



(12) **United States Patent**
Price

(10) **Patent No.:** **US 9,742,824 B2**
(45) **Date of Patent:** ***Aug. 22, 2017**

(54) **STREAMING MEDIA DELIVERY SYSTEM**

(58) **Field of Classification Search**
CPC . H04L 65/4076; H04L 65/80; H04L 65/4084;
H04L 49/90; H04L 49/901;
(Continued)

(71) Applicant: **WAG ACQUISITION, L.L.C.**,
Flanders, NJ (US)

(72) Inventor: **Harold Edward Price**, Bethel Park, PA
(US)

(56) **References Cited**

U.S. PATENT DOCUMENTS

(73) Assignee: **WAG ACQUISITION, L.L.C.**,
Flanders, NJ (US)

4,001,690 A 1/1977 Mack et al.
4,027,337 A 5/1977 de Loye et al.
(Continued)

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

This patent is subject to a terminal dis-
claimer.

FOREIGN PATENT DOCUMENTS

CA 2247588 1/2004
EP 0614317 9/1994
(Continued)

(21) Appl. No.: **15/283,578**

OTHER PUBLICATIONS

(22) Filed: **Oct. 3, 2016**

A. Periyanan; "Delivering Media Generically over RTP"; Mar. 13,
1998.

(65) **Prior Publication Data**

US 2017/0026435 A1 Jan. 26, 2017

(Continued)

Primary Examiner — Joseph E Avellino
Assistant Examiner — Marshall McLeod

(74) *Attorney, Agent, or Firm* — Ernest D. Buff; Ernest
D. Buff & Associates, LLC

Related U.S. Application Data

(63) Continuation of application No. 13/815,040, filed on
Jan. 25, 2013, which is a continuation of application
(Continued)

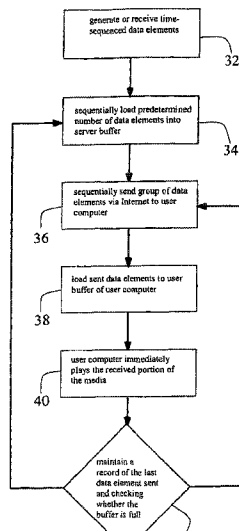
(57) **ABSTRACT**

Streaming media, such as audio or video files, is sent via the
Internet. The media are immediately played on a user's
computer. Audio/video data is transmitted from the server
under control of a transport mechanism. A server buffer is
prefilled with a predetermined amount of the audio/video
data. When the transport mechanism causes data to be sent
to the user's computer, it is sent more rapidly than it is
played out by the user system. The audio/video data in the
user buffer accumulates; and interruptions in playback as
well as temporary modem delays are avoided.

(51) **Int. Cl.**
G06F 15/16 (2006.01)
H04L 29/06 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC **H04L 65/4076** (2013.01); **H04L 29/06027**
(2013.01); **H04L 29/06455** (2013.01);
(Continued)

