

United States Patent [19]

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Levi et al.

[54] ACTIVE STREAM FORMAT FOR HOLDING **MULTIPLE MEDIA STREAMS**

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- [73] Assignee: Microsoft Corporation, Redmond, Wash
- [21] Appl. No.: 08/813,151
- Filed: Mar. 7, 1997 [22]

Related U.S. Application Data

- Provisional application No. 60/013,029, Mar. 8, 1996, and [60] provisional application No. 60/028,789, Oct. 21, 1996.
- Int. Cl.⁷ G06F 17/50 [51]
- [52]
- Field of Search 348/38, 441; 370/232, [58] 370/17, 94.3, 94.1, 312, 474, 329; 375/46; 371/37.4, 40; 369/275.3; 386/111; 395/325; 709/217; 380/14; 711/202; 455/4.2, 34.1

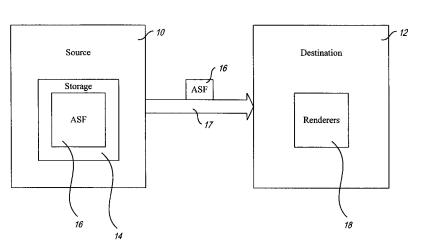
[56] **References Cited**

U.S. PATENT DOCUMENTS

5,319,707	6/1994	Wasileski et al 380/14
5,467,342	11/1995	Logston et al 370/17
5,506,847	4/1996	Shobatake
5,559,813	9/1996	Shimizu 371/37.4
5,604,843	2/1997	Shaw et al 395/101
5,625,877	4/1997	Dunn et al 455/34.1
5,654,962	8/1997	Rostoker et al 370/232
5,668,803	9/1997	Tymes et al 370/312
5,671,226	9/1997	Murakani et al 370/474
5,708,961	1/1998	Hylton et al 455/4.2
5,754,242	5/1998	Ohkami 348/441
5,754,589	5/1998	Maitra et al 375/216
5,774,461	6/1998	Hyden et al 370/329
5,774,481	6/1998	Hyden et al 370/329
5,842,224	11/1998	Fenner 711/202
5,911,776	6/1999	Guck 709/217

FOREIGN PATENT DOCUMENTS

0 753 954 A2 1/1997 European Pat. Off. H04L 29/06



07245600 9/1995 Japan H04L 1/00

OTHER PUBLICATIONS

Huang, J.-H., et al., "MHTP-A Multimedia High-Speed Transport Protocol", Proceedings, IEEE GLOBECOM '92, vol. 3, p. 1364–1368 (Dec. 6–9, 1992).

LaPorta, T.F., et al., "The MultiStream Protocol: A Highly Flexible High-Speed Transport Protocol", IEEE Journal on Selected Areas in Communications, 11, p. 519-530 (May 1993).

Sarginson, P.A., "MPEG-2: A Tutorial Introduction to the Systems Layer", IEE Colloquim on MPEG-What It Is and What It Isn't, p. 4/1-4/13, (Jan. 1, 1995).

Schatzmayr, R., et al., "Providing Support for Data Transfer in a New Networking Environment", Multimedia Transport and Teleservices. International Cost 237 Works Proceedings, Vienna, Austria, p. 241-255, (Nov. 13, 1994).

Ohta, N., Packet Video: Modeling and Signal Processing, Norwood, MA: Artech House, Inc., 144-153, (1994).

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Assistant Examiner-Thong Vu

Attorney, Agent, or Firm-Schwegman, Lundberg, Woessner & Kluth, P.A.

ABSTRACT [57]

