



US010027780B2

(12) **United States Patent**
Balassanian

(10) **Patent No.:** **US 10,027,780 B2**
(45) **Date of Patent:** ***Jul. 17, 2018**

(54) **METHOD AND SYSTEM FOR DATA DEMULTIPLEXING**

(56) **References Cited**

(71) Applicant: **Implicit, LLC**, Seattle, WA (US)

U.S. PATENT DOCUMENTS

(72) Inventor: **Edward Balassanian**, Seattle, WA (US)

5,298,674 A 3/1994 Yun
5,392,390 A 2/1995 Crozier
(Continued)

(73) Assignee: **Implicit, LLC**, Seattle, WA (US)

FOREIGN PATENT DOCUMENTS

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

EP 0408132 1/1991
EP 0807347 11/1997
(Continued)

This patent is subject to a terminal disclaimer.

OTHER PUBLICATIONS

(21) Appl. No.: **15/703,964**

Non-Final Office Action in Inter Partes Reexamination Control No. 95/000,659 dated Aug. 16, 2013, 107 pages.

(22) Filed: **Sep. 13, 2017**

(Continued)

(65) **Prior Publication Data**

US 2018/0013865 A1 Jan. 11, 2018

Primary Examiner — Duc T Duong

(74) *Attorney, Agent, or Firm* — Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C.

Related U.S. Application Data

(63) Continuation of application No. 15/450,790, filed on Mar. 6, 2017, which is a continuation of application (Continued)

(57) **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.

(51) **Int. Cl.**

H04L 12/58 (2006.01)
H04L 29/06 (2006.01)

(Continued)

(52) **U.S. Cl.**

CPC **H04L 69/08** (2013.01); **H04L 29/06** (2013.01); **H04L 45/00** (2013.01);

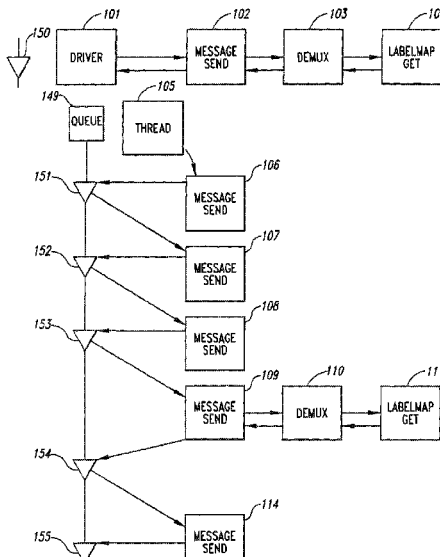
(Continued)

(58) **Field of Classification Search**

None

See application file for complete search history.

20 Claims, 16 Drawing Sheets



Related U.S. Application Data

No. 15/050,027, filed on Feb. 22, 2016, now Pat. No. 9,591,104, which is a continuation of application No. 14/230,952, filed on Mar. 31, 2014, now Pat. No. 9,270,790, which is a continuation of application No. 13/911,324, filed on Jun. 6, 2013, now Pat. No. 8,694,683, which is a continuation of application No. 13/236,090, filed on Sep. 19, 2011, now abandoned, which is a continuation of application No. 10/636,314, filed on Aug. 6, 2003, now Pat. No. 8,055,786, which is a continuation of application No. 09/474,664, filed on Dec. 29, 1999, now Pat. No. 8,629,163.

6,199,054	B1	3/2001	Khan et al.	
6,212,550	B1	4/2001	Segur	
6,222,536	B1	4/2001	Kihl et al.	
6,226,267	B1	5/2001	Spinney et al.	
6,243,667	B1	6/2001	Kerr et al.	
6,246,678	B1	6/2001	Erb et al.	
6,259,781	B1	7/2001	Crouch et al.	
6,275,507	B1	8/2001	Anderson et al.	
6,278,532	B1	8/2001	Heimendinger et al.	
6,292,827	B1	9/2001	Raz	
6,356,529	B1	3/2002	Zarom	
6,359,911	B1	3/2002	Movshovich et al.	
6,374,305	B1	4/2002	Gupta et al.	
6,401,132	B1	6/2002	Bellwood et al.	
6,404,775	B1	6/2002	Leslie et al.	
6,405,254	B1	6/2002	Hadland	
6,426,943	B1	7/2002	Spinney et al.	
6,427,171	B1 *	7/2002	Craft	H04L 29/06 709/230

