different from the second duration.

36. (New) The apparatus of Claim 32, wherein the apparatus is configured such that the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm.

37. (New) The apparatus of Claim 26, wherein the apparatus is configured such that the third time period has a third duration determined using a second parameter field identifying second metadata.

38. (New) The apparatus of Claim 37, wherein the apparatus is configured such that the second time period is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

39. (New) The apparatus of Claim 38, wherein the apparatus is configured such that the third duration is determined based on the second duration.

40. (New) The apparatus of Claim 38, wherein the apparatus is configured such that the second duration is determined based on the third duration.

41. (New) The apparatus of Claim 38, wherein the apparatus is configured such that the third duration is different from the second duration.

42. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting, by the first node, a third time period: at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection.

43. (New) The apparatus of Claim 42, wherein the apparatus is configured such that the third time period is detected only in response to no acknowledgement packet being received in the first non-TCP connection for a sent packet sent in the first non-TCP connection.

44. (New) The apparatus of Claim 43, wherein the apparatus is configured to, in response to detecting the third time period of the first type of time period, unilaterally at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, without signaling the second node in relation to the detection of the third time period after detecting the third time period.

45. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first non-TCP connection set up further includes, in addition to (a-1) sending the first non-TCP packet:

(a-2) after sending the first non-TCP packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second non-TCP packet, and

(a-3) after receiving the second non-TCP packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third non-TCP packet.

46. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first type of time period includes an idle time period.

47. (New) The apparatus of Claim 21, wherein the apparatus is configured such that only one of the first time period or the second time period is detected for the first non-TCP connection.

48. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether another non-TCP packet is not received for the first non-TCP connection set up for the first duration.

49. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received in the first non-TCP connection for the second duration.

50. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received in the first non-TCP connection nor is expected to be received for the second duration.

51. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting the first time period of the first type of time period, unilaterally at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, without signaling the second node in relation to the detection of the first time period after detecting the first time period.

52. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the second duration is capable of being different from the first duration.

53. (New) The apparatus of Claim 52, wherein the apparatus is configured such that the second duration is different from the first duration.

54. (New) The apparatus of Claim 52, wherein the apparatus is configured such that the second duration is the same as the first duration, despite being capable of being different from the first duration.

55. (New) The apparatus of Claim 21, wherein the apparatus is configured such that:

the first non-TCP packet is not a synchronize (SYN) packet;

the first non-TCP connection is not a TCP extension connection that involves a TCP extension; and

the first type of time period does not include a user timeout period.

56. (New) The apparatus of Claim 21, wherein the apparatus is configured such that an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

57. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first type of time period is started in response to at least one of a received packet or a sent packet.

58. (New) The apparatus of Claim 57, wherein the apparatus is configured such that the first type of time period is started in response to the received packet.

59. (New) The apparatus of Claim 57, wherein the apparatus is configured such that the first type of time period is started in response to the sent packet.

60. (New) The apparatus of Claim 57, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no non-empty packet is received for the second duration after the second time period of the first type of time period is started.

61. (New) The apparatus of Claim 60, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

62. (New) The apparatus of Claim 57, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received for the second duration after the second time period of the first type of time period is started.

63. (New) The apparatus of Claim 62, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

64. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no non-empty packet is received for the second duration.

65. (New) The apparatus of Claim 64, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

66. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received for the second duration.

67. (New) The apparatus of Claim 66, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

68. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no non-empty packet is received for the second duration.

69. (New) The apparatus of Claim 68, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

70. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no packet is received for the second duration.

71. (New) The apparatus of Claim 70, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

72. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, during the at least portion of the first non-TCP connection including the at least portion of the first

non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether no packet is received nor sent for the first duration.

73. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is not negotiated between the first and second nodes for the first non-TCP connection, and the second duration is negotiated between the first and second nodes for the first non-TCP connection.

74. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting, by the first node, a third time period that is a second type of time period including an acknowledgment timeout period during which no acknowledgement packet is received in the first non-TCP connection for a sent packet sent in the first non-TCP connection: unilaterally at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, wherein:

the first non-TCP connection set up further includes, in addition to (a-1) sending the first non-TCP packet that is also for use in determining a third duration of the third time period:

(a-2) after sending the first non-TCP packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second non-TCP packet, and

(a-3) after receiving the second non-TCP packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third non-TCP packet, and further wherein:

the first duration, the second duration, and the third duration are capable of being of different durations;

the second time period and the third time period are capable of being detected during the first non-TCP connection set up and thereafter during the first non-TCP connection; and

the first time period and the second time period are started in response to at least one of a received packet or a sent packet; and during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether no packet is received during the first duration; and after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no packet is received during the second duration; where only one of the first time period, the second time period, or the third time period is detected for the first non-TCP connection.

75. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the third duration is determined based on the second duration, or the third duration is determined based on the second duration.

76. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the first type of time period is started in response to the received packet.

77. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the first type of time period is started in response to the sent packet.

78. (New) The apparatus of Claim 74, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

79. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the third duration is determined using the first parameter field identifying the first metadata.

80. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the third duration is determined using a second parameter field identifying second metadata.

81. (New) The apparatus of Claim 80, wherein the apparatus is configured such that the second duration is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

82. (New) The apparatus of Claim 74, wherein the apparatus is configured such that:

the first non-TCP packet is not a synchronize (SYN) packet;

the first non-TCP connection is not a TCP extension connection that involves a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first non-TCP connection set up;

the first duration is not negotiated between the first and second nodes for the first non-TCP connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first non-TCP connection using at least one of (a-1), (a-2), or (a-3);

the first duration is exclusively used for detecting the first type of time period until being changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected only in response to no acknowledgement packet being received in the first non-TCP connection during the third duration for a sent packet sent in the first non-TCP connection;

during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether any non-TCP packet is received or sent for the first non-TCP connection set up during the first duration;

after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received or sent nor is expected to be received or sent in the first non-TCP connection during the second duration; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

83. (New) The apparatus of Claim 82, wherein the apparatus is configured such that:

the third time period is detected independent of the detection of the first and second time periods; and

the second duration is the same as the first duration, despite being capable of being different from the first duration.

84. (New) The apparatus of Claim 33, wherein the apparatus is configured such that at least one of:

the apparatus is at least one component of the second node;

the second node is at least one component of the apparatus;

the second node includes a device, including a network interface, that is a component of the apparatus;

the second node includes a network interface that is a component of the apparatus;

the apparatus includes a web server;

the first parameter field is part of a data portion in the first non-TCP packet;

the first parameter field is part of a header of the first non-TCP packet;

the first non-TCP packet is informational;

the non-TCP includes one or more features of TCP, and one or more features not of TCP;

the first non-TCP packet includes one or more features of a TCP packet, and one or more features not of a TCP packet;

the first non-TCP connection includes one or more features of a TCP connection, and one or more features not of a TCP connection;

identify includes receive;

the first information includes first idle information;

the first information does not include first idle information;

the first information is received based on a previous header;

the first information is not based on a previous header;

the first duration for detecting the first type of time period is based on the first information, by the first information identifying the first duration;

the first duration for detecting the first type of time period is based on the first information, by the first information specifying the first duration;

the first duration for detecting the first type of time period is based on the first information, by the first information identifying at least one generator for generating the first duration;

only the first duration for detecting the first type of time period is based on the first information;

the first non-TCP connection includes (a-1), (a-2), and (a-3);
the second duration of the second time period is different from the duration of the first time period;
the second duration of the second time period is the same as the duration of the first time period;
a third duration of the third time period is different from the duration of the first time period;
the third duration of the third time period is the same as the duration of the first time period;
the third duration of the third time period is different from the duration of the second time period;
the third duration of the third time period is the same as the duration of the second time period;
the first non-TCP packet also includes data for use in determining the first time period;
the first idle information includes a first value representative of the first duration of the first time period, and a second value representative of the second duration of the second time period;
the first idle information includes a first value representative of the first duration of the first time period, and identification of a generator for generating a second value representative of the second duration of the second time period;
the first idle information includes identification of a generator for generating a first value representative of the first duration of the first time period, and for generating a second value representative of the second duration of the second time period;
the first idle information includes identification of a first generator for generating a first value representative of the first duration of the first time period, and identification of a second generator for generating a second value representative of the second duration of the second time period;
the first time period is detected in a first use scenario without the second nor third time periods being detected, the second time period is detected in a second use scenario without the first nor third time periods being detected, the third time period is detected in a third use scenario

without the first nor second time periods being detected, and neither the first, second, nor third time periods are detected in a fourth use scenario;

the first duration of the first time period is determined based on the first idle information, after identifying the first idle information;

the first duration of the first time period is determined based on the first idle information, before setting up the first non-TCP connection;

the first duration of the first time period is determined based on the first idle information, during setting up the first non-TCP connection;

the first duration of the first time period is determined based on the first idle information, after setting up the first non-TCP connection;

the first time period is triggered by one or more non-duration-related criteria that triggers the second time period;

the first time period is triggered by the same one or more non-duration-related criteria that triggers the second time period;

the first time period is triggered by different one or more non-duration-related criteria than that which triggers the second time period;

the first time period is that during which no packet is received in the first non-TCP connection nor expected to be received;

the third time period is triggered by one or more non-duration-related criteria that triggers the second time period;

the third time period is triggered by the same one or more non-duration-related criteria that triggers the second time period;

the third time period is triggered by different one or more non-duration-related criteria than that which triggers the second time period;

the third time period is that during which no packet is received in the first non-TCP connection nor expected to be received;

the first metadata is based on the first idle information;

the change occurs while detection of the first time period is attempted;

the change occurs via a negotiation;

the second time period is a changed version of the first time period;

the second time period is a changed instance of the first time period;

the second time period is determined based on the first idle information;

the first duration of the first time period is negotiated between the first and second nodes for the first non-TCP connection, during the first non-TCP connection set up;

the first non-TCP connection set up includes all communications that precede completion of the first non-TCP connection set up;

the duration of the second time period is determined based on the first idle information;

the duration of the third time period is determined based on the first idle information;

the first and second time periods are of a same duration;

the first and second time periods are of a different duration;

the first and second time periods are different instances of the same type of time period;

the first and second time periods are of the same type of time period, but are applied at different times during the first non-TCP connection;

the first duration of the first time period is determined by being negotiated;

the second duration of the second time period is determined by being negotiated;

the third duration of the third time period is determined by being negotiated;

the first metadata is also for use in determining the second duration of the second time period;

the first metadata is not for use in determining the second duration of the second time period;

the first metadata is also for use in determining the third duration of the third time period;

the first metadata is not for use in determining the third duration of the third time period;

the first metadata describes a definition of at least one duration;

the first metadata describes a definition of at least one time period;

the first metadata describes other data that defines at least one duration;

the first metadata describes other data that defines at least one time period;

the first metadata describes other criteria-related data that defines at least one time period;

the first metadata describes duration data that defines at least one time period;

the first metadata describes duration criteria-related data that defines at least one time period;

the at least portion of the first non-TCP connection includes only a subset of setting up the first non-TCP connection;

the at least portion of the first non-TCP connection includes an entirety of setting up the first non-TCP connection;

the at least portion of the first non-TCP connection set up includes one or more packet exchanges that occur after the first non-TCP packet is sent;

the at least portion of the first non-TCP connection set up includes one or more packet exchanges that occur after the first non-TCP packet is sent prior to completion of the first non-TCP connection set up;

the first resource is released by the first node, by being released only by the first node;

the first resource is released by the first node, by being released by the first node and at least one other node;

the first resource is allocated for maintaining the first non-TCP connection;

the first resource is allocated for activating the first non-TCP connection;

the first resource includes a storage resource;

the first resource includes a network resource;

the first resource includes a processor resource;

the first, the second, and third non-TCP packets are non-TCP by not being required by any TCP standard specification;

the first time period is detected based on the first duration, by being detected when packet activity or a lack thereof meets one or more criteria for a span of the first duration;

the second time period is detected based on the second duration, by being detected when packet activity or a lack thereof meets one or more criteria for a span of the second duration;

the first type of time period includes an idle time period type;

the first and second time periods of the first type of time period differ only in duration;

the first and second time periods of the first type of time period are capable of differing in duration, but may have a same duration;

the first and second time periods of the first type of time period are capable of differing only in duration, but may have a same duration;

the first and second time periods of the first type of time period differ in duration and at least one criteria involving packet activity or a lack thereof over a duration span;
the first and second time periods of the first type of time period are capable of differing in duration and further differ in at least one criteria involving packet activity or a lack thereof over a duration span;
the first non-TCP packet includes a portion of data sent at any layer;
the first non-TCP packet includes a frame;
the first non-TCP packet is a non-TCP frame;
non-TCP refers to not being required by any TCP standard specification;
non-TCP refers to not being required by any TCP current specification;
non-TCP refers to not being required in a particular context by any TCP standard specification; or
non-TCP refers to not being required in a particular context by any TCP current specification.

85. (New) A non-transitory computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which when executed by a first node, cause the first node to:

receive first information on which at least a first duration for detecting a first type of time period is based;

identify a first resource for a first connection, where the first connection does not utilize Transmission Control Protocol (TCP);

generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource for the first connection; and

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource for the first connection.

86. (New) The non-transitory computer readable storage medium of Claim 85, wherein the instructions, when executed by the first node, cause the first node to:

in response to detecting, by the first node, a third time period that is a second type of time period including an acknowledgment timeout period during which no acknowledgement packet is received in the first connection for a sent packet sent in the first connection: release, by the first node, the first resource for the first connection, wherein:

the first time period and the second time period are started in response to at least one of a received packet or a sent packet; and during the at least portion of the first connection including the at least portion of the first connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether no packet is received during the first duration after the first time period is started; and based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on

whether no packet is received during the second duration after the second time period is started.

87. (New) The non-transitory computer readable storage medium of Claim 86, wherein the first connection set up further includes, in addition to (a-1) sending the first packet that is also for use in determining a third duration of the third time period:

(a-2) after sending the first packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second packet, and

(a-3) after receiving the second packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third packet, and further wherein:

the first duration, the second duration, and the third duration are capable of being of different durations;

the second time period and the third time period are capable of being detected during the first connection set up and thereafter during the first connection;

the first packet is not a synchronize (SYN) packet;

the first connection does not utilize a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first connection set up;

the first duration is not negotiated between the first and second nodes for the first connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first connection using at least one of (a-1), (a-2), or (a-3);

the first duration is exclusively used for detecting the first type of time period until being changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected only in response to no acknowledgement packet being received in the first connection during the third duration for a sent packet sent in the first connection;

during the at least portion of the first connection including the at least portion of the first connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether any packet is received or sent for the first connection set up during the first duration;

based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received or sent nor is expected to be received or sent in the first connection during the second duration; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

88. (New) A method, comprising:

at at least a portion of a first node:

identifying first information on which at least a first duration for detecting a first type of time period is based;

allocating a first resource for a first Transmission Control Protocol (TCP)-variant connection;

generating a first TCP-variant packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

setting up the first TCP-variant connection, by sending, from the first node to a second node, the first TCP-variant packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

based on detecting, by the first node and during at least a portion of the first TCP-variant connection including at least a portion of the first TCP-variant connection set up, a first duration-based first time period of the first type of time period, at least partially closing the first TCP-variant connection, by releasing the first resource allocated for the first TCP-variant connection; and

based on detecting, by the first node and based on the first duration being changed to the second duration, a second duration-based second time period of the first type of time period, at least partially closing the first TCP-variant connection, by releasing the first resource allocated for the first TCP-variant connection.

89. (New) The method of Claim 88, wherein the first duration is not negotiated between the first and second nodes during the first TCP-variant connection set up, and the second duration is negotiated between the first and second nodes for the first TCP-variant connection.

90. (New) The method of Claim 88, wherein the first time period is only capable of being detected during the first TCP-variant connection set up.

91. (New) The method of Claim 88, wherein the second time period is capable of being detected during the first TCP-variant connection set up and thereafter during the first TCP-variant connection.

92. (New) The method of Claim 88, wherein the first duration is exclusively used for detecting the first type of time period until being changed to the second duration.

93. (New) The method of Claim 88, and further comprising:

based on detecting, by the first node, a third time period during which no acknowledgement packet is received in the first TCP-variant connection for a sent packet sent in the first TCP-variant connection: at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection.

94. (New) The method of Claim 93, wherein the first TCP-variant packet also includes data for use in determining the third time period.

95. (New) The method of Claim 93, wherein the third time period is detected independent of the detection of the first and second time periods.

96. (New) The method of Claim 93, wherein the first duration is not negotiated between the first and second nodes during the first TCP-variant connection set up, the second duration is negotiated between the first and second nodes for the first TCP-variant connection, and a third duration of the third time period is negotiated between the first and second nodes for the first TCP-variant connection.

97. (New) The method of Claim 93, wherein the third time period is an acknowledgment timeout period.

98. (New) The method of Claim 93, wherein the third time period is a second type of time period.

99. (New) The method of Claim 93, wherein the third time period has a third duration determined using the first TCP-variant packet.

100. (New) The method of Claim 99, wherein the third duration is determined based on the second duration.

101. (New) The method of Claim 99, wherein the second duration is determined based on the third duration.

102. (New) The method of Claim 99, wherein the third duration is different from the second duration.

103. (New) The method of Claim 99, wherein the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm.

104. (New) The method of Claim 93, wherein the third time period has a third duration determined using a second parameter field identifying second metadata.

105. (New) The method of Claim 104, wherein the second time period is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

106. (New) The method of Claim 105, wherein the third duration is determined based on the second duration.

107. (New) The method of Claim 105, wherein the second duration is determined based on the third duration.

108. (New) The method of Claim 105, wherein the third duration is different from the second duration.

109. (New) The method of Claim 88, and further comprising:

based on detecting, by the first node, a third time period: at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection.

110. (New) The method of Claim 109, wherein the third time period is detected based on first TCP-variant connection traffic-related criteria that only involves no acknowledgement packet being received in the first TCP-variant connection for a sent packet sent in the first TCP-variant connection.

111. (New) The method of Claim 110, and further comprising:

based on detecting the third time period of the first type of time period, unilaterally at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection, without signaling the second node in relation to the detection of the third time period based on detecting the third time period.

112. (New) The method of Claim 88, wherein the first TCP-variant connection set up further includes, in addition to (a-1) sending the first TCP-variant packet:

(a-2) after sending the first TCP-variant packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second TCP-variant packet, and

(a-3) after receiving the second TCP-variant packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third TCP-variant packet.

113. (New) The method of Claim 88, wherein the first type of time period includes an idle time period.

114. (New) The method of Claim 88, wherein only one of the first time period or the second time period is detected for the first TCP-variant connection.

115. (New) The method of Claim 88, wherein, during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether another TCP-variant packet is not received for the first TCP-variant connection set up for the first duration.

116. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is

based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no packet is received in the first TCP-variant connection for the second duration.

117. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no packet is received in the first TCP-variant connection nor is expected to be received for the second duration.

118. (New) The method of Claim 88, and further comprising:

based on detecting the first time period of the first type of time period, unilaterally at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection, without signaling the second node in relation to the detection of the first time period based on detecting the first time period.

119. (New) The method of Claim 88, wherein the second duration is capable of being different from the first duration.

120. (New) The method of Claim 119, wherein the second duration is different from the first duration.

121. (New) The method of Claim 119, wherein the second duration is the same as the first duration, despite being capable of being different from the first duration.

122. (New) The method of Claim 88, wherein:

the first TCP-variant packet is not a synchronize (SYN) packet;

the first TCP-variant connection is not a TCP extension connection that involves a TCP extension; and

the first type of time period does not include a user timeout period.

123. (New) The method of Claim 88, wherein an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

124. (New) The method of Claim 88, wherein the first type of time period is started based on at least one of a received packet or a sent packet.

125. (New) The method of Claim 124, wherein the first type of time period is started based on the received packet.

126. (New) The method of Claim 124, wherein the first type of time period is started based on the sent packet.

127. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no non-empty packet is received for the second duration.

128. (New) The method of Claim 127, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

129. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is

based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no packet is received for the second duration.

130. (New) The method of Claim 129, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

131. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no non-empty packet is received for the second duration.

132. (New) The method of Claim 131, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

133. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no packet is received for the second duration.

134. (New) The method of Claim 133, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

135. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no non-empty packet is received for the second duration.

136. (New) The method of Claim 135, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

137. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no packet is received for the second duration.

138. (New) The method of Claim 137, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

139. (New) The method of Claim 88, wherein, during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether no packet is received nor sent for the first duration.

140. (New) The method of Claim 88, wherein the first duration is not negotiated between the first and second nodes for the first TCP-variant connection, and the second duration is negotiated between the first and second nodes for the first TCP-variant connection.

141. (New) The method of Claim 88, and further comprising:

based on detecting, by the first node, a third time period that is a second type of time period including an acknowledgment timeout period during which no acknowledgement packet is received in the first TCP-variant connection for a sent packet sent in the first TCP-variant

connection: unilaterally at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection, wherein:

the first TCP-variant connection set up further includes, in addition to (a-1) sending the first TCP-variant packet that is also for use in determining a third duration of the third time period:

(a-2) after sending the first TCP-variant packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second TCP-variant packet, and

(a-3) after receiving the second TCP-variant packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third TCP-variant packet, and further wherein:

the first duration, the second duration, and the third duration are capable of being of different durations;

the second time period and the third time period are capable of being detected during the first TCP-variant connection set up and thereafter during the first TCP-variant connection; and

the first time period and the second time period are started based on at least one of a received packet or a sent packet; and during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether no packet is received during the first duration; and based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no

packet is received during the second duration; where only one of the first time period, the second time period, or the third time period is detected for the first TCP-variant connection.

142. (New) The method of Claim 141, wherein the third duration is determined based on the second duration, or the third duration is determined based on the second duration.

143. (New) The method of Claim 141, wherein the first type of time period is started based on the received packet.

144. (New) The method of Claim 141, wherein the first type of time period is started based on the sent packet.

145. (New) The method of Claim 141, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

146. (New) The method of Claim 141, wherein the third duration is determined using the first parameter field identifying the first metadata.

147. (New) The method of Claim 141, wherein the third duration is determined using a second parameter field identifying second metadata.

148. (New) The method of Claim 147, wherein the second duration is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

149. (New) The method of Claim 141, wherein:

the first TCP-variant packet is not a synchronize (SYN) packet;

the first TCP-variant connection is not a TCP extension connection that involves a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first TCP-variant connection set up;

the first duration is not negotiated between the first and second nodes for the first TCP-variant connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first TCP-variant connection using at least one of (a-1), (a-2), or (a-3);

the first duration is exclusively used for detecting the first type of time period until being changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected based on first TCP-variant connection traffic-related criteria that only involves no acknowledgement packet being received in the first TCP-variant connection during the third duration for a sent packet sent in the first TCP-variant connection;

during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on first TCP-variant

connection traffic-related criteria that only involves whether any TCP-variant packet is received for the first TCP-variant connection set up during the first duration;

based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no packet is received nor is expected to be received in the first TCP-variant connection during the second duration; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

150. (New) The method of Claim 149, wherein the third time period is detected independent of the detection of the first and second time periods.

151. (New) The method of Claim 149, wherein the second duration is the same as the first duration, despite being capable of being different from the first duration.

152. (New) An apparatus, comprising:

a non-transitory memory means for storing instructions means; and

one or more processors means in communication with the non-transitory memory means, wherein the one or more processors means execute the instructions means to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection; and

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection.

Preliminary Amendment

Remarks:

The claims of the present patent application have been amended to clarify what is being claimed. No new matter has been added.

It is believed that all of the pending issues have been addressed. However, the absence of a reply to a specific rejection, issue, or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Still yet, nothing in this reply should be construed as intention to concede any issue with regard to any claim, except as specifically stated in this reply. Finally, it should be noted that no claims, except the last claim, are intended to be construed under 35 U.S.C. 112, paragraph 6.

In the event a telephone conversation would expedite the prosecution of this application, applicant invites the Examiner to telephone the undersigned attorney at the number listed below. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-4964 (Order No. PMOR120K).

Respectfully submitted,

APPENDIX A

For Filing

From: Patrick E. Caldwell <pcaldwell@thecaldwellfirm.com>
Sent: Thursday, December 24, 2020 12:11 PM
To: syed.ali@uspto.gov
Subject: 17/079,397 PMOR0120K Proposed Amendment

Examiner Syed,

We are working on a full claim set that is based on the claim amendment below. We will file such response today.

21. (New) An apparatus, comprising:

a non-transitory memory storing instructions; and

one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection; [[and]]

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection; and

in response to detecting, based on a third duration, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

--

Thanks,
Patrick

Patrick E. Caldwell, Esq.
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APPENDIX A

For Filing

From: Patrick E. Caldwell <pcaldwell@thecaldwellfirm.com>
Sent: Friday, January 22, 2021 12:04 PM
To: syed.ali@uspto.gov
Subject: PMOR0120K (17/079,397) Information
Attachments: claims21v88.pdf; claims21v158.pdf; claims21v85.pdf

Examiner Ali,

Please see the attached, which shows the differences between the four (4) ind. claims, Claim 21, 85, 88, and 158. Following is a summary of claims.

Apparatus Claims
Claims 21-84
Claim 158
Claims 187-195

Computer Program Product Claims
Claims 85-87

Method Claims
Claims 88-157
Claims 159-186

I will follow up with a call.
--

Thanks,
Patrick

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~~21. An apparatus~~88. A method, comprising:

~~a non-transitory memory storing instructions; and~~

~~one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions to:~~

~~identify,~~ at at least a portion of a first node,:

~~identifying~~ first information on which at least a first duration for detecting a first type of time period is based;

~~allocate~~allocating a first resource for a first ~~non-~~Transmission Control Protocol ~~(non-~~variant (TCP-variant) connection;

~~generate~~generating a first ~~non-~~TCP-variant packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

~~set~~setting up the first ~~non-~~TCP-variant connection, by sending, from the first node to a second node, the first ~~non-~~TCP-variant packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

~~in response to~~ based on detecting, ~~based on the first duration and~~ by the first node and during at least a portion of the first ~~non-~~TCP-variant connection including at least a portion of the first ~~non-~~TCP-variant connection set up, a first duration-based first time period of the first type of time period, at least partially ~~close~~closing the first ~~non-~~

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TCP-variant connection, by releasing, ~~by the first node,~~ the first resource allocated for the first ~~non-~~TCP-variant connection;

~~in response to~~based on detecting, by the first node and based on the ~~second~~first duration ~~and by the first node after the first duration is~~being changed to the second duration, a second duration-based second time period of the first type of time period, at least partially ~~closed~~closing the first ~~non-~~TCP-variant connection, by releasing, ~~by the first node,~~ the first resource allocated for the first ~~non-~~TCP-variant connection; and

~~in response to~~based on detecting, by the first node and based on a third duration, a third duration-based third time period, at least partially ~~closed~~closing the first ~~non-~~TCP-variant connection, by releasing, ~~by the first node,~~ the first resource allocated for the first ~~non-~~TCP-variant connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

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~~21~~158. An apparatus, comprising:

a non-transitory memory means for storing instructions means; and

one or more processors means in communication with the non-transitory memory means, wherein the one or more processors means execute the instructions means to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (non-TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time

period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection; ~~and~~

in response to detecting, based on a third duration and by the first node, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

~~21. An apparatus, comprising:~~

~~a~~85. A non-transitory ~~memory~~computer readable storage medium storing ~~instructions; and~~

one or more ~~processors in communication with the non-transitory memory, wherein~~programs, the one or more ~~processors execute the~~programs comprising instructions ~~to:~~

~~identify, at~~, which when executed by a first node, cause the first node to:

receive first information on which at least a first duration for detecting a first type of time period is based;

~~allocate~~identify a first resource for a first ~~non-~~connection, where the first connection does not utilize Transmission Control Protocol (~~non-~~TCP) ~~connection);~~;

generate a first ~~non-TCP~~ packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first ~~non-TCP~~ connection, by sending, from the first node to a second node, the first ~~non-TCP~~ packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first ~~non-TCP~~ connection including at least a portion of the first ~~non-TCP~~ connection set up, a first time period of the first type of time period, at least partially close the first ~~non-TCP~~ connection, by releasing, by the first node, the first resource ~~allocated~~ for the first ~~non-TCP~~ connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first ~~non-TCP~~ connection, by releasing, by the first node, the first resource ~~allocated~~ for the first ~~non-TCP~~ connection; and

in response to detecting, based on a third duration, ~~,~~ and by the first node, a third time period, at least partially close the first ~~non-TCP~~ connection, by releasing, by the first node, the first resource allocated for the first ~~non-TCP~~ connection, ~~where~~ the third duration ~~is~~being determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

Electronic Patent Application Fee Transmittal

Application Number:	17079397
Filing Date:	23-Oct-2020
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Filer:	Patrick Edgar Caldwell
Attorney Docket Number:	PMOR0120K

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1200**

Electronic Acknowledgement Receipt	
EFS ID:	41765790
Application Number:	17079397
International Application Number:	
Confirmation Number:	9756
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120K
Receipt Date:	27-JAN-2021
Filing Date:	23-OCT-2020
Time Stamp:	21:10:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1200
RAM confirmation Number	E20211QL10589950
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	PMOR0120K_fee-transmittal_vF_27-Jan-2021.pdf	128832 54cb0bcbc4ef7c6266a52b9c2c5d22df39047d86	no	1
Warnings:					
Information:					
2	Applicant summary of interview with examiner	PMOR0120K_ExaminerInterview_vF-27-Jan-2021.pdf	9898319 bcb2c18d22533527b3da8064abeef69fc5ababb7	no	52
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30214 f2ee9fba3bd31e79021940f316a3a312ff787a99	no	2
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PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

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92845 7590 01/27/2021
The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

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(Typed or printed name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/079,397	10/23/2020	Robert Paul Morris	PMOR0120K	9756

TITLE OF INVENTION: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	04/27/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
ALI, SYED	2468	709-201000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Patrick E. Caldwell, Esq.
2 The Caldwell Firm, LLC
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: JENAM TECH, LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Longview TX

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☒ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Patrick Caldwell/ Date 27 Jan 2021

Typed or printed name Patrick Caldwell Registration No. 44,580

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Confirmation No.: 9756
Robert Paul Morris	Examiner: ALI, SYED
Application No.: 17/079,397	Art Unit: 2468
File Date: 10-23-2020	Docket No.: PMOR0120K
Title: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION (amended)	Date: January 11, 2021

SUPPLEMENTAL AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

In response to the Office Action dated 12/8/2020 and the Notice of Non-Compliant Amendment dated 12/31/2020, please enter the following as a supplement to the Response filed 1/05/2021.

Amendments to the Specification:

Please amend the Summary as follows on Paragraph [0017] of the Specification:

[0017] Still further, a system for sharing information for detecting an idle TCP connection is described. The system includes an execution environment including an instruction processing unit configured to process an instruction included in at least one of an idle time period policy component, a packet generator component, a net out-port component, an idle time period monitor component, and a connection state component. The system includes the idle time period policy component configured for receiving, by a first node, first idle information for detecting a first idle time period during which no TCP packet including data in a first data stream sent in the TCP connection by a second node is received by the first node. The system includes the packet generator component configured for generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. The system still further includes the net out-port component configured for sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node. The system includes the idle time period monitor component configured for detecting the first idle time period based on the first idle information. The system includes the connection state component configured for deactivating the TCP connection in response to detecting the first idle time period. In various embodiments, a method, apparatus, and computer program product are provided to: identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based; allocate a first resource for a first connection (e.g. a non-TCP connection, a TCP-variant connection, not a Transmission Control Protocol connection, etc.); generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period; set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period; in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; and in response to detecting, by the first node and based on a third duration, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based. In still additional optional embodiments, indicating a large window may encourage transmissions. If more data arrives than can be accepted, it may be discarded. Initial tests on arrival may be used to discard old duplicates. Segments containing sequence numbers entirely outside of this range

may be considered duplicates and discarded. Damage may be handled by adding a checksum to each segment transmitted, checking it at the receiver, and discarding damaged segments. If the state is CLOSED (i.e., TCB does not exist) then all data in the incoming segment may be discarded.

Amendments to the Claims:

The listing of amended claims follow:

_____

1.-20. (Cancelled)

21. (Previously Presented) An apparatus, comprising:

a non-transitory memory storing instructions; and

one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (non-TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the

first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection; and

in response to detecting, based on a third duration, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

22. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is not negotiated between the first and second nodes during the first non-TCP connection set up, and the second duration is negotiated between the first and second nodes during the first non-TCP connection set up for the first non-TCP connection.

23. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the first time period is only capable of being detected during the first non-TCP connection set up.

24. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the second time period is capable of being detected at a time at least one of: during the first non-TCP connection set up, or thereafter during the first non-TCP connection.

25. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is used and the second duration is not used, for detecting the first type of time period until being changed to the second duration.

26. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected based on the third duration, by being detected when no acknowledgement packet is received by the first node in the first non-TCP connection and processed as an acknowledgement, during the third duration, for a sent packet sent by the first node in the first non-TCP connection.

27. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected based on the third duration, by being detected when an expected acknowledgement packet is not received by the first node in the first non-TCP connection, during the third duration, for a sent packet sent by the first node in the first non-TCP connection.

28. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected only in response to an acknowledgement packet not being received, for the third duration, in the first non-TCP connection for a sent packet sent in the first non-TCP connection.

29. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected in response to no acknowledgement packet being received in the first non-TCP connection and processed as an acknowledgement for a sent packet sent in the first non-TCP connection.

30. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the first non-TCP packet also includes data, separate from the first metadata, for use in determining the third time period.

31. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected utilizing a timer that is not utilized to detect the first time period nor the second time period.

32. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is not negotiated between the first and second nodes during the first non-TCP connection set up, the second duration is negotiated during the first non-TCP connection set up between the first and second nodes for the first non-TCP connection, and the third duration of the third time period is negotiated during the first non-TCP connection set up between the first and second nodes for the first non-TCP connection.

33. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is an acknowledgment timeout period during which an expected acknowledgment for a sent packet is not received.

34. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is a second type of time period.

35. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the third duration is determined using the first parameter field identifying the first metadata.

36. (Previously Presented) The apparatus of Claim 35, wherein the apparatus is configured such that the third duration is determined based on the second duration.

37. (Previously Presented) The apparatus of Claim 35, wherein the apparatus is configured such that the second duration is determined based on the third duration.

38. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected based on the third duration, by being detected when no acknowledgement packet is detected as being received and processed as an acknowledgement, during the third duration, by the first node in the first non-TCP connection to acknowledge a sent packet of a plurality of sent packets sent by the first node, where the third duration starts for each of the plurality of sent packets when at least one of the plurality of sent packets is sent, and where a single timer and a single timeout variable are utilized for detecting the third time period in connection with the plurality of sent packets.

39. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the third duration is determined using a second parameter field identifying second metadata, where the second parameter field is communicated in the first non-TCP connection.

40. (Previously Presented) The apparatus of Claim 39, wherein the apparatus is configured such that the second duration is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

41. (Previously Presented) The apparatus of Claim 40, wherein the apparatus is configured such that the third duration is determined based on the second duration.

42. (Previously Presented) The apparatus of Claim 40, wherein the apparatus is configured such that the second duration is determined based on the third duration.

43. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that:

the third time period is detected in response to no acknowledgement packet being received in the first non-TCP connection and processed, during the third duration that starts in

response to a sent packet being sent in the first TCP-variant connection, to acknowledge the sent packet;

the first duration is not capable of being negotiated between the first and second nodes during the first non-TCP connection set up, the second duration is capable of being negotiated between the first and second nodes for the first non-TCP connection, and the third duration of the third time period is capable of being negotiated between the first and second nodes for the first non-TCP connection;

the third time period is a second type of time period, and is an acknowledgment timeout period; and

the third duration is determined using the first parameter field identifying the first metadata.

44. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting the third time period, unilaterally at least partially close the first non-TCP connection for the first node, by releasing, by the first node, the first resource allocated for the first non-TCP connection, without signaling the second node in relation to the detection of the third time period after detecting the third time period.

45. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the first non-TCP connection set up further includes, in addition to (a-1) sending the first non-TCP packet:

(a-2) after sending the first non-TCP packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second non-TCP packet, and

(a-3) after receiving the second non-TCP packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third non-TCP packet.

46. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the first type of time period includes an idle time period.

47. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that only one of the first time period or the second time period is detected for the first non-TCP connection.

48. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that, during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether another non-TCP packet is not received for the first non-TCP connection set up for the first duration.

49. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, for the second duration, no packet is received in the first non-TCP connection and processed to keep the first non-TCP connection at least partially active.

50. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, for the second duration, no packet is received in the first non-TCP connection and processed to keep the first non-TCP connection at least partially active, nor is expected to be received.

51. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting the first time period of the first type of time period, unilaterally at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, without signaling the second node in relation to the detection of the first time period after detecting the first time period.

52. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the second duration is capable of being different from the first duration.

53. (Previously Presented) The apparatus of Claim 52, wherein the apparatus is configured such that the second duration is different from the first duration.

54. (Previously Presented) The apparatus of Claim 52, wherein the apparatus is configured such that the second duration is the same as the first duration, despite being capable of being different from the first duration.

55. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that:

the first non-TCP packet is not a synchronize (SYN) packet;

the first non-TCP connection is not a TCP extension connection that involves a TCP extension; and

the first type of time period does not include a user timeout period.

56. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

57. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the first type of time period is started in response to at least one of a received packet or a sent packet.

58. (Previously Presented) The apparatus of Claim 57, wherein the apparatus is configured such that the first type of time period is started in response to the received packet.

59. (Previously Presented) The apparatus of Claim 57, wherein the apparatus is configured such that the first type of time period is started in response to the sent packet.

60. (Previously Presented) The apparatus of Claim 57, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, for the second duration after the second time period of the first type of time period is started, no non-empty packet is received and processed to keep the first non-TCP connection at least partially active.

61. (Previously Presented) The apparatus of Claim 60, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

62. (Previously Presented) The apparatus of Claim 57, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, for the second duration after the second time period of the first type of time period is started, no packet is received and processed to keep the first non-TCP connection at least partially active.

63. (Previously Presented) The apparatus of Claim 62, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

64. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, for the second duration, no non-empty packet is received and processed to keep the first non-TCP connection at least partially active.

65. (Previously Presented) The apparatus of Claim 64, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

66. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, for the second duration, no packet is received and processed to keep the first non-TCP connection at least partially active.

67. (Previously Presented) The apparatus of Claim 66, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

68. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether, for the second duration, no non-empty packet is received and processed to keep the first non-TCP connection at least partially active.

69. (Previously Presented) The apparatus of Claim 68, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

70. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether, for the second duration, no packet is received and processed to keep the first non-TCP connection at least partially active.

71. (Previously Presented) The apparatus of Claim 70, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

72. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that, during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether, for the first duration, no packet is received and processed to keep the first non-TCP connection at least partially active.

73. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is not negotiated during the first non-TCP connection set up between the first and second nodes for the first non-TCP connection, and the second duration is negotiated between the first and second nodes for the first non-TCP connection.

74. (Previously Presented) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting, by the first node, the third time period that is a second type of

time period including an acknowledgment timeout period during which no acknowledgement packet is received in the first non-TCP connection and processed as an acknowledgement for a sent packet sent in the first non-TCP connection: unilaterally at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, wherein:

the first non-TCP connection set up further includes, in addition to (a-1) sending the first non-TCP packet that is also for use in determining the third duration of the third time period:

(a-2) after sending the first non-TCP packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second non-TCP packet, and

(a-3) after receiving the second non-TCP packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third non-TCP packet, and further wherein:

the first duration, the second duration, and the third duration are capable of being of different durations;

the second time period and the third time period are capable of being detected during the first non-TCP connection set up and thereafter during the first non-TCP connection; and

the first time period and the second time period are started in response to at least one of a received packet or a sent packet; and during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether, during the first duration, no packet is received and processed to keep the first non-TCP connection at least partially active; and after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is

based on the second duration, by being based on whether, during the second duration, no packet is received and processed to keep the first non-TCP connection at least partially active; where only one of the first time period, the second time period, or the third time period is detected for the first non-TCP connection.

75. (Previously Presented) The apparatus of Claim 74, wherein the apparatus is configured such that the third duration is determined based on the second duration, or the third duration is determined based on the second duration.

76. (Previously Presented) The apparatus of Claim 74, wherein the apparatus is configured such that the first type of time period is started in response to the received packet.

77. (Previously Presented) The apparatus of Claim 74, wherein the apparatus is configured such that the first type of time period is started in response to the sent packet.

78. (Previously Presented) The apparatus of Claim 74, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

79. (Previously Presented) The apparatus of Claim 74, wherein the apparatus is configured such that the third duration is determined using the first parameter field identifying the first metadata.

80. (Previously Presented) The apparatus of Claim 74, wherein the apparatus is configured such that the third duration is determined using a second parameter field that is communicated in the first non-TCP connection and that identifies second metadata.

