

US006717952B2

(12) United States Patent Jones et al.

(10) Patent No.: US 6,717,952 B2

(45) **Date of Patent:** *Apr. 6, 2004

(54) METHOD AND APPARATUS FOR MEDIA DATA TRANSMISSION

(75) Inventors: Anne Jones, Redwood City, CA (US); Jay Geagan, San Jose, CA (US); Kevin L. Gong, Sunnyvale, CA (US); Alagu

Periyannan, Fremont, CA (US); David W. Singer, San Francisco, CA (US)

(73) Assignee: Apple Computer, Inc., Cupertino, CA

(*) 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.: 10/298,039

(22) Filed: Nov. 14, 2002

(65) **Prior Publication Data**

US 2003/0204555 A1 Oct. 30, 2003

Related U.S. Application Data

- (63) Continuation of application No. 09/651,009, filed on Aug. 29, 2000, now Pat. No. 6,512,778, which is a continuation of application No. 09/140,173, filed on Aug. 25, 1998, now Pat. No. 6,134,243.
- (60) Provisional application No. 60/071,566, filed on Jan. 15,
- (51) Int. Cl.⁷ H04J 3/16

(56) References Cited

U.S. PATENT DOCUMENTS

3,873,777 A	3/1975	Uehara et al 179/15 A
3,932,698 A	1/1976	Yanagimachi et al 178/5.6
4,688,214 A	8/1987	DeWitt et al.
5,319,707 A	6/1994	Wasilewski et al 380/14
5,448,568 A	9/1995	Delpuch et al 372/94.2

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

EP	0497449	8/1992	H04B/7/212
EP	0702309	3/1996	G06F/17/00

OTHER PUBLICATIONS

P. England, et al. "RAVE: Real-time services for the Web," *Computer Networks and ISDN Systems* 28 (1996), pp. 1547–1558.

A. Walsh, "Programming Quick Time, Multimedia to the Macs," *Dr. Dobbs Journal*, 17:7 (Jul. 1992), XP 000600303, pp. 76, 78–80, 102, and 104–105.

PCT International Search Report for PCT Int'l Appln. No. PCT/US99/00953 mailed Jul. 26, 1999.

(List continued on next page.)

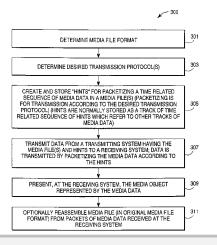
Primary Examiner—Dang Ton Assistant Examiner—Shick Hom

(74) Attorney, Agent, or Firm—Blakely, Sokoloff, Taylor & Zafman LLP

(57) ABSTRACT

Methods and apparatuses for processing media data for transmission in a data communication medium. A set of data indicates how to transmit a time related sequence of media data according to a transmission protocol. The set of data, includes a time related sequence of data which is associated with the time related sequence of media data. The set of data may be utilized by a digital processing system to transmit the time related sequence of media data (e.g., by packets generated according to the transmission protocol and the set of data).

54 Claims, 14 Drawing Sheets





US 6,717,952 B2 Page 2

U.S. PATENT DOCUMENTS

5,497,373 A	3/1996	Hulen et al.
/ /	-,	
5,544,198 A	* 8/1996	Saalfrank 370/343
5,623,490 A	4/1997	Richter et al.
5,625,818 A	* 4/1997	Zarmer et al 395/615
5,655,117 A	8/1997	Goldberg et al.
5,694,334 A	12/1997	Donahue et al.
5,774,666 A	6/1998	Portuesi
5,778,187 A	* 7/1998	Monteiro et al 370/351
5,784,277 A	7/1998	Meyer 364/400.01
5,799,150 A	8/1998	Hamilton et al.
5,802,294 A	* 9/1998	Ludwig et al 370/267
5,818,441 A	* 10/1998	Throckmorton et al 345/328
5,838,678 A	11/1998	Davis et al 370/389
5,859,660 A	1/1999	Perkins et al 348/9
5,915,094 A	* 6/1999	Kouloheris et al 370/486
5,928,330 A	7/1999	Goetz et al.
5,956,729 A	9/1999	Goetz et al.
5,966,120 A	10/1999	Arazi et al.
5,987,501 A	* 11/1999	Hamilton et al 709/203

