

IN THE SPECIFICATION:

Please amend the specification by replacing paragraph [0001] after the title with the following amended paragraph:

[0001] This The present application is a continuation of U.S. Appl. No. 14/230,952, filed March 31, 2014 (now U.S. Patent No. 9,270,790), which is a continuation of U.S. patent application Ser. Appl. No. 13/911,324, filed June 6, 2013 (now U.S. Patent No. 8,694,683), which is a continuation of U.S. Appl. No. 13/236,090, filed September 19, 2011 (now abandoned), which is a continuation of US. Appl. No. 10/636,314, filed August 6, 2003 (now U.S. Patent No. 8,055,786), titled Method and System for Data Demultiplexing, for all purposes including but not limited to the right of priority and benefit of earlier filing date, and expressly incorporates by reference the entire content of Patent Application Serial No.10/636,314 for all purposes. U.S. patent application Ser. No.10/636,314 which is a continuation of U.S. patent application Ser. Appl. No. 09/474,664, filed December 29, 1999 (now U.S. Patent No. 6,629,163), filed December 29, 1999, titled Method and System for Demultiplexing a First Sequence of Packet Components to Identify Specific Components Wherein Subsequent Components Are Processed Without Re-Identifying Components. This application claims the benefit of the following applications for all purposes including but not limited to the right of priority and benefit of earlier filing date, and expressly incorporates by reference the entire content of the following applications for all purposes: U.S. patent application Ser. No. 10/636,314; and U.S. patent application Ser. No. 09/474,664; the disclosures of each of the above-referenced applications are incorporated by reference herein in their entireties.

IN THE CLAIMS:

The following is a current listing of claims and will replace all prior versions and listings of claims in the application. Please amend the claims as follows:

1-25. (Canceled)

26. (New) An apparatus, comprising:

a processing unit; and

a memory storing instructions executable by the processing unit to:

receive one or more packets of a message;

determine a key value using information in the one or more packets;

identify, using the key value, a sequence of two or more routines, wherein the sequence includes a routine that is used to execute a Transmission Control Protocol (TCP) to process packets having a TCP format;

create a path that includes one or more data structures that indicate the identified sequence of two or more routines, wherein the path is usable to store state information associated with the message; and

process subsequent packets in the message using the sequence of two or more routines indicated in the path.

27. (New) The apparatus of claim 26, wherein the key value includes an IP address and one or more TCP port addresses.

28. (New) The apparatus of claim 26, wherein the sequence of two or more routines includes: a second routine that is used to execute a second protocol to process packets having a format other than the TCP format, wherein the second protocol is an application-level protocol.

29. (New) The apparatus of claim 28, wherein the second protocol is an HTTP protocol.

30. (New) The apparatus of claim 26, wherein the path further indicates sessions

corresponding to respective ones of the sequence of two or more routines.

31. (New) The apparatus of claim 26, wherein the path indicates the key value and a queue for storing packets associated with the message.

32. (New) The apparatus of claim 26, wherein the sequence of two or more routines includes a routine that is executable to process information in the message without performing a format conversion.

33. (New) The apparatus of claim 26, wherein the memory stores instructions executable by the processing unit to:

store, prior to receiving any packets of the message, a list having a plurality of sequences of routines that includes the sequence of two or more routines.

34. (New) The apparatus of claim 33, wherein the instructions executable by the processing unit to identify the sequence of two or more routines are executable to select the sequence of two or more routines from the list using the key value.

35. (New) A non-transitory, computer-readable medium comprising software instructions for processing a message, wherein the software instructions, when executed, cause a computer system to:

determine a key value based on information in one or more received packets of the message, wherein the key value includes an IP address and one or more Transmission Control Protocol (TCP) port addresses;

identify, using the key value, a sequence of two or more routines;

create one or more data structures that reference the identified sequence of two or more routines and are usable to store state information associated with the message; and

process subsequent packets in the message using the identified sequence of two or more routines, wherein the sequence includes a routine that is used to execute TCP to process at least one of the subsequent packets having a TCP format.

36. (New) The computer-readable medium of claim 35, wherein the created one or more data structures include a reference to the key value and to a queue for storing packets of the message for processing.

37. (New) The computer-readable medium of claim 35, wherein the one or more data structures indicate sessions corresponding to respective ones of the sequence of two or more routines.

38. (New) The computer-readable medium of claim 35, wherein the sequence of two or more routines includes a plurality of application-level routines.

39. (New) The computer-readable medium of claim 35, wherein the software instructions, when executed, further cause the computer system to store, prior to receiving any packets of the message, a list of routine sequences that includes the sequence of two or more routines.

40. (New) The computer-readable medium of claim 39, wherein the software instructions are executable to identify the sequence of two or more routines by selecting, using the key value, the sequence of two or more routines from the list.

41. (New) A method, comprising:
receiving, by a computer network device, one or more packets of a message;
determining, by the computer network device, a key value based on information in the one or more packets;
identifying, by the computer network device, a particular sequence of two or more routines using the key value, wherein the particular sequence includes a routine that is used to execute a Transmission Control Protocol (TCP) to process packets having a TCP format;
creating, by the computer network device, one or more data structures that reference the particular sequence, wherein the one or more data structures are usable to store state information associated with the message; and
processing, by the computer network device, subsequent packets in the message using the particular sequence.
42. (New) The method of claim 41, further comprising:
storing, by the computer network device prior to receiving any packets of the message, a list that indicates a plurality of sequences of routines that includes the particular sequence.
43. (New) The method of claim 42, wherein the identifying includes using the key value to select the particular sequence from the list.
44. (New) The method of claim 41, wherein the key value includes an IP address and one or more TCP port addresses.
45. (New) The method of claim 41, wherein the creating includes storing, in the one or more data structures:
an indication of the key value; and
a reference to a queue for storing packets of the message.

REMARKS:

Claims 1-25 were pending in this application. Claims 1-25 have been canceled. Claims 26-45 have been added. Therefore, claims 26-45 are now pending in this application.

Overview

This application is part of a family that includes U.S. Patent Nos. 6,629,163, 8,055,786, 8,694,683, and 9,270,790. These assets relate generally to the processing of messages in computer networks. Several assets include claims that recite the creation of so-called “paths” that indicate a sequence of routines that may be used to process such messages.

This family has been the subject of both reexamination and litigation proceedings. The ’163 patent was the subject of a reexamination proceeding, while the ’683 patent was the subject of litigation in *Implicit L.L.C. v. F5 Networks, Inc.*, N.D. Cal., Case No. 14-cv-02856-SI. In the latter proceeding, the defendants F5 argued during claim construction that the ’683 patent “cannot create paths by using (a) identified sequences of routines that existed *before* a first message packet was received, because Implicit’s statement to the PTO during the ’163 Reexam disclaimed the use of pre-identified sequences of routines.” See *Implicit L.L.C. v. F5 Networks, Inc.*, Claim Construction Order, *6, (May 6, 2015) (available at 2015 WL 2194627) (referred to herein as the “Claim Construction Order”). The judge agreed with F5, entering a claim construction in which a “a sequence [list] of routines” was construed as a sequence “that was not identified (i.e., configured) prior to receiving a first packet of the message.” *Id.* at *14.

In reaching this conclusion, the court noted that for “disclaimer in a parent patent to be rescinded, permitting recapture of the disclaimed scope in a later related continuation patent, ‘the prosecution history must be sufficiently clear to inform the examiner that the previous disclaimer, and the prior art that it was made to avoid, may need to be re-visited.’” *Id.* at 13 (citing *Hakim v. Cannon Avent Grp., PLC*, 479 F.3d 1313, 1318 (Fed. Cir. 2007)). The court found, however, that there was “no evidence in the ’683 patent, much less sufficiently clear evidence, that informed the Examiner the disclaimer Implicit made during the ’163 patent Reexam would need to be revisited.” *Id.* **As set forth in detail below, Applicant, in filing the**

present application, is rescinding the statements in the '163 Reexam that were found to constitute prosecution disclaimer. The instant claims distinguish over the art of record in that proceeding for at least the reasons set forth below.

Disclaimer Identified in the Claim Construction Order

As the Claim Construction Order noted, during proceedings in that litigation, the parties did not dispute that the '683 patent discloses “an embodiment that may use pre-identified (*i.e.*, preconfigured) sequences of routines, similar to the prior art Mosberger system.” Claim Construction Order at *7. Specifically, the court described an embodiment in the '683 patent as being able to prefill the system with addresses for pre-identified sequences of information “before receiving any message packets”:

During system initialization and before any message packets are received, the embodiment can ‘prime the cache’ with addresses for pre-identified sequences of routines. In other words, before receiving any message packets, the embodiment can prefill the system with addresses (*i.e.*, locations in memory) for pre-identified sequences of routines. If the primed cache contains an address for a pre-identified sequence of routines that can be used to process the message packet, then the Label Map Get module returns the address for that pre-identified sequence.

Id. (internal citations omitted). The court noted that the '683 patent also disclosed the ability to “dynamically identify a sequence of routines *after* the system receives a first message packet.”

Id. In other words, a “sequence of routines” identified by the '683 patent may either be “pre-identified” or “dynamically identified”:

To process the received message packet, the invention disclosed in the '683 patent creates a path based on the identified sequence of routines. After the Label Map Get module returns an address corresponding to a sequence of routines, where the sequence is either (a) a pre-identified sequence that existed before receiving a first message packet or (b) a dynamically identified sequence that exists after receiving a first message packet, the Demux module selects the sequence indicated by the address and creates a path to process the packet.

Id. at *8.

In an earlier case between Implicit and F5, the court had found that Implicit’s statements in the '163 reexamination disclaimed “preconfigured sequences of routines, in other words preconfigured paths.” Claim Construction Order at *4. The court went on to find that this disclaimer also applied to the '683 patent. *Id.* at *10.

Applicant Hereby Rescinds the Statements Regarding the '163 Patent That Have Been Identified as Constituting Prosecution Disclaimer

As previously noted, the Federal Circuit has explained that “disclaimer made during prosecution can be rescinded, permitting recapture of the disclaimed scope” if the prosecution history is “sufficiently clear to inform the examiner that the previous disclaimer, and the prior art that it was made to avoid, may need to be re-visited.” *Hakim*, 479 F.3d at 1318.

By way of the present continuation and the instant remarks, Applicant hereby invokes this passage of *Hakim* in rescinding those statements made in the '163 patent reexamination and anywhere else in the prosecution history of cases in the family that have been interpreted or may be interpreted as constituting prosecution disclaimer. **Applicant submits that the present remarks constitute unambiguous notice to the Office and the public that such disclaimer is being disavowed.** Applicant respectfully requests that the Office acknowledge that the statements found to constitute disclaimer have been rescinded.

In examining this application, the Office is thus requested not to rely on any statements made in the '163 patent regarding Mosberger that have been found to constitute disclaimer. For example, the Office should not rely on any statements, particularly in the '163 reexamination, that would state or suggest that the present claims do not cover the selection of a pre-identified sequence of routines and creation of a path based on this sequence. Applicant submits, for example, that the “sequence of two or more routines” indicated in the “path” created in present claim 26 may either be a sequence of routines identified before receiving any packets of a message (i.e., a pre-identified sequence), **or** a sequence of routines that are dynamically identified after receiving a message packet.

To make Applicant’s intention in rescinding this disclaimer clear, claims 33, 34, 42, 43, 49, 50, 52, 53 specifically recite the use of a pre-identified sequence of routines. Thus, while the “sequence of two or more routines” in independent claim 26 encompasses both sequences of routines identified before any packets of the message have been received, as well as sequences of routines identified after packets of the message have been received, claim 34 specifically recites

the former scenario. Similar remarks apply to the other independent claims, each of which has a dependent claim similar to claim 34.

The Claims in the Present Application Distinguish over Mosberger on Grounds Other Than Those Argued in the '163 Reexamination

In the prosecution of the '683 grandparent patent, Applicant submitted detailed arguments as to why the claims in that application distinguish over Mosberger. *See* '683 Prosecution History, Preliminary Amendment of June 6, 2013, at 9-12. Specifically, Applicant argued that Mosberger did not teach or suggest “creat[ing], based on an identification of information in a packet of a message, a path that includes a sequence of routines for processing packets in the message.” *Id.* at 9. Instead, Applicant noted that “Mosberger teaches that when a message is received, a path is selected (or ‘found’ or ‘picked’) from a set of possible paths, which were created *before* the message was received.” *Id.* at 12. These arguments, as well as those relating to the Decasper reference, *id.* at 13-20, are incorporated by reference in the present remarks.

Applicant submits that the claims presented in this continuation application distinguish over Mosberger for reasons similar to those identified in the '683 patent preliminary amendment. For example, claim 26 recites “receiv[ing] one or more packets of a message,” “determin[ing] a key value using information in the one or more packets,” “identify[ing], using the key value, a sequence of two or more routines,” and “creat[ing] a path that includes one or more data structures that indicate the identified sequence of routines.” Accordingly, as in the claims of the '683 patent, the “path” of instant claim 26 is created after “one or more packets of a message” have been received, in contrast to Mosberger. The remaining independent claims distinguish over Mosberger for similar reasons.

CONCLUSION

Applicants submit the application is in condition for allowance, and an early notice to that effect is requested.

The Commissioner is authorized to charge any fees that may be required, or credit any overpayment, to Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. Deposit Account No. 501505/6743-00107/DMM.

Respectfully submitted,

Date: February 22, 2016

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Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING			
First Named Inventor/Applicant Name:	Edward Balassanian			
Filer:	Dean M. Munyon/Deena Beasley			
Attorney Docket Number:	6743-00107			
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	280	280
Utility Search Fee	1111	1	600	600
Utility Examination Fee	1311	1	720	720
Request for Prioritized Examination	1817	1	4000	4000
Pages:				
Claims:				
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Publ. Fee- Early, Voluntary, or Normal	1504	1	0	0
PROCESSING FEE, EXCEPT PROV. APPLS.	1830	1	140	140
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				5740

Electronic Acknowledgement Receipt

EFS ID:	24985155
Application Number:	15050027
International Application Number:	
Confirmation Number:	1056
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
First Named Inventor/Applicant Name:	Edward Balassanian
Customer Number:	35690
Filer:	Dean M. Munyon/Deena Beasley
Filer Authorized By:	Dean M. Munyon
Attorney Docket Number:	6743-00107
Receipt Date:	22-FEB-2016
Filing Date:	
Time Stamp:	17:23:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$5740
RAM confirmation Number	4632
Deposit Account	501505
Authorized User	MUNYON, DEAN M.

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Application.pdf	1675144 b9b76f9948167b59013ef945c0c5cac9f60e602d	yes	29
Multipart Description/PDF files in .zip description					
	Document Description		Start	End	
	Specification		1	24	
	Claims		25	28	
	Abstract		29	29	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	Drawings.pdf	7521456 fc3e1a77f4500b010e3ce2c6cf7c8710d2a27e6a	no	16
Warnings:					
Information:					
3	TrackOne Request	Certification_and_Request_for_Prioritized_Examination.pdf	129972 18805def15d5750f6f7506421c2cbb05e4bff120	no	2
Warnings:					
Information:					
4	Oath or Declaration filed	Declaration.pdf	36499 c2ba64adfe9c8b97c727349b8ecceb314db97c61	no	2
Warnings:					
Information:					
5	Application Data Sheet	ADS.pdf	1822882 749cc3f91571e78ac4a3ce08dd9d632add6cfd2	no	9
Warnings:					
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6	Power of Attorney	Power_of_Attorney.pdf	214289 fe211857d4966a997296f68act2926860faf6b77	no	3

Warnings:					
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7	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	1034667 bb33c276bfa83c5015c96829f558afa02cb04ac0	no	4
Warnings:					
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8	Non Patent Literature	N1_ImplicitLLCvF5NetworksInc.pdf	443394 dfe8f93487d42089f168b1ec6fa5e991ff4363c0	no	14
Warnings:					
Information:					
9		Preliminary_Amendment.pdf	210389 904d35cefa6687e7ec3a5aa36c1a59d33d9d41a4	yes	11
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Specification		2	2	
	Claims		3	6	
	Applicant Arguments/Remarks Made in an Amendment		7	11	
Warnings:					
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10	Fee Worksheet (SB06)	fee-info.pdf	40467 2f2462541afd3a05e96b7b534e3de516d9215985	no	2
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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.

METHOD AND SYSTEM FOR DATA DEMULTIPLEXING

5

CROSS REFERENCES TO RELATED APPLICATIONS

10 [0001] This application is a continuation of U.S. patent application Ser. No. 10/636,314,
filed August 6, 2003, titled Method and System for Data Demultiplexing, for all purposes
including but not limited to the right of priority and benefit of earlier filing date, and expressly
incorporates by reference the entire content of Patent Application Serial No. 10/636,314 for all
purposes. U.S. patent application Ser. No. 10/636,314 is a continuation of U.S. patent application
15 Ser. No. 09/474,664 (now U.S. Patent No. 6,629,163), filed December 29, 1999, titled Method
and System for Demultiplexing a First Sequence of Packet Components to Identify Specific
Components Wherein Subsequent Components Are Processed Without Re-Identifying
Components. This application claims the benefit of the following applications for all purposes
including but not limited to the right of priority and benefit of earlier filing date, and expressly
20 incorporates by reference the entire content of the following applications for all purposes: U.S.
patent application Ser. No. 10/636,314; and U.S. patent application Ser. No. 09/474,664.

TECHNICAL FIELD

[0002] The present invention relates generally to a computer system for data demultiplexing.

BACKGROUND

25 [0003] Computer systems, which are becoming increasingly pervasive, generate data in a
wide variety of formats. The Internet is an example of interconnected computer systems that
generate data in many different formats. Indeed, when data is generated on one computer system
and is transmitted to another computer system to be displayed, the data may be converted in

many different intermediate formats before it is eventually displayed. For example, the generating computer system may initially store the data in a bitmap format. To send the data to another computer system, the computer system may first compress the bitmap data and then encrypt the compressed data. The computer system may then convert that compressed data into a TCP format and then into an IP format. The IP formatted data may be converted into a transmission format, such as an ethernet format. The data in the transmission format is then sent to a receiving computer system. The receiving computer system would need to perform each of these conversions in reverse order to convert the data in the bitmap format. In addition, the receiving computer system may need to convert the bitmap data into a format that is appropriate for rendering on output device.

[0004] In order to process data in such a wide variety of formats, both sending and receiving computer systems need to have many conversion routines available to support the various formats. These computer systems typically use predefined configuration information to load the correct combination of conversion routines for processing data. These computer systems also use a process-oriented approach when processing data with these conversion routines. When using a process-oriented approach, a computer system may create a separate process for each conversion that needs to take place. A computer system in certain situations, however, can be expected to receive data and to provide data in many different formats that may not be known until the data is received. The overhead of statically providing each possible series of conversion routines is very high. For example, a computer system that serves as a central controller for data received within a home would be expected to process data received via telephone lines, cable TV lines, and satellite connections in many different formats. The central controller would be expected to output the data to computer displays, television displays, entertainment centers, speakers, recording devices, and so on in many different formats. Moreover, since the various conversion routines may be developed by different organizations, it may not be easy to identify

that the output format of one conversion routine is compatible with the input format of another conversion routine.

[0005] It would be desirable to have a technique for dynamically identifying a series of conversion routines for processing data. In addition, it would be desirable to have a technique in which the output format of one conversion routine can be identified as being compatible with the input format of another conversion routine. It would also be desirable to store the identification of a series of conversion routines so that the series can be quickly identified when data is received.

BRIEF DESCRIPTION OF THE DRAWINGS

10 [0006] Figure 1 is a block diagram illustrating example processing of a message by the conversion system.

[0007] Figure 2 is a block diagram illustrating a sequence of edges.

[0008] Figure 3 is a block diagram illustrating components of the conversion system in one embodiment.

15 [0009] Figure 4 is a block diagram illustrating example path data structures in one embodiment.

[0010] Figure 5 is a block diagram that illustrates the interrelationship of the data structures of a path.

[0011] Figure 6 is a block diagram that illustrates the interrelationship of the data structures associated with a session.

20 [0012] Figures 7 A, 7B, and 7C comprise a flow diagram illustrating the processing of the message send routine.

[0013] Figure 8 is a flow diagram of the demux routine.

- [0014] Figure 9 is a flow diagram of the initialize demux routine.
- [0015] Figure 10 is a flow diagram of the init end routine.
- [0016] Figure 11 is a flow diagram of a routine to get the next binding.
- [0017] Figure 12 is a flow diagram of the get key routine.
- 5 [0018] Figure 13 is a flow diagram of the get session routine.
- [0019] Figure 14 is a flow diagram of the nail binding routine.
- [0020] Figure 15 is a flow diagram of the find path routine.
- [0021] Figure 16 is a flow diagram of the process of path hopping routine.

DETAILED DESCRIPTION

- 10 [0022] A method and system for converting a message that may contain multiple packets from an source format into a target format. When a packet of a message is received, the conversion system in one embodiment searches for and identifies a sequence of conversion routines (or more generally message handlers) for processing the packets of the message by comparing the input and output formats of the conversion routines. (A message is a collection of
- 15 data that is related in some way, such as stream of video or audio data or an email message.) The identified sequence of conversion routines is used to convert the message from the source format to the target format using various intermediate formats. The conversion system then queues the packet for processing by the identified sequence of conversion routines. The conversion system stores the identified sequence so that the sequence can be quickly found (without searching)
- 20 when the next packet in the message is received. When subsequent packets of the message are received, the conversion system identifies the sequence and queues the packets for pressing by the sequence. Because the conversion system receives multiple messages with different source and target formats and identifies a sequence of conversion routines for each message, the

conversion systems effectively "demultiplexes" the messages. That is, the conversion system demultiplexes the messages by receiving the message, identifying the sequence of conversion routines, and controlling the processing of each message by the identified sequence. Moreover, since the conversion routines may need to retain state information between the receipt of one
5 packet of a message and the next packet of that message, the conversion system maintains state information as an instance or session of the conversion routine. The conversion system routes all packets for a message through the same session of each conversion routine so that the same state or instance information can be used by all packets of the message. A sequence of sessions of conversion routines is referred to as a "path." In one embodiment, each path has a path thread
10 associated with it for processing of each packet destined for that path.

[0023] In one embodiment, the packets of the messages are initially received by "drivers," such as an Ethernet driver. When a driver receives a packet, it forwards the packet to a forwarding component of the conversion system. The forwarding component is responsible for identifying the session of the conversion routine that should next process the packet and invoking
15 that conversion routine. When invoked by a driver, the forwarding component may use a demultiplexing ("demux") component to identify the session of the first conversion routine of the path that is to process the packet and then queues the packet for processing by the path. A path thread is associated with each path. Each path thread is responsible for retrieving packets from the queue of its path and forwarding the packets to the forwarding component. When the
20 forwarding component is invoked by a path thread, it initially invokes the first conversion routine in the path. That conversion routine processes the packet and forwards the processed packet to the forwarding component, which then invokes the second conversion routine in the path. The process of invoking the conversion routines and forwarding the processed packet to the next conversion routine continues until the last conversion routine in the path is invoked. A
25 conversion routine may defer invocation of the forwarding component until it aggregates

multiple packets or may invoke the forwarding component multiple times for a packet once for each sub-packet.

[0024] The forwarding component identifies the next conversion routine in the path using the demux component and stores that identification so that the forwarding component can quickly
5 identify the conversion routine when subsequent packets of the same message are received. The demux component searches for the conversion routine and session that is to next process a packet. The demux component then stores the identification of the session and conversion routine as part of a path data structure so that the conversion system does not need to search for the session and conversion routine when requested to demultiplex subsequent packets of the
10 same message. When searching for the next conversion routine, the demux component invokes a label map get component that identifies the next conversion routine. Once the conversion routine is found, the demux component identifies the session associated with that message by, in one embodiment, invoking code associated with the conversion routine. In general, the code of the conversion routine determines what session should be associated with a message. In certain
15 situations, multiple messages may share the same session. The demux component then extends the path for processing that packet to include that session and conversion routine. The sessions are identified so that each packet is associated with the appropriate state information. The dynamic identification of conversion routines is described in U.S. Patent Application No. 11,933,093, filed on Oct. 31, 2007 (now U.S. Patent No. 7,730,211), entitled "Method and System
20 for Generating a Mapping Between Types of Data," which is hereby incorporated by reference.

[0025] Figure 1 is a block diagram illustrating example processing of a message by the conversion system. The driver 101 receives the packets of the message from a network. The driver performs any appropriate processing of the packet and invokes a message send routine passing the processed packet along with a reference path entry 150. The message send routine is
25 an embodiment of the forwarding component. A path is represented by a series of path entries,

which are represented by triangles. Each member path entry represents a session and conversion routine of the path, and a reference path entry represents the overall path. The passed reference path entry 150 indicates to the message send routine that it is being invoked by a driver. The message send routine invokes the demux routine 102 to search for and identify the path of sessions that is to process the packet. The demux routine may in turn invoke the label map get routine 104 to identify a sequence of conversion routines for processing the packet. In this example, the label map get routine identifies the first three conversion routines, and the demux routine creates the member path entries 151, 152, 153 of the path for these conversion routines. Each path entry identifies a session for a conversion routine, and the sequence of path entries 151-155 identifies a path. The message send routine then queues the packet on the queue 149 for the path that is to process the packets of the message. The path thread 105 for the path retrieves the packet from the queue and invokes the message send routine 106 passing the packet and an indication of the path. The message send routine determines that the next session and conversion routine as indicated by path entry 151 has already been found. The message send routine then invokes the instance of the conversion routine for the session. The conversion routine processes the packet and then invokes the message send routine 107. This processing continues until the message send routine invokes the demux routine 110 after the packet is processed by the conversion routine represented by path entry 153. The demux routine examines the path and determines that it has no more path entries. The demux routine then invokes the label map get routine 111 to identify the conversion routines for further processing of the packet. When the conversion routines are identified, the demux routine adds path entries 154, 155 to the path. The message send routine invokes the conversion routine associated with path entry 154. Eventually, the conversion routine associated with path entry 155 performs the final processing for the path.

[0026] The label map get routine identifies a sequence of "edges" for converting data in one format into another format. Each edge corresponds to a conversion routine for converting data

from one format to another. Each edge is part of a "protocol" (or more generally a component) that may include multiple related edges. For example, a protocol may have edges that each convert data in one format into several different formats. Each edge has an input format and an output format. The label map get routine identifies a sequence of edges such that the output
5 format of each edge is compatible with the input format of another edge in the sequence, except for the input format of the first edge in the sequence and the output format of the last edge in the sequence. Figure 2 is a block diagram illustrating a sequence of edges. Protocol P1 includes an edge for converting format D1 to format D2 and an edge for converting format D1 to format D3; protocol P2 includes an edge for converting format D2 to format D5, and so on. A sequence
10 for converting format D 1 to format D 15 is shown by the curved lines and is defined by the address "P 1 : I, P2: 1, P3 :2, P4:7." When a packet of data in format D I is processed by this sequence, it is converted to format D I5. During the process, the packet of data is sequentially converted to format D2, D5, and D13. The output format of protocol P2, edge 1 (*i.e.*, P2: 1) is format D5, but the input format of P3:2 is format D10. The label map get routine uses an aliasing
15 mechanism by which two formats, such as D5 and D10 are identified as being compatible. The use of aliasing allows different names of the same format or compatible formats to be correlated.

[0027] Figure 3 is a block diagram illustrating components of the conversion system in one embodiment. The conversion system 300 can operate on a computer system with a central processing unit 301, I/O devices 302, and memory 303. The 110 devices may include an Internet
20 connection, a connection to various output devices such as a television, and a connection to various input devices such as a television receiver. The media mapping system may be stored as instructions on a computer-readable medium, such as a disk drive, memory, or data transmission medium. The data structures of the media mapping system may also be stored on a computer-readable medium. The conversion system includes drivers 304, a forwarding component 305, a
25 demux component 306, a label map get component 307, path data structures 308, conversion

routines 309, and instance data 310. Each driver receives data in a source format and forwards the data to the forwarding component. The forwarding component identifies the next conversion routine in the path and invokes that conversion routine to process a packet. The forwarding component may invoke the demux component to search for the next conversion routine and add
5 that conversion routine to the path. The demux component may invoke the label map get component to identify the next conversion routine to process the packet. The demux component stores information defining the paths in the path structures. The conversion routines store their state information in the instance data.

[0028] Figure 4 is a block diagram illustrating example path data structures in one
10 embodiment. The demux component identifies a sequence of "edges" for converting data in one format into another format by invoking the label map get component. Each edge corresponds to a conversion routine for converting data from one format to another. As discussed above, each edge is part of a "protocol" that may include multiple related edges. For example, a protocol may have edges that each convert data in one format into several different formats. Each edge has as
15 an input format ("input label") and an output format ("output label"). Each rectangle represents a session 410, 420, 430, 440, 450 for a protocol. A session corresponds to an instance of a protocol. That is, the session includes the protocol and state information associated with that instance of the protocol. Session 410 corresponds to a session for an Ethernet protocol; session 420 corresponds to a session for an IP protocol; and sessions 430, 440, 450 correspond to
20 sessions for a TCP protocol. Figure 4 illustrates three paths 461, 462, 463. Each path includes edges 411, 421, 431. The paths share the same Ethernet session 410 and IP session 420, but each path has a unique TCP session 430, 440, 450. Thus, path 461 includes sessions 410, 420, and 430; path 462 includes sessions 410, 420, and 440; and path 463 includes sessions 410, 420, and 450. The conversion system represents each path by a sequence of path entry structures. Each
25 path entry structure is represented by a triangle. Thus, path 461 is represented by path entries

415, 425, and 433. The conversion system represents the path entries of a path by a stack list. Each path also has a queue 471, 472, 473 associated with it. Each queue stores the messages that are to be processed by the conversion routines of the edges of the path. Each session includes a binding 412, 422, 432, 442, 452 that is represented by an oblong shape adjacent to the
5 corresponding edge. A binding for an edge of a session represents those paths that include the edge. The binding 412 indicates that three paths are bound (or "nailed") to edge 411 of the Ethernet session 410. The conversion system uses a path list to track the paths that are bound to a binding. The path list of binding 412 identifies path entries 413, 414, and 415.

[0029] Figure 5 is a block diagram that illustrates the interrelationship of the data structures
10 of a path. Each path has a corresponding path structure 501 that contains status information and pointers to a message queue structure 502, a stack list structure 503, and a path address structure 504. The status of a path can be extend, continue, or end. Each message handler returns a status for the path. The status of extend means that additional path entries should be added to the path. The status of end means that this path should end at this point and subsequent processing should
15 continue at a new path. The status of continue means that the protocol does not care how the path is handled. In one embodiment, when a path has a status of continue, the system creates a copy of the path and extends the copy. The message queue structure identifies the messages (or packets of a message) that are queued up for processing by the path and identifies the path entry at where the processing should start. The stack list structure contains a list of pointers to the path
20 entry structures 505 that comprise the path. Each path entry structure contains a pointer to the corresponding path data structure, a pointer to a map structure 507, a pointer to a multiplex list 508, a pointer to the corresponding path address structure, and a pointer to a member structure 509. A map structure identifies the output label of the edge of the path entry and optionally a target label and a target key. A target key identifies the session associated with the protocol that
25 converts the packet to the target label. (The terms "media," "label," and "format" are used

interchangeably to refer to the output of a protocol.) The multiplex list is used during the demux process to track possible next edges when a path is being identified as having more than one next edge. The member structure indicates that the path entry represents an edge of a path and contains a pointer to a binding structure to which the path entry is associated (or "nailed"), a stack list entry is the position of the path entry within the associated stack list, a path list entry is the position of the path entry within the associated path list of a binding and an address entry is the position of the binding within the associated path address. A path address of a path identifies the bindings to which the path entries are bound. The path address structure contains a URL for the path, the name of the path identified by the address, a pointer to a binding list structure 506, and the identification of the current binding within the binding list. The URL (*e.g.*, "protocol://tcp(0)/ip(0)/eth(0)") identifies conversion routines (*e.g.*, protocols and edges) of a path in a human-readable format. The URL (universal resource locator) includes a type field (*e.g.*, "protocol") followed by a sequence of items (*e.g.*, "tcp(0)"). The type field specifies the format of the following information in the URL, that specifies that the type field is followed by a sequence of items. Each item identifies a protocol and an edge (*e.g.*, the protocol is "tcp" and the edge is "0"). In one embodiment, the items of a URL may also contain an identifier of state information that is to be used when processing a message. These URLs can be used to illustrate to a user various paths that are available for processing a message. The current binding is the last binding in the path as the path is being built. The binding list structure contains a list of pointers to the binding structures associated with the path. Each binding structure 510 contains a pointer to a session structure, a pointer to an edge structure, a key, a path list structure, and a list of active paths through the binding. The key identifies the state information for a session of a protocol. A path list structure contains pointers to the path entry structures associated with the binding.

[0030] Figure 6 is a block diagram that illustrates the interrelationship of the data structures associated with a session. A session structure 601 contains the context for the session, a pointer

to a protocol structure for the session, a pointer to a binding table structure 602 for the bindings associated with the session, and the key. The binding table structure contains a list of pointers to the binding structures 510 for the session. The binding structure is described above with reference to Figure 5. The path list structure 603 of the binding structure contains a list of pointers to path entry structures 505. The path entry structures are described with reference to Figure 5.

[0031] Figures 7 A, 7B, and 7C comprise a flow diagram illustrating the processing of the message send routine. The message send routine is passed a message along with the path entry associated with the session that last processed the message. The message send routine invokes the message handler of the next edge in the path or queues the message for processing by a path. The message handler invokes the demux routine to identify the next path entry of the path. When a driver receives a message, it invokes the message send routine passing a reference path entry. The message send routine examines the passed path entry to determine (1) whether multiple paths branch from the path of the passed path entry, (2) whether the passed path entry is a reference with an associated path, or (3) whether the passed path entry is a member with a next path entry. If multiple paths branch from the path of the passed path entry, then the routine recursively invokes the message send routine for each path. If the path entry is a reference with an associated path, then the driver previously invoked the message send routine, which associated a path with the reference path entry, and the routine places the message on the queue for the path. If the passed path entry is a member with a next path entry, then the routine invokes the message handler (*i.e.*, conversion routine of the edge) associated with the next path entry. If the passed path entry is a reference without an associated path or is a member without a next path entry, then the routine invokes the demux routine to identify the next path entry. The routine then recursively invokes the messages send routine passing that next path entry. In decision block 701, if the passed path entry has a multiplex list, then the path branches off into multiple paths

and the routine continues at block 709, else the routine continues at block 702. A packet may be processed by several different paths. For example, if a certain message is directed to two different output devices, then the message is processed by two different paths. Also, a message may need to be processed by multiple partial paths when searching for a complete path. In

5 decision block 702, if the passed path entry is a member, then either the next path entry indicates a nailed binding or the path needs to be extended and the routine continues at block 704, else the routine continues at block 703. A nailed binding is a binding (e.g., edge and protocol) is associated with a session. In decision block 703, the passed path entry is a reference and if the passed path entry has an associated path, then the routine can queue the message for the

10 associated path and the routine continues at block 703A, else the routine needs to identify a path and the routine continues at block 707. In block 703A, the routine sets the entry to the first path entry in the path and continues at block 717. In block 704, the routine sets the variable position to the stack list entry of the passed path entry. In decision block 705, the routine sets the variable next entry to the next path entry in the path. If there is a next entry in the path, then the next

15 session and edge of the protocol have been identified and the routine continues at block 706, else the routine continues at block 707. In block 706, the routine passes the message to the message handler of the edge associated with the next entry and then returns. In block 706, the routine invokes the demux routine passing the passed message, the address of the passed path entry, and the passed path entry. The demux routine returns a list of candidate paths for processing of the

20 message. In decision block 708, if at least one candidate path is returned, then the routine continues at block 709, else the routine returns.

[0032] Blocks 709-716 illustrate the processing of a list of candidate paths that extend from the passed path entry. In blocks 710-716, the routine loops selecting each candidate path and sending the message to be process by each candidate path. In block 710, the routine sets the next

25 entry to the first path entry of the next candidate path. In decision block 711, if all the candidate

paths have not yet been processed, then the routine continues at block 712, else the routine returns. In decision block 712, if the next entry is equal to the passed path entry, then the path is to be extended and the routine continues at block 705, else the routine continues at block 713. The candidate paths include a first path entry that is a reference path entry for new paths or that is the last path entry of a path being extended. In decision block 713, if the number of candidate paths is greater than one, then the routine continues at block 714, else the routine continues at block 718. In decision block 714, if the passed path entry has a multiplex list associated with it, then the routine continues at block 716, else the routine continues at block 715. In block 715, the routine associates the list of candidate path with the multiplex list of the passed path entry and continues at block 716. In block 716, the routine sends the message to the next entry by recursively invoking the message send routine. The routine then loops to block 710 to select the next entry associated with the next candidate path.

[0033] Blocks 717-718 are performed when the passed path entry is a reference path entry that has a path associated with it. In block 717, if there is a path associated with the next entry, then the routine continues at block 718, else the routine returns. In block 718, the routine queues the message for the path of the next entry and then returns.

[0034] Figure 8 is a flow diagram of the demux routine. This routine is passed the packet (message) that is received, an address structure, and a path entry structure. The demux routine extends a path, creating one if necessary. The routine loops identifying the next binding (edge and protocol) that is to process the message and "nailing" the binding to a session for the message, if not already nailed. After identifying the nailed binding, the routine searches for the shortest path through the nailed binding, creating a path if none exists. In block 801, the routine invokes the initialize demux routine. In blocks 802-810, the routine loops identifying a path or portion of a path for processing the passed message. In decision block 802, if there is a current status, which was returned by the demuxkey routine that was last invoked (*e.g.*, continue, extend,

end, or postpone), then the routine continues at block 803, else the routine continues at block 811. In block 803, the routine invokes the get next binding routine. The get next binding routine returns the next binding in the path. The binding is the edge of a protocol. That routine extends the path as appropriate to include the binding. The routine returns a return status of break,
5 binding, or multiple. The return status of binding indicates that the next binding in the path was found by extending the path as appropriate and the routine continues to "nail" the binding to a session as appropriate. The return status of multiple means that multiple trails (*e.g.*, candidate paths) were identified as possible extensions of the path. In a decision block 804, if the return status is break, then the routine continues at block 811. If the return status is multiple, then the
10 routine returns. If the return status is binding, then the routine continues at block 805. In decision block 805, if the retrieved binding is nailed as indicated by being assigned to a session, then the routine loops to block 802, else the routine continues at block 806. In block 806, the routine invokes the get key routine of the edge associated with the binding. The get key routine creates the key for the session associated with the message. If a key cannot be created until subsequent
15 bindings are processed or because the current binding is to be removed, then the get key routine returns a next binding status, else it returns a continue status. In decision block 807, if the return status of the get key routine is next binding, then the routine loops to block 802 to get the next binding, else the routine continues at block 808. In block 808, the routine invokes the routine get session. The routine get session returns the session associated with the key, creating a new
20 session if necessary. In block 809, the routine invokes the routine nail binding. The routine nail binding retrieves the binding if one is already nailed to the session. Otherwise, that routine nails the binding to the session. In decision block 810, if the nail binding routine returns a status of simplex, then the routine continues at block 811 because only one path can use the session, else the routine loops to block 802. Immediately upon return from the nail binding routine, the
25 routine may invoke a set map routine of the edge passing the session and a map to allow the edge

to set its map. In block 811, the routine invokes the find path routine, which finds the shortest path through the binding list and creates a path if necessary. In block 812, the routine invokes the process path hopping routine, which determines whether the identified path is part of a different path. Path hopping occurs when, for example, IP fragments are built up along separate paths, but
5 once the fragments are built up they can be processed by the same subsequent path.

[0035] Figure 9 is a flow diagram of the initialize demux routine. This routine is invoked to initialize the local data structures that are used in the demux process and to identify the initial binding. The demux routine finds the shortest path from the initial binding to the final binding. If the current status is demux extend, then the routine is to extend the path of the passed path entry
10 by adding additional path entries. If the current status is demux end, then the demux routine is ending the current path. If the current status is demux continue, then the demux routine is in the process of continuing to extend or in the process of starting a path identified by the passed address. In block 901, the routine sets the local map structure to the map structure in the passed path entry structure. The map structure identifies the output label, the target label, and the target
15 key. In the block 902, the routine initializes the local message structure to the passed message structure and initializes the pointers path and address element to null. In block 903, the routine sets of the variable saved status to 0 and the variable status to demux continue. The variable saved status is used to track the status of the demux process when backtracking to nail a binding whose nail was postponed. In decision block 904, if the passed path entry is associated with a
20 path, then the routine continues at block 905, else the routine continues at block 906. In block 905, the routine sets the variable status to the status of that path. In block 906, if the variable status is demux continue, then the routine continues at block 907. If the variable status is demux end, then the routine continues at block 908. If the variable status is demux extend, then the routine continues at block 909. In block 907, the status is demux continue, and the routine sets
25 the local pointer path address to the passed address and continues at block 911. In block 908, the

status is demux end, and the routine invokes the init end routine and continues at block 911. In block 909, the status is demux extend, and the routine sets the local path address to the address of the path that contains the passed path entry. In block 910, the routine sets the address element and the current binding of the path address pointed to by the local pointer path address to the address entry of the member structure of the passed path entry. In the block 911, the routine sets the local variable status to demux continue and sets the local binding list structure to the binding list structure from the local path address structure. In block 912, the routine sets the local pointer current binding to the address of the current binding pointed to by local pointer path address and sets the local variable postpone to 0. In block 913, the routine sets the function traverse to the function that retrieves the next data in a list and sets the local pointer session to null. The routine then returns.

[0036] Figure 10 is a flow diagram of the init end routine. If the path is simplex, then the routine creates a new path from where the other one ended, else the routine creates a copy of the path. In block 1001, if the binding of the passed path entry is simplex (*i.e.*, only one path can be bound to this binding), then the routine continues at block 1002, else the routine continues at block 1003. In block 1002, the routine sets the local pointer path address to point to an address structure that is a copy of the address structure associated with the passed path entry structure with its current binding to the address entry associated with the passed path entry structure, and then returns. In block 1003, the routine sets the local pointer path address to point to an address structure that contains the URL of the path that contains the passed path entry. In block 1004, the routine sets the local pointer element to null to initialize the selection of the bindings. In blocks 1005 through 1007, the routine loops adding all the bindings for the address of the passed path entry that include and are before the passed path entry to the address pointed to by the local path address. In block 1005, the routine retrieves the next binding from the binding list starting with the first. If there is no such binding, then the routine returns, else the routine continues at block

1006. In block 1006, the routine adds the binding to the binding list of the local path address structure and sets the current binding of the local variable path address. In the block 1007, if the local pointer element is equal to the address entry of the passed path entry, then the routine returns, else the routine loops to block 1005 to select the next binding.