(51) **Int. Cl.**

H04L 29/08 (2006.01)
H04L 29/12 (2006.01)
H04L 12/701 (2013.01)

(52) **U.S. Cl.**

CPC **H04L 61/2007** (2013.01); **H04L 61/6063** (2013.01); **H04L 67/02** (2013.01); **H04L 69/16** (2013.01); **H04L 69/18** (2013.01); **H04L 69/22** (2013.01); **H04L 69/32** (2013.01)

(56)

References Cited

U.S. PATENT DOCUMENTS

5,414,833	A	5/1995	Hershey et al.
5,425,029	A	6/1995	Hluchyj et al.
5,568,478	A	10/1996	van Loo, Jr. et al.
5,627,997	A	5/1997	Pearson et al.
5,710,917	A	1/1998	Musa et al.
5,727,159	A	3/1998	Kikinis
5,740,430	A	4/1998	Rosenberg et al.
5,761,651	A	6/1998	Hasebe
5,768,521	A	6/1998	Dedrick
5,826,027	A	10/1998	Pedersen et al.
5,835,726	A	11/1998	Shwed et al.
5,842,040	A	11/1998	Hughes et al.
5,848,233	A	12/1998	Radia et al.
5,848,246	A	12/1998	Gish
5,848,415	A	12/1998	Guck
5,854,899	A	12/1998	Callon et al.
5,870,479	A	2/1999	Feiken et al.
5,896,383	A	4/1999	Wakeland
5,898,830	A	4/1999	Wesinger, Jr. et al.
5,918,013	A	6/1999	Mighdoll et al.
5,983,348	A	11/1999	Ji
5,987,256	A	11/1999	Wu et al.
5,991,299	A	11/1999	Radogna et al.
5,991,806	A	11/1999	McHann, Jr.
6,032,150	A	2/2000	Nguyen
6,035,339	A	3/2000	Agraharam et al.
6,047,002	A	4/2000	Hartmann et al.
6,067,575	A	5/2000	McManis et al.
6,091,725	A	7/2000	Cheriton et al.
6,094,679	A	7/2000	Teng et al.
6,101,189	A	8/2000	Tsuruoka
6,101,320	A	8/2000	Schuetze et al.
6,104,500	A	8/2000	Alam et al.
6,104,704	A	8/2000	Buhler et al.
6,111,893	A	8/2000	Volftsun et al.
6,112,250	A	8/2000	Appelman
6,115,393	A	9/2000	Engel et al.
6,119,165	A	9/2000	Li et al.
6,119,236	A	9/2000	Shipley
6,122,666	A	9/2000	Beurket et al.
6,128,624	A	10/2000	Papiemiak et al.
6,130,917	A	10/2000	Monroe
6,141,749	A	10/2000	Coss et al.
6,151,390	A	11/2000	Volftsun et al.
6,157,622	A	12/2000	Tanaka et al.

6,493,348	B1	12/2002	Gelman et al.	
6,504,843	B1	1/2003	Cremin et al.	
6,519,636	B2	2/2003	Engel et al.	
6,560,236	B1	5/2003	Varghese et al.	
6,574,610	B1	6/2003	Clayton et al.	
6,578,084	B1	6/2003	Moberg et al.	
6,598,034	B1	7/2003	Kloth	
6,629,163	B1	9/2003	Balassanian	
6,650,632	B1	11/2003	Volftsun et al.	
6,651,099	B1	11/2003	Dietz et al.	
6,678,518	B2	1/2004	Eerola	
6,680,922	B1	1/2004	Jorgensen	
6,701,432	B1	3/2004	Deng et al.	
6,711,166	B1	3/2004	Amir et al.	
6,772,413	B2	8/2004	Kuznetsov	
6,785,730	B1	8/2004	Taylor	
6,865,735	B1	3/2005	Sirer et al.	
6,871,179	B1	3/2005	Kist et al.	
6,889,181	B2	5/2005	Kerr et al.	
6,937,574	B1	8/2005	Delaney et al.	
6,957,346	B1	10/2005	Kivinen et al.	
6,959,439	B1	10/2005	Boike	
7,233,569	B1 *	6/2007	Swallow	H04L 12/4633 370/225
7,233,948	B1	6/2007	Shamoon et al.	
7,281,036	B1	10/2007	Lu et al.	
7,383,341	B1	6/2008	Saito et al.	
7,711,857	B2	5/2010	Balassanian	
8,055,786	B2	11/2011	Balassanian	
8,694,683	B2	4/2014	Balassanian	
2003/0142669	A1	7/2003	Kubota et al.	
2004/0015609	A1	1/2004	Brown et al.	
2008/0250045	A1 *	10/2008	Balassanian	G06F 17/30569
2009/0083763	A1	3/2009	Sareen et al.	
2009/0265695	A1	10/2009	Karino	
2017/0237668	A1 *	8/2017	Hall	H04L 47/193 370/235