5,987,509	Α		11/1999	Portuesi	
5,995,491	Α	*	11/1999	Richter et al	370/263
6,055,246	Α	*	4/2000	Jones	370/503
6,064,771	Α		5/2000	Migdai et al.	
6,134,243	Α	*	10/2000	Jones et al	370/465
6,157,674	Α		12/2000	Oda et al.	
6,175,871	B1		1/2001	Schuster et al.	
6,175,872	B1		1/2001	Neumann et al	709/231
6,327,418	B1		12/2001	Barton	
6,453,355	B1	*	9/2002	Jones et al	370/259
6,512,778	B 1	*	1/2003	Jones et al	370/465

OTHER PUBLICATIONS

PCT International Search Report for PCT Int'l Appln. No. PCT/US99/00954 mailed Jul. 26, 1999.

PCT International Search Report for PCT Int'l Appln. No. PCT/US99/00955 mailed Jul. 26, 1999.

* cited by examiner



mo	ovie		
	movie mvhd	header	
	tra	ack	
		track	neader
		tkhd	
		me	edia
moov	trak	mdia	media header media handler hdlr hdlr media information wideo media header data handler data information with dir data reference dinf dref sample table sample description time-to-sample sample sizes sample to chunk chunk offset sync sample stsbl stsd stsz stsz stsc stco stss
me	dia da	ata	
mdat	chunk	frame	Grame

FIG. 1 Prior Art



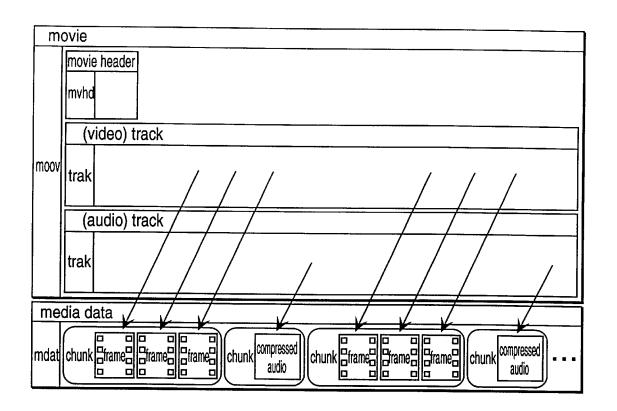


FIG. 2 **Prior Art**

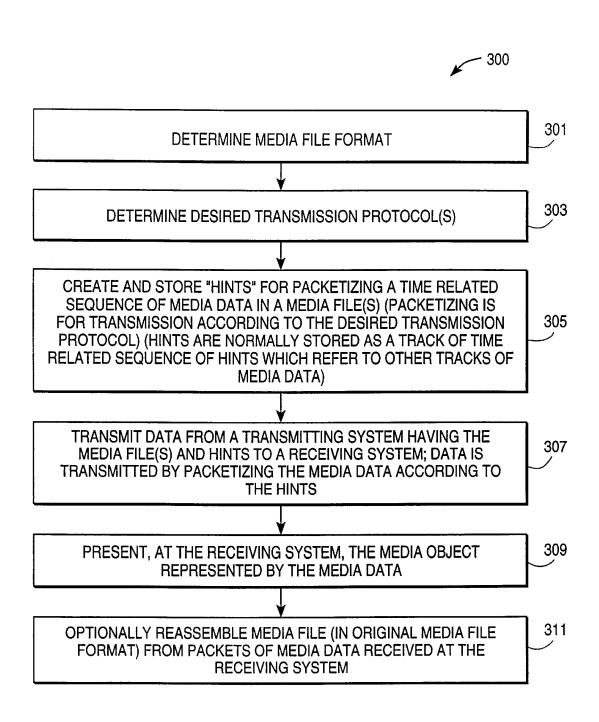


FIG. 3



DOCKET

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.