5 [0037] Figure 11 is a flow diagram of a routine to get the next binding. This routine returns the next binding from the local binding list. If there is no next binding, then the routine invokes the routine label map get to identify the list of edges ("trails") that will map the output label to the target label. If only one trail is identified, then the binding list of path address is extended by the edges of the trail. If multiple trails are identified, then a path is created for each trail and the routine returns so that the demux process can be invoked for each created path. In block 11 01,
10 the routine sets the local pointer binding to point to the next or previous (as indicated by the traverse function) binding in the local binding list. In block 1102, if a binding was found, then the routine returns an indication that a binding was found, else the routine continues at block 1103. In block 1103, the routine invokes the label map get function passing the output label and
15 target label of the local map structure. The label map get function returns a trail list. A trail is a list of edges from the output label to the target label. In decision block 1104, if the size of the trail list is one, then the routine continues at block 1105, else the routine continues at block 1112. In blocks 1105-1111, the routine extends the binding list by adding a binding data structure for each edge in the trail. The routine then sets the local binding to the last binding in the binding
20 list. In block 1108, the routine sets the local pointer current binding to point to the last binding in the local binding list. In block 1106, the routine sets the local variable temp trail to the trail in the trail list. In block 1107, the routine extends the binding list by temp trail by adding a binding for each edge in the trail. These bindings are not yet nailed. In block 1108, the routine sets the local binding to point to the last binding in the local binding list. In decision block 1109, if the local
25 binding does not have a key for a session and the local map has a target key for a session, then

the routine sets the key for the binding to the target key of the local map and continues at block 1110, else the routine loops to block 1101 to retrieve the next binding in path. In block 1110, the routine sets the key of the local binding to the target key of the local map. In block 1111, the routine sets the target key of the local map to null and then loop to block 1101 to return the next
5 binding. In decision block 1112, if the local session is set, then the demultiplexing is already in progress and the routine returns a break status. In block 1113, the routine invokes a prepare multicast paths routine to prepare a path entry for each trail in the trail list. The routine then returns a multiple status.

[0038] Figure 12 is a flow diagram of the get key routine. The get key routine invokes an
10 edge's demuxkey routine to retrieve a key for the session associated with the message. The key identifies the session of a protocol. The demux key routine creates the appropriate key for the message. The demux key routine returns a status of remove, postpone, or other. The status of remove indicates that the current binding should be removed from the path. The status of postpone indicates that the demux key routine cannot create the key because it needs information
15 provided by subsequent protocols in the path. For example, a TCP session is defined by a combination of a remote and local port address and an IP address. Thus, the TCP protocol postpones the creating of a key until the IP protocol identifies the IP address. The get key routine returns a next binding status to continue at the next binding in the path. Otherwise, the routine returns a continue status. In block 1201, the routine sets the local edge to the edge of the local
20 binding (current binding) and sets the local protocol to the protocol of the local edge. In block 1202, the routine invokes the demux key routine of the local edge passing the local message, local path address, and local map. The demux key routine sets the key in the local binding. In decision block 1203, if the demux key routine returns a status of remove, then the routine continues at block 1204. If the demux key routine returns a status of postpone, then the routine
25 continues at block 1205, else the routine continues at block 1206. In block 1204, the routine sets

the flag of the local binding to indicate that the binding is to be removed and continues at block 1206. In block 1205, the routine sets the variable traverse to the function to list the next data, increments the variable postpone, and then returns a next binding status. In blocks 1206-1214, the routine processes the postponing of the creating of a key. In blocks 1207-1210, if the creating
5 of a key has been postponed, then the routine indicates to backtrack on the path, save the demux status, and set the demux status to demux continue. In blocks 1211-1213, if the creating of a key has not been postponed, then the routine indicates to continue forward in the path and to restore any saved demux status. The save demux status is the status associated by the binding where the backtrack started. In decision block 1206, if the variable postpone is set, then the routine
10 continues at block 1207, else the routine continues at block 1211. In block 1207, the routine decrements the variable postpone and sets the variable traverse to the list previous data function. In decision block 1208, if the variable saved status is set, then the routine continues at block 1210, else the routine continues at block 1209. The variable saved status contains the status of the demux process when the demux process started to backtrack. In block 1209, the routine sets
15 the variable saved status to the variable status. In block 1210, the routine sets the variable status to demux continue and continues at block 1214. In block 1211, the routine sets the variable traverse to the list next data function. In decision block 1212, if the variable saved status is set, then the routine continues at block 1213, else the routine continues at block 1214. In block 1213, the routine sets the variable status to the variable saved status and sets the variable saved status
20 to 0. In decision block 1214, if the local binding indicates that it is to be removed, then the routine returns a next binding status, else the routine returns a continue status.

[0039] Figure 13 is a flow diagram of the get session routine. This routine retrieves the session data structure, creating a data structure session if necessary, for the key indicated by the binding. In block 1301, the routine retrieves the session from the session table of the local
25 protocol indicated by the key of the local binding. Each protocol maintains a mapping from each

key to the session associated with the key. In decision block 1302, if there is no session, then the routine continues at block 1303, else the routine returns. In block 1303, the routine creates a session for the local protocol. In block 1304, the routine initializes the key for the local session based on the key of the local binding. In block 1305, the routine puts the session into the session
5 table of the local protocol. In block 1306, the routine invokes the create session function of the protocol to allow the protocol to initialize its context and then returns.

[0040] Figure 14 is a flow diagram of the nail binding routine. This routine determines whether a binding is already associated with ("nailed to") the session. If so, the routine returns that binding. If not, the routine associates the binding with the session. The routine returns a
10 status of simplex to indicate that only one path can extend through the nailed binding. In decision block 1401, if the binding table of the session contains an entry for the edge, then the routine continues at block 1402, else the routine continues at block 1405. In block 1402, the routine sets the binding to the entry from the binding table of the local session for the edge. In block 1403, the routine sets the current binding to point to the binding from the session. In block 1404, if the
15 binding is simplex, then the routine returns a simplex status, else the routine returns. Blocks 1405 through 1410 are performed when there is no binding in the session for the edge. In block 1405, the routine sets the session of the binding to the variable session. In block 1406, the routine sets the key of the binding to the key from the session. In block 1407, the routine sets the entry for the edge in the binding table of the local session to the binding. In block 1408, the routine
20 invokes the create binding function of the edge of the binding passing the binding so the edge can initialize the binding. If that function returns a status of remove, the routine continues at block 1409. In block 1409, the routine sets the binding to be removed and then returns.

[0041] Figure 15 is a flow diagram of the find path routine. The find path routine identifies the shortest path through the binding list. If no such path exists, then the routine extends a path to
25 include the binding list. In decision block 1501, if the binding is simplex and a path already goes

through this binding (returned as an entry), then the routine continues at block 1502, else the routine continues at block 1503. In block 1502, the routine sets the path to the path of the entry and returns. In block 1503, the routine initializes the pointers element and short entry to null. In block 1504, the routine sets the path to the path of the passed path entry. If the local path is not null and its status is demux extend, then the routine continues at block 1509, else the routine continues at block 1505. In blocks 1505-1508, the routine loops identifying the shortest path through the bindings in the binding list. The routine loops selecting each path through the binding. The selected path is eligible if it starts at the first binding in the binding list and the path ends at the binding. The routine loops setting the short entry to the shortest eligible path found so far. In block 1505, the routine sets the variable first binding to the first binding in the binding list of the path address. In block 1506, the routine selects the next path (entry) in the path list of the binding starting with the first. If a path is selected (indicating that there are more paths in the binding), then the routine continues at block 1507, else the routine continues at block 1509. In block 1507, the routine determines whether the selected path starts at the first binding in the binding list, whether the selected path ends at the last binding in the binding list, and whether the number of path entries in the selected path is less than the number of path entries in the shortest path selected so far. If these conditions are all satisfied, then the routine continues at block 1508, else the routine loops to block 1506 to select the next path (entry). In block 1508, the routine sets the shortest path (short entry) to the selected path and loops to block 1506 to select the next path through the binding. In block 1509, the routine sets the selected path (entry) to the shortest path. In decision block 1510, if a path has been found, then the routine continues at block 1511, else the routine continues at block 1512. In block 1511, the routine sets the path to the path of the selected path entry and returns. Blocks 1512-1516 are performed when no paths have been found. In block 1512, the routine sets the path to the path of the passed path entry. If the passed path entry has a path and its status is demux extend, then the routine continues at block 1515,

else the routine continues at block 1513. In block 1513, the routine creates a path for the path address. In block 1514, the routine sets the variable element to null and sets the path entry to the first element in the stack list of the path. In block 1515, the routine sets the variable element to be address entry of the member of the passed path entry and sets the path entry to the passed path entry. In block 1516, the routine invokes the extend path routine to extend the path and then returns. The extend path routine creates a path through the bindings of the binding list and sets the path status to the current demux status.

[0042] Figure 16 is a flow diagram of the process of path hopping routine. Path hopping occurs when the path through the binding list is not the same path as that of the passed path entry. In decision block 1601, if the path of the passed path entry is set, then the routine continues at block 1602, else the routine continues at block 1609. In decision block 1602, if the path of the passed path entry is equal to the local path, then the routine continues at 1612, else path hopping is occurring and the routine continues at block 1603. In blocks 1603-1607, the routine loops positioning pointers at the first path entries of the paths that are not at the same binding. In block 1603, the routine sets the variable old stack to the stack list of the path of the passed path entry. In block 1604, the routine sets the variable new stack to the stack list of the local path. In block 1605, the routine sets the variable old element to the next element in the old stack. In block 1606, the routine sets the variable element to the next element in the new stack. In decision block 1607, the routine loops until the path entry that is not in the same binding is located. In decision block 1608, if the variable old entry is set, then the routine is not at the end of the hopped from path and the routine continues at block 1609, else routine continues at block 1612. In block 1609, the routine sets the variable entry to the previous entry in the hopped-to path. In block 1610, the routine sets the path of the passed path entry to the local path. In block 1611, the routine sets the local entry to the first path entry of the stack list of the local path. In block 1612, the routine inserts an entry into return list and then returns.

[0043] Although the conversion system has been described in terms of various embodiments, the invention is not limited to these embodiments. Modification within the spirit of the invention will be apparent to those skilled in the art. For example, a conversion routine may be used for routing a message and may perform no conversion of the message. Also, a reference to a single
5 copy of the message can be passed to each conversion routine or demuxkey routine. These routines can advance the reference past the header information for the protocol so that the reference is positioned at the next header. After the demux process, the reference can be reset to point to the first header for processing by the conversion routines in sequence. The scope of the invention is defined by the claims that follow.

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CLAIMS

What is claimed is:

1. A non-transitory computer-readable medium containing instructions for processing packets of a message, the instructions comprising:
 - 5 at least one computer-executable module configured to:
 - receive packets of a message;
 - identify one or more processing components for processing the incoming packets based on information provided by the processing components;
 - 10 create a path based on the one or more processing components identified for processing the packets of the message;
 - store the path in computer memory;
 - associate the path with state information; and
 - process the packets using the path and the state information.
- 15 2. The computer-readable medium of claim 1 wherein the identifying is based on searching for the next set of processing components based on output formats and input formats specified by the processing components.
3. The computer-readable medium of claim 1 wherein the identifying is based on matching input formats with output formats.
- 20 4. The computer-readable medium of claim 3, wherein matching includes a label get map

routine employing aliasing when the input formats and output formats are compatible but have different names.

5. The computer-readable medium of claim 1 wherein the identifying is based on mapping definitions.

5 6. The computer-readable medium of claim 5 wherein mapping definitions are specified by components.

7. The computer-readable medium of claim 1 wherein the identifying is based on one or more link layer addresses such as ethernet MAC addresses.

8. The computer-readable medium of claim 1 wherein the identifying is based on one or
10 more Internet layer addresses such as Internet Protocol addresses.

9. The computer-readable medium of claim 1, wherein the identifying is based on one or more transport layer addresses such as TCP port addresses.

10. The computer-readable medium of claim 1 wherein the identifying is based on one or more content identifiers such as a MIME type.

15 11. The computer-readable medium of claim 1, wherein the identifying is based on one or more application identifiers.

12. The computer-readable medium of claim 1, wherein the identifying is based on one or more user identifiers.

13. The computer-readable medium of claim 1 wherein associating a path with state
20 information is based on identifying a key defined by the processing component.

14. The computer-readable medium of claim 1 wherein associating a path with state information is based on identifying if an existing association of the same path with the same state information already exists.
15. The computer-readable medium of claim 1, wherein identifying the path requires
5 modifying packets of a message by one or more processing components such that each processing component modifies information associated with the packet such that the subsequent processing components can process the packet.
16. The computer-readable medium of claim 14, wherein identifying includes using an existing path.
- 10 17. The computer-readable medium of claim 14, wherein identifying includes creating a copy of the existing path.
18. The computer-readable medium of claim 14, wherein identifying includes extending an existing path.
19. The computer-readable medium of claim 14, wherein identifying includes creating a new
15 path.
20. The computer-readable medium of claim 1, wherein identifying includes blocking an existing path from being created.
21. The computer-readable medium of claim 1, wherein the state information is used by the path to process subsequent packets of the same message.
- 20 22. The computer-readable medium of claim 1, wherein the processing includes a path thread and a message queue.

23. The computer-readable medium of claim 21, wherein the path thread removes packets from the message queue and calls a forwarding routine.

24. The computer-readable medium of claim 21, wherein the forwarding routine calls the first component in the path with the associated state information and a message packet.

5 25. The computer-readable medium of claim 21, wherein each component recursively calls the forwarding component when it is done processing the packet.

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ABSTRACT

A method and system for demultiplexing packets of a message is provided.

The demultiplexing system receives packets of a message, identifies a sequence of message handlers for processing the message, identifies state information associated with the message for each message handler, and invokes the message handlers passing the message and the associated state information. The system identifies the message handlers based on the initial data type of the message and a target data type. The identified message handlers effect the conversion of the data to the target data type through various intermediate data types.