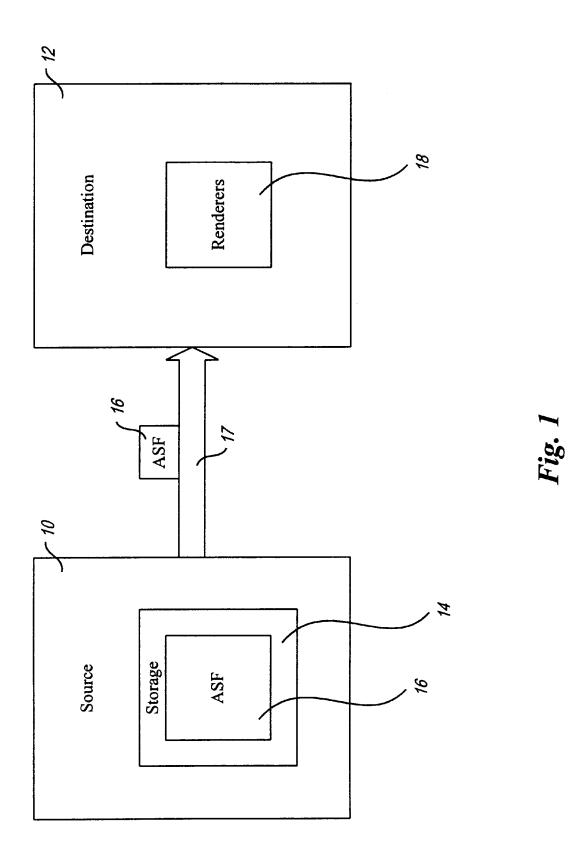
An active stream format is defined and adopted for a logical structure that encapsulates multiple data streams. The data streams may be of different media. The data of the data streams is partitioned into packets that are suitable for transmission over a transport medium. The packets may include error correcting information. The packets may also include clock licenses for dictating the advancement of a clock when the data streams are rendered. The format of ASF facilitates flexibility and choice of packet size and in specifying maximum bit rate at which data may be rendered. Error concealment strategies may be employed in the packetization of data to distribute portions of samples to multiple packets. Property information may be replicated and stored in separate packets to enhance its error tolerance. The format facilitates dynamic definition of media types and the packetization of data in such dynamically defined data types within the format.

21 Claims, 24 Drawing Sheets

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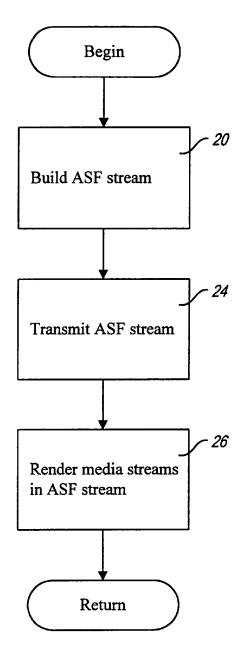


Fig. 2

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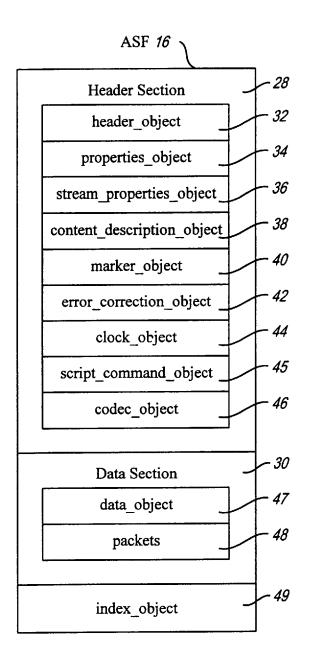


Fig. 3

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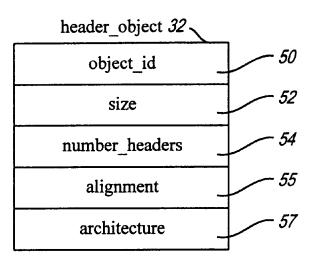


Fig. 4

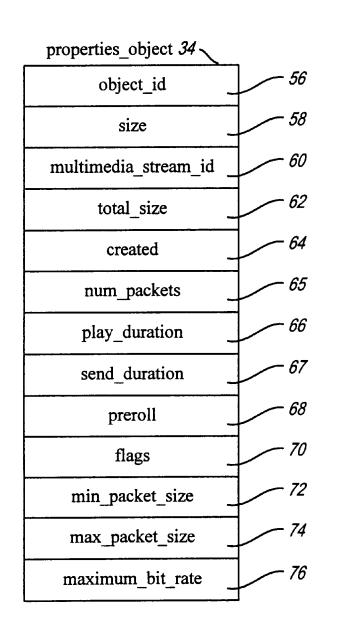


Fig. 5

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