FOREIGN PATENT DOCUMENTS

EP	0817031	1/1998
JP	H10-49354	2/1998
JP	H10-55279	2/1998
JP	H10-74153	3/1998
JP	H10-289215	10/1998
WO	99/35799	7/1999

OTHER PUBLICATIONS

Decision on Petition in Reexamination Control No. 95/000,659 dated Aug. 19, 2013, 3 pages.
 Response to Non-Final Office Action in Reexamination Control No. 95/000,659 dated Oct. 2, 2013 including Exhibits A-C, 37 pages.
 Decision on Petition in Reexamination Control No. 95/000,660 dated Jul. 30, 2013, 12 pages.

(56)

References Cited

OTHER PUBLICATIONS

- RFC: 791. Internet Protocol: DARPA Internet Program Protocol Specification, Sep. 1981, prepared for Defense Advanced Research Projects Agency Information Processing Techniques Office by Information Sciences Institute University of Southern California, 52 pages.
- 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.
- Defendants' Invalidity Contentions Pursuant to Local Patent Rules 3-3 and 3-4, United States District Court Eastern District of Texas Tyler Division, *Implicit, LLC v. Trend Micro, Inc., Ericsson Inc., Huawei Technologies USA, Inc., NEC Corporation of America, Nokia Solutions and Networks US LLC*; Sep. 2, 2016, 53 pages.
- Exhibits A-1-A16 Invalidity of U.S. Pat. No. 8,694,683, Defendants' Invalidity Contentions Pursuant to Local Patent Rules 3-3 and 3-4, United States District Court Eastern District of Texas Tyler Division, Sep. 2, 2016, 425 pages.
- Exhibits B-1-B13 Invalidity of U.S. Pat. No. 9,270,790, Defendants' Invalidity Contentions Pursuant to Local Patent Rules 3-3 and 3-4, United States District Court Eastern District of Texas Tyler Division, Sep. 2, 2016, 369 pages.
- Exhibits C-1-C21 Invalidity of U.S. Pat. No. 8,856,779, Defendants' Invalidity Contentions Pursuant to Local Patent Rules 3-3 and 3-4, United States District Court Eastern District of Texas Tyler Division, Sep. 2, 2016, 646 pages.
- Exhibits D-1-D21 Invalidity of U.S. Pat. No. 9,325,740, Defendants' Invalidity Contentions Pursuant to Local Patent Rules 3-3 and 3-4, United States District Court Eastern District of Texas Tyler Division, Sep. 2, 2016, 419 pages.
- Exhibits E-1-E20 Invalidity of U.S. Pat. No. 6,324,685, Defendants' Invalidity Contentions Pursuant to Local Patent Rules 3-3 and 3-4, United States District Court Eastern District of Texas Tyler Division, Sep. 2, 2016, 416 pages.
- Michael Baentsch, et al., "WebMake: Integrating distributed software development in a structure-enhanced Web," *Computer Networks and ISDN Systems* 27 (1995), pp. 789-800.
- Dan Decasper, et al., "A Scalable, High Performance Active Network Node," Apr. 1998, 21 pages.
- John J. Hartman, et al., "Joust: A Platform for Liquid Software," *Computer, IEEE*, 1999, pp. 50-56.
- David Mosberger, et al., "Making Paths Explicit in the Scout Operating System," *Proceedings of the USENIX 2nd Symposium on Operating Systems Design and Implementation*, Oct. 1996, 16 pages.
- Oliver Spatscheck, et al., "Escort: A Path-Based OS Security Architecture," *TR 97-17*, Nov. 26, 1997, 17 pages.
- Dan Decasper, et al., "DAN: Distributed Code Caching for Active Networks," *IEEE*, 1998, pp. 609-616.
- Alexander, D. et al., "The SwitchWare Active Network Architecture," Jun. 6, 1998, *IEEE*.
- Antoniazzi, S. et al., "An Open Software Architecture for Multimedia Consumer Terminals", Central Research Labs, Italy; Alcatel SEL Research Centre, Germany, ECMAST 1997.
- Arbanowski, Stefan, "Generic Description of Telecommunication Services and Dynamic Resource Selection in Intelligent Communication Environments", Thesis, Technische Universität Berlin, Oct. 9, 1996, (3 documents).
- Arbanowski, S., et al., Service Personalization for Unified Messaging Systems, Jul. 6-8, 1999, The Fourth IEEE Symposium on Computers and Communications, ISCC '99, Red Sea, Egypt.
- Atkinson, R., "Security Architecture for the Internet Protocol", Aug. 1995, Naval Research Laboratory.