81. (Previously Presented) The apparatus of Claim 80, wherein the apparatus is configured such that the second duration is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

82. (Previously Presented) The apparatus of Claim 74, wherein the apparatus is configured such that:

the first non-TCP packet is not a synchronize (SYN) packet;

the first non-TCP connection is not a TCP extension connection that involves a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first non-TCP connection set up;

the first duration is not negotiated between the first and second nodes for the first non-TCP connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first non-TCP connection using at least one of (a-1), (a-2), or (a-3);

the first duration is used and the second duration is not used, for detecting the first type of time period until the first duration is changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected only in response to no acknowledgement packet being received in the first non-TCP connection and processed as an acknowledgement, during the third duration, for a sent packet sent in the first non-TCP connection;

during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether any non-TCP packet is received for the first non-TCP connection set up during the first duration;

after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, during the second duration, no packet is received and processed to keep the first non-TCP connection at least partially active, nor is expected to be received in the first non-TCP connection; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

83. (Previously Presented) The apparatus of Claim 82, wherein the apparatus is configured such that:

the third time period is detected utilizing a timer that is not utilized to detect either of the first and second time periods; and

the second duration is the same as the first duration, despite being capable of being different from the first duration.

84. (Previously Presented) The apparatus of Claim 33, wherein the apparatus is configured such that at least one of:

the apparatus is at least one component of the second node;

the second node is at least one component of the apparatus;

the second node includes a device, including a network interface, that is a component of the apparatus;

the second node includes a network interface that is a component of the apparatus;

the apparatus includes a web server;

the first non-TCP packet is an initial non-TCP packet;

the first non-TCP packet is first-in-time;

at least one of the first algorithm or the second algorithm is associated with an identifier;

at least one of the first algorithm or the second algorithm is associated with a standardized identifier;

at least one of the first algorithm or the second algorithm is associated with an identifier that is included with the first information;

at least one of the first algorithm or the second algorithm is associated with an identifier that is referenced by the first information;

at least one of the first algorithm or the second algorithm includes at least one of a formula, an expression, a function, a class, or a policy;

at least one of the first algorithm or the second algorithm includes a mechanism for generating or identifying at least one of the first duration, the second duration, or the third duration;

at least one of the first algorithm or the second algorithm is associated with an algorithm identifier;

at least one of the first algorithm or the second algorithm is performed by at least one generator;

the first algorithm and the second algorithm are associated with different identifiers;

the first algorithm is different from the second algorithm, while being based on at least one piece of common information;

the first algorithm is different from the second algorithm, while receiving, as input the first metadata;

the first algorithm and the second algorithm are both based on the first metadata;

the determination of the third duration is based the first algorithm, by the third duration being calculated using the first algorithm;

the determination of the second duration is based the second algorithm, by the second duration being calculated using the second algorithm;

the first algorithm includes a first set of one more rules, and the second algorithm includes a second set of one more rules;

the first algorithm includes a first set of one more procedures, and the second algorithm includes a second set of one more procedures;

the first algorithm includes a first set of one more steps, and the second algorithm includes a second set of one more steps;

the first parameter field is part of a data portion in the first non-TCP packet;

the first parameter field is part of a header of the first non-TCP packet;

the first non-TCP packet is informational;

the non-TCP includes one or more features of TCP, and one or more features not of TCP;

the first non-TCP packet includes one or more features of a TCP packet, and one or more features not of a TCP packet;

the first non-TCP connection includes one or more features of a TCP connection, and one or more features not of a TCP connection;

identify includes receive;

the first information includes first idle information;

the first information does not include first idle information;

the first information is received based on a previous header;

the first information is not based on a previous header;

the first duration for detecting the first type of time period is based on the first information, by the first information identifying the first duration;

the first duration for detecting the first type of time period is based on the first information, by the first information specifying the first duration;
the first duration for detecting the first type of time period is based on the first information, by the first information identifying at least one generator for generating the first duration;
only the first duration for detecting the first type of time period is based on the first information;
the first non-TCP connection includes (a-1), (a-2), and (a-3);
the second duration of the second time period is different from the duration of the first time period;
the second duration of the second time period is the same as the duration of the first time period;
the third duration of the third time period is different from the duration of the first time period;
the third duration of the third time period is the same as the duration of the first time period;
the third duration of the third time period is different from the duration of the second time period;
the third duration of the third time period is the same as the duration of the second time period;
the first non-TCP packet also includes data for use in determining the first time period;
the first idle information includes a first value representative of the first duration of the first time period, and a second value representative of the second duration of the second time period;
the first idle information includes a first value representative of the first duration of the first time period, and identification of a generator for generating a second value representative of the second duration of the second time period;
the first idle information includes identification of a generator for generating a first value representative of the first duration of the first time period, and for generating a second value representative of the second duration of the second time period;
the first idle information includes identification of a first generator for generating a first value representative of the first duration of the first time period, and identification of a second

generator for generating a second value representative of the second duration of the second time period;

the first time period is detected in a first use scenario without the second nor third time periods being detected, the second time period is detected in a second use scenario without the first nor third time periods being detected, the third time period is detected in a third use scenario without the first nor second time periods being detected, and neither the first, second, nor third time periods are detected in a fourth use scenario;

the first duration of the first time period is determined based on the first idle information, after identifying the first idle information;

the first duration of the first time period is determined based on the first idle information, before setting up the first non-TCP connection;

the first duration of the first time period is determined based on the first idle information, during setting up the first non-TCP connection;

the first duration of the first time period is determined based on the first idle information, after setting up the first non-TCP connection;

the first time period is triggered by one or more non-duration-related criteria that triggers the second time period;

the first time period is triggered by the same one or more non-duration-related criteria that triggers the second time period;

the first time period is triggered by different one or more non-duration-related criteria than that which triggers the second time period;

the first time period is that during which no packet is received in the first non-TCP connection nor expected to be received;

the first time period is that during which no packet is received in the first non-TCP connection;

the third time period is triggered by one or more non-duration-related criteria that triggers the second time period;

the third time period is triggered by the same one or more non-duration-related criteria that triggers the second time period;

the third time period is triggered by different one or more non-duration-related criteria than that which triggers the second time period;

the third time period is that during which no packet is received in the first non-TCP connection nor expected to be received;

the third time period is that during which no packet is received in the first non-TCP connection;

the first metadata is based on the first idle information;

the change occurs while detection of the first time period is attempted;

the change occurs via a negotiation;

the second time period is a changed version of the first time period;

the second time period is a changed instance of the first time period;

the second time period is determined based on the first idle information;

the first duration of the first time period is negotiated between the first and second nodes for the first non-TCP connection, during the first non-TCP connection set up;

the first non-TCP connection set up includes all communications that precede completion of the first non-TCP connection set up;

the duration of the second time period is determined based on the first idle information;

the duration of the third time period is determined based on the first idle information;

the first and second time periods are of a same duration;

the first and second time periods are of a different duration;

the first and second time periods are different instances of the same type of time period;

the first and second time periods are of the same type of time period, but are applied at different times during the first non-TCP connection;

the first duration of the first time period is determined by being negotiated;

the second duration of the second time period is determined by being negotiated;

the third duration of the third time period is determined by being negotiated;

the first metadata is also for use in determining the second duration of the second time period;

the first metadata is not for use in determining the second duration of the second time period;

the first metadata is also for use in determining the third duration of the third time period;

the first metadata is not for use in determining the third duration of the third time period;

the first metadata describes a definition of at least one duration;

the first metadata defines at least one duration;

the first metadata includes at least one duration;

the first metadata describes a definition of at least one time period;

the first metadata describes other data that defines at least one duration;

the first metadata describes other data that defines at least one time period;

the first metadata describes other criteria-related data that defines at least one time period;

the first metadata describes duration data that defines at least one time period;

the first metadata describes duration criteria-related data that defines at least one time period;

the at least portion of the first non-TCP connection includes only a subset of setting up the first non-TCP connection;

the at least portion of the first non-TCP connection includes an entirety of setting up the first non-TCP connection;

the at least portion of the first non-TCP connection set up includes one or more packet exchanges that occur after the first non-TCP packet is sent;

the at least portion of the first non-TCP connection set up includes one or more packet exchanges that occur after the first non-TCP packet is sent prior to completion of the first non-TCP connection set up;

the first resource is released by the first node, by being released only by the first node;

the first resource is released by the first node, by being released by the first node and at least one other node;

the first resource is allocated for maintaining the first non-TCP connection;

the first resource is allocated for activating the first non-TCP connection;

the first resource includes a storage resource;

the first resource includes a network resource;

the first resource includes a processor resource;

the first, the second, and third non-TCP packets are non-TCP by not being required by any TCP standard specification;

the first time period is detected based on the first duration, by being detected when packet activity or a lack thereof meets one or more criteria for a span of the first duration;
the second time period is detected based on the second duration, by being detected when packet activity or a lack thereof meets one or more criteria for a span of the second duration;
the first type of time period includes an idle time period type;
the first and second time periods of the first type of time period differ only in duration;
the first and second time periods of the first type of time period are capable of differing in duration, but may have a same duration;
the first and second time periods of the first type of time period are capable of differing only in duration, but may have a same duration;
the first and second time periods of the first type of time period differ in duration and at least one criteria involving packet activity or a lack thereof over a duration span;
the first and second time periods of the first type of time period are capable of differing in duration and further differ in at least one criteria involving packet activity or a lack thereof over a duration span;
the first non-TCP packet includes a portion of data sent at any layer;
the first non-TCP packet includes a frame;
the first non-TCP packet is a non-TCP frame;
non-TCP refers to not being required by any TCP standard specification;
non-TCP refers to not being required by any TCP current specification;
non-TCP refers to not being required in a particular context by any TCP standard specification; or
non-TCP refers to not being required in a particular context by any TCP current specification.

85. (Previously Presented) A non-transitory computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which when executed by a first node, cause the first node to:

receive first information on which at least a first duration for detecting a first type of time period is based;

identify a first resource for a first connection, where the first connection does not utilize Transmission Control Protocol (TCP);

generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource for the first connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource for the first connection; and

in response to detecting, based on a third duration and by the first node, a third time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection, the third duration being determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

86. (Previously Presented) The non-transitory computer readable storage medium of Claim 85, wherein the instructions, when executed by the first node, cause the first node to:

in response to detecting, by the first node, the third time period that is a second type of time period including an acknowledgment timeout period during which no acknowledgement packet is received in the first connection and processed as an acknowledgement for a sent packet sent in the first connection: release, by the first node, the first resource for the first connection, wherein:

the first time period and the second time period are started in response to at least one of a received packet or a sent packet; and during the at least portion of the first connection including the at least portion of the first connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether, during the first duration after the first time period is started, no packet is received and processed to keep the first connection at least partially active; and based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether, during the second duration after the second time period is started, no packet is received and processed to keep the first connection at least partially active.

87. (Previously Presented) The non-transitory computer readable storage medium of Claim 86, wherein the first connection set up further includes, in addition to (a-1) sending the first packet that is also for use in determining the third duration of the third time period:

(a-2) after sending the first packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second packet, and

(a-3) after receiving the second packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third packet, and further wherein:

the first duration, the second duration, and the third duration are capable of being of different durations;

the second time period and the third time period are capable of being detected during the first connection set up and thereafter during the first connection;

the first packet is not a synchronize (SYN) packet;

the first connection does not utilize a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first connection set up;

the first duration is not negotiated between the first and second nodes for the first connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first connection using at least one of (a-1), (a-2), or (a-3);

the first duration is used and the second duration is not used, for detecting the first type of time period until the first duration is changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected only in response to no acknowledgement packet being received in the first connection and processed as an acknowledgement, during the third duration, for a sent packet sent in the first connection;

during the at least portion of the first connection including the at least portion of the first connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether any packet is received for the first connection set up during the first duration;

based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, during the second duration, no packet is received and processed to keep the first connection at least partially active, nor is expected to be received in the first connection; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

88. (Previously Presented) A method, comprising:

at at least a portion of a first node:

identifying first information on which at least a first duration for detecting a first type of time period is based;

allocating a first resource for a first Transmission Control Protocol-variant (TCP-variant) connection;

generating a first TCP-variant packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

setting up the first TCP-variant connection, by sending, from the first node to a second node, the first TCP-variant packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

based on detecting, by the first node and during at least a portion of the first TCP-variant connection including at least a portion of the first TCP-variant connection set up, a first duration-based first time period of the first type of time period, at least partially closing the first TCP-variant connection, by releasing the first resource allocated for the first TCP-variant connection;

based on detecting, by the first node and based on the first duration being changed to the second duration, a second duration-based second time period of the first type of time period, at least partially closing the first TCP-variant connection, by releasing the first resource allocated for the first TCP-variant connection; and

based on detecting, by the first node and based on a third duration, a third duration-based third time period, at least partially closing the first TCP-variant connection, by releasing the first resource allocated for the first TCP-variant connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based

89. (Previously Presented) The method of Claim 88, wherein the first duration is not negotiated between the first and second nodes during the first TCP-variant connection set up,

and the second duration is negotiated between the first and second nodes for the first TCP-variant connection.

90. (Previously Presented) The method of Claim 88, wherein the first time period is only capable of being detected during the first TCP-variant connection set up.

91. (Previously Presented) The method of Claim 88, wherein the second time period is capable of being detected during the first TCP-variant connection set up and thereafter during the first TCP-variant connection.

92. (Previously Presented) The method of Claim 88, wherein the first duration is exclusively used for detecting the first type of time period until being changed to the second duration.

93. (Previously Presented) The method of Claim 88, wherein the third time period is detected based on no acknowledgement packet being detected, for the third duration that starts based on a sent packet being sent in the first TCP-variant connection, as being received in the first TCP-variant connection and processed to acknowledge the sent packet.

94. (Previously Presented) The method of Claim 93, wherein the first TCP-variant packet also includes data for use in determining the third time period.

95. (Previously Presented) The method of Claim 93, wherein the third time period is detected utilizing a timer that is not utilized to detect either of the first and second time periods.

96. (Previously Presented) The method of Claim 93, wherein the first duration is not negotiated between the first and second nodes during the first TCP-variant connection set up, the second duration is negotiated between the first and second nodes for the first TCP-variant

connection, and the third duration of the third time period is negotiated between the first and second nodes for the first TCP-variant connection.

97. (Previously Presented) The method of Claim 93, wherein the third time period is detected at least partially during the first TCP-variant connection set up.

98. (Previously Presented) The method of Claim 93, wherein the third time period is a second type of time period.

99. (Previously Presented) The method of Claim 93, wherein the third duration is determined using the first TCP-variant packet.

100. (Previously Presented) The method of Claim 99, wherein the third duration is determined based on the second duration.

101. (Previously Presented) The method of Claim 99, wherein the second duration is determined based on the third duration.

102. (Previously Presented) The method of Claim 99, wherein the third duration is different from the second duration.

103. (Previously Presented) The method of Claim 93, wherein the sent packet includes a plurality of sent packets, and a single timer and a single timeout variable are utilized for detecting the third time period in connection with the plurality of sent packets.

104. (Previously Presented) The method of Claim 93, wherein the third duration is determined using a second parameter field identifying second metadata.

105. (Previously Presented) The method of Claim 104, wherein the second time period is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

106. (Previously Presented) The method of Claim 105, wherein the third duration is determined based on the second duration.

107. (Previously Presented) The method of Claim 105, wherein the second duration is determined based on the third duration.

108. (Previously Presented) The method of Claim 105, wherein the third duration is different from the second duration.

109. (Currently Amended) The method of Claim 88, wherein:

the third time period is detected based on no acknowledgement packet being received in the first [[non-TCP]] TCP-variant connection, for the third duration that starts based on a sent packet being sent in the first TCP-variant connection, and processed to acknowledge the sent packet;

the first duration is not negotiated between the first and second nodes during the first [[non-TCP]] TCP-variant connection set up, the second duration is negotiated between the first and second nodes for the first [[non-TCP]] TCP-variant connection, and the third duration of the third time period is negotiated between the first and second nodes for the first [[non-TCP]] TCP-variant connection;

the third time period is a second type of time period, and is an acknowledgment timeout period; and

the third duration is determined based on the first parameter field identifying the first metadata.

110. (Previously Presented) The method of Claim 88, wherein the third time period is detected based on first TCP-variant connection traffic-related criteria that only involves no acknowledgement packet being received in the first TCP-variant connection and processed as an acknowledgement for a sent packet sent in the first TCP-variant connection.

111. (Previously Presented) The method of Claim 110, and further comprising:

based on detecting the third time period of the second type of time period, unilaterally at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection, without signaling the second node in relation to the detection of the third time period based on detecting the third time period.

112. (Previously Presented) The method of Claim 88, wherein the first TCP-variant connection set up further includes, in addition to (a-1) sending the first TCP-variant packet:

(a-2) after sending the first TCP-variant packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second TCP-variant packet, and

(a-3) after receiving the second TCP-variant packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third TCP-variant packet.

113. (Previously Presented) The method of Claim 88, wherein the first type of time period includes an idle time period.

114. (Previously Presented) The method of Claim 88, wherein only one of the first time period or the second time period is detected for the first TCP-variant connection.

115. (Previously Presented) The method of Claim 88, wherein, during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether another TCP-variant packet is not received for the first TCP-variant connection set up for the first duration.

116. (Previously Presented) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, for the second duration, no packet is received in the first TCP-variant connection and processed to keep the first TCP-variant connection at least partially active.

117. (Previously Presented) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, for the second duration, no packet is received in the first TCP-variant connection and processed to keep the first TCP-variant connection at least partially active, nor is expected to be received.

118. (Previously Presented) The method of Claim 88, and further comprising:

based on detecting the first time period of the first type of time period, unilaterally at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection, without signaling the second node in relation to the detection of the first time period based on detecting the first time period.

119. (Previously Presented) The method of Claim 88, wherein the second duration is capable of being different from the first duration.

120. (Previously Presented) The method of Claim 119, wherein the second duration is different from the first duration.

121. (Previously Presented) The method of Claim 119, wherein the second duration is the same as the first duration, despite being capable of being different from the first duration.

122. (Previously Presented) The method of Claim 88, wherein:

the first TCP-variant packet is not a synchronize (SYN) packet;

the first TCP-variant connection is not a TCP extension connection that involves a TCP extension; and

the first type of time period does not include a user timeout period.

123. (Previously Presented) The method of Claim 88, wherein an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

124. (Previously Presented) The method of Claim 88, wherein the first type of time period is started based on at least one of a received packet or a sent packet.

125. (Previously Presented) The method of Claim 124, wherein the first type of time period is started based on the received packet.

126. (Previously Presented) The method of Claim 124, wherein the first type of time period is started based on the sent packet.

127. (Previously Presented) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, for the second duration, no non-empty packet is received and processed to keep the first TCP-variant connection at least partially active.

128. (Previously Presented) The method of Claim 127, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

129. (Previously Presented) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, for the second duration, no packet is received and processed to keep the first TCP-variant connection at least partially active.

130. (Previously Presented) The method of Claim 129, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

131. (Previously Presented) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, for the second duration, no non-empty packet is received and processed to keep the first TCP-variant connection at least partially active.

132. (Previously Presented) The method of Claim 131, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

133. (Previously Presented) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, for the second duration, no packet is received and processed to keep the first TCP-variant connection at least partially active.

134. (Previously Presented) The method of Claim 133, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

135. (Previously Presented) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether, for the second duration, no non-empty packet is received and processed to keep the first TCP-variant connection at least partially active.

136. (Previously Presented) The method of Claim 135, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

137. (Previously Presented) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether, for the second duration, no packet is received and processed to keep the first TCP-variant connection at least partially active.

138. (Previously Presented) The method of Claim 137, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

139. (Previously Presented) The method of Claim 88, wherein, during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether, for the first duration, no packet is received and processed to keep the first TCP-variant connection at least partially active, nor sent.

140. (Currently Amended) The method of Claim 88, wherein the first duration is not negotiated during the first [[non-TCP]] TCP-variant connection set up between the first and second nodes for the first TCP-variant connection, and the second duration is negotiated between the first and second nodes for the first TCP-variant connection.

141. (Previously Presented) The method of Claim 88, and further comprising:

based on detecting, by the first node, the third time period that is a second type of time period including an acknowledgment timeout period during which no acknowledgement packet is received in the first TCP-variant connection and processed as an acknowledgement for a sent packet sent in the first TCP-variant connection: unilaterally at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection, wherein:

the first TCP-variant connection set up further includes, in addition to (a-1) sending the first TCP-variant packet that is also for use in determining the third duration of the third time period:

(a-2) after sending the first TCP-variant packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second TCP-variant packet, and

(a-3) after receiving the second TCP-variant packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third TCP-variant packet, and further wherein:

the first duration, the second duration, and the third duration are capable of being of different durations;

the second time period and the third time period are capable of being detected during the first TCP-variant connection set up and thereafter during the first TCP-variant connection; and

the first time period and the second time period are started based on at least one of a received packet or a sent packet; and during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether, during the first duration, no packet is received and processed to keep the first TCP-variant connection at least partially active; and based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether, during the second duration, no packet is received and processed to keep the first TCP-variant connection at least partially active; where only one of the first time period, the second time period, or the third time period is detected for the first TCP-variant connection.

142. (Previously Presented) The method of Claim 141, wherein the third duration is determined based on the second duration, or the third duration is determined based on the second duration.

143. (Previously Presented) The method of Claim 141, wherein the first type of time period is started based on the received packet.

144. (Previously Presented) The method of Claim 141, wherein the first type of time period is started based on the sent packet.

145. (Previously Presented) The method of Claim 141, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

146. (Previously Presented) The method of Claim 141, wherein the third duration is determined using the first parameter field identifying the first metadata.

147. (Previously Presented) The method of Claim 141, wherein the third duration is determined using a second parameter field identifying second metadata.

148. (Previously Presented) The method of Claim 147, wherein the second duration is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

149. (Previously Presented) The method of Claim 141, wherein:

the first TCP-variant packet is not a synchronize (SYN) packet;

the first TCP-variant connection is not a TCP extension connection that involves a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first TCP-variant connection set up;

the first duration is not negotiated between the first and second nodes for the first TCP-variant connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first TCP-variant connection using at least one of (a-1), (a-2), or (a-3);

the first duration is exclusively used for detecting the first type of time period until being changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected based on first TCP-variant connection traffic-related criteria that only involves no acknowledgement packet being received in the first TCP-variant connection during the third duration and processed as an acknowledgement for a sent packet sent in the first TCP-variant connection;

during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on first TCP-variant

connection traffic-related criteria that only involves whether any TCP-variant packet is received for the first TCP-variant connection set up during the first duration;

based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, during the second duration, no packet is received and processed to keep the first TCP-variant connection at least partially active, nor is expected to be received in the first TCP-variant connection; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

150. (Previously Presented) The method of Claim 149, wherein the third time period is detected independent of the detection of the first and second time periods.

151. (Previously Presented) The method of Claim 149, wherein the second duration is the same as the first duration, despite being capable of being different from the first duration.

152. (Previously Presented) The method of Claim 88, wherein:

the first TCP-variant packet is not a synchronize (SYN) packet;

the first TCP-variant connection is not a TCP extension connection that involves a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first TCP-variant connection set up;

the first duration is not negotiated between the first and second nodes for the first TCP-variant connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first TCP-variant connection using at least one of (a-1), (a-2), or (a-3);

the first duration is exclusively used for detecting the first type of time period until being changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected based on first TCP-variant connection traffic-related criteria that only involves, during the third duration, no acknowledgement packet being received in the first TCP-variant connection and processed as an acknowledgement for a sent packet sent in the first TCP-variant connection;

during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether any TCP-variant packet is received or sent for the first TCP-variant connection set up during the first duration;

based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, during

the second duration, no packet is received and processed to keep the first TCP-variant connection at least partially active, sent, nor is expected to be received or sent in the first TCP-variant connection; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

153. (Currently Amended) The method of Claim 88, wherein the third time period is detected based on the third duration, by being detected when no acknowledgement packet is detected as being received and processed, during the third duration, by the first node in the first [[non-TCP]] TCP-variant connection to acknowledge a sent packet of a plurality of sent packets sent by the first node, where the third duration starts for each of the plurality of sent packets when at least one of the plurality of sent packets is sent, and where a single timer and a single timeout variable are utilized for detecting the third time period in connection with the plurality of sent packets.

154. (Previously Presented) The method of Claim 153, wherein the third duration starts for each of the plurality of sent packets when the each one of the plurality of sent packets is sent.

155. (Previously Presented) The method of Claim 153, wherein the third duration starts for each of the plurality of sent packets when a first one of the plurality of sent packets is sent.

156. (Previously Presented) The method of Claim 153, wherein the third duration starts for each of the plurality of sent packets when a last one of the plurality of sent packets is sent or received.

157. (Previously Presented) The method of Claim 153, wherein the third duration starts for each of the plurality of sent packets when a first one of the plurality of sent packets is sent,

where the first packet is a first packet to be received after a last one of the plurality of sent packets is sent.

158. (Previously Presented) An apparatus, comprising:

a non-transitory memory means for storing instructions means; and

one or more processors means in communication with the non-transitory memory means, wherein the one or more processors means execute the instructions means to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (non-TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection;

in response to detecting, based on a third duration and by the first node, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

159. (New) The method of Claim 113, wherein the idle time period is one: during which, no packet is communicated in the TCP-variant connection to keep the TCP-variant connection active.

160. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet of a specific type is communicated in the TCP-variant connection to keep the TCP-variant connection active.

161. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated by being only sent by an apparatus of the first node in the TCP-variant connection to keep the TCP-variant connection active.

162. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated by being only received by the first node in the TCP-variant connection to keep the TCP-variant connection active.

163. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated by being sent or received by an apparatus of the first node in the TCP-variant connection to keep the TCP-variant connection active.

164. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is sent or received by an apparatus in the TCP-variant connection to keep the TCP-variant connection active.

165. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated in the TCP-variant connection to keep the TCP-variant connection active with a condition.

166. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated in the TCP-variant connection to keep the TCP-variant connection active without a condition.

167. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated in the TCP-variant connection that is sufficient to keep the TCP-variant connection active.

168. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated in the TCP-variant connection to fulfill a purpose to keep the TCP-variant connection active.

169. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated in the TCP-variant connection to unconditionally keep the TCP-variant connection active.

170. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated in the TCP-variant connection to keep the TCP-variant connection active via the idle time period.

171. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated in the TCP-variant connection to keep the TCP-variant connection active via a timer associated with the idle time period.

172. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated in the TCP-variant connection to keep the TCP-variant connection active via at least a time period other than the idle time period, or via a timer associated with at least a time period other than the idle time period.

173. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated in the TCP-variant connection to keep the TCP-variant connection active via a keep alive time period.

174. (New) The method of Claim 159, wherein the idle time period is one: during which, no packet is communicated in the TCP-variant connection to keep the TCP-variant connection active via a timer associated with a keep alive time period.

175. (New) The method of Claim 159, wherein at least one packet is communicated in the TCP-variant connection but is not to keep the TCP-variant connection active, as a result of the at least one packet being un-processable.

176. (New) The method of Claim 159, wherein at least one packet is communicated in the TCP-variant connection but is not to keep the TCP-variant connection active, as a result of the at least one packet being discarded.

177. (New) The method of Claim 159, wherein at least one packet is communicated in the TCP-variant connection but is not to keep the TCP-variant connection active, as a result of the at least one packet being discarded by a software component of the TCP-variant.

178. (New) The method of Claim 159, wherein at least one packet is communicated to keep the TCP-variant connection active but is not communicated in the TCP-variant connection, as a result of the at least one packet not being received at an endpoint of the TCP-variant connection.

179. (New) The method of Claim 159, wherein the first node includes a network interface for sending the first TCP-variant packet, and an apparatus of the first node includes one or more software components including a first software component in communication with the network interface, and a second software component in communication with the first software component such that the first software component performs functionality after packet receipt by the network interface and before packet processing by the second software component, where the idle time period is one during which, no packet is communicated, by being received in a manner so as to be processed by the second software component, in the TCP-variant connection to keep the TCP-variant connection active.

180. (New) The method of Claim 179, wherein the first software component and the second software component at least partially implement the TCP-variant.

181. (New) The method of Claim 179, wherein at least one packet is communicated in the TCP-variant connection but is not to keep the TCP-variant connection active, as a result of the at least one packet not being received in the manner so as to be processed by the second software component.

182. (New) The method of Claim 179, wherein at least one packet is received by the network interface, but is not received in the manner so as to be processed by the second software component, in the TCP-variant connection to keep the TCP-variant connection active.

183. (New) The method of Claim 182, wherein the at least one packet is not received in the manner so as to be processed by the second software component because it is at least one of: an un-processable packet, or a discarded packet.

184. (New) The method of Claim 182, wherein the at least one packet is not received in the manner so as to be processed by the second software component because it is a lost packet.

185. (New) The method of Claim 182, wherein the at least one packet is not received in the manner so as to be processed by the second software component because the at least one packet is discarded by at least one software component that at least partially implements the TCP-variant.

186. (New) The method of Claim 182, wherein the at least one packet is not received in the manner so as to be processed by the second software component because the at least one packet is discarded by the first software component.

187. (New) The apparatus of Claim 46, wherein the apparatus is configured such that the idle time period is one: during which, no packet is communicated in the non-TCP connection to keep the non-TCP connection active.

188. (New) The apparatus of Claim 187, wherein the apparatus is configured such wherein the apparatus is configured such that at least one packet is communicated in the non-TCP connection but is not to keep the non-TCP connection active, as a result of the at least one packet being un-processable.

189. (New) The apparatus of Claim 187, wherein the apparatus is configured such that at least one packet is communicated in the non-TCP connection but is not to keep the non-TCP connection active, as a result of the at least one packet being discarded.

190. (New) The apparatus of Claim 189, wherein the apparatus is configured such that the at least one packet is a duplicate packet, or a packet not to be processed.

191. (New) The apparatus of Claim 187, wherein the apparatus is configured such that at least one packet is communicated in the non-TCP connection but is not to keep the non-TCP connection active, as a result of the at least one packet not being received in a manner so as to be processed by a software component of the non-TCP.

192. (New) The apparatus of Claim 187, wherein the apparatus is configured such that at least one packet is communicated in the non-TCP connection but is not to keep the non-TCP connection active, as a result of the at least one packet being discarded by a software component of the non-TCP.

193. (New) The apparatus of Claim 187, wherein the apparatus is configured such that the idle time period is one: during which, no packet is communicated by being sent or received by the apparatus in the non-TCP connection to keep the non-TCP connection active.

194. (New) The apparatus of Claim 187, wherein the apparatus is configured such that the idle time period is one: during which, no packet is sent or received by the apparatus in the non-TCP connection to keep the non-TCP connection active.

195. (New) The apparatus of Claim 187, wherein the first node includes a network interface for sending the first non-TCP packet, and the apparatus includes one or more software components of the first node where the one or more software components of the first

node are executed using hardware that does not include the network interface, the one or more software components of the first node including a first software component in communication with the network interface, and a second software component in communication with the first software component such that the first software component performs functionality after packet receipt by the network interface and before packet processing by the second software component, where the idle time period is one during which, no packet is communicated, by being received in a manner so as to be processed by the second software component, in the non-TCP connection to keep the non-TCP connection active.

196. (New) The apparatus of Claim 195, wherein at least one of:
the first software component includes a packet handler software component to process at least one packet that has been determined to be valid according to at least one other software component that implements the non-TCP;
the first software component and the second software component implement the non-TCP;
at least one packet is received by the network interface, but is not received in the manner so as to be processed by the second software component, in the non-TCP connection to keep the non-TCP connection active;
at least one packet is received by the network interface, but is not received in the manner so as to be processed by the second software component, in the non-TCP connection to keep the non-TCP connection active, where the at least one packet is not received in the manner so as to be processed by the second software component because it is a discarded packet;
at least one packet is received by the network interface, but is not received in the manner so as to be processed by the second software component, in the non-TCP connection to keep the non-TCP connection active, where the at least one packet is not received in the manner so as to be processed by the second software component because it is a duplicate packet;
at least one packet is received by the network interface, but is not received in the manner so as to be processed by the second software component, in the non-TCP connection to keep the non-TCP connection active, where the at least one packet is not received in the manner so as to be processed by the second software component because it is a corrupt packet;

at least one additional packet is not received in the manner so as to be processed by the second software component, in the non-TCP connection to keep the non-TCP connection active, where the at least one packet is not received in the manner so as to be processed by the second software component because it is a lost packet;

at least one packet is received by the network interface, but is not received in the manner so as to be processed by the second software component, in the non-TCP connection to keep the non-TCP connection active, where the at least one packet is not received in the manner so as to be processed by the second software component because the at least one packet does not pass processing by at least one software component that implements the non-TCP;

at least one packet is received by the network interface, but is not received in the manner so as to be processed by the second software component, in the non-TCP connection to keep the non-TCP connection active, where the at least one packet is not received in the manner so as to be processed by the second software component because the at least one packet does not pass processing by the first software component;

at least one packet is received by the network interface, but is not received in the manner so as to be processed by the second software component, in the non-TCP connection to keep the non-TCP connection active, where the at least one packet is not received in the manner so as to be processed by the second software component because the at least one packet is discarded so as to prevent receipt in the manner so as to be processed by the second software component;

at least one packet is received by the network interface, but is not received in the manner so as to be processed by the second software component, in the non-TCP connection to keep the non-TCP connection active, where the at least one packet is not received in the manner so as to be processed by the second software component because the at least one packet is discarded at any layer so as to prevent receipt in the manner so as to be processed by the second software component;

at least one packet is received by the network interface, but is not received in the manner so as to be processed by the second software component, in the non-TCP connection to keep the non-TCP connection active, where the at least one packet is not received in the manner so as to

be processed by the second software component because the at least one packet is discarded by at least one software component that implements the non-TCP; or

at least one packet is received by the network interface, but is not received in the manner so as to be processed by the second software component, in the non-TCP connection to keep the non-TCP connection active, where the at least one packet is not received in the manner so as to be processed by the second software component because the at least one packet is discarded by the first software component.

Remarks:

The claims have been clarified. No new matter has been added. The Summary has been amended to include excerpts from "Request for Comments" (RFC) document RFC 793 edited by John Postel, titled "Transmission Control Protocol, DARPA Internet Program Internet Protocol Specification" (September 1981), which is incorporated by reference. No new matter has been added. It is believed that all of the pending issues have been addressed. However, the absence of a reply to a specific rejection, issue, or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Still yet, nothing in this reply should be construed as intention to concede any issue with regard to any claim, except as specifically stated in this reply. Finally, it should be noted that no claims, except Claim 158, are intended to be construed under 35 U.S.C. 112, paragraph 6.

In the event a telephone conversation would expedite the prosecution of this application, applicant invites the Examiner to telephone the undersigned attorney at the number listed below. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-4964 (Order No. PMOR120K).

Respectfully submitted,

Dated: 11 Jan 2021

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Electronic Patent Application Fee Transmittal

Application Number:	17079397
Filing Date:	23-Oct-2020
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Filer:	Patrick Edgar Caldwell
Attorney Docket Number:	PMOR0120K

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	37	100	3700
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**3700**

Electronic Acknowledgement Receipt	
EFS ID:	41614233
Application Number:	17079397
International Application Number:	
Confirmation Number:	9756
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120K
Receipt Date:	11-JAN-2021
Filing Date:	23-OCT-2020
Time Stamp:	19:23:08
Application Type:	Utility under 35 USC 111(a)

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Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$3700
RAM confirmation Number	E20211AJ23294263
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		PMOR0120K_Sup_Amendment_A_vF_11-Jan-2021.pdf	228905 77f57d0820e7f3a5c356916bfe087ef16d52970a	yes	56
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Specification		2	3	
	Claims		4	55	
	Amendment/Req. Reconsideration-After Non-Final Reject		56	56	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30184 fb0c7847c4d302af06c638811a6a205d480be6c9	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	259089		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/079,397	Filing Date 10/23/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)			
FOR	NUMBER FILED	NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $480 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	01/11/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 76	Minus	** 138	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	SLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/SHANDA E ROSS/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Confirmation No.: 9756
Robert Paul Morris	Examiner: ALI, SYED
Application No.: 17/079,397	Art Unit: 2468
File Date: 10-23-2020	Docket No.: PMOR0120K
Title: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION (amended)	Date: January 5, 2021

AMENDMENT AND
RESPONSE TO NON-COMPLIANT AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

In response to the Office Action dated 12/8/2020 and the Notice of Non-Compliant Amendment dated 12/31/2020, please enter the following.

Specifically, in the Notice of Non-Compliant Amendment dated 12/31/2020, it is alleged that "[e]ach claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified" and 'Claims which were previously presented with the APE are marked as "New".'

Applicant respectfully disagrees. The Preliminary Amendment filed 12/02/2020 (cancelling Claims 1-20 in favor of Claim 21 et al.) was **NOT** entered by the Examiner, as evidenced by the fact that the Office Action dated 12/8/2020 merely examined Claims 1-20. Further, there has been no Examiner's Amendment since the Office Action dated 12/8/2020 (examining Claims 1-20) was mailed. Thus, in view of the above, it is believed that **NO** claim, which was previously presented (**AND** entered), is marked as "New."

Amendments to the Claims:

The listing of amended claims follow:

_____

1.-20. (Cancelled)

21. (New) An apparatus, comprising:

a non-transitory memory storing instructions; and

one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (non-TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the

first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection; and

in response to detecting, based on a third duration, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

22. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is not negotiated between the first and second nodes during the first non-TCP connection set up, and the second duration is negotiated between the first and second nodes during the first non-TCP connection set up for the first non-TCP connection.

23. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first time period is only capable of being detected during the first non-TCP connection set up.

24. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the second time period is capable of being detected at a time at least one of: during the first non-TCP connection set up, or thereafter during the first non-TCP connection.

25. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is used and the second duration is not used, for detecting the first type of time period until being changed to the second duration.

26. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected based on the third duration, by being detected when no acknowledgement packet is received by the first node in the first non-TCP connection and processed as an acknowledgement, during the third duration, for a sent packet sent by the first node in the first non-TCP connection.

27. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected based on the third duration, by being detected when an expected acknowledgement packet is not received by the first node in the first non-TCP connection, during the third duration, for a sent packet sent by the first node in the first non-TCP connection.

28. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected only in response to an acknowledgement packet not being received, for the third duration, in the first non-TCP connection for a sent packet sent in the first non-TCP connection.

29. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected in response to no acknowledgement packet being received in the first non-TCP connection and processed as an acknowledgement for a sent packet sent in the first non-TCP connection.

30. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first non-TCP packet also includes data, separate from the first metadata, for use in determining the third time period.

31. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected utilizing a timer that is not utilized to detect the first time period nor the second time period.

32. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is not negotiated between the first and second nodes during the first non-TCP connection set up, the second duration is negotiated during the first non-TCP connection set up between the first and second nodes for the first non-TCP connection, and the third duration of the third time period is negotiated during the first non-TCP connection set up between the first and second nodes for the first non-TCP connection.

33. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is an acknowledgment timeout period during which an expected acknowledgment for a sent packet is not received.

34. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is a second type of time period.

35. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third duration is determined using the first parameter field identifying the first metadata.

36. (New) The apparatus of Claim 35, wherein the apparatus is configured such that the third duration is determined based on the second duration.

37. (New) The apparatus of Claim 35, wherein the apparatus is configured such that the second duration is determined based on the third duration.

38. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected based on the third duration, by being detected when no

acknowledgement packet is detected as being received and processed as an acknowledgement, during the third duration, by the first node in the first non-TCP connection to acknowledge a sent packet of a plurality of sent packets sent by the first node, where the third duration starts for each of the plurality of sent packets when at least one of the plurality of sent packets is sent, and where a single timer and a single timeout variable are utilized for detecting the third time period in connection with the plurality of sent packets.

39. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third duration is determined using a second parameter field identifying second metadata, where the second parameter field is communicated in the first non-TCP connection.

40. (New) The apparatus of Claim 39, wherein the apparatus is configured such that the second duration is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

41. (New) The apparatus of Claim 40, wherein the apparatus is configured such that the third duration is determined based on the second duration.

42. (New) The apparatus of Claim 40, wherein the apparatus is configured such that the second duration is determined based on the third duration.

43. (New) The apparatus of Claim 21, wherein the apparatus is configured such that:

the third time period is detected in response to no acknowledgement packet being received in the first non-TCP connection and processed, during the third duration that starts in response to a sent packet being sent in the first TCP-variant connection, to acknowledge the sent packet;

the first duration is not capable of being negotiated between the first and second nodes during the first non-TCP connection set up, the second duration is capable of being negotiated between the first and second nodes for the first non-TCP connection, and the third duration of the third time period is capable of being negotiated between the first and second nodes for the first non-TCP connection;

the third time period is a second type of time period, and is an acknowledgment timeout period; and

the third duration is determined using the first parameter field identifying the first metadata.

44. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting the third time period, unilaterally at least partially close the first non-TCP connection for the first node, by releasing, by the first node, the first resource allocated for the first non-TCP connection, without signaling the second node in relation to the detection of the third time period after detecting the third time period.

45. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first non-TCP connection set up further includes, in addition to (a-1) sending the first non-TCP packet:

(a-2) after sending the first non-TCP packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second non-TCP packet, and

(a-3) after receiving the second non-TCP packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third non-TCP packet.

46. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first type of time period includes an idle time period.

47. (New) The apparatus of Claim 21, wherein the apparatus is configured such that only one of the first time period or the second time period is detected for the first non-TCP connection.

48. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether another non-TCP packet is not received for the first non-TCP connection set up for the first duration.

49. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, for the second duration, no packet is received in the first non-TCP connection and processed to keep the first non-TCP connection at least partially active.

50. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, for the second duration, no packet is received in the first non-TCP connection and processed to keep the first non-TCP connection at least partially active, nor is expected to be received.

51. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting the first time period of the first type of time period, unilaterally at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the

first non-TCP connection, without signaling the second node in relation to the detection of the first time period after detecting the first time period.

52. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the second duration is capable of being different from the first duration.

53. (New) The apparatus of Claim 52, wherein the apparatus is configured such that the second duration is different from the first duration.

54. (New) The apparatus of Claim 52, wherein the apparatus is configured such that the second duration is the same as the first duration, despite being capable of being different from the first duration.

55. (New) The apparatus of Claim 21, wherein the apparatus is configured such that:

the first non-TCP packet is not a synchronize (SYN) packet;

the first non-TCP connection is not a TCP extension connection that involves a TCP extension; and

the first type of time period does not include a user timeout period.

56. (New) The apparatus of Claim 21, wherein the apparatus is configured such that an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

57. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first type of time period is started in response to at least one of a received packet or a sent packet.

58. (New) The apparatus of Claim 57, wherein the apparatus is configured such that the first type of time period is started in response to the received packet.

59. (New) The apparatus of Claim 57, wherein the apparatus is configured such that the first type of time period is started in response to the sent packet.

60. (New) The apparatus of Claim 57, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, for the second duration after the second time period of the first type of time period is started, no non-empty packet is received and processed to keep the first non-TCP connection at least partially active.

61. (New) The apparatus of Claim 60, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

62. (New) The apparatus of Claim 57, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, for the second duration after the second time period of the first type of time period is started, no packet is received and processed to keep the first non-TCP connection at least partially active.

63. (New) The apparatus of Claim 62, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

64. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether,

for the second duration, no non-empty packet is received and processed to keep the first non-TCP connection at least partially active.

65. (New) The apparatus of Claim 64, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

66. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, for the second duration, no packet is received and processed to keep the first non-TCP connection at least partially active.

67. (New) The apparatus of Claim 66, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

68. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether, for the second duration, no non-empty packet is received and processed to keep the first non-TCP connection at least partially active.

69. (New) The apparatus of Claim 68, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

70. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of

the first type of time period is based on the second duration, by being based on whether, for the second duration, no packet is received and processed to keep the first non-TCP connection at least partially active.

71. (New) The apparatus of Claim 70, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

72. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether, for the first duration, no packet is received and processed to keep the first non-TCP connection at least partially active.

73. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is not negotiated during the first non-TCP connection set up between the first and second nodes for the first non-TCP connection, and the second duration is negotiated between the first and second nodes for the first non-TCP connection.

74. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting, by the first node, the third time period that is a second type of time period including an acknowledgment timeout period during which no acknowledgement packet is received in the first non-TCP connection and processed as an acknowledgement for a sent packet sent in the first non-TCP connection: unilaterally at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, wherein:

the first non-TCP connection set up further includes, in addition to (a-1) sending the first non-TCP packet that is also for use in determining the third duration of the third time period:

(a-2) after sending the first non-TCP packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second non-TCP packet, and

(a-3) after receiving the second non-TCP packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third non-TCP packet, and further wherein:

the first duration, the second duration, and the third duration are capable of being of different durations;

the second time period and the third time period are capable of being detected during the first non-TCP connection set up and thereafter during the first non-TCP connection; and

the first time period and the second time period are started in response to at least one of a received packet or a sent packet; and during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether, during the first duration, no packet is received and processed to keep the first non-TCP connection at least partially active; and after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether, during the second duration, no packet is received and processed to keep the first non-TCP connection at least partially active; where only one of the first time period, the second time period, or the third time period is detected for the first non-TCP connection.

75. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the third duration is determined based on the second duration, or the third duration is determined based on the second duration.

76. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the first type of time period is started in response to the received packet.

77. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the first type of time period is started in response to the sent packet.

78. (New) The apparatus of Claim 74, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

79. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the third duration is determined using the first parameter field identifying the first metadata.

80. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the third duration is determined using a second parameter field that is communicated in the first non-TCP connection and that identifies second metadata.

81. (New) The apparatus of Claim 80, wherein the apparatus is configured such that the second duration is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

82. (New) The apparatus of Claim 74, wherein the apparatus is configured such that:

the first non-TCP packet is not a synchronize (SYN) packet;

the first non-TCP connection is not a TCP extension connection that involves a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first non-TCP connection set up;

the first duration is not negotiated between the first and second nodes for the first non-TCP connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first non-TCP connection using at least one of (a-1), (a-2), or (a-3);

the first duration is used and the second duration is not used, for detecting the first type of time period until the first duration is changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected only in response to no acknowledgement packet being received in the first non-TCP connection and processed as an acknowledgement, during the third duration, for a sent packet sent in the first non-TCP connection;

during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether any non-TCP packet is received for the first non-TCP connection set up during the first duration;

after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, during the second duration, no packet is received and processed to keep the

first non-TCP connection at least partially active, nor is expected to be received in the first non-TCP connection; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

83. (New) The apparatus of Claim 82, wherein the apparatus is configured such that:

the third time period is detected utilizing a timer that is not utilized to detect either of the first and second time periods; and

the second duration is the same as the first duration, despite being capable of being different from the first duration.

84. (New) The apparatus of Claim 33, wherein the apparatus is configured such that at least one of:
the apparatus is at least one component of the second node;
the second node is at least one component of the apparatus;
the second node includes a device, including a network interface, that is a component of the apparatus;
the second node includes a network interface that is a component of the apparatus;
the apparatus includes a web server;
the first non-TCP packet is an initial non-TCP packet;
the first non-TCP packet is first-in-time;
at least one of the first algorithm or the second algorithm is associated with an identifier;
at least one of the first algorithm or the second algorithm is associated with a standardized identifier;

at least one of the first algorithm or the second algorithm is associated with an identifier that is included with the first information;
at least one of the first algorithm or the second algorithm is associated with an identifier that is referenced by the first information;
at least one of the first algorithm or the second algorithm includes at least one of a formula, an expression, a function, a class, or a policy;
at least one of the first algorithm or the second algorithm includes a mechanism for generating or identifying at least one of the first duration, the second duration, or the third duration;
at least one of the first algorithm or the second algorithm is associated with an algorithm identifier;
at least one of the first algorithm or the second algorithm is performed by at least one generator;
the first algorithm and the second algorithm are associated with different identifiers;
the first algorithm is different from the second algorithm, while being based on at least one piece of common information;
the first algorithm is different from the second algorithm, while receiving, as input the first metadata;
the first algorithm and the second algorithm are both based on the first metadata;
the determination of the third duration is based the first algorithm, by the third duration being calculated using the first algorithm;
the determination of the second duration is based the second algorithm, by the second duration being calculated using the second algorithm;
the first algorithm includes a first set of one more rules, and the second algorithm includes a second set of one more rules;
the first algorithm includes a first set of one more procedures, and the second algorithm includes a second set of one more procedures;
the first algorithm includes a first set of one more steps, and the second algorithm includes a second set of one more steps;
the first parameter field is part of a data portion in the first non-TCP packet;

the first parameter field is part of a header of the first non-TCP packet;
the first non-TCP packet is informational;
the non-TCP includes one or more features of TCP, and one or more features not of TCP;
the first non-TCP packet includes one or more features of a TCP packet, and one or more features not of a TCP packet;
the first non-TCP connection includes one or more features of a TCP connection, and one or more features not of a TCP connection;
identify includes receive;
the first information includes first idle information;
the first information does not include first idle information;
the first information is received based on a previous header;
the first information is not based on a previous header;
the first duration for detecting the first type of time period is based on the first information, by the first information identifying the first duration;
the first duration for detecting the first type of time period is based on the first information, by the first information specifying the first duration;
the first duration for detecting the first type of time period is based on the first information, by the first information identifying at least one generator for generating the first duration;
only the first duration for detecting the first type of time period is based on the first information;
the first non-TCP connection includes (a-1), (a-2), and (a-3);
the second duration of the second time period is different from the duration of the first time period;
the second duration of the second time period is the same as the duration of the first time period;
the third duration of the third time period is different from the duration of the first time period;
the third duration of the third time period is the same as the duration of the first time period;
the third duration of the third time period is different from the duration of the second time period;

the third duration of the third time period is the same as the duration of the second time period;

the first non-TCP packet also includes data for use in determining the first time period;

the first idle information includes a first value representative of the first duration of the first time period, and a second value representative of the second duration of the second time period;

the first idle information includes a first value representative of the first duration of the first time period, and identification of a generator for generating a second value representative of the second duration of the second time period;

the first idle information includes identification of a generator for generating a first value representative of the first duration of the first time period, and for generating a second value representative of the second duration of the second time period;

the first idle information includes identification of a first generator for generating a first value representative of the first duration of the first time period, and identification of a second generator for generating a second value representative of the second duration of the second time period;

the first time period is detected in a first use scenario without the second nor third time periods being detected, the second time period is detected in a second use scenario without the first nor third time periods being detected, the third time period is detected in a third use scenario without the first nor second time periods being detected, and neither the first, second, nor third time periods are detected in a fourth use scenario;

the first duration of the first time period is determined based on the first idle information, after identifying the first idle information;

the first duration of the first time period is determined based on the first idle information, before setting up the first non-TCP connection;

the first duration of the first time period is determined based on the first idle information, during setting up the first non-TCP connection;

the first duration of the first time period is determined based on the first idle information, after setting up the first non-TCP connection;

the first time period is triggered by one or more non-duration-related criteria that triggers the second time period;

the first time period is triggered by the same one or more non-duration-related criteria that triggers the second time period;

the first time period is triggered by different one or more non-duration-related criteria than that which triggers the second time period;

the first time period is that during which no packet is received in the first non-TCP connection nor expected to be received;

the first time period is that during which no packet is received in the first non-TCP connection;

the third time period is triggered by one or more non-duration-related criteria that triggers the second time period;

the third time period is triggered by the same one or more non-duration-related criteria that triggers the second time period;

the third time period is triggered by different one or more non-duration-related criteria than that which triggers the second time period;

the third time period is that during which no packet is received in the first non-TCP connection nor expected to be received;

the third time period is that during which no packet is received in the first non-TCP connection;

the first metadata is based on the first idle information;

the change occurs while detection of the first time period is attempted;

the change occurs via a negotiation;

the second time period is a changed version of the first time period;

the second time period is a changed instance of the first time period;

the second time period is determined based on the first idle information;

the first duration of the first time period is negotiated between the first and second nodes for the first non-TCP connection, during the first non-TCP connection set up;

the first non-TCP connection set up includes all communications that precede completion of the first non-TCP connection set up;

the duration of the second time period is determined based on the first idle information;

the duration of the third time period is determined based on the first idle information;
the first and second time periods are of a same duration;
the first and second time periods are of a different duration;
the first and second time periods are different instances of the same type of time period;
the first and second time periods are of the same type of time period, but are applied at different times during the first non-TCP connection;
the first duration of the first time period is determined by being negotiated;
the second duration of the second time period is determined by being negotiated;
the third duration of the third time period is determined by being negotiated;
the first metadata is also for use in determining the second duration of the second time period;
the first metadata is not for use in determining the second duration of the second time period;
the first metadata is also for use in determining the third duration of the third time period;
the first metadata is not for use in determining the third duration of the third time period;
the first metadata describes a definition of at least one duration;
the first metadata defines at least one duration;
the first metadata includes at least one duration;
the first metadata describes a definition of at least one time period;
the first metadata describes other data that defines at least one duration;
the first metadata describes other data that defines at least one time period;
the first metadata describes other criteria-related data that defines at least one time period;
the first metadata describes duration data that defines at least one time period;
the first metadata describes duration criteria-related data that defines at least one time period;
the at least portion of the first non-TCP connection includes only a subset of setting up the first non-TCP connection;
the at least portion of the first non-TCP connection includes an entirety of setting up the first non-TCP connection;
the at least portion of the first non-TCP connection set up includes one or more packet exchanges that occur after the first non-TCP packet is sent;

the at least portion of the first non-TCP connection set up includes one or more packet exchanges that occur after the first non-TCP packet is sent prior to completion of the first non-TCP connection set up;

the first resource is released by the first node, by being released only by the first node;

the first resource is released by the first node, by being released by the first node and at least one other node;

the first resource is allocated for maintaining the first non-TCP connection;

the first resource is allocated for activating the first non-TCP connection;

the first resource includes a storage resource;

the first resource includes a network resource;

the first resource includes a processor resource;

the first, the second, and third non-TCP packets are non-TCP by not being required by any TCP standard specification;

the first time period is detected based on the first duration, by being detected when packet activity or a lack thereof meets one or more criteria for a span of the first duration;

the second time period is detected based on the second duration, by being detected when packet activity or a lack thereof meets one or more criteria for a span of the second duration;

the first type of time period includes an idle time period type;

the first and second time periods of the first type of time period differ only in duration;

the first and second time periods of the first type of time period are capable of differing in duration, but may have a same duration;

the first and second time periods of the first type of time period are capable of differing only in duration, but may have a same duration;

the first and second time periods of the first type of time period differ in duration and at least one criteria involving packet activity or a lack thereof over a duration span;

the first and second time periods of the first type of time period are capable of differing in duration and further differ in at least one criteria involving packet activity or a lack thereof over a duration span;

the first non-TCP packet includes a portion of data sent at any layer;

the first non-TCP packet includes a frame;
the first non-TCP packet is a non-TCP frame;
non-TCP refers to not being required by any TCP standard specification;
non-TCP refers to not being required by any TCP current specification;
non-TCP refers to not being required in a particular context by any TCP standard specification; or
non-TCP refers to not being required in a particular context by any TCP current specification.

85. (New) A non-transitory computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which when executed by a first node, cause the first node to:

receive first information on which at least a first duration for detecting a first type of time period is based;

identify a first resource for a first connection, where the first connection does not utilize Transmission Control Protocol (TCP);

generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource for the first connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource for the first connection; and

in response to detecting, based on a third duration and by the first node, a third time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection, the third duration being determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

86. (New) The non-transitory computer readable storage medium of Claim 85, wherein the instructions, when executed by the first node, cause the first node to:

in response to detecting, by the first node, the third time period that is a second type of time period including an acknowledgment timeout period during which no acknowledgement packet is received in the first connection and processed as an acknowledgement for a sent packet sent in the first connection: release, by the first node, the first resource for the first connection, wherein:

the first time period and the second time period are started in response to at least one of a received packet or a sent packet; and during the at least portion of the first connection including the at least portion of the first connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether, during the first duration after the first time period is started, no packet is received and processed to keep the first connection at least partially active; and based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether, during the second

duration after the second time period is started, no packet is received and processed to keep the first connection at least partially active.

87. (New) The non-transitory computer readable storage medium of Claim 86, wherein the first connection set up further includes, in addition to (a-1) sending the first packet that is also for use in determining the third duration of the third time period:

(a-2) after sending the first packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second packet, and

(a-3) after receiving the second packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third packet, and further wherein:

the first duration, the second duration, and the third duration are capable of being of different durations;

the second time period and the third time period are capable of being detected during the first connection set up and thereafter during the first connection;

the first packet is not a synchronize (SYN) packet;

the first connection does not utilize a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first connection set up;

the first duration is not negotiated between the first and second nodes for the first connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first connection using at least one of (a-1), (a-2), or (a-3);

the first duration is used and the second duration is not used, for detecting the first type of time period until the first duration is changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected only in response to no acknowledgement packet being received in the first connection and processed as an acknowledgement, during the third duration, for a sent packet sent in the first connection;

during the at least portion of the first connection including the at least portion of the first connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether any packet is received for the first connection set up during the first duration;

based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether, during the second duration, no packet is received and processed to keep the first connection at least partially active, nor is expected to be received in the first connection; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

88. (New) A method, comprising:

at at least a portion of a first node:

identifying first information on which at least a first duration for detecting a first type of time period is based;

allocating a first resource for a first Transmission Control Protocol-variant (TCP-variant) connection;

generating a first TCP-variant packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

setting up the first TCP-variant connection, by sending, from the first node to a second node, the first TCP-variant packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

based on detecting, by the first node and during at least a portion of the first TCP-variant connection including at least a portion of the first TCP-variant connection set up, a first duration-based first time period of the first type of time period, at least partially closing the first TCP-variant connection, by releasing the first resource allocated for the first TCP-variant connection;

based on detecting, by the first node and based on the first duration being changed to the second duration, a second duration-based second time period of the

first type of time period, at least partially closing the first TCP-variant connection, by releasing the first resource allocated for the first TCP-variant connection; and

based on detecting, by the first node and based on a third duration, a third duration-based third time period, at least partially closing the first TCP-variant connection, by releasing the first resource allocated for the first TCP-variant connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based

89. (New) The method of Claim 88, wherein the first duration is not negotiated between the first and second nodes during the first TCP-variant connection set up, and the second duration is negotiated between the first and second nodes for the first TCP-variant connection.

90. (New) The method of Claim 88, wherein the first time period is only capable of being detected during the first TCP-variant connection set up.

91. (New) The method of Claim 88, wherein the second time period is capable of being detected during the first TCP-variant connection set up and thereafter during the first TCP-variant connection.

92. (New) The method of Claim 88, wherein the first duration is exclusively used for detecting the first type of time period until being changed to the second duration.

93. (New) The method of Claim 88, wherein the third time period is detected based on no acknowledgement packet being detected, for the third duration that starts based on a sent packet being sent in the first TCP-variant connection, as being received in the first TCP-variant connection and processed to acknowledge the sent packet.

94. (New) The method of Claim 93, wherein the first TCP-variant packet also includes data for use in determining the third time period.

95. (New) The method of Claim 93, wherein the third time period is detected utilizing a timer that is not utilized to detect either of the first and second time periods.

96. (New) The method of Claim 93, wherein the first duration is not negotiated between the first and second nodes during the first TCP-variant connection set up, the second duration is negotiated between the first and second nodes for the first TCP-variant connection, and the third duration of the third time period is negotiated between the first and second nodes for the first TCP-variant connection.

97. (New) The method of Claim 93, wherein the third time period is detected at least partially during the first TCP-variant connection set up.

98. (New) The method of Claim 93, wherein the third time period is a second type of time period.

99. (New) The method of Claim 93, wherein the third duration is determined using the first TCP-variant packet.

100. (New) The method of Claim 99, wherein the third duration is determined based on the second duration.

101. (New) The method of Claim 99, wherein the second duration is determined based on the third duration.

102. (New) The method of Claim 99, wherein the third duration is different from the second duration.

103. (New) The method of Claim 93, wherein the sent packet includes a plurality of sent packets, and a single timer and a single timeout variable are utilized for detecting the third time period in connection with the plurality of sent packets.

104. (New) The method of Claim 93, wherein the third duration is determined using a second parameter field identifying second metadata.

105. (New) The method of Claim 104, wherein the second time period is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

106. (New) The method of Claim 105, wherein the third duration is determined based on the second duration.

107. (New) The method of Claim 105, wherein the second duration is determined based on the third duration.

108. (New) The method of Claim 105, wherein the third duration is different from the second duration.

109. (New) The method of Claim 88, wherein:

the third time period is detected based on no acknowledgement packet being received in the first non-TCP connection, for the third duration that starts based on a sent packet being sent in the first TCP-variant connection, and processed to acknowledge the sent packet;

the first duration is not negotiated between the first and second nodes during the first non-TCP connection set up, the second duration is negotiated between the first and second

nodes for the first non-TCP connection, and the third duration of the third time period is negotiated between the first and second nodes for the first non-TCP connection;

the third time period is a second type of time period, and is an acknowledgment timeout period; and

the third duration is determined based on the first parameter field identifying the first metadata.

110. (New) The method of Claim 88, wherein the third time period is detected based on first TCP-variant connection traffic-related criteria that only involves no acknowledgement packet being received in the first TCP-variant connection and processed as an acknowledgement for a sent packet sent in the first TCP-variant connection.

111. (New) The method of Claim 110, and further comprising:

based on detecting the third time period of the second type of time period, unilaterally at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection, without signaling the second node in relation to the detection of the third time period based on detecting the third time period.

112. (New) The method of Claim 88, wherein the first TCP-variant connection set up further includes, in addition to (a-1) sending the first TCP-variant packet:

(a-2) after sending the first TCP-variant packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second TCP-variant packet, and

(a-3) after receiving the second TCP-variant packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third TCP-variant packet.

113. (New) The method of Claim 88, wherein the first type of time period includes an idle time period.

114. (New) The method of Claim 88, wherein only one of the first time period or the second time period is detected for the first TCP-variant connection.

115. (New) The method of Claim 88, wherein, during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether another TCP-variant packet is not received for the first TCP-variant connection set up for the first duration.

116. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, for the second duration, no packet is received in the first TCP-variant connection and processed to keep the first TCP-variant connection at least partially active.

117. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, for the second duration, no packet is received in the first TCP-variant connection and processed to keep the first TCP-variant connection at least partially active, nor is expected to be received.

118. (New) The method of Claim 88, and further comprising:

based on detecting the first time period of the first type of time period, unilaterally at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection, without signaling the second node in relation to the detection of the first time period based on detecting the first time period.

119. (New) The method of Claim 88, wherein the second duration is capable of being different from the first duration.

120. (New) The method of Claim 119, wherein the second duration is different from the first duration.

121. (New) The method of Claim 119, wherein the second duration is the same as the first duration, despite being capable of being different from the first duration.

122. (New) The method of Claim 88, wherein:

the first TCP-variant packet is not a synchronize (SYN) packet;

the first TCP-variant connection is not a TCP extension connection that involves a TCP extension; and

the first type of time period does not include a user timeout period.

123. (New) The method of Claim 88, wherein an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

124. (New) The method of Claim 88, wherein the first type of time period is started based on at least one of a received packet or a sent packet.

125. (New) The method of Claim 124, wherein the first type of time period is started based on the received packet.

126. (New) The method of Claim 124, wherein the first type of time period is started based on the sent packet.

127. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, for the second duration, no non-empty packet is received and processed to keep the first TCP-variant connection at least partially active.

128. (New) The method of Claim 127, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

129. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, for the second duration, no packet is received and processed to keep the first TCP-variant connection at least partially active.

130. (New) The method of Claim 129, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

131. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related

criteria that only involves whether, for the second duration, no non-empty packet is received and processed to keep the first TCP-variant connection at least partially active.

132. (New) The method of Claim 131, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

133. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, for the second duration, no packet is received and processed to keep the first TCP-variant connection at least partially active.

134. (New) The method of Claim 133, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

135. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether, for the second duration, no non-empty packet is received and processed to keep the first TCP-variant connection at least partially active.

136. (New) The method of Claim 135, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

137. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is

based on the second duration, by being based on whether, for the second duration, no packet is received and processed to keep the first TCP-variant connection at least partially active.

138. (New) The method of Claim 137, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

139. (New) The method of Claim 88, wherein, during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether, for the first duration, no packet is received and processed to keep the first TCP-variant connection at least partially active, nor sent.

140. (New) The method of Claim 88, wherein the first duration is not negotiated during the first non-TCP connection set up between the first and second nodes for the first TCP-variant connection, and the second duration is negotiated between the first and second nodes for the first TCP-variant connection.

141. (New) The method of Claim 88, and further comprising:

based on detecting, by the first node, the third time period that is a second type of time period including an acknowledgment timeout period during which no acknowledgement packet is received in the first TCP-variant connection and processed as an acknowledgement for a sent packet sent in the first TCP-variant connection: unilaterally at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection, wherein:

the first TCP-variant connection set up further includes, in addition to (a-1) sending the first TCP-variant packet that is also for use in determining the third duration of the third time period:

(a-2) after sending the first TCP-variant packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second TCP-variant packet, and

(a-3) after receiving the second TCP-variant packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third TCP-variant packet, and further wherein:

the first duration, the second duration, and the third duration are capable of being of different durations;

the second time period and the third time period are capable of being detected during the first TCP-variant connection set up and thereafter during the first TCP-variant connection; and

the first time period and the second time period are started based on at least one of a received packet or a sent packet; and during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether, during the first duration, no packet is received and processed to keep the first TCP-variant connection at least partially active; and based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether, during the second duration, no packet is received and processed to keep the first TCP-variant connection at least partially active; where only one of the first time period, the second time period, or the third time period is detected for the first TCP-variant connection.

142. (New) The method of Claim 141, wherein the third duration is determined based on the second duration, or the third duration is determined based on the second duration.

143. (New) The method of Claim 141, wherein the first type of time period is started based on the received packet.

144. (New) The method of Claim 141, wherein the first type of time period is started based on the sent packet.

145. (New) The method of Claim 141, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

146. (New) The method of Claim 141, wherein the third duration is determined using the first parameter field identifying the first metadata.

147. (New) The method of Claim 141, wherein the third duration is determined using a second parameter field identifying second metadata.

148. (New) The method of Claim 147, wherein the second duration is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

149. (New) The method of Claim 141, wherein:

the first TCP-variant packet is not a synchronize (SYN) packet;

the first TCP-variant connection is not a TCP extension connection that involves a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first TCP-variant connection set up;

the first duration is not negotiated between the first and second nodes for the first TCP-variant connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first TCP-variant connection using at least one of (a-1), (a-2), or (a-3);

the first duration is exclusively used for detecting the first type of time period until being changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected based on first TCP-variant connection traffic-related criteria that only involves no acknowledgement packet being received in the first TCP-variant connection during the third duration and processed as an acknowledgement for a sent packet sent in the first TCP-variant connection;

during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on first TCP-variant

connection traffic-related criteria that only involves whether any TCP-variant packet is received for the first TCP-variant connection set up during the first duration;

based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, during the second duration, no packet is received and processed to keep the first TCP-variant connection at least partially active, nor is expected to be received in the first TCP-variant connection; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

150. (New) The method of Claim 149, wherein the third time period is detected independent of the detection of the first and second time periods.

151. (New) The method of Claim 149, wherein the second duration is the same as the first duration, despite being capable of being different from the first duration.

152. (New) The method of Claim 88, wherein:

the first TCP-variant packet is not a synchronize (SYN) packet;

the first TCP-variant connection is not a TCP extension connection that involves a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first TCP-variant connection set up;

the first duration is not negotiated between the first and second nodes for the first TCP-variant connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first TCP-variant connection using at least one of (a-1), (a-2), or (a-3);

the first duration is exclusively used for detecting the first type of time period until being changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected based on first TCP-variant connection traffic-related criteria that only involves, during the third duration, no acknowledgement packet being received in the first TCP-variant connection and processed as an acknowledgement for a sent packet sent in the first TCP-variant connection;

during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether any TCP-variant packet is received or sent for the first TCP-variant connection set up during the first duration;

based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether, during

the second duration, no packet is received and processed to keep the first TCP-variant connection at least partially active, sent, nor is expected to be received or sent in the first TCP-variant connection; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

153. (New) The method of Claim 88, wherein the third time period is detected based on the third duration, by being detected when no acknowledgement packet is detected as being received and processed, during the third duration, by the first node in the first non-TCP connection to acknowledge a sent packet of a plurality of sent packets sent by the first node, where the third duration starts for each of the plurality of sent packets when at least one of the plurality of sent packets is sent, and where a single timer and a single timeout variable are utilized for detecting the third time period in connection with the plurality of sent packets.

154. (New) The method of Claim 153, wherein the third duration starts for each of the plurality of sent packets when the each one of the plurality of sent packets is sent.

155. (New) The method of Claim 153, wherein the third duration starts for each of the plurality of sent packets when a first one of the plurality of sent packets is sent.

156. (New) The method of Claim 153, wherein the third duration starts for each of the plurality of sent packets when a last one of the plurality of sent packets is sent or received.

157. (New) The method of Claim 153, wherein the third duration starts for each of the plurality of sent packets when a first one of the plurality of sent packets is sent, where the first packet is a first packet to be received after a last one of the plurality of sent packets is sent.

158. (New) An apparatus, comprising:

a non-transitory memory means for storing instructions means; and

one or more processors means in communication with the non-transitory memory means, wherein the one or more processors means execute the instructions means to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (non-TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time

period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection;

in response to detecting, based on a third duration and by the first node, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

Remarks:

In the Notice of Non-Compliant Amendment dated 12/31/2020, it is alleged that "[e]ach claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified" and 'Claims which were previously presented with the APE are marked as "New".'

Applicant respectfully disagrees. The Preliminary Amendment filed 12/02/2020 (cancelling Claims 1-20 in favor of Claim 21 et al.) was **NOT** entered by the Examiner, as evidenced by the fact that the Office Action dated 12/8/2020 merely examined Claims 1-20. Further, there has been no Examiner's Amendment since the Office Action dated 12/8/2020 (examining Claims 1-20) was mailed. Thus, in view of the above, it is believed that **NO** claim, which was previously presented (**AND** entered), is marked as "New."

The claims of the present patent application have been amended to clarify what is being claimed. No new matter has been added.

The claims have been rejected on the ground of non-statutory double patenting. Such grounds are rendered moot in view of the terminal disclaimers filed earlier.

Claims 1-20 is/are rejected under 35 U.S.C. 103 as being unpatentable over Sillasto et al. (US 2005/0063304), in view of Appanna et al. (US 2006/0062142). Applicant respectfully disagrees with this rejection. For example, for Claim 21, the proposed combination does not teach, in combination:

"21. (New) An apparatus, comprising:

a non-transitory memory storing instructions; and

one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (non-TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection; and

in response to detecting, based on a third duration, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based."

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir.1991).

Applicant respectfully asserts that at least the first and third element of the prima facie case of obviousness has not been met, since it would not be obvious to combine the proposed references, and the prior art excerpts, as relied upon by the Examiner, fail to teach or suggest all of the claim limitations, as noted above. With respect to the other independent claims, applicant respectfully asserts that such claims are deemed allowable for reasons similar, but not necessarily identical, to one or more of the aforementioned reasons (see each claim for specific claim language contained therein). In view of the above, a notice of allowance or specific prior art showing of each of the foregoing claim elements, in combination with the remaining claimed features, is respectfully requested.

It is believed that all of the pending issues have been addressed. However, the absence of a reply to a specific rejection, issue, or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other

claims) that have not been expressed. Still yet, nothing in this reply should be construed as intention to concede any issue with regard to any claim, except as specifically stated in this reply. Finally, it should be noted that no claims, except the last claim, are intended to be construed under 35 U.S.C. 112, paragraph 6.

In the event a telephone conversation would expedite the prosecution of this application, applicant invites the Examiner to telephone the undersigned attorney at the number listed below. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-4964 (Order No. PMOR120K).

Respectfully submitted,

Dated: 05 Jan 2021

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Patrick E. Caldwell, Esq.
Reg. No. 44,580

Electronic Patent Application Fee Transmittal

Application Number:	17079397
Filing Date:	23-Oct-2020
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Filer:	Patrick Edgar Caldwell
Attorney Docket Number:	PMOR0120K

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	11	100	1100
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1100**

Electronic Acknowledgement Receipt	
EFS ID:	41563253
Application Number:	17079397
International Application Number:	
Confirmation Number:	9756
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120K
Receipt Date:	05-JAN-2021
Filing Date:	23-OCT-2020
Time Stamp:	18:42:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1100
RAM confirmation Number	E202115I42432538
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		PMOR0120K_Amendment_A_vF_05-Jan-2021.pdf	230403 203f8b8d877ad1e6a295f0c54ffcf319b0d44d20	yes	51

Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Specification	2	4
Claims	5	47
Amendment/Req. Reconsideration-After Non-Final Reject	48	51

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30143 994bc41fc9f37f5afb57b6ce999b88af8c50559b	no	2

Warnings:

Information:

Total Files Size (in bytes):	260546

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Amendments to the Title:

Please amend the Title as follows:

METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A ~~AN IDLE TCP~~ CONNECTION

Amendments to the Specification:

Please amend the Summary as follows on Paragraph [0017] of the Specification:

[0017] Still further, a system for sharing information for detecting an idle TCP connection is described. The system includes an execution environment including an instruction processing unit configured to process an instruction included in at least one of an idle time period policy component, a packet generator component, a net out-port component, an idle time period monitor component, and a connection state component. The system includes the idle time period policy component configured for receiving, by a first node, first idle information for detecting a first idle time period during which no TCP packet including data in a first data stream sent in the TCP connection by a second node is received by the first node. The system includes the packet generator component configured for generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. The system still further includes the net out-port component configured for sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node. The system includes the idle time period monitor component configured for detecting the first idle time period based on the first idle information. The system includes the connection state component configured for deactivating the TCP connection in response to detecting the first idle time period. In various embodiments, a method, apparatus, and computer program product are provided to: identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based; allocate a first resource for a first connection (e.g. a non-TCP connection, a TCP-variant connection, not a Transmission Control Protocol connection, etc.); generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period; set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period; in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; and in response to detecting, by the first node and based on a third duration, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

Amendments to the Abstract:

Please amend the Abstract as follows:

~~A computer-implemented method is provided, comprising causing access to be provided, to a client computer, to code that causes the client computer to operate in accordance with a protocol that is separate from TCP, in order to establish a protocol connection with another server computer, by: receiving a packet, detecting an idle time period parameter field in the packet, identifying metadata in the idle time period parameter field for an idle time period, where, after the idle time period is detected, the second protocol connection is deemed inactive, and creating or modifying, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.~~ In various embodiments, a method, apparatus, and computer program product are provided to: identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based; allocate a first resource for a first connection (e.g. a non-TCP connection, a TCP-variant connection, not a Transmission Control Protocol connection, etc.); generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period; set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period; in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; and in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/079,397	Filing Date 10/23/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $480 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT	01/05/2021	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 138	Minus	** 138	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/STEFANIE A BRYCE/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/079,397	10/23/2020	Robert Paul Morris	PMOR0120K	9756

92045 7590 12/31/2020

The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

EXAMINER	
ALI, SYED	

ART UNIT	PAPER NUMBER
2468	

NOTIFICATION DATE	DELIVERY MODE
12/31/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@appcoll.com
pcaldwell@thecaldwellfirm.com

Notice of Non-Compliant Amendment (37 CFR 1.121)	Application No. 17/079,397	Applicant(s) Morris, Robert Paul
	Art Unit OED1	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

The amendment document filed on 12/24/2020 is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121 or 1.4. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- ☐ 1. Amendments to the specification:
  - ☐ A. Amended paragraph(s) do not include markings.
  - ☐ B. New paragraph(s) should not be underlined.
  - ☐ C. Other _____ .
- ☐ 2. Abstract:
  - ☐ A.Not presented on a separate sheet. 37 CFR 1.72.
  - ☐ B.Other _____ .
- ☐ 3. Amendments to the drawings:
  - ☐ A. The drawings are not properly identified in the top margin as "Replacement Sheet", "New Sheet", or "Annotated Sheet" as required by 37 CFR 1.121(d).
  - ☐ B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required .
  - ☐ C. Other _____ .
- ☑ 4. Amendments to the claims:
  - ☐ A. A complete listing of all of the claims is not present.
  - ☐ B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
  - ☑ C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
  - ☐ D. The claims of this amendment paper have not been presented in ascending numerical order.
  - ☑ E. Other: Claims which were previously presented with the A.PE are marked as "New" .
- ☐ 5. Other (e.g., the amendment is unsigned or not signed in accordance with 37 CFR 1.4): For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714.

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

1. Applicant is given **no new time period** if the non-compliant amendment is an after-final amendment or an amendment filed after allowance, or a drawing submission (only) If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the **entire corrected amendment** must be resubmitted.
2. Applicant is given **two months** from the mail date of this notice to supply the correction, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a Quayle action. If any of above boxes 1 to 4 are checked, the correction required is only the corrected section of the non-compliant amendment in compliance with 37 CFR 1.121.

   Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action.

   Failure to timely respond to this notice will result in:

   Abandonment of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action; or

   Non-entry of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment.

Legal Instruments Examiner (LIE), if applicable /JEFFERY L OLSEN/ Telephone No: (571)272-6393

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	17079397
Filing Date	2020-10-23
First Named Inventor	Robert Paul Morris
Art Unit	2468
Examiner Name	ALI, SYED
Attorney Docket Number	PMOR0120K

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5371852	A	1994-12-06	Attanasio et al.	Entire Document
	2	5495480	A	1996-02-27	Yoshida	Entire Document
	3	6273622	B1	2001-08-14	Ben-David	Entire Document
	4	6412006	B2	2002-06-25	Naudus	
	5	6412009	B1	2002-06-25	Erickson et al.	Entire Document
	6	6674713	B1	2004-01-06	Berg et al.	Entire Document
	7	6704786	B1	2004-03-09	Gupta et al.	Entire Document
	8	6880013	B2	2005-04-12	Kashyap	Entire Document

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2020-10-23
	First Named Inventor	Robert Paul Morris
	Art Unit	2468
	Examiner Name	ALI, SYED
	Attorney Docket Number	PMOR0120K

	9	7002917	B1	2006-02-21	Saleh	Entire Document
	10	7035214	B1	2006-04-25	Seddigh et al.	Entire Document
	11	7050940	B2	2006-05-23	Basso et al.	Entire Document
	12	7152111	B2	2006-12-19	Allred et al.	Entire Document
	13	7404210	B2	2008-07-22	Lin	
	14	7426569	B2	2008-09-16	Dunk	
	15	7428595	B2	2008-09-23	Deshpande	Entire Document
	16	7606191	B1	2009-10-20	Breau et al.	Entire Document
	17	7684346	B2	2010-03-23	Valli	
	18	7720989	B2	2010-05-18	Dunk	
	19	7729271	B2	2010-06-01	Tsuchiya et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2020-10-23
	First Named Inventor	Robert Paul Morris
	Art Unit	2468
	Examiner Name	ALI, SYED
	Attorney Docket Number	PMOR0120K

	20	7848351	B2	2010-12-07	Kim et al.	Entire Document
	21	7962623	B2	2011-06-14	Undery et al.	Entire Document
	22	8031617	B2	2011-10-04	Mogul et al.	Entire Document
	23	8073964	B2	2011-12-06	Dunk	
	24	8219606	B2	2012-07-10	Morris	Entire Document
	25	8228830	B2	2012-07-24	Babin et al.	Entire Document
	26	8375134	B2	2013-02-12	Herzog et al.	Entire Document
	27	8483095	B2	2013-07-09	Hegde et al.	Entire Document
	28	8700695	B2	2014-04-15	Sundarrajan et al.	Entire Document
	29	8711851	B1	2014-04-29	Subramonian et al.	Entire Document

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17079397
	Filing Date	2020-10-23
	First Named Inventor	Robert Paul Morris
	Art Unit	2468
	Examiner Name	ALI, SYED
	Attorney Docket Number	PMOR0120K

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	2	20050063304	A1	2005-03-24	Sillasto et al.	
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	4	20060195547	A1	2006-08-31	Sundarrajan et al.	Entire Document
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	8	20070140193	A1	2007-06-21	Dosa et al.	Entire Document
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	1	1242882	EP	A2	2002-09-25	Hankinson et al.	Entire Document	
	2	2007069046	WO	A1	2007-06-21	Eronen et al.	Entire Document	

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Name/Print	Patrick Caldwell	Registration Number	44580

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	17079397
Filing Date	2020-10-23
First Named Inventor	Robert Paul Morris
Art Unit	2468
Examiner Name	ALI, SYED
Attorney Docket Number	PMOR0120K

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6757248	B1	2004-06-29	Li et al.	Entire Document
	2	7808941	B2	2010-10-05	Ramos et al.	Entire Document
	3	7876678	B2	2011-01-25	Ong	Entire Document
	4	8077737	B2	2011-12-13	Ji	Entire Document
	5	9060310	B2	2015-06-16	Ji	Entire Document
	6	9923996	B1	2018-03-20	Morris	Entire Document
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17079397
	Filing Date	2020-10-23
	First Named Inventor	Robert Paul Morris
	Art Unit	2468
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	Attorney Docket Number	PMOR0120K

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20050135248	A1	2005-06-23	Ahuja et al.	Entire Document
	2	20070008884	A1	2007-01-11	Tang	Entire Document
	3	20080084826	A1	2008-04-10	Ong	Entire Document
	4	20080095124	A1	2008-04-24	Ramos et al.	Entire Document
	5	20100074273	A1	2010-03-25	Ji	Entire Document

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17079397
	Filing Date	2020-10-23
	First Named Inventor	Robert Paul Morris
	Art Unit	2468
	Examiner Name	ALI, SYED
	Attorney Docket Number	PMOR0120K

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17079397
	Filing Date	2020-10-23
	First Named Inventor	Robert Paul Morris
	Art Unit	2468
	Examiner Name	ALI, SYED
	Attorney Docket Number	PMOR0120K

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Patrick Caldwell/	Date (YYYY-MM-DD)	2020-12-31
Name/Print	Patrick Caldwell	Registration Number	44580

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

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Electronic Patent Application Fee Transmittal	
Application Number:	17079397
Filing Date:	23-Oct-2020
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Filer:	Patrick Edgar Caldwell
Attorney Docket Number:	PMOR0120K
Filed as Large Entity	
Filing Fees for Utility under 35 USC 111(a)	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	260	260
		Total in USD ($)		**260**

Electronic Acknowledgement Receipt	
EFS ID:	41534211
Application Number:	17079397
International Application Number:	
Confirmation Number:	9756
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120K
Receipt Date:	31-DEC-2020
Filing Date:	23-OCT-2020
Time Stamp:	19:58:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$260
RAM confirmation Number	E2020BUJ59020690
Deposit Account	
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The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	PMOR0120K_IDS_XMTL_vF_31-Dec-2020.pdf	56634 be6aeffd49d9d59157b0db29a2a933f02915c252	no	2
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	PMOR0120K_IDS_20201231_1_OF_3_vF.pdf	1057528 c6d51461c6ca45e8664928717a57592e37982ff2	no	12
Warnings:					
Information:					
3	Information Disclosure Statement (IDS) Form (SB08)	PMOR0120K_IDS_20201231_2_OF_3_vF.pdf	1054286 e5aded9e42ac25fa6971b0d4f8bc9eda6e8c757a	no	5
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A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
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Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	30622 922aa5544ff7bb422c568cfcf6f3bfb23a0c840d	no	2
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		Total Files Size (in bytes):	3252367		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Robert Paul Morris Application No.: 17/079,397 File Date: 10-23-2020 Title: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION (as amended)	Confirmation No.: 9756 Examiner: ALI, SYED Art Unit: 2468 Docket No.: PMOR0120K Date: December 31, 2020

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §§ 1.56 AND 1.97(b)

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Examiner:

The reference(s) listed in the attached PTO Form 1449, cop(ies) of which is attached (when necessary), may be material to examination of the above-identified patent application. Applicants submit the reference(s) in compliance with their duty of disclosure pursuant to 37 CFR §§ 1.56 and 1.97. The Examiner is requested to make the reference(s) of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that the reference(s) indeed constitutes prior art.