12 Claims, 3 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

5,933,603	A	8/1999	Vahalia et al.	6,430,620	B1	8/2002	Omura et al.
5,937,164	A	8/1999	Mages et al.	6,438,123	B1	8/2002	Chapman
5,938,734	A	8/1999	Yao et al.	6,438,630	B1	8/2002	DeMoney
5,953,506	A	9/1999	Kalra et al.	6,449,719	B1	9/2002	Baker
5,956,716	A	9/1999	Kenner et al.	6,452,943	B1	9/2002	Furuya
5,963,202	A	10/1999	Polish	6,487,663	B1	11/2002	Jaisimha et al.
5,968,120	A	10/1999	Guedalia	6,502,139	B1	12/2002	Birk et al.
5,969,763	A	10/1999	Sakamoto	6,502,194	B1	12/2002	Berman et al.
5,974,503	A	10/1999	Venkatesh et al.	6,535,920	B1	3/2003	Parry et al.
5,978,567	A	11/1999	Rebane et al.	6,536,043	B1	3/2003	Guedalia
5,987,510	A	11/1999	Imai et al.	6,549,942	B1	4/2003	Janky et al.
5,995,091	A	11/1999	Near et al.	6,557,031	B1	4/2003	Mimura et al.
5,995,705	A	11/1999	Lang	6,574,218	B1	6/2003	Cooklev
5,996,015	A	11/1999	Day et al.	6,588,015	B1	7/2003	Eyer et al.
5,999,525	A	12/1999	Krishnaswamy et al.	6,594,699	B1	7/2003	Sahai et al.
6,002,720	A	12/1999	Yurt et al.	6,598,228	B2	7/2003	Hejna, Jr.
6,005,600	A	12/1999	Hill	6,621,870	B1	9/2003	Gordon et al.
6,011,590	A	1/2000	Saukkonen	6,625,656	B2	9/2003	Goldhor et al.
6,014,693	A	1/2000	Ito et al.	6,625,750	B1	9/2003	Duso et al.
6,014,694	A	1/2000	Aharoni et al.	6,637,031	B1	10/2003	Chou
6,014,706	A	1/2000	Cannon et al.	6,665,751	B1	12/2003	Chen et al.
6,018,359	A	1/2000	Kermode et al.	6,675,241	B1	1/2004	Hunter
6,029,194	A	2/2000	Tilt	6,700,893	B1	3/2004	Radha et al.
6,032,180	A	2/2000	Nishikawa	6,708,213	B1	3/2004	Bommaiah et al.
6,032,189	A	2/2000	Jinzenji et al.	6,711,741	B2	3/2004	Yeo
6,032,193	A	2/2000	Sullivan	6,715,007	B1	3/2004	Williams et al.
6,032,197	A	2/2000	Birdwell et al.	6,715,126	B1	3/2004	Chang et al.
6,037,983	A	3/2000	Au et al.	6,728,753	B1	4/2004	Parasnis
6,040,866	A	3/2000	Chen	6,738,380	B1	5/2004	Imai et al.
6,047,317	A	4/2000	Bisdikian et al.	6,741,290	B1	5/2004	Wells
6,047,356	A	4/2000	Anderson et al.	6,757,273	B1	6/2004	Hsu et al.
6,057,832	A	5/2000	Lev et al.	6,757,796	B1	6/2004	Hofmann
6,061,731	A	5/2000	Blakeslee	6,763,178	B1	7/2004	Suzuki et al.
6,061,732	A	5/2000	Korst et al.	6,763,392	B1	7/2004	del Val
6,065,050	A	5/2000	DeMoney	6,778,499	B1	8/2004	Senarath et al.
6,067,303	A	5/2000	Aaker et al.	6,788,686	B1	9/2004	Khotimsky et al.
6,085,221	A	7/2000	Graf	6,792,468	B1	9/2004	Bloch et al.
6,085,252	A	7/2000	Zhu et al.	6,806,909	B1	10/2004	Radha et al.
6,097,422	A	8/2000	Aref et al.	6,829,368	B2	12/2004	Meyer et al.
6,138,147	A	10/2000	Weaver et al.	6,831,892	B2	12/2004	Robinett et al.
6,151,632	A	11/2000	Chaddha et al.	6,845,398	B1	1/2005	Galensky et al.
6,151,634	A	11/2000	Glaser et al.	6,847,618	B2	1/2005	Laursen et al.
6,161,137	A	12/2000	Ogdon et al.	6,850,965	B2	2/2005	Allen
6,173,328	B1	1/2001	Sato	6,859,557	B1	2/2005	Uyttendaele et al.
6,173,340	B1	1/2001	Gready et al.	6,879,559	B1	4/2005	Blackmon et al.
6,181,364	B1	1/2001	Ford	6,879,634	B1	4/2005	Oz et al.
6,192,032	B1	2/2001	Izquierdo	6,888,848	B2	5/2005	Beshai et al.
6,205,525	B1	3/2001	Korst	6,889,257	B1	5/2005	Patel
6,212,206	B1	4/2001	Ketcham	6,907,481	B2	6/2005	Kovacevic
6,233,226	B1	5/2001	Gringeri et al.	6,925,495	B2	8/2005	Hegde et al.
6,249,551	B1	6/2001	Yamaguchi	6,938,047	B2	8/2005	Kryeziu
6,249,810	B1	6/2001	Kiraly	6,978,306	B2	12/2005	Miller et al.
6,263,001	B1	7/2001	Banks	6,981,050	B1	12/2005	Tobias
6,269,394	B1	7/2001	Kenner et al.	6,985,932	B1	1/2006	Glaser et al.
6,275,536	B1	8/2001	Chen et al.	6,988,144	B1	1/2006	Luken et al.
6,279,040	B1	8/2001	Ma et al.	6,990,497	B2	1/2006	O'Rourke et al.
6,292,834	B1	9/2001	Ravi et al.	6,992,983	B1	1/2006	Chatterjee
6,301,258	B1	10/2001	Katseff et al.	6,993,787	B1	1/2006	Kamel et al.
6,317,416	B1	11/2001	Giroux et al.	7,016,970	B2	3/2006	Harumoto et al.
6,317,795	B1	11/2001	Malkin et al.	7,020,710	B2	3/2006	Weber et al.
6,321,269	B1	11/2001	Walker	7,035,287	B2	4/2006	Tourunen et al.
6,329,986	B1	12/2001	Cheng	7,039,784	B1	5/2006	Chen et al.
6,336,143	B1	1/2002	Diedrich et al.	7,046,672	B2	5/2006	Liao et al.
6,347,094	B1	2/2002	Gopalakrishnan	7,054,500	B1	5/2006	Lillevold
6,370,272	B1	4/2002	Shimizu	7,058,721	B1	6/2006	Ellison et al.
6,377,931	B1	4/2002	Shlomot	7,058,728	B1	6/2006	Eklund
6,377,995	B2	4/2002	Agraharam et al.	7,061,936	B2	6/2006	Yoshimura et al.
6,385,596	B1	5/2002	Wiser	7,065,342	B1	6/2006	Rolf
6,385,673	B1	5/2002	DeMoney	7,085,842	B2	8/2006	Reid et al.
6,389,473	B1	5/2002	Carmel et al.	7,111,058	B1	9/2006	Nguyen et al.
6,396,907	B1	5/2002	Didcock	7,111,162	B1	9/2006	Bagepalli et al.
6,397,251	B1	5/2002	Graf	7,111,316	B1	9/2006	Zahorjan et al.
6,397,259	B1	5/2002	Lincke	7,113,983	B1	9/2006	Terada et al.
				7,127,735	B1	10/2006	Lee et al.
				7,136,377	B1	11/2006	Tweedly et al.
				7,143,177	B1	11/2006	Johnson et al.
				7,149,811	B2	12/2006	Wise et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