- Atkinson, R., "IP Authentication Header", Aug. 1995, Naval Research Laboratory.
- Atkinson, R., "IP Encapsulating Security Payload (ESP)", Aug. 1995, Naval Research Laboratory.
- Back, G., et al., *Java Operating Systems: Design and Implementation*, Dr. Sean, "CORBA Implementation Issues", 1994, IONA Technologies, O'Reilly Institute Dublin, Ireland.
- Barrett, R., et al., "Intermediaries: New Places for Producing and Manipulating Web Content", 1998, IBM Almaden Research Center, Elsevier Science.
- Bellare, M., et al., "A Concrete Security Treatment of Symmetric Encryption: Analysis of the DES Modes of Operation", Aug. 15, 1997, Dept. of Computer Science and Engineering, University of California, San Diego.
- Bellare, M., et al., "A Concrete Security Treatment of Symmetric Encryption: Analysis of the DES Modes of Operation", Aug. 15, 1997, *IEEE*.
- Bellare, M., et al., "XOR MACs: New Methods for Message Authentication Using Finite Pseudorandom Functions", 1995, *CRYPTO '95*, LNCS 963, pp. 15-28, Springer-Verlag Berlin Heidelberg.
- Bellissard, L., et al., "Dynamic Reconfiguration of Agent-Based Applications", Third European Research Seminar on Advances in Distributed Systems, (ERSADS '99) Madeira Island.
- Bolding, Darren, "Network Security, Filters and Firewalls", 1995, www.acm.org/crossroads/xrds2-1/security.html.
- Booch, G., et al., "Software Engineering with ADA", 1994, Third Edition, The Benjamin/Cummings Publishing Company, Inc., (2 documents).
- Breugst, et al., "Mobile Agents—Enabling Technology for Active Intelligent Network Implementation", May/June 1998, *IEEE Network*.
- "C Library Functions", *AUTH(3)* Sep. 17, 1993, Solbourne Computer, Inc.
- Chapman, D., et al., "Building Internet Firewalls", Sep. 1995, O'Reilly & Associates, Inc.
- CheckPoint FireWall-1 Technical White Paper, Jul. 18, 1994, CheckPoint Software Technologies, Ltd.
- CheckPoint FireWall-1 White Paper, Sep. 1995, Version 2.0, CheckPoint Software Technologies, Ltd.
- Command Line Interface Guide P/N 093-0011-000 Rev C Version 2.5, 2000-2001, NetScreen Technologies, Inc.
- Coulson, G. et al., "A CORBA Compliant Real-Time Multimedia Platform for Broadband Networks", *Lecture Notes in Computer Science*, 1996, Trends in Distributed Systems CORBA and Beyond.
- Cox, Brad, "SuperDistribution, Objects As Property on the Electronic Frontier", 1996, Addison-Wesley Publishing Company.
- Cranes, et al., "A Configurable Protocol Architecture for CORBA Environments", *Autonomous Decentralized Systems 1997 Proceedings ISADS*, Third International Symposium Apr. 9-11, 1997.
- Curran, K., et al., "CORBA Lacks Venom", University of Ulster, Northern Ireland, UK 2000.
- Dannert, Andreas, "Call Logic Service for a Personal Communication Supporting System", Thesis, Jan. 20, 1998, Technische Universität Berlin.
- DARPA Internet Program Protocol Specification, "Transmission Control Protocol", Sep. 1981, Information Sciences Institute, California.
- DARPA Internet Program Protocol Specification, "Internet Protocol", Sep. 1981, Information Sciences Institute, California.
- Decasper, D., et al., "Crossbow: A Toolkit for Integrated Services over Cell Switched IPv6", 1997, Computer Engineering and Networks Laboratory, ETH Zurich, Switzerland.
- Decasper, D., et al., "Router Plugins a Software Architecture for Next Generation Routers", 1998, *Proceedings of ACM SIGCOMM '98*.
- Deering, S., et al., Internet Protocol, Version 6 (IPv6) Specification, Dec. 1998, Nokia, The Internet Society.
- Deering, S., et al., Internet Protocol, Version 6 (IPv6) Specification, Dec. 1995, Network Working Group, RFC 1883.
- Dutton, et al., "Asynchronous Transfer Mode Technical Overview (ATM)", Second Edition; IBM, Oct. 1995, 2nd Edition, Prentice Hall PTR, USA.
- Eckardt, T., et al., "Application of X.500 and X.700 Standards for