Additionally, one or more patents (e.g. 9923995, 9923996, 10069945, 10075564, 10075565, 10375215, 10306026, 10742774) are (or were) the subject of litigation (EDTX 4:19-cv-00250; EDTX 4:19-cv-00249; EDTX 4:20-cv-00279; WDTX 6:20-cv-00453). Additionally, one or more patents (e.g. 9923995) are the subject of pending Inter Partes Review (IPR2020-00742; IPR2020-00845). Further, Claims 25, 26, and 28 of 9923995 have been disclaimed.

This Information Disclosure Statement is being filed after the mailing date of a non-final Office Action. Accordingly, applicants are including payment in the amount of $260.00 for the fee due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any additional fees are due, the Commissioner is hereby authorized to charge such fees or credit any overpayment to Deposit Account 50-4964.

Respectfully submitted,

Dated: 31 Dec 2020

The Caldwell Firm, LLC
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Dallas, Texas 75229-0655
Telephone: (214) 734-2313
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Patrick E. Caldwell, Esq.
Reg. No. 44,580

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Confirmation No.: 9756
Robert Paul Morris	Examiner: ALI, SYED
Application No.: 17/079,397	Art Unit: 2468
File Date: 10-23-2020	Docket No.: PMOR0120K
Title: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION (amended)	Date: December 24, 2020

AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

In response to the Office Action dated 12/8/2020, please enter the following.

Amendments to the Claims:

The listing of amended claims follow:

1.-20. (Cancelled)

21. (New) An apparatus, comprising:

a non-transitory memory storing instructions; and

one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (non-TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the

first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection; and

in response to detecting, based on a third duration, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

22. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is not negotiated between the first and second nodes during the first non-TCP connection set up, and the second duration is negotiated between the first and second nodes during the first non-TCP connection set up for the first non-TCP connection.

23. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first time period is only capable of being detected during the first non-TCP connection set up.

24. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the second time period is capable of being detected at a time at least one of: during the first non-TCP connection set up, or thereafter during the first non-TCP connection.

25. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is used and the second duration is not used, for detecting the first type of time period until being changed to the second duration.

26. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected based on the third duration, by being detected when no acknowledgement packet is received by the first node in the first non-TCP connection, during the third duration, for a sent packet sent by the first node in the first non-TCP connection.

27. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected based on the third duration, by being detected when an expected acknowledgement packet is not received by the first node in the first non-TCP connection, during the third duration, for a sent packet sent by the first node in the first non-TCP connection.

28. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected only in response to an acknowledgement packet not being received, for the third duration, in the first non-TCP connection for a sent packet sent in the first non-TCP connection.

29. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected in response to no acknowledgement packet being received in the first non-TCP connection for a sent packet sent in the first non-TCP connection.

30. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first non-TCP packet also includes data, separate from the first metadata, for use in determining the third time period.

31. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected utilizing a timer that is not utilized to detect the first time period nor the second time period.

32. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is not negotiated between the first and second nodes during the first non-TCP connection set up, the second duration is negotiated during the first non-TCP connection set up between the first and second nodes for the first non-TCP connection, and the third duration of the third time period is negotiated during the first non-TCP connection set up between the first and second nodes for the first non-TCP connection.

33. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is an acknowledgment timeout period during which an expected acknowledgment for a sent packet is not received.

34. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is a second type of time period.

35. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third duration is determined using the first parameter field identifying the first metadata.

36. (New) The apparatus of Claim 35, wherein the apparatus is configured such that the third duration is determined based on the second duration.

37. (New) The apparatus of Claim 35, wherein the apparatus is configured such that the second duration is determined based on the third duration.

38. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third time period is detected based on the third duration, by being detected when no acknowledgement packet is detected as being received, during the third duration, by the first node in the first non-TCP connection to acknowledge a sent packet of a plurality of sent packets sent by the first node, where the third duration starts for each of the plurality of sent packets when at least one of the plurality of sent packets is sent, and where a single timer and a single

timeout variable are utilized for detecting the third time period in connection with the plurality of sent packets.

39. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the third duration is determined using a second parameter field identifying second metadata, where the second parameter field is communicated in the first non-TCP connection.

40. (New) The apparatus of Claim 39, wherein the apparatus is configured such that the second duration is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

41. (New) The apparatus of Claim 40, wherein the apparatus is configured such that the third duration is determined based on the second duration.

42. (New) The apparatus of Claim 40, wherein the apparatus is configured such that the second duration is determined based on the third duration.

43. (New) The apparatus of Claim 21, wherein the apparatus is configured such that:

the third time period is detected in response to no acknowledgement packet being received in the first non-TCP connection, during the third duration that starts in response to a sent packet being sent in the first TCP-variant connection, to acknowledge the sent packet;

the first duration is not capable of being negotiated between the first and second nodes during the first non-TCP connection set up, the second duration is capable of being negotiated between the first and second nodes for the first non-TCP connection, and the third duration of the third time period is capable of being negotiated between the first and second nodes for the first non-TCP connection;

the third time period is a second type of time period, and is an acknowledgment timeout period; and

the third duration is determined using the first parameter field identifying the first metadata.

44. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting the third time period, unilaterally at least partially close the first non-TCP connection for the first node, by releasing, by the first node, the first resource allocated for the first non-TCP connection, without signaling the second node in relation to the detection of the third time period after detecting the third time period.

45. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first non-TCP connection set up further includes, in addition to (a-1) sending the first non-TCP packet:

(a-2) after sending the first non-TCP packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second non-TCP packet, and

(a-3) after receiving the second non-TCP packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third non-TCP packet.

46. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first type of time period includes an idle time period.

47. (New) The apparatus of Claim 21, wherein the apparatus is configured such that only one of the first time period or the second time period is detected for the first non-TCP connection.

48. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether another non-TCP packet is not received for the first non-TCP connection set up for the first duration.

49. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received in the first non-TCP connection for the second duration.

50. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received in the first non-TCP connection nor is expected to be received for the second duration.

51. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting the first time period of the first type of time period, unilaterally at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, without signaling the second node in relation to the detection of the first time period after detecting the first time period.

52. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the second duration is capable of being different from the first duration.

53. (New) The apparatus of Claim 52, wherein the apparatus is configured such that the second duration is different from the first duration.

54. (New) The apparatus of Claim 52, wherein the apparatus is configured such that the second duration is the same as the first duration, despite being capable of being different from the first duration.

55. (New) The apparatus of Claim 21, wherein the apparatus is configured such that:

the first non-TCP packet is not a synchronize (SYN) packet;

the first non-TCP connection is not a TCP extension connection that involves a TCP extension; and

the first type of time period does not include a user timeout period.

56. (New) The apparatus of Claim 21, wherein the apparatus is configured such that an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

57. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first type of time period is started in response to at least one of a received packet or a sent packet.

58. (New) The apparatus of Claim 57, wherein the apparatus is configured such that the first type of time period is started in response to the received packet.

59. (New) The apparatus of Claim 57, wherein the apparatus is configured such that the first type of time period is started in response to the sent packet.

60. (New) The apparatus of Claim 57, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no non-empty packet is received for the second duration after the second time period of the first type of time period is started.

61. (New) The apparatus of Claim 60, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

62. (New) The apparatus of Claim 57, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received for the second duration after the second time period of the first type of time period is started.

63. (New) The apparatus of Claim 62, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

64. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no non-empty packet is received for the second duration.

65. (New) The apparatus of Claim 64, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

66. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received for the second duration.

67. (New) The apparatus of Claim 66, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

68. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no non-empty packet is received for the second duration.

69. (New) The apparatus of Claim 68, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

70. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no packet is received for the second duration.

71. (New) The apparatus of Claim 70, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

72. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether no packet is received for the first duration.

73. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is not negotiated during the first non-TCP connection set up between the first and second nodes for the first non-TCP connection, and the second duration is negotiated between the first and second nodes for the first non-TCP connection.

74. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting, by the first node, the third time period that is a second type of time period including an acknowledgment timeout period during which no acknowledgement packet is received in the first non-TCP connection for a sent packet sent in the first non-TCP connection: unilaterally at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, wherein:

the first non-TCP connection set up further includes, in addition to (a-1) sending the first non-TCP packet that is also for use in determining the third duration of the third time period:

(a-2) after sending the first non-TCP packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second non-TCP packet, and

(a-3) after receiving the second non-TCP packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third non-TCP packet, and further wherein:

the first duration, the second duration, and the third duration are capable of being of different durations;

the second time period and the third time period are capable of being detected during the first non-TCP connection set up and thereafter during the first non-TCP connection; and

the first time period and the second time period are started in response to at least one of a received packet or a sent packet; and during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether no packet is received during the first duration; and after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no packet is received during the second duration; where only one of the first time period, the second time period, or the third time period is detected for the first non-TCP connection.

75. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the third duration is determined based on the second duration, or the third duration is determined based on the second duration.

76. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the first type of time period is started in response to the received packet.

77. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the first type of time period is started in response to the sent packet.

78. (New) The apparatus of Claim 74, wherein the apparatus is configured such that, during the second time period of the first type of time period, an empty packet is sent without causing a timer utilized to detect the second time period to be reset.

79. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the third duration is determined using the first parameter field identifying the first metadata.

80. (New) The apparatus of Claim 74, wherein the apparatus is configured such that the third duration is determined using a second parameter field that is communicated in the first non-TCP connection and that identifies second metadata.

81. (New) The apparatus of Claim 80, wherein the apparatus is configured such that the second duration is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

82. (New) The apparatus of Claim 74, wherein the apparatus is configured such that:

the first non-TCP packet is not a synchronize (SYN) packet;

the first non-TCP connection is not a TCP extension connection that involves a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first non-TCP connection set up;

the first duration is not negotiated between the first and second nodes for the first non-TCP connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first non-TCP connection using at least one of (a-1), (a-2), or (a-3);

the first duration is used and the second duration is not used, for detecting the first type of time period until the first duration is changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected only in response to no acknowledgement packet being received in the first non-TCP connection during the third duration for a sent packet sent in the first non-TCP connection;

during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether any non-TCP packet is received for the first non-TCP connection set up during the first duration;

after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received nor is expected to be received in the first non-TCP connection during the second duration; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

83. (New) The apparatus of Claim 82, wherein the apparatus is configured such that:

the third time period is detected utilizing a timer that is not utilized to detect either of the first and second time periods; and

the second duration is the same as the first duration, despite being capable of being different from the first duration.

84. (New) The apparatus of Claim 33, wherein the apparatus is configured such that at least one of:

the apparatus is at least one component of the second node;

the second node is at least one component of the apparatus;

the second node includes a device, including a network interface, that is a component of the apparatus;

the second node includes a network interface that is a component of the apparatus;

the apparatus includes a web server;

the first non-TCP packet is an initial non-TCP packet;

the first non-TCP packet is first-in-time;

the first algorithm and the second algorithm are associated with different identifiers;

the first algorithm is different from the second algorithm, while being based on at least one piece of common information;

the first algorithm is different from the second algorithm, while receiving, as input the first metadata;

the first algorithm and the second algorithm are both based on the first metadata;

the determination of the third duration is based the first algorithm, by the third duration being calculated using the first algorithm;

the determination of the second duration is based the second algorithm, by the second duration being calculated using the second algorithm;

the first algorithm includes a first set of one more rules, and the second algorithm includes a second set of one more rules;

the first algorithm includes a first set of one more procedures, and the second algorithm includes a second set of one more procedures;

the first algorithm includes a first set of one more steps, and the second algorithm includes a second set of one more steps;

the first parameter field is part of a data portion in the first non-TCP packet;

the first parameter field is part of a header of the first non-TCP packet;

the first non-TCP packet is informational;

the non-TCP includes one or more features of TCP, and one or more features not of TCP;
the first non-TCP packet includes one or more features of a TCP packet, and one or more features not of a TCP packet;
the first non-TCP connection includes one or more features of a TCP connection, and one or more features not of a TCP connection;
identify includes receive;
the first information includes first idle information;
the first information does not include first idle information;
the first information is received based on a previous header;
the first information is not based on a previous header;
the first duration for detecting the first type of time period is based on the first information, by the first information identifying the first duration;
the first duration for detecting the first type of time period is based on the first information, by the first information specifying the first duration;
the first duration for detecting the first type of time period is based on the first information, by the first information identifying at least one generator for generating the first duration;
only the first duration for detecting the first type of time period is based on the first information;
the first non-TCP connection includes (a-1), (a-2), and (a-3);
the second duration of the second time period is different from the duration of the first time period;
the second duration of the second time period is the same as the duration of the first time period;
the third duration of the third time period is different from the duration of the first time period;
the third duration of the third time period is the same as the duration of the first time period;
the third duration of the third time period is different from the duration of the second time period;
the third duration of the third time period is the same as the duration of the second time period;

the first non-TCP packet also includes data for use in determining the first time period;
the first idle information includes a first value representative of the first duration of the first time period, and a second value representative of the second duration of the second time period;
the first idle information includes a first value representative of the first duration of the first time period, and identification of a generator for generating a second value representative of the second duration of the second time period;
the first idle information includes identification of a generator for generating a first value representative of the first duration of the first time period, and for generating a second value representative of the second duration of the second time period;
the first idle information includes identification of a first generator for generating a first value representative of the first duration of the first time period, and identification of a second generator for generating a second value representative of the second duration of the second time period;
the first time period is detected in a first use scenario without the second nor third time periods being detected, the second time period is detected in a second use scenario without the first nor third time periods being detected, the third time period is detected in a third use scenario without the first nor second time periods being detected, and neither the first, second, nor third time periods are detected in a fourth use scenario;
the first duration of the first time period is determined based on the first idle information, after identifying the first idle information;
the first duration of the first time period is determined based on the first idle information, before setting up the first non-TCP connection;
the first duration of the first time period is determined based on the first idle information, during setting up the first non-TCP connection;
the first duration of the first time period is determined based on the first idle information, after setting up the first non-TCP connection;
the first time period is triggered by one or more non-duration-related criteria that triggers the second time period;

the first time period is triggered by the same one or more non-duration-related criteria that triggers the second time period;

the first time period is triggered by different one or more non-duration-related criteria than that which triggers the second time period;

the first time period is that during which no packet is received in the first non-TCP connection nor expected to be received;

the third time period is triggered by one or more non-duration-related criteria that triggers the second time period;

the third time period is triggered by the same one or more non-duration-related criteria that triggers the second time period;

the third time period is triggered by different one or more non-duration-related criteria than that which triggers the second time period;

the third time period is that during which no packet is received in the first non-TCP connection nor expected to be received;

the first metadata is based on the first idle information;

the change occurs while detection of the first time period is attempted;

the change occurs via a negotiation;

the second time period is a changed version of the first time period;

the second time period is a changed instance of the first time period;

the second time period is determined based on the first idle information;

the first duration of the first time period is negotiated between the first and second nodes for the first non-TCP connection, during the first non-TCP connection set up;

the first non-TCP connection set up includes all communications that precede completion of the first non-TCP connection set up;

the duration of the second time period is determined based on the first idle information;

the duration of the third time period is determined based on the first idle information;

the first and second time periods are of a same duration;

the first and second time periods are of a different duration;

the first and second time periods are different instances of the same type of time period;

the first and second time periods are of the same type of time period, but are applied at different times during the first non-TCP connection;

the first duration of the first time period is determined by being negotiated;

the second duration of the second time period is determined by being negotiated;

the third duration of the third time period is determined by being negotiated;

the first metadata is also for use in determining the second duration of the second time period;

the first metadata is not for use in determining the second duration of the second time period;

the first metadata is also for use in determining the third duration of the third time period;

the first metadata is not for use in determining the third duration of the third time period;

the first metadata describes a definition of at least one duration;

the first metadata describes a definition of at least one time period;

the first metadata describes other data that defines at least one duration;

the first metadata describes other data that defines at least one time period;

the first metadata describes other criteria-related data that defines at least one time period;

the first metadata describes duration data that defines at least one time period;

the first metadata describes duration criteria-related data that defines at least one time period;

the at least portion of the first non-TCP connection includes only a subset of setting up the first non-TCP connection;

the at least portion of the first non-TCP connection includes an entirety of setting up the first non-TCP connection;

the at least portion of the first non-TCP connection set up includes one or more packet exchanges that occur after the first non-TCP packet is sent;

the at least portion of the first non-TCP connection set up includes one or more packet exchanges that occur after the first non-TCP packet is sent prior to completion of the first non-TCP connection set up;

the first resource is released by the first node, by being released only by the first node;

the first resource is released by the first node, by being released by the first node and at least one other node;

the first resource is allocated for maintaining the first non-TCP connection;

the first resource is allocated for activating the first non-TCP connection;
the first resource includes a storage resource;
the first resource includes a network resource;
the first resource includes a processor resource;
the first, the second, and third non-TCP packets are non-TCP by not being required by any TCP standard specification;
the first time period is detected based on the first duration, by being detected when packet activity or a lack thereof meets one or more criteria for a span of the first duration;
the second time period is detected based on the second duration, by being detected when packet activity or a lack thereof meets one or more criteria for a span of the second duration;
the first type of time period includes an idle time period type;
the first and second time periods of the first type of time period differ only in duration;
the first and second time periods of the first type of time period are capable of differing in duration, but may have a same duration;
the first and second time periods of the first type of time period are capable of differing only in duration, but may have a same duration;
the first and second time periods of the first type of time period differ in duration and at least one criteria involving packet activity or a lack thereof over a duration span;
the first and second time periods of the first type of time period are capable of differing in duration and further differ in at least one criteria involving packet activity or a lack thereof over a duration span;
the first non-TCP packet includes a portion of data sent at any layer;
the first non-TCP packet includes a frame;
the first non-TCP packet is a non-TCP frame;
non-TCP refers to not being required by any TCP standard specification;
non-TCP refers to not being required by any TCP current specification;
non-TCP refers to not being required in a particular context by any TCP standard specification;
or
non-TCP refers to not being required in a particular context by any TCP current specification.

85. (New) A non-transitory computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which when executed by a first node, cause the first node to:

receive first information on which at least a first duration for detecting a first type of time period is based;

identify a first resource for a first connection, where the first connection does not utilize Transmission Control Protocol (TCP);

generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource for the first connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource for the first connection; and

in response to detecting, based on a third duration and by the first node, a third time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection, the third duration being determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

86. (New) The non-transitory computer readable storage medium of Claim 85, wherein the instructions, when executed by the first node, cause the first node to:

in response to detecting, by the first node, the third time period that is a second type of time period including an acknowledgment timeout period during which no acknowledgement packet is received in the first connection for a sent packet sent in the first connection: release, by the first node, the first resource for the first connection, wherein:

the first time period and the second time period are started in response to at least one of a received packet or a sent packet; and during the at least portion of the first connection including the at least portion of the first connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether no packet is received during the first duration after the first time period is started; and based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no packet is received during the second duration after the second time period is started.

87. (New) The non-transitory computer readable storage medium of Claim 86, wherein the first connection set up further includes, in addition to (a-1) sending the first packet that is also for use in determining the third duration of the third time period:

(a-2) after sending the first packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second packet, and

(a-3) after receiving the second packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third packet, and further wherein:

the first duration, the second duration, and the third duration are capable of being of different durations;

the second time period and the third time period are capable of being detected during the first connection set up and thereafter during the first connection;

the first packet is not a synchronize (SYN) packet;

the first connection does not utilize a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first connection set up;

the first duration is not negotiated between the first and second nodes for the first connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first connection using at least one of (a-1), (a-2), or (a-3);

the first duration is used and the second duration is not used, for detecting the first type of time period until the first duration is changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected only in response to no acknowledgement packet being received in the first connection during the third duration for a sent packet sent in the first connection;

during the at least portion of the first connection including the at least portion of the first connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether any packet is received for the first connection set up during the first duration;

based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received nor is expected to be received in the first connection during the second duration; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

88. (New) A method, comprising:

at at least a portion of a first node:

identifying first information on which at least a first duration for detecting a first type of time period is based;

allocating a first resource for a first Transmission Control Protocol-variant (TCP-variant) connection;

generating a first TCP-variant packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

setting up the first TCP-variant connection, by sending, from the first node to a second node, the first TCP-variant packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

based on detecting, by the first node and during at least a portion of the first TCP-variant connection including at least a portion of the first TCP-variant connection set up, a first duration-based first time period of the first type of time period, at least partially closing the first TCP-variant connection, by releasing the first resource allocated for the first TCP-variant connection;

based on detecting, by the first node and based on the first duration being changed to the second duration, a second duration-based second time period of the first type of time period, at least partially closing the first TCP-variant connection, by releasing the first resource allocated for the first TCP-variant connection; and

based on detecting, by the first node and based on a third duration, a third duration-based third time period, at least partially closing the first TCP-variant connection, by releasing the first resource allocated for the first TCP-variant connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based

89. (New) The method of Claim 88, wherein the first duration is not negotiated between the first and second nodes during the first TCP-variant connection set up, and the second duration is negotiated between the first and second nodes for the first TCP-variant connection.

90. (New) The method of Claim 88, wherein the first time period is only capable of being detected during the first TCP-variant connection set up.

91. (New) The method of Claim 88, wherein the second time period is capable of being detected during the first TCP-variant connection set up and thereafter during the first TCP-variant connection.

92. (New) The method of Claim 88, wherein the first duration is exclusively used for detecting the first type of time period until being changed to the second duration.

93. (New) The method of Claim 88, wherein the third time period is detected based on no acknowledgement packet being detected, for the third duration that starts based on a sent packet being sent in the first TCP-variant connection, as being received in the first TCP-variant connection to acknowledge the sent packet.

94. (New) The method of Claim 93, wherein the first TCP-variant packet also includes data for use in determining the third time period.

95. (New) The method of Claim 93, wherein the third time period is detected utilizing a timer that is not utilized to detect either of the first and second time periods.

96. (New) The method of Claim 93, wherein the first duration is not negotiated between the first and second nodes during the first TCP-variant connection set up, the second duration is negotiated between the first and second nodes for the first TCP-variant connection, and the

third duration of the third time period is negotiated between the first and second nodes for the first TCP-variant connection.

97. (New) The method of Claim 93, wherein the third time period is detected at least partially during the first TCP-variant connection set up.

98. (New) The method of Claim 93, wherein the third time period is a second type of time period.

99. (New) The method of Claim 93, wherein the third duration is determined using the first TCP-variant packet.

100. (New) The method of Claim 99, wherein the third duration is determined based on the second duration.

101. (New) The method of Claim 99, wherein the second duration is determined based on the third duration.

102. (New) The method of Claim 99, wherein the third duration is different from the second duration.

103. (New) The method of Claim 93, wherein the sent packet includes a plurality of sent packets, and a single timer and a single timeout variable are utilized for detecting the third time period in connection with the plurality of sent packets.

104. (New) The method of Claim 93, wherein the third duration is determined using a second parameter field identifying second metadata.

105. (New) The method of Claim 104, wherein the second time period is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

106. (New) The method of Claim 105, wherein the third duration is determined based on the second duration.

107. (New) The method of Claim 105, wherein the second duration is determined based on the third duration.

108. (New) The method of Claim 105, wherein the third duration is different from the second duration.

109. (New) The method of Claim 88, wherein:

the third time period is detected based on no acknowledgement packet being received in the first non-TCP connection, for the third duration that starts based on a sent packet being sent in the first TCP-variant connection, to acknowledge the sent packet;

the first duration is not negotiated between the first and second nodes during the first non-TCP connection set up, the second duration is negotiated between the first and second nodes for the first non-TCP connection, and the third duration of the third time period is negotiated between the first and second nodes for the first non-TCP connection;

the third time period is a second type of time period, and is an acknowledgment timeout period; and

the third duration is determined based on the first parameter field identifying the first metadata.

110. (New) The method of Claim 88, wherein the third time period is detected based on first TCP-variant connection traffic-related criteria that only involves no acknowledgement packet being received in the first TCP-variant connection for a sent packet sent in the first TCP-variant connection.

111. (New) The method of Claim 110, and further comprising:

based on detecting the third time period of the second type of time period, unilaterally at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection, without signaling the second node in relation to the detection of the third time period based on detecting the third time period.

112. (New) The method of Claim 88, wherein the first TCP-variant connection set up further includes, in addition to (a-1) sending the first TCP-variant packet:

(a-2) after sending the first TCP-variant packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second TCP-variant packet, and

(a-3) after receiving the second TCP-variant packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third TCP-variant packet.

113. (New) The method of Claim 88, wherein the first type of time period includes an idle time period.

114. (New) The method of Claim 88, wherein only one of the first time period or the second time period is detected for the first TCP-variant connection.

115. (New) The method of Claim 88, wherein, during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether another TCP-variant packet is not received for the first TCP-variant connection set up for the first duration.

116. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no packet is received in the first TCP-variant connection for the second duration.

117. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no packet is received in the first TCP-variant connection nor is expected to be received for the second duration.

118. (New) The method of Claim 88, and further comprising:

based on detecting the first time period of the first type of time period, unilaterally at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection, without signaling the second node in relation to the detection of the first time period based on detecting the first time period.

119. (New) The method of Claim 88, wherein the second duration is capable of being different from the first duration.

120. (New) The method of Claim 119, wherein the second duration is different from the first duration.

121. (New) The method of Claim 119, wherein the second duration is the same as the first duration, despite being capable of being different from the first duration.

122. (New) The method of Claim 88, wherein:

the first TCP-variant packet is not a synchronize (SYN) packet;

the first TCP-variant connection is not a TCP extension connection that involves a TCP extension; and

the first type of time period does not include a user timeout period.

123. (New) The method of Claim 88, wherein an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

124. (New) The method of Claim 88, wherein the first type of time period is started based on at least one of a received packet or a sent packet.

125. (New) The method of Claim 124, wherein the first type of time period is started based on the received packet.

126. (New) The method of Claim 124, wherein the first type of time period is started based on the sent packet.

127. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no non-empty packet is received for the second duration.

128. (New) The method of Claim 127, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

129. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no packet is received for the second duration.

130. (New) The method of Claim 129, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

131. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no non-empty packet is received for the second duration.

132. (New) The method of Claim 131, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

133. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no packet is received for the second duration.

134. (New) The method of Claim 133, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

135. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no non-empty packet is received for the second duration.

136. (New) The method of Claim 135, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

137. (New) The method of Claim 88, wherein, based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no packet is received for the second duration.

138. (New) The method of Claim 137, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

139. (New) The method of Claim 88, wherein, during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether no packet is received nor sent for the first duration.

140. (New) The method of Claim 88, wherein the first duration is not negotiated during the first non-TCP connection set up between the first and second nodes for the first TCP-variant

connection, and the second duration is negotiated between the first and second nodes for the first TCP-variant connection.

141. (New) The method of Claim 88, and further comprising:

based on detecting, by the first node, the third time period that is a second type of time period including an acknowledgment timeout period during which no acknowledgement packet is received in the first TCP-variant connection for a sent packet sent in the first TCP-variant connection: unilaterally at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection, wherein:

the first TCP-variant connection set up further includes, in addition to (a-1) sending the first TCP-variant packet that is also for use in determining the third duration of the third time period:

(a-2) after sending the first TCP-variant packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second TCP-variant packet, and

(a-3) after receiving the second TCP-variant packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third TCP-variant packet, and further wherein:

the first duration, the second duration, and the third duration are capable of being of different durations;

the second time period and the third time period are capable of being detected during the first TCP-variant connection set up and thereafter during the first TCP-variant connection; and

the first time period and the second time period are started based on at least one of a received packet or a sent packet; and during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on whether no packet is received during the first duration; and based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on whether no packet is received during the second duration; where only one of the first time period, the second time period, or the third time period is detected for the first TCP-variant connection.

142. (New) The method of Claim 141, wherein the third duration is determined based on the second duration, or the third duration is determined based on the second duration.

143. (New) The method of Claim 141, wherein the first type of time period is started based on the received packet.

144. (New) The method of Claim 141, wherein the first type of time period is started based on the sent packet.

145. (New) The method of Claim 141, wherein, during the second time period of the first type of time period, an empty packet is sent without causing a timer corresponding to the second time period to be reset.

146. (New) The method of Claim 141, wherein the third duration is determined using the first parameter field identifying the first metadata.

147. (New) The method of Claim 141, wherein the third duration is determined using a second parameter field identifying second metadata.

148. (New) The method of Claim 147, wherein the second duration is determined using the first parameter field identifying the first metadata, and the second parameter field identifying the second metadata.

149. (New) The method of Claim 141, wherein:

the first TCP-variant packet is not a synchronize (SYN) packet;

the first TCP-variant connection is not a TCP extension connection that involves a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first TCP-variant connection set up;

the first duration is not negotiated between the first and second nodes for the first TCP-variant connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first TCP-variant connection using at least one of (a-1), (a-2), or (a-3);

the first duration is exclusively used for detecting the first type of time period until being changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected based on first TCP-variant connection traffic-related criteria that only involves no acknowledgement packet being received in the first TCP-variant connection during the third duration for a sent packet sent in the first TCP-variant connection;

during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether any TCP-variant packet is received for the first TCP-variant connection set up during the first duration;

based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no packet is received nor is expected to be received in the first TCP-variant connection during the second duration; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

150. (New) The method of Claim 149, wherein the third time period is detected independent of the detection of the first and second time periods.

151. (New) The method of Claim 149, wherein the second duration is the same as the first duration, despite being capable of being different from the first duration.

152. (New) The method of Claim 88, wherein:

the first TCP-variant packet is not a synchronize (SYN) packet;

the first TCP-variant connection is not a TCP extension connection that involves a TCP extension;

the first type of time period includes an idle time period that does not include a user timeout period;

the first time period is only capable of being detected during the first TCP-variant connection set up;

the first duration is not negotiated between the first and second nodes for the first TCP-variant connection using (a-1), (a-2), nor (a-3), and the second duration and the third duration are negotiated between the first and second nodes for the first TCP-variant connection using at least one of (a-1), (a-2), or (a-3);

the first duration is exclusively used for detecting the first type of time period until being changed to the second duration;

the second duration is determined based on a first algorithm, and the third duration is determined based on a second algorithm that is different from the first algorithm;

the third time period is detected based on first TCP-variant connection traffic-related criteria that only involves no acknowledgement packet being received in the first TCP-variant connection during the third duration for a sent packet sent in the first TCP-variant connection;

during the at least portion of the first TCP-variant connection including the at least portion of the first TCP-variant connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being based on first TCP-variant

connection traffic-related criteria that only involves whether any TCP-variant packet is received or sent for the first TCP-variant connection set up during the first duration;

based on the first duration being changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being based on first TCP-variant connection traffic-related criteria that only involves whether no packet is received or sent nor is expected to be received or sent in the first TCP-variant connection during the second duration; and

an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

153. (New) The method of Claim 88, wherein the third time period is detected based on the third duration, by being detected when no acknowledgement packet is detected as being received, during the third duration, by the first node in the first non-TCP connection to acknowledge a sent packet of a plurality of sent packets sent by the first node, where the third duration starts for each of the plurality of sent packets when at least one of the plurality of sent packets is sent, and where a single timer and a single timeout variable are utilized for detecting the third time period in connection with the plurality of sent packets.

154. (New) The method of Claim 153, wherein the third duration starts for each of the plurality of sent packets when the each one of the plurality of sent packets is sent.

155. (New) The method of Claim 153, wherein the third duration starts for each of the plurality of sent packets when a first one of the plurality of sent packets is sent.

156. (New) The method of Claim 153, wherein the third duration starts for each of the plurality of sent packets when a last one of the plurality of sent packets is sent or received.

157. (New) The method of Claim 153, wherein the third duration starts for each of the plurality of sent packets when a first one of the plurality of sent packets is sent, where the first packet is a first packet to be received after a last one of the plurality of sent packets is sent.

158. (New) An apparatus, comprising:

a non-transitory memory means for storing instructions means; and

one or more processors means in communication with the non-transitory memory means, wherein the one or more processors means execute the instructions means to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (non-TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the

first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection;

in response to detecting, based on a third duration and by the first node, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

Remarks:

The claims of the present patent application have been amended to clarify what is being claimed. No new matter has been added.

The claims have been rejected on the ground of non-statutory double patenting. Such grounds are rendered moot in view of the terminal disclaimers filed earlier.

Claims 1-20 is/are rejected under 35 U.S.C. 103 as being unpatentable over Sillasto et al. (US 2005/0063304), in view of Appanna et al. (US 2006/0062142). Applicant respectfully disagrees with this rejection. For example, for Claim 21, the proposed combination does not teach, in combination:

"21. (New) An apparatus, comprising:

a non-transitory memory storing instructions; and

one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (non-TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection;

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection; and

in response to detecting, based on a third duration, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based."

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the

reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir.1991).

Applicant respectfully asserts that at least the first and third element of the prima facie case of obviousness has not been met, since it would not be obvious to combine the proposed references, and the prior art excerpts, as relied upon by the Examiner, fail to teach or suggest all of the claim limitations, as noted above. With respect to the other independent claims, applicant respectfully asserts that such claims are deemed allowable for reasons similar, but not necessarily identical, to one or more of the aforementioned reasons (see each claim for specific claim language contained therein). In view of the above, a notice of allowance or specific prior art showing of each of the foregoing claim elements, in combination with the remaining claimed features, is respectfully requested.

It is believed that all of the pending issues have been addressed. However, the absence of a reply to a specific rejection, issue, or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Still yet, nothing in this reply should be construed as intention to concede any issue with regard to any claim, except as specifically stated in this reply. Finally, it should be noted that no claims, except the last claim, are intended to be construed under 35 U.S.C. 112, paragraph 6.

In the event a telephone conversation would expedite the prosecution of this application, applicant invites the Examiner to telephone the undersigned attorney at the number listed below. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-4964 (Order No. PMOR120K).

Respectfully submitted,

Dated: 24 Dec 2020

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Electronic Patent Application Fee Transmittal

Application Number:	17079397
Filing Date:	23-Oct-2020
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Filer:	Patrick Edgar Caldwell
Attorney Docket Number:	PMOR0120K

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	118	100	11800
INDEPENDENT CLAIMS IN EXCESS OF 3	1201	1	480	480
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**12280**

Electronic Acknowledgement Receipt	
EFS ID:	41489881
Application Number:	17079397
International Application Number:	
Confirmation Number:	9756
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120K
Receipt Date:	24-DEC-2020
Filing Date:	23-OCT-2020
Time Stamp:	21:43:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$12280
RAM confirmation Number	E2020BNL44403165
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		PMOR0120K_Amendment_A_vF_24-Dec-2020.pdf	217137 e035f048148c227c419edd2f972973d6d51ae284	yes	49

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Specification	2	4
	Claims	5	45
	Amendment/Req. Reconsideration-After Non-Final Reject	46	49

Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32021 fd4cd9665a83f5290b74823b689fb31f5e6f0f37	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	249158		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/079,397	Filing Date 10/23/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $480 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	12/24/2020	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 138	Minus	** 49	= 89		x $100 =	8900
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	8900

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/JEFFERY L OLSEN/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Amendments to the Title:

Please amend the Title as follows:

METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A ~~AN IDLE TCP~~ CONNECTION

Amendments to the Specification:

Please amend the Summary as follows on Page 12 of the Specification:

node is received by the first node. The system includes the packet generator component configured for generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. The system still further includes the net out-port component configured for sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node. The system includes the idle time period monitor component configured for detecting the first idle time period based on the first idle information. The system includes the connection state component configured for deactivating the TCP connection in response to detecting the first idle time period. In various embodiments, a method, apparatus, and computer program product are provided to: identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based; allocate a first resource for a first connection (e.g. a non-TCP connection, a TCP-variant connection, not a Transmission Control Protocol connection, etc.); generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period; set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period; in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; and in response to detecting, by the first node and based on a third duration, a third time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.

Amendments to the Abstract:

Please amend the Abstract as follows:

~~A computer-implemented method is provided, comprising causing access to be provided, to a client computer, to code that causes the client computer to operate in accordance with a protocol that is separate from TCP, in order to establish a protocol connection with another server computer, by: receiving a packet, detecting an idle time period parameter field in the packet, identifying metadata in the idle time period parameter field for an idle time period, where, after the idle time period is detected, the second protocol connection is deemed inactive, and creating or modifying, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.~~ In various embodiments, a method, apparatus, and computer program product are provided to: identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based; allocate a first resource for a first connection (e.g. a non-TCP connection, a TCP-variant connection, not a Transmission Control Protocol connection, etc.); generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period; set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period; in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; and in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection.

Doc Code: DIST.E.FILE **Document Description: Electronic Terminal Disclaimer - Filed**	PTO/SB/25 PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A PROVISIONAL DOUBLE PATENTING REJECTION OVER A PENDING "REFERENCE" APPLICATION AND TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	17079397
Filing Date	23-Oct-2020
First Named Inventor	Robert Morris
Attorney Docket Number	PMOR0120K
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Jenam Tech, LLC	100 %

The owner(s) of percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on pending reference Application Number(s)

16914267 filed on 06/26/2020

13477402 filed on 05/22/2012

as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the reference application are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term of any patent granted on said reference application, "as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application," in the event that any such patent granted on the pending reference application: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.

The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)

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as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:
- expires for failure to pay a maintenance fee;
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◉ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

○ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.

Applicants claims the following fee status:

○ Small Entity

○ Micro Entity

◉ Regular Undiscounted

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

- (●) An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

  Registration Number 44580

- ( ) A sole inventor
- ( ) A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application
- ( ) A joint inventor; all of whom are signing this request

Signature	/Patrick Caldwell/
Name	Patrick Caldwell

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	17079397
Filing Date:	23-Oct-2020
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Filer:	Patrick Edgar Caldwell
Attorney Docket Number:	PMOR0120K

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	170	170
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**170**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 17079397

Filing Date: 23-Oct-2020

Applicant/Patent under Reexamination: Morris

Electronic Terminal Disclaimer filed on December 9, 2020

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt	
EFS ID:	41343621
Application Number:	17079397
International Application Number:	
Confirmation Number:	9756
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120K
Receipt Date:	09-DEC-2020
Filing Date:	23-OCT-2020
Time Stamp:	22:24:50
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$170
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1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	38417 3d9b501b59de593a1cd52ec5bf49a3fc2ed00733	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30297 699d375d8d433dfddc5db66671760f538886fa31	no	2
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National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
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PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	17079397
Filing Date	2020-10-23
First Named Inventor	Robert Paul Morris
Art Unit	2468
Examiner Name	ALI, SYED
Attorney Docket Number	PMOR0120K

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5371852	A	1994-12-06	Attanasio et al.	Entire Document
	2	5495480	A	1996-02-27	Yoshida	Entire Document
	3	6273622	B1	2001-08-14	Ben-David	Entire Document
	4	6412006	B2	2002-06-25	Naudus	
	5	6412009	B1	2002-06-25	Erickson et al.	Entire Document
	6	6674713	B1	2004-01-06	Berg et al.	Entire Document
	7	6704786	B1	2004-03-09	Gupta et al.	Entire Document
	8	6880013	B2	2005-04-12	Kashyap	Entire Document

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	Art Unit	2468
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	Attorney Docket Number	PMOR0120K

	9	7002917	B1	2006-02-21	Saleh	Entire Document
	10	7035214	B1	2006-04-25	Seddigh et al.	Entire Document
	11	7050940	B2	2006-05-23	Basso et al.	Entire Document
	12	7152111	B2	2006-12-19	Allred et al.	Entire Document
	13	7404210	B2	2008-07-22	Lin	
	14	7426569	B2	2008-09-16	Dunk	
	15	7428595	B2	2008-09-23	Deshpande	Entire Document
	16	7606191	B1	2009-10-20	Breau et al.	Entire Document
	17	7684346	B2	2010-03-23	Valli	
	18	7720989	B2	2010-05-18	Dunk	
	19	7729271	B2	2010-06-01	Tsuchiya et al.	