7,161,939 B2 1/2007 Israel et al.
 7,167,560 B2 1/2007 Yu
 7,170,856 B1 1/2007 Ho et al.
 7,187,947 B1 3/2007 White
 7,209,437 B1* 4/2007 Hodgkinson H04L 29/06
 370/230
 7,212,574 B2 5/2007 Abrams, Jr. et al.
 7,224,703 B2 5/2007 Antal et al.
 7,237,254 B1* 6/2007 Omoigui H04N 7/17318
 348/E7.071
 7,239,703 B2 7/2007 Higurashi et al.
 7,249,264 B2 7/2007 Belknap et al.
 7,260,564 B1 8/2007 Lynn et al.
 7,266,118 B2 9/2007 Ido et al.
 7,272,298 B1 9/2007 Lang et al.
 7,272,658 B1 9/2007 Edelman et al.
 7,287,083 B1 10/2007 Nay et al.
 7,298,849 B2 11/2007 Graunke
 7,302,396 B1 11/2007 Cooke
 7,310,678 B2 12/2007 Gunaseelan et al.
 7,318,017 B2 1/2008 Swoboda
 7,330,902 B1 2/2008 Bergenwall et al.
 7,334,016 B2 2/2008 Fishhaut et al.
 7,334,044 B1 2/2008 Allen
 7,346,698 B2 3/2008 Hannaway
 7,349,663 B1 3/2008 Joseph
 7,373,413 B1 5/2008 Nguyen et al.
 7,376,710 B1 5/2008 Cromwell et al.
 7,398,312 B1 7/2008 Guo et al.
 7,406,176 B2 7/2008 Zhu et al.
 7,424,730 B2 9/2008 Chou
 7,434,052 B1 10/2008 Rump
 7,448,062 B1 11/2008 Bloch et al.
 7,471,834 B2 12/2008 Sull et al.
 7,478,164 B1 1/2009 Lango et al.
 7,496,676 B2 2/2009 Kryeziu
 7,499,545 B1 3/2009 Bagshaw
 7,561,602 B1 7/2009 Nakabayashi
 7,570,766 B2 8/2009 Mangold et al.
 7,583,695 B2 9/2009 Vimpari et al.
 7,584,291 B2 9/2009 McDowall et al.
 7,587,509 B1 9/2009 Edelman et al.
 7,590,237 B2 9/2009 Krause et al.
 7,590,656 B2 9/2009 Plastina et al.
 7,594,110 B2 9/2009 Carr
 7,647,297 B2 1/2010 LaChapelle et al.
 7,681,227 B2 3/2010 Zwart et al.
 7,689,510 B2 3/2010 Lamkin et al.
 7,769,168 B2 8/2010 Zhu et al.
 7,818,444 B2 10/2010 Brueck et al.
 7,836,124 B2 11/2010 Saxena et al.
 7,839,998 B2 11/2010 Candelore et al.
 7,848,520 B2 12/2010 Candelore et al.
 7,890,631 B2 2/2011 Allen
 7,913,282 B2 3/2011 Ishikawa et al.
 7,917,557 B2 3/2011 Shteyn et al.
 7,975,060 B2 7/2011 Monro
 7,975,280 B2 7/2011 Bertram
 8,156,236 B2 4/2012 Costanzo et al.
 8,191,097 B1 5/2012 Armstrong et al.
 2001/0047377 A1 11/2001 Sincaglia et al.
 2002/0007418 A1 1/2002 Hegde et al.
 2002/0013948 A1 1/2002 Aguayo, Jr. et al.
 2002/0021761 A1 2/2002 Zhang et al.
 2002/0023165 A1 2/2002 Lahr
 2002/0025045 A1 2/2002 Raike
 2002/0029166 A1 3/2002 Jacobs et al.
 2002/0052967 A1 5/2002 Goldhor et al.
 2002/0069218 A1 6/2002 Sull et al.
 2002/0078174 A1 6/2002 Sim et al.
 2002/0083182 A1 6/2002 Alvarado et al.
 2002/0120675 A1 8/2002 Everett et al.
 2002/0131443 A1 9/2002 Robinett