(56)

References Cited

OTHER PUBLICATIONS

- Eckardt, T., et al., "Personal Communications Support based on TMN and TINA Concepts", 1996, IEEE Intelligent Network Workshop (IN '96), Apr. 21-24, Melbourne, Australia.
- Eckardt, T., et al., "Beyond IN and UPT—A Personal Communications Support System Based on TMN Concepts", Sep. 1997, IEEE Journal on Selected Areas in Communications, vol. 15, No. 7.
- Egevang, K., et al., "The IP Network Address Translator (NAT)", May 1994, Network Working Group, RFC 1631.
- Estrin, D., et al., "Visa Protocols for Controlling Inter-Organizational Datagram Flow", Dec. 1998, Computer Science Department, University of Southern California and Digital Equipment Corporation.
- Faupel, M., "Java Distribution and Deployment", Oct. 9, 1997, APM Ltd., United Kingdom.
- Felber, P., "The CORBA Object Group Service: A Service Approach to Object Groups in CORBA", Thesis, 1998, Ecole Polytechnique Federale de Lausanne, Switzerland.
- Fish, R., et al., "DRoPS: Kernel Support for Runtime Adaptable Protocols", Aug. 25-27, 1998, IEEE 24th Euromicro Conference, Sweden.
- Fiuczynski, M., et al., "An Extensible Protocol Architecture for Application-Specific Networking", 1996, Department of Computer Science and Engineering, University of Washington.
- Franz, Stefan, "Job and Stream Control in Heterogeneous Hardware and Software Architectures", Apr. 1998, Technische Universitat, Berlin, (2 documents).
- Fraser, T., "DTE Firewalls: Phase Two Measurement and Evaluation Report", Jul. 22, 1997, Trusted Information Systems, USA.
- Gazis, V., et al., "A Survey of Dynamically Adaptable Protocol Stacks", first Quarter 2010, IEEE Communications Surveys & Tutorials, vol. 12, No. 1, 1st Quarter.
- Gokhale, A., et al., "Evaluating the Performance of Demultiplexing Strategies for Real-Time CORBA", Nov. 1997, GLOBECOM.
- Gokhale, A., et al., "Measuring and Optimizing CORBA Latency and Scalability Over High-Speed Networks", Apr. 1998, IEEE Transaction on Computers, vol. 47, No. 4; Proceedings of the International Conference on Distributed Computing Systems (ICDCS '97) May 27-30, 1997.
- Gokhale, A., et al., "Operating System Support for High-Performance, Real-Time CORBA", 1996.
- Gokhale, A., et al., "Principles for Optimizing CORBA Internet Inter-ORB Protocol Performance", Jan. 9, 1998, Proceedings of the HICSS Conference, Hawaii.
- Gong, Li, "Java Security: Present and Near Future", May/June 1997, IEEE Micro.
- Gong, Li, "New Security Architectural Directions for Java (Extended Abstract)", Dec. 19, 1996, IEEE.
- Gong, Li, "Secure Java Class Loading", Nov./Dec. 1998, IEEE Internet.
- Goos, G., et al., "Lecture Notes in Computer Science: Mobile Agents and Security", 1998, Springer-Verlag Berlin Heidelberg.
- Goralski, W., "Introduction to ATM Networking", 1995, McGraw-Hill Series on Computer Communications, USA.
- Hamzeh, K., et al., "Layer Two Tunneling Protocol L2TP", Jan. 1998, PPP Working Group, Internet Draft.
- Harrison, T., et al., "The Design and Performance of a Real-Time CORBA Event Service", Aug. 8, 1997, Proceedings of the OOPSLA '97 Conference, Atlanta, Georgia in Oct. 1997.
- Huitema, Christian, "IPv6 the New Internet Protocol", 1997 Prentice Hall, Second Edition.
- Hutchins, J., et al., "Enhanced Internet Firewall Design Using Stateful Filters Final Report", Aug. 1997, Sandia Report; Sandia National Laboratories.
- IBM, Local Area Network Concepts and Products: Routers and Gateways, May 1996.
- Juniper Networks Press Release, Juniper Networks Announces Juniper Networks Press Release, Juniper Networks Ships the Industry's First Internet Backbone Router Delivering Unrivaled Scalability, Control and Performance, Sep. 16, 1998, Juniper Networks.