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	20	7848351	B2	2010-12-07	Kim et al.	Entire Document
	21	7962623	B2	2011-06-14	Undery et al.	Entire Document
	22	8031617	B2	2011-10-04	Mogul et al.	Entire Document
	23	8073964	B2	2011-12-06	Dunk	
	24	8219606	B2	2012-07-10	Morris	Entire Document
	25	8228830	B2	2012-07-24	Babin et al.	Entire Document
	26	8375134	B2	2013-02-12	Herzog et al.	Entire Document
	27	8483095	B2	2013-07-09	Hegde et al.	Entire Document
	28	8700695	B2	2014-04-15	Sundarrajan et al.	Entire Document
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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20050054347	A1	2005-03-10	Kakani	
	2	20050063304	A1	2005-03-24	Sillasto et al.	
	3	20060034179	A1	2006-02-16	Carter et al.	
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	5	20070064677	A1	2007-03-22	Xiong	Entire Document
	6	20070086461	A1	2007-04-19	Ward et al.	Entire Document
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	8	20070140193	A1	2007-06-21	Dosa et al.	Entire Document
	9	20080261596	A1	2008-10-23	Khetawat et al.	Entire Document
	10	20090201857	A1	2009-08-13	Daudin et al.	Entire Document

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	Attorney Docket Number	PMOR0120K

	11	20090252072	A1	2009-10-08	Lind et al.	
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	13	20110213820	A1	2011-09-01	Morris	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	1242882	EP	A2	2002-09-25	Hankinson et al.	Entire Document	
	2	2007069046	WO	A1	2007-06-21	Eronen et al.	Entire Document	

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	"A Border Gateway Protocol 4 (BGP-4)" RFC 1771, published in March 1995, available at https://tools.ietf.org/html/rfc1771.	
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	3	"IETF Announce Mailing List," IETF, April 2004	
	4	"IETF Document Management System Datatracker 2 for Eggert," IETF, Datatracker	
	5	"IETF TCP Maintenance," IETF, April 2004	
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	8	Allman, M., Paxson, V., Stevens, W., "TCP Congestion Control", RFC 2581, Internet Engineering Task Force, http://tools.ietf.org/rfc/rfc2581.txt,-April 1999	
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	Attorney Docket Number	PMOR0120K

	14	Cisco 7200 VXR Series Routers Data Sheet, published in 2008.	
	15	Cisco 7200 VXR Series Routers Quick Look Guide published in November 2007.	
	16	Cisco IOS BGP Configuration Guide, Release 12.4T, Chapter: Cisco BGP Overview, published in 2007, available at https://www.cisco.com/c/en/us/td/docs/ios/12_2sr/12_2srb/feature/guide/tbgp_c/tbrbover.html	
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	19	Digital cellular telecommunications system (Phase 2+); Generic access to the A/Gb interface; Stage 2 (3GPP TS 43.318 version 6.7.0 Release 6) ("TS 43.318"), published in June 2006.	
	20	Eggert, L., Gont, F., "TCP User Timeout Option", RFC 5482, Internet Engineering Task Force (IEFT), http://tools.ietf.org/html/rfc5482.txt, March 2009,	
	21	F. Gont, "TCP Adaptive User TimeOut (AUTO) Option," Network Working Group, May 19, 2004	
	22	HP Compaq Business Desktop d530 Series, QuickSpecs ("d530 QuickSpecs"), published on July 14, 2003, available at http://www.hp.com/ecomcat/hpcatalog/specs/emeapsg/99/D530SERIES.pdf.	
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	25	Hypertext Transfer Protocol RFC 2616, published in June 1999, available at https://tools.ietf.org/html/rfc2616.	
	26	IESG Statement: Normative and Informative References, Apr 19, 2006, available at https://www.ietf.org/blog/iesg-statement-normative-and-informative-references/	
	27	IETF Document Management System Datatracker 1 for Eggert, available at https://datatracker.ietf.org/doc/draft-eggert-tcpm-tcp-abort-timeout-option/	
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	31	Jacobson et al, "TCP Extensions for High Performance," Network Working Group, RFC 1323, May 1002, available at https://tools.ietf.org/html/rfc1323	
	32	Jacobson et al, "TCP Extensions for Long-Delay Paths," Network Working Group, RFC 1072, October 1988, available at https://tools.ietf.org/html/rfc1072	
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	35	Koziero, Charles M., TCP Connection Management and Problem Handling, the Connection Reset Function, and TCP "Keepalives", The TCP/IP Guide, p. 3, http://www.tcpipguide.com/free/t_TCPConnectionManagementandProblemHandlingtheConnec-3.htm, accessed February 2010, (c) 2003-2010	

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	Attorney Docket Number	PMOR0120K

	36	Mathis et al, "TCP Selective Acknowledgment Options," Network Working Group, RFC 2018, October 1996, available at https://tools.ietf.org/html/rfc2018	
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	39	Nagle, John, "Congestion Control in IP/TCP Internetworks", RFC 896, Ford Aerospace and Communications Corporation, http://tools.ietf.org/rfc/rfc896.txt, January 1984	
	40	NetEx "'C' Configuration Manager and NetEx® Alternate Path Retry (APR) Release 4.0" software reference manual, published in 2002, available at http://www.netexsw.com/nesi/support/ReleasedDocs/ConfMgr/man-cnet-conf-mgr-02.pdf.	
	41	NetEx/IP™ for UNIX Systems Release 6.0 Software Reference Manual, published in 2004, available at http://www.netexsw.com/nesi/support/ReleasedDocs/Hxx0IP/man-hunxip-03.pdf.	
	42	Network Support for Intermittently Connected Mobile Nodes, Simon Schütz, published on June 13, 2004, available at https://eggert.org/students/schuetz-thesis.pdf.	
	43	Network Working Group, "QUIC: A UDP-Based Secure and Reliable Transport for HTTP/2 draft-tsvwg-quic-protocol-00", June 17, 2015	
	44	Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2012-06-21	
	45	Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2013-03-04	
	46	Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2013-09-27	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17079397
	Filing Date	2020-10-23
	First Named Inventor	Robert Paul Morris
	Art Unit	2468
	Examiner Name	ALI, SYED
	Attorney Docket Number	PMOR0120K

	47	Office Action Summary in U.S. Pat. App. No. 12/714454 dated 2012-02-23
	48	Office Action Summary in U.S. Pat. App. No. 13/477,402 dated 2014-09-24
	49	Office Action Summary in U.S. Pat. App. No. 15/694,802 dated 2017-11-29
	50	Palm Treo 650 Manual, published in 2004, available at https://www.wireless.att.com/download/phone_manual/treo_650.pdf.

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Signature	/Patrick Caldwell/	Date (YYYY-MM-DD)	2020-12-09
Name/Print	Patrick Caldwell	Registration Number	44580

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Doc description: Information Disclosure Statement (IDS) Filed

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	1	Postel, J. "The TCP Maximum Segment Size and Related Topics," Network Working Group, RFC 879, available at https://tools.ietf.org/html/rfc879	
	2	Postel, John(ed.), Editor; "Transmission Control Protocol - DARPA Internet Protocol Specification", RFC 793, USC/ Information Sciences Institute, http://tools.ietf.org/rfc/rfc793.txt, September 1981	
	3	Protocol Enhancements for Intermittently Connected Hosts, Schütz et al., ACM SIGCOMM Computer Communication Review, Vol. 35, Number 2, July 2005, published in July 2005.	
	4	Real-Time Transport Protocol (RTP) Payload Format and File Storage Format for the Adaptive Multi-Rate (AMR) and Adaptive Multi-Rate Wideband (AMR-WB) Audio Codecs (aka Framing Parameters for GAN) ("RFC 3267"), published in June 2002, available at https://tools.ietf.org/html/rfc3267.	
	5	Requirements for Internet Hosts - Communication Layers RFC 1122 ("RFC 1122"), published in October 1989, available at https://tools.ietf.org/html/rfc1122.	
	6	Roskind, Jim "Multiplexed Stream Transport Over UDP," QUIC, 12/2/2013, 51 pages	
	7	S. Bradner "IETF Working Group Guidelines and Procedures," Network Working Group, RFC 2418, Sept 1998	
	8	S. Bradner, "The Internet Standards Process -- Revision 3" Network Working Group, RFC 2026	
	9	Stream Control Transmission Protocol (SCTP) – ("SCTP") RFC 2960, R. Stewart et al., published in October 2000, available at https://tools.ietf.org/html/rfc2960.	
	10	Sun Blade 1000 and Sun Blade 2000 Getting Started Guide, Part No. 816-3216-10, published in January 2002, available at https://docs.oracle.com/cd/E19127-01/blade1000.ws/816-3216-10/816-3216-10.pdf.	
	11	T Bova et al. "Reliable UDP Protocol" (Internet-Draft for the Internet Engineering Task Force, dated Feb 25, 1999	

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	12	TCP Abort Timeout Option (draft-eggert-tcpm-tcp-abort-timeout-option-00), published April 14, 2004, available at https://tools.ietf.org/html/draft-eggert-tcpm-tcp-abort-timeout-option-00
	13	TCP User Timeout Option RFC 5482, published in March 2009, available at https://tools.ietf.org/html/rfc5482
	14	TCP/IP Illustrated, Volume 1: The Protocols, W. Richard Stevens, published in 1994.
	15	The Federal Networking Council, The Networking and Information Technology Research and Development Program, Oct 10, 1997, available at https://www.nitrd.gov/historical/fnc-material.aspx
	16	Transmission Control Protocol RFC 793, published in September 1981, available at https://tools.ietf.org/html/rfc793.

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	2	7808941	B2	2010-10-05	Ramos et al.	Entire Document
	3	7876678	B2	2011-01-25	Ong	Entire Document
	4	8077737	B2	2011-12-13	Ji	Entire Document
	5	9060310	B2	2015-06-16	Ji	Entire Document
	6	9923996	B1	2018-03-20	Morris	Entire Document
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	1	20050135248	A1	2005-06-23	Ahuja et al.	Entire Document
	2	20070008884	A1	2007-01-11	Tang	Entire Document
	3	20080084826	A1	2008-04-10	Ong	Entire Document
	4	20080095124	A1	2008-04-24	Ramos et al.	Entire Document
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	1	The Federal Networking Council (FNC), FNC Resolution: Definition of "Internet" (Oct. 24, 1995)

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Robert Paul Morris Application No.: 17/079,397 File Date: 10-23-2020 Title: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION (as amended)	Confirmation No.: 9756 Examiner: ALI, SYED Art Unit: 2468 Docket No.: PMOR0120K Date: December 9, 2020

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §§ 1.56 AND 1.97(b)

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Examiner:

The reference(s) listed in the attached PTO Form 1449, cop(ies) of which is attached (when necessary), may be material to examination of the above-identified patent application. Applicants submit the reference(s) in compliance with their duty of disclosure pursuant to 37 CFR §§ 1.56 and 1.97. The Examiner is requested to make the reference(s) of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that the reference(s) indeed constitutes prior art.

Additionally, one or more patents (e.g. 9923995, 9923996, 10069945, 10075564, 10075565, 10375215, 10306026, 10742774) are (or were) the subject of litigation (EDTX 4:19-cv-00250; EDTX 4:19-cv-00249; EDTX 4:20-cv-00279; WDTX 6:20-cv-00453). Additionally, one or more patents (e.g. 9923995) are the subject of pending Inter Partes Review (IPR2020-00742; IPR2020-00845).

This Information Disclosure Statement is being filed after the mailing date of a non-final Office Action. Accordingly, applicants are including payment in the amount of $260.00 for the fee due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any additional fees are due, the Commissioner is hereby authorized to charge such fees or credit any overpayment to Deposit Account 50-4964.

Respectfully submitted,

Dated: 09 Dec 2020

Patrick E. Caldwell, Esq.
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Electronic Patent Application Fee Transmittal					
Application Number:	17079397				
Filing Date:	23-Oct-2020				
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION				
First Named Inventor/Applicant Name:	Robert Paul Morris				
Filer:	Patrick Edgar Caldwell				
Attorney Docket Number:	PMOR0120K				
Filed as Large Entity					
Filing Fees for Utility under 35 USC 111(a)					
Description		**Fee Code**	**Quantity**	**Amount**	**Sub-Total in USD($)**
Basic Filing:					
Pages:					
Claims:					
Miscellaneous-Filing:					
Petition:					
Patent-Appeals-and-Interference:					
Post-Allowance-and-Post-Issuance:					
Extension-of-Time:					

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	260	260
		Total in USD ($)		**260**

Electronic Acknowledgement Receipt	
EFS ID:	41343641
Application Number:	17079397
International Application Number:	
Confirmation Number:	9756
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120K
Receipt Date:	09-DEC-2020
Filing Date:	23-OCT-2020
Time Stamp:	22:30:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$260
RAM confirmation Number	E2020B9M30262838
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	PMOR0120K_IDS_20201209_1_OF_3_vF.pdf	1057504 74bfd6df7ab8a034e96805bfec6c65bd5e4fe045	no	12
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	PMOR0120K_IDS_20201209_2_OF_3_vF.pdf	1054265 8e69ddd7a825266a782c8c4f19a00864a7cd548d	no	5
Warnings:					
Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
3	Information Disclosure Statement (IDS) Form (SB08)	PMOR0120K_IDS_20201209_3_OF_3_vF.pdf	1053387 a3e16dd7ce70b47db27f50f776ac95e09c0c4c83	no	5
Warnings:					
Information:					
4	Transmittal Letter	PMOR0120K_IDS_XMTL_vF_09-Dec-2020.pdf	56486 10134f2fa9533266e5ff4686520f075045dd5336	no	2
Warnings:					
Information:					
5	Non Patent Literature	PMOR0120K_NPL_1033_vR.pdf	401607 15ebe157f94305ba416d9a29e0c9d4dc07c388d3	no	1
Warnings:					
Information:					

6	Fee Worksheet (SB06)	fee-info.pdf	30605 ee80a67239a982deef7735ac9b610de643248c25	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	3653854	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/079,397	10/23/2020	Robert Paul Morris	PMOR0120K	9756

92045 7590 12/08/2020

The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

EXAMINER	
ALI, SYED	

ART UNIT	PAPER NUMBER
2468	

NOTIFICATION DATE	DELIVERY MODE
12/08/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@appcoll.com
pcaldwell@thecaldwellfirm.com

Office Action Summary	Application No. 17/079,397	Applicant(s) Morris, Robert Paul	
	Examiner SYED ALI	Art Unit 2468	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 10/23/2020.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 10/23/2020 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

1. This action is in response to the application filed on October 23, 2020.
2. Claims 1- 20 are under examination.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claim 1 is rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-20 of U.S. Co-pending No. 16/914267. Although the claims at issue are not identical, they are not patentably distinct from each other because both the instant claims and the conflicting claims are directed to weighting matrices in a wireless communication device applications.

Conflicting Claim 1: *An apparatus comprising: a non-transitory memory storing instructions; andone or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions for:*

receiving, by a second node from a first node, a transmission control protocol (TCP)-variant packet in advance of a TCP-variant connection being established;

detecting an idle time period parameter field in the TCP-variant packet; identifying metadata in the idle time period parameter field for an idle time period that is detectable by the first node and, during which, no packet is communicated in the TCP-variant connection to keep the TCP-variant connection active; and

modifying, by the second node and based on the metadata, a timeout attribute associated with the TCP-variant connection.

Instant Claim 1: 1. *An apparatus comprising: a non-transitory memory storing instructions; and one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions for:*

receiving, by a second node from a first node, a transmission control protocol (TCP)-variant packet in advance of a TCP-variant connection being established;

detecting an idle time period parameter field in the TCP-variant packet; identifying metadata in the idle time period parameter field for an idle time period that is detectable by the first node and, during which, no packet is communicated in the TCP-variant connection to keep the TCP-variant connection active; and

modifying, by the second node and based on the metadata, a timeout attribute associated with the TCP-variant connection.

The instant claim merely broadens the scope of the conflicting claims while adding a control unit. It is well settled that broadening the scope of claims would have been obvious to one of ordinary skill in the art in view of the narrower issued claims. In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982) and In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993).

Claim Rejections - 35 USC § 103

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

This application currently names joint inventors. In considering patentability of the claims the examiner presumes that the subject matter of the various claims was commonly owned as of the effective filing date of the claimed invention(s) absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and effective filing dates of each claim that was not commonly owned as of the effective filing date of the later invention in order for the examiner to consider the applicability of 35 U.S.C. 102(b)(2)(C) for any potential 35 U.S.C. 102(a)(2) prior art against the later invention.

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-20 is/are rejected under 35 U.S.C. 103 as being unpatentable overSillasto et al. (UPS 2005/0063304), in view of Appanna et al. (USP:2006/0062142).

As per Claim 1 Sillasto teaches an apparatus comprising:

a non-transitory memory storing instructions ***(Paragraph 0093, 0113 the first packet(s) arrive at the RLC/PDCP buffer);*** and

one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions for ***(Paragraph 0113 the UTRAN the buffering occurs in the RNC, and in the IP-BTS of the IP-RAN):***

receiving, by a second node from a first node, a transmission control protocol (TCP)-variant packet in advance of a TCP-variant connection being established

(Paragraph 0040, 0052 This message has a FIN flag, and it is one of the ending messages of a TCP connection. Each side of the TCP connection ends one direction of the TCP connection);

detecting an idle time period parameter field in the TCP-variant packet ***(Paragraph 0040, 0051-0055 Inactivity timer is set on. There may be some delay between the actual detection of the emptiness of the buffer and the indication);*** identifying metadata in the idle time period parameter field for an idle time period that is detectable by the first node and ***(Paragraph 0118 lengths of the inactivity and the activity periods (in time)),*** during which, no packet is communicated in the TCP-variant connection to keep the TCP-variant connection active ***(Paragraph 0040, 0052, 0066, 0067 The inactivity timer is not set/reset when this small packet is sent.);*** and

modifying, by the second node and ***(Paragraph 0076, 0084 User data arrives after the FIN flag detection. The inactivity timer value may/shall be modified. This indicates that even if one TCP connection has terminated, there is/are one/several TCP connection(s) still on.).***

However, Sillasto does not explicitly disclose based on the metadata, a timeout attribute associated with the TCP-variant connection

Appanna disclose based on the metadata, a timeout attribute associated with the TCP-variant connection ***(Paragraph 0042The TCP metadata initially comprises information about TCP packet sizes, and after the TCP packet is acknowledged, information about the ACK. When a stateful switchover occurs, it is the TCP packets that have yet to be acknowledged that may need to be resent to keep***

alive the TCP session as determined by, for example, a retransmission time out or a fast retransmission algorithm. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. In another embodiment, the standby transport module 230b generates dummy TCP packets based on the stateful metadata.)

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Sillasto with the teachings of Appanna in order to the make the system more efficient. Because the modification would enable the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by a retransmission time out. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. *(see Appanna Paragraph 0042).*

As per Claim 2 Sillasto – Appanna teaches the apparatus of claim 1 *However, Sillasto does not explicitly disclose* wherein the apparatus is configured such that the timeout attribute is an attribute of a keep-alive.

Appanna disclose wherein the apparatus is configured such that the timeout attribute is an attribute of a keep-alive ***(Paragraph 0042The TCP metadata initially comprises information about TCP packet sizes, and after the TCP packet is acknowledged, information about the ACK. When a stateful switchover occurs, it is the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by, for example, a retransmission***

time out or a fast retransmission algorithm. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. In another embodiment, the standby transport module 230b generates dummy TCP packets based on the stateful metadata.)

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Sillasto with the teachings of Appanna in order to the make the system more efficient. Because the modification would enable the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by a retransmission time out. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. *(see Appanna Paragraph 0042).*

As per Claim 3 Sillasto – Appanna teaches the apparatus of claim 1 wherein at least one of:

the second node includes a server, the server being configured to: in response to the receiving, send, by the second node to the first node, another TCP-variant packet in advance of the TCP-variant connection being established, the another TCP-variant packet including other metadata for the idle time period; or

the second node includes a client, the client being configured such that the receiving is performed subsequent to sending, by the second node to the first node, another TCP-variant packet in advance of the TCP-variant connection being established including other metadata for the idle time period ***(Paragraph 0109 FIG. 12 comprises***

two radio access networks: the UTRAN and the IP-RAN. The IP-RAN (Internet Protocol Radio Access Network) is an RAN architecture that is fully optimised to carry IP traffic and is based on IP transport technology).

As per Claim 4 Sillasto – Appanna teaches the apparatus of claim 3 wherein, regardless as to whether the apparatus is the server or the client, the metadata is the same as the other metadata ***(Paragraph 0030 A TCP connection establishment is done on common transport channels (three way handshake with headers only i.e. very small packets). A dedicated transport channel (DCH) is allocated when actual data transmission starts.).***

However, Sillasto does not explicitly disclose based on the metadata, a timeout attribute associated with the TCP-variant connection

Appanna disclose based on the metadata, a timeout attribute associated with the TCP-variant connection ***(Paragraph 0042The TCP metadata initially comprises information about TCP packet sizes, and after the TCP packet is acknowledged, information about the ACK. When a stateful switchover occurs, it is the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by, for example, a retransmission time out or a fast retransmission algorithm. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. In another embodiment, the standby transport module 230b generates dummy TCP packets based on the stateful metadata.)***

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Sillasto with the teachings of Appanna in order to the make the system more efficient. Because the modification would enable the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by a retransmission time out. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. *(see Appanna Paragraph 0042)*.

As per Claim 5 Sillasto – Appanna teaches the apparatus of claim 3 wherein, regardless as to whether the apparatus is the server or the client, the metadata is different from the other metadata ***(Paragraph 0035 a small packet arrival at a buffer is that a new session is initiated. Therefore, the inactivity timer value is set to the initial value).***

However, Sillasto does not explicitly disclose based on the metadata, a timeout attribute associated with the TCP-variant connection

Appanna disclose based on the metadata, a timeout attribute associated with the TCP-variant connection ***(Paragraph 0042The TCP metadata initially comprises information about TCP packet sizes, and after the TCP packet is acknowledged, information about the ACK. When a stateful switchover occurs, it is the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by, for example, a retransmission time out or a fast retransmission algorithm. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. In another embodiment,***

the standby transport module 230b generates dummy TCP packets based on the stateful metadata.)

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Sillasto with the teachings of Appanna in order to the make the system more efficient. Because the modification would enable the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by a retransmission time out. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. *(see Appanna Paragraph 0042).*

As per Claim 6 Sillasto – Appanna teaches the apparatus of claim 1 wherein the apparatus is configured such that the timeout attribute is specified in a number of seconds or minutes ***(Paragraph 0113 This gives more information for the timer value decision. If for example the buffer has been loaded for some time, for example last five seconds there has been more than five packets all the time in buffer).***

However, Sillasto does not explicitly disclose based on the metadata, a timeout attribute associated with the TCP-variant connection

Appanna disclose based on the metadata, a timeout attribute associated with the TCP-variant connection ***(Paragraph 0042The TCP metadata initially comprises information about TCP packet sizes, and after the TCP packet is acknowledged, information about the ACK. When a stateful switchover occurs, it is the TCP packets that have yet to be acknowledged that may need to be resent to keep***

alive the TCP session as determined by, for example, a retransmission time out or a fast retransmission algorithm. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. In another embodiment, the standby transport module 230b generates dummy TCP packets based on the stateful metadata.)

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Sillasto with the teachings of Appanna in order to the make the system more efficient. Because the modification would enable the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by a retransmission time out. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. *(see Appanna Paragraph 0042).*

As per Claim 7 Sillasto – Appanna teaches the apparatus of claim 1 *However, Sillasto does not explicitly disclose* wherein the apparatus is configured such that the timeout attribute is used to keep the TCP-variant connection open when inactive, and to prevent one or more other nodes from closing the TCP-variant connection when inactive.

Appanna disclose wherein the apparatus is configured such that the timeout attribute is used to keep the TCP-variant connection open when inactive, and to prevent one or more other nodes from closing the TCP-variant connection when inactive. ***(Paragraph 0042The TCP metadata initially comprises information about TCP***

packet sizes, and after the TCP packet is acknowledged, information about the ACK. When a stateful switchover occurs, it is the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by, for example, a retransmission time out or a fast retransmission algorithm. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. In another embodiment, the standby transport module 230b generates dummy TCP packets based on the stateful metadata.)

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Sillasto with the teachings of Appanna in order to the make the system more efficient. Because the modification would enable the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by a retransmission time out. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. *(see Appanna Paragraph 0042)*.

As per Claim 8 Sillasto – Appanna teaches the apparatus of claim 1 wherein the apparatus is configured such that the metadata is used as input of an algorithm for determining a duration of time specified by the timeout attribute ***(Paragraph 0007 An inactivity timer is a timer which sets the maximum duration of a DCH (Dedicated CHannel) allocation after data transfer has ceased.).***

As per Claim 9 Sillasto – Appanna teaches the apparatus of claim 8 wherein the apparatus is configured such that the algorithm is determined based on at least one particular attribute ***(Paragraph 0030, 0035 the inactivity timer has higher value (10) since interruptions during the transmission occur because of the TCP slow start algorithm.).***

As per Claim 10 Sillasto – Appanna teaches the apparatus of claim 1 wherein the apparatus is configured such that the modification of the timeout attribute results from a negotiation between the first node and the second node via a negotiation protocol of a TCP-variant protocol ***(Paragraph 0013 The present UTRAN and IP-RAN comprise release (inactivity) timers for the NRT bearers).***

As per Claim 11 Sillasto – Appanna teaches the apparatus of claim 1 wherein the one or more processors execute the instructions for:

and in response to detecting the idle time period, deactivating the TCP-variant connection by releasing a resource allocated for the TCP-variant connection by one of the first and second nodes without signaling another one of the first and second nodes that is related to the detection of the idle time period ***(Paragraph 0007, 0030 An inactivity timer is a timer which sets the maximum duration of a DCH (Dedicated CHannel) allocation after data transfer has ceased).***

However, Sillasto does not explicitly disclose detecting the idle time period based on the timeout attribute***;***

Appanna disclose detecting the idle time period based on the timeout attribute ***(Paragraph 0042The TCP metadata initially comprises information about TCP packet sizes, and after the TCP packet is acknowledged, information about the ACK. When a stateful switchover occurs, it is the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by, for example, a retransmission time out or a fast retransmission algorithm. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. In another embodiment, the standby transport module 230b generates dummy TCP packets based on the stateful metadata.)***

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Sillasto with the teachings of Appanna in order to the make the system more efficient. Because the modification would enable the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by a retransmission time out. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. *(see Appanna Paragraph 0042).*

As per Claim 12 Sillasto – Appanna teaches the apparatus of claim 1 wherein the apparatus is configured such that at least one of the detecting or the identifying is performed at a TCP-variant layer other than a

TCP layer, where the TCP-variant layer is above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer ***(Paragraph 0030, 0071 FIG. 1 illustrates an example of an HTTP/TCP session (HTTP, Hyper Text Transport Protocol). A TCP connection establishment is done on common transport channels (three way handshake with headers only i.e. very small packets)).***

As per Claim 13 Sillasto – Appanna teaches the apparatus of claim 1 wherein the one or more processors execute a network application that is configured to perform a 3-way TCP handshake for establishing a TCP connection that is different than the TCP-variant connection, and wherein the network application is configured to establish the TCP-variant connection instead of the TCP connection in order to permit negotiation, between the first node and the second node, of the timeout attribute, where the timeout attribute is not available when establishing the TCP connection, but is available when establishing the TCP-variant connection so that the TCP-variant connection is capable of being at least partially closed when inactive based on ***(Paragraph 0030, 0035 A TCP connection establishment is done on common transport channels (three way handshake with headers only i.e. very small packets). A TCP connection establishment is done on common transport channels (three way handshake with headers only i.e. very small packets)).***

However, Sillasto does not explicitly disclose based on the timeout attribute***;***

Appanna disclose based on the timeout attribute ***(Paragraph 0042The TCP metadata initially comprises information about TCP packet sizes, and after the***

TCP packet is acknowledged, information about the ACK. When a stateful switchover occurs, it is the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by, for example, a retransmission time out or a fast retransmission algorithm. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. In another embodiment, the standby transport module 230b generates dummy TCP packets based on the stateful metadata.)

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Sillasto with the teachings of Appanna in order to the make the system more efficient. Because the modification would enable the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by a retransmission time out. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. *(see Appanna Paragraph 0042).*

As per Claim 14 Sillasto – Appanna teaches the apparatus of claim 1 wherein the apparatus is configured such that the TCP-variant packet and the metadata included therewith are received by the second node from the first node, without any prior signaling from the second node to the first node ***(Paragraph 0109 FIG. 12 comprises two radio access networks: the UTRAN and the IP-RAN).***

As per Claim 15 Sillasto – Appanna teaches an apparatus comprising:

a non-transitory memory storing a network application ***(Paragraph 0113 the UTRAN the buffering occurs in the RNC, and in the IP-BTS of the IP-RAN);*** and one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the network application such that the network application is configured to operate in accordance with a non-transmission control protocol (TCP) protocol that operates above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer ***(Paragraph 0030, 0071 FIG. 1 illustrates an example of an HTTP/TCP session (HTTP, Hyper Text Transport Protocol). A TCP connection establishment is done on common transport channels (three way handshake with headers only i.e. very small packets)),*** the apparatus, when operating in accordance with the non-TCP protocol, configured to ***(Paragraph 0030, 0109, 0113 This is clearly different from just using IP as a transport solution with the existing network architectures like the GSM (Global System for Mobile Communications) and The radio access networks are connected to the core network CN.):***

receive, by a second node from a first node, a non-TCP packet during a setup of a non-TCP connection ***(Paragraph 0007, 0052 This message has a FIN flag, and it is one of the ending messages of a TCP connection. The Forward access channel (FACH) is a downlink transport channel that is used to carry control information from the base station to the mobile station.);***

identify metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in the non-TCP packet, for an idle time period that is detectable by the first node, where, as a result of a detection of the idle time period, the non-TCP

connection is subject to deactivation ***(Paragraph 0007,0118 lengths of the inactivity and the activity periods (in time) The Forward access channel (FACH) is a downlink transport channel that is used to carry control information from the base station to the mobile station.);*** and

determine, based on the metadata, a timeout attribute associated with the non-TCP connection;

wherein the apparatus, when operating in accordance with the TCP protocol, is configured to perform a three-way TCP handshake for establishing a TCP connection that is different than the non-TCP connection ***(Paragraph 0030, 0035, 0071 A TCP connection establishment is done on common transport channels (three way handshake with headers only i.e. very small packets).).***

However, Sillasto does not explicitly disclose based on the metadata, a timeout attribute associated with the TCP-variant connection

Appanna disclose based on the metadata, a timeout attribute associated with the TCP-variant connection ***(Paragraph 0042The TCP metadata initially comprises information about TCP packet sizes, and after the TCP packet is acknowledged, information about the ACK. When a stateful switchover occurs, it is the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by, for example, a retransmission time out or a fast retransmission algorithm. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. In another embodiment, the standby transport module 230b generates dummy TCP packets based on the stateful metadata.)***

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Sillasto with the teachings of Appanna in order to the make the system more efficient. Because the modification would enable the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by a retransmission time out. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. *(see Appanna Paragraph 0042)*.

As per Claim 16 Sillasto – Appanna teaches the apparatus of claim 15 wherein the apparatus is configured such that:

the non-TCP packet and the idle time period parameter field included therewith are operable for being received by the second node from the first node, without any prior signaling from the second node to the first node ***(Paragraph 0040, 0052 the UL messages are monitored, and the SYN flag in the TCP header is detected, this triggers the clearance of the inactivity timer. Also the DL inactivity timer can be cleared when a SYN flag is detected in UL direction, and vice versa. The inactivity timer value may be changed for a new TCP session);***

the determination of the timeout attribute results from a negotiation between the first node and the second node; and

the metadata includes a first value and the timeout attribute is determined to include a second value that is different than the first value of the metadata.

However, Sillasto does not explicitly disclose based on the metadata, a timeout attribute associated with the TCP-variant connection

Appanna disclose based on the metadata, a timeout attribute associated with the TCP-variant connection ***(Paragraph 0042The TCP metadata initially comprises information about TCP packet sizes, and after the TCP packet is acknowledged, information about the ACK. When a stateful switchover occurs, it is the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by, for example, a retransmission time out or a fast retransmission algorithm. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. In another embodiment, the standby transport module 230b generates dummy TCP packets based on the stateful metadata.)***

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Sillasto with the teachings of Appanna in order to the make the system more efficient. Because the modification would enable the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by a retransmission time out. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. *(see Appanna Paragraph 0042).*

As per Claim 17 Sillasto – Appanna teaches the apparatus of claim 15 *However, Sillasto does not explicitly disclose* wherein the apparatus is configured for: detecting

the idle time period based on the timeout attribute; and deactivating the non-TCP connection by communicating a particular packet between the first node and the second node, in response to detecting the idle time period

Appanna disclose wherein the apparatus is configured for: detecting the idle time period based on the timeout attribute; and deactivating the non-TCP connection by communicating a particular packet between the first node and the second node, in response to detecting the idle time period ***(Paragraph 0042The TCP metadata initially comprises information about TCP packet sizes, and after the TCP packet is acknowledged, information about the ACK. When a stateful switchover occurs, it is the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by, for example, a retransmission time out or a fast retransmission algorithm. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. In another embodiment, the standby transport module 230b generates dummy TCP packets based on the stateful metadata.)***

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Sillasto with the teachings of Appanna in order to the make the system more efficient. Because the modification would enable the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by a retransmission time out. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. *(see Appanna Paragraph 0042).*

As per Claim 18 Sillasto teaches an apparatus comprising:

a non-transitory memory storing a network application; and one or more processors in communication with the non-transitory memory***(Paragraph 0113 the UTRAN the buffering occurs in the RNC, and in the IP-BTS of the IP-RAN)***, wherein the one or more processors execute the network application such that the network application is configured to operate in accordance with a non-transmission control protocol (TCP) protocol that operates above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer, the apparatus, when operating in accordance with the non-TCP protocol, configured to***(Paragraph 0030, 0071 FIG. 1 illustrates an example of an HTTP/TCP session (HTTP, Hyper Text Transport Protocol). A TCP connection establishment is done on common transport channels (three way handshake with headers only i.e. very small packets)),*** the apparatus, when operating in accordance with the non-TCP protocol, configured to ***(Paragraph 0030, 0109, 0113 This is clearly different from just using IP as a transport solution with the existing network architectures like the GSM (Global System for Mobile Communications) and The radio access networks are connected to the core network CN.):***

receive idle information for use in detecting an idle time period that results in a non-TCP connection being subject to deactivation ***(Paragraph 0007, 0052 This message has a FIN flag, and it is one of the ending messages of a TCP connection. The Forward access channel (FACH) is a downlink transport channel***

that is used to carry control information from the base station to the mobile station.);

generate, based on the idle information, a non-TCP packet including an idle time period parameter field identifying metadata that is specified in a number of seconds or minutes; ***(Paragraph 0007,0118 lengths of the inactivity and the activity periods (in time) The Forward access channel (FACH) is a downlink transport channel that is used to carry control information from the base station to the mobile station.);*** and

send, from a first node to a second node and for establishing the non-TCP connection, the non-TCP packet to provide the metadata to the second node, for use by the second node in determining a timeout attribute associated with the non-TCP connection ***(Paragraph 0071, 0109 FIG. 12 comprises two radio access networks: the UTRAN and the IP-RAN)***;

wherein the apparatus, when operating in accordance with the TCP protocol, is configured to perform a three-way TCP handshake for establishing a TCP connection that is separate from the non-TCP connection***(Paragraph 0030, 0035, 0071 A TCP connection establishment is done on common transport channels (three way handshake with headers only i.e. very small packets).).***

However, Sillasto does not explicitly disclose based on the metadata, a timeout attribute associated with the TCP-variant connection

Appanna disclose based on the metadata, a timeout attribute associated with the TCP-variant connection ***(Paragraph 0042The TCP metadata initially comprises information about TCP packet sizes, and after the TCP packet is acknowledged,***

information about the ACK. When a stateful switchover occurs, it is the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by, for example, a retransmission time out or a fast retransmission algorithm. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. In another embodiment, the standby transport module 230b generates dummy TCP packets based on the stateful metadata.)

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Sillasto with the teachings of Appanna in order to the make the system more efficient. Because the modification would enable the TCP packets that have yet to be acknowledged that may need to be resent to keep alive the TCP session as determined by a retransmission time out. Accordingly, stateful metadata comprises that portion of metadata needed to maintain the TCP session. *(see Appanna Paragraph 0042).*

As per Claim 19 Sillasto – Appanna teaches the apparatus of claim 18 wherein the apparatus is configured such that:

the determination of the timeout attribute results from a negotiation between the first node and the second node ***(Paragraph 0030, 0035 A TCP connection establishment is done on common transport channels (three way handshake with headers only i.e. very small packets). A TCP connection establishment is done on***

common transport channels (three way handshake with headers only i.e. very small packets));

during the idle time period, no non-TCP packet including data is communicated in the non-TCP connection ***(Paragraph 0007, 0052 This message has a FIN flag, and it is one of the ending messages of a TCP connection. The Forward access channel (FACH) is a downlink transport channel that is used to carry control information from the base station to the mobile station.);***

wherein the apparatus is further configured for:

detecting the idle time period based on the idle information; and in response to detecting the idle time period, deactivating the non-TCP connection by at least partially closing the TCP-variant connection by one of the first and second nodes without communication between the second node and the first node that is related to the detection of the idle time period***(Paragraph 0007, 0030 An inactivity timer is a timer which sets the maximum duration of a DCH (Dedicated CHannel) allocation after data transfer has ceased).***

As per Claim 20 Sillasto – Appanna teaches the apparatus of claim 19 wherein at least one of: the apparatus is at least one component of the first node;

the communication includes only receiving;

the communication includes only sending;

the communication includes receiving and sending;

the non-TCP protocol includes a variant to the TCP;

the non-TCP packet is sent directly from the first node to the second node;

the non-TCP packet is sent from the first node to the second node via at least one other node;

the idle time period parameter field is part of a data portion in the non-TCP packet;

the idle time period parameter field is part of a header of the non-TCP packet;

the idle information is received based on a previous header;

the timeout attribute is capable being the same as the metadata;

the timeout attribute is capable being different from the metadata;

the idle time period is specified in a number of seconds;

the idle time period is specified in a number of minutes;

the timeout attribute specifies a duration;

the non-TCP packet is informational;

the TCP protocol operates directly above the IP layer;

the TCP protocol operates directly below the HTTP application layer;

the non-TCP protocol operates directly above the IP layer;

the non-TCP protocol operates directly below the HTTP application layer;

the determination of the timeout attribute includes at least one of modifying, creating, or deleting the timeout attribute;

the network application provides the idle information to a ITP policy component via a settings service component interoperating with a sockets component;

during the idle time period, a non-TCP packet including data is received by the first node where the non-TCP packet including data is sent by another node; or

during the idle time period, a non-TCP packet including data is received by the first node where the non-TCP packet including data is sent by the second node in the TCP connection ***(Paragraph 0071, 0109 FIG. 12 comprises two radio access networks: the UTRAN and the IP-RAN).***

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SYED ALI whose telephone number is (571)270-3681. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Asad Nawaz can be reached on (571)272-3988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SYED ALI/
Examiner, Art Unit 2468

Notice of References Cited	Application/Control No. 17/079,397	Applicant(s)/Patent Under Reexamination Morris, Robert Paul	
	Examiner SYED ALI	Art Unit 2468	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20050063304-A1	03-2005	Sillasto, Eero	H04W76/38	370/229
*	B	US-20060062142-A1	03-2006	Appanna; Chandrashekhar	H04L45/04	370/219
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/079,397	Morris, Robert Paul
	Examiner	**Art Unit**
	SYED ALI	2468

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant			☐ CPA		☐ T.D.		☐ R.1.47			
CLAIM		**DATE**								
Final	Original	12/03/2020								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
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	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/079,397	Morris, Robert Paul
	Examiner	Art Unit
	SYED ALI	2468

CPC - Searched*		
Symbol	Date	Examiner
(G06F9/5027.cpc. H04L69/18.cpc. H04L69/16.cpc.)	12/03/2020	SA

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST, (USPAT, USPGPUB, EPO, USOCR, FERS, JPO, DERWENT, IBM_TDB) -See search history printout	12/03/2020	SA
Inventor search in EAST - See search history printout	12/03/2020	SA
Assignee search in EAST - See search history printout	12/03/2020	SA
Inventor name search for ODP	12/03/2020	SA
101 and 112 compliance check	12/03/2020	SA

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/SYED ALI/ Examiner, Art Unit 2468	

Bibliographic Data

Application No: 17/079,397

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /SYED ALI/ (Examiner's Signature) | (Initials)

Title: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/23/2020	709	2468	PMOR0120K
RULE			

APPLICANTS

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INVENTORS

Robert Paul Morris, Madison, GA, UNITED STATES

CONTINUING DATA

This application is a CON of 16914267 06/26/2020

16914267 is a CON of 16368811 03/28/2019 PAT 10742774

16368811 is a CON of 16040522 07/19/2018 PAT 10375215

16040522 is a CON of 15915047 03/07/2018 PAT 10075564

15915047 is a CON of 15694802 09/03/2017 PAT 9923995

15694802 is a CIP of 14667642 03/24/2015ABN

14667642 is a CIP of 13477402 05/22/2012ABN

13477402 is a CON of 12714454 02/27/2010 PAT 8219606

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

11/03/2020

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FILING FEE RECEIVED

$6,160

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	0	"17079397"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/01 20:53
S2	10	"20050063304"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 09:43
S3	6,702,938	identi$5 near5 metadata near10 idle nea33time period	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 10:09
S4	3,965,776	identi$5 near5 metadata near10 idle nea3 time near5 period	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 10:09
S5	14	identi$5 near5 metadata near10 idle near3 time near5 period	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 10:09
S6	3	((("JENAM") near3 ("TECH") near3 ("LLC"))).AS,AANM.	USPAT	OR	OFF	2020/12/02 10:11
S7	1,558	((("MORRIS") near3 ("Robert"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/12/02 10:12
S8	49,313	(G06F9/5027.cpc. H04L69/18.cpc. H04L69/16.cpc.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:12
S9	289	S8 and idle near3 time near5 period	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:13
S10	189	S9 and TCP	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:13
S11	129	S9 and TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:14
S12	18	S11 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:15
S13	18	S12 and timeout	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:15

S14	11	S13 and modify$3 near10 metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:16
S15	11	S14 and keep$1alive	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:16
S16	4,363	TCP near10 active	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:18
S17	1,929	S16 and TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:18
S18	242	S17 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:18
S19	13	S18 and modify$3 near10 metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:19
S20	11	S19 and keep$1alive	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 11:19
S21	16,266	keep$1alive	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:13
S22	483	S21 and TCP near10 active	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:14
S23	139	S22 and idle near3 time	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:14
S24	139	S23 and packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:15
S25	87	S24 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:16
S26	83	S25 and TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:16
S27	83	S26 and (parameter field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:16
S28	78	S27 and connect$3 near5 established	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:17

S29	78	S28 and time$1out	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:17
S30	4	"12714063"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:19
S31	1	"16229540"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 12:34
S32	0	"17079397"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 13:16
S33	15	12/714063	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 13:17
S34	1	"71732959".FMID.	US-PGPUB; USPAT; FPRS; JPO	OR	OFF	2020/12/02 13:17
S35	44,064	TCP near3 packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 21:03
S36	1,698	S35 and (Keep-alive keep adj alive)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 21:07
S37	523	S36 and (time-out time adj out)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 21:07
S38	130	S37 and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	ON	2020/12/02 21:08

EAST Search History (Interference)

<This search history is empty>

12/3/2020 12:48:24 PM
C:\Users\sali2\Documents\EAST\Workspaces\17079397.wsp

Remarks:

The claims of the present patent application have been amended to clarify what is being claimed. No new matter has been added.