2003/0014488 A1 1/2003 Dalal et al.
 2003/0018978 A1 1/2003 Singal et al.
 2003/0061305 A1 3/2003 Copley et al.
 2003/0068046 A1 4/2003 Lindqvist et al.
 2003/0093790 A1 5/2003 Logan et al.
 2003/0186645 A1 10/2003 Mori
 2004/0049793 A1 3/2004 Chou
 2004/0078812 A1 4/2004 Calvert
 2004/0086120 A1 5/2004 Akins, III et al.
 2004/0123725 A1 7/2004 Kim
 2004/0131340 A1 7/2004 Antoun et al.
 2004/0162910 A1 8/2004 Kryeziu
 2004/0186733 A1 9/2004 Loomis et al.
 2004/0231004 A1 11/2004 Seo
 2004/0260835 A1 12/2004 Welk et al.
 2005/0005025 A1 1/2005 Harville et al.
 2005/0080876 A1 4/2005 Peiffer et al.
 2005/0108320 A1 5/2005 Lord et al.
 2005/0188007 A1 8/2005 Warner et al.
 2005/0190915 A1 9/2005 Pare et al.
 2005/0203917 A1 9/2005 Freeberg et al.
 2005/0251832 A1 11/2005 Chiueh
 2005/0262251 A1 11/2005 Klemets et al.
 2006/0095472 A1 5/2006 Krikorian et al.
 2006/0136875 A1 6/2006 Thorpe
 2006/0143667 A1 6/2006 Kurosawa
 2006/0153537 A1 7/2006 Kaneko et al.
 2006/0174134 A1 8/2006 Taylor
 2006/0195886 A1 8/2006 Ashley
 2007/0005428 A1 1/2007 Jacobs et al.
 2007/0005795 A1 1/2007 Gonzalez
 2007/0016865 A1 1/2007 Johnson et al.
 2007/0038728 A1 2/2007 Jacobs et al.
 2007/0079327 A1 4/2007 Khoo et al.
 2007/0088804 A1 4/2007 Qureshey et al.
 2007/0226365 A1 9/2007 Hildreth et al.
 2007/0233784 A1 10/2007 O'Rourke et al.
 2007/0274672 A1 11/2007 Itoi
 2008/0059532 A1 3/2008 Kazmi et al.
 2008/0133701 A1 6/2008 Kazmi et al.
 2008/0195743 A1 8/2008 Brueck et al.