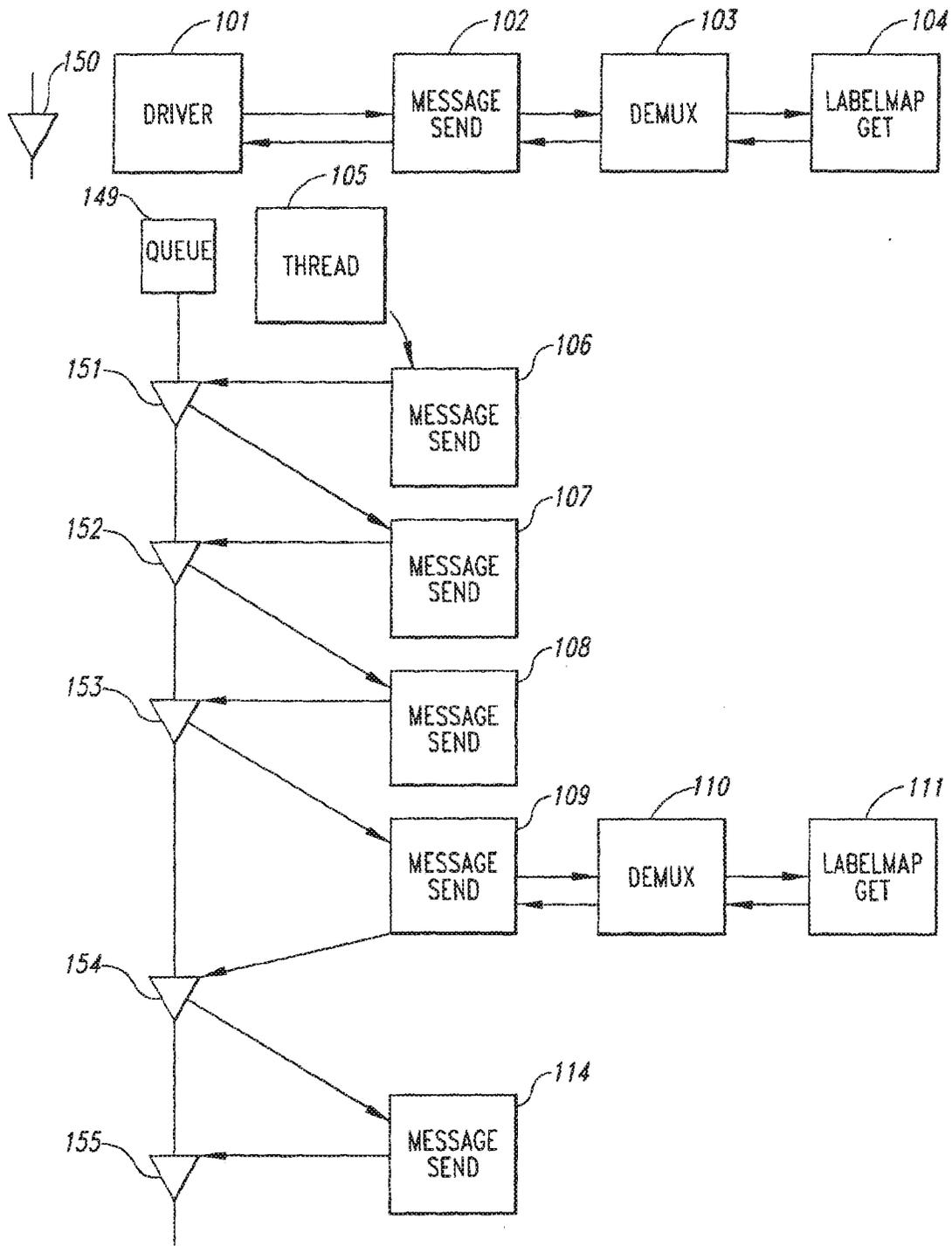


Fig. 1

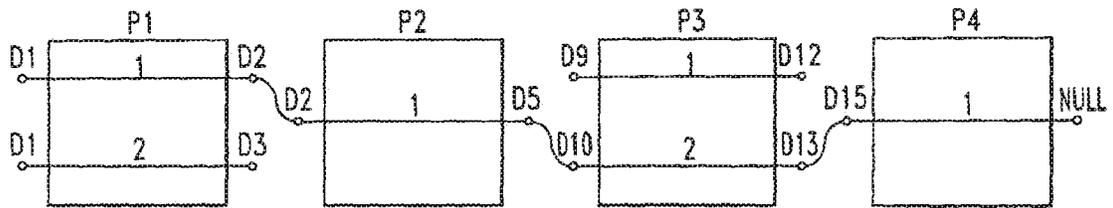


Fig. 2

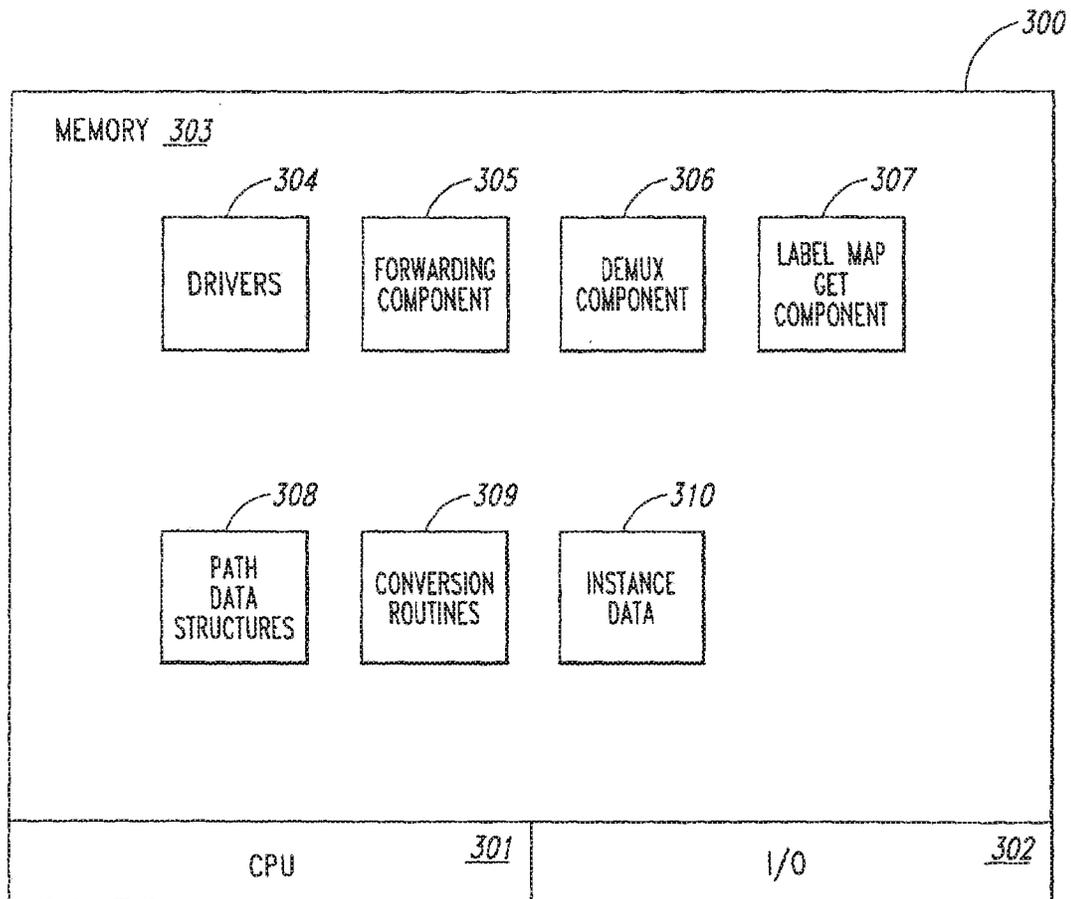


Fig. 3

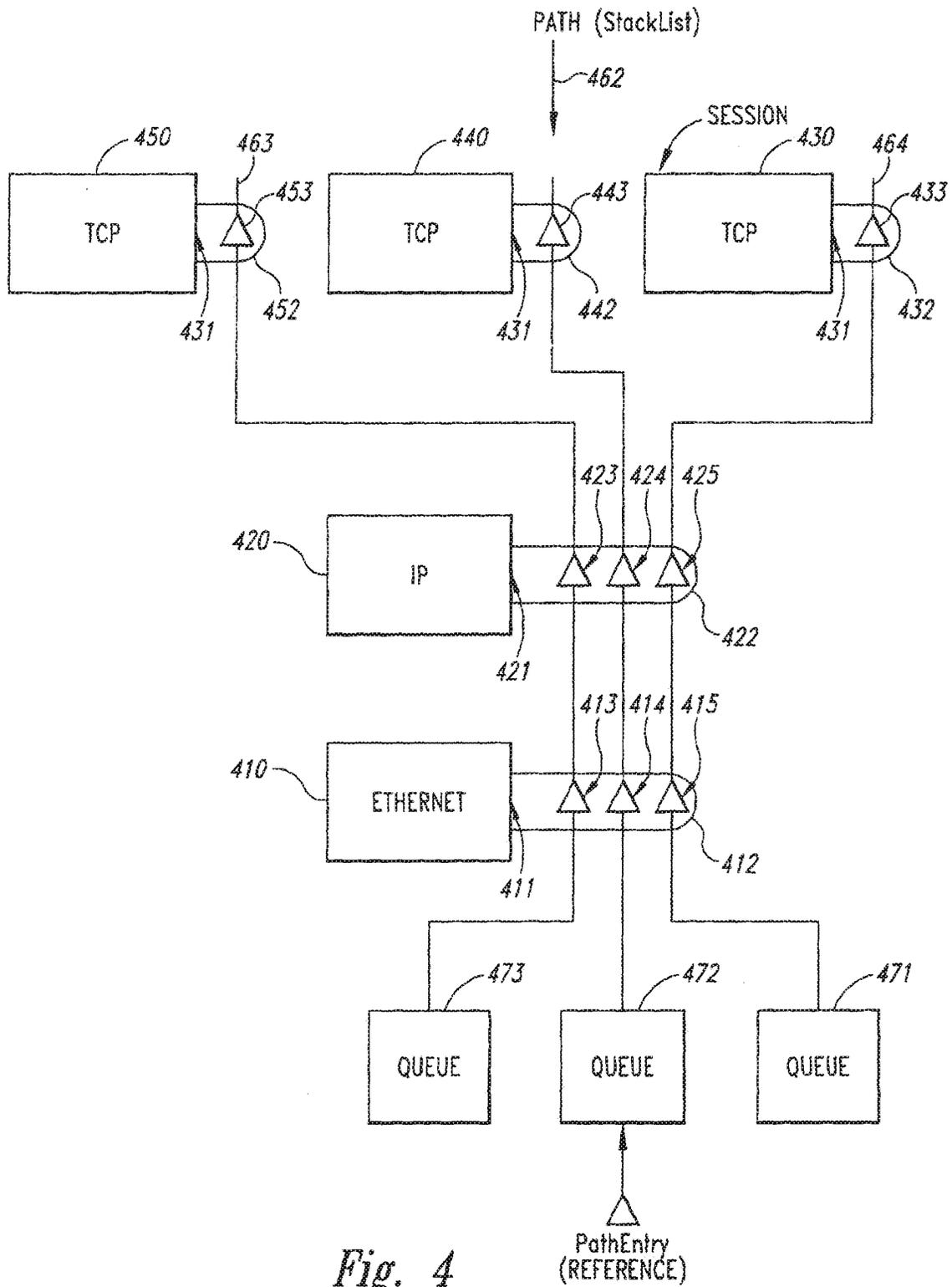


Fig. 4

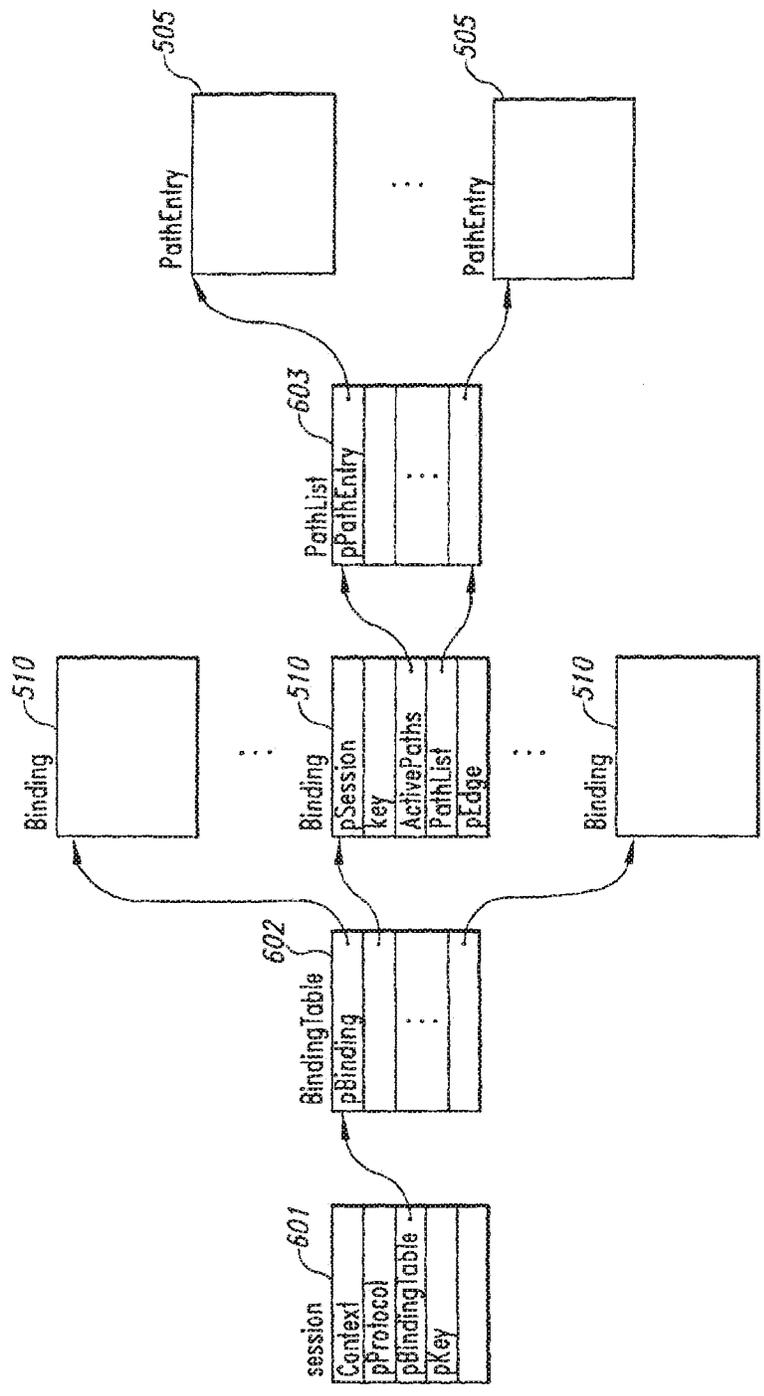


Fig. 6

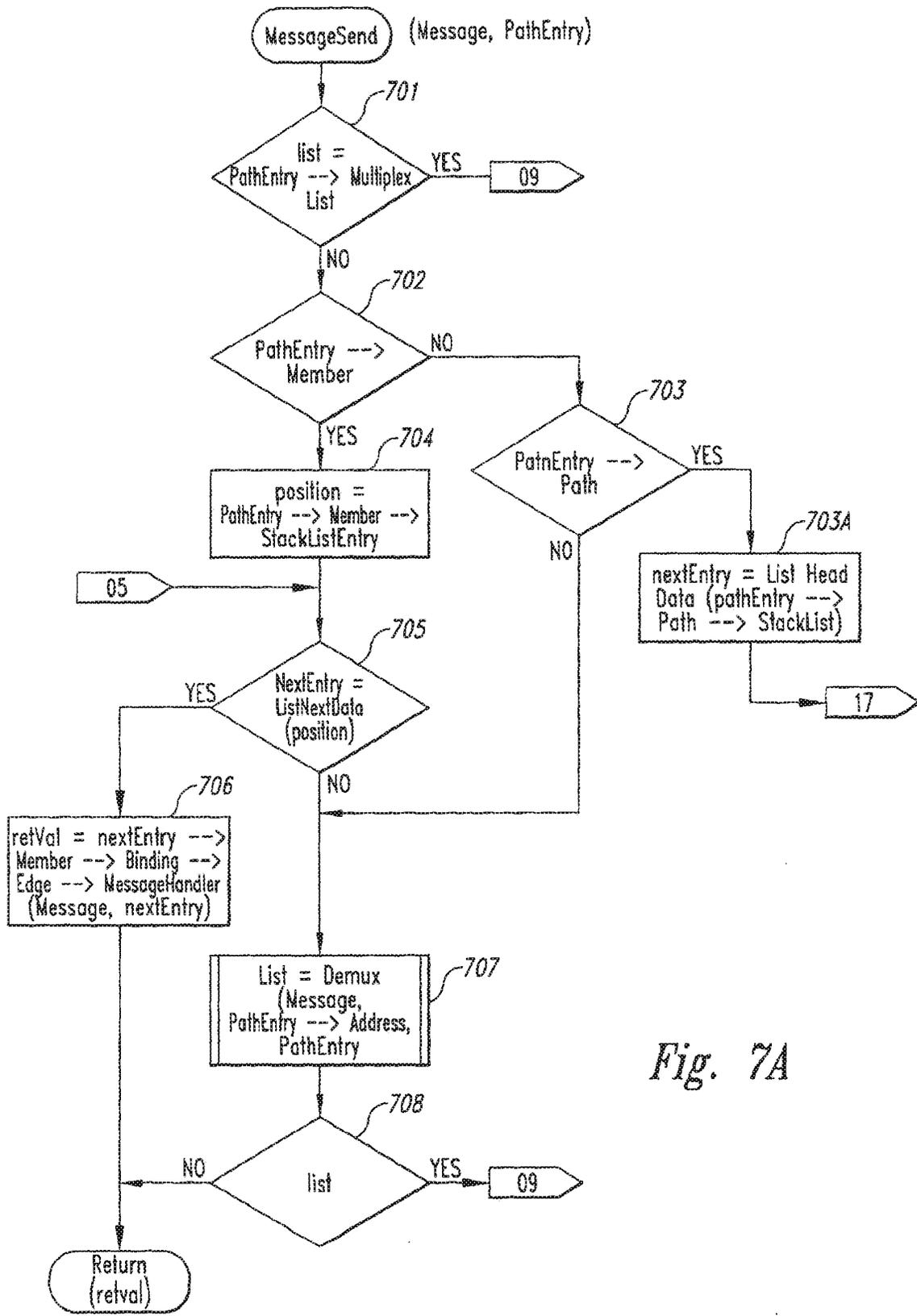


Fig. 7A

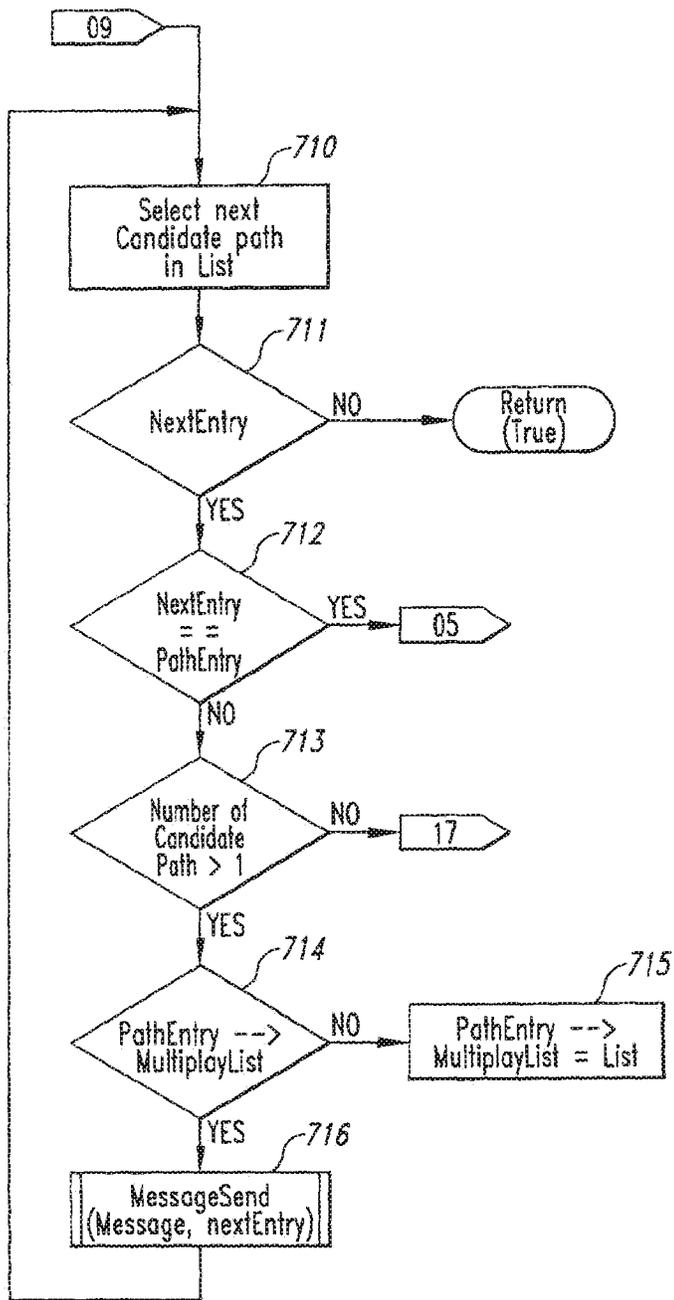


Fig. 7B

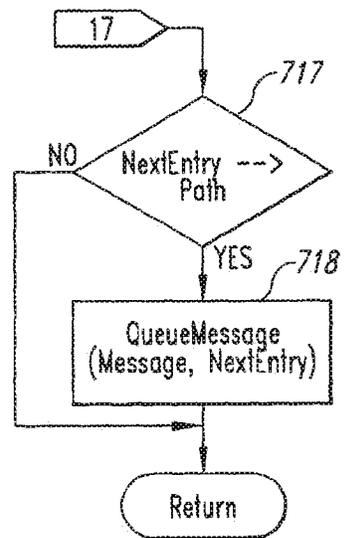


Fig. 7C

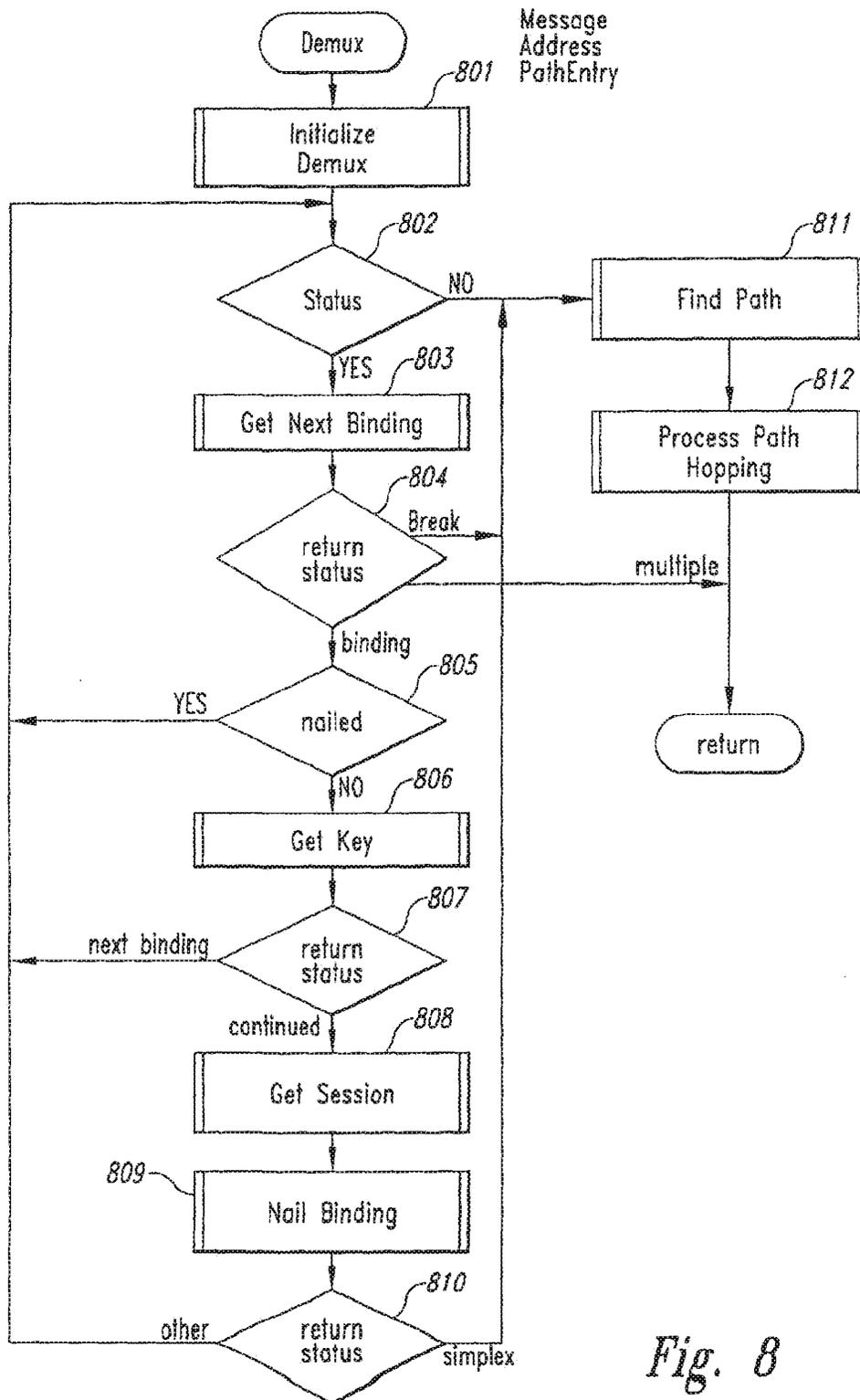


Fig. 8

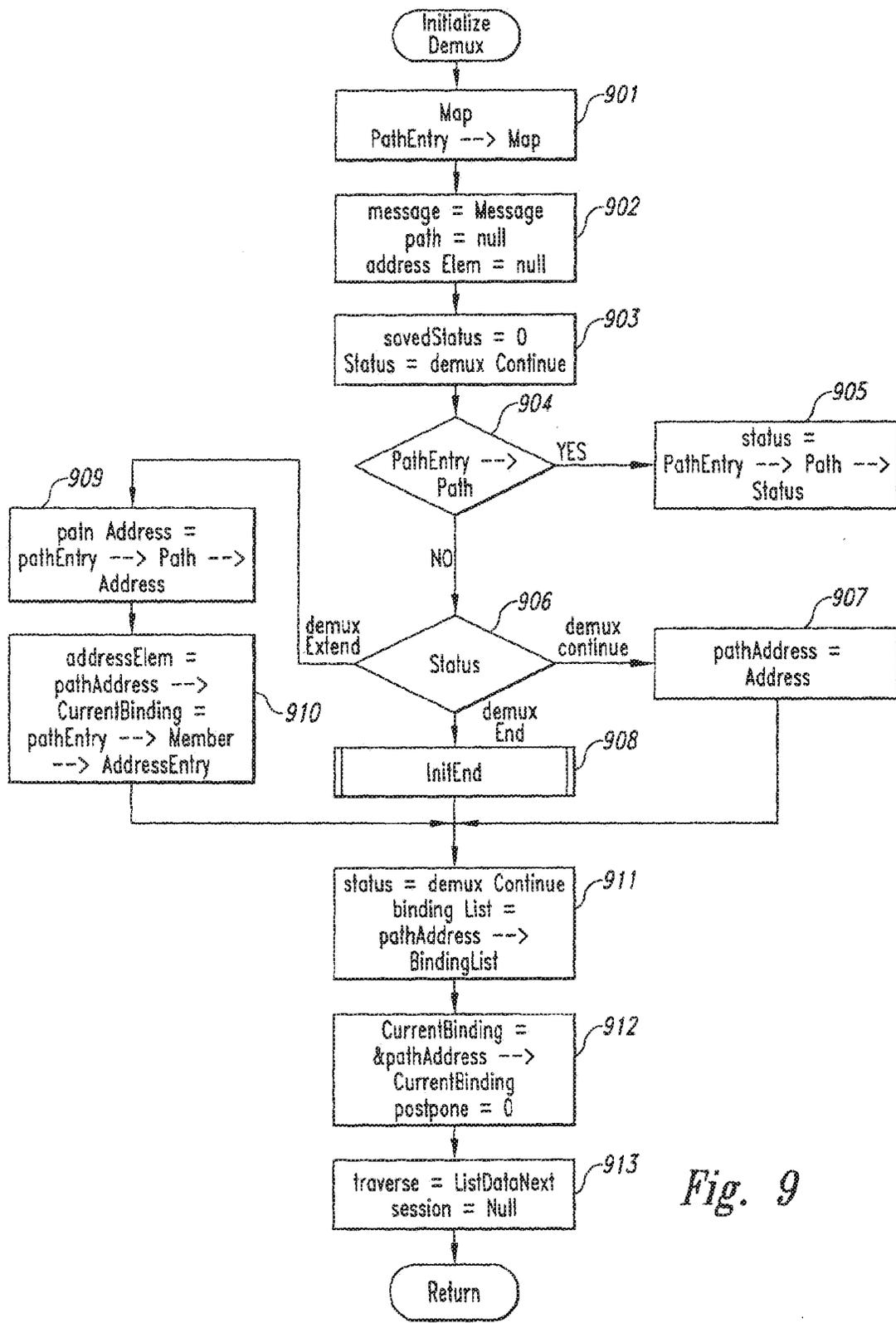


Fig. 9

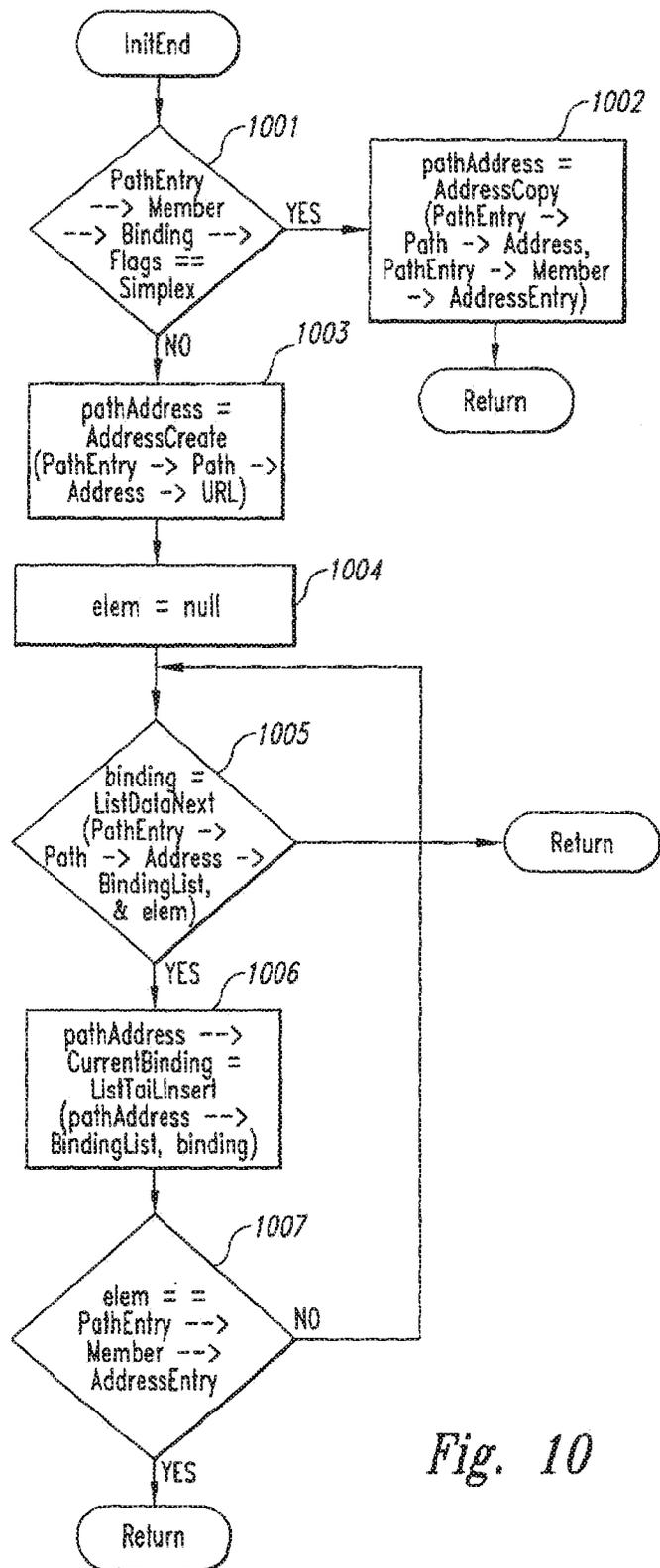


Fig. 10

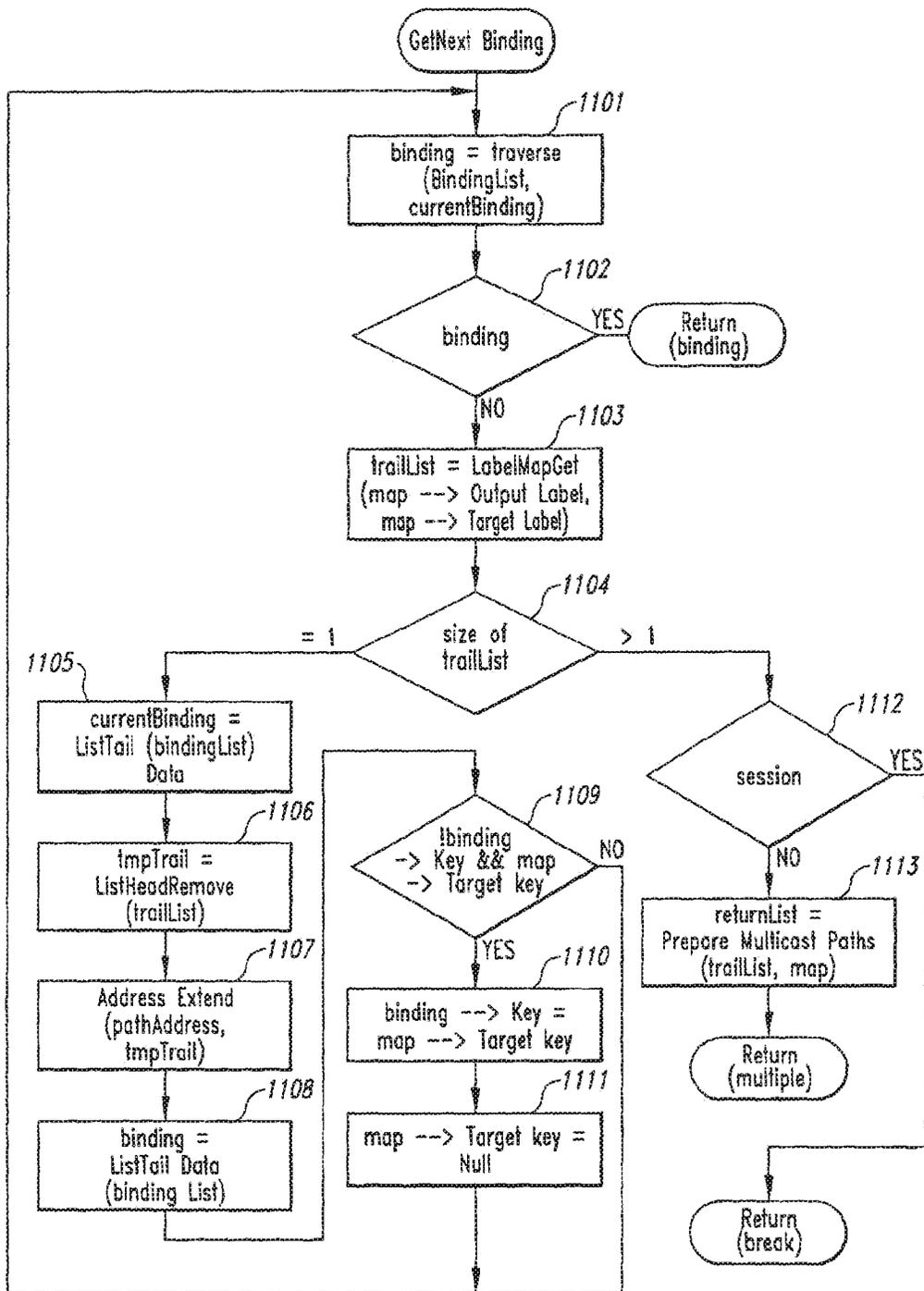
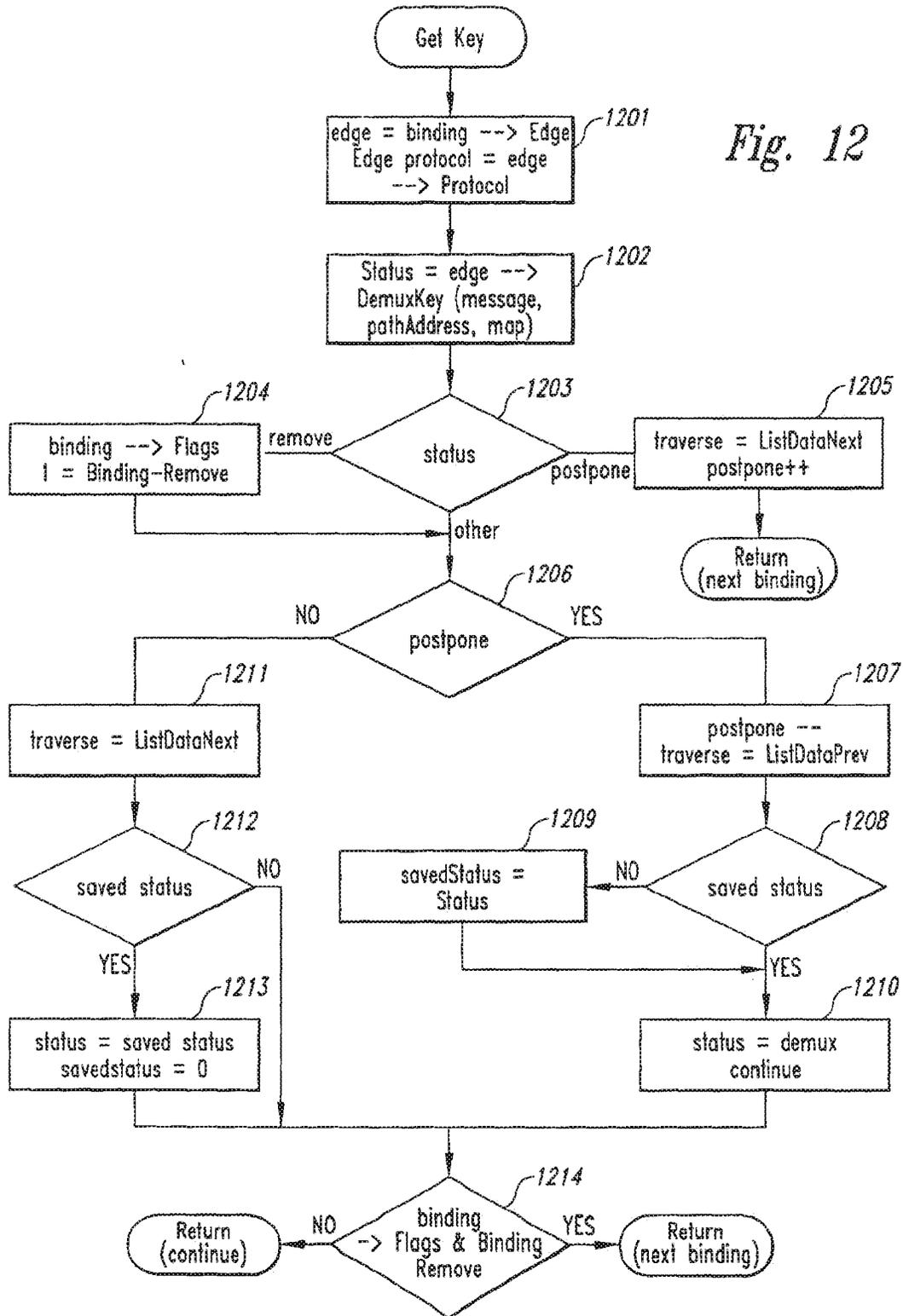


Fig. 11

Fig. 12



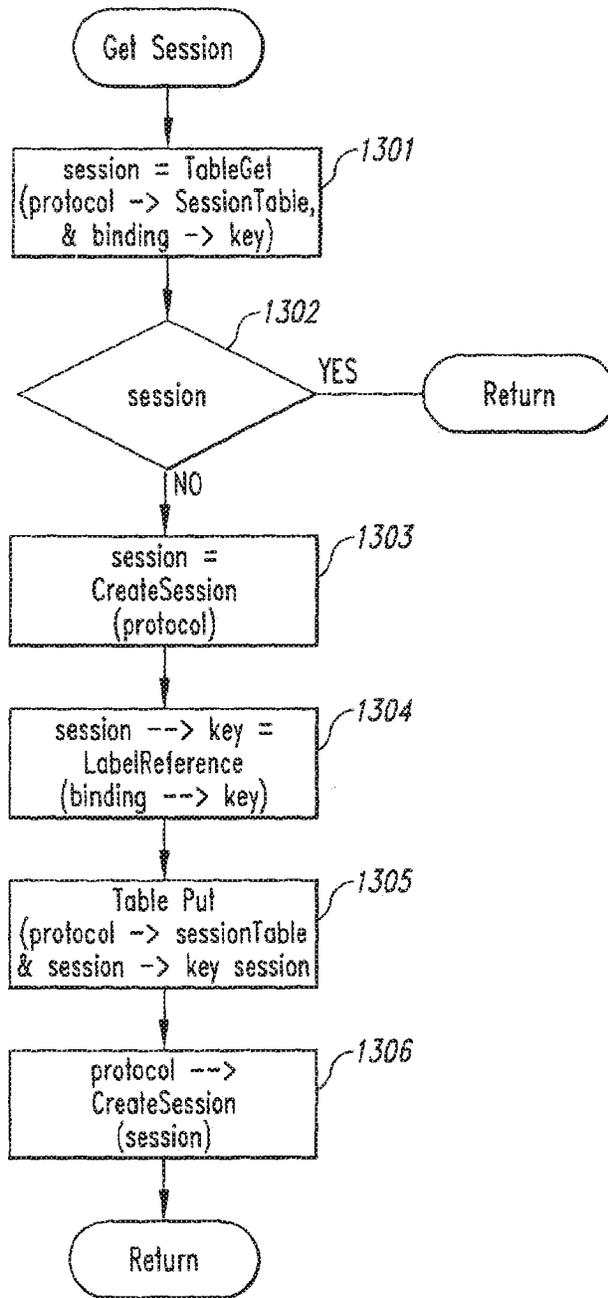


Fig. 13

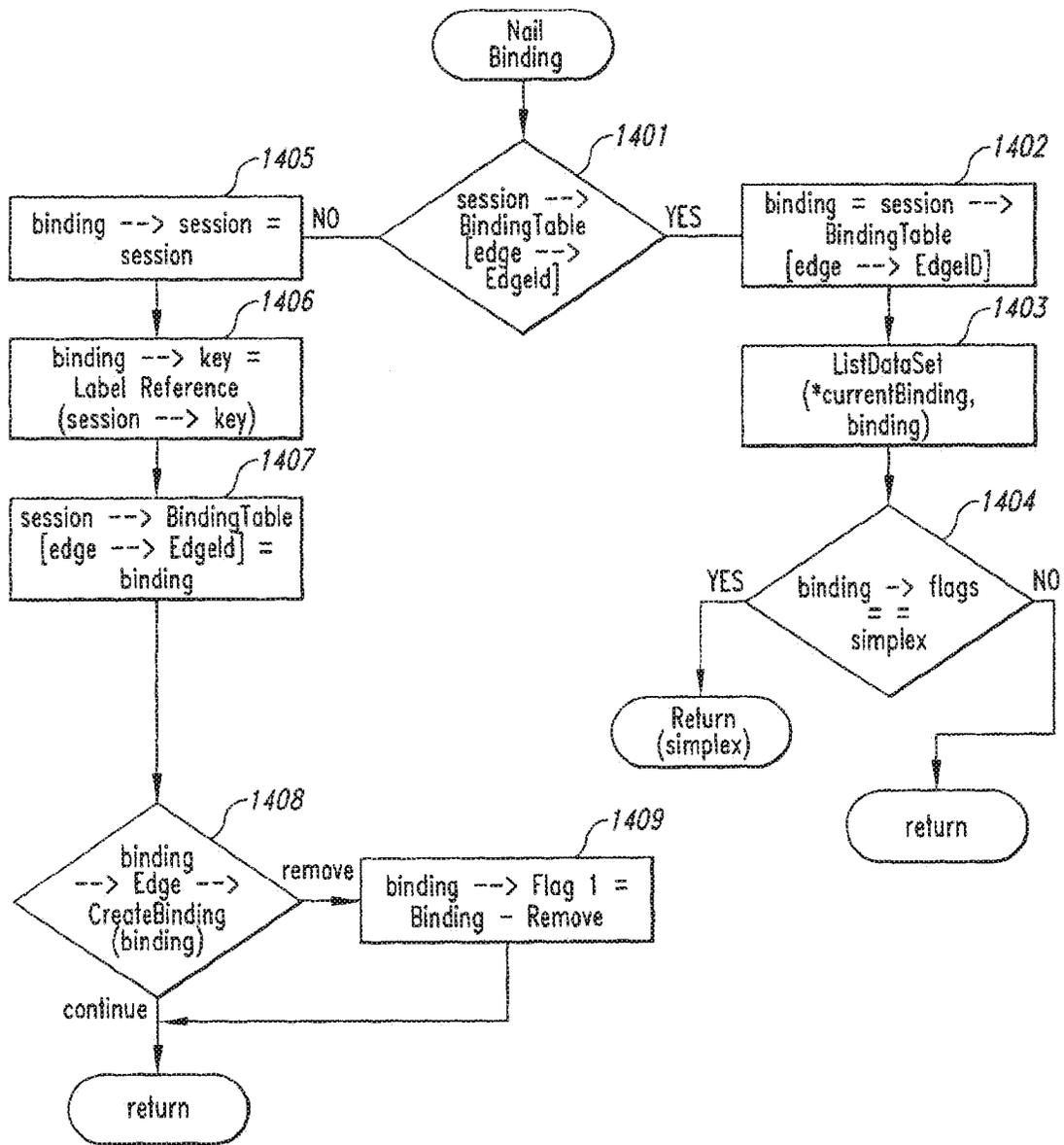


Fig. 14

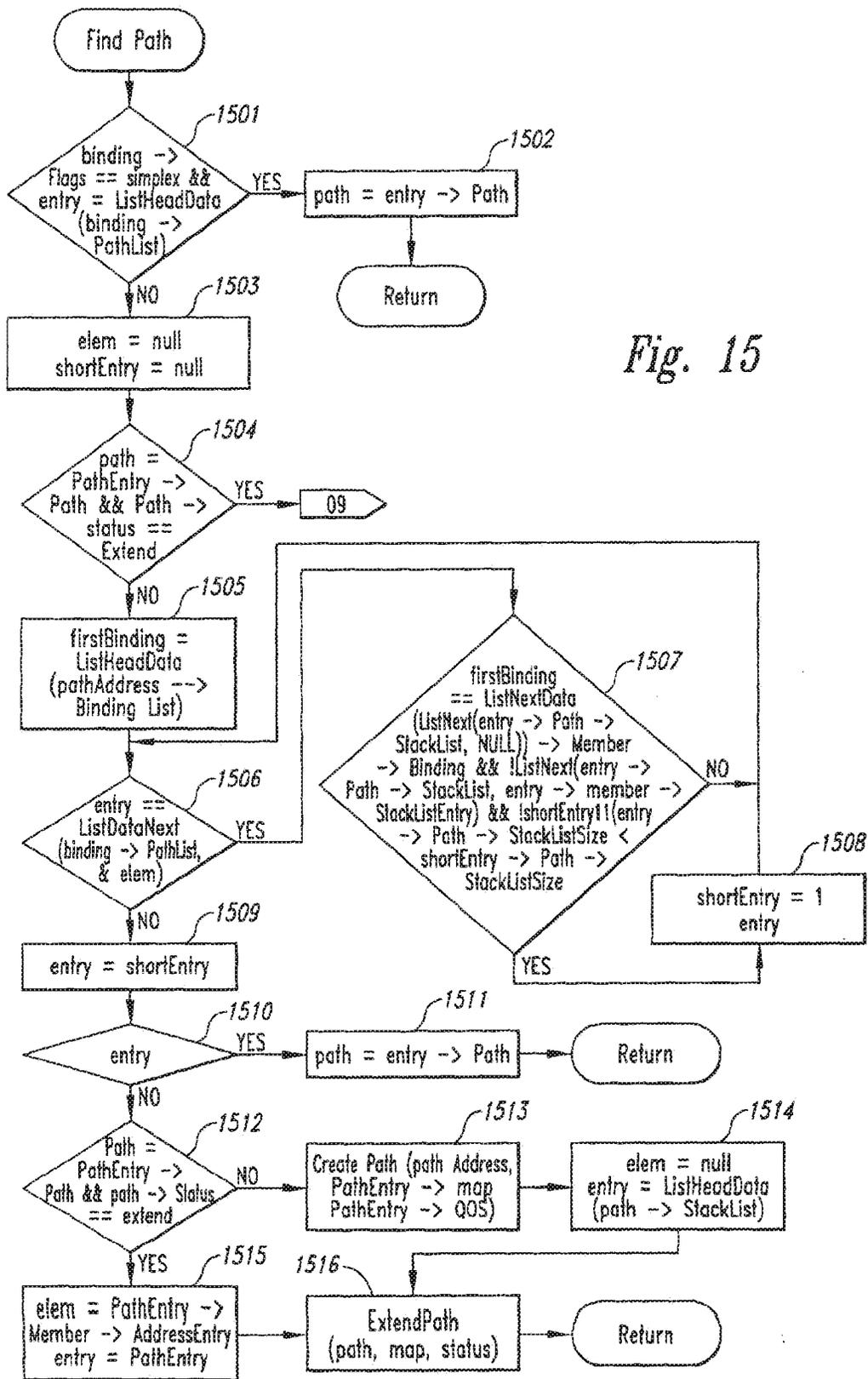


Fig. 15

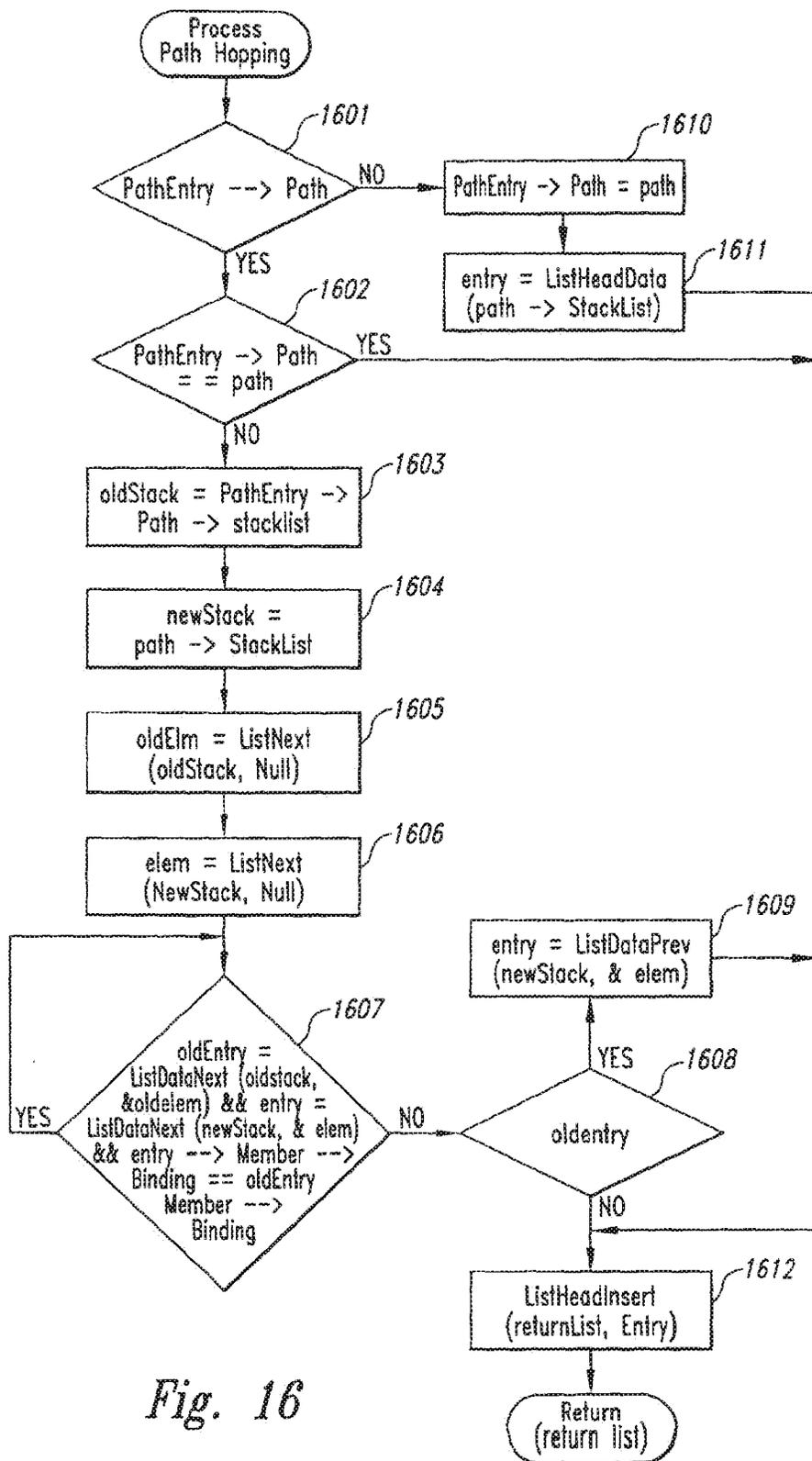


Fig. 16

**CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION
 UNDER 37 CFR 1.102(e)** (Page 1 of 1)

First Named Inventor:	Edward Balassanian	Nonprovisional Application Number (if known):	
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING		

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 /Dean M. Munyon/	Date February 22, 2016
Name (Print/Typed) Dean M. Munyon	Practitioner Registration Number 42,914

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.

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.

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.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)****Title of
Invention**

METHOD AND SYSTEM FOR DATA DEMULTIPLEXING

As the below named inventor, I hereby declare that:

This declaration is directed to: 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.

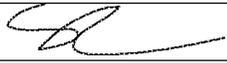
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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: Edward Balassanian Date (Optional) : _____Signature:  _____

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.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute 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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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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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.
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6743-00107
		Application Number	
Title of Invention	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING		
<p>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.</p>			

Secrecy Order 37 CFR 5.2:

<input type="checkbox"/>	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				<input type="button" value="Remove"/>
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Edward		Balassanian		
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Seattle	State/Province	WA	Country of Residence	US
Mailing Address of Inventor:					
Address 1	516 Yale Ave N, #400				
Address 2					
City	Seattle	State/Province	WA		
Postal Code	98109	Country	US		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					<input type="button" value="Add"/>

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
<input type="checkbox"/> An Address is being provided for the correspondence information of this application.	
Customer Number	126601
Email Address	<input type="button" value="Add Email"/> <input type="button" value="Remove Email"/>

Application Information:

Title of the Invention	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING		
Attorney Docket Number	6743-00107	Small Entity Status Claimed	<input type="checkbox"/>
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	6743-00107
	Application Number	
Title of Invention	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING	

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:	<input checked="" type="radio"/> Customer Number	US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)
Customer Number	126601		

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	14230952	2014-03-31

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6743-00107		
		Application Number			
Title of Invention	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING				
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14230952	Continuation of	13911324	2013-06-06	8694683	2014-04-08
Prior Application Status	Abandoned				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
13911324	Continuation of	13236090	2011-09-19		
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13236090	Continuation of	10636314	2003-08-06	8055786	2011-11-08
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10636314	Continuation of	09474664	1999-12-29	6629163	2003-09-30
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 Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)	Remove
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

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6743-00107
	Application Number	
Title of Invention	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING	

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	6743-00107
	Application Number	
Title of Invention	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING	

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6743-00107
	Application Number	
Title of Invention	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING	

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	<input type="button" value="Remove"/>
<p>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.</p>		
<input type="button" value="Clear"/>		
<input checked="" type="radio"/> Assignee	<input type="radio"/> Legal Representative under 35 U.S.C. 117	<input type="radio"/> 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:		
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
Name of the Deceased or Legally Incapacitated Inventor: <input type="text"/>		
If the Applicant is an Organization check here. <input checked="" type="checkbox"/>		
Organization Name	<input type="text" value="Implicit, LLC"/>	
Mailing Address Information For Applicant:		
Address 1	<input type="text" value="516 Yale Avenue N"/>	
Address 2	<input type="text" value="Suite 400"/>	
City	<input type="text" value="Seattle"/>	State/Province <input type="text" value="WA"/>
Country <input type="text" value="US"/>	Postal Code	<input type="text" value="98109"/>
Phone Number	<input type="text"/>	Fax Number <input type="text"/>
Email Address	<input type="text"/>	
Additional Applicant Data may be generated within this form by selecting the Add button. <input type="button" value="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.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6743-00107
	Application Number	
Title of Invention	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING	

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	/Dean M. Munyon/		Date (YYYY-MM-DD)	2016-02-22	
First Name	Dean M.	Last Name	Munyon	Registration Number	42914

Additional Signature may be generated within this form by selecting the Add button.

Add

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6743-00107
	Application Number	
Title of Invention	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING	

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 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.

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.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	
Filing Date	February 22, 2016
First Named Inventor	Edward Balassanian
Title	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
Art Unit	
Examiner Name	
Attorney Docket Number	6743-00107

SIGNATURE of Applicant or Patent Practitioner

Signature	/Dean M. Munyon/	Date (Optional)	February 22, 2016
Name	Dean M. Munyon	Registration Number	42,914
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) 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.**

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

(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:

126601

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):

- 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	/Edward Balassanian/	Date (Optional)	
Name	Edward Balassanian		
Title	Manager, Implicit, 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.**

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 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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Art Unit	
	Examiner Name	
	Attorney Docket Number	6743-00107

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						

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS							Remove
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						

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS								Remove
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							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS							Remove
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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number			
	Filing Date		2016-02-22	
	First Named Inventor	Edward Balassanian		
	Art Unit			
	Examiner Name			
	Attorney Docket Number		6743-00107	

1		2015 WL 2194627, United States District Court, N.D. California, Implicit L.L.C., Plaintiff, v. F5 Networks, Inc., Defendant, Case No. 14-cv-02856-SI, signed May 6, 2015, 14 pages.	
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If you wish to add additional non-patent literature document citation information please click the Add button

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			
Filing Date		2016-02-22	
First Named Inventor	Edward Balassanian		
Art Unit			
Examiner Name			
Attorney Docket Number		6743-00107	

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	/Dean M. Munyon/	Date (YYYY-MM-DD)	2016-02-22
Name/Print	Dean M. Munyon	Registration Number	42914

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 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 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.

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 15/050,027	Filing Date 02/22/2016	<input type="checkbox"/> To be Mailed
---	---	----------------------------------	---------------------------------------

ENTITY: LARGE SMALL MICRO

APPLICATION AS FILED – PART I

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	
<input type="checkbox"/> 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 \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
<input type="checkbox"/> 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).			
<input type="checkbox"/> 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)	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
AMENDMENT	02/22/2016	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR			
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X \$80 = 0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$420 = 0
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))					
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

	(Column 1)	(Column 2)	(Column 3)	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR			
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))					
<input type="checkbox"/> 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.
 ** 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 number found in the appropriate box in column 1.

LIE
/ROZENIA HARMON/

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.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
15/050,027

APPLICATION AS FILED - PART I

(Column 1) (Column 2)

FOR	NUMBER FILED	NUMBER EXTRA
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A
TOTAL CLAIMS (37 CFR 1.16(j))	20	minus 20 = *
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *
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))		

SMALL ENTITY

RATE(\$)	FEE(\$)
N/A	
N/A	
N/A	
TOTAL	

OR OTHER THAN SMALL ENTITY

RATE(\$)	FEE(\$)
N/A	280
N/A	600
N/A	720
x 80 =	0.00
x 420 =	0.00
	0.00
	0.00
TOTAL	1600

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED - PART II

(Column 1) (Column 2) (Column 3)

AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total (37 CFR 1.16(j))	*	Minus	**	=
Independent (37 CFR 1.16(h))	*	Minus	***	=	
Application Size Fee (37 CFR 1.16(s))					
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					

SMALL ENTITY

RATE(\$)	ADDITIONAL FEE(\$)
x =	
x =	
TOTAL ADD'L FEE	

OR OTHER THAN SMALL ENTITY

RATE(\$)	ADDITIONAL FEE(\$)
x =	
x =	
TOTAL ADD'L FEE	

(Column 1) (Column 2) (Column 3)

AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total (37 CFR 1.16(j))	*	Minus	**	=
Independent (37 CFR 1.16(h))	*	Minus	***	=	
Application Size Fee (37 CFR 1.16(s))					
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					

SMALL ENTITY

RATE(\$)	ADDITIONAL FEE(\$)
x =	
x =	
TOTAL ADD'L FEE	

OR OTHER THAN SMALL ENTITY

RATE(\$)	ADDITIONAL FEE(\$)
x =	
x =	
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.



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Table with 7 columns: APPLICATION NUMBER, FILING or 371(c) DATE, GRP ART UNIT, FIL FEE REC'D, ATTY. DOCKET NO, TOT CLAIMS, IND CLAIMS. Row 1: 15/050,027, 02/22/2016, 2447, 1600, 6743-00107, 20, 3

CONFIRMATION NO. 1056

FILING RECEIPT

126601
MHKKG (Implicit/BeLabs)
P.O. Box 398
Austin, TX 78767-0398



Date Mailed: 03/09/2016

Receipt is acknowledged of this non-provisional 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 APPLICANT, 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 Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections 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

Inventor(s)

Edward Balassanian, Seattle, WA;

Applicant(s)

Implicit, LLC, Seattle, WA;

Power of Attorney: The patent practitioners associated with Customer Number 126601

Domestic Priority data as claimed by applicant

This application is a CON of 14/230,952 03/31/2014 PAT 9270790
which is a CON of 13/911,324 06/06/2013 PAT 8694683
which is a CON of 13/236,090 09/19/2011 ABN
which is a CON of 10/636,314 08/06/2003 PAT 8055786
which is a CON of 09/474,664 12/29/1999 PAT 6629163

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: 03/07/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/050,027**

Projected Publication Date: 06/16/2016

Non-Publication Request: No

Early Publication Request: No

Title

METHOD AND SYSTEM FOR DATA DEMULTIPLEXING

Preliminary Class

709

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).

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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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.

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NOT GRANTED

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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
15/050,027 02/22/2016 Edward Balassanian 6743-00107 1056

126601 7590 03/21/2016
MHKKG (Implicit/BeLabs)
P.O. Box 398
Austin, TX 78767-0398

EXAMINER

ART UNIT PAPER NUMBER
2447

NOTIFICATION DATE DELIVERY MODE
03/21/2016 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):

patent_docketing@intprop.com
ptomhkg@gmail.com
lori@belabs.net



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Commissioner for Patents
United States Patent and Trademark Office
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Doc Code:
TRACK1.GRANT

Decision Granting Request for Prioritized Examination (Track I or After RCE)	Application No.:15/050,027
<p>1. THE REQUEST FILED <u>February 22, 2016</u> IS GRANTED.</p> <p>The above-identified application has met the requirements for prioritized examination</p> <p>A. <input checked="" type="checkbox"/> for an original nonprovisional application (Track I).</p> <p>B. <input type="checkbox"/> for an application undergoing continued examination (RCE).</p> <p>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:</p> <p>A. filing a <u>petition for extension of time</u> to extend the time period for filing a reply;</p> <p>B. filing an <u>amendment to amend the application to contain more than four independent claims, more than thirty total claims</u>, or a multiple dependent claim;</p> <p>C. filing a <u>request for continued examination</u>;</p> <p>D. filing a notice of appeal;</p> <p>E. filing a request for suspension of action;</p> <p>F. mailing of a notice of allowance;</p> <p>G. mailing of a final Office action;</p> <p>H. completion of examination as defined in 37 CFR 41.102; or</p> <p>I. abandonment of the application.</p> <p>Telephone inquiries with regard to this decision should be directed to Kimberly Inabinet at 571-272-4618.</p> <p><i>/Kimberly Inabinet/</i> Paralegal Specialist, Office of Petitions</p>	

Office of Petitions: Routing Sheet



Application No. 15/050,027

This application is being forwarded to your office for further processing. A decision has been rendered on a petition filed in this application, as indicated below. For details of this decision, please see the document PET.OP.DEC filed on the same date as this document.

GRANTED

DISMISSED

DENIED

Office of Petitions: Decision Count Sheet

Mailing Month

Application No.

