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Chen et al.

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- [54] **SYSTEM FOR JUST-IN-TIME RETRIEVAL OF MULTIMEDIA FILES OVER COMPUTER NETWORKS BY TRANSMITTING DATA PACKETS AT TRANSMISSION RATE DETERMINED BY FRAME SIZE**
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- [51] Int. Cl.<sup>6</sup> ..... **G06F 13/00**
- [52] U.S. Cl. .... **395/200.33**
- [58] **Field of Search** ..... 395/600, 200.33, 395/200.47, 200.49, 200.61, 200.76; 358/468; 370/60.1, 84, 94, 60; 364/200; 360/73; 235/375; 381/41; 375/13, 357; 348/7, 10, 12, 13, 14

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Primary Examiner—Moustafa M. Meky  
Attorney, Agent, or Firm—Eliot S. Gerber

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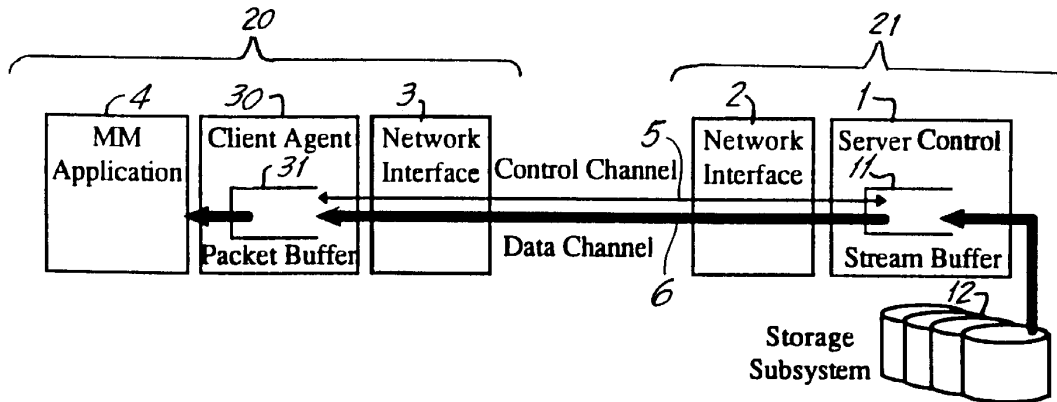
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[57] **ABSTRACT**

A method in computer networks in which a client machine (playback client computer) requests multimedia files, such as compressed video clips, from a server (storage server computer). The transmission uses digital data packets. In the case of video files, the packet headers identify the video frame and the sequence number of each packet derived from the frame. The transmission timing is not based on a steady byte stream or an average of bytes to be transmitted. Instead, in the case of video, the frame rate determines normal transmission and a frame is transmitted during each frame time. The client agent has a normal packet buffer, normally holding 1-5 video frames. The transmission rate is adjusted to keep that buffer filled within its normal range. The timing information required for transmission, in one embodiment, is stored in a separate index file associated with each multimedia file.