It is believed that all of the pending issues have been addressed. However, the absence of a reply to a specific rejection, issue, or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Still yet, nothing in this reply should be construed as intention to concede any issue with regard to any claim, except as specifically stated in this reply. Finally, it should be noted that no claims, except the last claim, are intended to be construed under 35 U.S.C. 112, paragraph 6.

In the event a telephone conversation would expedite the prosecution of this application, applicant invites the Examiner to telephone the undersigned attorney at the number listed below. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-4964 (Order No. PMOR120K).

Respectfully submitted,

Dated: 02 Dec 2020

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Amendments to the Claims:

The listing of amended claims follow:

1.-20. (Cancelled)

21. (New) An apparatus, comprising:

a non-transitory memory storing instructions; and

one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the

first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection; and

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection.

22. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is not negotiated between the first and second nodes during the first non-TCP connection set up, and the second duration is negotiated between the first and second nodes for the first non-TCP connection.

23. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first time period is only capable of being detected during the first non-TCP connection set up.

24. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the second time period is capable of being detected during the first non-TCP connection set up and thereafter during the first non-TCP connection.

25. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first duration is exclusively used for detecting the first type of time period until being changed to the second duration.

26. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting, by the first node, a third time period during which no acknowledgement packet is received in the first non-TCP connection for a sent packet sent in the first non-TCP connection: at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection.

27. (New) The apparatus of Claim 26, wherein the apparatus is configured such that the first non-TCP packet also includes data for use in determining the third time period.

28. (New) The apparatus of Claim 26, wherein the apparatus is configured such that the third time period is detected independent of the detection of the first and second time periods.

29. (New) The apparatus of Claim 26, wherein the apparatus is configured such that the first duration is not negotiated between the first and second nodes during the first non-TCP connection set up, the second duration is negotiated between the first and second nodes for the first non-TCP connection, and a third duration of the third time period is negotiated between the first and second nodes for the first non-TCP connection.

30. (New) The apparatus of Claim 26, wherein the apparatus is configured such that the third time period is an acknowledgment timeout period.

31. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting, by the first node, a third time period: at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection.

32. (New) The apparatus of Claim 31, wherein the apparatus is configured such that the third time period is detected only in response to no acknowledgement packet being received in the first non-TCP connection for a sent packet sent in the first non-TCP connection.

33. (New) The apparatus of Claim 32, wherein the apparatus is configured to, in response to detecting the third time period of the first type of time period, unilaterally close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP

connection, without signaling the second node in relation to the detection of the third time period after detecting the third time period.

34. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first non-TCP connection set up further includes, in addition to (a-1) sending the first non-TCP packet:

(a-2) after sending the first non-TCP packet and without any other communication between the first node and the second node after (a-1) and before (a-2), receiving, at the first node from the second node, a second non-TCP packet, and

(a-3) after receiving the second non-TCP packet and without any other communication between the first node and the second node after (a-2) and before (a-3), sending, from the first node to the second node, a third non-TCP packet.

35. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the first type of time period includes an idle time period.

36. (New) The apparatus of Claim 21, wherein the apparatus is configured such that only one of the first time period or the second time period is detected for the first non-TCP connection.

37. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, during the at least portion of the first non-TCP connection including the at least portion of the first non-TCP connection set up, the detection of the first time period of the first type of time period is based on the first duration, by being only based on whether another non-TCP packet is not received for the first non-TCP connection set up for the first duration.

38. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of

the first type of time period is based on the second duration, by being only based on whether no packet is received in the first non-TCP connection for the second duration.

39. (New) The apparatus of Claim 21, wherein the apparatus is configured such that, after the first duration is changed to the second duration, the detection of the second time period of the first type of time period is based on the second duration, by being only based on whether no packet is received in the first non-TCP connection nor is expected to be received for the second duration.

40. (New) The apparatus of Claim 21, wherein the apparatus is configured to, in response to detecting the first time period of the first type of time period, unilaterally close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection, without signaling the second node in relation to the detection of the first time period after detecting the first time period.

41. (New) The apparatus of Claim 21, wherein the apparatus is configured such that the second duration is capable of being different from the first duration.

42. (New) The apparatus of Claim 41, wherein the apparatus is configured such that the second duration is different from the first duration.

43. (New) The apparatus of Claim 41, wherein the apparatus is configured such that the second duration is the same as the first duration, despite being capable of being different from the first duration.

44. (New) The apparatus of Claim 21, wherein the apparatus is configured such that:

the first non-TCP packet is not a synchronize (SYN) packet;

the first non-TCP connection is not a TCP extension connection that involves a TCP extension; and

the first type of time period does not include a user timeout period.

45. (New) The apparatus of Claim 21, wherein the apparatus is configured such that an idle timeout attribute is utilized for the first type of time period, and a user timeout attribute, that is separate from the idle timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.

46. (New) The apparatus of Claim 33, wherein the apparatus is configured such that at least one of:
the apparatus is at least one component of the second node;
the second node is at least one component of the apparatus;
the second node includes a device, including a network interface, that is a component of the apparatus;
the second node includes a network interface that is a component of the apparatus;
the apparatus includes a web server;
the first parameter field is part of a data portion in the first non-TCP packet;
the first parameter field is part of a header of the first non-TCP packet;
the first non-TCP packet is informational;
the non-TCP includes one or more features of TCP, and one or more features not of TCP;
the first non-TCP packet includes one or more features of a TCP packet, and one or more features not of a TCP packet;
the first non-TCP connection includes one or more features of a TCP connection, and one or more features not of a TCP connection;
identify includes receive;
the first information includes first idle information;
the first information does not include first idle information;
the first information is received based on a previous header;
the first information is not based on a previous header;

the first duration for detecting the first type of time period is based on the first information, by the first information identifying the first duration;
the first duration for detecting the first type of time period is based on the first information, by the first information specifying the first duration;
the first duration for detecting the first type of time period is based on the first information, by the first information identifying at least one generator for generating the first duration;
only the first duration for detecting the first type of time period is based on the first information;
the first non-TCP connection includes (a-1), (a-2), and (a-3);
the second duration of the second time period is different from the duration of the first time period;
the second duration of the second time period is the same as the duration of the first time period;
a third duration of the third time period is different from the duration of the first time period;
the third duration of the third time period is the same as the duration of the first time period;
the third duration of the third time period is different from the duration of the second time period;
the third duration of the third time period is the same as the duration of the second time period;
the first non-TCP packet also includes data for use in determining the first time period;
the first idle information includes a first value representative of the first duration of the first time period, and a second value representative of the second duration of the second time period;
the first idle information includes a first value representative of the first duration of the first time period, and identification of a generator for generating a second value representative of the second duration of the second time period;
the first idle information includes identification of a generator for generating a first value representative of the first duration of the first time period, and for generating a second value representative of the second duration of the second time period;

the first idle information includes identification of a first generator for generating a first value representative of the first duration of the first time period, and identification of a second generator for generating a second value representative of the second duration of the second time period;

the first time period is detected in a first use scenario without the second nor third time periods being detected, the second time period is detected in a second use scenario without the first nor third time periods being detected, the third time period is detected in a third use scenario without the first nor second time periods being detected, and neither the first, second, nor third time periods are detected in a fourth use scenario;

the first duration of the first time period is determined based on the first idle information, after identifying the first idle information;

the first duration of the first time period is determined based on the first idle information, before setting up the first non-TCP connection;

the first duration of the first time period is determined based on the first idle information, during setting up the first non-TCP connection;

the first duration of the first time period is determined based on the first idle information, after setting up the first non-TCP connection;

the first time period is triggered by one or more non-duration-related criteria that triggers the second time period;

the first time period is triggered by the same one or more non-duration-related criteria that triggers the second time period;

the first time period is triggered by different one or more non-duration-related criteria than that which triggers the second time period;

the first time period is that during which no packet is received in the first non-TCP connection nor expected to be received;

the third time period is triggered by one or more non-duration-related criteria that triggers the second time period;

the third time period is triggered by the same one or more non-duration-related criteria that triggers the second time period;

the third time period is triggered by different one or more non-duration-related criteria than that which triggers the second time period;
the third time period is that during which no packet is received in the first non-TCP connection nor expected to be received;
the first metadata is based on the first idle information;
the change occurs while detection of the first time period is attempted;
the change occurs via a negotiation;
the second time period is a changed version of the first time period;
the second time period is a changed instance of the first time period;
the second time period is determined based on the first idle information;
the first duration of the first time period is negotiated between the first and second nodes for the first non-TCP connection, during the first non-TCP connection set up;
the first non-TCP connection set up includes all communications that precede completion of the first non-TCP connection set up;
the duration of the second time period is determined based on the first idle information;
the duration of the third time period is determined based on the first idle information;
the first and second time periods are of a same duration;
the first and second time periods are of a different duration;
the first and second time periods are different instances of the same type of time period;
the first and second time periods are of the same type of time period, but are applied at different times during the first non-TCP connection;
the first duration of the first time period is determined by being negotiated;
the second duration of the second time period is determined by being negotiated;
the third duration of the third time period is determined by being negotiated;
the first metadata is also for use in determining the second duration of the second time period;
the first metadata is not for use in determining the second duration of the second time period;
the first metadata is also for use in determining the third duration of the third time period;
the first metadata is not for use in determining the third duration of the third time period;

the at least portion of the first non-TCP connection includes only a subset of setting up the first non-TCP connection;
the at least portion of the first non-TCP connection includes an entirety of setting up the first non-TCP connection;
the at least portion of the first non-TCP connection set up includes one or more packet exchanges that occur after the first non-TCP packet is sent;
the at least portion of the first non-TCP connection set up includes one or more packet exchanges that occur after the first non-TCP packet is sent prior to completion of the first non-TCP connection set up;
the first resource is released by the first node, by being released only by the first node;
the first resource is released by the first node, by being released by the first node and at least one other node;
the first resource is allocated for maintaining the first non-TCP connection;
the first resource is allocated for activating the first non-TCP connection;
the first resource includes a storage resource;
the first resource includes a network resource;
the first resource includes a processor resource;
the first, the second, and third non-TCP packets are non-TCP by not being required by any TCP standard specification;
the first time period is detected based on the first duration, by being detected when packet activity or a lack thereof meets one or more criteria for a span of the first duration;
the second time period is detected based on the second duration, by being detected when packet activity or a lack thereof meets one or more criteria for a span of the second duration;
the first type of time period includes an idle time period type;
the first and second time periods of the first type of time period differ only in duration;
the first and second time periods of the first type of time period are capable of differing in duration, but may have a same duration;
the first and second time periods of the first type of time period are capable of differing only in duration, but may have a same duration;

the first and second time periods of the first type of time period differ in duration and at least one criteria involving packet activity or a lack thereof over a duration span;
the first and second time periods of the first type of time period are capable of differing in duration and further differ in at least one criteria involving packet activity or a lack thereof over a duration span;
non-TCP refers to not being required by any TCP standard specification;
non-TCP refers to not being required by any TCP current specification;
non-TCP refers to not being required in a particular context by any TCP standard specification; or
non-TCP refers to not being required in a particular context by any TCP current specification.

47. (New) A method, comprising:

using at least a portion of a first node configured to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based,

allocate a first resource for a first Transmission Control Protocol (TCP)-variant connection, and

generate a first TCP-variant packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period:

setting up the first TCP-variant connection, by sending, from the first node to a second node, the first TCP-variant packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first TCP-variant connection including at least a portion of the first TCP-variant connection set up, a first time period of the first type of time period, at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection; and

in response to detecting, based on the second duration and by the first node based on the first duration being changed to the second duration, a second time period of the first type of time period, at least partially closing the first TCP-variant connection, by releasing, by the first node, the first resource allocated for the first TCP-variant connection.

48. (New) A non-transitory computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which when executed by a first node, cause the first node to:

identify, at the first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first connection that is not a Transmission Control Protocol connection;

generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; and

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection.

49. (New) An apparatus, comprising:

a non-transitory memory means for storing instructions means; and

one or more processors means in communication with the non-transitory memory means, wherein the one or more processors means execute the instructions means to:

identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based;

allocate a first resource for a first non-Transmission Control Protocol (TCP) connection;

generate a first non-TCP packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period;

set up the first non-TCP connection, by sending, from the first node to a second node, the first non-TCP packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period;

in response to detecting, based on the first duration and by the first node during at least a portion of the first non-TCP connection including at least a portion of the first non-TCP connection set up, a first time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection; and

in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first non-TCP connection, by releasing, by the first node, the first resource allocated for the first non-TCP connection.

Amendments to the Abstract:

Please amend the Abstract as follows:

~~A computer-implemented method is provided, comprising causing access to be provided, to a client computer, to code that causes the client computer to operate in accordance with a protocol that is separate from TCP, in order to establish a protocol connection with another server computer, by: receiving a packet, detecting an idle time period parameter field in the packet, identifying metadata in the idle time period parameter field for an idle time period, where, after the idle time period is detected, the second protocol connection is deemed inactive, and creating or modifying, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.~~ In various embodiments, a method, apparatus, and computer program product are provided to: identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based; allocate a first resource for a first connection (e.g. a non-TCP connection, a TCP-variant connection, not a Transmission Control Protocol connection, etc.); generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period; set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period; in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; and in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection.

Amendments to the Title:

Please amend the Title as follows:

METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A ~~AN IDLE TCP~~ CONNECTION

Amendments to the Specification:

Please amend the Summary as follows on Page 12 of the Specification:

node is received by the first node. The system includes the packet generator component configured for generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. The system still further includes the net out-port component configured for sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node. The system includes the idle time period monitor component configured for detecting the first idle time period based on the first idle information. The system includes the connection state component configured for deactivating the TCP connection in response to detecting the first idle time period. In various embodiments, a method, apparatus, and computer program product are provided to: identify, at a first node, first information on which at least a first duration for detecting a first type of time period is based; allocate a first resource for a first connection (e.g. a non-TCP connection, a TCP-variant connection, not a Transmission Control Protocol connection, etc.); generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period; set up the first connection, by sending, from the first node to a second node, the first packet to provide the first metadata to the second node, for use by the second node in determining the second duration for detecting the first type of time period; in response to detecting, based on the first duration and by the first node during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection; and in response to detecting, based on the second duration and by the first node after the first duration is changed to the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the first node, the first resource allocated for the first connection.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Confirmation No.: 9756
Robert Paul Morris	Examiner: ALI, SYED
Application No.: 17/079,397	Art Unit: 2468
File Date: 10-23-2020	Docket No.: PMOR0120K
Title: METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AT LEAST ONE TIME PERIOD FOR A CONNECTION (amended)	Date: December 02, 2020

PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Examiner:

Prior to substantive examination of the above patent application, please enter the following amendments.

Electronic Patent Application Fee Transmittal

Application Number:	17079397
Filing Date:	23-Oct-2020
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Filer:	Patrick Edgar Caldwell
Attorney Docket Number:	PMOR0120K

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	9	100	900
INDEPENDENT CLAIMS IN EXCESS OF 3	1201	1	480	480
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1380**

Electronic Acknowledgement Receipt	
EFS ID:	41280452
Application Number:	17079397
International Application Number:	
Confirmation Number:	9756
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Customer Number:	92045
Filer:	Patrick Edgar Caldwell
Filer Authorized By:	
Attorney Docket Number:	PMOR0120K
Receipt Date:	02-DEC-2020
Filing Date:	23-OCT-2020
Time Stamp:	23:22:15
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1380
RAM confirmation Number	E2020B2N22312949
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		PMOR0120K_PreliminaryAmendment_vF_02-Dec-2020.pdf	114002 8815328afdbb1604143fdc87700138b8043f74f2	yes	19

Multipart Description/PDF files in .zip description

Document Description	Start	End
Preliminary Amendment	19	19
Claims	5	18
Abstract	4	4
Specification	2	3
Preliminary Amendment	1	1

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	31946 bf6ce9fc421d29a9986d73edd4ac82609dcd1316	no	2

Warnings:

Information:

Total Files Size (in bytes):	145948

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/079,397	Filing Date 10/23/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $480 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	12/02/2020	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 29	Minus	** 20	= 9		x $100 =	900
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 3	= 1		x $480 =	480
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	1380

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	SLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/SHARON M WEST/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/079,397	10/23/2020	Robert Paul Morris	PMOR0120K	9756

92045 7590 11/06/2020

The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

EXAMINER	

ART UNIT	PAPER NUMBER
2457	

NOTIFICATION DATE	DELIVERY MODE
11/06/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@appcoll.com
pcaldwell@thecaldwellfirm.com

Decision Granting Request for Prioritized Examination (Track I)	**Application No.** 17/079,397	**Applicant(s)** Morris, Robert Paul	
	Examiner BRIAN W BROWN	**Art Unit** OPET	**AIA (FITF) Status** No

1. THE REQUEST FILED 23 October 2020 IS **GRANTED** .

The above-identified application has met the requirements for prioritized examination

A. ☑ for an original nonprovisional application (Track I).
B. ☐ for an application undergoing continued examination (RCE).

2. **The above-identified application will undergo prioritized examination**. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:

A. filing a **petition for extension of time** to extend the time period for filing a reply;

B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims** , or a multiple dependent claim;

C. filing a **request for continued examination** ;

D. filing a notice of appeal;

E. filing a request for suspension of action;

F. mailing of a notice of allowance;

G. mailing of a final Office action;

H. completion of examination as defined in 37 CFR 41.102; or

I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to BRIAN BROWN at (571)272-5338. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.

/BRIAN W BROWN/ Petitions Examiner, OPET	

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/079,397	10/23/2020		1820	PMOR0120K	20	3

CONFIRMATION NO. 9756

FILING RECEIPT

92045
The Caldwell Firm, LLC
PO Box 59655
Dept. SVIPGP
Dallas, TX 75229

OC000000121095436

Date Mailed: 11/04/2020

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Robert Paul Morris, Madison, GA;

Applicant(s)

JENAM TECH, LLC, Longview, TX;

Power of Attorney: The patent practitioners associated with Customer Number 92045

Domestic Priority data as claimed by applicant

This application is a CON of 16/914,267 06/26/2020
which is a CON of 16/368,811 03/28/2019 PAT 10742774
which is a CON of 16/040,522 07/19/2018 PAT 10375215
which is a CON of 15/915,047 03/07/2018 PAT 10075564
which is a CON of 15/694,802 09/03/2017 PAT 9923995
which is a CIP of 14/667,642 03/24/2015 ABN
which is a CIP of 13/477,402 05/22/2012 ABN
which is a CON of 12/714,454 02/27/2010 PAT 8219606

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 11/03/2020
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/079,397**
Projected Publication Date: Request for Non-Publication Acknowledged
Non-Publication Request: Yes
Early Publication Request: No
Title

METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/079,397

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	320
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	700
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	800
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x 480 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1820

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
16/040,522	2018-07-19

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 92045

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Jenam Tech, LLC

☐ Inventor or Joint Inventor (title not required below)
☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	/Andrew Gordon/	Date (Optional)	
Name	Andrew Gordon		
Title	Manager, Jenam Tech, LLC		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [x] The attached application, or
- [ ] United States application or PCT international application number _____

filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Robert Paul Morris Date (Optional) :_____

Signature: /Robert Paul Morrs/

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

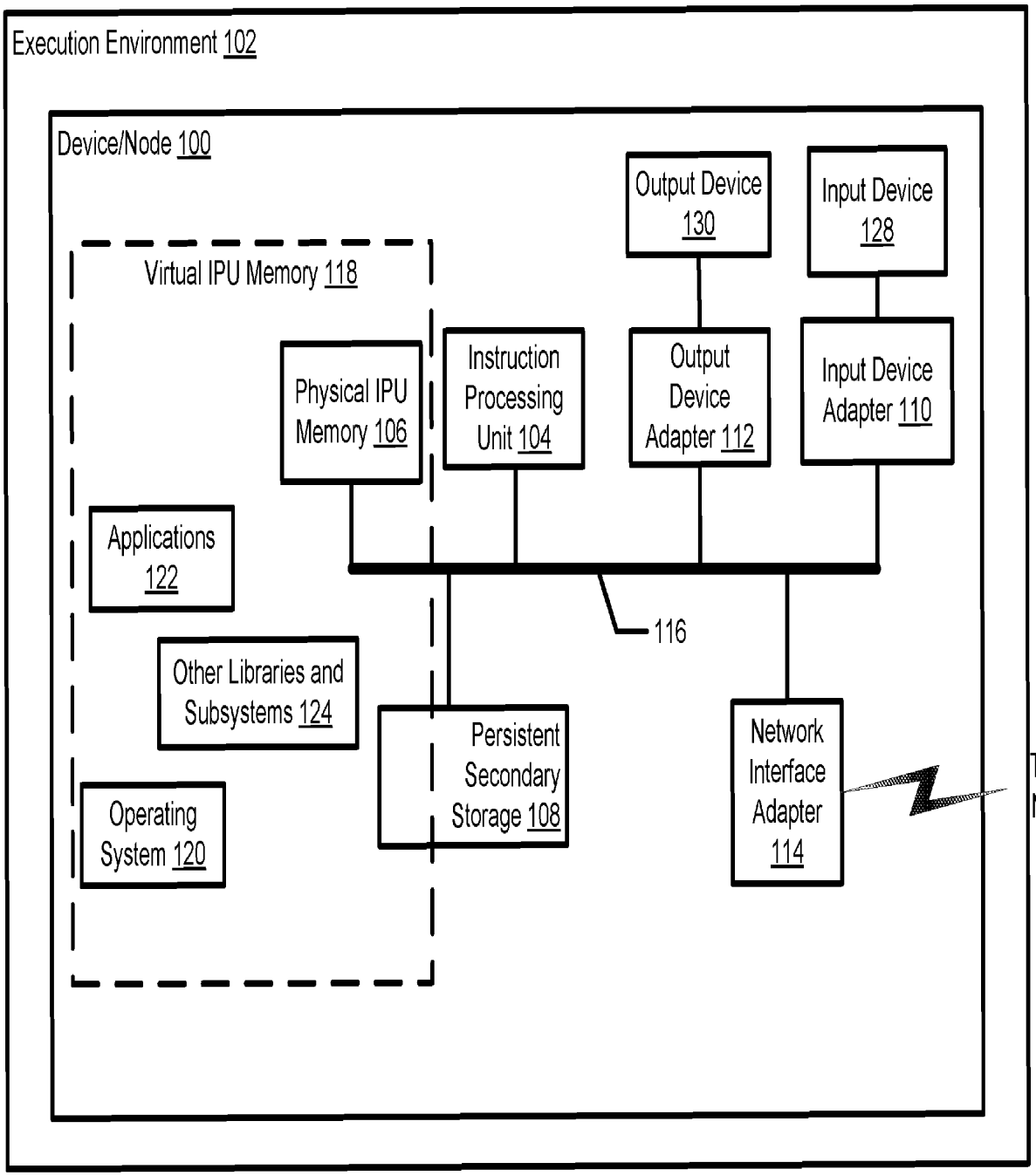

Execution Environment 102
Device/Node 100
Output Device 130
Input Device 128
Virtual IPU Memory 118
Physical IPU Memory 106
Instruction Processing Unit 104
Output Device Adapter 112
Input Device Adapter 110
Applications 122
116
Other Libraries and Subsystems 124
Persistent Secondary Storage 108
Network Interface Adapter 114
To/From Network
Operating System 120

Fig. 1

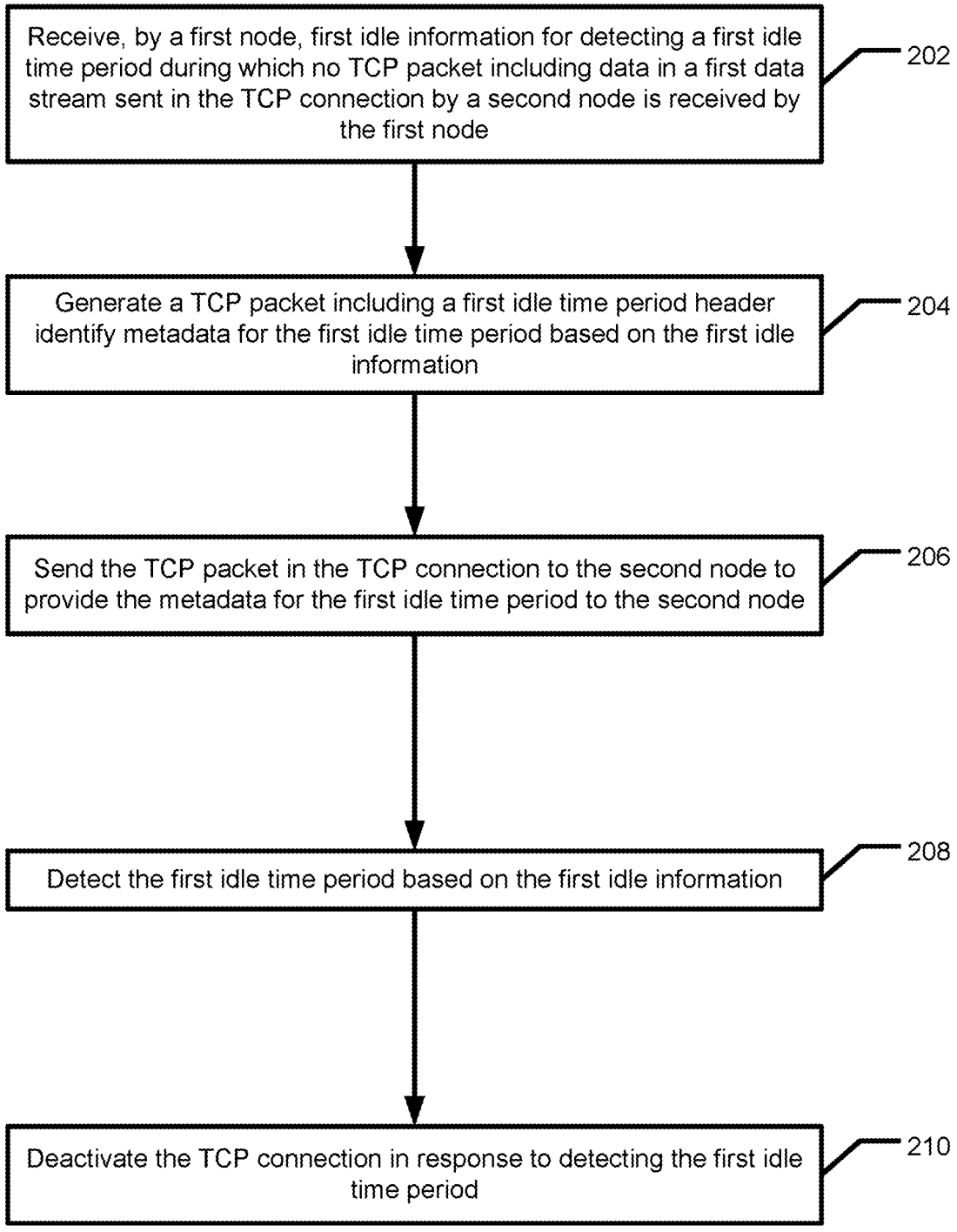

Receive, by a first node, first idle information for detecting a first idle time period during which no TCP packet including data in a first data stream sent in the TCP connection by a second node is received by the first node
202
Generate a TCP packet including a first idle time period header identify metadata for the first idle time period based on the first idle information
204
Send the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node
206
Detect the first idle time period based on the first idle information
208
Deactivate the TCP connection in response to detecting the first idle time period
210

Fig. 2

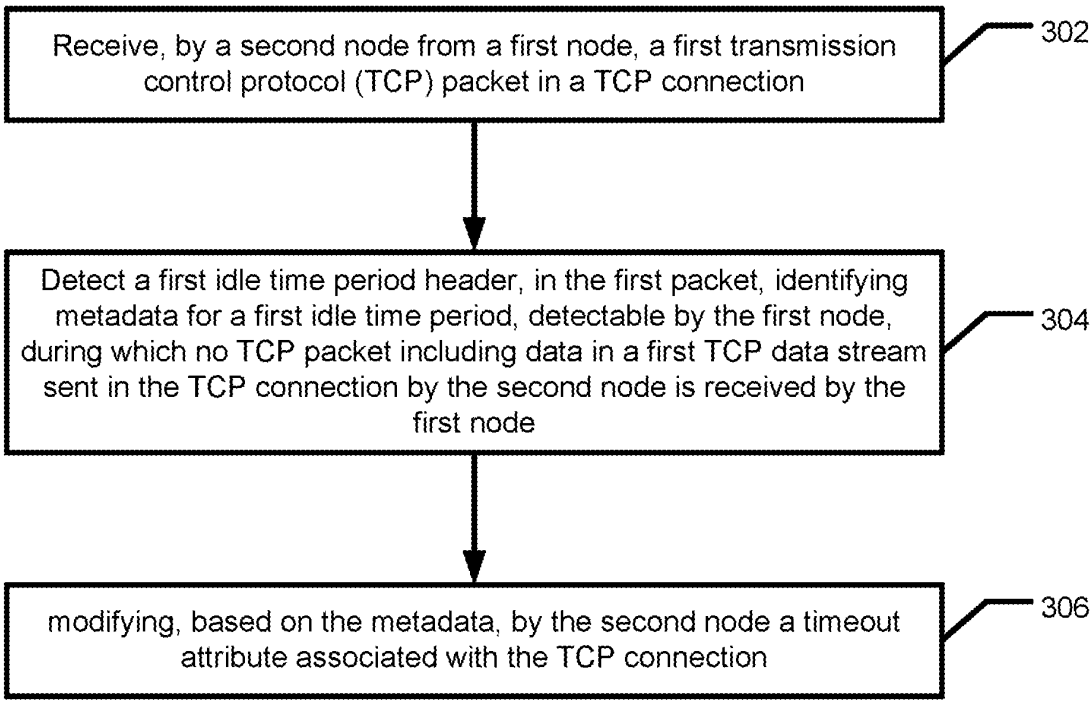

Receive, by a second node from a first node, a first transmission control protocol (TCP) packet in a TCP connection
302
Detect a first idle time period header, in the first packet, identifying metadata for a first idle time period, detectable by the first node, during which no TCP packet including data in a first TCP data stream sent in the TCP connection by the second node is received by the first node
304
modifying, based on the metadata, by the second node a timeout attribute associated with the TCP connection
306

Fig. 3

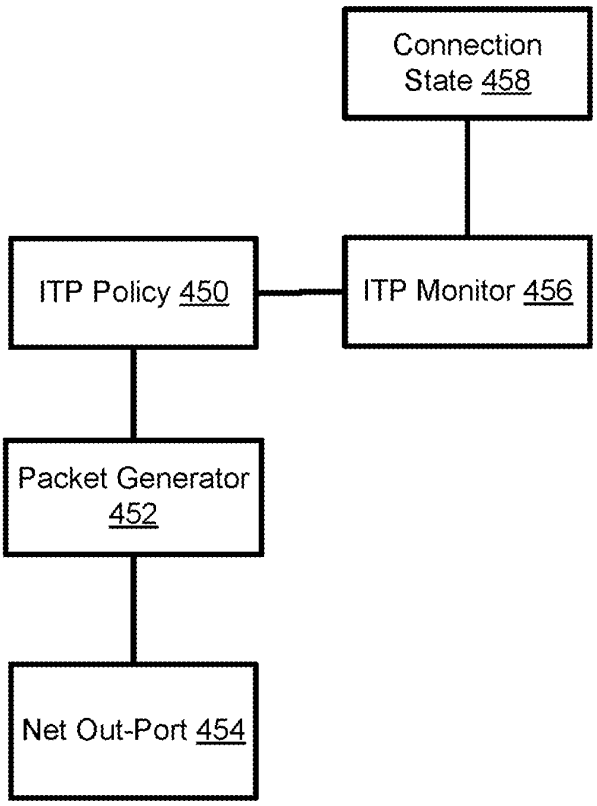

Connection State 458
ITP Policy 450
ITP Monitor 456
Packet Generator 452
Net Out-Port 454

Fig. 4a

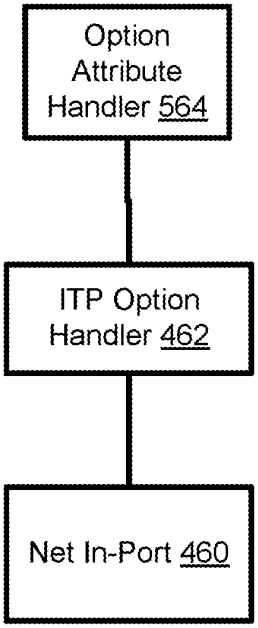

Option Attribute Handler 564
ITP Option Handler 462
Net In-Port 460

Fig. 4b

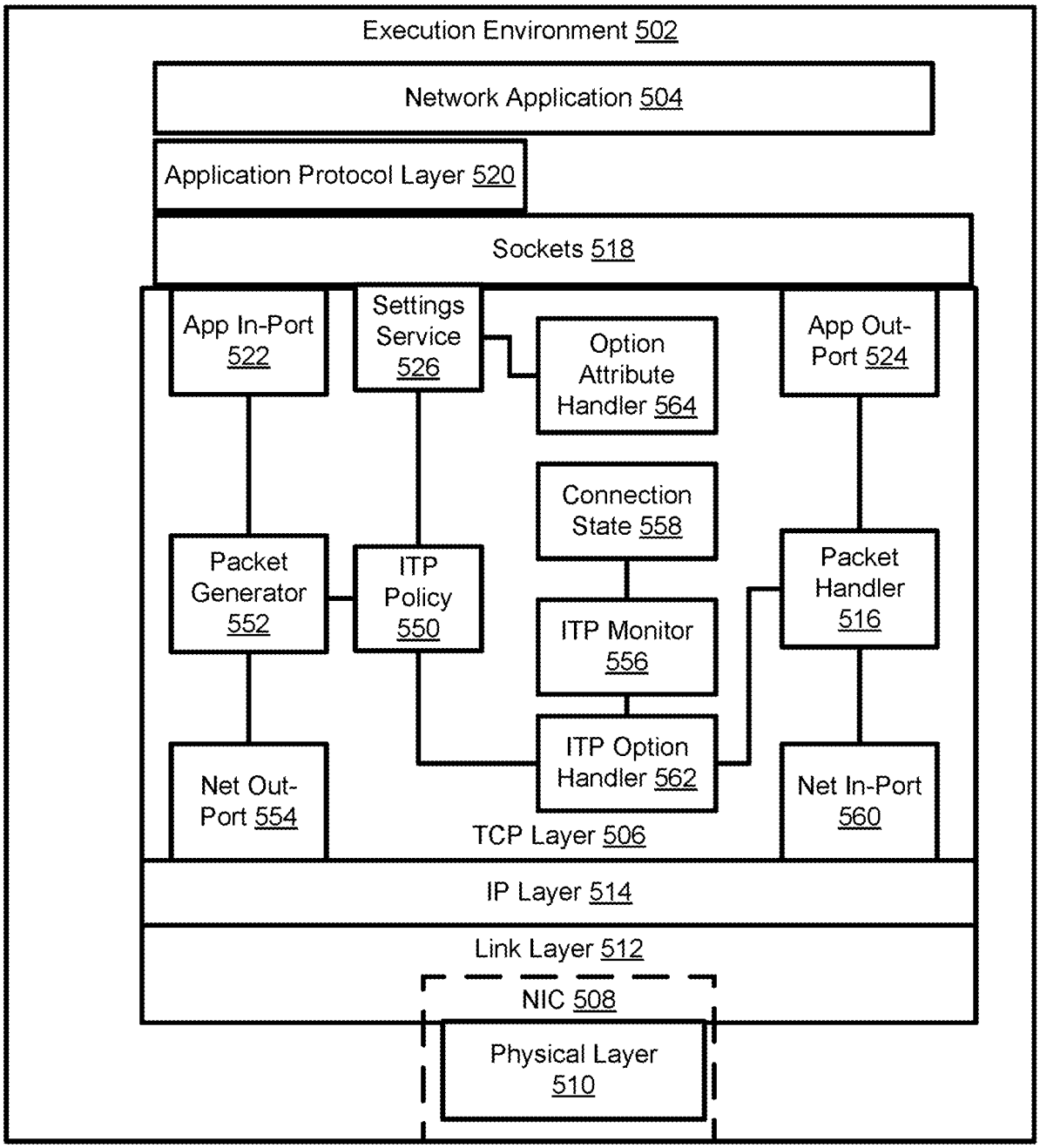

Execution Environment 502
Network Application 504
Application Protocol Layer 520
Sockets 518
App In-Port 522
Settings Service 526
Option Attribute Handler 564
App Out-Port 524
Connection State 558
Packet Generator 552
ITP Policy 550
ITP Monitor 556
Packet Handler 516
ITP Option Handler 562
Net Out-Port 554
Net In-Port 560
TCP Layer 506
IP Layer 514
Link Layer 512
NIC 508
Physical Layer 510

