

## (12) United States Patent Price

#### (10) Patent No.: US 8,122,141 B2

## (45) Date of Patent:

\*Feb. 21, 2012

### (54) STREAMING MEDIA BUFFERING SYSTEM

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

Assignee: WAG Acquisition, LLC, Flanders, NJ

(US)

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 disclaimer.

(21) Appl. No.: 12/800,152

(22) Filed: May 10, 2010

(65)**Prior Publication Data** 

> US 2010/0235536 A1 Sep. 16, 2010

#### Related U.S. Application Data

- (63) Continuation of application No. 10/893,814, filed on Jul. 19, 2004, now Pat. No. 7,716,358, which is a continuation-in-part of application No. 09/819,337, filed on Mar. 28, 2001, now Pat. No. 6,766,376.
- (60) Provisional application No. 60/231,997, filed on Sep. 12, 2000.

(51) Int. Cl.

G06F 15/16 (2006.01)

(52) U.S. Cl. ..... 709/231

Field of Classification Search ...... 709/230, 709/231

See application file for complete search history.

#### (56)**References Cited**

### U.S. PATENT DOCUMENTS

5,526,353 A	6/1996	Henley et al	370/60.1
5,793,980 A	8/1998	Glaser et al	395/200.61
5,822,537 A	10/1998	Katseff et al	395/200.61

5.922.048 A	7/1999	Emura 709/219		
5,923,655 A	7/1999	Veschi et al		
5,928,330 A *	7/1999	Goetz et al 709/231		
5,999,525 A	12/1999	Krishnaswamy et al 370/352		
6,002,720 A	12/1999	Yurt et al		
6.014.693 A	1/2000			
	1,2000			
6,014,694 A	1/2000	Aharoni et al 709/219		
6,014,706 A	1/2000	Cannon et al 709/231		
6,029,194 A	2/2000	Tilt 709/219		
6,047,317 A	4/2000	Bisdikian et al 709/217		
6,057,832 A	5/2000	Lev et al 345/327		
6,061,731 A	5/2000	Blakeslee 709/231		
6,061,732 A	5/2000	Korst et al 709/231		
6,065,050 A	5/2000	DeMoney 709/219		
6,085,221 A	7/2000	Graf 709/202		
6,292,834 B1	9/2001	Ravi et al.		
(Continued)				

#### OTHER PUBLICATIONS

Salehi et al., "Supporting Stored Video: Reducing Rate Variability and End-to-End Resource Requirements through Optimal Smoothing," IEEE/ACM Transactions on Networking, vol. 6, Issue 4, p. 397-410, Aug. 1998.

(Continued)

Primary Examiner — Joseph Avellino

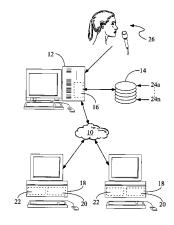
Assistant Examiner — Marshall McLeod

(74) Attorney, Agent, or Firm — Ernest D. Buff; Ernest D. Buff & Assoc. LLC; Gordon E. Fish

#### (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 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.

## 28 Claims, 3 Drawing Sheets





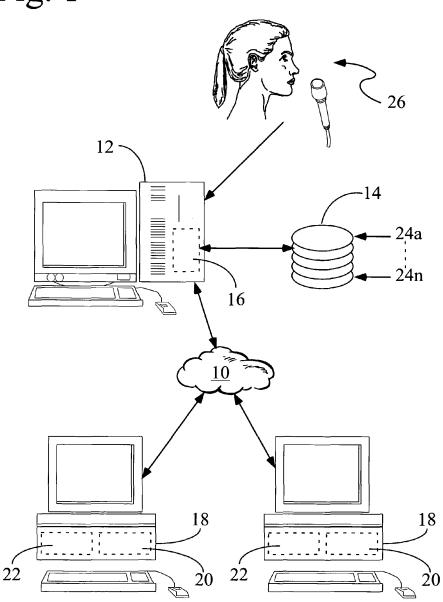
## US 8,122,141 B2

Page 2

U.S. PATENT DOCUMENTS	7,346,698 B2 3/2008 Hannaway
6,588,015 B1 7/2003 Eyer et al. 6,594,699 B1 7/2003 Sahai et al.	7,373,413 B1 5/2008 Nguyen et al. 2001/0047377 A1* 11/2001 Sincaglia et al
6,598,228 B2 7/2003 Hejna	OTHER PUBLICATIONS
6,637,031 B1 * 10/2003 Chou	Rexford et al., "Smoothing variable-bit-rate video in an
6,708,213 B1 3/2004 Bommaiah et al. 6,728,753 B1* 4/2004 Parasnis et al	internetwork," IEEE/ACM Transactions on Networking, vol. 7, Issue
6,829,368 B2 12/2004 Meyer et al.	2, p. 202-215, Apr. 1999.
6,889,257 B1 5/2005 Patel 6,907,481 B2 6/2005 Kovacevic	Bianchi, "Buffer sizing for high speed video information retrieval on ATM networks," Globecom—New York—, 1997, vol. 2, pp. 1057-
7,054,500 B1 5/2006 Lillevold 7,111,058 B1 9/2006 Nguyen et al.	1061.
7,170,856 B1 1/2007 Ho et al.	* cited by examiner



Fig. 1



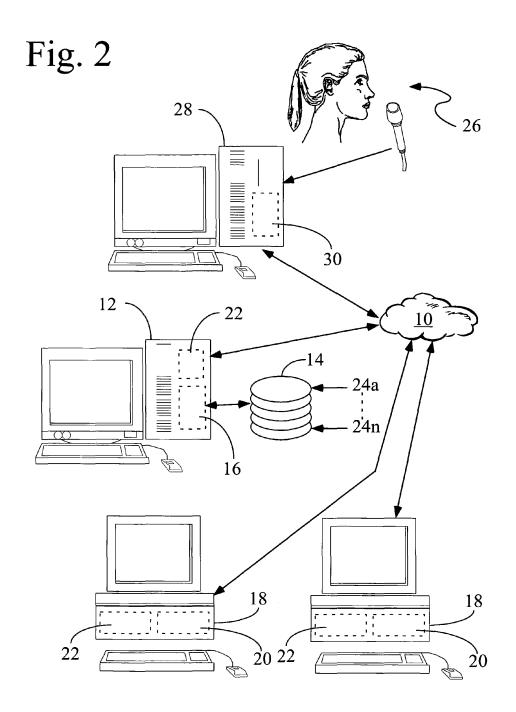
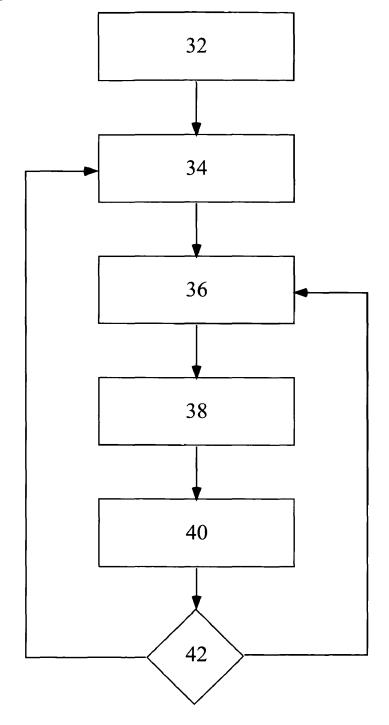




Fig. 3





# DOCKET A L A R M

# 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.