FOREIGN PATENT DOCUMENTS

EP 0680185 11/1995
 EP 0720374 7/1996
 EP 0762300 3/1997
 EP 0817017 1/1998
 EP 820204 A2 1/1998
 EP 0827336 3/1998
 EP 0859535 8/1998
 EP 0895420 2/1999
 EP 0984584 A1 3/2000
 EP 1395005 3/2004
 EP 1418756 5/2004
 EP 1427218 6/2004
 EP 1113642 7/2004
 EP 1437866 7/2004
 EP 1487147 12/2006
 FR 2732180 9/1996
 JP H09298734 11/1997
 JP H10108157 4/1998
 JP H10336626 12/1998
 JP H1184780 7/1999
 JP H11184780 7/1999
 JP H11187367 7/1999
 JP H11295589 10/1999
 JP 20-00151595 5/2000
 JP 20-00165844 6/2000
 JP 20-00172599 6/2000
 JP 20-00228669 8/2000
 JP 20-03163916 6/2003
 JP 2003179906 6/2003
 KR 100244854 2/2000
 KR 100253230 4/2000
 WO WO-9712447 4/1997
 WO WO-9717775 5/1997

(56)

References Cited

FOREIGN PATENT DOCUMENTS

WO	WO-97/30551	8/1997
WO	WO-9730551	8/1997
WO	WO-97/41504	11/1997
WO	WO-9741504	11/1997
WO	WO-97/44942	12/1997
WO	9844733 A1	10/1998
WO	WO-9847733	10/1998
WO	WO-9849634	11/1998
WO	WO-9922477	5/1999
WO	WO-0020974	4/2000
WO	WO-0022795	4/2000
WO	WO-0048100	8/2000
WO	WO-0138984	5/2001
WO	WO-0138993	5/2001
WO	WO-0180558	10/2001
WO	WO-02057943	7/2002
WO	WO-03023781	3/2003
WO	WO-2004039034	5/2004
WO	WO-2005004485 A1	1/2005

OTHER PUBLICATIONS

"Macromedia delivers macromedia flash communication server MX"; Jul. 9, 2002.

Ahmed Bashandy; "Jitter Control and Dynamic Resource Management for Multimedia Communication Over Broadband Network," ECE Technical Reports, Electrical and Computer Engineering; Jun. 1, 1998.

Alan Jones; "Handling Audio and Video Streams in a Distributed Environment"; Apr. 1993.

Mark Allman et al.; TCP Congestion Control, Standards Track ; RFC2581; ; Apr. 1999.

Elan Amir et al.; An Application Level Video Gateway, ACM Multimedia 95—Electronic Proceedings; Nov. 1995.

Amitabha Das; "A Model for Synchronisation and Communication of Distributed Multimedia Data Streams," IEEE Catalogue No. 95TH8061; 1995.

Andrew S. Tanenbaum; Computer Networks, Third Edition—Chapter 6; 1996.

Andy Hopper; "Pandora—an experimental system for multimedia applications"; Jan. 1990.

Anup Rao; "Real Time Streaming Protocol." 1996; 1996.

ARRL Amateur Radio; "10th Computer Networking Conference"; Sep. 1991.

ARRL Amateur Radio; "Computer Networking Conference 1-4"; 1981-1985.

ARRL Amateur Radio; "5th Computer Networking Conference"; Mar. 9, 1986.

ARRL Amateur Radio; "6th Computer Networking Conference"; Aug. 29, 1987.

ARRL Amateur Radio; "7th Computer Networking Conference"; Oct. 1, 1988.

ARRL Amateur Radio; "8th Computer Networking Conference"; Oct. 7, 1989.

ARRL/CRRL Amateur Radio; "9th Computer Networking Conference"; Sep. 22, 1990.

Asit Dan; "A Dynamic Policy of Segment Replication for Load-Balancing in Video-on-Demand Servers," Multimedia Systems; 1995.

Berners Lee; "Hypertext Transfer Protocol 1.0," May 1996.

Bing Zheng and Mohammed Atiquzzaman; "Traffic Management of Multimedia over ATM Networks"; Jan. 1999.

Bing, Zheng; Multimedia Over Highspeed; Networks: Reducing Network; Requirements With Fast Buffer; Fillup; ; 1998.

Bob Breedlove et al.; Web Programming Unleashed.

Boll, Susanne et al.; Intelligent Prefetching and Buffering for Interactive Streaming of MPEG Videos, Ulmer Informatikberichte Nr. 2000-05; Apr. 1, 2000.