15050027



For US serial numbers: enter number only, no slashes or commas. Ex: 10123456

For PCT: enter "51+single digit of year of filing+last 5 numbers", Ex. for PCT/US05/12345, enter 51512345

Deciding Official:

Kimberly Inabinet

Count (1) - Palm Credit

15/050,027

FINANCE WORK NEEDED

Decision: GRANT

Select Check Box for YES



Decision Type: 643 - Track One request



Notes:

Count (2)

FINANCE WORK NEEDED

Decision: n/a

Select Check Box for YES

Decision Type: NONE

Notes:

Count (3)

FINANCE WORK NEEDED

Decision: n/a

Select Check Box for YES

Decision Type: NONE

Notes:

Initials of Approving Official (if required)

If more than 3 decisions, attach 2nd count sheet & mark this box

Printed on: 3/16/2016

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT
(Sheet 1 of 14)***Complete if Known*

Application Number	15/050,027
Filing Date	2016-02-22
First Named Inventor	Edward Balassanian
Group Art Unit	2447
Examiner Name	

U.S. PATENTS

Examiner Initial	Cite No.	Patent Number	Name of Patentee Or Applicant Of Cited Document	Issue Date
	1	5,298,674	Yun	03/29/1994
	2	5,414,833	Hershey, et al	05/09/1995
	3	5,627,997	Pearson et al	05/06/1997
	4	5,761,651	Hasebe	06/02/1998
	5	5,826,027	Pedersen et al	10/20/1998
	6	5,835,726	Shwed et al	11/10/1998
	7	5,848,233	Radia et al	12/08/1998
	8	5,848,415	Guck	12/08/1998
	9	5,854,899	Callon et al	12/29/1998
	10	5,898,830	Wesinger, Jr. et al	04/27/1999
	11	6,091,725	Cheriton et al	07/18/2000
	12	6,104,500	Alam, et al	08/15/2000
	13	6,119,236	Shipley	09/12/2000
	14	6,141,749	Coss et al	10/31/2000
	15	6,226,267	Spinney, et al	05/01/2001
	16	6,243,667	Kerr et al	06/05/2001
	17	6,401,132	Bellwood et al	06/04/2002
	18	6,426,943	Spinney et al	07/30/2002
	19	6,519,636	Engel et al	02/11/2003
	20	6,598,034	Kloth	07/22/2003
	21	6,651,099	Dietz et al	11/18/2003
	22	6,678,518	Eerola	01/13/2004
	23	6,680,922	Jorgensen	01/20/2004
	24	6,701,432	Deng et al	03/02/2004
	25	6,871,179	Kist et al	03/22/2005
	26	6,889,181	Kerr et al	05/03/2005

FOREIGN PATENT DOCUMENTS

Examiner Initial	Cite No.	Foreign Document No.	Country Code	Name of Patentee or Applicant of cited Document	Publication Date
	27	0817031	EP	Brad Fowlow	01/07/1998

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT
(Sheet 2 of 14)**
Complete if Known

Application Number	15/050,027
Filing Date	2016-02-22
First Named Inventor	Edward Balassanian
Group Art Unit	2447
Examiner Name	

Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
	28	Alexander, D. et al., "The SwitchWare Active Network Architecture", June 6, 1998, IEEE
	29	Antoniazzi, S. et al., "An Open Software Architecture for Multimedia Consumer Terminals", Central Research Labs, Italy; Alcatel SEL Research Centre, Germany, ECMAST 1997
	30	Arbanowski, Stefan, "Generic Description of Telecommunication Services and Dynamic Resource Selection in Intelligent Communication Environments", Thesis, Technische Universitat Berlin, October 9, 1996 (3 documents)
	31	Arbanowski, S., et al., "Service Personalization for Unified Messaging Systems, July 6-8, 1999, The Fourth IEEE Symposium on Computers and Communications, ISCC '99, Red Sea, Egypt
	32	Atkinson, R., "Security Architecture for the Internet Protocol", August 1995, Naval Research Laboratory
	33	Atkinson, R., "IP Authentication Header", August 1995, Naval Research Laboratory
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Filing Date	2016-02-22
First Named Inventor	Edward Balassanian
Group Art Unit	2447
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(Sheet 4 of 14)**

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Application Number	15/050,027
Filing Date	2016-02-22
First Named Inventor	Edward Balassanian
Group Art Unit	2447
Examiner Name	

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	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
	Examiner Name	

Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
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	143	2/4/08 Plaintiff's Original Complaint
	144	8/26/08 Defendant NVIDIA Corporation's Answer to Complaint
	145	8/26/08 Defendant Sun Microsystems, Inc.'s Answer to Complaint
	146	8/27/08 Defendant Advanced Micro Devices, Inc.'s Answer to Complaint for Patent Infringement
	147	8/27/08 RealNetworks, Inc.'s Answer to Implicit Networks, Inc.'s Original Complaint for Patent Infringement, Affirmative Defenses, and Counterclaims
	148	8/27/08 Intel Corp.'s Answer, Defenses and Counterclaims
	149	8/27/08 Defendant RMI Corporation's Answer to Plaintiff's Original Complaint
	150	9/15/08 Plaintiff's Reply to NVIDIA Corporation's Counterclaims
	151	9/15/08 Plaintiff's Reply to Sun Microsystems Inc.'s Counterclaims
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	153	9/16/08 Plaintiff's Reply to Intel Corp.'s Counterclaims
	154	12/10/08 Order granting Stipulated Motion for Dismissal with Prejudice re NVIDIA Corporation, Inc.
	155	12/16/08 Defendants AMD, RealNetworks, RMI, and Sun's Motion to Stay Pending the Patent and Trademark Office's Reexamination of the '163 Patent
	156	12/29/08 Order granting Stipulated Motion for Dismissal without Prejudice of Claims re Sun Microsystems, Inc.
	157	1/5/09 Plaintiff's Opposition to Defendants AMD, RealNetworks, RMI, and Sun's Motion to Stay Pending Reexamination and Exhibit A
	158	1/9/09 Reply of Defendants AMD, RealNetworks, RMI, and Sun's Motion to Stay Pending the Patent and Trademark Office's Reexamination of the '163 Patent
	159	2/9/09 Order Granting Stay Pending the United States Patent and Trademark Office's Reexamination of U.S. Patent No. 6,629,163
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	161	5/14/09 Order Granting Stipulated Motion for Dismissal of RMI Corporation with Prejudice
	162	10/13/09 Order Granting Stipulated Motion for Dismissal of Claims Against and Counterclaims by Intel Corporation
	163	10/30/09 Executed Order for Stipulated Motion for Dismissal of Claims Against and Counterclaims by RealNetworks, Inc.
		<i>Implicit Networks, Inc. v. Microsoft Corp.</i>, C09-5628 HLR; USDC for the Northern District of California, San Francisco Division
	164	11/30/09 Plaintiff's Original Complaint, <i>Implicit v Microsoft</i> , Case No. 09-5628
	165	01/22/10 Order Dismissing Case, <i>Implicit v Microsoft</i> , Case No. 09-5628
		<i>Implicit Networks, Inc. v. Cisco Systems, Inc.</i>, C10-3606 HRL; USDC for the Northern District of California, San Francisco Division
	166	08/16/10 Plaintiff's Original Complaint, <i>Implicit v Cisco</i> , Case No. 10-3606
	167	11/22/10 Defendant Cisco Systems, Inc.'s Answer and Counterclaims, <i>Implicit v Cisco</i> , Case No. 10-3606
	168	12/13/10 Plaintiff, Implicit Networks, Inc.'s, Answer to Counterclaims, <i>Implicit v Cisco</i> , Case No. 10-3606
	169	10/04/11 Order of Dismissal with Prejudice, <i>Implicit v Cisco</i> , Case No. 10-3606
		<i>Implicit Networks, Inc. v. Citrix Systems, Inc.</i>, C10-3766 JL; USDC for the Northern District of California, San Francisco Division
	170	08/24/10 Plaintiff's Original Complaint, <i>Implicit v Citrix</i> , Case No. 10-3766
	171	12/01/10 Plaintiff's First Amended Complaint, <i>Implicit v Citrix</i> , Case No. 10-3766

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 7 of 14)	<i>Complete if Known</i>	
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	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
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	172	01/14/11 Defendant Citrix Systems, Inc.'s Answer, Defenses and Counter-complaint for Declaratory Judgment, <i>Implicit v Citrix</i> , Case No. 10-3766
	173	02/18/11 Plaintiff, <i>Implicit Networks, Inc.</i> 's, Answer to Defendants Counterclaims, <i>Implicit v Citrix</i> , Case No. 10-3766
Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
	174	05/02/11 Order of Dismissal, <i>Implicit v Citrix</i> , Case No. 10-3766
		<i>Implicit Networks, Inc. v. F5 Networks, Inc., C10-3365 JCS; USDC for the Northern District of California, San Francisco Division</i>
	175	07/30/10 Plaintiff's Original Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	176	10/13/10 Defendants' Answer and Counter-Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	177	11/03/10 Plaintiff's Answer to Counter-Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	178	12/10/10 Plaintiff's First Amended Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	179	01/14/11 Defendants' Answer to 1 st Amended Complaint and Counterclaim, <i>Implicit v F5</i> , Case No. 10-3365
	180	02/18/11 Plaintiff's Answer to F5's Amended Counter-Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	181	04/18/11 Defendants' Amended Answer to 1 st Amended Complaint and Counter-Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	182	05/05/11 Plaintiff's Answer to F5's Amended Counter-Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	183	07/22/11 F5 Networks, Inc.'s Invalidity Contentions, <i>Implicit v F5</i> , Case No. 10-3365
	184	07/22/11 F5 Networks, Inc.'s Invalidity Contentions, Exhibit A, <i>Implicit v F5</i> , Case No. 10-3365 (31 documents)
	185	07/22/11 F5 Networks, Inc.'s Invalidity Contentions, Exhibit B, <i>Implicit v F5</i> , Case No. 10-3365
	186	10/18/11 Joint Claim Construction & Pre-Hearing Statement (PR 4-3), <i>Implicit v F5</i> , Case No. 10-3365
	187	10/18/11 Joint Claim Construction & Pre-Hearing Statement (PR 4-3) Exhibit A, <i>Implicit v F5</i> , Case No. 10-3365 (2 documents)
	188	11/28/11 Plaintiff's Opening Claim Construction Brief, <i>Implicit v F5</i> , Case No. 10-3365
	189	11/29/11 Amended Joint Claim Construction & Pre-Hearing Statement, <i>Implicit v F5</i> , Case No. 10-3365
	190	11/29/11 Amended Joint Claim Construction & Pre-Hearing Statement, Exhibit A, <i>Implicit v F5</i> , Case No. 10-3365
	191	12/12/11 Defendants' Claim Construction Brief, <i>Implicit v F5</i> , Case No. 10-3365
	192	12/19/11 Plaintiff's Reply to Defendants' (F5, HP, Juniper) Responsive Claim Construction Brief (4-5), <i>Implicit v F5</i> , Case No. 10-3365
	193	01/27/12 Transcript of Proceeding Held on 1-17-12; <i>Implicit v F5</i> , Case No. 10-3365
	194	01/27/12 Transcript of Proceeding Held on 1-18-12; <i>Implicit v F5</i> , Case No. 10-3365
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	196	02/29/12 Claim Construction Order
	197	08/15/12 Storer Invalidity Report
	198	09/10/12 <i>Implicit</i> 's Expert Report of Scott M. Nettles
	199	03/13/13 Order Granting Defendants' Motion for Summary Judgment
	200	04/09/13 Notice of Appeal to the Federal Circuit
		<i>Implicit Networks, Inc. v. Hewlett-Packard Company, C10-3746 JCS: USDC for the Northern District of California, San Francisco Division</i>
	201	08/23/10 Plaintiff's Original Complaint, <i>Implicit v HP</i> , Case No. 10-3746
	202	11/23/10 Plaintiff's First Amended Complaint, <i>Implicit v HP</i> , Case No. 10-3746
	203	01/14/11 Defendant HP's Answer and Counterclaims, <i>Implicit v HP</i> , Case No. 10-3746
	204	02/18/11 <i>Implicit Networks, Inc.</i> 's Answer to HP Counterclaims, <i>Implicit v HP</i> , Case No. 10-3746
	205	05/10/11 Plaintiff's Amended Disclosure of Asserted Claims and Infringement Contentions, Case No. 10-3746
	206	06/30/11 Defendant HP Company's Invalidity Contentions, <i>Implicit v HP</i> , Case No. 10-3746
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		<i>Implicit Networks, Inc. v. Juniper Networks, C10-4234 EDL: USDC for the Northern District of California, San Francisco</i>

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		Division
	209	09/20/10 Plaintiff's Original Complaint, <i>Implicit v Juniper</i> , Case No. 10-4234
	210	11/12/10 Juniper Network's Motion to Dismiss For Failure to State a Claim Under Rule 12(B)(6): Memorandum of Points and Authorities; <i>Implicit v Juniper</i> , Case No. 10-4234
Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
	211	11/12/10 Juniper Network's Request for Judicial Notice in Support of its Motion to Dismiss For Failure to State a Claim Under Rule 12(B)(6): Memorandum of Points and Authorities; <i>Implicit v Juniper</i> , Case No. 10-4234
	212	12/01/10 First Amended Complaint; <i>Implicit v Juniper</i> , Case No. 10-4234
	213	01/18/11 Juniper Networks, Inc.'s Answer and Affirmative Defenses to 1 st Amended Complaint, <i>Implicit v Juniper</i> , Case No. 10-4234
	214	02/18/11 Plaintiff's Answer to Defendant's Counterclaims, <i>Implicit v Juniper</i> , Case No. 10-4234
	215	05/23/11 Plaintiff's Disclosure of Asserted Claims and Infringement Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	216	11/15/11 Plaintiff's Amended Disclosure of Asserted Claim and Infringement Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	217	11/28/11 Spencer Hosie Declaration in Support of Plaintiff's Opening Claim Construction Brief, <i>Implicit v Juniper</i> , Case No. 10-4234
	218	11/28/11 Spencer Hosie Declaration in Support of Plaintiff's Opening Claim Construction Brief Exhibit E, <i>Implicit v Juniper</i> , Case No. 10-4234
	219	11/28/11 Spencer Hosie Declaration in Support of Plaintiff's Opening Claim Construction Brief Exhibit J, <i>Implicit v Juniper</i> , Case No. 10-4234
	220	11/28/11 Spencer Hosie Declaration in Support of Plaintiff's Opening Claim Construction Brief Exhibit K, <i>Implicit v Juniper</i> , Case No. 10-4234
	221	11/28/11 Spencer Hosie Declaration in Support of Plaintiff's Opening Claim Construction Brief Exhibits M-O, <i>Implicit v Juniper</i> , Case No. 10-4234
	222	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, <i>Implicit v Juniper</i> , Case No. 10-4234
	223	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit B, <i>Implicit v Juniper</i> , Case No. 10-4234
	224	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit F, <i>Implicit v Juniper</i> , Case No. 10-4234
	225	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit N, <i>Implicit v Juniper</i> , Case No. 10-4234
	226	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit P, <i>Implicit v Juniper</i> , Case No. 10-4234
	227	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit Q, <i>Implicit v Juniper</i> , Case No. 10-4234
	228	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit S., <i>Implicit v Juniper</i> , Case No. 10-4234
	229	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit T-1, <i>Implicit v Juniper</i> , Case No. 10-4234
	230	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit T-2, <i>Implicit v Juniper</i> , Case No. 10-4234
	231	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit T-3, <i>Implicit v Juniper</i> , Case No. 10-4234
	232	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit T-4, <i>Implicit v Juniper</i> , Case No. 10-4234
	233	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit U, <i>Implicit v Juniper</i> , Case No. 10-4234
	234	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit V, <i>Implicit v Juniper</i> , Case No. 10-4234
	235	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit W, <i>Implicit v Juniper</i> , Case No. 10-4234

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	Examiner Name	

	236	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit X, <i>Implicit v Juniper</i> , Case No. 10-4234
Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
	237	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit Y-1, <i>Implicit v Juniper</i> , Case No. 10-4234
	238	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit Y-2, <i>Implicit v Juniper</i> , Case No. 10-4234
	239	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit Y-3, <i>Implicit v Juniper</i> , Case No. 10-4234
	240	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit Y-4, <i>Implicit v Juniper</i> , Case No. 10-4234
	241	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit Z, <i>Implicit v Juniper</i> , Case No. 10-4234
	242	12/19/11 Spencer Hosie Declaration in Support of Plaintiff's Reply Claim Construction Brief, <i>Implicit v Juniper</i> , Case No. 10-4234
	243	12/19/11 Spencer Hosie Declaration in Support of Plaintiff's Reply Claim Construction Brief, Exhibit P, <i>Implicit v Juniper</i> , Case No. 10-4234
	244	01/10/12 Plaintiff's 1-10-12 Amended Disclosure of Asserted Claims and Infringement Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	245	02/10/12 Juniper Networks, Inc.'s Supplemental Invalidity Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	246	02/10/12 Juniper Networks, Inc.'s Supplemental Invalidity Contentions, Exhibit A1, <i>Implicit v Juniper</i> , Case No. 10-4234
	247	02/10/12 Juniper Networks, Inc.'s Supplemental Invalidity Contentions, Exhibit A2, <i>Implicit v Juniper</i> , Case No. 10-4234
	248	02/10/12 Juniper Networks, Inc.'s Supplemental Invalidity Contentions, Exhibit A3, <i>Implicit v Juniper</i> , Case No. 10-4234
	249	02/10/12 Juniper Networks, Inc.'s Supplemental Invalidity Contentions, Exhibit A4, <i>Implicit v Juniper</i> , Case No. 10-4234
	250	02/10/12 Juniper Networks, Inc.'s Supplemental Invalidity Contentions, Exhibit B1, <i>Implicit v Juniper</i> , Case No. 10-4234
	251	02/29/12 Plaintiff's 2-29-12 Amended Disclosure of Asserted Claims and Infringement Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	252	04/06/12 Plaintiff's 4-6-12 Amended Disclosure of Asserted Claims and Infringement Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	253	04/09/12 Plaintiff's 4-9-12 Amended Disclosure of Asserted Claims and Infringement Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	254	09/11/12 <i>Implicit's</i> Expert Report of Scott Nettles
	255	11/09/12 Juniper's Notice of Motion and Memorandum of Law ISO Motion for Summary Judgment or, in the alternative, for Partial Summary Judgment, on the Issue of Invalidity
	256	11/09/12 Exhibit 2 to Declaration in support of Juniper's Motion for Summary Judgment – Calvert Expert Report
	257	11/09/12 Exhibit 3 to Declaration in support of Juniper's Motion for Summary Judgment – Calvert Supplemental Expert Report
	258	11/26/12 <i>Implicit</i> Opposition to Juniper's and F5 Motion on Invalidity
	259	11/26/12 Exhibit A to Hosie Declaration- 08/27/12 Excerpts from David Blaine deposition
	260	11/26/12 Exhibit B to Hosie Declaration– 10/25/12 Excerpts from Kenneth Calvert Deposition
	261	11/26/12 Exhibit C to Hosie Declaration – 08/15/12 Excerpts from Kenneth Calvert Expert Report
	262	11/26/12 Exhibit D to Hosie Declaration – USPN 6,651,099 to Dietz et al
	263	11/26/12 Exhibit E to Hosie Declaration – Understanding Packet-Based and Flow-Based Forwarding
	264	11/26/12 Exhibit F to Hosie Declaration – Wikipedia on Soft State
	265	11/26/12 Exhibit G to Hosie Declaration – Sprint Notes
	266	11/26/12 Exhibit H to Hosie Declaration – <i>Implicit's</i> Supplemental Response to Juniper's 2 nd Set of Interrogatories
	267	11/26/12 Exhibit I to Hosie Declaration – USPN 7,650,634 (Zuk)
	268	03/13/13 Order Granting Defendants' Motion for Summary Judgment
	269	04/09/13 Notice of Appeal to the Federal Circuit

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 10 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
	Examiner Name	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 11 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
	Examiner Name	

Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
		Other Implicit Networks, Inc. Prosecution Matters:
	270	Serial No. 11/933,022 Utility Application filed October 31, 2007
	271	Serial No. 11/933,022 Preliminary Amendment filed February 19, 2008
	272	Serial No. 11/933,022 Office Action mailed June 24, 2009
	273	Serial No. 11/933,022 Amendment filed September 24, 2009
	274	Serial No. 11/933,022 Office Action dated December 11, 2009
	275	Serial No. 11/933,022 Amendment and Response dated January 29, 2010
	276	Serial No. 11/933,022 Notice of Allowance dated March 2, 2010
	277	Serial No. 11/933,022 Issue Notification dated May 4, 2010
	278	Serial No.10/636,314 Utility Application filed August 6, 2003
	279	Serial No.10/636,314 Office Action dated April 7, 2008
	280	Serial No.10/636,314 Response to Restriction Requirement dated August 5, 2008
	281	Serial No.10/636,314 Office Action dated October 3, 2008
	282	Serial No.10/636,314 Response to Office Action dated April 3, 2009
	283	Serial No.10/636,314 Notice of Non-Compliant Amendment dated May 4, 2009
	284	Serial No.10/636,314 Amendment to Office Action Response dated June 4, 2009
	285	Serial No.10/636,314 Notice of Non-Compliant Amendment dated June 12, 2009
	286	Serial No.10/636,314 Amendment to Office Action dated July 10, 2009
	287	Serial No.10/636,314 Final Rejection Office Action dated October 21, 2009
	288	Serial No.10/636,314 Amendment after Final Office Action dated December 14, 2009
	289	Serial No.10/636,314 Advisory Action dated January 11, 2010
	290	Serial No.10/636,314 Notice of Non-Compliant Amendment dated January 11, 2010
	291	Serial No.10/636,314 Supplemental Amendment and Response dated March 13, 2010
	292	Serial No.10/636,314 Office Action dated May 11, 2010
	293	Serial No.10/636,314 Amendment and Response dated September 13, 2010
	294	Serial No.10/636,314 Final Rejection dated November 24, 2010
	295	Serial No.10/636,314 Notice of Appeal dated May 19, 2011
	296	Serial No.10/636,314 Amendment and Request for Continued Examination dated July 19, 2011
	297	Serial No.10/636,314 Notice of Allowance dated September 13, 2011
	298	Serial No.10/636,314 Notice of Allowance dated September 19, 2011
	299	Serial No.10/636,314 Issue Notification dated October 19, 2011
	300	Serial No. 09/474,664 Utility Application filed December 29, 1999
	301	Serial No. 09/474,664 Office Action dated September 23, 2002
	302	Serial No. 09/474,664 Amendment and Response dated February 24, 2003
	303	Serial No. 09/474,664 Notice of Allowance dated May 20, 2003
	304	Serial No. 90/010, 356 Request for Ex Parte Reexamination dated December 15, 2008
	305	Serial No. 90/010, 356 Office Action Granting Reexamination dated January 17, 2009
	306	Serial No. 90/010, 356 First Office Action dated July 7, 2009
	307	Serial No. 90/010, 356 First Office Action Response dated September 1, 2009
	308	Serial No. 90/010, 356 Patent Owner Interview Summary dated October 23, 2009
	309	Serial No. 90/010, 356 Office Action Final dated December 4, 2009
	310	Serial No. 90/010, 356 Amendment and Response to Office Action dated December 18, 2009
	311	Serial No. 90/010, 356 Amendment and Response to Office Action dated January 4, 2010

*

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 12 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
Examiner Name		

Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
	312	Serial No. 90/010, 356 Advisory Action dated January 21, 2010
	313	Serial No. 90/010, 356 Amendment and Response to Advisory Action dated February 8, 2010
	314	Serial No. 90/010, 356 Notice of Intent to Issue a Reexam Certificate dated March 2, 2010
	315	Serial No. 90/010, 356 Reexamination Certificate Issued dated June 22, 2010
	316	Serial No. 95/000,659 Inter Partes Reexam Request dated February 13, 2012
	317	Serial No. 95/000,659 Order Granting Reexamination dated April 3, 2012
	318	Serial No. 95/000,659 Office Action dated April 3, 2012
	319	Serial No. 95/000,659 Office Action Response dated June 4, 2012 (including Exhibits 1 & 2) (4 documents)
	320	Serial No. 95/000,659 Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012
	321	Serial No. 95/000,659 Appendix R-1 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Declaration of Prof. Dr. Bernhard Plattner)
	322	Serial No. 95/000,659 Appendix R-2 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Prof. Dr. Bernhard Plattner CV)
	323	Serial No. 95/000,659 Appendix R-3 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Listing of Publications to Prof. Dr. Bernhard Plattner updated February 2012)
	324	Serial No. 95/000,659 Appendix R-4 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Office Action Granting Reexamination in 95/000,660 dated May 10, 2012)
	325	Serial No. 95/000,659 Appendix R-5 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Office Action in 95/000,660 dated May 10, 2012)
	326	Serial No. 95/000,659 Appendix R-6 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Implicit Networks, Inc. USPN 6,629,163 Claims Chart)
	327	Serial No. 95/000,659 Appendix R-7 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Internet Protocol DARPA Internet Program Protocol Specification dated September 1991)
	328	Serial No. 95/000,659 Appendix R-8 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Atkinson, "IP Encapsulating Security Payload (ESP) dated August 1995)
	329	Serial No. 95/000,659 Appendix R-9 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Claim Construction Order dated February 29, 2012)
	330	Serial No. 95/000,659 Appendix R-10-1 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Vol. I of Edward Balassanian Deposition Transcript dated May 30, 2012)
	331	Serial No. 95/000,659 Appendix R-10-2 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Vol. II of Edward Balassanian Deposition Transcript dated May 31, 2012)
	332	Serial No. 95/000,659 Appendix R-10-3 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Vol. III of Edward Balassanian Deposition Transcript dated June 7, 2012)
	333	Serial No. 95/000,659 Appendix R-10-4 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Vol. IV of Edward Balassanian Deposition Transcript dated June 8, 2012)
	334	Serial No. 95/000,659 Appendix R-11 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Implicit Networks, Inc.'s Response to Juniper Networks, Inc.'s First Set of Requests for Admission 1-32)
	335	Serial No. 95/000,659 Action Closing Prosecution dated October 1, 2012
	336	Serial No. 95/000,659 Petition to Withdraw and Reissue Action Closing Prosecution dated November 20, 2012
	337	Serial No. 95/000,659 Patent Owner Comments to Action Closing Prosecution dated December 3, 2012
	338	Serial No. 95/000,659 Opposition to Petition dated December 17, 2012
	339	Serial No. 95/000,659 Third Party Comments to Action Closing Prosecution dated January 2, 2013
	340	Serial No. 95/000,660 Inter Partes Reexam Request dated March 2, 2012
	341	Serial No. 95/000,660 Order Granting Reexamination dated May 10, 2012

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 13 of 14)	<i>Complete if Known</i>
Application Number	15/050,027
Filing Date	2016-02-22
First Named Inventor	Edward Balassanian
Group Art Unit	2447
Examiner Name	

Examiner Initials*	Cite No.	Include name of author (in CAPTIAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
	342	Serial No. 95/000,660 Office Action dated May 10, 2012
	343	Serial No. 95/000,660 Response to Office Action dated July 10, 2012 (including Exhibits 1 and 2)
	344	Serial No. 95/000,660 Third Party Comments to Office After Patent Owner's Response dated August 8, 2012 (including Revised Comments)
	345	Serial No. 95/000,660 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Declaration of Prof. Dr. Bernhard Plattner)
	346	Serial No. 95/000,660 Appendix R-1 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Prof. Dr. Bernhard Plattner CV)
	347	Serial No. 95/000,660 Appendix R-3 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Listing of Publications to Prof. Dr. Bernhard Plattner updated February 2012)
	348	Serial No. 95/000,660 Appendix R-4 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Office Action Granting Reexamination in 95/000,660 dated May 10, 2012)
	349	Serial No. 95/000,660 Appendix R-5 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Office Action in 95/000,660 dated May 10, 2012)
	350	Serial No. 95/000,660 Appendix R-6 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Implicit Networks, Inc. USPN 6,629,163 Claims Chart)
	351	Serial No. 95/000,660 Appendix R-7 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Internet Protocol DARPA Internet Program Protocol Specification dated September 1991)
	352	Serial No. 95/000,660 Appendix R-8 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Atkinson, "IP Encapsulating Security Payload (ESP) dated August 1995)
	353	Serial No. 95/000,660 Appendix R-9 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Claim Construction Order dated February 29, 2012)
	354	Serial No. 95/000,660 Appendix R-10 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Vol. I-IV of Edward Balassanian Deposition Transcript dated May 30, 2012)
	355	Serial No. 95/000,660 Appendix R-11 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Shacham, A., et al, "IP Payload Compression Protocol", Network Working Group, RFC 3173 September 2001)
	356	Serial No. 95/000,660 Appendix R-12 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Shacham, A., et al, "IP Payload Compression Protocol", Network Working Group, RFC 2393 December 1998)
	357	Serial No. 95/000,660 Appendix R-13 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 ('163 Pfeiffer Claim Chart)
	358	Serial No. 95/000,660 Appendix R-14 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Ylonen, T., "SSH Transport Layer Protocol", Network Working Group – Draft February 22, 1999)
	359	Serial No. 95/000,660 Appendix R-15 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Dommety, G., "Key and Sequence Number Extensions to GRE", Network Working Group, RFC 2890 September 2000)
	360	Serial No. 95/000,660 Appendix R-16 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Monsour, R., et al, "Compression in IP Security" March 1997)
	361	Serial No. 95/000,660 Appendix R-17 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Friend, R., Internet Working Group RFC 3943 dated November 2004 "Transport Layer Security Protocol Compression Using Lempel-Ziv-Stac)
	362	Serial No. 95/000,660 Appendix R-18 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Implicit Networks, Inc.'s Response to Juniper Networks, Inc.'s First Set of Requests for Admission 1-32)
	363	Serial No. 95/000,660 Revised - Third Party Comments to Office After Patent Owner's Response dated November 2, 2012
	364	Serial No. 95/000,660 Action Closing Prosecution dated December 21, 2012
	365	Serial No. 95/000,660 Comments to Action Closing Prosecution dated February 21, 2013 (including Dec of Dr. Ng)
	366	Serial No. 95/000,660 Third Party Comments to Action Closing Prosecution dated March 25, 2013
	367	PCT/US00/33634 – PCT application (WO 01/2077 A2 - 7/12/01)
	368	PCT/US00/33634 – Written Opinion (WO 01/50277 A3 – 2/14/02)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 14 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
	Examiner Name	

369	PCT/US00/33634 – International Search Report (10/9/01)
370	PCT/US00/33634 – Response to Official Communication dated December 7, 2001 (3/21/02)
371	PCT/US00/33634 – International Preliminary Examination Report (4/8/02)
372	PCT/US00/33634 – Official Communication (1/24/03)
373	PCT/US00/33634 – Response to Official Communication dated January 24, 2003 (3/12/03)
374	PCT/US00/33634 – Official Communication (5/13/04)
375	PCT/US00/33634 – Response to Summons to Attend Oral Proceeding dated May 13, 2004 (10/9/04)
376	PCT/US00/33634 – Decision to Refuse a European Patent application (11/12/04)
377	PCT/US00/33634 – Minutes of the oral proceedings before the Examining Division (10/12/04)
378	PCT/US00/33634 – Closure of the procedure in respect to Application No. 00984234.5 – 2212 (2/22/05)
379	05/03/13 Expert Report of Dr. Alfonso Cardenas Regarding Validity of U.S. Patent Nos. 6,877,006; 7,167,864; 7,720,861; AND 8,082,268
	(6 documents)
380	Expert Report of Dr. Alfonso Cardenas Regarding Validity of U.S. Patent No. 7,167,864
	(3 documents)
381	“InfoReports User Guide: Version 3.3.1;” Platinum Technology, Publication No. PRO-X-331-UG00-00, printed April 1998; Pages 1-430.

Examiner Signature:	Date Considered:
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CERTIFICATION STATEMENT	
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.	
Signature: /Dean M. Munyon/	Date: 2016-03-24
Name/Print: Dean M. Munyon	Registration Number: 42,914

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15050027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Art Unit	2447
	Examiner Name	
	Attorney Docket Number	6743-00107

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	6629163		2003-09-30	Balassanian	
	2	6711166		2004-03-23	Amir, et al.	
	3	6785730		2004-08-31	Taylor	
	4	6115393		2000-09-05	Engel, et al.	
	5	7383341		2008-06-03	Saito, et al.	
	6	6259781		2001-07-10	Crouch, et al.	
	7	6151390		2000-11-21	Volftsun, et al.	
	8	6356529		2002-03-12	Zarom	

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

Application Number		15050027
Filing Date		2016-02-22
First Named Inventor	Edward Balassanian	
Art Unit		2447
Examiner Name		
Attorney Docket Number		6743-00107

9	7233569		2007-06-19	Swallow
10	7281036		2007-10-09	Lu, et al.
11	8055786		2011-11-08	Balassanian
12	8694683		2014-04-08	Balassanian
13	5392390		1995-02-21	Crozier
14	5425029		1995-06-13	Hluchyj, et al.
15	5568478		1996-10-22	van Loo, Jr., et al.
16	5710917		1998-01-20	Musa, et al.
17	5768521		1998-06-16	Dedrick
18	5870479		1999-02-09	Feiken, et al.
19	6047002		2000-04-04	Hartmann, et al.

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

Application Number		15050027
Filing Date		2016-02-22
First Named Inventor	Edward Balassanian	
Art Unit		2447
Examiner Name		
Attorney Docket Number		6743-00107

20	6101189		2000-08-08	Tsuruoka
21	6101320		2000-08-08	Schuetze, et al.
22	6104704		2000-08-15	Buhler, et al.
23	6111893		2000-08-29	Volftsun, et al.
24	6128624		2000-10-03	Papierniak, et al.
25	6157622		2000-12-05	Tanaka, et al.
26	6192419		2001-02-20	Aditham, et al.
27	6199054		2001-03-06	Khan, et al.
28	6212550		2001-04-03	Segur
29	6222536		2001-04-24	Kihl, et al.
30	6246678		2001-06-12	Erb, et al.

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

Application Number		15050027
Filing Date		2016-02-22
First Named Inventor	Edward Balassanian	
Art Unit		2447
Examiner Name		
Attorney Docket Number		6743-00107

31	6275507		2001-08-14	Anderson, et al.
32	6278532		2001-08-21	Heimendinger, et al.
33	6359911		2002-03-19	Movshovich, et al.
34	6404775		2002-06-11	Leslie, et al.
35	6405254		2002-06-11	Hadland
36	6493348		2002-12-10	Gelman, et al.
37	6504843		2003-01-07	Cremin, et al.
38	6560236		2003-05-06	Varghese, et al.
39	6574610		2003-06-03	Clayton, et al.
40	6957346		2005-10-18	Kivinen, et al.
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15050027
Filing Date	2016-02-22
First Named Inventor	Edward Balassanian
Art Unit	2447
Examiner Name	
Attorney Docket Number	6743-00107

42	7233948	2007-06-19	Shamoon, et al.
43	7711857	2010-05-04	Balassanian

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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	20080250045		2008-10-09	Balassanian, et al.	
	2	20090265695		2009-10-22	KARINO	
	3	20030142669		2003-07-31	Kubota, et al.	

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	1	0807347	EP		1997-11-19	CHECK POINT SOFTWARE TECH LTD		
	2	0408132	EP		1991-01-16	OCE NEDERLAND BV		

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
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Application Number	15050027	
Filing Date	2016-02-22	
First Named Inventor	Edward Balassanian	
Art Unit	2447	
Examiner Name		
Attorney Docket Number	6743-00107	

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	Non-Final Office Action in Inter Partes Reexamination Control No. 95/000,659 issued August 16, 2013, 107 pages.	
	2	Decision on Petition in Reexamination Control No. 95/000,659 issued August 19, 2013, 3 pages.	
	3	Response to Non-Final Office Action in Reexamination Control No. 95/000,659 mailed October 2, 2013 including Exhibits A-C, 37 pages.	
	4	Decision on Petition in Reexamination Control No. 95/000,660 issued July 30, 2013, 12 pages.	
	5	Non-Final Office Action in Inter Partes Reexamination Control No. 95/000,660 issued August 30, 2013, 23 pages.	
	6	RFC: 791. Internet Protocol: DARPA Internet Program Protocol Specification, September 1981, prepared for Defense Advanced Research Projects Agency Information Processing Techniques Office by Information Sciences Institute University of Southern California, 52 pages.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15050027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Art Unit	2447
	Examiner Name	
	Attorney Docket Number	6743-00107

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EFS ID:	25291508
Application Number:	15050027
International Application Number:	
Confirmation Number:	1056
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
First Named Inventor/Applicant Name:	Edward Balassanian
Customer Number:	126601
Filer:	Dean M. Munyon/Danielle Kramer
Filer Authorized By:	Dean M. Munyon
Attorney Docket Number:	6743-00107
Receipt Date:	24-MAR-2016
Filing Date:	22-FEB-2016
Time Stamp:	10:28:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

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)	6743-00107_IDS_PTO-1449.pdf	268172 <small>2b633b1aeb24b47048ccc4194fd320d38028c6a2</small>	no	14

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2	Information Disclosure Statement (IDS) Form (SB08)	6743-00107_IDS.pdf	613648	no	8
			bfab1ed2171caf359003e03c4b42f629959 da3c5		

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(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication: **07.01.1998** Bulletin 1998/02

(51) Int. Cl.®: **G06F 9/46**

(21) Application number: **97304091.8**

(22) Date of filing: **12.06.1997**

(84) Designated Contracting States:
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE**

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(30) Priority: **03.07.1996 US 675733**

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(54) **Using a distributed object system to find and download java-based applications**

(57) A client enabled to load and run Java applets in a distributed object computing system retrieves needed Java classes in a location-independent manner from various class servers in the system. Initially, the client queries a naming service of the distributed object computing system to determine the class server that contains the base class needed. A connection through an object request broker is made from the client to the class server. The client then requests the code for the base class from the class server by using the object request broker. The class server retrieves the code by either reading a file from its own local file set, or if the code is not local, queries the naming service for another class

server that has access to the code for the base class. This process of finding a class server and determining if the code is local may be recursive as classes may be moved or renamed. The class server then returns this code to the client by way of the object request broker. The client determines whether the returned code contains any unresolved classes, i.e., classes that are used but not yet defined or loaded. The client requests code for any unresolved class in a manner as above for the base class. The client incorporates Java software to run the applets and ORB binding software to enable the software to make calls to the object request broker. A network class loader enables the client to load and resolve classes over a distributed object system.

Description

FIELD OF THE INVENTION

The present invention relates generally to acquiring application program code within a computer system. More specifically, the present invention relates to acquiring Java-based applications within a distributed object system.

BACKGROUND OF THE INVENTION

With the increasing popularity of the Internet, there has been a corresponding increase in the demand to be able to transfer and to view information via the Internet. In general, the Internet is used to communicate with others via electronic mail and also to view information within an international network of computers. One aspect of the Internet is the World Wide Web (the "Web"). Among other uses, the Web is used to access Web sites (or Web pages) of a particular company, organization or person. These Web sites contain information and are available for viewing as part of the World Wide Web. When a user accesses a Web site, typically information from that Web site is downloaded to the user's computer. This information includes graphics, windows, text, photographs, sound, video and other information suitable for passing over a computer network.

Typically, software known as a "Web browser" is used to browse through the Web to search for particular Web sites and information, to connect to a particular Web site, and finally to download the information from that Web site onto the user's computer. A wide variety of Web browsers are available. By way of example, two popular Web browsers are "Netscape" and "Mosaic". When using such a browser to download information from a Web site, the information often appears within a window on the screen of the user's computer. And it is then often desirable to also load executable program code that may then be executed on the user's computer within the window or a smaller sub-window. One technique available for loading and executing program code on a user's computer uses the Java programming language available from Sun Microsystems, Inc., of Mountain View, California.

Java is a programming language that also includes an interpreter as a run-time environment. It is an object-oriented programming language that is designed to support applications on networks. Java applications that execute within the run-time environment are known as applets. A Java applet contains compiled code that is portable and may be executed on any computer running the Java interpreter. Structurally, each applet is a collection of classes that may be stored on a computer in a file system. Because Java is a dynamic language these classes may be loaded as they are needed from across a network. There may be one class per file, or there may be many classes in a given file. Java may be running on

a single computer or on a number of computers within a network. And although Java may be used in conjunction with a Web browser, Java may also be used as part of any computer system or network. A description of the Java language may be found in "Java in Nutshell" by David Flanagan, available from O'Reilly & Associates, Sebastopol, California, 1996.

Before the popularity of the Web, a Java interpreter loaded applets for execution that were present on the local computer. In Java, typically a base class desired is loaded first, and this base class indicates further classes that are used by the base class and thus need to be loaded as well. Classes that are needed but not yet loaded are termed "unresolved", whereas classes that are needed and that are loaded (or defined) are termed "resolved." So, before the use of the Web, the classes of a particular applet were stored in a collection of files in a file system of the local computer. The Java interpreter running on the local computer would then access the local file system and retrieve the files corresponding to the classes it needed. Unfortunately, Java would then only be able to retrieve applets available from the local file system because only the local file system is known to the Java interpreter. Also, these classes had to be specified by giving a fixed file name.

With the advent of browsers available for the Web, however, Java is able to find and download applets from remote sites; however, this acquisition of applets is still limited. In these situations, a browser typically incorporates a Java interpreter in order to execute applets that are downloaded. A Java applet is downloaded by first identifying the name of the base class desired. Once that base class is identified and loaded, the other classes used by that base class are then retrieved and loaded into the Java interpreter. Because a browser typically uses the hypertext transfer or "http" protocol, the location of these Java classes within the computer network are identified using a Universal Resource Locator (URL) address. A URL address connects machines together. It provides a machine name plus a path to a file on that machine. Thus, through the URL address, the individual files that contain the Java classes may be identified within a computer network. The http server running on the identified machine reads these files and then sends the classes (in the form of executable bytes) back to the requesting browser for execution.

An example of how this process works may be illustrated as follows. Typically, Web pages are described in a hypertext markup language (HTML) that defines how the Web page will appear and perform when downloaded to the user's computer. In the course of using a Web browser such as Netscape for downloading such a Web page, the user may encounter a Java applet embedded in the HTML that indicates a base class to load. In other words, the HTML page data that a user may acquire through Netscape contains references to applet classes that may be used to execute small programs in parts of the page. Thus, Netscape would be directed to locate

and download the code for the applet to run in the frame that the page defines. This code is found by reference to a specific URL address that identifies a particular computer.

The drawback with either defining Java classes as being contained in files available on a local file system or as being contained in files that are accessible through a URL address is that these file names are "hard-wired". In other words, the user who desires an applet must know the actual name of the file that corresponds to a physical machine somewhere. It may be difficult to obtain or to update this name. For example, if the Java applet or any of its classes are moved, then these file names must be changed. This is an awkward and undesirable situation in the context of the Internet where applets and classes might be located in different locations and where it may be desirable to move these classes. For example, an applet might be used in the context of a Web browser where the applet performs the function of displaying satellite weather information for a particular Web site. In the course of displaying the information, the applet may need to find and download various classes within the network. It would be undesirable if one class could not be found either because its hard-wired file path name had changed or if the class name had changed. Such a situation might result in the weather display halting while only halfway done. Also, if the particular computer is down, the needed classes are inaccessible even if those classes are available elsewhere in the network.

Especially within a distributed object system, the current model for finding and downloading Java classes according to "hard-wired" file names breaks down. For example, the beauty of a distributed object system is that references may be made to objects (such as classes or files) without needing to know where exactly those objects are located. Also, a proper distributed object system allows those objects to be located anywhere within the system yet still allow a requesting entity to find the objects that it needs. Thus, current schemes for finding and downloading Java classes according to a "hard-wired" file name are not suitable within a distributed object system. Accordingly, it would be desirable to have a technique for finding and downloading Java-based applications within a distributed object system. Such a technique would allow a requesting entity to query one source for an applet yet be able to find and download all classes needed by that applet no matter where they exist within the distributed object system and without having to give an exact host machine and file name for these classes.

SUMMARY OF THE INVENTION

Embodiments of the present invention relate to apparatus and methods used to acquire applet execution code within a distributed object computing system. The distributed object computing system includes clients,

applet servers and an object request broker arranged to facilitate communication between the clients and the applet servers. In a method aspect, initially a client queries the object request broker to determine if there is an applet server available within the system that may be used to obtain particular applet execution code. In another step, the client requests a portion of this applet execution code from a found applet server by using the object request broker. Once requested, the applet server retrieves a portion of the desired applet execution code. The applet server is then able to return this portion of applet execution code to the client by way of the object request broker.

In a related aspect, the client incorporates applet software to enable the client to run the applet execution code. The client may also have loaded specialized ORB binding software to enable the applet software to make calls to the object request broker, and may have a network class loader to enable the client to load portions of the applet code and to resolve portions of the code. The applet software may be a version of the Java programming language and run-time environment that allows the client to run Java applets acquired over the distributed system. These Java applets may be stored as Java classes available from various class servers in the system. In one aspect, the portions of applet execution code are Java classes. Also, the distributed object system may include a naming service used by a client to locate the applet server for a particular class.

In one embodiment, an applet server retrieves the requested applet execution code by determining whether a portion of the applet execution code is found within its local file set. If the portion is present, then the applet server reads a file in order to retrieve the code and then returns it to the requesting client. If the portion is not present in the file set, then the applet server queries the naming service to determine if there is another applet server within the distributed object computing system that is associated with the desired portion. If this second applet server is found, it may perform this determination process in a recursive manner until the desired portion of applet execution code is found.

In another aspect, once the portion of applet execution code is returned to the client, the client determines whether the portion of code contains any unresolved references to any other portion of the applet execution code. These unresolved references may take the form of classes used by loaded execution code that are not yet defined or loaded. If there are unresolved references, the client requests additional applet execution code corresponding to these unresolved references from the first applet server found. In turn, this applet server either returns the code itself, or queries the naming service for another applet server with access to the code. In this fashion, all applet execution code needed is loaded into the client for execution.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention, together with further advantages thereof, may best be understood by reference to the following description taken in conjunction with the accompanying drawings in which:

FIGURE 1a illustrates a distributed object system having an object request broker (ORB) portion, object development facilities and client and server objects according to one embodiment of the present invention.

FIGURE 1b shows the flow of a request from a client to a servant object within the distributed object system of Figure 1a.

FIGURE 1c is an embodiment of an object reference suitable for use within the distributed object system of Figures 1a and 1b.

FIGURE 2 shows a Java client using an object request broker in order to download Java class files from various class servers according to one embodiment of the present invention.

FIGURE 3 shows in greater detail the Java client of FIGURE 2 including modules that it uses to download Java classes according to one embodiment of the present invention.

FIGURE 4 is a flow chart for acquiring Java classes within a distributed object system according to one embodiment of the present invention.

FIGURE 5 is a flow chart showing the request code step of FIGURE 4 in greater detail according to one embodiment of the present invention.

FIGURE 6 shows a typical computer system suitable for implementing the present invention.

DETAILED DESCRIPTION OF THE INVENTION

OVERVIEW

The present invention is directed toward distributed object systems and will be described with reference to several preferred embodiments as illustrated in the accompanying drawings. The invention may be practiced within the context of any suitable distributed object system, including those defined under CORBA or any other suitable specification. However, for purposes of illustration, an embodiment of the present invention will be described primarily within the context of an Object Request Broker (ORB) implemented under the CORBA specification from the Object Management Group (OMG), Revision 2.0, dated July 1995. Figure 1a diagrammatically illustrates the overall architecture of a representative distributed object system suitable for implementing an embodiment of the present invention. Figure 1b diagrammatically illustrates some possible flow paths that a request from a client to a servant object may follow within such an architecture that includes a three-level dispatch mechanism. Figure 1c shows one object reference data structure that may be used by a client to refer to a servant object.

A distributed object system 10 typically includes an Object Request Broker (ORB) 11 as is symbolically illustrated in Figure 1a. ORB 11 provides all of the location and transport mechanisms and facilities necessary to deliver a call from a client to a servant (target object) and to return a response to the client, as will be discussed below with reference to Figure 1b. The client and servant may be located in the same process, in different processes on the same machine, or on completely different machines. For the purposes of this discussion, client 20 may be any code that invokes an operation on a distributed object and thus may or may not take the form of a distributed object or a process. A distributed object may have a wide variety of representations. By way of example, the distributed object may be a C++ object that has been provided by an application developer. Alternatively, an implementation for a distributed object may be developed within a visual application builder 15. This visual application builder allows a developer to visually select existing object types from a catalog and graphically connect the services provided by one object to the services needed by another (attributes, arguments, results etc.) in order to create a new implementation for an object.

An object development facility 16 may be used to simplify the creation and the installation of distributed objects. It is used to "wrap" or encapsulate developer objects in distributed object code. As such, object development facility 16 may be used to transform a developer object into an ORB object implementation 14. In this example, ORB object implementation 14 is presented as a server as shown by its location in the diagram. A developer uses an interface definition language to define an interface for an ORB object, provides a developer object implementation that implements that object's behavior, and then uses the object development facility 16 in order to produce an ORB object implementation 14. At run time, an instance of this ORB object (a servant object) is created that will utilize this ORB object implementation 14. It should be appreciated that the object development facility may also be used to create objects that take the role of clients at some point.