- Karn, P., et al., "The ESP DES-CBC Transform", Aug. 1995, Network Working Group, RFC 1829.
- Kelsey, J. et al., "Authenticating Outputs of Computer Software Using a Cryptographic Coprocessor", Sep. 1996, Cardis.
- Krieger, D., et al., "The Emergence of Distributed Component Platforms", Mar. 1998, IEEE.
- Krupczak, B., et al., "Implementing Communication Protocols in Java", Oct. 1998, IEEE Communications Magazine.
- Krupczak, B., et al., "Implementing Protocols in Java: The Price of Portability", 1998, IEEE.
- Lawson, Stephen, "Cisco NetFlow Switching Speeds Traffic Routing", Jul. 7, 1997, Infoworld.
- Li, S., et al., "Active Gateway: A Facility for Video Conferencing Traffic Control", Feb. 1, 1997, Purdue University; Purdue e-Pubs; Computer Science Technical Reports.
- Magedanz, T., et al., "Intelligent Agents: An Emerging Technology for Next Generation Telecommunications?", 1996, IEEE.
- Mills, H., et al., "Principles of Information Systems Analysis and Design", 1986, Academic Press, Inc., (2 documents).
- Mosberger, David, "*Scout: A Path-Based Operating System*", Doctoral Dissertation Submitted to the University of Arizona, 1997, (3 documents).
- Muhugusa, M., et al., "ComScript : An Environment for the Implementation of Protocol Stacks and their Dynamic Reconfiguration", Dec. 1994.
- Nelson, M., et al., The Data Compression Book, 2nd Edition, 1996, M&T Books, a division of MIS Press, Inc.
- NetRanger User's Guide, 1996, WheelGroup Corporation.
- NetScreen Command Line Reference Guide, 2000, P/N 093-0000-001 Rev A, NetScreen Technologies, Inc., USA.
- NetScreen Command Line Reference Guide, 2000, P/N 093-0000-001 NetScreen Technologies, Inc., USA.
- NetScreen Concepts and Examples ScreenOS Reference Guide, 1998-2001, Version 2.5 P/N 093-0039-000 Rev. A, NetScreen Technologies, Inc.
- NetScreen Products Webpage, wysiwyg://body_bottom.3/http://www...een.com/products/products.html 1998-1999, NetScreen Technologies, Inc.
- NetScreen WebUI, Reference Guide, Version 2.5.0 P/N 093-0040-000 Rev. A, 2000-2001, NetScreen Technologies, Inc.
- NetStalker Installation and User's Guide, 1996, Version 1.0.2, Haystack Labs, Inc.
- Niculescu, Dragos, "Survey of Active Network Research", Jul. 14, 1999, Rutgers University.
- Nortel Northern Telecom, "ISDN Primary Rate User-Network Interface Specification", Aug. 1998.
- Nygren, Erik, "The Design and Implementation of a High-Performance Active Network Node", Thesis, Feb. 1998, MIT.
- Osbourne, E., "Morningstar Technologies SecureConnect Dynamic Firewall Filter User's Guide", Jun. 14, 1995, V. 1.4, Morning Star Technologies, Inc.
- Padovano, Michael, "Networking Applications on UNIX System V Release 4," 1993 Prentice Hall, USA, (2 documents).
- Pfeifer, T., "Automatic Conversion of Communication Media", 2000, GMD Research Series, Germany.
- Pfeifer, T., "Automatic Conversion of Communication Media", Thesis, 1999, Technischen Universitat Berlin, Berlin.
- Pfeifer, T., et al., "Applying Quality-of-Service Parametrization for Medium-to-Medium Conversion", Aug. 25-28, 1996, 8th IEEE Workshop on Local and Metropolitan Area Networks, Potsdam, Germany.
- Pfeifer, T., "Micronet Machines—New Architectural Approaches for Multimedia End-Systems", 1993 Technical University of Berlin.
- Pfeifer, T., "On the Convergence of Distributed Computing and Telecommunications in the Field of Personal Communications", 1995, KiVS, Berlin.
- Pfeifer, T., "Speech Synthesis in the Intelligent Personal Communication Support System (IPCSS)", Nov. 2-3, 1995, 2nd "Speak!"