Fig. 5

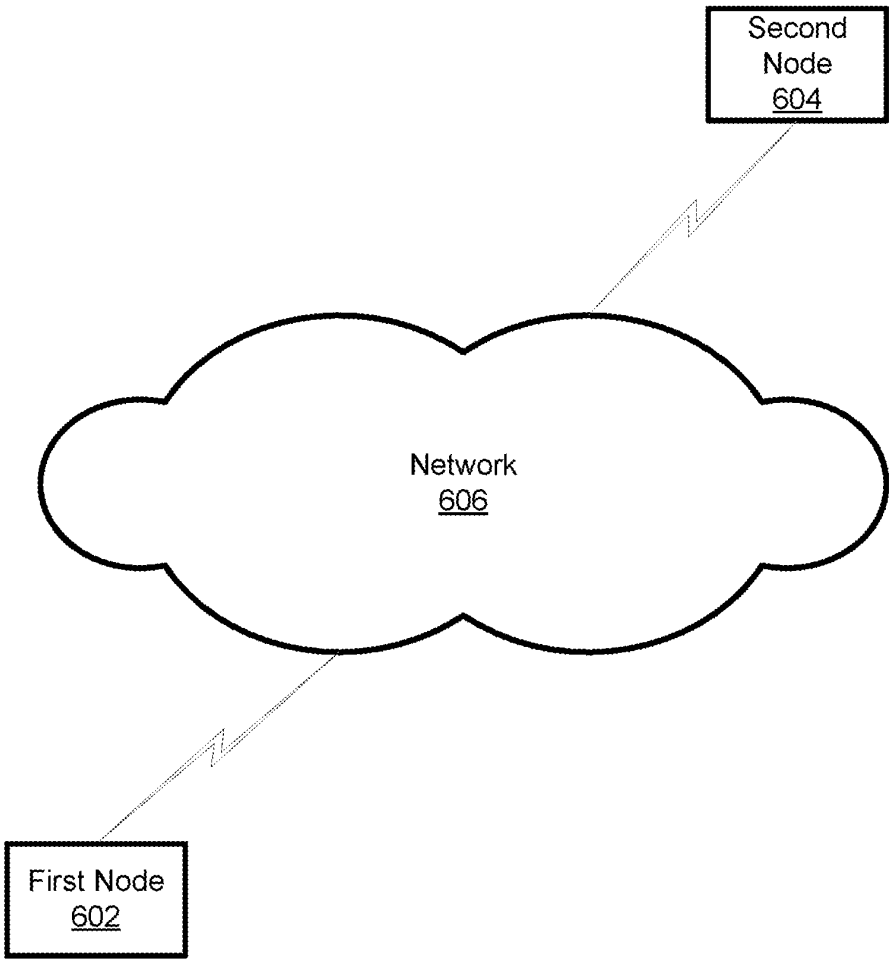


Fig. 6

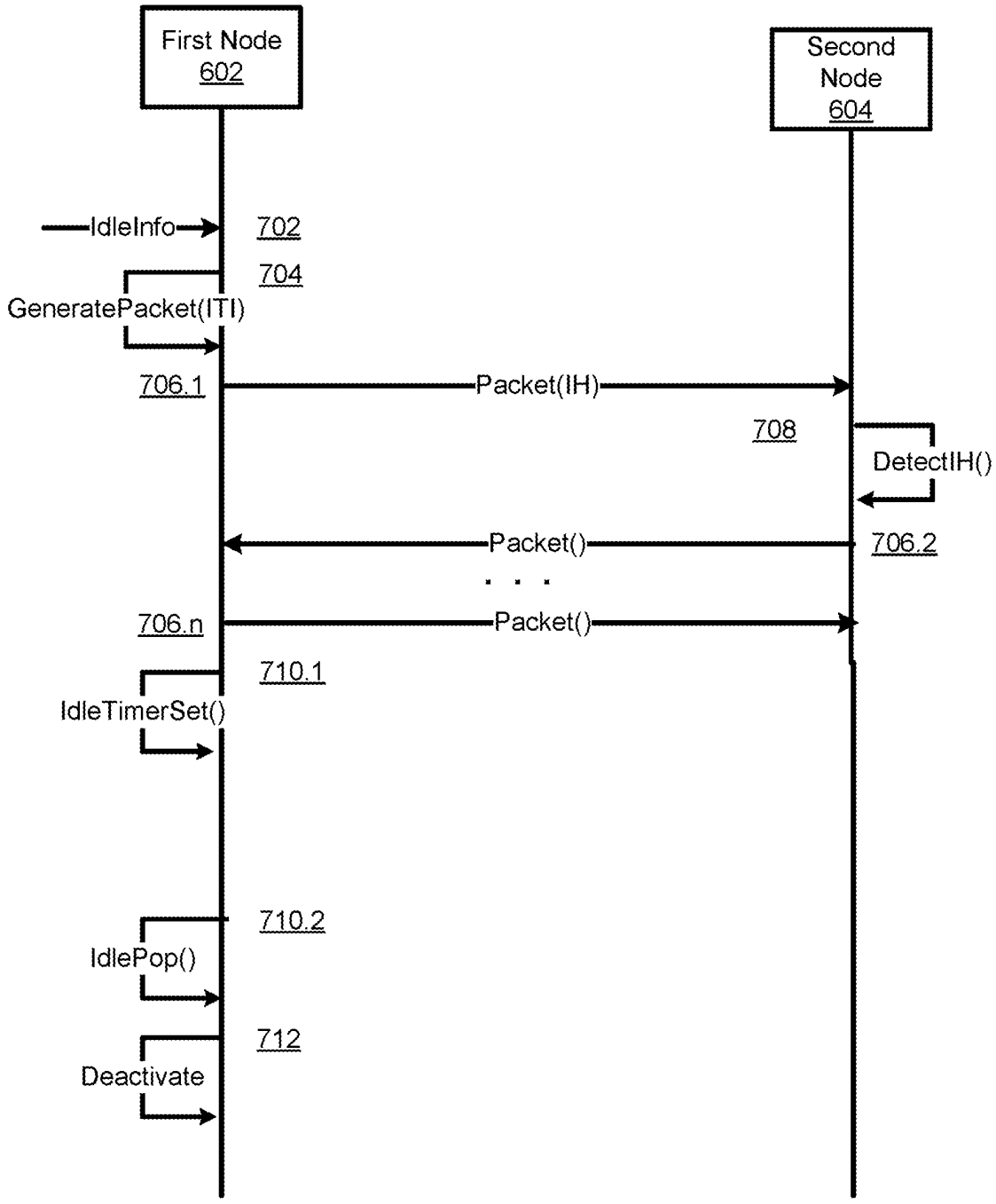
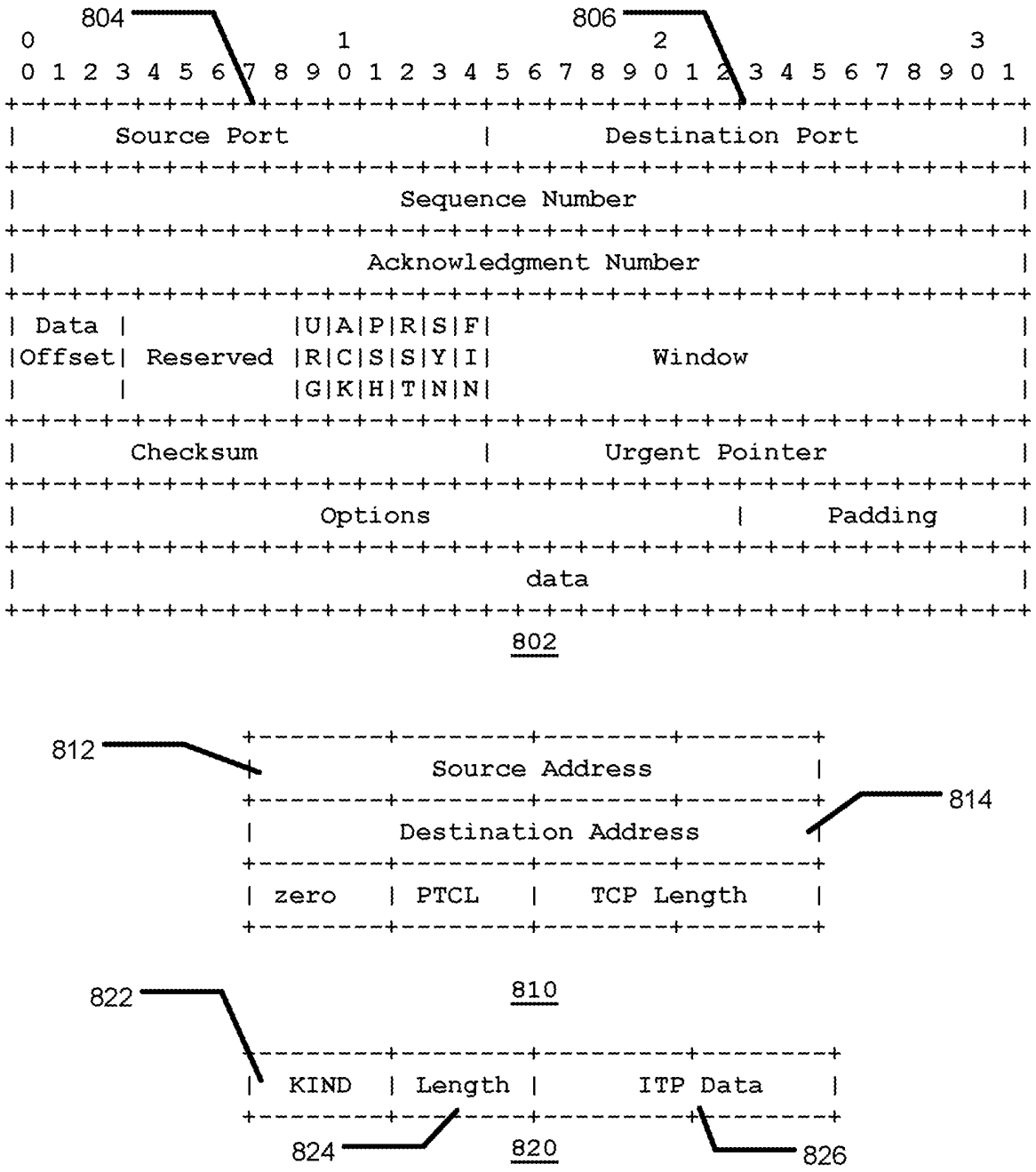

First Node
602
Second
Node
604
IdleInfo
702
704
GeneratePacket(ITI)
706.1
Packet(IH)
708
DetectIH()
Packet()
706.2
706.n
Packet()
710.1
IdleTimerSet()
710.2
IdlePop()
712
Deactivate

Fig. 7



Figures are adapted from RFC 793

Fig. 8

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	PMOR0120K
	Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Robert	Paul	Morris	

Residence Information (Select One) ● US Residency ○ Non US Residency ○ Active US Military Service

City	State/Province	Country of Residence
Madison	GA	US

Mailing Address of Inventor:

Address 1	751 Markhams Dr
Address 2	

City	State/Province	Postal Code	Country i
Madison	GA	30650	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	92045		
Email Address	pcaldwell@thecaldwellfirm.com	Add Email	Remove Email

Application Information:

Title of the Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		
Attorney Docket Number	PMOR0120K	**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		**Suggested Figure for Publication (if any)**	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	PMOR0120K
	Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☒ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	92045		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	16914267	2020-06-26

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	PMOR0120K
	Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION	

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16914267	Continuation of	16368811	2019-03-28	10742774	2020-08-11

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16368811	Continuation of	16040522	2018-07-19	10375215	2019-08-06

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16040522	Continuation of	15915047	2018-03-07	10075564	2018-09-11

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15915047	Continuation of	15694802	2017-09-03	9923995	2018-03-20

Prior Application Status	Abandoned	Remove

Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
15694802	Continuation in part of	14667642	2015-03-24

Prior Application Status	Abandoned	Remove

Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
14667642	Continuation in part of	13477402	2012-05-22

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13477402	Continuation of	12714454	2010-02-27	8219606	2012-07-10

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	PMOR0120K
	Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION	

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	PMOR0120K
	Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	PMOR0120K
	Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	JENAM TECH, LLC		
Mailing Address Information For Applicant:			
Address 1	211 W Tyler Street, Suite C		
Address 2			
City	Longview	**State/Province**	TX
Country	US	Postal Code	75601
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	PMOR0120K
	Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Patrick Caldwell/			Date (YYYY-MM-DD)	2020-10-23
First Name	Patrick	Last Name	Caldwell	Registration Number	44580

Additional Signature may be generated within this form by selecting the Add button. Add

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	PMOR0120K
	Application Number	
Title of Invention	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Doc Code: TRACK1.REQ
Document Description: TrackOne Request

PTO/AIA/424 (04-14)

CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION UNDER 37 CFR 1.102(e) (Page 1 of 1)

First Named Inventor:	Robert Paul Morris	Nonprovisional Application Number (if known):	
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently $0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.

2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.

3. The applicable box is checked below:

I. ☑ Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)

i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.

---OR---

(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.

ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, **or** the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

II. ☐ Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)

i. A request for continued examination has been filed with, or prior to, this form.
ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature /Patrick Caldwell/	Date 10/23/2020
Name (Print/Typed) Patrick Caldwell	Practitioner Registration Number 44580

Note: *This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.**

☐ *Total of _____ forms are submitted.

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METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION

RELATED APPLICATIONS

[0001] This application is a continuation of, and claims priority to U.S. Patent Application No. 16/914,267 entitled "METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION," filed on 06-26-2020, which in turn is a continuation of, and claims priority to U.S. Patent Application No. 16/368,811 entitled "METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION," filed on 03-28-2019, which in turn is a continuation of, and claims priority to U.S. Patent Application No. 16/040,522, now US Patent Number 10,375,215, entitled "METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION," filed on 07-19-2018, which in turn, is a continuation of, and claims priority to U.S. Patent Application No. 15/915,047, now U.S. Patent No. 10,075,564, entitled "METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION," filed on 03-07-2018 which, in turn, is a continuation of, and claims priority to U.S. Patent Application No. 15/694,802, now U.S. Patent No. 9,923,995, entitled "METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION," filed on 09-03-2017

which, in turn, is a continuation-in-part of, and claims priority to U.S. Patent Application No. 14/667,642, entitled "METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SELECTING A RESOURCE BASED ON A MEASURE OF A PROCESSING COST," filed on 03-24-2015 which, in turn, is a continuation-in-part of and claims priority to U.S. Patent Application No. 13/477,402, entitled "METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION," filed 05-22-2012 which is a continuation of and claims priority to U.S. Patent Application No. 12/714,454, now U.S. Patent No. 8,219,606, entitled "METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION," filed 02-27-2010.

[0002] U.S. Patent Application No. 12/714,454, entitled "METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION," filed 02-27-2010 is incorporated herein by reference in its entirety for all purposes.

[0003] This application is related to the following commonly owned U.S. Patent Applications, the entire disclosure of which is incorporated by reference herein in its entirety for all purposes: Application No. 12/714,063 (Docket No 0110) filed on 2010/02/26, entitled "Methods, Systems, and Program Products for Detecting an Idle TCP Connection".

BACKGROUND

[0004] Various implementations of the transmission control protocol (TCP) in network nodes support a number of options that are not negotiated or even communicated between or among any of the nodes. Some of these options are included in the specification of the TCP while others are not. For example, the TCP keep-alive option is supported by a number of implementations of the TCP. It is not, however, part of the TCP specification as described in "Request for Comments" (RFC) document RFC 793 edited by John Postel, titled "Transmission Control Protocol, DARPA Internet Program Internet Protocol Specification" (September 1981), which is incorporated here in its entirety by reference. One, both, or neither node including an endpoint in a TCP connection may support a keep-alive option for the connection. Each node supports or does not support keep-alive for a TCP connection based on each node's requirements without consideration for the other node in the TCP connection.

[0005] With respect to the keep-alive option, some argue that it is unnecessary and that it can waste network bandwidth. Some of these critics point out that a keep-alive packet can bring down a TCP connection. Further, since nodes including endpoints in a TCP connection do not cooperate in supporting the keep-alive option, the nodes may operate in opposition to one another and/or may waste resources by duplicating function, according to critics of the keep-alive option.

[0006] Proponents of the keep-alive option claim there is a benefit to detecting a dead peer/partner endpoint sooner. A node providing TCP keep-alive can also indirectly

detect when a network is so congested that two nodes with endpoints in a TCP connection are effectively disconnected. Proponents argue that keep-alive can keep an inactive TCP connection open. For example, some network nodes such as firewalls are configured to close TCP connections determined to be idle or inactive in order to recover resources. Keep-alive can prevent this. This is good from the perspective of the node sending keep-alive packets, but the keep-alive packets might cause the firewall to waste resources and possibly block or terminate TCP connections with other nodes.

[0007] TCP keep-alive and the debate of its benefits and faults have been around for decades. To date no mechanism to allow two TCP connection endpoints to cooperate in supporting the keep-alive option has been proposed or implemented. The broader issue of enabling cooperation and negotiation between nodes in a TCP connection in detecting and managing idle, underactive, and/or dead TCP connections remains unaddressed.

[0008] Accordingly, there exists a need for methods, systems, and computer program products for sharing information for detecting an idle TCP connection.

SUMMARY

[0009] The following presents a simplified summary of the disclosure in order to provide a basic understanding to the reader. This summary is not an extensive overview of the disclosure and it does not identify key/critical elements of the invention or delineate the scope of the invention. Its sole purpose is to present some concepts

disclosed herein in a simplified form as a prelude to the more detailed description that is presented later.

[0010] A computer-implemented method is provided, comprising: causing access to be provided to a server computer including: a non-transitory memory storing a network application, and one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the network application to operate in accordance with a first protocol including a transmission control protocol (TCP); causing a TCP connection to be established with a client computer, by: communicating a segment including at least one first synchronize bit, communicating a first acknowledgement of the segment, and at least one second synchronize bit, and communicating a second acknowledgement; causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer; causing the server computer to permit second data, from the user of the client computer, to be received at the server computer from the client computer utilizing the TCP connection in accordance with the TCP protocol and the hypertext transfer protocol (HTTP); and causing access to be provided, to the client computer, to code that causes the client computer to operate in accordance with a second protocol that is separate from the TCP, in order to establish a second protocol connection with another server computer, by: receiving a packet, detecting an idle time period parameter field in the packet, identifying metadata in the idle time period

parameter field for an idle time period, where, after the idle time period is detected, the second protocol connection is deemed inactive, and creating or modifying, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.

[0011] Another computer-implemented method is provided comprising: providing access to a server computer including: a non-transitory memory storing a network application, and one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the network application to operate in accordance with a first protocol including a transmission control protocol (TCP); causing a TCP connection to be established with a client computer, by communicating a segment including at least one first synchronize bit; communicating a first acknowledgement of the segment, and at least one second synchronize bit; and communicating a second acknowledgement; causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer; causing the server computer to permit second data, from the user of the client computer, to be received at the server computer from the client computer utilizing the TCP connection in accordance with the TCP protocol and the hypertext transfer protocol (HTTP); and providing access to code that results in the client computer operating in accordance with a second protocol that is separate from the TCP, in order to establish a second protocol connection with another

server computer, by: identifying idle information for detecting an idle time period, after which, the second protocol connection is subject to deactivation, generating a second protocol packet including an idle time period parameter field identifying metadata for the idle time period based on the idle information, and sending, from the client computer to the another server computer, the second protocol packet to provide the metadata for the idle time period to the another server computer, for use by the another server computer in creating or modifying, based on the metadata, a timeout attribute associated with the second protocol connection.

[0012] Yet another computer-implemented method is provided comprising: providing access to a server computer including: a non-transitory memory storing instructions, and one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions such that a network application operates in accordance with a first protocol including a transmission control protocol (TCP), the server computer, when operating in accordance with the first protocol to set up a TCP connection with a client computer, configured to: communicate a segment including at least one first synchronize bit, communicate a first acknowledgement of the segment, and at least one second synchronize bit, and communicate a second acknowledgement; causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer; causing the server computer to permit second data, of the user of the client

computer, to be received at the server computer from the client computer utilizing the TCP connection in accordance with the TCP protocol and the hypertext transfer protocol (HTTP); and providing access to code that causes the client computer to operate in accordance with a second protocol that is different from the TCP and that operates above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer, in order to setup a second protocol connection with another server computer, by: receiving, by the client computer from the another server computer, a packet, identifying metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in the packet for an idle time period during which, no packet is communicated that meets each of the following criteria: a) communicated via the second protocol connection, and b) causes the second protocol connection to be kept at least partially alive, and determining, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.

[0013] Still yet another computer-implemented method is provided comprising: providing access to a server computer including: a non-transitory memory storing instructions, and one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions such that a network application operates in accordance with a first protocol including a transmission control protocol (TCP) that operates above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer, the server computer, when operating in accordance with the first protocol to set up a TCP connection with a client

computer, configured to: communicate a segment including at least one first synchronize bit, communicate a first acknowledgement of the segment, and at least one second synchronize bit, and communicate a second acknowledgement; causing first data to be communicated from the server computer to the client computer utilizing the TCP connection in accordance with the TCP protocol and a hypertext transfer protocol (HTTP), for being presented to a user of the client computer; causing the server computer to permit second data, of the user of the client computer, to be received at the server computer from the client computer utilizing the TCP connection in accordance with the TCP protocol and the hypertext transfer protocol (HTTP); and providing access to code that results in the client computer operating in accordance with a second protocol, that is different from the TCP and operates above the IP layer and below the HTTP application layer, in order to setup a second protocol connection with another server computer, and to: receive idle information for use in detecting an idle time period during which no signal is communicated that meets each of the following criteria: a) communicated in the second protocol connection, and b) results in the second protocol connection being at least partially kept alive, generate, based on the idle information, a second protocol packet including an idle time period parameter field identifying metadata that is specified in a number of seconds or minutes, and send, from the client computer to another server computer and during the set up of the second protocol connection, the second protocol packet to provide the metadata to the another server computer, for use by the another server computer in determining a timeout attribute associated with the second protocol connection.

[0014] Other methods and systems are also described for sharing information for detecting an idle TCP connection. In one aspect, a method includes receiving, by a second node from a first node, a first transmission control protocol (TCP) packet in a TCP connection. The method further includes detecting a first idle time period header, in the first packet, identifying metadata for a first idle time period, detectable by the first node, during which no TCP packet including data in a first TCP data stream sent in the TCP connection by the second node is received by the first node. The method still further includes modifying, based on the metadata, by the second node a timeout attribute associated with the TCP connection.

[0015] Further, a system for sharing information for detecting an idle TCP connection is described. The system includes an execution environment including an instruction processing unit configured to process an instruction included in at least one of a net in-port component, an idle time period option handler component, and an option attribute handler component. The system includes the net in-port component configured for receiving, by a second node from a first node, a first transmission control protocol (TCP) packet in a TCP connection. The system further includes the idle time period option handler component configured for detecting a first idle time period header, in the first packet, identifying metadata for a first idle time period, detectable by the first node, during which no TCP packet including data in a first TCP data stream sent in the TCP connection by the second node is received by the first node. The system still further

includes the option attribute handler component configured for modifying, based on the metadata, by the second node a timeout attribute associated with the TCP connection

[0016] In another aspect, a method for sharing information for detecting an idle TCP connection is described that includes receiving, by a first node, first idle information for detecting a first idle time period during which no TCP packet including data in a first data stream sent in the TCP connection by a second node is received by the first node. The method further includes generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. The method still further includes sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node. The method also includes detecting the first idle time period based on the first idle information. The method additionally includes deactivating the TCP connection in response to detecting the first idle time period.

[0017] Still further, a system for sharing information for detecting an idle TCP connection is described. The system includes an execution environment including an instruction processing unit configured to process an instruction included in at least one of an idle time period policy component, a packet generator component, a net out-port component, an idle time period monitor component, and a connection state component. The system includes the idle time period policy component configured for receiving, by a first node, first idle information for detecting a first idle time period during which no TCP packet including data in a first data stream sent in the TCP connection by a second

node is received by the first node. The system includes the packet generator component configured for generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. The system still further includes the net out-port component configured for sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node. The system includes the idle time period monitor component configured for detecting the first idle time period based on the first idle information. The system includes the connection state component configured for deactivating the TCP connection in response to detecting the first idle time period.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] Objects and advantages of the present invention will become apparent to those skilled in the art upon reading this description in conjunction with the accompanying drawings, in which like reference numerals have been used to designate like or analogous elements, and in which:

[0019] Fig. 1 is a block diagram illustrating an exemplary hardware device included in and/or otherwise providing an execution environment in which the subject matter may be implemented;

[0020] Fig. 2 is a flow diagram illustrating a method for sharing information for detecting an idle TCP connection according to an aspect of the subject matter described herein;

[0021] Fig. 3 is a flow diagram illustrating another method for sharing information for detecting an idle TCP connection according to another aspect of the subject matter described herein;

[0022] Fig. 4a and Fig. 4b show a block a diagram illustrating an arrangement of components for sharing information for detecting an idle TCP connection according to a further aspect of the subject matter described herein;

[0023] Fig. 5 is a block diagram illustrating an arrangement of components for sharing information for detecting an idle TCP connection according to still another aspect of the subject matter described herein;

[0024] Fig. 6 is a network diagram illustrating an exemplary system for sharing information for detecting an idle TCP connection according to an aspect of the subject matter described herein;

[0025] Fig. 7 is a message flow diagram illustrating an exemplary data and execution flow for sharing information for detecting an idle TCP connection according to an aspect of the subject matter described herein; and

[0026] Fig. 8 is a diagram illustrating a structure for a packet transmitted via a network according to an aspect of the subject matter described herein.

DETAILED DESCRIPTION

[0027] An exemplary device included in an execution environment that may be configured according to the subject matter is illustrated in Fig. 1. An execution environment includes an arrangement of hardware and, optionally, software that may be further configured to include an arrangement of components for performing a method of the subject matter described herein.

[0028] An execution environment includes and/or is otherwise provided by one or more devices. An execution environment may include a virtual execution environment including software components operating in a host execution environment. Exemplary devices included in or otherwise providing suitable execution environments for configuring according to the subject matter include personal computers, notebook computers, tablet computers, servers, hand-held and other mobile devices, multiprocessor devices, distributed devices, consumer electronic devices, and/or network-enabled devices. Those skilled in the art will understand that the components illustrated in Fig. 1 are exemplary and may vary by particular execution environment.

[0029] Fig. 1 illustrates hardware device **100** included in execution environment **102** which includes instruction-processing unit (IPU) **104**, such as one or more microprocessors; physical IPU memory **106** including storage locations identified by

addresses in a physical memory address space of IPU **104;** persistent secondary storage **108**, such as one or more hard drives and/or flash storage media; input device adapter **110**, such as key or keypad hardware, keyboard adapter, and/or mouse adapter; output device adapter **112**, such as a display or audio adapter for presenting information to a user; a network interface, illustrated by network interface adapter **114,** for communicating via a network such as a LAN and/or WAN; and a communication mechanism that couples elements **104-114**, illustrated as bus **116**. Elements **104-114** may be operatively coupled by various means. Bus **116** may comprise any type of bus architecture, including a memory bus, a peripheral bus, a local bus, and/or a switching fabric.

[0030] IPU **104** is an instruction execution machine, apparatus, or device. Exemplary IPUs include one or more microprocessors, digital signal processors (DSP), graphics processing units (GPU), application-specific integrated circuits (ASIC), and/or field programmable gate arrays (FPGA).

[0031] IPU **104** may access machine code instructions and data via one or more memory address spaces in addition to the physical memory address space. A memory address space includes addresses identifying locations in an IPU memory. IPU **104** may have more than one IPU memory. Thus, IPU **104** may have more than one memory address space. IPU **104** may access a location in an IPU memory by processing an address identifying the location. The processed address may be in an operand of a

machine code instruction and/or may be identified in a register or other portion of IPU **104**.

[0032] Fig. 1 illustrates virtual IPU memory **118** spanning at least part of physical IPU memory **106** and at least part of persistent secondary storage **108**. Virtual memory addresses in a memory address space may be mapped to physical memory addresses identifying locations in physical IPU memory **106**. An address space for identifying locations in a virtual IPU memory is referred to as a virtual memory address space; its addresses are referred to as virtual memory addresses; and its IPU memory is known as a virtual IPU memory or virtual memory. The term IPU memory may refer to physical IPU memory **106** and/or virtual IPU memory **118** depending on the context in which the term is used.

[0033] Various types of memory technologies may be included in physical IPU memory **106**. Exemplary memory technologies include static random access memory (SRAM) and/or dynamic RAM (DRAM) including variants such as dual data rate synchronous DRAM (DDR SDRAM), error correcting code synchronous DRAM (ECC SDRAM), and/or RAMBUS DRAM (RDRAM). Physical IPU memory **106** may include volatile memory as illustrated in the previous sentence and/or may include nonvolatile memory such as nonvolatile flash RAM (NVRAM) and/or read-only memory (ROM).

[0034] Persistent secondary storage **108** may include one or more flash memory storage devices, one or more hard disk drives, one or more magnetic disk drives, and/or one or more optical disk drives. Persistent secondary storage may include removable

media. The drives and their associated computer-readable storage media provide volatile and/or nonvolatile storage for computer readable instructions, data structures, program components, and other data for execution environment **102**.

[0035] Execution environment **102** may include software components stored in persistent secondary storage **108**, in remote storage accessible via a network, and/or in an IPU memory. Fig. 1 illustrates execution environment **102** including operating system **120**, one or more applications **122**, other program code and/or data components illustrated by other libraries and subsystems **124**.

[0036] Execution environment **102** may receive user-provided information via one or more input devices illustrated by input device **128**. Input device **128** provides input information to other components in execution environment **102** via input device adapter **110**. Execution environment **102** may include an input device adapter for a keyboard, a touch screen, a microphone, a joystick, a television receiver, a video camera, a still camera, a document scanner, a fax, a phone, a modem, a network adapter, and/or a pointing device, to name a few exemplary input devices.

[0037] Input device **128** included in execution environment **102** may be included in device **100** as Fig. 1 illustrates or may be external (not shown) to device **100**. Execution environment **102** may include one or more internal and/or external input devices. External input devices may be connected to device **100** via corresponding communication interfaces such as a serial port, a parallel port, and/or a universal serial bus (USB) port. Input device adapter **110** receives input and provides a representation

to bus **116** to be received by IPU **104**, physical IPU memory **106**, and/or other components included in execution environment **102**.

[0038] Output device **130** in Fig. 1 exemplifies one or more output devices that may be included in and/or may be external to and operatively coupled to device **100**. For example, output device **130** is illustrated connected to bus **116** via output device adapter **112**. Output device **130** may be a display device. Exemplary display devices include liquid crystal displays (LCDs), light emitting diode (LED) displays, and projectors. Output device **130** presents output of execution environment **102** to one or more users. In some embodiments, an output device is a device such as a phone, a joystick, and/or a touch screen. In addition to various types of display devices, exemplary output devices include printers, speakers, tactile output devices such as motion producing devices, and other output devices producing sensory information detectable by a user.

[0039] A device included in or otherwise providing an execution environment may operate in a networked environment communicating with one or more devices (not shown) via one or more network interfaces. The terms “communication interface” and “network interface” are used interchangeably. Fig. 1 illustrates network interface adapter **114** as a network interface included in execution environment **102** to operatively couple device **100** to a network. The terms “network node” and “node” in this document both refer to a device having a network interface operatively coupled to a network.

[0040] Exemplary network interfaces include wireless network adapters and wired network adapters. Exemplary wireless networks include a BLUETOOTH network, a wireless 802.11 network, and/or a wireless telephony network (e.g., a cellular, PCS, CDMA, and/or GSM network). Exemplary wired networks include various types of LANs, wide area networks (WANs), and personal area networks (PANs). Exemplary network adapters for wired networks include Ethernet adapters, Token-ring adapters, FDDI adapters, asynchronous transfer mode (ATM) adapters, and modems of various types. Exemplary networks also include intranets and internets such as the Internet.

[0041] Fig. 2 is a flow diagram illustrating a first method for sharing information for detecting an idle TCP connection according to an exemplary aspect of the subject matter described herein. Fig. 3 is a flow diagram illustrating a second method for sharing information for detecting an idle TCP connection according to an exemplary aspect of the subject matter described herein. Fig. 4a is a block diagram illustrating a system for sharing information for detecting an idle TCP connection according to the first method in Fig. 2. Fig. 4b is a block diagram illustrating a system for sharing information for detecting an idle TCP connection according to the second method in Fig. 3. It is expected that many, if not most, systems configured to perform one of the methods illustrated in Fig. 2 and Fig. 3 will also be configured to perform the other method.

[0042] A system for sharing information for detecting an idle TCP connection according to the method illustrated in Fig. 2 includes an execution environment, such as execution

environment **102** in Fig. 1**,** including an instruction processing unit, such as IPU **104**, configured to process an instruction included in at least one of an idle time period policy component **450**, a packet generator component **452**, and a net out-port component **454**, a idle time period monitor component **456,** and a connection state component **458** illustrated in Fig. 4a.

[0043] A system for sharing information for detecting an idle TCP connection performing the method illustrated in Fig. 3 includes an execution environment, such as execution environment **102** in Fig. 1**,** including an instruction processing unit, such as IPU **104**, configured to process an instruction included in at least one of a net in-port component **460**, an idle time period option handler component **462**, an option attribute handler component **464** illustrated in Fig. 4b.

[0044] Components illustrated in Fig. 4a may be adapted for performing the method illustrated in Fig. 2 in a number of execution environments. Components illustrated in Fig. 4b may be adapted for performing the method illustrated in Fig. 3 in a number of execution environments. Fig. 5 is a block diagram illustrating adaptations and/or analogs of the components of Fig. 4a and Fig. 4b in exemplary execution environment **502** including or otherwise provided by one or more nodes. The method depicted in Fig. 2 and the method depicted in Fig. 3 may be carried out by some or all of the exemplary components and/or their analogs.

[0045] The components illustrated in Fig. 4 and Fig. 5 may be included in or otherwise may be combined with some or all of the components of Fig. 1 to create a variety of arrangements of components according to the subject matter described herein.

[0046] Fig. 6 illustrates first node **602** and second node **604** as exemplary devices included in and/or otherwise adapted for providing a suitable execution environment, such as execution environment **502** illustrated in Fig. 5, for an adaptation of the arrangement of components in Fig. 4a and an adaptation of the arrangement of components in Fig. 4b. As illustrated in Fig. 6, first node **602** and second node **604** are operatively coupled to network **606** via respective network interfaces enabling first node **602** and second node **604** to communicate**.** Fig. 7 is a message flow diagram illustrating an exemplary exchange of messages within and between first node **602** and second node **604** according to the subject matter described herein.

[0047] As stated, the various adaptations of the arrangements of components in Fig. 4a and in Fig. 4b described herein are not exhaustive.

[0048] In Fig. 5, execution environment **502** illustrates a network application **504** operating in a node configured to communicate with one or more other nodes via the TCP supported by TCP layer component **506**. For example, first node **602** may be included in and/or provide execution environment **502**. Network application **504** may be a first application configured to communicate with an application operating in second node **604** via network **606**. Second node **604** may be included in and/or provide another instance of execution environment **502**. The operation of both first node **602** and second

node **604** are described with respect to execution environment **502**. For ease of illustration, both first node **602** and second node **604** are configured with adaptations of the arrangement in Fig 4a and the arrangement in Fig. 4b. As such, the description of components and corresponding operations with respect to execution environment **502** in Fig. 5 is applicable to both first node **602** and second node **604** in Fig. 6.

[0049] In Fig. 5, network interface card (NIC) **508** is an exemplification of a network interface illustrated in Fig. 1 by network interface adapter **114**. NIC **508** includes a physical layer component **510** operatively coupling execution environment **502** to one or more physical media for carrying communication signals. The media may be wired, such as an Ethernet LAN operating over CAT 6 cabling, or may be wireless such as an 802.11n LAN. Other exemplary physical layer protocols and corresponding media are identified above.

[0050] NIC **508** may also include a portion of link layer component **512**. Link layer component **512** may provide for communication between two nodes in a point-to-point communication and/or two nodes in a local area network (LAN). Exemplary link layers and, their protocols have been described above including FDDI, ATM, and Ethernet. A portion of link layer component **512** is external to NIC **508**. The external portion may be realized as a device driver for NIC **508**.

[0051] Link layer component **512** may receive data formatted as one or more internet protocol (IP) packets from internet protocol (IP) layer component **514**. Link layer component **512** packages data from IP layer component **514** according to the particular

link layer protocol supported. Analogously, link layer component **512** interprets data, received as signals transmitted by the physical media operatively coupled to physical layer component **510,** according to a particular link layer protocol supported. Link layer component **512** may strip off link layer specific data and transfer the payload of link layer transmissions to IP layer component **514**.

[0052] IP layer component **514** illustrated in Fig. 5 is configured to communicate with one or more remote nodes over a LAN and/or a network of networks such as an intranet or the Internet. IP layer component **514** may receive data formatted as TCP packets from TCP layer component **506**. IP layer component **514** packages data from TCP layer component **506** into IP packets for transmission across a network. The network may be and/or may include an internet. Analogously, IP layer component **514** interprets data, received from link layer component **512** as IP protocol data and detects IP packets in the received data. IP layer component **514** may strip off IP layer specific data and transfer the payload of one or more IP packets to TCP layer component **506**.

[0053] In Fig. 5, IP layer component **514** is operatively coupled to TCP layer component **506**. TCP layer component **506** is configured to provide a TCP connection over network **606** for sending and/or receiving packets included in the TCP connection between two nodes exemplified by first node **602** and second node **604**.

[0054] In a TCP connection including first node **602** and second node **604**, first node **602** may include a first TCP connection endpoint and second node **604** may include a second TCP connection endpoint. The first and second TCP connection endpoints

identify the TCP connection. The TCP connection may have other identifiers, in addition to the included endpoints.

[0055] Components of execution environment **502**, in an aspect, may interoperate with TCP layer component **506** directly. In another aspect, one or more components, such as network application **504**, may interoperate with TCP layer component **506** indirectly. Network application **504** may exchange data with TCP layer component **506** via sockets component **518** and/or an analog of sockets component **518**. Alternatively or additionally, network application **504** may communicate with a remote node via an application protocol layer illustrated by application protocol layer component **520**. Many application protocols currently exist and new application protocols will be developed. Exemplary application layer protocols include hypertext transfer protocol (HTTP), file transfer protocol (FTP), and extensible messaging and presence protocol (XMPP).

[0056] TCP layer component **506** in Fig. 5 may receive data from any of various sources for transmitting in corresponding TCP connections to various corresponding identified TCP connection endpoints in one or more network nodes. Fig. 5 illustrates application in-port (app in-port) component **522** providing an interface component for receiving data to transmit in a TCP connection. Fig. 5 illustrates TCP layer component **506** includes packet generator component **552** configured to package data received by application in-port component **522** for transmitting in one or more TCP packets. The one or more TCP packets are provided to IP layer component **514** via net out-port component **554** exemplifying an output interface component.

[0057] Analogously, TCP layer component **506** interprets data received from IP layer component **514** via net in-port component **560**. The data is interpreted as TCP data and TCP packets are detected in the received data by net in-port component **560** and/or packet handler component **516**. Fig. 5 illustrates TCP layer component **506** includes packet handler component **516** to strip off and/or otherwise process TCP layer specific data. Packet handler component **516** interoperates with application out-port (app out-port) component **524** to transfer data in the TCP packet included in a TCP data stream to sockets component **518**, application protocol layer **520**, network application **504**, and/or other components associated with the local endpoint of the TCP connection. Detailed information on the operation of TCP is included in RFC 793.

[0058] With reference to the method illustrated in Fig. 2, block **202** illustrates the method includes receiving, by a first node, first idle information for detecting a first idle time period during which no TCP packet including data in a first data stream sent in the TCP connection by a second node is received by the first node. Accordingly, a system for sharing information for detecting an idle TCP connection includes means for receiving, by a first node, first idle information for detecting a first idle time period during which no TCP packet including data in a first data stream sent in the TCP connection by a second node is received by the first node. For example, as illustrated in Fig. 4a, idle time period policy component **450** is configured for receiving, by a first node, first idle information for detecting a first idle time period during which no TCP packet including

data in a first data stream sent in the TCP connection by a second node is received by the first node.

[0059] Fig. 5 illustrates idle time period (ITP) policy component **550** as an adaptation of and/or analog of ITP policy component **450** in Fig. 4a. One or more idle time period policy components **550** operate in execution environment **502**.

[0060] Message **702** in Fig. 7 illustrates a communication including and/or otherwise identifying idle information received by ITP policy component **550**. Message **702** may take various forms in various aspects. Exemplary forms for message **702** include a function/method invocation, a message passed via a message queue, data transmitted via a pipe, a message received via a network, and/or a communication via a shared location in IPU memory and/or secondary storage.

[0061] Idle information may be received from a configuration storage location for TCP layer component **506** in an IPU memory and/or in secondary storage **108**. The configured idle information may be maintained and/or otherwise managed by settings service component **526** configured to maintain and/or manage various options or settings for TCP layer component **506** and/or one or more TCP connections.

[0062] In an aspect, network application **504** provides idle information to ITP policy component **550** via settings service component **526** interoperating with sockets component **518**. Sockets component **518** and/or TCP layer component **506** may support TCP options applicable globally for some or all TCP connections and/or may support

TCP options on a per connection basis. Per connection TCP options may override global TCP options if global options are also supported. In another aspect, idle information may be received from and/or otherwise received based on information via application protocol layer **520**, via sockets component **518**, and/or directly from network application **504**.

[0063] Application protocol layer **520** may provide idle information to ITP policy component **550** via settings service component **526** and, optionally, via sockets component **518**. Idle information provided by application protocol layer **520** may be based on data received from network application **504**, based on a particular configuration of application protocol layer **520**, and/or received from a user and/or administrator of one or both of network application **504** and application protocol layer **520**.