Client 20 communicates with a servant by way of a stub 21, a subcontract layer 36, possibly a filter 40, and a transport layer 38. Stub 21 includes a surrogate 22, a method table 24 and stub functions 25. Client 20 communicates initially with surrogate 22 that appears to the client as the servant object. Alternatively, client 20 may communicate directly with the servant object through a dynamic invocation interface (DI) 26 instead of through surrogate 22, method table 24 and stub functions 25. Dynamic invocation interface 26 is used to enable clients to construct dynamic requests. A procedure by which a client calls a servant utilizing the above layers is described in Figure 1b.

Subcontract layer 36 provides the functionality required by an object in order to utilize subcontracts to implement various services (or features or object mech-

anisms named by a particular subcontract. A subcontract identifies a quality of service provided by the distributed object system that may be utilized by an individual object. For example, a subcontract may identify that the feature of security is to be used for a particular object. A particular subcontract may be associated dynamically at run time with a servant object. Filter 40, if being used, may perform a variety of tasks, such as compression, encryption, tracing, or debugging, that are to be applied to communications to and from an object. Transport layer 38 operates to marshal, unmarshal and physically transport information to and from a servant that typically does not share the same process as a client.

A standard implementation suite 28 (or object adapter) represents a set of subcontracts that interact with ORB objects 14 in identical ways, as in object key management. A subcontract may also belong to multiple-implementation suites. Also, implementation suites may utilize different subcontracts. A skeleton, that may take the form of either static skeleton 32 or dynamic skeleton 30, is used to transform requests into a format required by a servant object 78 (as will be explained in more detail below with reference to Figure 1b). Thus, skeletons 30 and 32 call an appropriate servant object 78. Static skeleton 32 is used to call interface-specific object implementations 14, while dynamic skeleton 30 is used generically when interface-specific objects are not available. An ORB interface 34 is the interface that goes directly to the ORB that is the same for all ORBs and does not depend upon an object's interface or object adapter. An ORB daemon 46 is responsible for ensuring that object servers are active when invoked by clients.

Secure Protocol 42 is a secure interoperability protocol that secures the internet inter-ORB protocol and helps to transmit information through transport layer 38 in a secure fashion. This may mean integrity protection, confidentiality, etc. The internet inter-ORB protocol is a protocol that typically communicates between processes on different machines. However, in some cases, the internet inter-ORB protocol may communicate between processes on the same machine. Security server 54 is a security administration server that secures the services that are used between processes on different computers.

Typecode/Any module 44 implements "Typecode" and "Any" objects. Typecode describes an Interface Definition Language (IDL) data type, allowing type descriptions to be transmitted between clients and servers. An instance of an IDL data type may be encapsulated by an Any object. An Any object refers to typecode of the encapsulated data, and a generic encoding of the data.

An implementation repository 50 is used to store information relating to object servers. Specifically, implementation repository 50 stores the information needed to start a server process. For example, implementation

repository 50 stores information such as the location of the server program, any arguments to the program, and any environment variables to pass to the program, etc.

Simple persistence 56 uses an Interface Definition Language (IDL)-defined type and the output from running that IDL type through the IDL compiler, together with a portion of additional code so that an IDL-defined type can be read from, and written to, disk. A naming service 52 is used to name ORB objects. A client may use naming service 52 to find a desired object by name. Naming service 52 returns an object reference, that in turn may be used to send requests to that object. An Interface Repository 48 (IFR) knows about all interfaces for all objects within the distributed object system.

A request made by a client using a method table ("m-table") dispatch will pass through a variety of the aforementioned layers of the architecture on its way to the servant as diagrammatically illustrated in Figure 1b. The request is initiated by a client and may take any suitable form. The form of the request will depend to a large extent upon the nature of the programming language used to create the client. By way of example, if the client is written in the C++ language, the request may take the form of a C++ method call 62. The call is made to a designated object reference taking the form of a surrogate. The surrogate includes methods that comply with the object's interface.

As will be appreciated by those skilled in the art, the object reference used at different locations within a distributed object system may vary significantly in appearance. In the embodiment described, the client side object reference is a dual pointer (referred to herein as a "fat pointer"). A fat pointer contains two distinct pointers. A first pointer points to a client representation ("client rep") associated with the referenced object. A second pointer points to a method table of the method table dispatch 24 that is associated with the referenced object. A client representation is an object that has methods that support invocation as well as CORBA defined "pseudo" object reference operations. These operations include, but are not limited to, a "duplicate" method, a "release" method, a "narrow" method, a "hash" method, and an "is equivalent" method.

After the client has initiated a call, the call is processed using a method table dispatch mechanism 24. The method table dispatch mechanism uses a method table that contains a list of pointers to stub functions 25, one of which is associated with the method to be invoked. Stub functions 25 receive a function or procedure call in the "native" language of the client process, then use either a subcontract layer 36 or a native call to eventually call the corresponding servant object. The native language may be any suitable language, as for example a language such as C++.

Method table dispatch 24 determines the appropriate one of the stub functions 25 to process the method call, and then pairs the method call with the appropriate stub function. In the event that the client making the

method call is in the same process as the servant object, a local stub function is called. The local stub function sends the method call directly to servant object 78. Alternatively, if the servant object is in a different process, i.e. a remote process, a remote stub function is called. The remote stub function invokes the client representation, that delivers the invocation to servant object 78.

Subcontracts implemented by subcontract layer 36 are logic modules that provide control of the basic mechanisms of object invocation and argument passing that are important in distributed object systems. A subcontract implemented by subcontract layer 36 determines a specific quality of service for use by an object. A subcontract is uniquely identified by a subcontract identifier typically embedded in an object reference. A quality of service is a set of service properties. Among possible service properties that are selectable are qualities relating to server activation, security, transactions, filterability, and clean shutdown. Subcontracts are configured such that certain qualities of service are available. With predetermined qualities of service, the overhead associated with processing individual service properties is reduced. Realistically, only commonly used combinations of service properties are supported with subcontracts. However, subcontracts may be created to meet the specific requirements of a given distributed object system.

The identification of an appropriate subcontract in subcontract layer 36 may be thought of as the identification of a desired function that is unique to that subcontract. For example, a marshal function or an unmarshal function is defined for each subcontract. A subcontract marshal function is used by a stub to marshal an object reference so that it may be transmitted to another address space, or domain. The object reference is typically processed by a transport mechanism in transport layer 38.

A transport mechanism such as T1, T2, etc., that is a part of transport layer 38 is used to marshal and physically transport information to and from servant objects. Information, i.e. the object reference or the request, is converted into protocols appropriate to a given domain. By way of example, protocols may include Ethernet protocols and general inter-ORB protocols (GIOPs). In some uncommon cases, protocols may even entail the use of electronic mail to transmit instructions to be implemented on a server. After information is marshaled, the transport mechanism then transports information through any combination of an operating system, a device driver, or a network, that are all a part of hardware 70 used by the client side of a distributed object system.

While transport mechanisms require a conversion of information into a protocol appropriate to a given domain, some transport mechanisms do not require the encoding of information for different domains. One transport mechanism that does not require a conversion of information into a protocol appropriate to a domain other than the one on which information originates is

termed a "door". Doors are essentially gateways between two different processes on the same host. The use of doors eliminates the need for a conversion of information into a canonical implementation in transport layer 38, as there is no need to encode information into a protocol that may be used by a different machine by virtue of the fact that information is remaining on the same host and therefore does not require a change of domain. Hence, information may simply be "flattened out," or marshaled into a stream that is not encoded for use by a different machine, and passed between the two processes on the host.

Once information is transported through hardware 70 used by the client side, the information is then transported to hardware 70 on the server side of a distributed object system. Once information is routed through hardware 70, the server side of a distributed object system invokes a transport mechanism such as T1, T2 etc. to receive information on an end point that is a part of transport layer 38. In the event that an end point is not created by transport layer 38, transport layer 38 provides the functionality needed for the end point to be created by subcontract layer 36. By way of example, a dedicated end point is typically created by subcontract layer 36, while cluster end points, which typically include network and TCP/IP end points, are typically created by transport layer 38. Regardless of whether end points are created by subcontract layer 36 or transport layer 38, end points "live in," i.e. are a part of, transport layer 38. End points are essentially ports that receive information from a different domain. After an end point in transport layer 38 receives information transported from a different domain, the end point then dispatches the information from transport layer 38 to subcontract layer 36. Subcontract layer 36 then dispatches the information to the skeleton and the servant.

Subcontract layer 36 provides the functionality to unmarshal at least some of the information it has received. That is, subcontract layer 36 unmarshals at least part of the request. Then, the request is dispatched to a skeleton 31 that transforms the request into an implementation specific format required by servant object 78. The skeleton 31 may either be a static skeleton 32 or a dynamic skeleton 30 as described above.

In general, a remote request is routed through the client side and the server side as described above. The method call 62 is received, method table dispatch layer 24 is used to identify an appropriate subcontract prior to the selection of a transport mechanism in transport layer 38 that marshals the request and prepares it for transport to another domain. Through hardware 70, the marshaled request is transported to the server side where it is received on an end point that is a part of transport layer 38. An appropriate end point receives information transported across a wire, and information is dispatched from transport layer 38 to subcontract layer 36, that provides the functionality to at least partially unmarshal the information it has received. The subcontract layer then

dispatches the request to skeleton 31 that transforms the request into a specific format required by servant object 78. This path is shown by arrow 77, and is the path that may be taken by both remote and local requests.

However, if a client and a server are in a local process, i.e. both the client and the server are in the same process, the use of the path shown by arrow 77 as described above is unnecessarily complex. If it is known that the client and the server are in the same process, it is possible to shorten the invocation path, or flow path of a request for service. If a local process may be identified when an object reference is created, shortened flow paths, i.e. the paths represented by arrows 75 and 76, may be taken to send a request from a client to a server that are on the same host. The path represented by arrow 76 is more likely to be taken, as it uses subcontract layer 36 to identify an appropriate subcontract. However, in situations in which an appropriate subcontract does not need to be explicitly identified, the path represented by arrow 75 may be taken.

Figure 1c will now be used to describe an embodiment of an object reference. As will be familiar to those skilled in the art, object references may take a variety of forms depending upon the location within the process that they are being held at any given time. However, by way of background, a representative object reference for use in a system that utilizes a low overhead implementation suite is illustrated in Figure 1c. In the implementation shown therein, object reference 150 includes a host identifier 152, a port designation 154, and an object key 156. Object key 156 includes a subcontract identifier 158, a server identifier 160, an implementation identifier 162, and a user key 164. Host identifier 152 denotes a particular computer in a network, while port designation 154 identifies the port of the selected computer that is to be used for communication. Object key 156 provides further identifying information used in order to locate a desired servant object on its host machine.

Server identifier 160 names a particular process or program in which the servant object resides, while user key 164 is a unique number or string used to locate the servant within the process named by server identifier 160. Subcontract identifier 158 is used to attach the protocol of a particular subcontract and its associated services with a servant, and implementation identifier 162 names an implementation of an interface that is to be used with that servant object.

FINDING AND DOWNLOADING JAVA-BASED APPLICATIONS

An embodiment of the present invention provides a mechanism by which a requesting client may acquire the classes it needs within a distributed object system in order to run a particular applet. In one embodiment, this mechanism uses an object request broker (ORB) in

order to communicate with one or more class servers that provide access to the class files needed. Thus, an ORB of a distributed object system is used to find the class files needed in a location independent manner. One advantage to using an ORB is that these class files and their associated class server may be located anywhere within the distributed object system yet may still be found by the client. Also, this mechanism allows a client a single point of access to the distributed object system in order to find the class files that it needs. And even though these class files may be in different locations, these class files are retrieved in a manner transparent to the requesting client. That is, the client knows a base class that it wishes to load, but is mercifully unaware of all the machinations behind the scenes required to find other classes used or needed by this base class. Also, a request from a client may pass from an ORB of one distributed object system to an ORB of another.

A wide variety of clients are contemplated that may benefit from being able to find and download executable code according to the present invention. By way of example, one particular client is a client running Java software that is enabled to communicate with an ORB and to download Java classes. Also, in a broad sense, an embodiment of the present invention is able to load any applet execution code. That is, applet execution code may be any execution code that can be downloaded and executed by a client. As used herein, the term "applet" refers to a body of executable program code, which code is effective to implement a function or facility when used in conjunction with a supporting execution environment. An "applet" may refer to a wide variety of types of execution code. By way of example, an applet may be a collection of byte codes representing classes that are executed by a remote interpreter, such as Java classes that are executed using a Java language interpreter. These byte codes may also be compiled before execution, or may even undergo a combination of interpretation/compilation before execution. The Java interpreter may reside inside a Web browser. And in particular, applet execution code may refer to code that represents an implementation of a Java class. And applet may mean in particular a small Java program that can be embedded in another application such as an HTML document in order to provide interactive, executable content on a Web page. A Java class may be defined as a collection of data and methods that operate on that data. Together, the data and methods describe the state and behavior of an object.

The present invention is useful and advantageous in many different scenarios. By way of example, an embodiment of the present invention is useful when a Java client wishes to query an object about what its presentation is. The presentation of a particular object may be used to run an executable program in a small window within a larger window. An object may be given the ability to give to the client its presentation, that is an implemen-

tation of the object's "front end" or interface. In this example, the presentation of an object is an applet that is represented as a location independent object. Thus, by way of an embodiment of the present invention, the Java client may use the ORB in order to find this location independent object wherever it may be within the distributed object system. Once found, the applet may be downloaded to the client by way of an embodiment of the present invention and executed within the client. The present invention may be applicable in many other situations that will be apparent from the description of the figures below. Figures 2 and 3 illustrate an embodiment of the present invention for use within a distributed object system, and Figures 4 and 5 show a flow chart for how the invention may be practiced according to one embodiment.

Figure 2 illustrates graphically how in one embodiment of the invention a Java client 202 may communicate via a communication mechanism 206 in order to acquire Java class files 209 and 211 within a distributed object system 200. Java client 202 may be a Web browser incorporating a Java interpreter or may be any Java-enabled client that wishes to download an applet for use. A communication mechanism for allowing a Java client to communicate with remote class servers in order to find and download class files may be implemented in a wide variety of manners. By way of example, this communication mechanism may be implemented as an object request broker of a distributed object system. And in particular, this object request broker, or ORB, may be implemented as described above with reference to Figures 1a, 1b, and 1c. Class servers A and B are objects within the distributed object system that are implementations of a particular interface definition language (IDL). In other words, a class server may be defined by an IDL, and may include a variety of operations and attributes defined upon it. Associated with each class server on the same machine are files containing Java classes. For example, class server A has an associated file set 209 and class server B has an associated file set 211. Thus, Java classes may be located on any machine within a distributed object system and are accessible by a Java client via their associated class server as will be explained in more detail below.

Also included within the distributed object system 200 is a naming service 208. The naming service 208 allows object names to be registered so that a client may determine the location of a particular object by reference to the naming service. In this way, objects may refer to other objects by name. A naming service may be implemented in a wide variety of manners. By way of example, the naming service may be one module of the Object Services layer of a distributed object system as defined under the OMG CORBA standard.

In one embodiment, the process by which a Java client acquires classes for an applet occurs as follows with reference to the circled numerals. Arrows (1) show how a Java client 202 may use the naming service 208

and the ORB 206 in order to determine a particular class server A that has access to a given class name that the client desires to be loaded. If this class name is contained within the file set 209 associated with class server A, then arrow (2) shows how class server A retrieves the file containing the class name from its file set 209. However, if this class name is not present in the associated file set 209, then arrows (3) illustrate graphically how class server A will itself utilize the naming service in order to determine a second class server B that does have access to the desired class name. Arrow (4) shows how this class server B will access its associated file set 211 in order to retrieve the executable program code corresponding to this class name. Arrow (5) shows how this class code corresponding to the class name desired by the Java client is finally returned via the ORB 206 to the Java client 202. It should be appreciated that the communication taking place as indicated by arrows (1), (3) and (5) is machine independent. That is, the code associated with a particular class name may be moved to a new machine or given a new name as long as the naming service is updated to indicate the new location or name. In this fashion, an embodiment of the present invention advantageously allows classes associated with an applet to be located anywhere within a distributed object system in a way that is transparent to the requesting client.

Figure 3 shows in greater detail the Java client 202 and its implementation that allows it to communicate with the ORB and to download Java classes. Java client 202 may be a Web browser using a Java interpreter or any Java-enabled client. Simply by itself, Java client 202 with only a Java interpreter is not enabled to talk to a distributed object system through the use of an ORB 206. Thus, an ORB binding mechanism 302 is used to enable the Java client to communicate with a distributed object system through an ORB 206, in one embodiment. ORB binding 302 is a collection of Java classes that the Java client acquires in a conventional way such as through a URL address or through a local file system. The ORB binding 302 is a module loaded in to a Java interpreter that enables the Java client to talk to an interface definition language (IDL) and to make distributed object calls. In one sense, ORB binding 302 is a connector between a Java interpreter and an interface definition language. The Java client bootstraps itself to the ORB by loading in these classes and thus extending its capabilities. The ORB binding may be implemented in a variety of manners. By way of example, ORB binding 302 may be a software module.

Once the Java client 202 has the capability to talk to an ORB 206 it also needs the capability to load and resolve classes available from the distributed object system. The network class loader 304 is a mechanism that allows a Java client to load and define new classes at run time. It also has functionality to allow classes to be resolved. If a downloaded class uses other classes that are not currently known or defined within the Java

client, these other classes must be found and loaded ("resolved"). The network class loader 304 is called to acquire these needed classes. The network class loader also emits requests from the Java client in response to a client request for particular Java code. The network class loader is available within a computer network, and may be loaded or acquired by the Java client in a conventional way that a Java client acquires a class. For example, a call to a local file system or to a known URL address loads the network class loader 304. The network class loader 304 may be loaded into Java client 202 as shown by arrow 306 where it is then shown within the Java client as 304'. Once the ORB binding 302 and the network class loader 304' are present in Java client 202, the Java client is ready to acquire needed Java classes over a distributed object system.

Figure 4 shows a flow chart 400 for acquiring a Java class needed by a particular client according to one embodiment of the present invention. For example, in the course of a particular client application, a distributed object has produced the name of a class needed to execute within a Java interpreter. The procedure shown in Figure 4 uses a distributed object system according to one embodiment of the present invention in order to load this class and any other classes it uses. A wide variety of classes exist that may be desirable for loading into a client application. A class desired may depend upon the specific client application. By way of example, classes that implement a portion of a graphical user interface, so-called "panel classes", are suitable for acquiring through use of an embodiment of the present invention. These "panel classes" are especially suitable when the graphical user interface may vary based upon the nature of a distributed object that it is being used to manipulate.

When this acquire class procedure begins, the ORB binding and network class loader have already been loaded into the Java client as shown in Figure 3. In a first step 402, the class name that is desired to be loaded is received. Next, the class server object located somewhere within the distributed object system that has access to the desired class name must be determined. Thus, in step 403, the network class loader (NCL) queries the naming service in order to determine the appropriate class server. This step is illustrated graphically in Figure 2 by arrows (1). In step 404, if no class server is found that corresponds to the desired class name, an error is returned in step 405 and then the procedure ends. However, if a class server is found that corresponds to the desired class name, then in step 406 the ORB establishes a connection to this found class server.

Now that the class server has been found, the NCL requests the class execution code from the class server that corresponds to the desired class name in step 408. The execution code for a particular class may be represented in a wide variety of manners. By way of example, this execution code may take the form of an array of bytes that are stored in a file or files. In step 408 the class server may obtain the necessary class files locally

or it may need to request these files of another class server. This process will be described in greater below with reference to Figure 5.

Once this execution code for class name has been retrieved, it is delivered to the network class loader within the Java client in step 410. Next, in step 412, the NCL passes this execution code to the Java interpreter. At this point, because the recently loaded class may use other classes, the Java interpreter must resolve any undefined class references. For example, if the retrieved execution code of the class indicates that other classes are used and these classes are not currently defined within the Java interpreter, then the execution code for these undefined class names must also be retrieved from class servers somewhere within the distributed object system. Step 418 tests whether there are any unresolved classes remaining within the Java interpreter. If not, this indicates that all execution code needed by the original class requested is present in the Java interpreter, and in step 420 this original class is returned to the requesting client as being resolved.

However, if there are one or more unresolved classes, then in step 418 the Java interpreter asks the NCL for the execution code of a first unresolved class. From step 418 the procedure loops back to step 408 in which the NCL requests from the class server the appropriate class execution code. In this fashion, this portion of Figure 4 may loop through steps 408 to 418 until all execution code has been retrieved for all unresolved classes. Thus, it should be appreciated that by reference to an original class name, the client application is able to load and resolve all necessary classes for this original class over a distributed object network.

Figure 5 explains in greater detail step 408 of Figure 4 according to one embodiment. Because a class server may not be able to find a particular class within its own associated file set it may be necessary to look elsewhere within the distributed object system for the class needed. In this fashion, an embodiment of the present invention is able to find Java classes anywhere within a distributed object system and in a manner transparent to the client. In this embodiment, the original class server found determines that it does not have local access to the class needed and is able to search for other class servers.

Initially, in step 502, the class server determines whether the desired class is present in the file set of the class server. If the class (and its corresponding execution code) is found in the server's file set, then in step 504 this file is read and the appropriate execution code is passed back to the NCL within the Java client. However, if the class is not in the server's file set then this class server must look elsewhere in order to find the class. In step 506 this first class server queries the naming service in order to find a class server that does correspond to the desired class name. In other words, the first class server is looking for another class server that has an associated file set that includes a file with the

class name that is desired. Step 508 tests whether such a class server has been found. If not, then step 510 returns an appropriate error message and the procedure ends. However, if an appropriate class server is found, then in step 512 the execution code corresponding to the class name is requested from the found class server.

It should be appreciated that step 512 may be a recursive step. That is, when the execution code is requested from the found class server, it may be that this found class server does not have access to the class but may need to call the naming service itself in order to find an appropriate class server. This situation may occur if a class is moved from one class server to another. Once the execution code has been found and read from the appropriate file, then in step 514 the resulting bytes are passed back to the NCL within the Java client. After this step the procedure ends.

The present invention as described above employs various process steps involving data stored in computer systems. These steps are those requiring physical manipulation of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated. It is sometimes convenient, principally for reasons of common usage, to refer to these signals as bits, values, elements, variables, characters, data structures, or the like. It should be remembered, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities.

Further, the manipulations performed are often referred to in terms such as identifying, running, or comparing. In any of the operations described herein that form part of the present invention these operations are machine operations. Useful machines for performing the operations of the present invention include general purpose digital computers or other similar devices. In all cases, there should be borne in mind the distinction between the method of operations in operating a computer and the method of computation itself. The present invention relates to method step for operating a computer in processing electrical or other physical signals to generate other desired physical signals.

The present invention also relates to an apparatus for performing these operations. This apparatus may be specially constructed for the required purposes, or it may be a general purpose computer selectively activated or reconfigured by a computer program stored in the computer. The processes presented herein are not inherently related to any particular computer or other apparatus. In particular, various general purpose machines may be used with programs written in accordance with the teachings herein, or it may be more convenient to construct a more specialized apparatus to perform the required method steps. The required structure for a variety of these machines will appear from the

description given above.

In addition, the present invention further relates to computer readable media that include program instructions for performing various computer-implemented operations. The media and program instructions may be those specially designed and constructed for the purposes of the present invention, or they may be of the kind well known and available to those having skill in the computer software arts. Examples of computer-readable media include, but are not limited to, magnetic media such as hard disks, floppy disks, and magnetic tape; optical media such as CD-ROM disks; magneto-optical media such as floptical disks; and hardware devices that are specially configured to store and perform program instructions, such as read-only memory devices (ROM) and random access memory (RAM). Examples of program instructions include both machine code, such as produced by a compiler, and files containing higher level code that may be executed by the computer using an interpreter.

Figure 6 illustrates a typical computer system in accordance with the present invention. The computer system 100 includes any number of processors 102 (also referred to as central processing units, or CPUs) that are coupled to storage devices including primary storage 106 (typically a random access memory, or RAM), primary storage 104 (typically a read only memory, or ROM). As is well known in the art, primary storage 104 acts to transfer data and instructions uni-directionally to the CPU and primary storage 106 is used typically to transfer data and instructions in a bi-directional manner. Both of these primary storage devices may include any suitable of the computer-readable media described above. A mass storage device 108 is also coupled bi-directionally to CPU 102 and provides additional data storage capacity and may include any of the computer-readable media described above. The mass storage device 108 may be used to store programs, data and the like and is typically a secondary storage medium such as a hard disk that is slower than primary storage. It will be appreciated that the information retained within the mass storage device 108, may, in appropriate cases, be incorporated in standard fashion as part of primary storage 106 as virtual memory. A specific mass storage device such as a CD-ROM 114 may also pass data uni-directionally to the CPU.

CPU 102 is also coupled to an interface 110 that includes one or more input/output devices such as such as video monitors, track balls, mice, keyboards, microphones, touch-sensitive displays, transducer card readers, magnetic or paper tape readers, tablets, styluses, voice or handwriting recognizers, or other well-known input devices such as, of course, other computers. Finally, CPU 102 optionally may be coupled to a computer or telecommunications network using a network connection as shown generally at 112. With such a network connection, it is contemplated that the CPU might receive information from the network, or might output in-

formation to the network in the course of performing the above-described method steps. The above-described devices and materials will be familiar to those of skill in the computer hardware and software arts.

Although the foregoing invention has been described in some detail for purposes of clarity of understanding, it will be apparent that certain changes and modifications may be practiced within the scope of the appended claims. For instance, the communication mechanism used between the client and class server may be any suitable object request broker. Also, the naming service may be any module capable of identifying the location of a class name within a distributed object system. And the naming service may be part of an object request broker, or may be a separate module. In addition, although the classes have been described as being stored on computer files, they may be present within a computer system on any computer-readable media. And the present invention is capable of loading any appropriate portion of executable code, and not necessarily in units of classes. And although the above examples describe applet execution code as being in one form programs for the Java programming environment, it will be appreciated by those of skill in the art that the term applet execution code refers to any suitable information that may be downloaded in a manner transparent to a client and then executed by that client. Also, although the ORB binding and network class loader have been described as two separate modules, it is contemplated that they may form one unit that has the functionality to allow a Java client to communicate with an ORB and to download Java classes. Therefore, the described embodiments should be taken as illustrative and not restrictive, and the invention should not be limited to the details given herein but should be defined by the following claims and their full scope of equivalents.

Claims

1. In a distributed object computing system having clients, applet servers and an object request broker arranged to facilitate communication between said clients and said applet servers, a computer-implemented method of acquiring applet execution code within said distributed object computing system, comprising the steps of:

querying said object request broker by a client to determine a first applet server to obtain said applet execution code;

requesting a portion of said applet execution code from said determined first applet server with said object request broker;

retrieving at least said portion of said applet execution code with said first applet server; and

returning said portion of said applet execution code retrieved by said first applet server to said client with said object request broker.

2. A method as recited in claim 1 wherein said client incorporates applet software and said method further comprises the steps of:

loading ORB binding software into said client to enable said client to pass requests for said applet execution code to said object request broker; and

loading network class loader software into said client to enable said client to load and resolve portions of said applet execution code that are returned to said client from said first applet server.

3. A method as recited in any of claims 1-2 wherein said step of querying said object request broker includes querying a naming service of said distributed object computing system.

4. A method as recited in claim 3 wherein said step of retrieving said portion of said applet execution code includes the sub-steps of:

determining whether said portion of said applet execution code is within a file set associated with said first applet server;

reading a first file to retrieve said portion of said applet execution code when it is determined that said portion of said applet execution code is within a file set of said first applet server; and

querying said naming service with said first applet server to determine a second applet server within said distributed object computing system that is associated with said portion of said applet execution code when it is determined that said portion of said applet execution code is not within a file set of said first applet server.

5. A method as recited in claim 4 wherein said step of returning said portion of said applet execution code is performed by said second applet server first returning said portion of said applet execution code to said first applet server.

6. A method as recited in claim 4 wherein said step of returning said portion of said applet execution code is performed by said second applet server returning said portion of said applet execution code directly to said client.

7. A method as recited in any of claims 1-6 wherein

said portion of said applet execution code corresponds to a Java class.

- 8. A method as recited in any of claims 1-7 further comprising the steps of:

- determining whether said portion of said applet execution code returned to said client by said applet server contains any unresolved references to said applet execution code; and

- requesting additional applet execution code corresponding to said unresolved reference from said first applet server through said object request broker when it is determined that said portion of said applet execution code contains an unresolved reference.

- 9. In a distributed object computing system having clients, applet servers and an object request broker arranged to facilitate communication between said clients and said applet servers, a computer-implemented method of acquiring applet execution code within said distributed object computing system comprising the steps of:

- querying a naming service of said distributed object computing system by a client to determine a first applet server to obtain said applet execution code;

- requesting a portion of said applet execution code from said determined first applet server with said object request broker;

- retrieving at least said portion of said applet execution code with said first applet server; and

- returning said portion of said applet execution code retrieved by said first applet server to said client with said object request broker.

- 10. A method as recited in claim 9 wherein said step of retrieving said portion of said applet execution code includes the sub-steps of:

- determining whether said portion of said applet execution code is within a file set associated with said first applet server;

- reading a first file to retrieve said portion of said applet execution code when it is determined that said portion of said applet execution code is within a file set of said first applet server; and

- querying said naming service with said first applet server to determine a second applet server within said distributed object computing system

that is associated with said portion of said applet execution code when it is determined that said portion of said applet execution code is not within a file set of said first applet server.

- 11. A method as recited in claim 10 wherein said step of returning said portion of said applet execution code is performed by said second applet server first returning said portion of said applet execution code to said first applet server.

- 12. A method as recited in claim 10 wherein said step of returning said portion of said applet execution code is performed by said second applet server returning said portion of said applet execution code directly to said client.

- 13. A method as recited in any of claims 9-12 wherein said portion of said applet execution code corresponds to a Java class.

- 14. In a distributed object computing system having clients, applet servers and an object request broker arranged to facilitate communication between said clients and said applet servers, a computer-implemented method of acquiring applet execution code within said distributed object computing system comprising the steps of:

- querying said object request broker by a client to determine a first applet server to obtain said applet execution code;

- requesting a portion of said applet execution code from said determined first applet server with said object request broker;

- retrieving at least said portion of said applet execution code with said first applet server; and

- returning said portion of said applet execution code retrieved by said first applet server to said client with said object request broker;

- determining whether said portion of said applet execution code returned to said client by said applet server contains any unresolved references to said applet execution code; and

- requesting additional applet execution code corresponding to said unresolved reference from said first applet server through said object request broker when it is determined that said portion of said applet execution code contains an unresolved reference.

- 15. A computer apparatus for use in acquiring applet execution code within a distributed object computing system

ing system having clients and applet servers, said computer apparatus comprising:

- a processing unit; 5
- an input/output device coupled to said processing unit;
- a storage device in communication with said processing unit; 10
- an object request broker arranged to facilitate communication between said clients and said applet servers, said object request broker being further arranged to receive a request for applet execution code from a client enabled to receive said applet execution code; and 15
- a first applet server being arranged to retrieve said applet execution code in response to said request from said client and to return said applet execution code to said client. 20

16. A computer apparatus as recited in claim 15 wherein said object request broker is associated with a naming service arranged to receive a request from said client to identify said first applet server associated with said applet execution code. 25

17. A computer apparatus as recited in claim 16 wherein said first applet server is arranged to query said naming service to determine a second applet server to retrieve said applet execution code. 30

18. A computer apparatus as recited in any of claims 15-17 further comprising: 35
 a mass storage unit in communication with said central processing unit, said mass storage unit including files containing said applet execution code, wherein said first applet server is further arranged to retrieve said applet execution code from said files. 40

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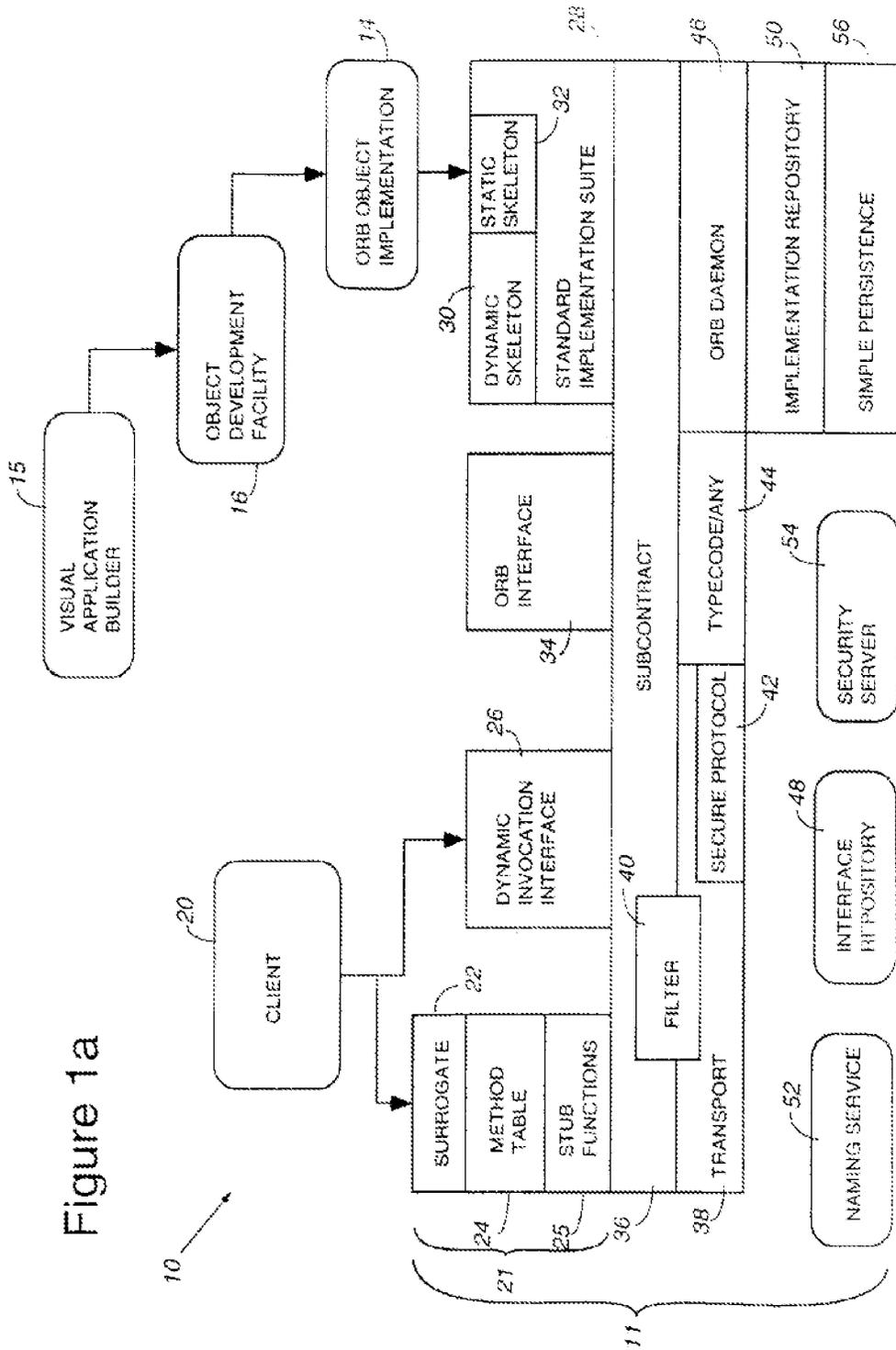


Figure 1a

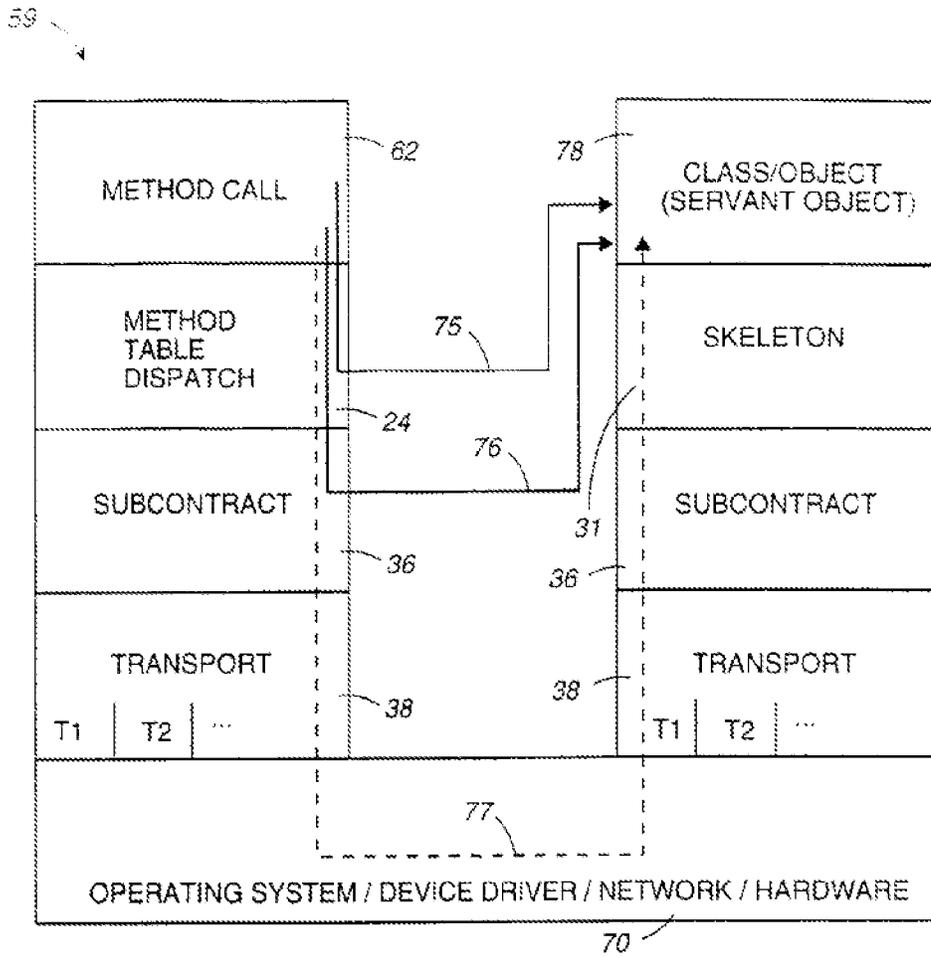


Figure 1b

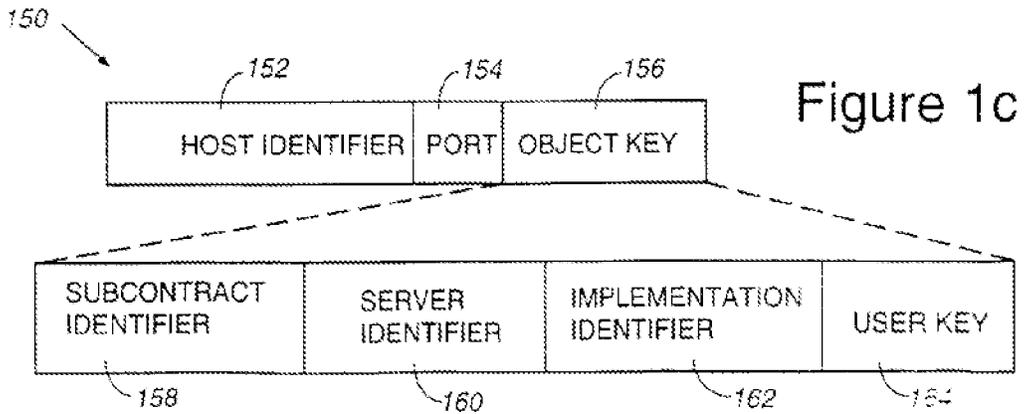


Figure 1c

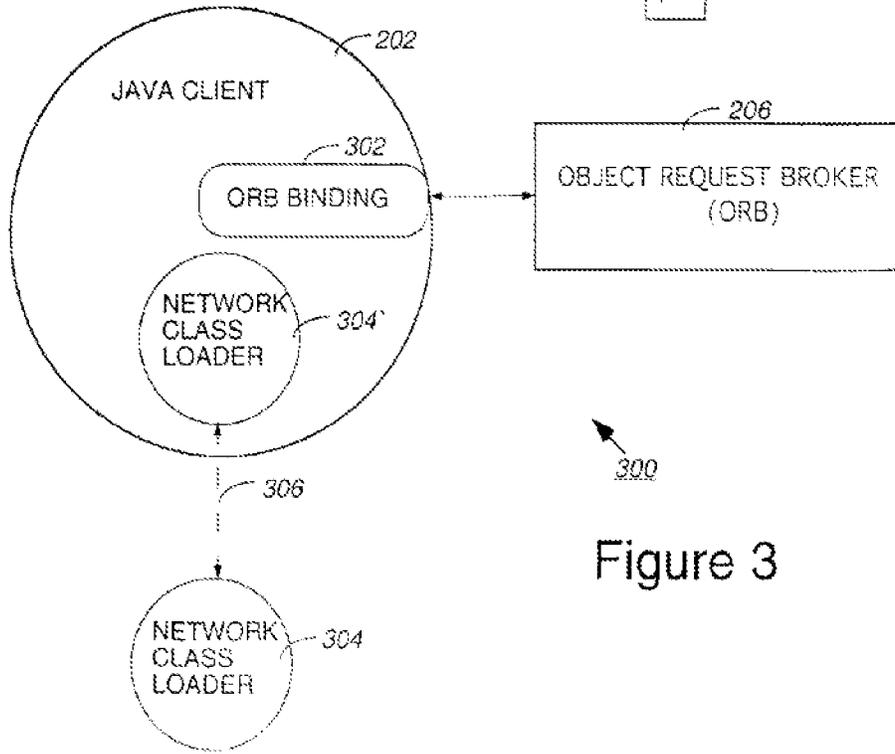
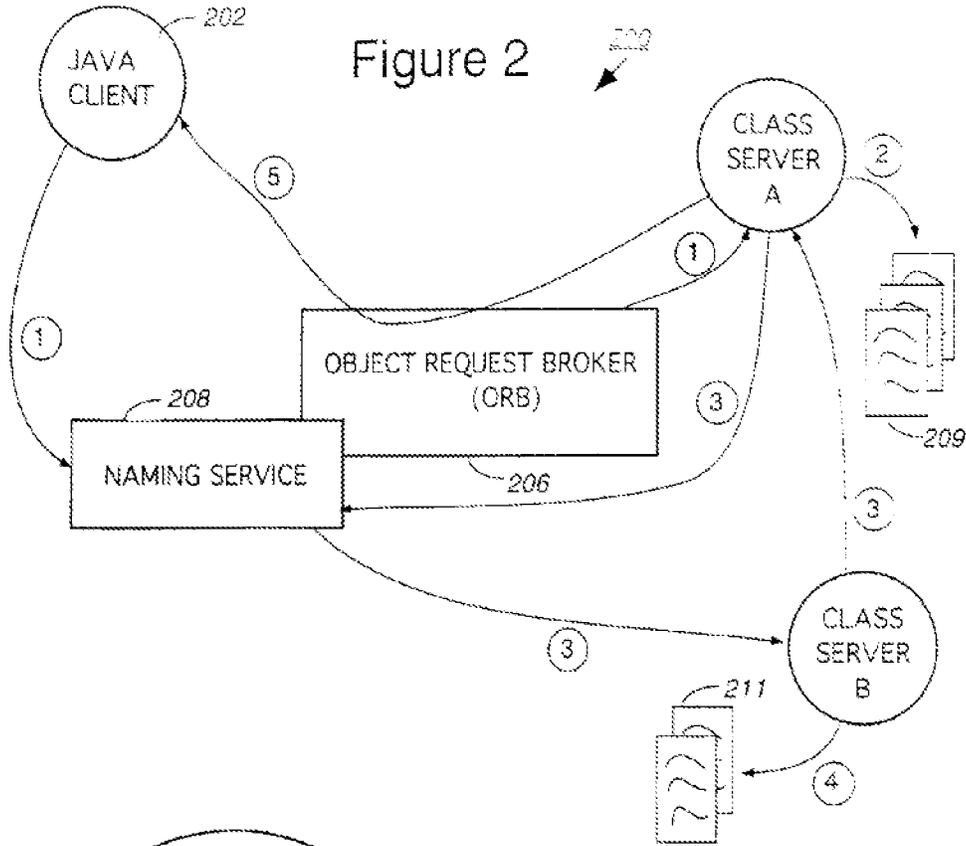
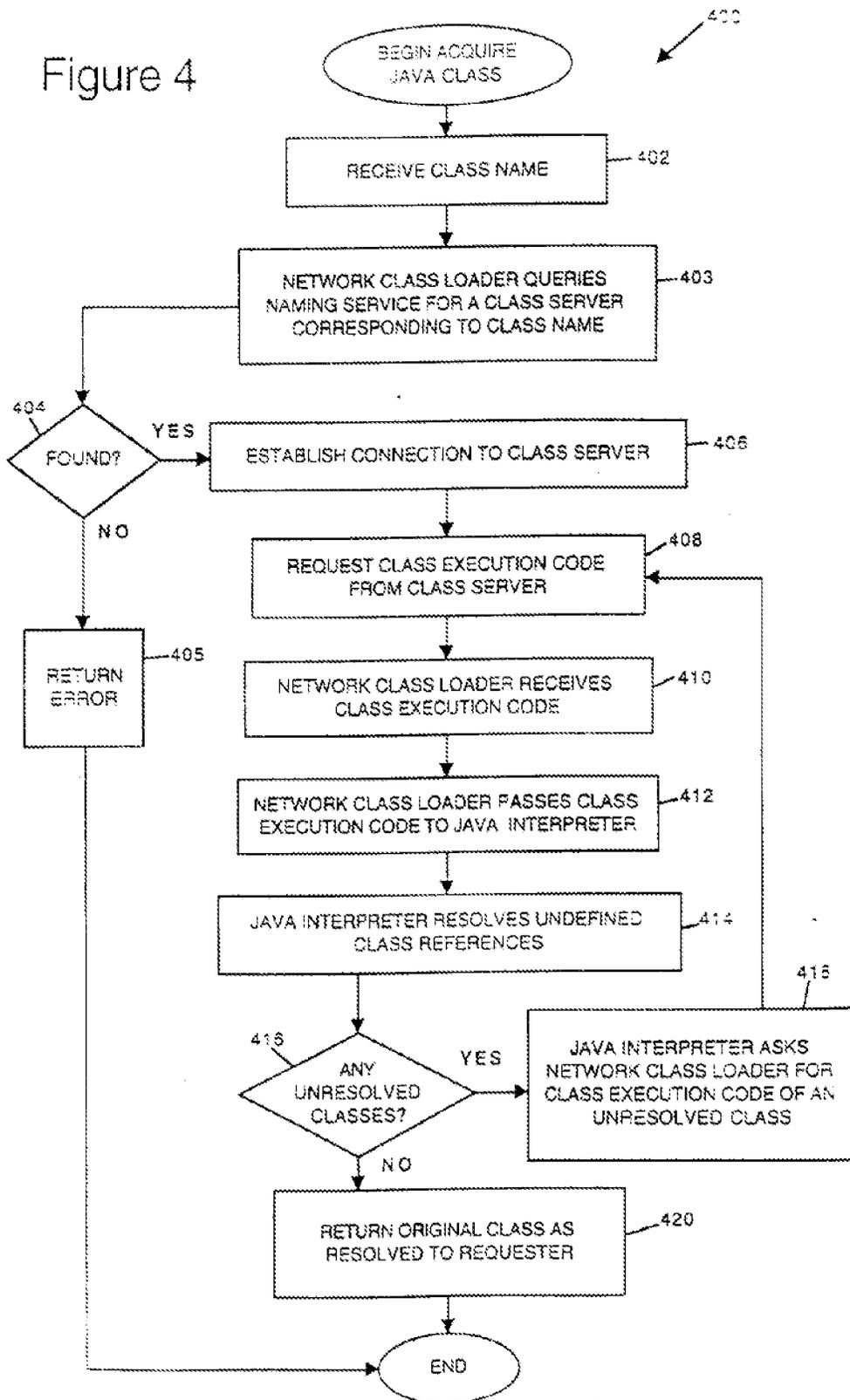