(56) **References Cited**

OTHER PUBLICATIONS

- Pfeifer, T., et al., "Generic Conversion of Communication Media for Supporting Personal Mobility", Nov. 25-27, 1996, Proc. of the Third COST 237 Workshop: Multimedia Telecommunications and Applications.
- Pfeifer, T., et al., "Intelligent Handling of Communication Media", Oct. 29-31, 1997, 6th IEEE Workshop on Future Trends of Distributed Computing Systems (FTDCS) Tunis.
- Pfeifer, T., et al., "Resource Selection in Heterogeneous Communication Environments using the Teleservice Descriptor", Dec. 15-19, 1997, Proceedings from the 4th COST 237 Workshop: From Multimedia Services to Network Services, Lisboa.
- Pfeifer, T., et al., Mobile Guide—Location-Aware Applications from the Lab to the Market, 1998, IDMS '98, LNCS 1483, pp. 15-28.
- Pfeifer, T., et al., "The Active Store providing Quality Enhanced Unified Messaging", Oct. 20-22, 1998, 5th Conference on computer Communications, AFRICOM-CCDC '98, Tunis.
- Pfeifer, T., et al., "A Modular Location-Aware Service and Application Platform", 1999, Technical University of Berlin.
- Plagemann, T., et al., "Evaluating Crucial Performance Issues of Protocol Configuration in DaCaPo", 1994, University of Oslo.
- Psounis, Konstantinos, "Active Networks: Applications, Security, Safety, and Architectures", First Quarter 1999, IEEE Communications Surveys.
- Rabiner, Lawrence, "Applications of Speech Recognition in the Area of Telecommunications", 1997, IEEE.
- Raman, Suchitra, et al., "A Model, Analysis, and Protocol Framework for Soft State-based Communications", Department of EECS, University of California, Berkeley.
- Rogaway, Phillip, "Bucket Hashing and its Application to Fast Message Authentication", Oct. 13, 1997, Department of Computer Science, University of California.
- Schneier, B., et al., "Remote Auditing of Software Outputs Using a Trusted CoProcessor", 1997, Elsevier Paper Reprint 1999.
- Tennenhouse, D., et al., "From Internet to ActiveNet", Laboratory of Computer Science, MIT, 1996.
- Tudor, P., "Tutorial MPEG-2 Video Compression", Dec. 1995, Electronics & Communication Engineering Journal.
- US Copyright Webpage of Copyright Title, "IPv6: the New Internet Protocol", by Christian Huitema, 1998 Prentice Hall.
- Van der Meer, et al., "An Approach for a 4th Generation Messaging System", Mar. 21-23, 1999, The Fourth International Symposium on Autonomous Decentralized Systems ISADS '99, Tokyo.
- Van der Meer, Sven, "Dynamic Configuration Management of the Equipment in Distributed Communication Environments", Thesis, Oct. 6, 1996, Berlin, (3 documents).
- Van Renesse, R. et al., "Building Adaptive Systems Using Ensemble", Cornell University Jul. 1997.
- Venkatesan, R., et al., "Threat-Adaptive Security Policy", 1997, IEEE.
- Wetherall, D., et al., "The Active IP Option", Sep. 1996, Proceedings of the 7th ACM SIGOPS European Workshop, Connemara, Ireland.
- Welch, Terry, "A Technique for High-Performance Data Compression", 1984, Sperry Research Center, IEEE.
- Zeletin, R. et al., "Applying Location Aware Computing for Electronic Commerce: Mobile Guide", Oct. 20-22, 1998, 5th Conference on Computer Communications, AFRICOM-CCDC '98, Tunis.
- Zell, Markus, "Selection of Converter Chains by Means of Quality of Service Analysis", Thesis, Feb. 12, 1998, Technische Universität Berlin.
- Implicit Networks, Inc. v. Advanced Micro Devices, Inc. et al.*; C08-0184 JLR; USDC for the Western District of Washington, Seattle Division.
Feb. 4, 2008 Plaintiff's Original Complaint.
- Aug. 26, 2008 Defendant NVIDIA Corporation's Answer to Complaint.