[0064] In an aspect, the idle information received may be based on a previous ITP header identified in a packet in the TCP connection received by first node **602** from second node **604**. The previous packet may be received by net in-port component **560**. The previous ITP header may be detected by ITP option handler component **562** interoperating with packet handler component **516**. Idle information may be identified and/or otherwise determined by ITP option handler component **562**. ITP policy component **550** may interoperate with ITP option handler component **562** to receive the idle information.

[0065] Idle information received, determined, and/or otherwise identified may include and/or identify a duration of time for detecting an idle time period. The duration may be specified according to various measures of time including seconds, minutes, hours, and/or days.

[0066] Alternatively or additionally, idle information may include and/or identify a generator for determining a duration of time for detecting an idle time period. An exemplary generator may include a formula, an expression, a function, a policy, and/or other mechanism for generating and/or otherwise identifying a duration of time.

[0067] In an aspect, one or more algorithms for generating a duration of time for detecting an idle time period may be associated with identifiers. The algorithm identifiers may be standardized within a group of nodes including first node **602** and second node **604**. The received idle information may include and/or reference an algorithm identifier. First node **602** and second node **604** may each maintain an association between one or more of the algorithm identifiers and a duration generator such as a function and/or a class configured to perform the identified algorithm.

[0068] A duration generator may determine the duration of time for detecting an idle time period based on one or more attributes accessible to one or both of first node **602** and second node **604**. Exemplary attributes include a measure of network latency, a measure of network congestion, an indication of the availability of a particular resource, a user specified attribute, a security attribute, an energy usage attribute, a user attribute

such as role of the user, and/or a measure of bandwidth supported by NIC **508** and/or a physical network medium operatively coupled to NIC **508**.

[0069] Alternatively or additionally, idle information may include a parameter such as one or more of the attributes identified in the previous paragraph for use in a duration generator for determining a duration of time for measuring and/or otherwise detecting an idle time period.

[0070] A TCP connection may be identified by its endpoints. First node **602** and/or second node **604** may include an endpoint of the TCP connection. Alternatively or additionally, first node **602** and/or second node **604** may include a proxy endpoint representing an endpoint in a TCP connection. Nodes, that provide a network address translation (NAT) service, are exemplary nodes including proxy endpoints.

[0071] A node including a TCP connection endpoint is referred to as a host. Hosts are typically user devices and/or servers that typically operate at the edge of a network. While endpoints of most TCP connections are not typically included in network nodes for relaying, routing, and/or otherwise forwarding TCP packet data within a network such as routing nodes and switching nodes. Such network nodes may include one or more connection endpoints for one or more respective TCP connections. It should be understood that the term “host” refers to a role played by a device in a network. First node **602** and/or second node **604** may play the role of a host in a TCP connection and/or may be proxy nodes.

[0072] A node is referred to as being in or included in a TCP connection when the node includes an endpoint of the connection and/or includes a proxy for a connection endpoint, referred to as a proxy endpoint. A proxy endpoint and an endpoint in a TCP connection may be in the same node or in different nodes.

[0073] In Fig. 5, connection state component **558** may maintain state information for one or more TCP connection endpoints and/or proxy endpoints of corresponding TCP connections included in an instance of an execution environment, such as execution environment **502**, included in and/or provided by first node **602** or second node **604**.

[0074] First node **602** and/or second node **604** may play a role of a proxy node for a node including a TCP connection endpoint. First node **602** and/or second node **604** may include a proxy endpoint representing an endpoint in a TCP connection. A proxy node forwards TCP packet data, sent by a host including a TCP connection endpoint, to another host including a corresponding connection endpoint represented by a proxy endpoint included in the proxy node and vice versa. Exemplary proxy nodes in addition to including routing and/or switching capabilities may include a bridge, a hub, a repeater, a gateway, and a firewall.

[0075] In an aspect, a TCP keep-alive option, a TCP user timeout, a retransmission timeout, an acknowledgment timeout, and/or another timeout associated with a TCP connection may be modified based on the first idle information.

[0076] For example, in Fig. 5, ITP policy component **550** operating in first node **602** may modify an attribute of a TCP keep-alive option provided by one or more keep-alive components that may include settings service component **526**. Modifying a keep-alive attribute may include creating the attribute, deleting the attribute, and/or modifying the attribute. ITP policy component **550** may interoperate with settings service component **526**, connection state component **558**, and/or a keep-alive option handler component (not shown) to detect the existence and state of one or more keep-alive attributes in determining whether a keep-alive option is active and/or in identifying its current state.

[0077] In response to identifying the idle information, ITP policy component **550** may activate, disable, and/or modify the state of the keep-alive option via interoperation with one or more of settings service component **526**, connection state component **558**, and/or a keep-alive option handler. Thus, in response to identifying the idle information, ITP policy component **550** may prevent and/or alter the time a keep-alive packet is sent to second node **604** from first node **602**.

[0078] Alternatively or additionally, ITP policy component **550** operating in first node **602** may modify an attribute associated with an acknowledgment timeout configured for TCP layer component **506**. Modifying an acknowledgment timeout attribute may include creating the attribute, deleting the attribute, and/or modifying the attribute. ITP policy component **550** may interoperate with settings service component **526**, connection state component **558**, and/or an acknowledgment option handler component (not shown) to detect the existence and state of one or more packet acknowledgment attributes. In

response to identifying the idle information, ITP policy component **550** may modify the state of the packet acknowledgment option. Thus, in response to identifying the idle information, ITP policy component **550** may prevent and/or alter the time an acknowledgment is sent in a packet in a TCP connection.

[0079] Returning to Fig. 2, block **204** illustrates the method further includes generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. Accordingly, a system for sharing information for detecting an idle TCP connection includes means for generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information. For example, as illustrated in Fig. 4a, packet generator component **452** is configured for generating a TCP packet including a first idle time period header identifying metadata for the first idle time period based on the first idle information.

[0080] Fig. 5 illustrates packet generator component **552** as an adaptation of and/or analog of packet generator component **452** in Fig. 4a. One or more packet generator components **552** operate in execution environment **502**.

[0081] Packet generator component **552** in Fig. 5 may receive idle information and/or information based on the received idle information from ITP policy component **550**. Whether and when packet generator component **552** receives information for including an idle time period (ITP) header in a TCP packet may depend on a current state of the associated TCP connection. In Fig. 5, ITP policy component **550** may interoperate with

connection state component **558** to determine whether and when to provide information to packet generator component **552** for including an ITP header in a TCP packet.

[0082] In an aspect, an ITP header may be included in a packet exchanged during setup of TCP connection. RFC 793 describes a "three-way handshake" for establishing a TCP connection. The synchronization requires each side to send it's own initial sequence number and to receive a confirmation of it in acknowledgment from the other side. Each side must also receive the other side's initial sequence number and send a confirming acknowledgment.

[0083] 1) A --> B SYN my sequence number is X

[0084] 2) A <-- B ACK your sequence number is X

[0085] 3) A <-- B SYN my sequence number is Y

[0086] 4) A --> B ACK your sequence number is Y

[0087] Because steps 2 and 3 can be combined in a single message this is called the three way (or three message) handshake.

[0088] Other message exchanges may be used in setting up a TCP connection as those skilled in the art will understand. Such other exchanges are not currently supported by the TCP as described in RFC 793. The specified "three-way handshake" and other patterns of message exchange for setting up a TCP connection include packets that are considered to be in the TCP connection for purposes of this disclosure.

Including an ITP header may be restricted to packets exchanged in connection setup, excluded from packets exchanged during connection establishment, or allowed in one or more packets exchanged during connection establishments and in packets exchanged after connection setup.

[0089] In an aspect, when connection state component **558** and/or ITP policy component **550** determine an ITP header should be included in a TCP packet based on received idle information, packet generator component **552** may include the ITP header in a next TCP packet generated in response to data received via application in-port component **522** for sending to first node **602**. In another aspect, packet generator component **552** may send the ITP header in a TCP packet in the TCP connection with no data included in the TCP data stream sent by first node **602** to second node **604**. Such a packet is referred to as an empty Packet generator component **554** may send the empty TCP packet when TCP layer component **506** has no for data from an application in second node **604** to send in the TCP data stream to first node **602**.

[0090] Packet generator component **552** may generate a packet according to the TCP specifications and may include a header identified as an ITP header in accordance with specifications for including TCP option headers in a TCP packet. See RFC 793 for more details. Fig. 8 illustrates a format or structure for a TCP packet **802** as described in RFC 793. Each "+" character in Fig. 8, indicates a bit-boundary. TCP packet **802** specifies a location and format for including a source port **804** portion including an identifier for an endpoint of the TCP connection for a sending node and a destination port **806** including

an identifier for a corresponding endpoint of the TCP connection in a receiving node. IP packet **810** illustrates a format for an IP packet header for an IP packet including TCP packet data. Source address **812** specifies a location and format in an IP header for including a network address identifying a network interface of the sending node, and destination address **814** identifying a network interface for the receiving node. A network address and a port number identify a connection endpoint in a network. Two endpoints identify a TCP connection.

[0091] Fig. 8 also illustrates a format for an exemplary ITP header **820**. A KIND location is specified for including an identifier indicating that the option is an idle time period (ITP) option in an ITP header. Identifiers for option headers are currently under the control of the Internet Assigned Numbers Authority (IANA). Length field **824** identifies a length of an ITP header. An ITP data field **826** is specified for including ITP header information for detecting an idle time period as described herein

[0092] Those skilled in the art will recognize given this disclosure that an ITP header may have other suitable formats and may be included in a TCP packet in structures and locations other than those specified for TCP options in RFC 793. An equivalent or analog of an ITP header may be included in a footer of a protocol packet in an extension and/or variant of the current TCP.

[0093] ITP data field **826** in Fig. 8 may include and/or otherwise identify metadata for the first idle time period. For example, an ITP data field in a packet may include and/or otherwise identify one or more of a duration of time for detecting an idle time period, a

duration generator for determining a duration of time for detecting an idle time period, and a parameter for use in a duration generator for determining a duration of time for measuring and detecting an idle time period.

[0094] Message **704** in Fig. 7 illustrates an invocation and/or other access to packet generator component **552** for generating a TCP packet including an ITP header based on received idle information.

[0095] Returning to Fig. 2, block **206** illustrates the method further includes sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node. Accordingly, a system for sharing information for detecting an idle TCP connection further includes means for sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node. For example, as illustrated in Fig. 4a, the net out-port component **454** is configured for sending the TCP packet in the TCP connection to the second node to provide the metadata for the first idle time period to the second node.

[0096] Fig. 5 illustrates net out-port component **554** as an adaptation of and/or analog of net out-port component **454** in Fig. 4a. One or more net out-port components **554** operate in execution environment **502**. Net out-port component **554** is illustrated operatively coupled to packet generator component **552**. Net out-port component **554** may receive TCP packet data from packet generator component **552** and interoperate with IP layer component **514** to send the TCP packet in one or more IP packets via

network **606** to second node **604**. Message **706.1** in Fig. 7 illustrates a TCP packet including an ITP header sent by first node **602** and received by second node **604**.

[0097] In one aspect, an ITP header may be sent to make sending one or more TCP keep-alive packets by a partner node in the connection unnecessary. A receiver of a packet including an ITP header, such as second node **604**, may keep a TCP connection alive based on information in the ITP header.

[0098] In another aspect, first node **602** may set a keep-alive timeout attribute based on a duration of the first idle time period identified in the first idle information and/or in the metadata provided to second node **604**. For example, first node **602** may monitor a time period during which no non-empty packets are sent or received in the TCP connection. A keep-alive option handler and/or keep-alive component (not shown) operating in first node **602** may set a keep-alive timer according to the timeout attribute, with a duration that will result in the keep-alive timer expiring before an idle time period can occur. In response to detecting a keep-alive timeout, which may be indicated by the expiration of the keep-alive timer, the keep-alive option handler and/or keep-alive policy component may provide information to packet generator component **552** to generate a TCP keep-alive packet. The packet generator component **552** may provide the generated packet to net out-port component **554** for sending the TCP keep-alive packet to second node **604** to determine whether the TCP connection is active and/or to keep the TCP connection active.

[0099] In another aspect, ITP policy component **550** operating in first node **602** may set a timer, analogous to the keep-alive timer described in the previous paragraph that expires before an time period can occur. In response the timer expiring, ITP policy component **550** may provide idle information to packet generator component **552** to generate a TCP packet including a second ITP header. Content of the second ITP header may be based on the first idle information received, data received from second node **604**, information received from a network application that may be from a user, and/or on any information accessible to TCP layer component **506** in execution environment **502** in first node **602**. The TCP packet generated by packet generator component **552** is provided to IP layer component **514** via net out-port component **554** to send to second node **604** in the TCP connection**.** Along with sending the message, first node **602** may reset and/or otherwise restart detection of the first idle time period. Thus, a second ITP header may be sent in a second TCP packet by first node **602** to second node **602** along with restarting detection of the first idle time period. Alternatively, first node **602** may reset and initiate detection of an idle time period with a different duration than the previous idle time period, based on the idle information for generating the second ITP header.

[00100] Returning to Fig. 2, block **208** illustrates the method further includes detecting the first idle time period based on the first idle information. Accordingly, a system for sharing information for detecting an idle TCP connection further includes means for detecting the first idle time period based on the first idle information. For example, as

illustrated in Fig. 4a, the idle time period monitor component **456** is configured for idle time period monitor.

[00101] Fig. 5 illustrates idle time period monitor component **556** as an adaptation of and/or analog of idle time period monitor component **456** in Fig. 4a. One or more idle time period monitor components **556** operate in execution environment **502**.

[00102] In an aspect, in response to receiving the first idle information, ITP policy component **550** may store a value representing a duration of time in a configuration storage location. Alternatively, or additionally, ITP policy component **550** may invoke a duration generator to determine a duration of time for detecting the idle time period. The duration generator may be preconfigured for the TCP connection and/or may be identified based on the idle information received. As described, the invoked generator may be invoked with a parameter included in and/or otherwise identified based on the received idle information.

[00103] ITP policy component **550** may interoperate with ITP monitor component **556** to identify the duration for detecting the idle time period. ITP monitor component **556**, in various aspects, may receive information including and/or otherwise identifying a duration of time, a duration generator, and/or a parameter for a duration generator. ITP monitor component **556** may initiate and/or restart a process for detecting an idle time period. In an aspect, ITP monitor component **556** detects and/or otherwise identifies a beginning of a potential idle time period based on one or more specified events.

[00104] In an aspect, detecting the first idle time period by ITP monitor component **556** may include detecting a time period in the idle time period during which first node **602** has received acknowledgment for all data sent via the TCP connection in the TCP data stream by first node **602** to second node **604**. Further, the first idle time period may include a time period during which first node **602** has sent one or more TCP packets to second node **604** to acknowledge all data received in a TCP data stream in the TCP connection from second node **604** to first node **602**. Detecting the first idle time period by ITP monitor component **556** may include detecting that all received data has been acknowledged and/or that all sent data has been acknowledged.

[00105] In an aspect, ITP policy component **550** may include a policy with a rule indicating that an idle time period cannot begin while a TCP packet sent by first node **602** remains unacknowledged by second node **604**. ITP policy component **550** may prevent ITP monitor component **556** from initiating detection of an idle time period while unacknowledged data exists. In a further aspect, a time duration may be associated and/or included in the policy identifying a limit to a period of waiting to receive acknowledgment of TCP packet data sent by first node **602**. In one aspect, waiting for lack of an acknowledgment for an empty packet does not delay detection of an idle time period, while in another aspect ITP monitor component **556** will not initiate detection while an empty packet remains unacknowledged.

[00106] In an aspect, idle information, received by a node may be included in and/or otherwise based on a previous idle time period header identified in a previous TCP

packet received in the TCP connection by the node from a remote node prior to sending an ITP header based on the idle information by the node. For example, the first idle information received by ITP policy component **550** in first node **602** may be based on an idle time period header included a TCP packet in the TCP connection sent by second node **604** and received by first node **602** prior to sending the first TCP packet by first node **602**. The exchange of ITP headers may include a negotiation between first node **602** and second node **604.**

[00107] A duration of time may be identified based on the idle information received by ITP policy component in first node **602**. A timer may be set according to the identified duration. Detecting the first idle time period may include and/or otherwise may be based on detecting the timer expiration. ITP monitor component **556** may set a timer configured to expire in a time duration identified based on the first idle information received by ITP policy component **550**. The identified duration may be longer, shorter, or equal to a duration of the idle time period. ITP monitor component **556** may use multiple timers. ITP monitor component **556** may recalculate and/or otherwise generate a new idle duration based on the idle information at one or more times during detection of the first idle time period. That is, a duration of an idle time period may be static and/or may be dynamic, changing based on attribute information accessible during the detection process and/or based on one or more duration generators.

[00108] Message **710.1** illustrates a call and/or other communication between ITP monitor component **556** and a timer component in first node **602** to set a timer included

in detecting an idle time period. Prior to the setting the timer, first node **602** and second node **602** may be active in exchanging TCP packets as illustrated by messages including message **706.2** through message **706.n**. Those skilled in the art will recognize that detection of an idle time period may not include explicitly and/or directly using a timer. ITP monitor component **556** may monitor other events as a proxy or indirect mechanism for initiating detection and detecting an idle time period.

[00109] ITP monitor component **556** may detect one or more events configured to indicate that an idle time period has occurred. For example, expiration of a timer or multiple associated timers may be interpreted by ITP monitor component **556** as marking an occurrence of the first idle time period. Message **710.2** illustrates ITP monitor component **556** receiving information identifying expiration of a timer for detecting the first idle time period.

[00110] In a further aspect, in response to detecting the expiration of a timer set as described above, a TCP keep-alive packet may be sent by first node **602** to determine whether the TCP connection is action and/or to keep the TCP connection active. When the keep-alive packet is sent, an acknowledgment timer may be set. If a timeout of the acknowledgment timer is detected indicating no TCP packet has been received acknowledging the keep-alive packet, the first idle time period may be detected in response to and/or otherwise based on the timeout of the acknowledgment timer.

[00111] In Fig. 5, ITP policy component **550** in first node **602** may provide a duration identified based on the received idle information to a keep-alive monitor component (not

shown). The keep-alive monitor component may configure a keep-alive timer to expire based on the identified duration. In response to detecting expiration of the keep-alive timer, ITP monitor component **556** may invoke packet generator component **552** to generate a TCP keep-alive packet. First node **602** may send the TCP packet to second node **604**. The TCP keep-alive packet may be sent to prevent detection of an idle time period by second node **604** and/or may otherwise be sent to detect by first node **602** whether the TCP connection is active.

[00112] First node **602** may set an acknowledgment timer associated with sending the packet. If the acknowledgment timer expires before a TCP packet is received from second node **602** acknowledging the packet sent, ITP monitor component **556** may detect the idle time period in response to and/or otherwise based on expiration of the acknowledgment timer.

[0100] Receiving a packet from second node **604** included in the TCP connection is an event that, in various aspects, may directly and/or indirectly indicate the beginning of a potential idle time period. A potential idle time period may begin at some specified point during and/or after processing a received TCP packet. In one aspect, an empty TCP packet may be received while a potential idle time period is being monitored. That is, a beginning of the potential idle time period has been detected. In response to receiving the empty TCP packet, monitoring of the current potential time period may be aborted. Further, in response to receiving the empty TCP packet, a beginning of a next potential idle time period may be detected.

[0101] In Fig. 5, ITP policy component **550** and ITP monitor component **556** may operate to reset and/or initiate detection of an idle time period in response to receiving an empty TCP packet. First node **602** may receive an empty packet. In response, ITP monitor component **556** may receive an event and/or other indication to reset detection of an idle time period. Resetting the detecting process may be based on whether or not a received empty TCP packet matches a specified condition. ITP option handler component **562** may be configured to determine whether a received empty TCP packet matches the condition. If ITP option handler component **562** determines the empty packet matches the condition, ITP monitor component **556** may be instructed to reset and/or restart detection of the first idle time period including detecting the beginning of a next potential time period.

[0102] The condition may match received TCP packets including ITP headers and/or other TCP option headers. A condition may match a port number and/or other field in TCP packet. A condition may further be based on a network address in an IP header including the TCP packet.

[0103] In a further aspect, first node **602** may receive via network **606** from second node **604** a TCP packet in the TCP connection including an second ITP header. Message **706.2** in Fig. 7 illustrates the TCP packet sent by second node **604**. ITP option handler component **562** may identify the second ITP header received from second node **604.** The identified second ITP header may be for detecting by first node **602** an idle time period, during which no TCP packet in the TCP connection is received, by the first

node **602** that includes data in the first TCP data stream from second node **604**. The first idle time period may be detected by ITP monitor component **556** in first node **602** based on the second ITP header and based on the received idle information. The second ITP header received in the TCP packet from second node **604** may be based on the first ITP header in the TCP packet sent in the TCP connection by first node **602** to second node **604**.

[0104] In some aspects, the first node and second node **604** may continue to exchange ITP headers. Information in the exchanged ITP headers may be based on ITP headers received in the TCP connection and/or on data accessible locally to one or both of the nodes. In some aspects, the exchange may be a negotiation while in other the exchange may simply be informational.

[0105] Returning to Fig. 2, block **210** illustrates the method further includes deactivating the TCP connection in response to detecting the first idle time period. Accordingly, a system for sharing information for detecting an idle TCP connection further includes means for deactivating the TCP connection in response to detecting the first idle time period. For example, as illustrated in Fig. 4a, the connection state component **458** is configured for deactivating the TCP connection in response to detecting the first idle time period.

[0106] Fig. 5 illustrates connection state component **558** as an adaptation of and/or analog of connection state component **458** in Fig. 4a. One or more connection state components **558** operate in execution environment **502**.

[0107] When ITP monitor component **556** in first node **602** detects an idle time period, ITP monitor component **556** may provide an indication to connection state component **558**. The indication may indicate that the idle time period for the TCP connection has been detected and/or otherwise may instruct connection state component **558** and/or other components in TCP layer component **506** to deactivate the TCP connection. Message **712** in Fig. 7 illustrates a communication to deactivate the TCP connection communicated in response to detecting the idle time period.

[0108] Deactivating the TCP connection may include closing the TCP connection. A TCP connection may be closed using a three-way handshake packet exchange described in RFC 793. Deactivating the TCP connection may include sending a TCP packet by the detecting node to reset the TCP connection. According to RFC 793, first node **602** may send a TCP packet including a reset (RST) bit set to "1" to indicate a connection reset. Deactivating the TCP connection may include, alternatively or additionally, releasing a resource allocated for maintaining and/or activating the TCP connection.

[0109] With respect to the method illustrated in Fig. 3, block **302** illustrates the method includes receiving, by a second node from a first node, a first transmission control protocol (TCP) packet in a TCP connection. Accordingly, a system for sharing information for detecting an idle TCP connection includes means for receiving, by a second node from a first node, a first transmission control protocol (TCP) packet in a TCP connection. For example, as illustrated in Fig. 4b, the net in-port component **460** is

configured for receiving, by a second node from a first node, a first transmission control protocol (TCP) packet in a TCP connection.

[0110] Fig. 5 illustrates net in-port component **560** as an adaptation of and/or analog of net in-port component **460** in Fig. 4b. One or more net in-port components **560** operate in execution environment **502**.

[0111] As described above, net in-port component **560** in Fig. 5 may operate in an instance of execution environment **502** and/or an analog included in and/or including second node **604**. The TCP packet, illustrated by message **706.1** in Fig. 7 and described above, may be received by net in-port component **560** in second node **604**. The TCP packet may include data in a second TCP data stream sent by first node **602** to second node **604** to deliver to a user of TCP layer component **506** in second node **604** such as network application **504**. Alternatively, the TCP packet may be an empty TCP packet. The received TCP packet may be a packet included in setting up the TCP connection as described above.

[0112] Returning to Fig. 3, block **304** illustrates the method further includes detecting a first idle time period header, in the first packet, identifying metadata for a first idle time period, detectable by the first node, during which no TCP packet including data in a first TCP data stream sent in the TCP connection by the second node is received by the first node. Accordingly, a system for sharing information for detecting an idle TCP connection includes means for detecting a first idle time period header, in the first packet, identifying metadata for a first idle time period, detectable by the first node,

during which no TCP packet including data in a first TCP data stream sent in the TCP connection by the second node is received by the first node. For example, as illustrated in Fig. 4b, idle time period option handler component **462** is configured for detecting a first idle time period header, in the first packet, identifying metadata for a first idle time period, detectable by the first node, during which no TCP packet including data in a first TCP data stream sent in the TCP connection by the second node is received by the first node.

[0113] Fig. 5 illustrates idle time period option handler component **562** as an adaptation of and/or analog of idle time period option handler component **462** in Fig. 4b. One or more idle time period option handler components **562** operate in execution environment **502**.

[0114] In Fig. 5, ITP option handler component **562** is operatively coupled to packet handler component **516** The TCP packet, including the ITP header sent by first node **602**, may be received, and identified as a TCP packet by net in-port component **560** operating in second node **604**. As illustrated in Fig. 5, net in-port component **560** and/or an analog of net in-port component **560** may provide and/or otherwise identify the received packet to packet handler component **516**. Packet handler component **516** may detect various portions of the TCP packet according to the TPC packet **802** structure as illustrated in Fig. 8. Alternatively, packet handler component **516** may provide some or all of the packet to various components in TCP layer component **506** to identify portions

of the packet according to the TCP specification and/or according to a particular implementation.

[0115] The ITP header sent by first node **602** may be received by and/or otherwise identified by ITP option handler component **562**. Message **708** in Fig. 7 exemplifies activation of ITP option handler component **562** for detecting the ITP header in the TCP packet received from first node **602** by second node **604**.

[0116] In various aspects, ITP option handler component **562** operating in second node **604** may detect and/or otherwise determine a duration of time for associated with detection of the idle time period by first node **602**, a duration generator, and/or a parameter for a duration generator. The first idle time period header may identify metadata including and/or identifying for detection of the first idle time period by first node **602** a duration of time, a generator for determining a duration of time, and/or an input for determining a duration of time.

[0117] Returning to Fig. 3, block **306** illustrates the method yet further includes modifying, based on the metadata, by the second node a timeout attribute associated with the TCP connection. Accordingly, a system for sharing information for detecting an idle TCP connection includes means for modifying, based on the metadata, by the second node a timeout attribute associated with the TCP connection. For example, as illustrated in Fig. 4b, the option attribute handler component **464** is configured for modifying, based on the metadata, by the second node a timeout attribute associated with the TCP connection.

[0118] Fig. 5 illustrates option attribute handler component **564** as an adaptation of and/or analog of option attribute handler component **464** in Fig. 4b. One or more option attribute handler components **564** operate in execution environment **502**.

[0119] In an aspect, ITP option handler component **562** may one or more attribute option handler components **564** to modify one or more corresponding attributes of a keep-alive option, a TCP user timeout, a retransmission timeout, an acknowledgment timeout, and another timeout associated with the TCP connection, in response to identifying the ITP header. The modifying may be based on the content of the ITP header.

[0120] For example, ITP option handler component **562** in second node **604** may interoperate with a keep-alive attribute option handler component **564** directly and/or indirectly via settings service component **526**, connection state component **558**, and/or a keep-alive policy component (not shown) to detect the existence and state of one or more keep-alive attributes in determining whether the keep-alive option is active and/or the state of the keep-alive option.

[0121] In response to identifying the idle time period header, ITP option handler component **562** may activate, disable, and/or modify the state of the keep-alive option via interoperation with the keep-alive attribute option handler. Thus, in response to identifying the idle information, attribute option handler component **564** may prevent and/or alter the time a keep-alive packet is sent by second node **604** to first node **602**.

[0122] Alternatively or additionally, an attribute option handler component **564** may modify an attribute associated with a packet acknowledgment option provided by TCP layer component **506** in first node **602**. Modifying a packet acknowledgment attribute may include creating the attribute, deleting the attribute, and/or modifying the attribute. Attribute option handler component **564** may interoperate with settings service component **526**, connection state component **558**, and/or an acknowledgment policy component (not shown) to detect the existence and state of one or more packet acknowledgment attributes. In response to identifying the idle information, attribute option handler component **564** may modify the state of the packet acknowledgment option. Thus, in response to identifying the idle information, attribute option handler component **564** may prevent and/or alter the time an acknowledgment is sent in a packet data from second node **604** to first node **602** in the TCP connection.

[0123] As described herein an ITP header for detecting an idle time period for a TCP connection may serve a number of purposes. A first node in a TCP connection may via an ITP header inform and/or otherwise identify to a second node in the connection one or more durations for detecting an idle time period by one or both nodes. Given multiple purposes, one or more types of ITP headers may be supported and/or an ITP header may be structured to support one or more of the described services. An exchange of ITP headers may be informational and/or may be included in negotiation between two nodes included in a TCP connection. When used in a negotiation, an ITP header may be included in a negotiation protocol that has an identifiable end during a portion of the

existence of a TCP connection or may be included in a negotiation that may remain ongoing throughout the existence of a TCP connection. Those skilled in the art will recognize the list of services in this paragraph is not exhaustive.

[0124] It should be understood that the various components illustrated in the various block diagrams represent logical components that are configured to perform the functionality described herein and may be implemented in software, hardware, or a combination of the two. Moreover, some or all of these logical components may be combined, some may be omitted altogether, and additional components may be added while still achieving the functionality described herein. Thus, the subject matter described herein may be embodied in many different variations, and all such variations are contemplated to be within the scope of what is claimed.

[0125] To facilitate an understanding of the subject matter described above, many aspects are described in terms of sequences of actions that may be performed by elements of a computer system. For example, it will be recognized that the various actions may be performed by specialized circuits or circuitry (e.g., discrete logic gates interconnected to perform a specialized function), by program instructions being executed by one or more instruction processing units, or by a combination of both. The description herein of any sequence of actions is not intended to imply that the specific order described for performing that sequence must be followed.

[0126] Moreover, the methods described herein may be embodied in executable instructions stored in a computer readable medium for use by or in connection with an

instruction execution machine, system, apparatus, or device, such as a computer-based or processor-containing machine, system, apparatus, or device. As used herein, a "computer readable medium" may include one or more of any suitable media for storing the executable instructions of a computer program in one or more of an electronic, magnetic, optical, electromagnetic, and infrared form, such that the instruction execution machine, system, apparatus, or device may read (or fetch) the instructions from the computer readable medium and execute the instructions for carrying out the described methods. A non-exhaustive list of conventional exemplary computer readable media includes a portable computer diskette; a random access memory (RAM); a read only memory (ROM); an erasable programmable read only memory (EPROM or Flash memory); optical storage devices, including a portable compact disc (CD), a portable digital video disc (DVD), a high definition DVD (HD-DVD.TM.), a Blu-ray.TM. disc; and the like.

[0127] Thus, the subject matter described herein may be embodied in many different forms, and all such forms are contemplated to be within the scope of what is claimed. It will be understood that various details may be changed without departing from the scope of the claimed subject matter. Furthermore, the foregoing description is for the purpose of illustration only, and not for the purpose of limitation, as the scope of protection sought is defined by the claims as set forth hereinafter together with any equivalents thereof entitled to.

[0128] All methods described herein may be performed in any order unless otherwise indicated herein explicitly or by context. The use of the terms "a" and "an" and "the" and similar referents in the context of the foregoing description and in the context of the following claims are to be construed to include the singular and the plural, unless otherwise indicated herein explicitly or clearly contradicted by context. The foregoing description is not to be interpreted as indicating any non-claimed element is essential to the practice of the subject matter as claimed.

I CLAIM:

1. An apparatus comprising:

a non-transitory memory storing instructions; and

one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions for:

receiving, by a second node from a first node, a transmission control protocol (TCP)-variant packet in advance of a TCP-variant connection being established;

detecting an idle time period parameter field in the TCP-variant packet;

identifying metadata in the idle time period parameter field for an idle time period that is detectable by the first node and, during which, no packet is communicated in the TCP-variant connection to keep the TCP-variant connection active; and

modifying, by the second node and based on the metadata, a timeout attribute associated with the TCP-variant connection.

2. The apparatus of claim 1 wherein the apparatus is configured such that the timeout attribute is an attribute of a keep-alive.

3. The apparatus of claim 1 wherein at least one of:

the second node includes a server, the server being configured to: in response to the receiving, send, by the second node to the first node, another TCP-variant packet in advance of the TCP-variant connection being established, the another TCP-variant packet including other metadata for the idle time period; or

the second node includes a client, the client being configured such that the receiving is performed subsequent to sending, by the second node to the first node, another TCP-variant packet in advance of the TCP-variant connection being established including other metadata for the idle time period.

4. The apparatus of claim 3 wherein, regardless as to whether the apparatus is the server or the client, the metadata is the same as the other metadata.

5. The apparatus of claim 3 wherein, regardless as to whether the apparatus is the server or the client, the metadata is different from the other metadata.

6. The apparatus of claim 1 wherein the apparatus is configured such that the timeout attribute is specified in a number of seconds or minutes.

7. The apparatus of claim 1 wherein the apparatus is configured such that the timeout attribute is used to keep the TCP-variant connection open when inactive, and to prevent one or more other nodes from closing the TCP-variant connection when inactive.

8. The apparatus of claim 1 wherein the apparatus is configured such that the metadata is used as input of an algorithm for determining a duration of time specified by the timeout attribute.

9. The apparatus of claim 8 wherein the apparatus is configured such that the algorithm is determined based on at least one particular attribute.

10. The apparatus of claim 1 wherein the apparatus is configured such that the modification of the timeout attribute results from a negotiation between the first node and the second node via a negotiation protocol of a TCP-variant protocol.

11. The apparatus of claim 1 wherein the one or more processors execute the instructions for:

detecting the idle time period based on the timeout attribute; and

in response to detecting the idle time period, deactivating the TCP-variant connection by releasing a resource allocated for the TCP-variant connection by one of the first and second nodes without signaling another one of the first and second nodes that is related to the detection of the idle time period.

12. The apparatus of claim 1 wherein the apparatus is configured such that at least one of the detecting or the identifying is performed at a TCP-variant layer other than a

TCP layer, where the TCP-variant layer is above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer.

13. The apparatus of claim 1 wherein the one or more processors execute a network application that is configured to perform a 3-way TCP handshake for establishing a TCP connection that is different than the TCP-variant connection, and wherein the network application is configured to establish the TCP-variant connection instead of the TCP connection in order to permit negotiation, between the first node and the second node, of the timeout attribute, where the timeout attribute is not available when establishing the TCP connection, but is available when establishing the TCP-variant connection so that the TCP-variant connection is capable of being at least partially closed when inactive based on the timeout attribute.

14. The apparatus of claim 1 wherein the apparatus is configured such that the TCP-variant packet and the metadata included therewith are received by the second node from the first node, without any prior signaling from the second node to the first node.

15. An apparatus comprising:

a non-transitory memory storing a network application; and

one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the network application such that the network application is configured to operate in accordance with a non-transmission

control protocol (TCP) protocol that operates above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer, the apparatus, when operating in accordance with the non-TCP protocol, configured to:

receive, by a second node from a first node, a non-TCP packet during a setup of a non-TCP connection;

identify metadata, that specifies a number of seconds or minutes, in an idle time period parameter field in the non-TCP packet, for an idle time period that is detectable by the first node, where, as a result of a detection of the idle time period, the non-TCP connection is subject to deactivation; and

determine, based on the metadata, a timeout attribute associated with the non-TCP connection;

wherein the apparatus, when operating in accordance with the TCP protocol, is configured to perform a three-way TCP handshake for establishing a TCP connection that is different than the non-TCP connection.

16. The apparatus of claim 15 wherein the apparatus is configured such that:

the non-TCP packet and the idle time period parameter field included therewith are operable for being received by the second node from the first node, without any prior signaling from the second node to the first node;

the determination of the timeout attribute results from a negotiation between the first node and the second node; and

the metadata includes a first value and the timeout attribute is determined to include a second value that is different than the first value of the metadata.

17. The apparatus of claim 15 wherein the apparatus is configured for:

detecting the idle time period based on the timeout attribute; and

deactivating the non-TCP connection by communicating a particular packet between the first node and the second node, in response to detecting the idle time period.

18. An apparatus comprising:

a non-transitory memory storing a network application; and

one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the network application such that the network application is configured to operate in accordance with a non-transmission control protocol (TCP) protocol that operates above an Internet Protocol (IP) layer and below a hypertext transfer protocol (HTTP) application layer, the apparatus, when operating in accordance with the non-TCP protocol, configured to:

receive idle information for use in detecting an idle time period that results in a non-TCP connection being subject to deactivation;

generate, based on the idle information, a non-TCP packet including an idle time period parameter field identifying metadata that is specified in a number of seconds or minutes; and

send, from a first node to a second node and for establishing the non-TCP connection, the non-TCP packet to provide the metadata to the second node, for use by the second node in determining a timeout attribute associated with the non-TCP connection;

wherein the apparatus, when operating in accordance with the TCP protocol, is configured to perform a three-way TCP handshake for establishing a TCP connection that is separate from the non-TCP connection.

19. The apparatus of claim 18 wherein the apparatus is configured such that:

the determination of the timeout attribute results from a negotiation between the first node and the second node;

during the idle time period, no non-TCP packet including data is communicated in the non-TCP connection;

wherein the apparatus is further configured for:

detecting the idle time period based on the idle information; and

in response to detecting the idle time period, deactivating the non-TCP connection by at least partially closing the TCP-variant connection by one of the first and second nodes without communication between the second node and the first node that is related to the detection of the idle time period.

20. The apparatus of claim 19 wherein at least one of:

the apparatus is at least one component of the first node;

the communication includes only receiving;

the communication includes only sending;

the communication includes receiving and sending;

the non-TCP protocol includes a variant to the TCP;

the non-TCP packet is sent directly from the first node to the second node;

the non-TCP packet is sent from the first node to the second node via at least one other node;

the idle time period parameter field is part of a data portion in the non-TCP packet;

the idle time period parameter field is part of a header of the non-TCP packet;

the idle information is received based on a previous header;

the timeout attribute is capable being the same as the metadata;

the timeout attribute is capable being different from the metadata;

the idle time period is specified in a number of seconds;

the idle time period is specified in a number of minutes;

the timeout attribute specifies a duration;

the non-TCP packet is informational;

the TCP protocol operates directly above the IP layer;

the TCP protocol operates directly below the HTTP application layer;

the non-TCP protocol operates directly above the IP layer;

the non-TCP protocol operates directly below the HTTP application layer;

the determination of the timeout attribute includes at least one of modifying, creating, or deleting the timeout attribute;

the network application provides the idle information to a ITP policy component via a settings service component interoperating with a sockets component;

during the idle time period, a non-TCP packet including data is received by the first node where the non-TCP packet including data is sent by another node; or

during the idle time period, a non-TCP packet including data is received by the first node where the non-TCP packet including data is sent by the second node in the TCP connection.

ABSTRACT

A computer-implemented method is provided, comprising causing access to be provided, to a client computer, to code that causes the client computer to operate in accordance with a protocol that is separate from TCP, in order to establish a protocol connection with another server computer, by: receiving a packet, detecting an idle time period parameter field in the packet, identifying metadata in the idle time period parameter field for an idle time period, where, after the idle time period is detected, the second protocol connection is deemed inactive, and creating or modifying, by the client computer and based on the metadata, a timeout attribute associated with the second protocol connection.

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
First Named Inventor/Applicant Name:	Robert Paul Morris
Filer:	Patrick Edgar Caldwell
Attorney Docket Number:	PMOR0120K

Filed as Large Entity

Filing Fees for Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	320	320
UTILITY SEARCH FEE	1111	1	700	700
UTILITY EXAMINATION FEE	1311	1	800	800
REQUEST FOR PRIORITIZED EXAMINATION	1817	1	4200	4200
Pages:				
Claims:				
Miscellaneous-Filing:				
PROCESSING FEE, EXCEPT PROV. APPLS.	1830	1	140	140

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**6160**

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Title of Invention:	METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION
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1	Power of Attorney	PMOR_POA_JenamTech_vF_23-Oct-2020.pdf	163219 cfcf7c375c3077909b6bd840eb26820aa375c9e5	no	1
Warnings:					
Information:					
2	Oath or Declaration filed	PMOR0120_Declaration_SIGNED.PDF	150646 b478bda089f473365224cf9162bff589800b21a1	no	2
Warnings:					
Information:					
3	Drawings-only black and white line drawings	PMOR0120_Drawings_vF_23-Oct-2020.pdf	453591 dcd04a6aa966f3a096fa304a29ec8a7632828bac	no	8
Warnings:					
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4	Application Data Sheet	PMOR0120K_ADS_vF_23-Oct-2020.pdf	1874103 936b91175bbd498d28c7d70f4bcc1d5e064da355	no	9
Warnings:					
Information:					
5	TrackOne Request	PMOR0120K_TRK1_vF_23-Oct-2020.pdf	134101 8ffaada7f56ccb1a6cc58344ee16b5890f82c7f5	no	2
Warnings:					
Information:					
6		PMOR0120K_Application_vF_23-Oct-2020.pdf	223382 c42cfaf8951948592d396fb573c03921c4f0d9da	yes	64
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	

	Specification		1		54
	Claims		55		63
	Abstract		64		64
Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	38193 f2a1b3aefc46d7e84c80e0c51f8243136383a986	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	3037235		

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