Figure 4



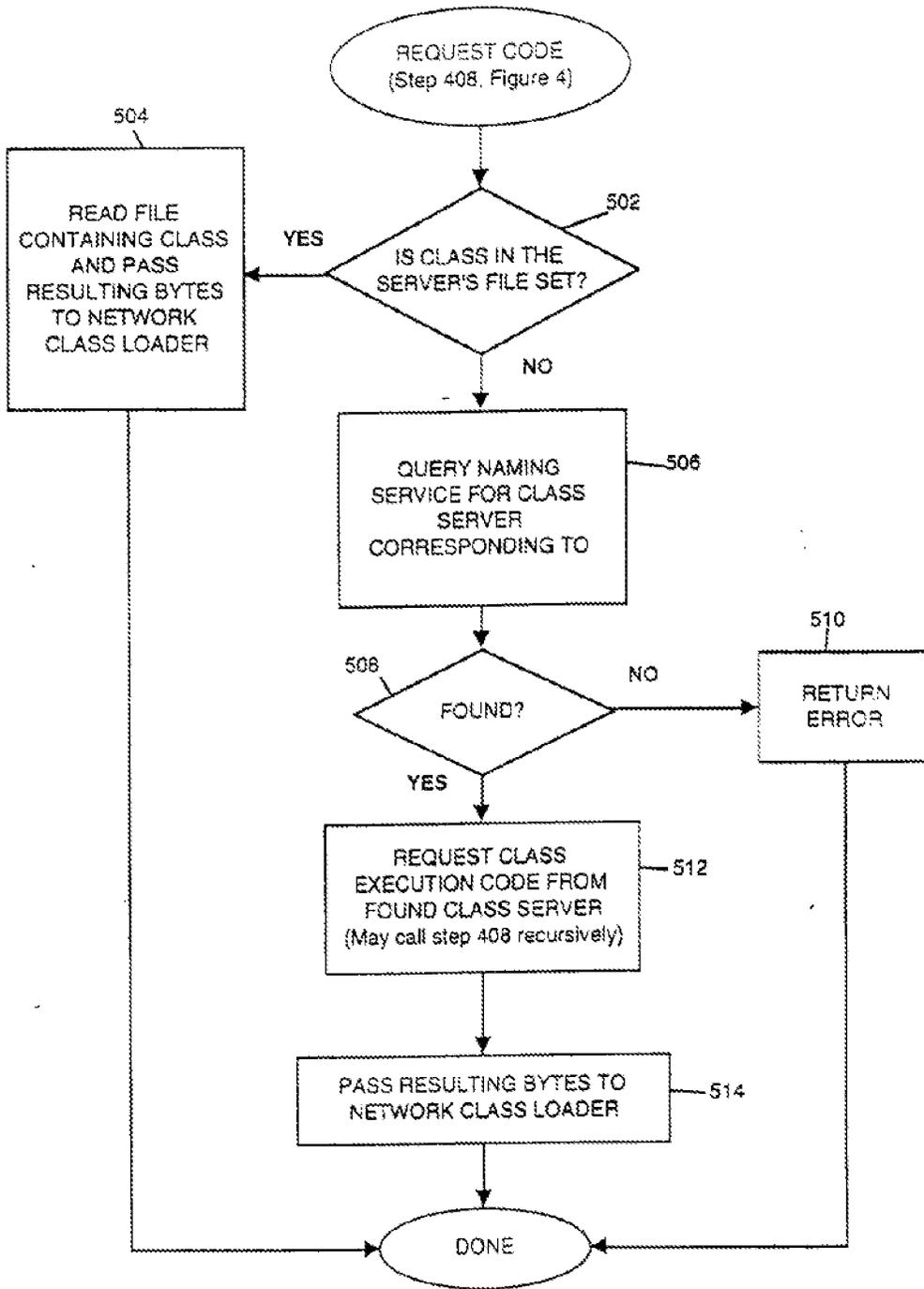


Figure 5

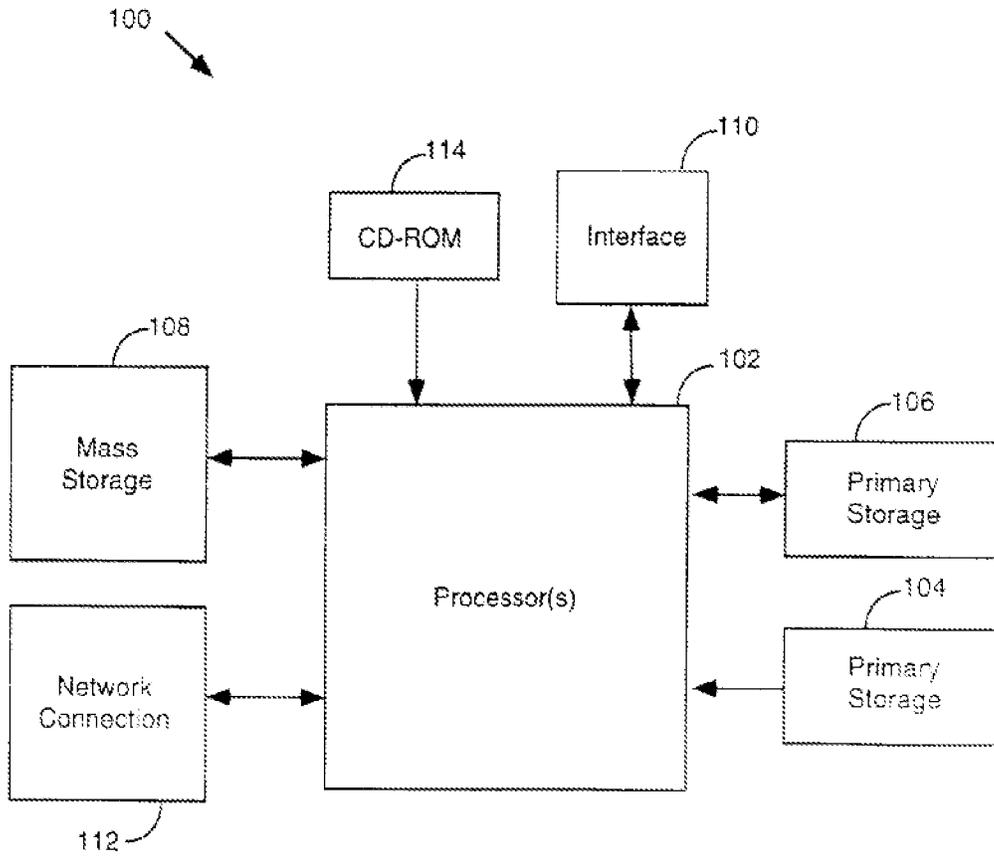


Figure 6

Electronic Acknowledgement Receipt

EFS ID:	25291826
Application Number:	15050027
International Application Number:	
Confirmation Number:	1056
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
First Named Inventor/Applicant Name:	Edward Balassanian
Customer Number:	126601
Filer:	Dean M. Munyon/Danielle Kramer
Filer Authorized By:	Dean M. Munyon
Attorney Docket Number:	6743-00107
Receipt Date:	24-MAR-2016
Filing Date:	22-FEB-2016
Time Stamp:	10:47:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

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File Listing:

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1	Foreign Reference	27_EP0817031.pdf	1880439 <small>986b086b0a4a0bf64f96eeafb22ed20e0c2e1400</small>	no	19

Warnings:

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Electronic Acknowledgement Receipt

EFS ID:	25292197
Application Number:	15050027
International Application Number:	
Confirmation Number:	1056
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
First Named Inventor/Applicant Name:	Edward Balassanian
Customer Number:	126601
Filer:	Dean M. Munyon/Danielle Kramer
Filer Authorized By:	Dean M. Munyon
Attorney Docket Number:	6743-00107
Receipt Date:	24-MAR-2016
Filing Date:	22-FEB-2016
Time Stamp:	11:06:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

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1	Non Patent Literature	83_Hamzeh_K_et_al_Layer_Two_Tunneling_Protocol_L2TP.pdf	3230189 <small>5cb4277f3a447ded27b98d233abb334a9bd56c68</small>	no	90

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37	Non Patent Literature	115_Pfeifer_thesis_Automatic_Conversion_of_Communication_Media_1999.pdf	2096187 7f3f09cb782e40aaca146f5c2c21aa3a7ef62dd	no	246
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47	Non Patent Literature	125_Pfeifer99_A_Modular_Location-Aware.pdf	413530 bd30824fba249eb1cc93ceb7610f8eaf9ae2b901	no	12
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48	Non Patent Literature	126_Plagemann_et_al_Evaluating_Crucial_Performance.pdf	651468 ab205b4739b148ea8588abd6e7408c4909e416c0	no	13
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49	Non Patent Literature	127_Psounis_Active_Network_Applications.pdf	1740630 8d9b8dab963ea6f78360325410ac4638b95c4f11	no	15
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50	Non Patent Literature	128_Rabiner_Apps_of_speech_recognition_in_telecommunications_1991-10.pdf	1301449 14c6c88b649df7c967ca003141058bc7f5becbec	no	10
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51	Non Patent Literature	129_raman_softstate.pdf	848199 91cbff515843800252f80a757d25a73840d092ca	no	11
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52	Non Patent Literature	130_Rogaway_P_Bucket_Hashing_and_its_Application.pdf	1340530 782ae4e0931a844b53fb15e35a992c8d23c81734	no	24
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53	Non Patent Literature	131_Schneier97_Remote_Auditing.pdf	137034 6a597b0464071542e176915dd6c5faebdb9ecc58	no	16
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54	Non Patent Literature	132_Tennenhouse_et_al_From_Internet_to_ActiveNet.pdf	694296 622763bf5983ae09ed4454924f8ca7d799b1c061	no	9
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55	Non Patent Literature	133_Tudor_MPEG.pdf	1337753 95de9e8edfc0c8718fc7a8d1848157a276e41a	no	8
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56	Non Patent Literature	134_US_Copyright_Office_IPv6_The_New_Internet_Protocol.pdf	89774 c372ff21da806baf41f35d1b294d7184b5021fd3	no	2
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57	Non Patent Literature	135_Van_der_Meer_et_al_AnApproach_for_a_4th_Generation_Messaging_System_1999.pdf	980167 69102b953221c864e96731a37bb769e70e642156	no	10
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58	Non Patent Literature	136_Van_der_Meer96_thesis_Part_1.pdf	18480742 d049c98ab62e39d035781945262885cab6386cb	no	55
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59	Non Patent Literature	136_Van_der_Meer96_thesis_Part_2.pdf	24965983 328618d04ba87e1ac120a9d4302ae1963aa2e968	no	55
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60	Non Patent Literature	136_Van_der_Meer96_thesis_Part_3.pdf	17453367 6186c8efe2b0ad7dfe98ad50a26ad3070b94af0e	no	57
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Total Files Size (in bytes):			348890880		

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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.

Electronic Acknowledgement Receipt

EFS ID:	25292731
Application Number:	15050027
International Application Number:	
Confirmation Number:	1056
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
First Named Inventor/Applicant Name:	Edward Balassanian
Customer Number:	126601
Filer:	Dean M. Munyon/Danielle Kramer
Filer Authorized By:	Dean M. Munyon
Attorney Docket Number:	6743-00107
Receipt Date:	24-MAR-2016
Filing Date:	22-FEB-2016
Time Stamp:	11:34:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	137_van_Renesse_et_al_Building_Adaptive_Systems_Using_Ensemble.pdf	1031191 <small>834486bb5d0657bcd4580d9bfb59228682ee21c3</small>	no	16

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2	Non Patent Literature	138_Venkatesan_Ramkumar_Threat-Adaptive-Security-Policy.pdf	632893 84a894421e8997a9abef5cd750dadbdacc8bed68	no	7
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3	Non Patent Literature	139_Weatherall_et_al_The_Active_IP_option.pdf	647831 a7b3c4862d1f0be15102b6213c69d923f8eafeff	no	8
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4	Non Patent Literature	140_Welch_Data_Compression.pdf	6610422 15957c2a8dc85e5066e393da9ab70883876521ea	no	12
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5	Non Patent Literature	141_Zeletin_Pfeifer98_Applying_Location-Aware.pdf	496137 424fa8924c05ec2b537f16670a539c9cc179bb8cb	no	14
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6	Non Patent Literature	142_Zell_thesis-Selection_of_Converter_Chains_1998-02-12.pdf	1013927 164712f4747ff5febe16ac025f555c8461adab65	no	124
Warnings:					
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7	Non Patent Literature	143_20080204_Complaint.pdf	1149938 225116c9b462300f667260575d9bc54444d947e6	no	33
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8	Non Patent Literature	144_20080826_PACER_72_NVIA_Answer_Affirm_Defs_Counterclaim.pdf	1194515 0914c2cb7248bec1bedde88446917c13577023fa	no	8
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9	Non Patent Literature	145_20080826_PACER_73_Sun_Microsystems_Answer_Affirm_Defs_Counterclaim.pdf	1247452 8b113dc06afd856f5d0795a3f0a457a365287c2e	no	9
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11	Non Patent Literature	147_20080827_PACER_76_Real Networks.pdf	410054 e439de8d44d50f13c5149643ef5f2fc7951ce248	no	9
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12	Non Patent Literature	148_20080827_PACER_80_Intel_Answer_Affirm_Defs_Countercclaims.pdf	473224 d4ab0d26019221cf0da220ee06a7ffa91b823e7b	no	16
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13	Non Patent Literature	149_20080827_PACER_82_RMI_Answer.pdf	1348049 fadbed66337697238862846f88160de1f885b8b1	no	9
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14	Non Patent Literature	150_20080915_PACER_84_Implicit_Reply_to_NVIDIA_Counterclaims.pdf	625539 49c3039afcacb83131a4facb4171808c8bb1141	no	3
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15	Non Patent Literature	151_20080915_PACER_85_Implicit_Reply_to_Sun_Microsystems_Counterclaims.pdf	657120 9adf90214fb4edebf881eed21807d2c6554e6319	no	3
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16	Non Patent Literature	152_20080916_PACER_86_Implicit_Reply_to_RealNetworks_Counterclaims.pdf	795072 f407a7fd131907c32a0797a9ddb94c9bfd02814a	no	4
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18	Non Patent Literature	154_20081210_PACER_96_Stip_and_ORDER_grt_Dismissal_re_NVIDIA.pdf	74901 42f77a8cb76014d83ea2207205d7e0aead639c1b	no	3
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19	Non Patent Literature	155_20081216_PACER_103_Defs_Mtn_to_Stay_Pending_163_Reexam.pdf	1595262 0b28680fbc49462f84a9588b0c00a9a63c57b2c7	no	18
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20	Non Patent Literature	156_20081229_PACER_112_ORDER_grt_Stip_Mtn_for_Dismissal_re_Sun_Microsystems.pdf	99575 e0fa08886747bf1b33097a450f77b438b8f93c98	no	4
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21	Non Patent Literature	157_20090105_PACER_115_Implicit_Opp_to_Defs_Mtn_to_Stay_Pending_Reexam.pdf	3348123 0af7e7fee61a74a1d666c457ac84d96b163e8daa	no	12
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22	Non Patent Literature	158_20090109_PACER_116_Implicit_Reply_re_Defs_Mtn_to_Stay_Pending_Reexam.pdf	502468 4680817f7698bfc811fd7cfa9d6b0fb89c157b5f	no	9
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32	Non Patent Literature	168_20101213_PACER_32_Imp licits_Answer_to_Counterclaim s.pdf	1202956 b4e343733ec08ed0b7fcf9a753e289390843 7ca9	no	7
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37	Non Patent Literature	173_20110218_PACER_43_Imp licits_Answer_to_Counterclaim s.pdf	6320192 d53465e4645db0e4e29ef810daed6be52e1 f837f	no	26
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42	Non Patent Literature	178_20101210_PACER_31_Imp licit_Amended_Complaint.pdf	4223374 47ed12e6586226ce2c46592afceb9a69e87 5f786	no	18
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43	Non Patent Literature	179_20110114_PACER_36_F5s _Answer_to_1st_Amd_Compla int_and_Counter-Complaint. pdf	6344015 0ce4da6d597132b765bf6494eed5aac3111 41a93	no	35
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Total Files Size (in bytes):				403544451	

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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

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New International Application Filed with the USPTO as a Receiving Office

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Electronic Acknowledgement Receipt

EFS ID:	25293359
Application Number:	15050027
International Application Number:	
Confirmation Number:	1056
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
First Named Inventor/Applicant Name:	Edward Balassanian
Customer Number:	126601
Filer:	Dean M. Munyon/Danielle Kramer
Filer Authorized By:	Dean M. Munyon
Attorney Docket Number:	6743-00107
Receipt Date:	24-MAR-2016
Filing Date:	22-FEB-2016
Time Stamp:	12:04:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

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4	Non Patent Literature	184_20110722_F5_Inv_Contentions_Exhibit_A_Part_17.pdf	25655055	no	86
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11	Non Patent Literature	184_20110722_F5_Inv_Contentions_Exhibit_A_Part_24.pdf	25753000 bac9884808c5295d198dd2a2a707810361fcbc44	no	51
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14	Non Patent Literature	184_20110722_F5_Inv_Contentions_Exhibit_A_Part_27.pdf	25358107 5c492545259b8245f87a0c699c4d491a6333fa9a	no	47
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15	Non Patent Literature	184_20110722_F5_Inv_Contentions_Exhibit_A_Part_28.pdf	25340559 d7d218726a6087593cd0b49d245f1072158dd343	no	47
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19	Non Patent Literature	185_20110722_F5_Inv_Contentions_Exhibit_B_Prior_Art_References.pdf	134296 aee5217316ad21f9c8e41222368d9ce69794428e	no	12
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20	Non Patent Literature	186_20111018_PACER_57_Jt_Claim_Construction_Prehearing_Stmt_PR-4-3.pdf	1089002 d80278fb039ee2e26cf8ecc36f6e703d047b3342	no	6
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26	Non Patent Literature	191_20111212_PACER_63_F5_Defendants_Claim_Construction_Brief.pdf	6233832 4fbdad2bc76a15a30589c82694e1912202551e27	no	31
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27	Non Patent Literature	192_20111219_PACER_79_F5_HP_JNI_PLAINTIFFS_REPLY_TO_DEFS_RESPONSIVE.pdf	4672679 1883b76bb5899cbbc1751958a51777fddbdbda9	no	20
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28	Non Patent Literature	193_20120127_PACER_85_Transcript_of_Proceedings_held_on_1-17-12.pdf	190957 9a283ca114583d844682eee53a66f310d129e4b5	no	51
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30	Non Patent Literature	195_20120127_PACER_87_Tra nscript_of_Proceedings_1-19-1 2.pdf	252581 2568c30a5cd07605cd20b013a2a8dcb597 f2455	no	68
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33	Non Patent Literature	198_F5_ValidityRebuttalReport 0910FinalNettles.pdf	1072141 048747f93cc74eb05c61c0662f387bd92ac8 7336	no	67
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34	Non Patent Literature	199_20130313_ORDER_GRANT ING_DEFENDANTS_MSJ.pdf	6501559 55e0ac04da381ca7fd335b3c73ef3ba14ea77 f343	no	30
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38	Non Patent Literature	203_20110114_PACER_31_HPs_Answer_and_Counterclaims_t o_1st_Amd_Complaint.pdf	258890 2fadf0f52ce8f308baa3a3c877548f755de3f aed	no	32
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39	Non Patent Literature	204_20110218_PACER_39_Imp licits_Answer_to_HPs_Counter claims.pdf	5752175 bfef684bdf6c277ec4b9de9c78550e8a0bbb 12ab	no	25
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40	Non Patent Literature	205_20110510_Plaintiffs_Amd _Disclosure_of_Asserted_Claim s_HP.pdf	2038227 cd9ece2abbbe5c64435205e6f462e0ec2b71 e3827	no	11
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41	Non Patent Literature	206_20110630_HP_Invalidity_ Contentions_PLR_3-3_and_3-4. pdf	271846 e3d16ba1ebc6b626ae5b2550642a4e5606 983c7	no	27
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42	Non Patent Literature	207_20110630_HP_Exs_A1-14_ to_HP_Invalidity_Contentions. pdf	1609916 d29170795936765b314fffc7a1b935651e6f bb64	no	331
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44	Non Patent Literature	209_20100920_PACER_1_Origi nal_Complaint.pdf	1247846 b233dc31be922b242e27f0f8509c724f9be7 47c2	no	7
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47	Non Patent Literature	212_20101201_PACER_16_Plaintiffs_1st_Amd_Complaint.pdf	4062289 bbbd6f7bac672e63d19fee217eb5a4af5eb99648	no	18
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51	Non Patent Literature	216_20111115_Disclosure_of_Asserted_Claims_and_Infringement_Contentions.pdf	2049779 bc968e832ccf1500eaf58ff62c25e63aac1fa74a	no	11
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55	Non Patent Literature	220_20111128_PACER_43_Hosie_Dec-Exh-K.pdf	1043936 8decd0402b22b79478c8dffbf5a05346adef120b	no	3
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56	Non Patent Literature	221_20111128_PACER_43_Hos ie_Decl-Exhs_M-O.pdf	1572783 6436db5992c0beb58c3b21af3d2b84c3ff02 7ce8	no	9
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Information:					
Total Files Size (in bytes):			586212182		

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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.

Electronic Acknowledgement Receipt

EFS ID:	25293650
Application Number:	15050027
International Application Number:	
Confirmation Number:	1056
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
First Named Inventor/Applicant Name:	Edward Balassanian
Customer Number:	126601
Filer:	Dean M. Munyon/Danielle Kramer
Filer Authorized By:	Dean M. Munyon
Attorney Docket Number:	6743-00107
Receipt Date:	24-MAR-2016
Filing Date:	22-FEB-2016
Time Stamp:	12:18:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	226_20111212_PACER_48_Hogan_Decl-Exh_P.pdf	451171 <small>bd08af788fa948d63d75a708ca609ce0f9b2d789</small>	no	3

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9	Non Patent Literature	234_20111212_PACER_48_Hogan_Decl-Exh_V.pdf	3278230 c704344de0494f2b8b1f82a674200b9de0dcbc8f	no	4
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10	Non Patent Literature	235_20111212_PACER_48_Hogan_Decl-Exh_W.pdf	2368145 2014247b903a79d8d747fff18c8c9ea1a484317a	no	17
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15	Non Patent Literature	240_20111212_PACER_48_Hogan_Decl-Exh_Y-4.pdf	3164316 bd24dfc0621b11e6052bb4ba93808c61c06b5413	no	31
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19	Non Patent Literature	244_20120110_Amd_Disclosure_of_Asserted_Claims_and_Infringement_Contentions.pdf	2277192 7eb9563ef99ace928a494ddb46febdc0478b0895	no	12
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50	Non Patent Literature	275_11-933022-20100129_Amendment-and-Response.pdf	282036 d84c22ceaeefc8d75ebf98887b5b14601a48 7904	no	7
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51	Non Patent Literature	276_11-933022-20100302-Notice_of_Allowance.pdf	254479 e92112f357f328069cc0720f5c7d7c5867d0 03e6	no	4
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52	Non Patent Literature	277_11-933022-20100504_Issue_Notification.pdf	41169 267fba7aca670ee4c57608250b4ee8bde55 627e7	no	1
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53	Non Patent Literature	278_10-636314-20030806_US_Patent_Application.pdf	1819412 34074db2a0c708442825a9e44d5da51fa60 01b23	no	45
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55	Non Patent Literature	280_10-636314-20080805-Response-to-Restriction-Requirement.pdf	194180 6219276f604251b76d94981b1a3f743f0ede 078c	no	7
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56	Non Patent Literature	281_10-636314-20081003_Non-Final_Rejection.pdf	195337 077d13e518e3c19cb3b182faa05ac36cf9b040c9	no	6
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57	Non Patent Literature	282_10-636314-20090403_Response_to_Office_Action.pdf	246660 bcb317a3faf1ff321a477ca25b8c457e666d8a94	no	9
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58	Non Patent Literature	283_10-636314-20090504_Notice_of_Non_Compliant_Amendment.pdf	72005 7f84f0308e4d1278c261212b45618f7d5f5b332c	no	2
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60	Non Patent Literature	285_10-636314-20090612_Notice_of_Non-Compliant_Amendment.pdf	104371 c5eb2ed0fcf38de39ca0ac1eac5986ad4d1ed096	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			169565477		

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.

Electronic Acknowledgement Receipt

EFS ID:	25293930
Application Number:	15050027
International Application Number:	
Confirmation Number:	1056
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
First Named Inventor/Applicant Name:	Edward Balassanian
Customer Number:	126601
Filer:	Dean M. Munyon/Danielle Kramer
Filer Authorized By:	Dean M. Munyon
Attorney Docket Number:	6743-00107
Receipt Date:	24-MAR-2016
Filing Date:	22-FEB-2016
Time Stamp:	12:33:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	286_10-636314-20090710_Amendment.pdf	348349 <small>2ade06bb042c04fd1bea548c3c7b742a54d99136</small>	no	11

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2	Non Patent Literature	287_10-636314-20091021_Final_Rejection.pdf	490511 b6ec1d73ce07e36be5f0631a007864d6200aaea2	no	16
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3	Non Patent Literature	288_10-636314-20091214_Amendment_After_Final.pdf	1051524 751c349dad7f5ec2039e6b0906ff54f4400fb161	no	17
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4	Non Patent Literature	289_10-636314-20100111_Advisory_Action.pdf	106208 9980c6ffd018f4dc406614d1c82151b4184f9131	no	2
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5	Non Patent Literature	290_10-636314-20100111_Notice_of_Non-Compliant_Amendment.pdf	78694 9969854dbbc99ae6e46a7a0b4a8007091ea554e8	no	2
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6	Non Patent Literature	291_10-636314-20100313_Amendment.pdf	1365678 500da7bd78134050be700d3ca80006a571bdf653	no	27
Warnings:					
Information:					
7	Non Patent Literature	292_10-636314-20100511_Non-Final_Rejection.pdf	436234 a1fa21cf272437d350f243f251b7fa7a8ae2c6a6	no	14
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8	Non Patent Literature	293_10-636314-20100913_Amendment.pdf	981318 0fee806e3d3bf122b05692e0d66c56d775ef433c	no	13
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9	Non Patent Literature	294_10-636314-20101124_Final_Rejection.pdf	514974 572a9ed60d7da9a411a10629f600b478dbb8bd86	no	16
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10	Non Patent Literature	295_10-636314-20110519_Notice_of_Appeal.pdf	126203 7a78036686e71266e2991fd60b3b6b0ff45d0e99	no	2
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11	Non Patent Literature	296_10-636314-20110719_Amendment.pdf	961164 14c3ec68d3083461c8968ca7e27a8212695e39ef	no	12
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12	Non Patent Literature	297_10-636314-20110913_Notice_of_Allowance.pdf	195523 9719a4b668d9b9b1fd678ca226212cd105be51b2	no	3
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13	Non Patent Literature	298_10-636314-20110919_Notice_of_Allowance.pdf	109511 fda39d2ba76feb58ecede10a5427ed990216a488	no	1
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14	Non Patent Literature	299_10-636314-20111019_Issue_Notification.pdf	41367 49e17f453ff9062612a9c7f4417e9a3868f67476	no	1
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Information:					
15	Non Patent Literature	300_09-474664_19991229_Utility_Application.pdf	4198464 7f7d9cb5f85ea0a9266a566f4328ff5aabba801c	no	96
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16	Non Patent Literature	301_09-474664_20020923_Office_Action.pdf	400293 9ae2df5ee8e987fe0c839653b06b1a3241e28471	no	11
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17	Non Patent Literature	302_09-474664_20030224_Amendment-and-Response.pdf	516155 738945bdfda7b052806377171399b1a17d684633	no	13
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18	Non Patent Literature	303_09-474664_20030520_Notice_of_Allowance.pdf	403821 499b73cfbbbc54b50f369011bc685b32ed81c308	no	9
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Information:					
19	Non Patent Literature	304_90-010356-20081215_Request_for_Ex-Parte_Reexam.pdf	130249 3c8ce23a1c56ed1a2c6f662ad31262299ea5fofa	no	4
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20	Non Patent Literature	305_90-010356-20090117_Det ermination_Reexam_Ordered. pdf	429383 e26cb1948c3699debdffb6b3f84a154f6e4f fd72	no	14
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21	Non Patent Literature	306_90-010356-20090707_Non -Final_Office_Action.pdf	546166 1e398b196115a55b5119926a9d8158a823 dc172d	no	17
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Information:					
22	Non Patent Literature	307_90-010356-20090901_Am endment_and_Response.pdf	1481061 b3febdf1e76163e3c4a8100631513b11715 9622e	no	34
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23	Non Patent Literature	308_90-010356-20091023_App licant_Summary_of_Interview. pdf	603935 46b90cd5c902b9a82eb9545c38730d59a38 6e5f4	no	21
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Information:					
24	Non Patent Literature	309_90-010356-20091204_Ree xam-Final_Rejection.pdf	649220 2b39c2b3dd978a9f7b7afa421767c7e1b57 9d7c4	no	19
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Information:					
25	Non Patent Literature	310_90-010356-20091218_Ree xam_Response_to_Final_Rejec tion.pdf	554723 1a2d0fdcaa7b045374da45527a448fc026fe 86ca	no	14
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26	Non Patent Literature	311_90-010356-20100104_Ree xam_Response_to_Final_Rejec tion.pdf	553008 0ee48efee0b048410d93a52d3fd884f2cb81 e2a4	no	14
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27	Non Patent Literature	312_90-010356-20100121_Adv isory_Action.pdf	140734 6d36975d801c640a3d29cd8c0a9324e638d 80045	no	4
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28	Non Patent Literature	313_90-010356-20100208_Am endment_and_Response_to_A dvisory_Action.pdf	799351 62cbab07475e782e35b6510dd0988d1c02 2abb02	no	19
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29	Non Patent Literature	314_90-010356-20100302_Notice_of_Intent_to_Issue_Reexam_Certificate.pdf	197453 7142c3b183e557f8dcacd3da5da1e6b378473989	no	7
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31	Non Patent Literature	316_20120213_Request_for_Inter_Parties_Reexamination.pdf	11897274 542115b095604ebec7a0b9ee10a98075c38e410c	no	281
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32	Non Patent Literature	317_20120403_Decision_Granteding_Reexam.pdf	4273268 3694c33f4a508e7380923c385a6617a54f2e4ce13	no	118
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33	Non Patent Literature	318_20120403_Office_Action.pdf	5433583 7f80cff80d6fce90347fb79d58b2e81b7be27826	no	66
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34	Non Patent Literature	319_20120604_Response_to_4-3-12_OA_Part_1.pdf	12692716 9b4be9e278fb4d347b343035d1c544495244565e	no	49
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35	Non Patent Literature	319_20120604_Response_to_4-3-12_OA_Exh_1_Balassanian_Decl_Exh_A_Part_2.pdf	7741242 269ed5b18255544124402d25ff38da547c10492c	no	194
Warnings:					
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36	Non Patent Literature	319_20120604_Response_to_4-3-12_OA_Exh_1_Balassanian_Decl_Ex-B_Part_3.pdf	422992 1b905ba6b26a9315d75445861511a7f9fd3154ae	no	6
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37	Non Patent Literature	319_20120604_Response_to_4-3-12_OA_Exh_2_CLAIM_CONSTRUCTION_ORDER_93_Part_4.pdf	2566749 d260acfd9a59b838148ca7ef81875a039bd344	no	14

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38	Non Patent Literature	320_20120705_3rd_Party_Comments_to_PO_Response.pdf	3021288 4d418818f08a7b4756ca95d9bacd9e134f871632	no	44
Warnings:					
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39	Non Patent Literature	321_20120705_R-1_to_3rd_Party_Requesters_Comments_to_PO_Response_to_OA.pdf	279466 6c85297f0e12f8c8ad855677bec3a52661af67e0	no	4
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40	Non Patent Literature	322_20120705_R-2_to_3rd_Party_Requesters_Comments_to_PO_Response_to_OA.pdf	209529 78e86a55cc241d1a4d5c9f48c4046f317f449ace	no	4
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41	Non Patent Literature	323_20120705_R-3_to_3rd_Party_Requesters_Comments_to_PO_Response_to_OA.pdf	1236384 1b7a6fa7192859e04c4a9b45d3709997ee1cf24e	no	18
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43	Non Patent Literature	325_20120705_R-5_to_3rd_Party_Requesters_Comments_to_PO_Response_to_OA.pdf	1628357 722fe54d41425b2080f69f4a59301fd97f7fe795	no	36
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Warnings:					
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47	Non Patent Literature	329_20120705_R-9_to_3rd_Party_Requesters_Comments_to_PO_Response_to_OA.pdf	957050 77d4a099e839694dbe59635e325235c2cc1d2cd6	no	16
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The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
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48	Non Patent Literature	330_20120705_R-10-1_to_3rd_Party_Requesters_Comments_to_PO_Response_to_OA.pdf	9979650 e91a8df9e19b9b17989864595bad64d2f844e4c	no	126
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49	Non Patent Literature	331_20120705_R-10-2_to_3rd_Party_Requesters_Comments_to_PO_Response_to_OA.pdf	10521371 b8ad53c3d7c336ee780ed928e6f17a6375dfd61	no	132
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
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51	Non Patent Literature	333_20120705_R-10-4_to_3rd_Party_Requesters_Comments_to_PO_Response_to_OA.pdf	6935965	no	84
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53	Non Patent Literature	335_20121001_Action_Closing_Prosecution.pdf	6045239	no	145
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54	Non Patent Literature	336_20121120_Petition_to-Withdraw_and_Reissue_ACP.pdf	781319	no	9
			1ee772bfc1e8cd53d6e3f68e34a56429d3a1bbba		

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55	Non Patent Literature	337_20121203_Comments_to_ACP_163.pdf	338009	no	53
			b9cc2826f6bcd70c091f078ed074358bd8915b0d		

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56	Non Patent Literature	338_20121217_Opp_to_Petition.pdf	644778	no	14
			1e5387c2adeef44880a0fb200a9adeb5c8260cd6		

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58	Non Patent Literature	340_95-000660_20120302_Inte r-Partes-Reexam-Request.pdf	16584775 f0997125cb21f18dd6b1e2cfb8acc9b2c2f7 5c3f	no	371
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59	Non Patent Literature	341_95-000660_20120510_Ord er_Granteeing_Reexam.pdf	4466574 2b93afac7b914918fe451b15c436f908fe53 9c0d	no	111
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Information:					
Total Files Size (in bytes):				155048547	
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> 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.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> 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.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> 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.</p>					

INTERNATIONAL SEARCH REPORT

Intern. Patent Application No

PCT/US 00/33634

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 H04L29/06 H04L12/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 5 870 479 A (DE LANGE MARTIN KLAAS ET AL) 9 February 1999 (1999-02-09) abstract column 2, line 37 -column 3, line 20 column 5, line 37 -column 6, line 13 column 6, line 24 - line 34 column 6, line 52 -column 7, line 2 claims 15,6,7,8 --- -/--	1,2,6,7, 10,22, 23,29,30 3-5,8,9, 11-21, 23-28, 31-34

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
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- *O* document referring to an oral disclosure, use, exhibition or other means
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- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
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Date of the actual completion of the international search

Date of mailing of the international search report

3 September 2001

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Lai, C

INTERNATIONAL SEARCH REPORT

Intern. Patent Application No
PCT/US 00/33634

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 568 478 A (VAN LOO JR GERRIT J ET AL) 22 October 1996 (1996-10-22) abstract column 3, line 10 -column 4, line 40 figures 1-3 -----	19-21, 31-34

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern. Application No

PCT/US 00/33634

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5870479 A	09-02-1999	NL 9301841 A	16-05-1995
		AU 679798 B	10-07-1997
		AU 8059594 A	22-05-1995
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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

8

Applicant's or agent's file reference PCT 1433-034/no	FOR FURTHER ACTION		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US00/33634	International filing date (day/month/year) 12/12/2000	Priority date (day/month/year) 29/12/1999	
International Patent Classification (IPC) or national classification and IPC G06F13/00			
Applicant BECOMM CORPORATION et al.			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 27/07/2001	Date of completion of this report 08.04.2002
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Prins, L Telephone No. +49 89 2399 7433



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US00/33634

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-24 as originally filed

Claims, No.:

17-34 as originally filed

1-16 as received on 21/03/2002 with letter of 21/03/2002

Drawings, sheets:

1/16-16/16 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US00/33634

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

see separate sheet

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims
	No:	Claims 1-4,7,9-12,15
Inventive step (IS)	Yes:	Claims
	No:	Claims 1-4,7,9-12,15
Industrial applicability (IA)	Yes:	Claims 1-4,7,9-12,15
	No:	Claims

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US00/33634

1. Reference is made to the following document(s):

D1: US-A-5 870 479 (DE LANGE MARTIN KLAAS ET AL) 9 February 1999
(1999-02-09)

Re Item V

2. This report has been established as if the amendments consisting of claims 5, 6, 8, 13, 14 and 16 had not been made, since they have been considered to go beyond the disclosure as filed (Article 19(2) and Rule 70.2(c) PCT).
 - 2.1 No basis could be found in the original application documents for the "same sub-sequence of routines" by which two messages may be processed according to amended claims 5 and 13.
 - 2.2 No basis could be found in the original application documents for the "multiple second routines" or "multiple routines to next process a packet" according to amended claims 6 and 14. These wordings indicate that the output of a first routine is serves as input for two separate subsequent routines which is not disclosed in the original application documents.
 - 2.3 No basis could be found in the original application documents for the "tree of routines" according to amended claims 8 and 16.
3. The amended independent claims 1 and 9 contain the respective wordings

"identifying based on the generated information of the first routine a second routine" and the corresponding "wherein a sequence of routines is identified for processing packets of a message based on information generated by a previous routine in the sequence" in claim 1, and

"identifies a sequence ... based on information generated by a previous routine in the sequence" in claim 9,

for which also no basis could be found in the original application documents (Art.

