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**Sundharraj et al.**

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(54) **SELECTIVE ENCRYPTION OF MEDIA DATA**

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**G06F 12/14** (2006.01)  
**G06F 12/16** (2006.01)  
**G06F 15/18** (2006.01)  
**H04N 7/167** (2006.01)

(52) **U.S. Cl.** ..... **713/153; 726/26; 380/200; 380/201; 380/210; 725/31**

(58) **Field of Classification Search** ..... **726/26; 713/153; 380/200, 201, 210; 725/31**  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

4,172,213	A	10/1979	Barnes et al. ....	380/29
4,535,355	A	8/1985	Arn et al. ....	380/12
5,640,456	A *	6/1997	Adams et al. ....	713/153
5,805,700	A *	9/1998	Nardone et al. ....	380/217
6,286,103	B1	9/2001	Maillard et al. ....	713/200
6,304,973	B1 *	10/2001	Williams ....	726/3
6,415,031	B1 *	7/2002	Colligan et al. ....	380/200
6,449,719	B1	9/2002	Baker ....	713/168

6,931,597	B1 *	8/2005	Prakash .....	715/741
6,963,972	B1 *	11/2005	Chang et al. ....	713/153
7,039,938	B2 *	5/2006	Candelore .....	725/87
2001/0018741	A1 *	8/2001	Hogan .....	713/189
2002/0025045	A1 *	2/2002	Raika .....	380/280
2002/0133699	A1 *	9/2002	Pueschel .....	713/153
2003/0012376	A1 *	1/2003	Wee et al. ....	380/200
2003/0021412	A1 *	1/2003	Candelore et al. ....	380/217
2003/0159139	A1 *	8/2003	Candelore et al. ....	725/25
2004/0028227	A1 *	2/2004	Yu .....	380/201

**OTHER PUBLICATIONS**

Schulzrinne, H. et al. "Real Time Streaming Protocol (RTSP)", Apr. 1998, RFC 2326.\*  
Sourceforge. "MPEG Headers Quick Reference", <http://dvd.sourceforge.net/dvdinfo/mpeghdrs.html>.\*  
Spanos, George et al. "Performance Study of a Selective Encryption Scheme for the Security of Networked, Real-Time Video", 1995 IEEE.\*  
Tosun, Ali Saman et al. "Efficient Multi-layer Coding and Encryption of MPEG Video Streams", 2000 IEEE.\*  
Aly, Salah. "A Light-Weight Encrypting For Real Time Video Transmission", 2004.\*

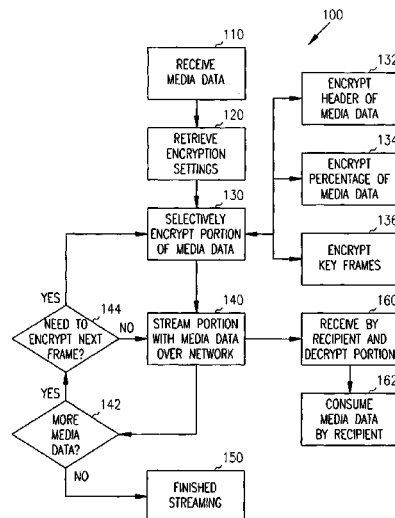
(Continued)

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(57) **ABSTRACT**

Methods, systems, and data structures are provided selectively encrypting portions of media data that are streamed over a network. Media data is identified and a portion of the data is selectively encrypted. The media data is then streamed over a network to one or more recipients for consumption. The intended recipients cannot consume the media data until the encrypted portion is properly decrypted.