"America Online Chooses VDOLive; Showcasing Internet Video and to be Available to All AOL Members" Bloomberg Law; Mar. 13, 1997.

C. Zhu; "RTP Payload Format for H. 263 Video Stream," Standards Track, RFC2190; Sep. 1997.

Chen, Zhigang et al.; Real Time Video and Audio in the World Wide Web, World Wide Web Journal; 1995.

Christophe Diot and Inria Sophia Antipolis; "Adaptive Applications and QoS Guaranties," Proc. of the International Conference on Multimedia and Networking; 1995.

Christopher Hess; "Media Streaming Protocol : An Adaptive Protocol for the Delivery of Audio and Video Over the Internet"; 1998.

Christopher Yavelow; Music & Sound Bible, IDG Books Worldwide, Inc.

Chung-Ming Huang and Ruey-Yang Lee; "Multimedia Synchronization for Live Presentation Using the N-Buffer Approach"; 1995.

Chung-Ming Huang et al.; "PARK: A Paused- and-Run K-Stream Multimedia Synchronization Control Scheme"; Apr. 2000.

D. Hoffman et al.; "RTP Payload for MPEG1/MPEG2 Video," Standards Track, RFC 2250; Jan. 1998.

Dan Frankowski and John Riedl; "Hiding Jitter in an Audio Stream"; Jun. 18, 1993.

Jehan-Francois Paris et al.; "A Hybrid Broadcasting Protocol for Video on Demand"; 1999.

Jehan-Francois Paris and Darrell D.E. Long; "A Proactive Implementation of Interactive Video-on-Demand"; 2003.

Jehan-Francois Paris et al.; "A Reactive Broadcasting Protocol for Video on Demand"; 1999.

Darrell D.E. Long; "A variable bandwidth broadcasting protocol for video-on-demand."

Jehan-Francois Paris et al.; "A Zero-delay Broadcasting Protocol for Video on Demand"; 1999.

Chane L. Fullmer et al.; "Adding Adaptive Flow Control to Swift/ RAID"; Jan. 12, 1995.

Jehan-Francois Paris et al.; "Combining Pay-Per-View and Video-on-Demand Services"; 1999.

Jehan-Francois Paris et al.; "Efficient Broadcasting Protocols for Video on Demand"; 1998.

Luis-Felipe Cabrera; "Exploiting Multiple I/O Streams to Provide High Data-Rates"; 1991.

Steven W. Carter and Darrell D.E. Long; "Improving Bandwidth Efficiency of Video-On-Demand Servers"; 1999.

Steven W. Carter and Darrell D.E. Long; "Improving Video-on-Demand Server Efficiency Through Stream Tapping"; 1997.

Cheng Tang et al.; "Performance Guarantees on ATM Networks"; 1994.

Darrell D.E. Long et al.; "Providing Performance Guarantees in an FDDI Network"; 1993.

Darrell D.E. Long and Madhukar N. Thakur; "Scheduling Real-Time Disk Transfers for Continuous Media Applications"; 1993.

Luis-Felipe Cabrera and Darrell D.E. Long; "Swift: A Distributed Storage Architecture for Large Objects"; 1991.

Karthik Thirumalai et al.; "Tabbycat—an Inexpensive Scalable Server for Video-on-Demand"; 2003.

David Greaves and Mark Taunton; "ATM for Video and Audio on Demand." AES UK Audio for New Media Conference, UK 11th Conference: Audio for New Media (ANM); Mar. 1996.

David P. Anderson and George Homsy; "A Continuous Media I/O Server and Its Synchronization Mechanism." University of California at Berkeley, pub. IEEE 1991; Oct. 1991.

Kamran Ahsan and Deepa Kundur; "Practical Data Hiding in TCP/IP"; 2002.

Department of Defense Interface Standard—Tactical Communications Protocol 2 (TACO2) for the National Imagery Transmission Format Standard; Jun. 18, 1993.

Derek Eager et al.; "Bandwidth Skimming: A Technique for Cost-Effective Video-on-Demand"; 2000.

Dijiang Huang et al.; "A Double Authentication Scheme to Detect Impersonation Attack in Link State Routing Protocols"; 2003.

Domenico Ferrari; "Distributed Delay Jitter Control in Packet-Switching Internetworks," The Tenet Group University of Califor-

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.