19(2) PCT). This report has been established as if the above mentioned features are not part of the independent claims.

4. Claims 1-4,7,9-12 and 15 do not meet the requirements of Article 33(2) PCT, because the subject-matter of these claims is not new. Document D1 discloses the subject-matter of these claims as follows:
 - a) A method in a computer system for processing packets of a message (column 1, lines 3-4),
 - b) identifying which of a plurality of components is to process a received packet (column 2, lines 37-43) on the basis of an identification of the packet,
 - c) realisation of the processing in software (column 2, lines 60-65),
 - d) status information being stored in an external memory (column 4, lines 8-18, and column 6, lines 53-55),
 - e) assigning packets of the same message to the same component (column 3, lines 16-20, and column 5, lines 61-65),
 - f) performing a sequence of processing steps in order by a plurality of components (column 6, lines 20-24).

Re Item VII

3. Independent claims 1, 6, 10, 19, 22, 29, 30, and 31 are not in the two-part form in accordance with Rule 6.3(b) PCT, with those features known in combination from the prior art being placed in a preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in a characterising part (Rule 6.3(b)(ii) PCT).
4. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
5. Document D1 is considered the most relevant source of prior art. To meet the

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US00/33634

requirements of Rule 5.1(a)(ii) PCT, document D1 should have been identified in the description and the relevant background art disclosed therein should have been briefly discussed.

Re Item VIII

16. The description contains a reference to a US patent application on page 6, line 5. This reference should have been replaced by a publication number if available, so that the document can be easily retrieved (PCT Guidelines II 4-17), or else have been deleted from the description.

Application No: PCT/US00/33634

Applicant: BECOMM CORPORATION et al

Our ref: PCT1433-03481/km

Date: March 21, 2002

New Claims

1. A method in a computer system for processing packets of a plurality of messages, the method comprising:
providing a plurality of routines for processing messages; and
for packets of a message,
identifying a first routine of the plurality of the routines for processing the packet;
executing the first routine to process the packet using state information generated when the first routine processed a previous packet of the message, the processing including generating new state information for the message and generating output information;
identifying based on the generated information of the first routine a second routine of the plurality of the routines for processing the packet; and
executing the second routine to process the packet using state information generated when the second routine processed a previous packet of the message and using output information generated when the first routine processed the previous packet, the processing including generating new state information for the message and generating output information
wherein a sequence of routines is identified for processing packets of a message based on information generated by a previous routine in the sequence and wherein each identified routine processes packets of the message based on state information generated when the routine processed a previous packet of the message and based on output generated when a previous routine in the sequence processed the packet of the message.

2. The method of claim 1 wherein each routine identifies state information generated when the routine processed a previous packet of the message.
3. The method of claim 1 including storing state information generated by a routine for a plurality of messages.
4. The method of claim 1 wherein all packets of a message are processed by the same sequence of routines.
5. The method of claim 4 wherein two messages may be processed by a sub-sequence of routines that are the same.
6. The method of claim 1 wherein multiple second routines are identified for processing a packet of a message.
7. The method of claim 6 wherein each second routine processes the packet using state information generated when the second routine processed a previous packet of the message and using output information generated when the packet was processed by the first routine, the processing including generating new state information for the message and generating output information.
8. The method of claim 7 wherein the identified routines form a tree of routines.
9. A computer system for processing packets of a plurality of messages, comprising:
a plurality of routines for processing messages; and
a component that identifies a sequence of routines for processing packets of a message based on information generated by a previous routine in the sequence and wherein each identified routine processes packets of the message based on state information generated when the routine processed a previous packet of the message and based on output information generated when a previous routine in the sequence processed the packet of the message.

10. The computer system of claim 9 wherein each routine identifies state information generated when the routine processed a previous packet of the message.
11. The computer system of claim 9 wherein the component stores state information generated by a routine for a plurality of messages.
12. The computer system of claim 9 wherein all packets of a message are processed by the same sequence of routines.
13. The computer system of claim 12 wherein packets of two messages may be processed a sub-sequence of routines that are the same.
14. The computer system of claim 9 wherein multiple routines are identified to next process a packet of a message.
15. The computer system of claim 14 wherein each of the multiple routines processes the packet using state information generated when that routine processed a previous packet of the message and using output information generated when the packet was processed by a previous routine, the processing including generating new state information for the message and generating output information.
16. The computer system of claim 15 wherein the identified routines form a tree of routines.

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Europäisches Patentamt
European Patent Office
Office européen des brevets

11 Veröffentlichungsnummer:

11 Publication number:

11 Numéro de publication:

0 807 347

Internationale Anmeldung veröffentlicht durch die
Weltorganisation für geistiges Eigentum unter der Nummer:

WO 97/00471 (art.158 des EPÜ).

International application published by the World
Intellectual Property Organisation under number:

WO 97/00471 (art.158 of the EPC).

Demande internationale publiée par l'Organisation
Mondiale de la Propriété sous le numéro:

WO 97/00471 (art.158 de la CBE).



12 **EUROPEAN PATENT APPLICATION**

21 Application number: **90201823.3**

51 Int. Cl.⁵: **G06F 15/403**

22 Date of filing: **09.07.90**

30 Priority: **14.07.89 NL 8901827**

43 Date of publication of application:
16.01.91 Bulletin 91/03

84 Designated Contracting States:
DE FR GB IT NL

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54 **A system for processing data organized in files and a control module for use therein.**

57 The system comprises conversion means for translating the format in which data are stored in the memory. These conversion means are of modular design with a control module (10) and separate converters (15a-15n), each adapted to perform a specific conversion. To perform a conversion, the control module (10) searches for the converter (15a) adapted thereto and starts the same. The control module (10) is provided with a transformer (10d) which transforms the signals delivered to the converter (15a) by the control module (10) into signals comprehensible to the converter (15a), and vice versa. The translation table required for this is stored in the configuration file (12) of the system, together with the translation tables of the other converters.

New converters can be easily added by loading the program in the system memory and including the associated translation table in the configuration file (12).

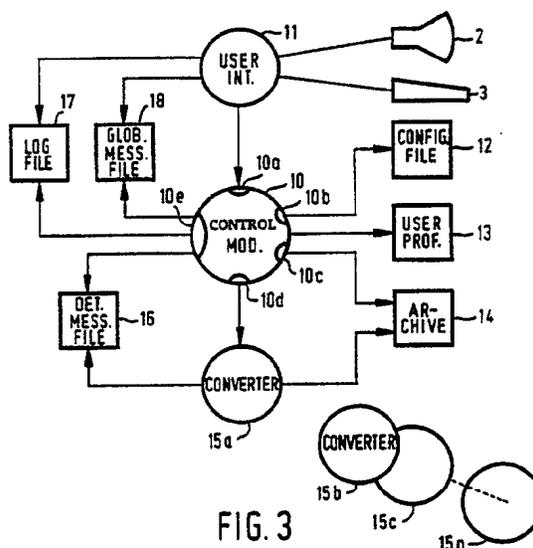


FIG. 3

EP 0 408 132 A1

A SYSTEM FOR PROCESSING DATA ORGANIZED IN FILES AND A CONTROL MODULE FOR USE THEREIN

The invention relates to a system for processing data organized in files, the data being stored in a file in accordance with one of various possible formats, comprising a memory and a process stage having an operating module for maintaining contact with a user and conversion means whereby, on a command for the purpose, the data in a file are converted from a first format (source format) into a second different format (target format). The invention also relates to a control module for use in such a system.

Systems of this kind are generally known. They are provided with processing modules which are lodged in the process stage and, at the user's command, can carry out processing operations on data stored in the memory. The data are represented in a specific way by binary codes. The way in which data are coded is based on agreements, known as formats, which are implemented in the system. There are many such formats all differing from one another to a greater or lesser degree. As a rule, a processing module can only process data if the latter are in a specific format.

Consequently, it may be necessary to convert data from one format to another because they cannot be processed in the form in which they are available. Systems of this kind are frequently equipped with conversion means for this purpose. A survey of the prior art in this area is given in "Document interchange systems", International Datapro reports on wordprocessing, Febr. 1989, McGraw-Hill, page, WPO9-100-101 ... WPO9-100-115.

The known conversion means are either program modules which form an integral part of the application package of the system or separate packages specially written for use in a specific system. Expanding the conversion means by a new conversion is therefore a complex affair requiring considerable knowledge of the system and involving considerable work because adjustments have to be made at various places in the package.

The object of the invention is to provide a system provided with conversion means which can be readily expanded with new conversions. This object is attained in that in a system according to the invention, the conversion means comprise converters each adapted to execute a specific conversion, a list of all the available converters, and a control module, the latter being provided with input and output means, connected to the operating module, for receiving commands therefrom and sending data relating to a conversion thereto, selection means for selecting a converter or a series of converters from the list on the basis of a re-

ceived conversion command, and communication means for starting up and then communicating with a selected converter.

As a result of this, the conversion functionality in the system is divided up into a control stage which forms part of the application package of the system, and a number of separate converters which do not belong thereto. These converters are completely shielded from the rest of the system by the control stage. In this way it is possible to add or remove converters without having to carry out any operations on the software of the system itself.

In one embodiment of the system according to the invention, to further improve the flexibility of this system, data specific to each converter and specifying the commands to and the messages from such converter are stored in the said list, and the communication means are provided with a transformer which regulates the communication with a selected converter by reference to the specific data.

In this way it is possible to add various converters without the converter operating specifications having to satisfy great requirements. When the commands specified for the converter operation differ from those generated by the control module, they are "translated" by the transformer in accordance with the specifications in the list. Conversely, messages delivered by the converter during its operation are transformed by the same transformer into messages comprehensible to the control module. Installation of a new converter is greatly simplified as a result and simply comprises loading the converter software into the memory and storing the name and translation specifications of the converter in the list.

According to another embodiment of the system according to the invention, also stored in the said list are data relating to conversions available by a combination of converters, together with the converters required and the sequence in which they have to be combined. This further enhances the utility of the conversion functionality.

According to another embodiment of the systems according to the invention, the selection means are adapted to inventurise and present to the user for selection all the available target formats on a conversion command, starting from the source format of the data in the file to be converted. This increases the operating convenience for the user, since he simply has to indicate the required conversion, and it is also immediately clear what conversions are possible and hence what are not possible.

In order to inform the user conveniently of any

problems occurring in the conversion, the control module is provided with diagnostic means whereby certain messages from those relating to the progress of a conversion as generated during the same are selected on the basis of an importance level preselected by the user and are collected in a file for presentation to the user. In this way the user receives information at his own level and is therefore, for example, not overloaded with information which he does not understand or with which he cannot do anything.

Other features and advantages will be apparent from the following description and the accompanying drawings in which like references denote like parts. In the drawings:

Fig. 1 illustrates a system according to the invention,

Fig. 2 is a schematic of various parts of the system according to the invention,

Fig. 3 is a schematic of various parts of the system according to the invention during a conversion,

Fig. 4 shows an operating field on the system screen.

Fig. 1 illustrates a system according to the invention. It comprises a central process stage 1 having a microprocessor and a memory, operating means such as a screen 2, a keyboard 3 and a mouse 4, and storage and connecting means for storing or inputting or outputting data, such as a disk station 5 and a connection 6 to a network of data-processing systems. By means of the mouse 4 it is possible to move an indicator element or cursor 7 over the screen 2.

Programs for processing data are available in the process stage, for example for the makeup of a document from data input via the keyboard 3 or from the storage and connecting means 5, 6.

Fig. 2 schematically illustrates that stage of the system of Fig. 1 which is relevant to format conversion.

Central to the implementation of the conversion function is the conversion control module 10. It is connected via an interface 10a to the operating module 11 which by means of the screen 2 and the keyboard 3 provides communication with an operator. The control module is also connected to a number of data files in the system memory, namely the configuration file 12 (via a selection function 10b), the file 13 containing user data (user profile), and the archive 14 (via a connecting function 10c). These three files all belong to the general part of the system and are not intended exclusively for the conversion function. The configuration file 12 contains a list of all the functions available in the system, both hardware and software, with the data for the operation thereof. The user data file 13 contains a list of system options specific to each

user permitted to use the system, such as permits and defaults for alternative system functions. Finally, the archive 14 contains data files which have been or are required to be processed by means of the system, e.g. the content of documents made with the system. These files are stored in the archive 14 by name, i.e. each data file in the archive is identified by a unique name and the archive function regulates the physical location of the data of a file itself. Finally, the control module 10 also contains a communication function 10d and a diagnostic function 10e, the operation of which will become clear in the following description.

The system also comprises a number of converters 15a to 15n each adapted for the conversion of a file with data in a specific first format to a file with data in a specific second format. All the converters available in the system are contained in the configuration file.

The converters are programs which are required to be started in a specific way, convert a designated data file, and deliver the converted file under a previously given name to the archive, after which they give a readiness message and stop. During conversion they report problems that they encounter, such as if they meet in the file to be converted data for which there is no equivalent available in the target format. In some cases the converter will then terminate the conversion but in other cases it will simply make a less satisfactory conversion and give a warning.

The set of commands and messages does not have to be the same for each converter in the system described. In fact the configuration file 12 contains for each converter a list of command and messages with the translations comprehensible to the control module.

The complete procedure in the case of a conversion will now be described with reference to Fig. 3 where necessary.

The user selects a specific data file (the "source file", stored in the archive in the "source format") that he wishes to have converted into another format (the "target format"). Selection can be done, for example, by indicating with the cursor on the screen an icon representing the source file.

The user gives the conversion command, e.g. by indicating with the cursor on the screen a menu area representing such command.

The control module searches the source file in the archive via its connecting function 10c and determines the source format. This format may, for example, be indicated in the name of the source file, by a file extension. If the control module is not able to detect the source format, then the control module itself selects a previously prepared and programmed-in default which, for example, comprises the ASCII format, since this is very much

used.

By means of the data in the configuration file, the selection function 10b of the control module then searches all the target formats available from the source format, both with single converters and with combinations of converters, and transmits these to the operating module 11 for presentation to the screen. By means of the cursor the user can now select one of these, provided that the target format last used with that source format has already been preselected as target format by the control module. The reason for this is that if the user is involved with a specific processing package, he will probably always want to convert to the specific format of that package, and this preselection is labour-saving for the user.

The user now confirms the target format default or changes the selection. The user can now also input a name for the converted file. If he does not do so, the control module itself gives a name to this file, e.g. by providing the source file name with an extension containing a code for the target format.

An example of an operating field on the screen 2 with which the above-described operation of the conversion function can be carried out is given in Fig. 4. The field contains at the top a space 100 for any messages and queries to the user. It also contains a space 101 for the name of the source file. A series 102 of short names for the formats that can be converted by the system then follows. In the example illustrated, the source format is "wp", which denotes the Wordperfect format. This is indicated in the operating field by the blackened frame around the option "wp" in the series 102. For the sake of clarity, the format name is also indicated in full therebeneath. If the source format cannot be derived from the file name, the control module asks the user, by means of a message in the space 100, to indicate the source format in the series 102.

Beneath the name of the source format there follows a series 103 with all the target formats possible with the said source format. Since the user in this example had carried out a conversion from Wordperfect format to ASCII format prior to the conversion now described, this format is selected as the default, but the user can change this setting by indicating another format in the series 103. The full name of the target format is again written out beneath the series 103.

Finally, a space 104 for the name of the converted file follows in the operating field. Here again the control module has a default, namely the name of the source file with an extension indicating the target format, but the user can amend this name as he wishes, simply by typing the new name over it.

Once the source and target formats are known,

the selection function 10b of the control module determines the conversion path, i.e. determines what converter or converters have to be activated successively. The data for this are in the configuration file. The list with commands and messages of the intended converter or, in the case of a combination of converters, of the first converter, are read out of the configuration file by the control module and prepared for communication with this converter. The following files are then created in the memory by the diagnostic function 10e of the control module: a detailed message file 16, a logbook file 17 and a global message file 18. The control module also brings up from the operating module 11 an identification (name) for a file in which the converted data are to be stored (the "destination file").

The communication function 10d of the control module now starts up the converter 15a and in so doing passes the following data to the converter: the identification of the source file, the name of the destination file and the identification of the detailed message file 16, and also a number of control parameters. The control module also itself writes the starting up of the converter in the detailed message file 16.

The converter 15a fetches the source file from the archive 14, converts it, creates a destination file under the indicated name in the archive 14, writes the result in the destination file and writes any messages in the detailed message file 16. Finally the converter stops its activity, either because the conversion is finished or because a fatal error has occurred, and give its final message at the control module communication function 10d.

On the final message from convertor 15a the diagnostic function 10e of the control module reads the detailed message file 16 out and transfers all the messages therein or part thereof to the logbook file 17. The user data in the file 13 play a part in this respect. The reason for this is that they contain a qualification of the intended user in respect of the extent to which the messages are to be transmitted to him. In the case of the qualification "normal" only a limited selection of messages is transmitted, i.e. those which relate to the conversion as a total process but not, for example, messages from an intermediate step in a combination of converters. This is sufficient information for most users because after all they cannot do anything with messages from the intermediate steps; they have in fact no knowledge that intermediate steps have been performed, because the control module has arranged this. For expert users there is also a qualification "extensive", with which all messages from the detailed message file 16 are transferred to the logbook file 17.

If the target format has been reached, the

control module then transfers a simple message to the global message file 18. This is a final message containing the final result of the conversion e.g.: "conversion successful", "conversion successful, but some errors present in result", or "conversion unsuccessful, see logbook file". The control module then reports itself ready at the operating module 11.

If the target format has not yet been reached, and at least one following conversion is still to be performed, the control module repeats the described procedure completely for the next converter, unless the finished conversion has been terminated by a fatal error. In the latter case the control module terminates the conversion procedure, writes a message on this in the global message file 18 and reports the termination to the operating module 11.

The operating module 11 reads out the global message file 18 and presents its contents on the screen 2. If necessary, the user can now display the logbook file 17 on the screen 2 by means of the operating module in order to inspect this file. The user can also bring up the contents of the converted file from the archive 14 and display it on the screen. In the event of non-fatal conversion errors occurring, they are indicated on the screen, e.g. in displaying them in reverse video. The user can then correct them if necessary. This terminates the conversion procedure.

The system described also offers the possibility of converting a number of files to a specific target format by a simple command. For this purpose the user simply has to indicate all the files to be converted in his conversion command. Interactive processing or batch processing can be selected. In the batch mode the control module 10 performs all the required conversions and reports back with all the results after completion. If a fatal error occurs during one of the conversions, such conversion is interrupted and the control module starts on the next. In the interactive mode, however, the control module 10 reports back with its results after each conversion and awaits the user's reaction in the event of an error.

The addition of a new converter is very simple with the system described. A translation table is made once and for all for the new converter and contains all the commands and messages required for communication between the converter and the control module 10. On installation, the converter program is stored in the system memory and the name of the converter together with the translation table is written into the configuration file 12. Starting from the newly added converter it is also possible to make up different conversions by combining the new converter with existing converters. These are also included in the configuration file 12 with a

reference to the constituent converters. It would also be possible for this to be carried out automatically by arranging for an installation program present for the purpose in the system to check immediately on installation of a new converter what extra conversions are possible by combination of the new converter with existing converters, and writing this into the configuration file 12. When new conversions have been installed in this way, the control module can immediately identify and use them without the system having to be newly compiled or started.

It will be seen from the above that the system described enables very different converters to be used without their having to satisfy stringent requirements.

Although the invention has been described with reference to the above example, it is not restricted thereto. Numerous alternative embodiments within the scope of the claims will be obvious to the skilled addressee. Communication with the user can be arranged in some other way. A successful conversion, for example, need not necessarily be reported in a separate message on the screen.

Claims

1. A system for processing data organized in files, the data being stored in a file in accordance with one of various possible formats, comprising a memory and a process stage having an operating module for maintaining contact with a user and conversion means whereby, on a command for the purpose, the data in a file are converted from a first format (source format) into a second different format (target format), characterised in that the conversion means comprise converters each adapted to execute a specific conversion, a list of all the available converters, and an control module, the latter being provided with input and output means, connected to the operating module, for receiving commands therefrom and sending data relating to a conversion thereto, selection means for selecting a converter or a series of converters from the list on the basis of a received conversion command, and communication means for starting up and then communicating with a selected converter.
2. A system according to claim 1, characterised in that data specific to each converter and specifying the commands to and the messages from such converter are stored in the list of all available converters, and in that the communication means are provided with a transformer which regulates the communication with a selected converter by reference to the specific data.
3. A system according to claim 1 or 2, charac-

terised in that also stored in the said list are data relating to conversions available by a combination of converters, together with the converters required and the sequence in which they have to be combined.

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4. A system according to claim 1, 2 or 3, characterised in that the selection means are adapted to inventorise and present to the user for selection all the available target formats on a conversion command, starting from the source format of the data in the file to be converted.

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5. A system according to any one of the preceding claims, characterised in that the control module is provided with means whereby identification data relating to a data file to be converted stored in the memory and an identification for a destination file for the storage of converted data resulting from a conversion are made known to a started converter via the communication means.

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6. A system according to any one of the preceding claims, characterised in that the control module is provided with diagnostic means whereby certain messages from those relating to the progress of a conversion as generated during the same are selected on the basis of an importance level preselected by the user and are collected in a file for presentation to the user.

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7. A system according to claim 6, characterised in that the diagnostic means are adapted to create at least one file in the memory for messages relating to the progress of a conversion and to make known to a started converter via the communication means identification data of a first file of this kind.

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8. A system according to claim 7, characterised in that the diagnostic means are also adapted to select certain messages from those stored in the said first message file and to store the same in a second message file.

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9. A control module for use in a system according to any one of the preceding claims.

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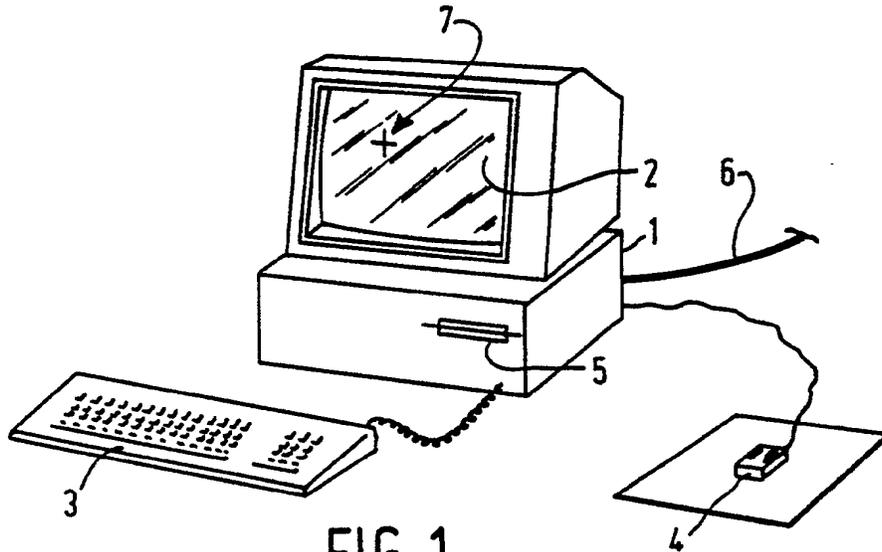


FIG. 1

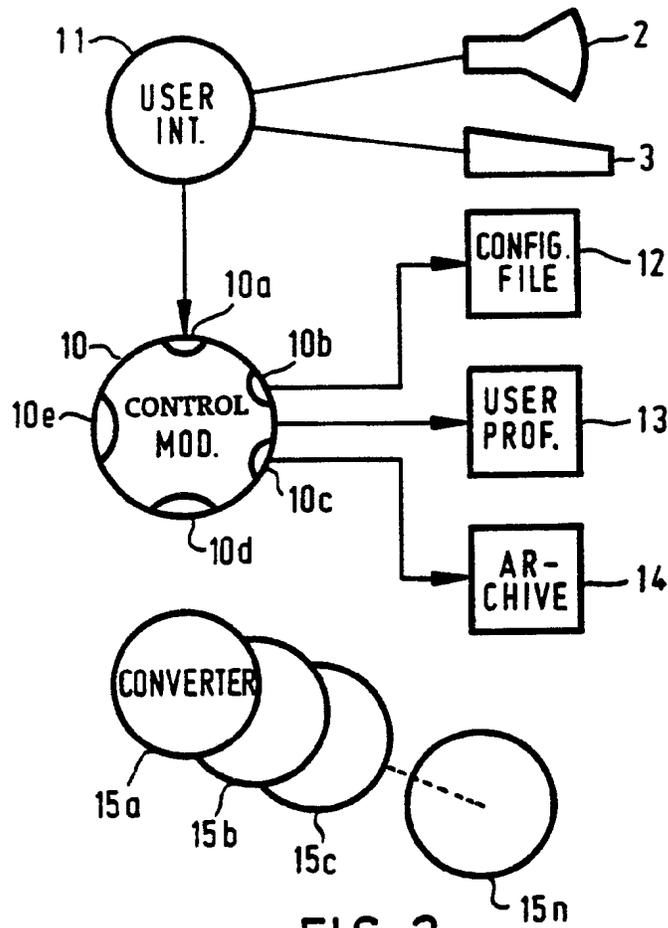


FIG. 2

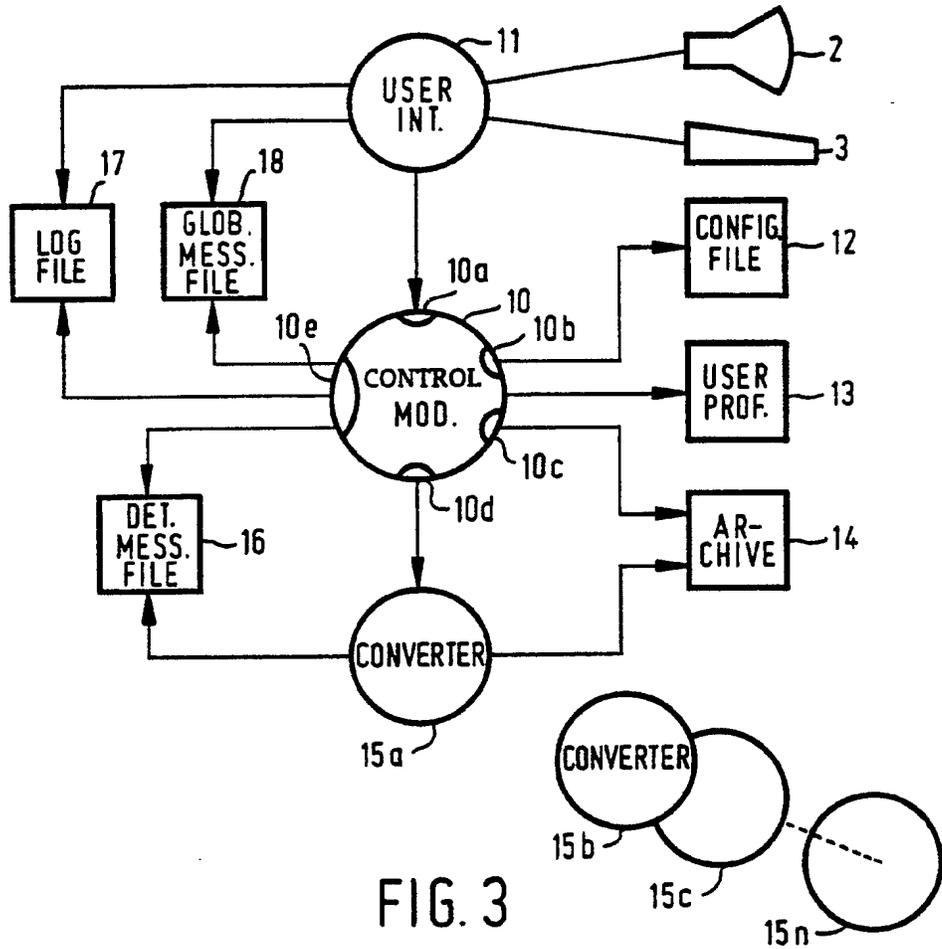


FIG. 3

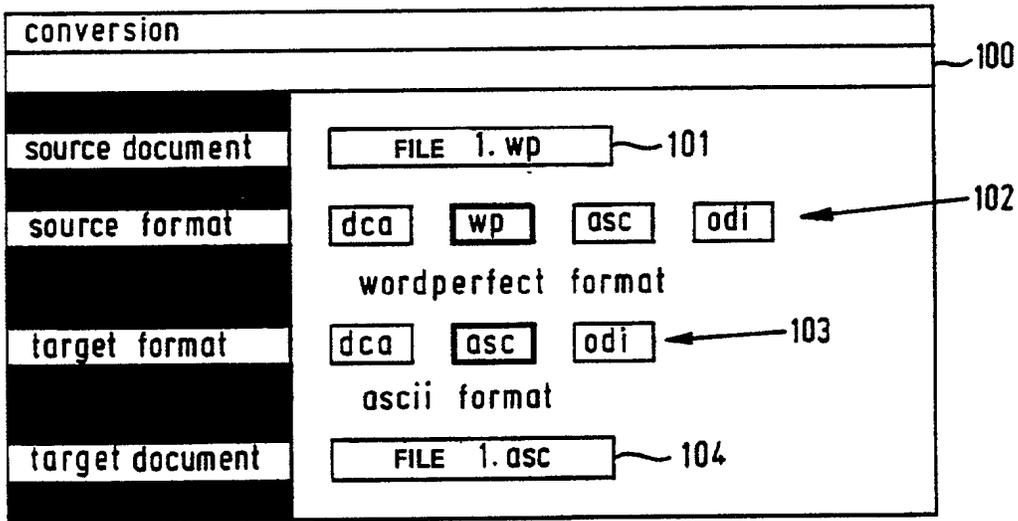


FIG. 4



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	EP-A-0 130 375 (IBM) * Abstract; page 7, lines 11-32; page 12, lines 7-19,25-35; page 20, line 8 - page 21, line 3 *	1,2	G 06 F 15/403
Y	---	3	
A	---	5	
Y	EP-A-0 216 480 (TEKNOWLEDGE) * Column 13, line 50 - column 14, line 53; column 141, lines 35-43 *	3	
A	ELECTRONIQUE APPLICATIONS, no. 58, February/March 1988, pages 61-64, Paris, FR; P. SOTO: "Transfert de fichiers IBM-Apple" * Page 63, left-hand column, lines 20-51 *	6	
A	SYSTEMS AND COMPUTERS IN JAPAN, vol. 19, no. 10, 1988, pages 80-86, Scripta Technica, Inc.; M. NAGATA et al.: "A method for generating messages of the interactive software based on the individual user model" * Sections 2.2,2.2.1,2.2.2,2.3; figures 1,4,5 *	6	TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			G 06 F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 31-08-1990	Examiner WILTINK J.G.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03/82 (P0401)

Electronic Acknowledgement Receipt

EFS ID:	25294362
Application Number:	15050027
International Application Number:	
Confirmation Number:	1056
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
First Named Inventor/Applicant Name:	Edward Balassanian
Customer Number:	126601
Filer:	Dean M. Munyon/Danielle Kramer
Filer Authorized By:	Dean M. Munyon
Attorney Docket Number:	6743-00107
Receipt Date:	24-MAR-2016
Filing Date:	22-FEB-2016
Time Stamp:	12:55:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	343_20120710_Response_to_Office_Action.pdf	2676190 <small>18d4f2e00a5ea598506dcece0cdda235ebac a25de</small>	no	47

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Warnings:

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4	Non Patent Literature	344_20120809_Third_Party_Requesters_Comments_After_Patent_Owners_Response.pdf	3459003	no	48
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5	Non Patent Literature	345_DecofBernhardP.pdf	201289	no	4
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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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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.

Doc Code: DIST.E.FILE Document Description: Electronic Terminal Disclaimer - Filed	PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce
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Electronic Petition Request	TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT
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Application Number	15050027
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Filing Date	22-Feb-2016
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First Named Inventor	Edward Balassanian
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Attorney Docket Number	6743-00107
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Title of Invention	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
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<input checked="" type="checkbox"/> Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action <input checked="" type="checkbox"/> This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.
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Owner	Percent Interest
Implicit, LLC	100%

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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	/Dean M. Munyon/
Name	Dean M. Munyon

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Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	15050027			
Filing Date:	22-Feb-2016			
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING			
First Named Inventor/Applicant Name:	Edward Balassanian			
Filer:	Dean M. Munyon			
Attorney Docket Number:	6743-00107			
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	160	160
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 (\$)				160

Doc Code: DISQ.E.FILE

Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 15050027

Filing Date: 22-Feb-2016

Applicant/Patent under Reexamination: Balassanian et al.

Electronic Terminal Disclaimer filed on March 24, 2016

APPROVED

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EFS ID:	25294443
Application Number:	15050027
International Application Number:	
Confirmation Number:	1056
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
First Named Inventor/Applicant Name:	Edward Balassanian
Customer Number:	126601
Filer:	Dean M. Munyon
Filer Authorized By:	
Attorney Docket Number:	6743-00107
Receipt Date:	24-MAR-2016
Filing Date:	22-FEB-2016
Time Stamp:	13:06:54
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$160
RAM confirmation Number	26453
Deposit Account	501505
Authorized User	MUNYON, DEAN M.

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Electronic Terminal Disclaimer-Filed	eTerminal-Disclaimer.pdf	34862	no	3
			37bfa5733a93da5e33a3a81d17a274ba7c0941d7		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30505	no	2
			3440e8e48a47d03c98c6d685f3efcf4bcbeb6cd8		

Warnings:

Information:

Total Files Size (in bytes):	65367
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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.



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Table with 4 columns: APPLICATION NUMBER (15/050,027), FILING OR 371(C) DATE (02/22/2016), FIRST NAMED APPLICANT (Edward Balassanian), ATTY. DOCKET NO./TITLE (6743-00107)

CONFIRMATION NO. 1056

PUBLICATION NOTICE

126601
MHKKG (Implicit/BeLabs)
P.O. Box 398
Austin, TX 78767-0398



Title:METHOD AND SYSTEM FOR DATA DEMULTIPLEXING

Publication No.US-2016-0173653-A1
Publication Date:06/16/2016

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



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NOTICE OF ALLOWANCE AND FEE(S) DUE

126601 7590 06/29/2016
MHKKG (Implicit/BeLabs)
P.O. Box 398
Austin, TX 78767-0398

Table with 2 columns: EXAMINER (DUONG, DUC T), ART UNIT (2467), PAPER NUMBER (1056)

DATE MAILED: 06/29/2016

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.

TITLE OF INVENTION: METHOD AND SYSTEM FOR DATA DEMULTIPLEXING

Table with 7 columns: APPLN. TYPE, ENTITY STATUS, ISSUE FEE DUE, PUBLICATION FEE DUE, PREV. PAID ISSUE FEE, TOTAL FEE(S) DUE, DATE DUE

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: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 or Fax (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.

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.

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

126601 7590 06/29/2016
MHKKG (Implicit/BeLabs)
 P.O. Box 398
 Austin, TX 78767-0398

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 facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/050,027	02/22/2016	Edward Balassanian	6743-00107	1056

TITLE OF INVENTION: METHOD AND SYSTEM FOR DATA DEMULTIPLEXING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	09/29/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
DUONG, DUC T	2467	370-392000

<p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</p> <p><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.</p> <p><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.</p>	<p>2. For printing on the patent front page, list</p> <p>(1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____</p> <p>(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. 2 _____</p> <p>3 _____</p>
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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 has been filed for recordation as set forth in 37 CFR 3.11. 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

<p>4a. The following fee(s) are submitted:</p> <p><input type="checkbox"/> Issue Fee</p> <p><input type="checkbox"/> Publication Fee (No small entity discount permitted)</p> <p><input type="checkbox"/> Advance Order - # of Copies _____</p>	<p>4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)</p> <p><input type="checkbox"/> A check is enclosed.</p> <p><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input type="checkbox"/> The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).</p>
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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 _____ Date _____

Typed or printed name _____ Registration No. _____



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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
15/050,027 02/22/2016 Edward Balassanian 6743-00107 1056

126601 7590 06/29/2016
MHKKG (Implicit/BeLabs)
P.O. Box 398
Austin, TX 78767-0398

EXAMINER
DUONG, DUC T

ART UNIT 2467
PAPER NUMBER

DATE MAILED: 06/29/2016

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 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, 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. 15/050,027	Applicant(s) BALASSANIAN, EDWARD	
Examiner DUC DUONG	Art Unit 2467	AIA (First Inventor to File) 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 2/22/16.
 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 26-45; now renmbered 1-20, respectively. 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 _____.

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

Allowable Subject Matter

2. Claims 26-45 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art of record fails to teach or make obvious for **“identify, using the key value, a sequence of two or more routines, wherein the sequence includes a routine that is used to execute a Transmission Control Protocol (TCP) to process packets having a TCP format; create a path that includes one or more data structures that indicate the identified sequence of two or more routines, wherein the path is usable to store state information associated with the message; and process subsequent packets in the message using the sequence of two or more routines indicated in the path”**, when such routines are considered within the specific structure or combination of steps recited in the device of claim 26 or in the method of claims 35 and 41.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Art Unit: 2467

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUC DUONG whose telephone number is (571)272-3122. The examiner can normally be reached on M-F (9:00 AM-6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Phillips can be reached on 571-272-3940. 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.

/DUC DUONG/
Examiner, Art Unit 2467

Notice of References Cited	Application/Control No. 15/050,027	Applicant(s)/Patent Under Reexamination BALASSANIAN, EDWARD	
	Examiner DUC DUONG	Art Unit 2467	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-2009/0083763 A1	03-2009	Sareen; Bhrighu	H04L67/2823	719/317
*	B	US-2004/0015609 A1	01-2004	Brown, William A.	H04L69/08	709/246
*	C	US-6,959,439 B1	10-2005	Boike; David C.	G06F13/102	719/321
*	D	US-5,991,806 A	11-1999	McHann, Jr.; Stanley E.	H04L41/0213	709/224
*	E	US-5,991,299 A	11-1999	Radogna; Thomas V.	H04L29/06	370/389
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

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.


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BIB DATA SHEET
CONFIRMATION NO. 1056

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.	
15/050,027	02/22/2016	370	2467	6743-00107	
APPLICANTS Implicit, LLC, Seattle, WA; INVENTORS Edward Balassanian, Seattle, WA; ** CONTINUING DATA ***** This application is a CON of 14/230,952 03/31/2014 PAT 9270790 which is a CON of 13/911,324 06/06/2013 PAT 8694683 which is a CON of 13/236,090 09/19/2011 ABN which is a CON of 10/636,314 08/06/2003 PAT 8055786 which is a CON of 09/474,664 12/29/1999 PAT 6629163 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 03/07/2016					
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and Acknowledged <u>/DUC T DUONG/</u> Examiner's Signature	<input type="checkbox"/> Met after Allowance Initials	STATE OR COUNTRY WA	SHEETS DRAWINGS 16	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
ADDRESS MHKKG (Implicit/BeLabs) P.O. Box 398 Austin, TX 78767-0398 UNITED STATES					
TITLE METHOD AND SYSTEM FOR DATA DEMULTIPLEXING					
FILING FEE RECEIVED 1600	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Art Unit	2467
	Examiner Name	Duc Duong
	Attorney Docket Number	6743-00107

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

Application Number		
Filing Date		2016-02-22
First Named Inventor	Edward Balassanian	
Art Unit		
Examiner Name		
Attorney Docket Number		6743-00107

1		2015 WL 2194627, United States District Court, N.D. California, Implicit L.L.C., Plaintiff, v. F5 Networks, Inc., Defendant, Case No. 14-cv-02856-SI, signed May 6, 2015, 14 pages.	
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EXAMINER SIGNATURE

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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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Filing Date		2016-02-22
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Art Unit		
Examiner Name		
Attorney Docket Number		6743-00107

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).