**4 Claims, 3 Drawing Sheets**



OTHER PUBLICATIONS

Gralla, Preston. How The Internet Works, 1997 Macmillan Computer Publishing USA.\*

Meyer, Jurgen et al. "Security mechanisms for Multimedia-Data with the Example MPEG-I-Video", 1995.\*

Podesser, Martina et al. "Selective Bitplane Encryption For Secure Transmission of Image Data in Mobile Environments".\*

Tosun, Ali Saman et al. "Lightweight Security Mechanisms for Wireless Video Transmission", 2001 IEEE.\*

Podesser, Martina et al. "Selective Bitplane Encryption for Secure Transmission of Image Data in Mobile Environments", (2002).\*

Schulzrinne, H. et al. "Real Time Streaming Protocol (RTSP)", Apr. 1998, RFC 2326.\*

Sourceforge. "MPEG Headers Quick Reference", <<http://dvd.sourceforge.net/dvdinfo/mpeghdrs.html>>. (2000).\*

Tosun, Ali Saman et al. "Efficient Multi-layer Coding and Encryption of MPEG Video Streams", 2000 IEEE.\*

\* cited by examiner

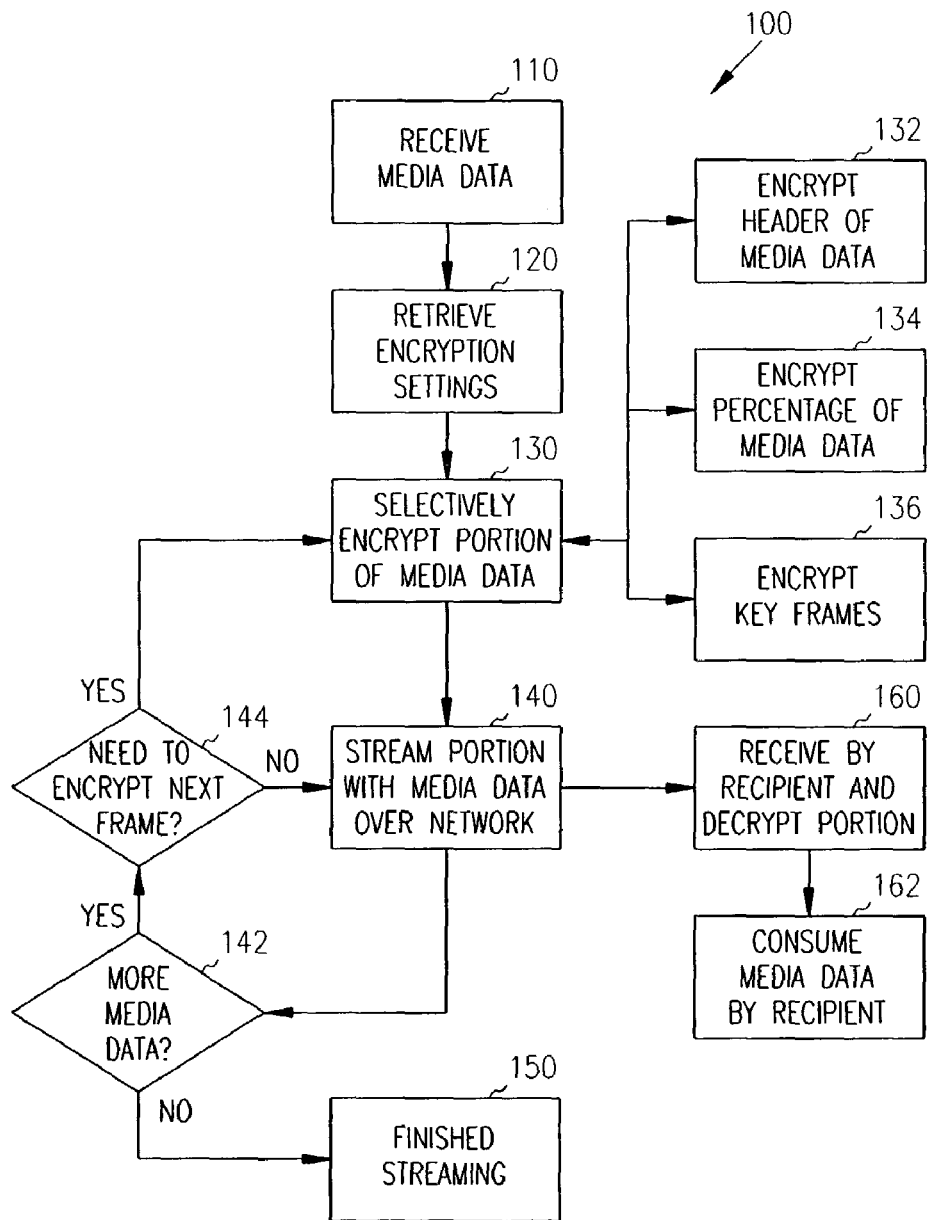


FIG. 1

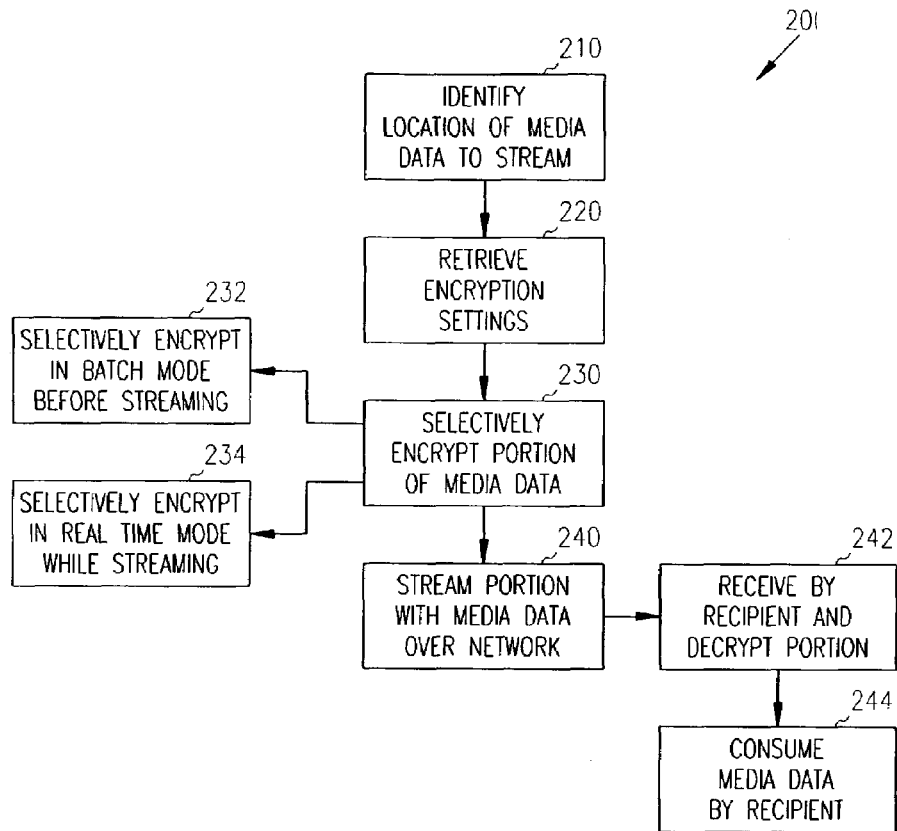


FIG. 2

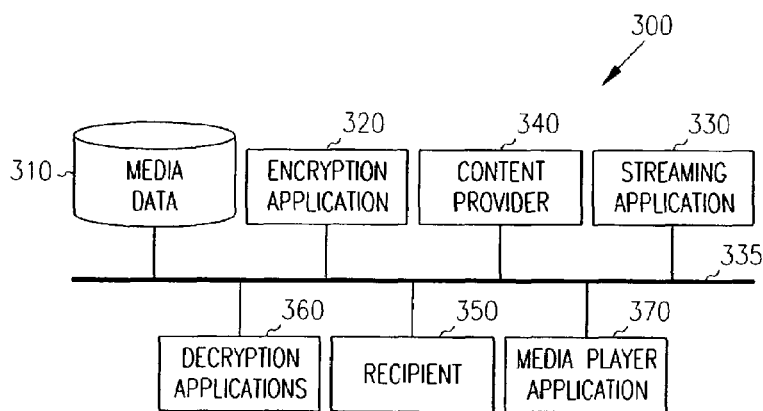


FIG. 3

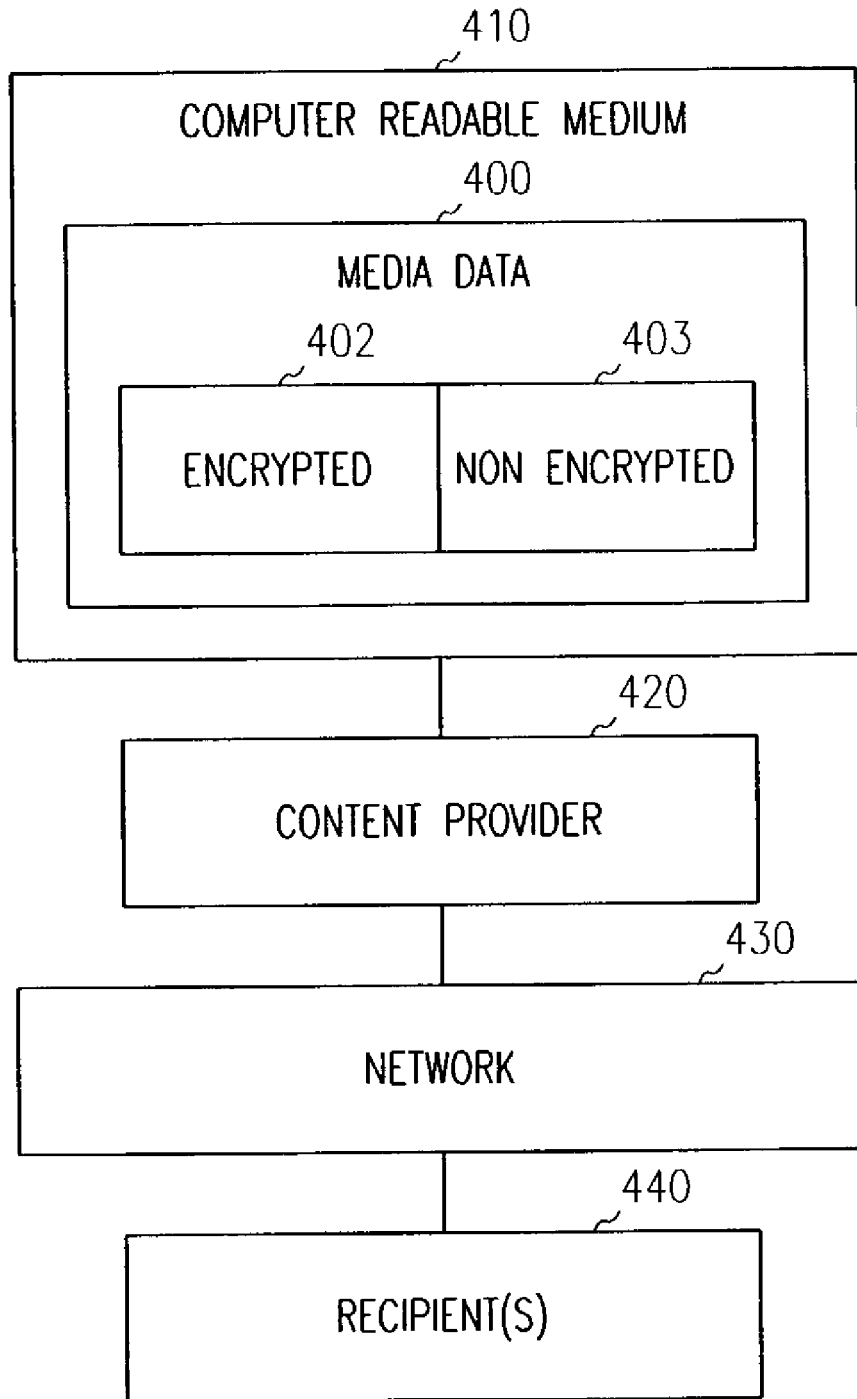


FIG. 4

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