- Aug. 27, 2008 Defendant Advanced Micro Devices, Inc.'s Answer to Complaint for Patent Infringement.
- Aug. 27, 2008 RealNetworks, Inc.'s Answer to Implicit Networks, Inc.'s Original Complaint for Patent Infringement, Affirmative Defenses, and Counterclaims.
- Aug. 27, 2008 Intel Corp.'s Answer, Defenses and Counterclaims.
- Aug. 27, 2008 Defendant RMI Corporation's Answer to Plaintiff's Original Complaint.
- Sep. 15, 2008 Plaintiff's Reply to NVIDIA Corporation's Counterclaims.
- Sep. 15, 2008 Plaintiff's Reply to Sun Microsystems Inc.'s Counterclaims.
- Sep. 16, 2008 Plaintiff's Reply to RealNetworks, Inc.'s Counterclaims.
- Sep. 16, 2008 Plaintiff's Reply to Intel Corp.'s Counterclaims.
- Dec. 10, 2008 Order granting Stipulated Motion for Dismissal with Prejudice re NVIDIA Corporation, Inc.
- Dec. 16, 2008 Defendants AMD, RealNetworks, RMI, and Sun's Motion to Stay Pending the Patent and Trademark Office's Reexamination of the '163 Patent.
- Dec. 29, 2008 Order granting Stipulated Motion for Dismissal without Prejudice of Claims re Sun Microsystems, Inc.
- Jan. 5, 2009 Plaintiff's Opposition to Defendants AMD, RealNetworks, RMI, and Sun's Motion to Stay Pending Reexamination and Exhibit A.
- Jan. 9, 2009 Reply of Defendants AMD, RealNetworks, RMI, and Sun's Motion to Stay Pending the Patent and Trademark Office's Reexamination of the '163 Patent.
- Feb. 9, 2009 Order Granting Stay Pending the United States Patent and Trademark Office's Reexamination of U.S. Pat. No. 6,629,163.
- Feb. 17, 2009 Order Granting Stipulated Motion for Dismissal of Advanced Micro Devices, Inc. with Prejudice.
- May 14, 2009 Order Granting Stipulated Motion for Dismissal of RMI Corporation with Prejudice.
- Oct. 13, 2009 Order Granting Stipulated Motion for Dismissal of Claims Against and Counterclaims by Intel Corporation.
- Oct. 30, 2009 Executed Order for Stipulated Motion for Dismissal of Claims Against and Counterclaims by RealNetworks, Inc. *Implicit Networks, Inc. v. Microsoft Corp.*, C09-5628 HLR; USDC for the Northern District of California, San Francisco Division.
- Nov. 30, 2009 Plaintiff's Original Complaint, *Implicit v. Microsoft*, Case No. 09-5628.
- Jan. 22, 2010 Order Dismissing Case, *Implicit v. Microsoft*, Case No. 9-5628.
- Implicit Networks, Inc. v. Cisco Systems, Inc.*, C10-3606 HRL; USDC for the Northern District of California, San Francisco Division.
- Aug. 16, 2010 Plaintiff's Original Complaint, *Implicit v. Cisco*, Case No. 10-3606.
- Nov. 22, 2010 Defendant Cisco Systems, Inc.'s Answer and Counterclaims, *Implicit v. Cisco*, Case No. 10-3606.
- Dec. 13, 2010 Plaintiff, *Implicit Networks, Inc.*'s, Answer to Counterclaims, *Implicit v. Cisco*, Case No. 10-3606.
- Oct. 4, 2011 Order of Dismissal with Prejudice, *Implicit v. Cisco*, Case No. 10-3606.
- Implicit Networks, Inc. v. Citrix Systems, Inc.*, C10-3766 JL; USDC for the Northern District of California, San Francisco Division.
- Aug. 24, 2010 Plaintiff's Original Complaint, *Implicit v. Citrix*, Case No. 10-3766.
- Dec. 1, 2010 Plaintiff's First Amended Complaint, *Implicit v. Citrix*, Case No. 10-3766.
- Jan. 14, 2011 Defendant Citrix Systems, Inc.'s Answer, Defense and Counter-complaint for Declaratory Judgment, *Implicit v. Citrix*, Case No. 10-3766.
- Feb. 18, 2011 Plaintiff, *Implicit Networks, Inc.*'s, Answer to Defendants Counterclaims, *Implicit v. Citrix*, Case No. 10-3766.
- May 2, 2011 Order of Dismissal, *Implicit v. Citrix*, Case No. 10-3766.
- Implicit Networks, Inc. v. F5 Networks, Inc.*, C10-3365 JCS; USDC for the Northern District of California, San Francisco Division.

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.