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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	/Dean M. Munyon/	Date (YYYY-MM-DD)	2016-02-22
Name/Print	Dean M. Munyon	Registration Number	42914

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 1 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447 2467
Examiner Name	Duc Duong	

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT
(Sheet 2 of 14)**

Complete if Known

Application Number	15/050,027
Filing Date	2016-02-22
First Named Inventor	Edward Balassanian
Group Art Unit	2447
Examiner Name	

Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
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Application Number	15/050,027
Filing Date	2016-02-22
First Named Inventor	Edward Balassanian
Group Art Unit	2447
Examiner Name	

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(Sheet 4 of 14)**

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Application Number	15/050,027
Filing Date	2016-02-22
First Named Inventor	Edward Balassanian
Group Art Unit	2447
Examiner Name	

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	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
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		<i>Implicit Networks, Inc. v. Advanced Micro Devices, Inc. et al.</i>; C08-0184 JLR; USDC for the Western District of Washington, Seattle Division:
	143	2/4/08 Plaintiff's Original Complaint
	144	8/26/08 Defendant NVIDIA Corporation's Answer to Complaint
	145	8/26/08 Defendant Sun Microsystems, Inc.'s Answer to Complaint
	146	8/27/08 Defendant Advanced Micro Devices, Inc.'s Answer to Complaint for Patent Infringement
	147	8/27/08 RealNetworks, Inc.'s Answer to Implicit Networks, Inc.'s Original Complaint for Patent Infringement, Affirmative Defenses, and Counterclaims
	148	8/27/08 Intel Corp.'s Answer, Defenses and Counterclaims
	149	8/27/08 Defendant RMI Corporation's Answer to Plaintiff's Original Complaint
	150	9/15/08 Plaintiff's Reply to NVIDIA Corporation's Counterclaims
	151	9/15/08 Plaintiff's Reply to Sun Microsystems Inc.'s Counterclaims
	152	9/16/08 Plaintiff's Reply to RealNetworks, Inc.'s Counterclaims
	153	9/16/08 Plaintiff's Reply to Intel Corp.'s Counterclaims
	154	12/10/08 Order granting Stipulated Motion for Dismissal with Prejudice re NVIDIA Corporation, Inc.
	155	12/16/08 Defendants AMD, RealNetworks, RMI, and Sun's Motion to Stay Pending the Patent and Trademark Office's Reexamination of the '163 Patent
	156	12/29/08 Order granting Stipulated Motion for Dismissal without Prejudice of Claims re Sun Microsystems, Inc.
	157	1/5/09 Plaintiff's Opposition to Defendants AMD, RealNetworks, RMI, and Sun's Motion to Stay Pending Reexamination and Exhibit A
	158	1/9/09 Reply of Defendants AMD, RealNetworks, RMI, and Sun's Motion to Stay Pending the Patent and Trademark Office's Reexamination of the '163 Patent
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	162	10/13/09 Order Granting Stipulated Motion for Dismissal of Claims Against and Counterclaims by Intel Corporation
	163	10/30/09 Executed Order for Stipulated Motion for Dismissal of Claims Against and Counterclaims by RealNetworks, Inc.
		<i>Implicit Networks, Inc. v. Microsoft Corp.</i>, C09-5628 HLR; USDC for the Northern District of California, San Francisco Division
	164	11/30/09 Plaintiff's Original Complaint, <i>Implicit v Microsoft</i> , Case No. 09-5628
	165	01/22/10 Order Dismissing Case, <i>Implicit v Microsoft</i> , Case No. 09-5628
		<i>Implicit Networks, Inc. v. Cisco Systems, Inc.</i>, C10-3606 HRL; USDC for the Northern District of California, San Francisco Division
	166	08/16/10 Plaintiff's Original Complaint, <i>Implicit v Cisco</i> , Case No. 10-3606
	167	11/22/10 Defendant Cisco Systems, Inc.'s Answer and Counterclaims, <i>Implicit v Cisco</i> , Case No. 10-3606
	168	12/13/10 Plaintiff, <i>Implicit Networks, Inc.</i> 's, Answer to Counterclaims, <i>Implicit v Cisco</i> , Case No. 10-3606
	169	10/04/11 Order of Dismissal with Prejudice, <i>Implicit v Cisco</i> , Case No. 10-3606
		<i>Implicit Networks, Inc. v. Citrix Systems, Inc.</i>, C10-3766 JL; USDC for the Northern District of California, San Francisco Division
	170	08/24/10 Plaintiff's Original Complaint, <i>Implicit v Citrix</i> , Case No. 10-3766
	171	12/01/10 Plaintiff's First Amended Complaint, <i>Implicit v Citrix</i> , Case No. 10-3766

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 7 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
	Examiner Name	

	172	01/14/11 Defendant Citrix Systems, Inc.'s Answer, Defenses and Counter-complaint for Declaratory Judgment, <i>Implicit v Citrix</i> , Case No. 10-3766
	173	02/18/11 Plaintiff, Implicit Networks, Inc.'s, Answer to Defendants Counterclaims, <i>Implicit v Citrix</i> , Case No. 10-3766
Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
	174	05/02/11 Order of Dismissal, <i>Implicit v Citrix</i> , Case No. 10-3766
		<i>Implicit Networks, Inc. v.F5 Networks, Inc., C10-3365 JCS; USDC for the Northern District of California, San Francisco Division</i>
	175	07/30/10 Plaintiff's Original Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	176	10/13/10 Defendants' Answer and Counter-Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	177	11/03/10 Plaintiff's Answer to Counter-Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	178	12/10/10 Plaintiff's First Amended Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	179	01/14/11 Defendants' Answer to 1 st Amended Complaint and Counterclaim, <i>Implicit v F5</i> , Case No. 10-3365
	180	02/18/11 Plaintiff's Answer to F5's Amended Counter-Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	181	04/18/11 Defendants' Amended Answer to 1 st Amended Complaint and Counter-Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	182	05/05/11 Plaintiff's Answer to F5's Amended Counter-Complaint, <i>Implicit v F5</i> , Case No. 10-3365
	183	07/22/11 F5 Networks, Inc.'s Invalidity Contentions, <i>Implicit v F5</i> , Case No. 10-3365
	184	07/22/11 F5 Networks, Inc.'s Invalidity Contentions, Exhibit A, <i>Implicit v F5</i> , Case No. 10-3365 (31 documents)
	185	07/22/11 F5 Networks, Inc.'s Invalidity Contentions, Exhibit B, <i>Implicit v F5</i> , Case No. 10-3365
	186	10/18/11 Joint Claim Construction & Pre-Hearing Statement (PR 4-3), <i>Implicit v F5</i> , Case No. 10-3365
	187	10/18/11 Joint Claim Construction & Pre-Hearing Statement (PR 4-3) Exhibit A, <i>Implicit v F5</i> , Case No. 10-3365 (2 documents)
	188	11/28/11 Plaintiff's Opening Claim Construction Brief, <i>Implicit v F5</i> , Case No. 10-3365
	189	11/29/11 Amended Joint Claim Construction & Pre-Hearing Statement, <i>Implicit v F5</i> , Case No. 10-3365
	190	11/29/11 Amended Joint Claim Construction & Pre-Hearing Statement, Exhibit A, <i>Implicit v F5</i> , Case No. 10-3365
	191	12/12/11 Defendants' Claim Construction Brief, <i>Implicit v F5</i> , Case No. 10-3365
	192	12/19/11 Plaintiff's Reply to Defendants' (F5, HP, Juniper) Responsive Claim Construction Brief (4-5), <i>Implicit v F5</i> , Case No. 10-3365
	193	01/27/12 Transcript of Proceeding Held on 1-17-12; <i>Implicit v F5</i> , Case No. 10-3365
	194	01/27/12 Transcript of Proceeding Held on 1-18-12; <i>Implicit v F5</i> , Case No. 10-3365
	195	01/27/12 Transcript of Proceeding Held on 1-19-12; <i>Implicit v F5</i> , Case No. 10-3365
	196	02/29/12 Claim Construction Order
	197	08/15/12 Storer Invalidity Report
	198	09/10/12 Implicit's Expert Report of Scott M. Nettles
	199	03/13/13 Order Granting Defendants' Motion for Summary Judgment
	200	04/09/13 Notice of Appeal to the Federal Circuit
		<i>Implicit Networks, Inc. v. Hewlett-Packard Company, C10-3746 JCS: USDC for the Northern District of California, San Francisco Division</i>
	201	08/23/10 Plaintiff's Original Complaint, <i>Implicit v HP</i> , Case No. 10-3746
	202	11/23/10 Plaintiff's First Amended Complaint, <i>Implicit v HP</i> , Case No. 10-3746
	203	01/14/11 Defendant HP's Answer and Counterclaims, <i>Implicit v HP</i> , Case No. 10-3746
	204	02/18/11 Implicit Networks, Inc.'s Answer to HP Counterclaims, <i>Implicit v HP</i> , Case No. 10-3746
	205	05/10/11 Plaintiff's Amended Disclosure of Asserted Claims and Infringement Contentions, Case No. 10-3746
	206	06/30/11 Defendant HP Company's Invalidity Contentions, <i>Implicit v HP</i> , Case No. 10-3746
	207	06/30/11 Defendant HP Company's Invalidity Contentions, A1-14, <i>Implicit v HP</i> , Case No. 10-3746
	208	06/30/11 Defendant HP Company's Invalidity Contentions, B1-21, <i>Implicit v HP</i> , Case No. 10-3746
		<i>Implicit Networks, Inc. v. Juniper Networks, C10-4234 EDL: USDC for the Northern District of California, San Francisco</i>

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 8 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
	Examiner Name	

		Division
	209	09/20/10 Plaintiff's Original Complaint, <i>Implicit v Juniper</i> , Case No. 10-4234
	210	11/12/10 Juniper Network's Motion to Dismiss For Failure to State a Claim Under Rule 12(B)(6): Memorandum of Points and Authorities; <i>Implicit v Juniper</i> , Case No. 10-4234
Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
	211	11/12/10 Juniper Network's Request for Judicial Notice in Support of its Motion to Dismiss For Failure to State a Claim Under Rule 12(B)(6): Memorandum of Points and Authorities; <i>Implicit v Juniper</i> , Case No. 10-4234
	212	12/01/10 First Amended Complaint; <i>Implicit v Juniper</i> , Case No. 10-4234
	213	01/18/11 Juniper Networks, Inc.'s Answer and Affirmative Defenses to 1 st Amended Complaint, <i>Implicit v Juniper</i> , Case No. 10-4234
	214	02/18/11 Plaintiff's Answer to Defendant's Counterclaims, <i>Implicit v Juniper</i> , Case No. 10-4234
	215	05/23/11 Plaintiff's Disclosure of Asserted Claims and Infringement Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	216	11/15/11 Plaintiff's Amended Disclosure of Asserted Claim and Infringement Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	217	11/28/11 Spencer Hosie Declaration in Support of Plaintiff's Opening Claim Construction Brief, <i>Implicit v Juniper</i> , Case No. 10-4234
	218	11/28/11 Spencer Hosie Declaration in Support of Plaintiff's Opening Claim Construction Brief Exhibit E, <i>Implicit v Juniper</i> , Case No. 10-4234
	219	11/28/11 Spencer Hosie Declaration in Support of Plaintiff's Opening Claim Construction Brief Exhibit J, <i>Implicit v Juniper</i> , Case No. 10-4234
	220	11/28/11 Spencer Hosie Declaration in Support of Plaintiff's Opening Claim Construction Brief Exhibit K, <i>Implicit v Juniper</i> , Case No. 10-4234
	221	11/28/11 Spencer Hosie Declaration in Support of Plaintiff's Opening Claim Construction Brief Exhibits M-O, <i>Implicit v Juniper</i> , Case No. 10-4234
	222	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, <i>Implicit v Juniper</i> , Case No. 10-4234
	223	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit B, <i>Implicit v Juniper</i> , Case No. 10-4234
	224	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit F, <i>Implicit v Juniper</i> , Case No. 10-4234
	225	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit N, <i>Implicit v Juniper</i> , Case No. 10-4234
	226	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit P, <i>Implicit v Juniper</i> , Case No. 10-4234
	227	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit Q, <i>Implicit v Juniper</i> , Case No. 10-4234
	228	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit S., <i>Implicit v Juniper</i> , Case No. 10-4234
	229	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit T-1, <i>Implicit v Juniper</i> , Case No. 10-4234
	230	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit T-2, <i>Implicit v Juniper</i> , Case No. 10-4234
	231	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit T-3, <i>Implicit v Juniper</i> , Case No. 10-4234
	232	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit T-4, <i>Implicit v Juniper</i> , Case No. 10-4234
	233	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit U, <i>Implicit v Juniper</i> , Case No. 10-4234
	234	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit V, <i>Implicit v Juniper</i> , Case No. 10-4234
	235	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit W, <i>Implicit v Juniper</i> , Case No. 10-4234

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 9 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
	Examiner Name	

	236	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit X, <i>Implicit v Juniper</i> , Case No. 10-4234
Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
	237	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit Y-1, <i>Implicit v Juniper</i> , Case No. 10-4234
	238	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit Y-2, <i>Implicit v Juniper</i> , Case No. 10-4234
	239	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit Y-3, <i>Implicit v Juniper</i> , Case No. 10-4234
	240	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit Y-4, <i>Implicit v Juniper</i> , Case No. 10-4234
	241	12/12/11 Holly Hogan Declaration in Support of Defendants' Claim Construction Brief, Exhibit Z, <i>Implicit v Juniper</i> , Case No. 10-4234
	242	12/19/11 Spencer Hosie Declaration in Support of Plaintiff's Reply Claim Construction Brief, <i>Implicit v Juniper</i> , Case No. 10-4234
	243	12/19/11 Spencer Hosie Declaration in Support of Plaintiff's Reply Claim Construction Brief, Exhibit P, <i>Implicit v Juniper</i> , Case No. 10-4234
	244	01/10/12 Plaintiff's 1-10-12 Amended Disclosure of Asserted Claims and Infringement Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	245	02/10/12 Juniper Networks, Inc.'s Supplemental Invalidity Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	246	02/10/12 Juniper Networks, Inc.'s Supplemental Invalidity Contentions, Exhibit A1, <i>Implicit v Juniper</i> , Case No. 10-4234
	247	02/10/12 Juniper Networks, Inc.'s Supplemental Invalidity Contentions, Exhibit A2, <i>Implicit v Juniper</i> , Case No. 10-4234
	248	02/10/12 Juniper Networks, Inc.'s Supplemental Invalidity Contentions, Exhibit A3, <i>Implicit v Juniper</i> , Case No. 10-4234
	249	02/10/12 Juniper Networks, Inc.'s Supplemental Invalidity Contentions, Exhibit A4, <i>Implicit v Juniper</i> , Case No. 10-4234
	250	02/10/12 Juniper Networks, Inc.'s Supplemental Invalidity Contentions, Exhibit B1, <i>Implicit v Juniper</i> , Case No. 10-4234
	251	02/29/12 Plaintiff's 2-29-12 Amended Disclosure of Asserted Claims and Infringement Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	252	04/06/12 Plaintiff's 4-6-12 Amended Disclosure of Asserted Claims and Infringement Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	253	04/09/12 Plaintiff's 4-9-12 Amended Disclosure of Asserted Claims and Infringement Contentions, <i>Implicit v Juniper</i> , Case No. 10-4234
	254	09/11/12 <i>Implicit</i> 's Expert Report of Scott Nettles
	255	11/09/12 Juniper's Notice of Motion and Memorandum of Law ISO Motion for Summary Judgment or, in the alternative, for Partial Summary Judgment, on the Issue of Invalidity
	256	11/09/12 Exhibit 2 to Declaration in support of Juniper's Motion for Summary Judgment – Calvert Expert Report
	257	11/09/12 Exhibit 3 to Declaration in support of Juniper's Motion for Summary Judgment – Calvert Supplemental Expert Report
	258	11/26/12 <i>Implicit</i> Opposition to Juniper's and F5 Motion on Invalidity
	259	11/26/12 Exhibit A to Hosie Declaration- 08/27/12 Excerpts from David Blaine deposition
	260	11/26/12 Exhibit B to Hosie Declaration– 10/25/12 Excerpts from Kenneth Calvert Deposition
	261	11/26/12 Exhibit C to Hosie Declaration – 08/15/12 Excerpts from Kenneth Calvert Expert Report
	262	11/26/12 Exhibit D to Hosie Declaration – USPN 6,651,099 to Dietz et al
	263	11/26/12 Exhibit E to Hosie Declaration – Understanding Packet-Based and Flow-Based Forwarding
	264	11/26/12 Exhibit F to Hosie Declaration – Wikipedia on Soft State
	265	11/26/12 Exhibit G to Hosie Declaration – Sprint Notes
	266	11/26/12 Exhibit H to Hosie Declaration – <i>Implicit</i> 's Supplemental Response to Juniper's 2 nd Set of Interrogatories
	267	11/26/12 Exhibit I to Hosie Declaration – USPN 7,650,634 (Zuk)
	268	03/13/13 Order Granting Defendants' Motion for Summary Judgment
	269	04/09/13 Notice of Appeal to the Federal Circuit

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 10 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
	Examiner Name	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 11 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
Examiner Name		

Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
		Other Implicit Networks, Inc. Prosecution Matters:
	270	Serial No. 11/933,022 Utility Application filed October 31, 2007
	271	Serial No. 11/933,022 Preliminary Amendment filed February 19, 2008
	272	Serial No. 11/933,022 Office Action mailed June 24, 2009
	273	Serial No. 11/933,022 Amendment filed September 24, 2009
	274	Serial No. 11/933,022 Office Action dated December 11, 2009
	275	Serial No. 11/933,022 Amendment and Response dated January 29, 2010
	276	Serial No. 11/933,022 Notice of Allowance dated March 2, 2010
	277	Serial No. 11/933,022 Issue Notification dated May 4, 2010
	278	Serial No.10/636,314 Utility Application filed August 6, 2003
	279	Serial No.10/636,314 Office Action dated April 7, 2008
	280	Serial No.10/636,314 Response to Restriction Requirement dated August 5, 2008
	281	Serial No.10/636,314 Office Action dated October 3, 2008
	282	Serial No.10/636,314 Response to Office Action dated April 3, 2009
	283	Serial No.10/636,314 Notice of Non-Compliant Amendment dated May 4, 2009
	284	Serial No.10/636,314 Amendment to Office Action Response dated June 4, 2009
	285	Serial No.10/636,314 Notice of Non-Compliant Amendment dated June 12, 2009
	286	Serial No.10/636,314 Amendment to Office Action dated July 10, 2009
	287	Serial No.10/636,314 Final Rejection Office Action dated October 21, 2009
	288	Serial No.10/636,314 Amendment after Final Office Action dated December 14, 2009
	289	Serial No.10/636,314 Advisory Action dated January 11, 2010
	290	Serial No.10/636,314 Notice of Non-Compliant Amendment dated January 11, 2010
	291	Serial No.10/636,314 Supplemental Amendment and Response dated March 13, 2010
	292	Serial No.10/636,314 Office Action dated May 11, 2010
	293	Serial No.10/636,314 Amendment and Response dated September 13, 2010
	294	Serial No.10/636,314 Final Rejection dated November 24, 2010
	295	Serial No.10/636,314 Notice of Appeal dated May 19, 2011
	296	Serial No.10/636,314 Amendment and Request for Continued Examination dated July 19, 2011
	297	Serial No.10/636,314 Notice of Allowance dated September 13, 2011
	298	Serial No.10/636,314 Notice of Allowance dated September 19, 2011
	299	Serial No.10/636,314 Issue Notification dated October 19, 2011
	300	Serial No. 09/474,664 Utility Application filed December 29, 1999
	301	Serial No. 09/474,664 Office Action dated September 23, 2002
	302	Serial No. 09/474,664 Amendment and Response dated February 24, 2003
	303	Serial No. 09/474,664 Notice of Allowance dated May 20, 2003
	304	Serial No. 90/010, 356 Request for Ex Parte Reexamination dated December 15, 2008
	305	Serial No. 90/010, 356 Office Action Granting Reexamination dated January 17, 2009
	306	Serial No. 90/010, 356 First Office Action dated July 7, 2009
	307	Serial No. 90/010, 356 First Office Action Response dated September 1, 2009
	308	Serial No. 90/010, 356 Patent Owner Interview Summary dated October 23, 2009
	309	Serial No. 90/010, 356 Office Action Final dated December 4, 2009
	310	Serial No. 90/010, 356 Amendment and Response to Office Action dated December 18, 2009
	311	Serial No. 90/010, 356 Amendment and Response to Office Action dated January 4, 2010

*

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 12 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
	Examiner Name	

Examiner Initials*	Cite No. ¹	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
	312	Serial No. 90/010, 356 Advisory Action dated January 21, 2010
	313	Serial No. 90/010, 356 Amendment and Response to Advisory Action dated February 8, 2010
	314	Serial No. 90/010, 356 Notice of Intent to Issue a Reexam Certificate dated March 2, 2010
	315	Serial No. 90/010, 356 Reexamination Certificate Issued dated June 22, 2010
	316	Serial No. 95/000,659 Inter Partes Reexam Request dated February 13, 2012
	317	Serial No. 95/000,659 Order Granting Reexamination dated April 3, 2012
	318	Serial No. 95/000,659 Office Action dated April 3, 2012
	319	Serial No. 95/000,659 Office Action Response dated June 4, 2012 (including Exhibits 1 & 2) (4 documents)
	320	Serial No. 95/000,659 Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012
	321	Serial No. 95/000,659 Appendix R-1 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Declaration of Prof. Dr. Bernhard Plattner)
	322	Serial No. 95/000,659 Appendix R-2 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Prof. Dr. Bernhard Plattner CV)
	323	Serial No. 95/000,659 Appendix R-3 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Listing of Publications to Prof. Dr. Bernhard Plattner updated February 2012)
	324	Serial No. 95/000,659 Appendix R-4 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Office Action Granting Reexamination in 95/000,660 dated May 10, 2012)
	325	Serial No. 95/000,659 Appendix R-5 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Office Action in 95/000,660 dated May 10, 2012)
	326	Serial No. 95/000,659 Appendix R-6 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Implicit Networks, Inc. USPN 6,629,163 Claims Chart)
	327	Serial No. 95/000,659 Appendix R-7 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Internet Protocol DARPA Internet Program Protocol Specification dated September 1991)
	328	Serial No. 95/000,659 Appendix R-8 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Atkinson, "IP Encapsulating Security Payload (ESP) dated August 1995)
	329	Serial No. 95/000,659 Appendix R-9 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Claim Construction Order dated February 29, 2012)
	330	Serial No. 95/000,659 Appendix R-10-1 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Vol. I of Edward Balassanian Deposition Transcript dated May 30, 2012)
	331	Serial No. 95/000,659 Appendix R-10-2 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Vol. II of Edward Balassanian Deposition Transcript dated May 31, 2012)
	332	Serial No. 95/000,659 Appendix R-10-3 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Vol. III of Edward Balassanian Deposition Transcript dated June 7, 2012)
	333	Serial No. 95/000,659 Appendix R-10-4 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Vol. IV of Edward Balassanian Deposition Transcript dated June 8, 2012)
	334	Serial No. 95/000,659 Appendix R-11 to Third Party Comments to Patent Owner's Response to Office Action dated July 5, 2012 (Implicit Networks, Inc.'s Response to Juniper Networks, Inc.'s First Set of Requests for Admission 1-32)
	335	Serial No. 95/000,659 Action Closing Prosecution dated October 1, 2012
	336	Serial No. 95/000,659 Petition to Withdraw and Reissue Action Closing Prosecution dated November 20, 2012
	337	Serial No. 95/000,659 Patent Owner Comments to Action Closing Prosecution dated December 3, 2012
	338	Serial No. 95/000,659 Opposition to Petition dated December 17, 2012
	339	Serial No. 95/000,659 Third Party Comments to Action Closing Prosecution dated January 2, 2013
	340	Serial No. 95/000,660 Inter Partes Reexam Request dated March 2, 2012
	341	Serial No. 95/000,660 Order Granting Reexamination dated May 10, 2012

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 13 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
	Examiner Name	

Examiner Initials*	Cite No.	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page (s), volume-issue number (s), publisher, city and/or country where published.
	342	Serial No. 95/000,660 Office Action dated May 10, 2012
	343	Serial No. 95/000,660 Response to Office Action dated July 10, 2012 (including Exhibits 1 and 2)
	344	Serial No. 95/000,660 Third Party Comments to Office After Patent Owner's Response dated August 8, 2012 (including Revised Comments)
	345	Serial No. 95/000,660 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Declaration of Prof. Dr. Bernhard Plattner)
	346	Serial No. 95/000,660 Appendix R-1 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Prof. Dr. Bernhard Plattner CV)
	347	Serial No. 95/000,660 Appendix R-3 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Listing of Publications to Prof. Dr. Bernhard Plattner updated February 2012)
	348	Serial No. 95/000,660 Appendix R-4 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Office Action Granting Reexamination in 95/000,660 dated May 10, 2012)
	349	Serial No. 95/000,660 Appendix R-5 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Office Action in 95/000,660 dated May 10, 2012)
	350	Serial No. 95/000,660 Appendix R-6 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Implicit Networks, Inc. USPN 6,629,163 Claims Chart)
	351	Serial No. 95/000,660 Appendix R-7 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Internet Protocol DARPA Internet Program Protocol Specification dated September 1991)
	352	Serial No. 95/000,660 Appendix R-8 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Atkinson, "IP Encapsulating Security Payload (ESP) dated August 1995)
	353	Serial No. 95/000,660 Appendix R-9 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Claim Construction Order dated February 29, 2012)
	354	Serial No. 95/000,660 Appendix R-10 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Vol. I-IV of Edward Balassanian Deposition Transcript dated May 30, 2012)
	355	Serial No. 95/000,660 Appendix R-11 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Shacham, A., et al, "IP Payload Compression Protocol", Network Working Group, RFC 3173 September 2001)
	356	Serial No. 95/000,660 Appendix R-12 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Shacham, A., et al, "IP Payload Compression Protocol", Network Working Group, RFC 2393 December 1998)
	357	Serial No. 95/000,660 Appendix R-13 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 ('163 Pfeiffer Claim Chart)
	358	Serial No. 95/000,660 Appendix R-14 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Ylonen, T., "SSH Transport Layer Protocol", Network Working Group – Draft February 22, 1999)
	359	Serial No. 95/000,660 Appendix R-15 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Dommety, G., "Key and Sequence Number Extensions to GRE", Network Working Group, RFC 2890 September 2000)
	360	Serial No. 95/000,660 Appendix R-16 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Monsour, R., et al, "Compression in IP Security" March 1997)
	361	Serial No. 95/000,660 Appendix R-17 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Friend, R., Internet Working Group RFC 3943 dated November 2004 "Transport Layer Security Protocol Compression Using Lempel-Ziv-Stac)
	362	Serial No. 95/000,660 Appendix R-18 to Third Party Comments to Patent Owner's Response to Office Action dated August 8, 2012 (Implicit Networks, Inc.'s Response to Juniper Networks, Inc.'s First Set of Requests for Admission 1-32)
	363	Serial No. 95/000,660 Revised - Third Party Comments to Office After Patent Owner's Response dated November 2, 2012
	364	Serial No. 95/000,660 Action Closing Prosecution dated December 21, 2012
	365	Serial No. 95/000,660 Comments to Action Closing Prosecution dated February 21, 2013 (including Dec of Dr. Ng)
	366	Serial No. 95/000,660 Third Party Comments to Action Closing Prosecution dated March 25, 2013
	367	PCT/US00/33634 – PCT application (WO 01/2077 A2 - 7/12/01)
	368	PCT/US00/33634 – Written Opinion (WO 01/50277 A3 – 2/14/02)

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Sheet 14 of 14)	<i>Complete if Known</i>	
	Application Number	15/050,027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Group Art Unit	2447
	Examiner Name	

369	PCT/US00/33634 – International Search Report (10/9/01)
370	PCT/US00/33634 – Response to Official Communication dated December 7, 2001 (3/21/02)
371	PCT/US00/33634 – International Preliminary Examination Report (4/8/02)
372	PCT/US00/33634 – Official Communication (1/24/03)
373	PCT/US00/33634 – Response to Official Communication dated January 24, 2003 (3/12/03)
374	PCT/US00/33634 – Official Communication (5/13/04)
375	PCT/US00/33634 – Response to Summons to Attend Oral Proceeding dated May 13, 2004 (10/9/04)
376	PCT/US00/33634 – Decision to Refuse a European Patent application (11/12/04)
377	PCT/US00/33634 – Minutes of the oral proceedings before the Examining Division (10/12/04)
378	PCT/US00/33634 – Closure of the procedure in respect to Application No. 00984234.5 – 2212 (2/22/05)
379	05/03/13 Expert Report of Dr. Alfonso Cardenas Regarding Validity of U.S. Patent Nos. 6,877,006; 7,167,864; 7,720,861; AND 8,082,268
	(6 documents)
380	Expert Report of Dr. Alfonso Cardenas Regarding Validity of U.S. Patent No. 7,167,864
	(3 documents)
381	“InfoReports User Guide: Version 3.3.1;” Platinum Technology, Publication No. PRO-X-331-UG00-00, printed April 1998; Pages 1-430.

Examiner Signature: /Duc Duong/	Date Considered: 06/13/2016
---------------------------------	-----------------------------

CERTIFICATION STATEMENT	
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.	
Signature: /Dean M. Munyon/	Date: 2016-03-24
Name/Print: Dean M. Munyon	Registration Number: 42,914

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15050027
	Filing Date	2016-02-22
	First Named Inventor	Edward Balassanian
	Art Unit	2447 2467
	Examiner Name	Duc Duong
	Attorney Docket Number	6743-00107

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	6629163		2003-09-30	Balassanian	
	2	6711166		2004-03-23	Amir, et al.	
	3	6785730		2004-08-31	Taylor	
	4	6115393		2000-09-05	Engel, et al.	
	5	7383341		2008-06-03	Saito, et al.	
	6	6259781		2001-07-10	Crouch, et al.	
	7	6151390		2000-11-21	Volftsun, et al.	
	8	6356529		2002-03-12	Zarom	

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

Application Number	15050027
Filing Date	2016-02-22
First Named Inventor	Edward Balassanian
Art Unit	2447
Examiner Name	
Attorney Docket Number	6743-00107

9	7233569		2007-06-19	Swallow
10	7281036		2007-10-09	Lu, et al.
11	8055786		2011-11-08	Balassanian
12	8694683		2014-04-08	Balassanian
13	5392390		1995-02-21	Crozier
14	5425029		1995-06-13	Hluchyj, et al.
15	5568478		1996-10-22	van Loo, Jr., et al.
16	5710917		1998-01-20	Musa, et al.
17	5768521		1998-06-16	Dedrick
18	5870479		1999-02-09	Feiken, et al.
19	6047002		2000-04-04	Hartmann, et al.

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

Application Number		15050027
Filing Date		2016-02-22
First Named Inventor	Edward Balassanian	
Art Unit		2447
Examiner Name		
Attorney Docket Number		6743-00107

20	6101189		2000-08-08	Tsuruoka
21	6101320		2000-08-08	Schuetze, et al.
22	6104704		2000-08-15	Buhler, et al.
23	6111893		2000-08-29	Volftsun, et al.
24	6128624		2000-10-03	Papiemiak, et al.
25	6157622		2000-12-05	Tanaka, et al.
26	6192419		2001-02-20	Aditham, et al.
27	6199054		2001-03-06	Khan, et al.
28	6212550		2001-04-03	Segur
29	6222536		2001-04-24	Kihl, et al.
30	6246678		2001-06-12	Erb, et al.

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

Application Number		15050027
Filing Date		2016-02-22
First Named Inventor	Edward Balassanian	
Art Unit		2447
Examiner Name		
Attorney Docket Number		6743-00107

31	6275507		2001-08-14	Anderson, et al.
32	6278532		2001-08-21	Heimendinger, et al.
33	6359911		2002-03-19	Movshovich, et al.
34	6404775		2002-06-11	Leslie, et al.
35	6405254		2002-06-11	Hadland
36	6493348		2002-12-10	Gelman, et al.
37	6504843		2003-01-07	Cremin, et al.
38	6560236		2003-05-06	Varghese, et al.
39	6574610		2003-06-03	Clayton, et al.
40	6957346		2005-10-18	Kivinen, et al.
41	6937574		2005-08-30	Delaney, et al.

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

Application Number	15050027
Filing Date	2016-02-22
First Named Inventor	Edward Balassanian
Art Unit	2447
Examiner Name	
Attorney Docket Number	6743-00107

42	7233948	2007-06-19	Shamoon, et al.
43	7711857	2010-05-04	Balassanian

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U.S.PATENT APPLICATION PUBLICATIONS

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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	20080250045		2008-10-09	Balassanian, et al.	
	2	20090265695		2009-10-22	KARINO	
	3	20030142669		2003-07-31	Kubota, et al.	

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FOREIGN PATENT DOCUMENTS

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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	0807347	EP		1997-11-19	CHECK POINT SOFTWARE TECH LTD		
	2	0408132	EP		1991-01-16	OCE NEDERLAND BV		

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

Application Number	15050027	
Filing Date	2016-02-22	
First Named Inventor	Edward Balassanian	
Art Unit	2447	
Examiner Name		
Attorney Docket Number	6743-00107	

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	Non-Final Office Action in Inter Partes Reexamination Control No. 95/000,659 issued August 16, 2013, 107 pages.	
	2	Decision on Petition in Reexamination Control No. 95/000,659 issued August 19, 2013, 3 pages.	
	3	Response to Non-Final Office Action in Reexamination Control No. 95/000,659 mailed October 2, 2013 including Exhibits A-C, 37 pages.	
	4	Decision on Petition in Reexamination Control No. 95/000,660 issued July 30, 2013, 12 pages.	
	5	Non-Final Office Action in Inter Partes Reexamination Control No. 95/000,660 issued August 30, 2013, 23 pages.	
	6	RFC: 791. Internet Protocol: DARPA Internet Program Protocol Specification, September 1981, prepared for Defense Advanced Research Projects Agency Information Processing Techniques Office by Information Sciences Institute University of Southern California, 52 pages.	

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/Duc Duong/	Date Considered	06/13/2016
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*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	15050027		
Filing Date	2016-02-22		
First Named Inventor	Edward Balassanian		
Art Unit	2447		
Examiner Name			
Attorney Docket Number	6743-00107		

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.

Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

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	/Dean M. Munyon/	Date (YYYY-MM-DD)	2016-03-24
Name/Print	Dean M. Munyon	Registration Number	42914

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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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.

Issue Classification 	Application/Control No. 15050027	Applicant(s)/Patent Under Reexamination BALASSANIAN, EDWARD
	Examiner DUC DUONG	Art Unit 2467

CPC						
Symbol					Type	Version
H04L		69		08	F	2013-01-01
H04L		67		02	I	2013-01-01
H04L		69		16	I	2013-01-01
H04L		61		2007	I	2013-01-01
H04L		61		6063	I	2013-01-01
H04L		69		18	I	2013-01-01

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

/DUC DUONG/ Examiner.Art Unit 2467 (Assistant Examiner)	(Date)	Total Claims Allowed: 20	
/DUC DUONG/ Examiner.Art Unit 2467 (Primary Examiner)	06/13/2016 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

Issue Classification 	Application/Control No. 15050027	Applicant(s)/Patent Under Reexamination BALASSANIAN, EDWARD
	Examiner DUC DUONG	Art Unit 2467

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant		<input type="checkbox"/> CPA		<input checked="" type="checkbox"/> T.D.		<input type="checkbox"/> R.1.47									
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	26	17	42												
2	27	18	43												
3	28	19	44												
4	29	20	45												
5	30														
6	31														
7	32														
8	33														
9	34														
10	35														
11	36														
12	37														
13	38														
14	39														
15	40														
16	41														

/DUC DUONG/ Examiner.Art Unit 2467 (Assistant Examiner)	(Date)	Total Claims Allowed: 20	
/DUC DUONG/ Examiner.Art Unit 2467 (Primary Examiner)	06/13/2016 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

<i>Index of Claims</i> 	Application/Control No. 15050027	Applicant(s)/Patent Under Reexamination BALASSANIAN, EDWARD
	Examiner DUC DUONG	Art Unit 2467

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

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

CLAIM		DATE							
Final	Original	06/13/2016							
1	26	=							
2	27	=							
3	28	=							
4	29	=							
5	30	=							
6	31	=							
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15	40	=							
16	41	=							
17	42	=							
18	43	=							
19	44	=							
20	45	=							

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	44	"5,870,479"	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 14:00
L2	11	"7,730,211"	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 14:09
L3	3	"7,771,857"	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 14:10
L4	8	"8,055,786"	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 14:10
L5	58	(mosberger).inv.	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 14:15
L6	2	5 and routine	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 14:15
S1	44	"6,629,163"	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 10:35
S2	4	"8,694,683"	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 10:36
S3	8	"8,055,786"	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 10:37
S4	44	"6,629,163"	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 10:37
S5	1450	routine with tcp	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 10:58
S6	35867	routine with (message or packet or frame)	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:03

S7	480	(convert or translat\$3 or conversion) near3 routine with (message or packet or frame)	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:04
S8	133	S7 and tcp	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:05
S9	44	"5,870,479"	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:10
S10	122	S8 and (@ad<"20091229" or @rlad<"20091229")	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:12
S11	14230	(plurality or two or multiple) near5 (convert or translat\$3 or conversion) with (message or packet or frame)	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:39
S12	6	(plurality or two or multiple) near5 (convert or translat\$3 or conversion) near3 routine with (message or packet or frame)	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:40
S13	1487	sequence near5 (plurality or two or multiple) near5 (convert or translat\$3 or conversion or handl\$3 or routine) with (message or packet or frame)	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:48
S14	1847	h04l41/0226.cpc.	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:51
S15	1	S13 and S14	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:51
S16	14898	h04l69/08.cpc.	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:53
S17	22	S13 and S16	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:54
S18	19669	h04l69/16.cpc.	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:54
S19	18	S13 and S18	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:54
S20	8226	h04l69/161.cpc.	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:54
S21	18	S13 and S20	US-PGPUB; USPAT;	OR	ON	2016/06/13 11:54

			FPRS			
S22	1865	h04i69/162.cpc.	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:54
S23	0	S13 and S22	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:54
S24	9428	h04i69/18.cpc.	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:55
S25	21	S13 and S24	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:55
S26	120	(balassanian near2 edward).inv.	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:58
S27	3	S26 and (routine and tcp and path and state).clm.	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 11:58
S28	1487	sequence near5 (plurality or two or multiple) near5 (convert or translat\$3 or conversion or handl\$3 or routine) with (message or packet or frame)	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 12:00
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S30	116	S29 and (@ad<"20091229" or @rlad<"20091229")	US-PGPUB; USPAT; FPRS	OR	ON	2016/06/13 12:02

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S31	3	(routine and tcp and path and state).clm.	USPAT	OR	ON	2016/06/13 12:05

6/13/2016 2:22:37 PM

C:\Users\dduong\Documents\EAST\Workspaces\15050027.wsp

Search Notes 	Application/Control No. 15050027	Applicant(s)/Patent Under Reexamination BALASSANIAN, EDWARD
	Examiner DUC DUONG	Art Unit 2467

CPC- SEARCHED		
Symbol	Date	Examiner
see CPC search printout	6/13/2016	DTD

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
East text	6/13/2016	DTD
inventor name	6/13/2016	DTD
h04l41/0226 (text search)	6/13/2016	DTD
h04l69/08,h04l69/16,h04l69/161,h04l69/162,h04l69/18 (text search)	6/13/2016	DTD
see Marcus Smith	6/13/2016	DTD

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	see interference search printout	6/13/2016	DTD

/DUC DUONG/
Examiner.Art Unit 2467

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 or Fax (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.

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.

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

126601 7590 06/29/2016
 MHKKG (Implicit/BeLabs)
 P.O. Box 398
 Austin, TX 78767-0398

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 facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/050,027	02/22/2016	Edward Balassanian	6743-00107	1056

TITLE OF INVENTION: METHOD AND SYSTEM FOR DATA DEMULTIPLEXING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	09/29/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
DUONG, DUC T	2467	370-392000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). <input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached. <input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 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, 1 _____ (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. 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 has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: **Implicit, LLC**
 (B) RESIDENCE: (CITY and STATE OR COUNTRY) **Seattle, WA**

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

4a. The following fee(s) are submitted: <input checked="" type="checkbox"/> Issue Fee <input type="checkbox"/> Publication Fee (No small entity discount permitted) <input type="checkbox"/> Advance Order - # of Copies _____	4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above) <input type="checkbox"/> A check is enclosed. <input checked="" type="checkbox"/> Payment by credit card. Form PTO-2038 is attached. <input type="checkbox"/> The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).
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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 /Dean M. Munyon/ Date July 27, 2016
 Typed or printed name Dean M. Munyon Registration No. 42,914

Electronic Patent Application Fee Transmittal

Application Number:	15050027			
Filing Date:	22-Feb-2016			
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING			
First Named Inventor/Applicant Name:	Edward Balassanian			
Filer:	Dean M. Munyon/Deena Beasley			
Attorney Docket Number:	6743-00107			
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	960	960

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				960

Electronic Acknowledgement Receipt

EFS ID:	26475561
Application Number:	15050027
International Application Number:	
Confirmation Number:	1056
Title of Invention:	METHOD AND SYSTEM FOR DATA DEMULTIPLEXING
First Named Inventor/Applicant Name:	Edward Balassanian
Customer Number:	126601
Filer:	Dean M. Munyon/Deena Beasley
Filer Authorized By:	Dean M. Munyon
Attorney Docket Number:	6743-00107
Receipt Date:	27-JUL-2016
Filing Date:	22-FEB-2016
Time Stamp:	18:08:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$960
RAM confirmation Number	4921
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

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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)	Issue_Fee_Transmittal.pdf	108461	no	1
			868e7004181fdadd611c3d8e544536b9b280107e		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30569	no	2
			56ec69800712113d5c6f5f5dc3c38465cc015694		

Warnings:

Information:

Total Files Size (in bytes):	139030
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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.



APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/050,027	03/07/2017	9591104	6743-00107	1056

126601 7590 02/15/2017
MHKKG (Implicit/BeLabs)
P.O. Box 398
Austin, TX 78767-0398

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 100 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):

Edward Balassanian, Seattle, WA;
Implicit, LLC, Seattle, WA;

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 USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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Trademarks or Patents. (the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 6:17-cv-181	DATE FILED 3/24/2017	U.S. DISTRICT COURT Eastern District of Texas, Tyler Division
PLAINTIFF Implicit, LLC		DEFENDANT Ericsson, Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 9,591,104	3/7/2017	Implicit, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

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PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
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PLAINTIFF Implicit, LLC		DEFENDANT Huawei Technologies USA, Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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Trademarks or Patents. (the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 6:17-cv-336	DATE FILED 6/7/2017	U.S. DISTRICT COURT in District of Texas, Tyler Division
PLAINTIFF Implicit, LLC		DEFENDANT Palo Alto Networks, Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,324,685	11/27/2001	Implicit, LLC
2 8,694,683	4/8/2014	Implicit, LLC
3 8,856,779	10/7/2014	Implicit, LLC
4 9,270,790	2/23/2016	Implicit, LLC
5 9,325,740	4/26/2016	Implicit, LLC

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AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas, Marshall Division on the following

Trademarks or Patents. (the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 2:18-cv-46-JRG	DATE FILED 2/26/2018	U.S. DISTRICT COURT Eastern District of Texas, Marshall Division
PLAINTIFF Implicit, LLC		DEFENDANT McAfee, LLC
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 8,694,683	4/8/2014	Implicit, LLC
2 9,270,790	2/23/2016	Implicit, LLC
3 9,591,104	3/7/2017	Implicit, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY <input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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DOCKET NO. 2:18-cv-47-JRG	DATE FILED 2/26/2018	U.S. DISTRICT COURT Eastern District of Texas, Marshall Division
PLAINTIFF Implicit, LLC		DEFENDANT Sophos Ltd
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 8,694,683	4/8/2014	Implicit, LLC
2 9,270,790	2/23/2016	Implicit, LLC
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Trademarks or Patents. (the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 2:18-cv-53-JRG	DATE FILED 3/8/2018	U.S. DISTRICT COURT Eastern District of Texas, Marshall Division
PLAINTIFF Implicit, LLC		DEFENDANT NETSCOUT Systems, Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 8,694,683	4/8/2014	Implicit, LLC
2 9,270,790	2/23/2016	Implicit, LLC
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DOCKET NO. 2:18-cv-54-JRG	DATE FILED 3/8/2018	U.S. DISTRICT COURT Eastern District of Texas, Marshall Division
PLAINTIFF Implicit, LLC		DEFENDANT Sandvine Corporation
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT It is therefore ORDERED that Plaintiff's claims against Defendant McAfee, LLC are DISMISSED WITHOUT PREJUDICE
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CLERK <i>David A. O'Poole</i>	(BY) DEPUTY CLERK <i>Nakisha Love</i>	DATE 4/10/18
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT ORDERED that all claims asserted in this suit between Plaintiff Implicit and Defendant Sophos are hereby DISMISSED WITHOUT PREJUDICE .
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CLERK <i>David A. O'Toole</i>	(BY) DEPUTY CLERK ch	DATE 11/2/18
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