42 Claims, 6 Drawing Sheets



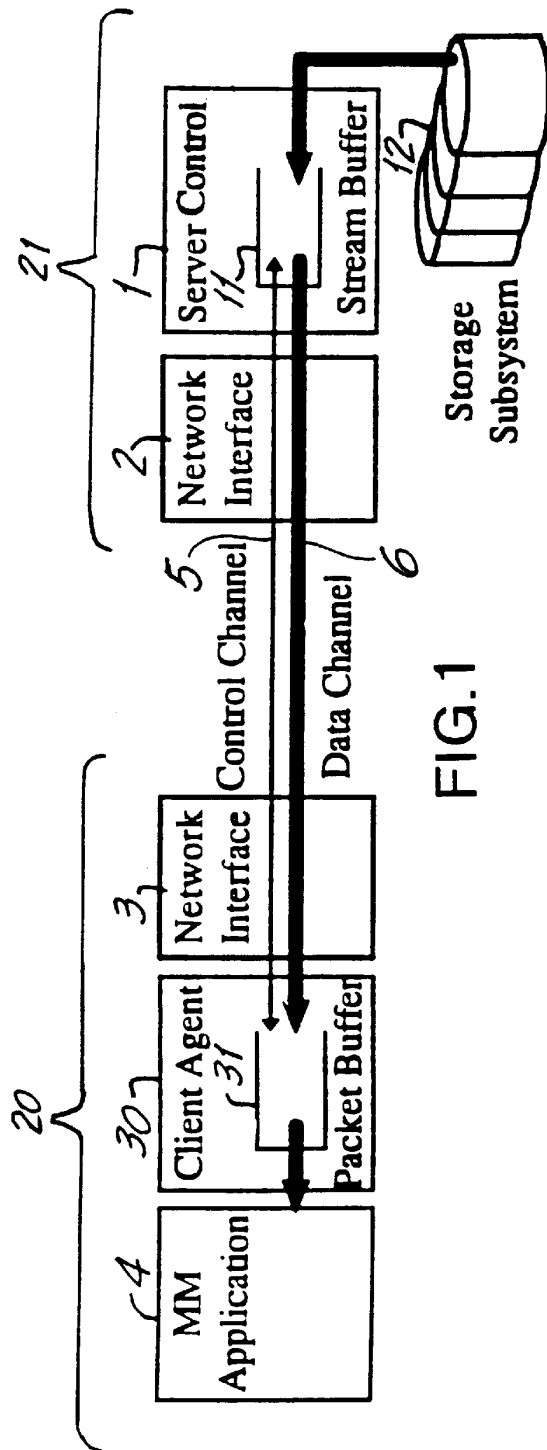


FIG. 1

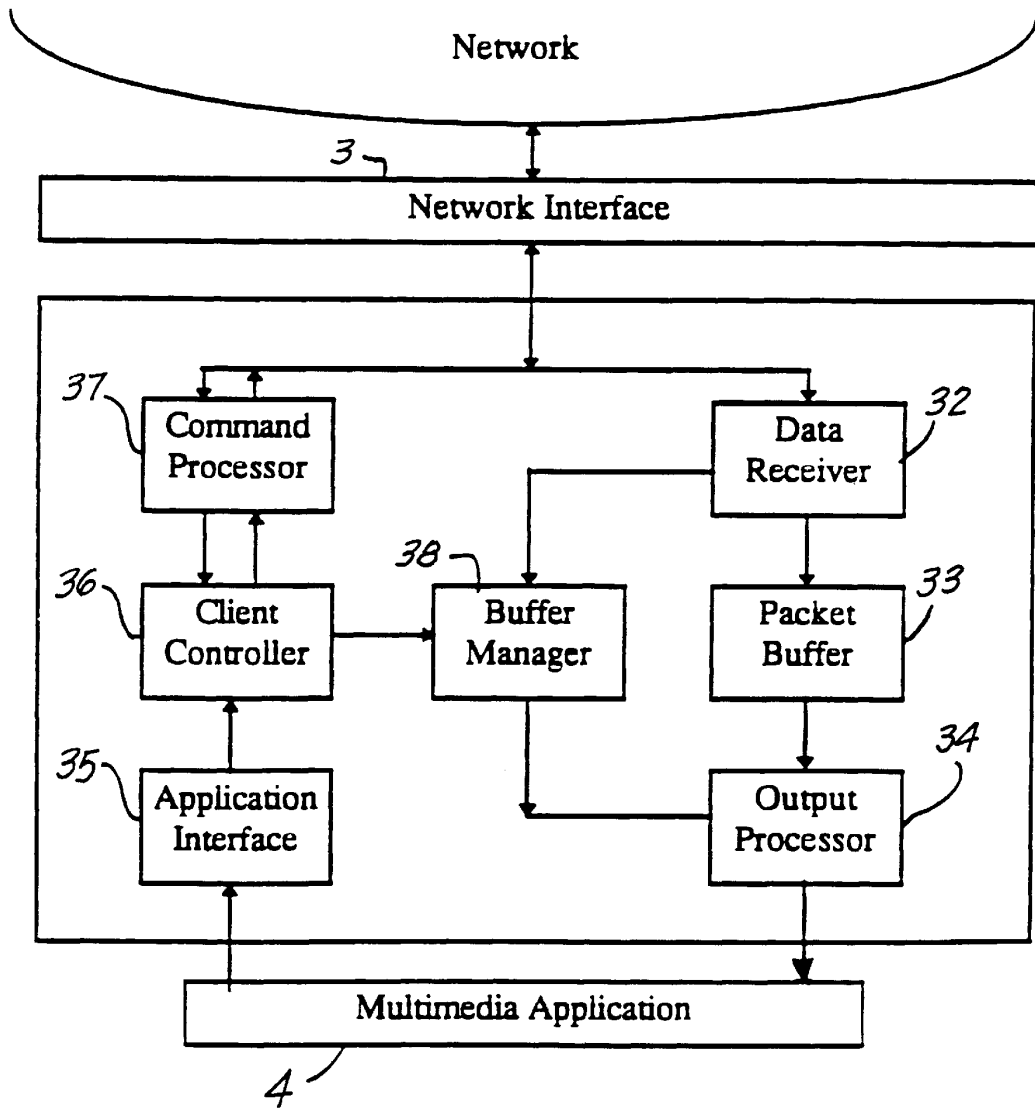


FIG.2

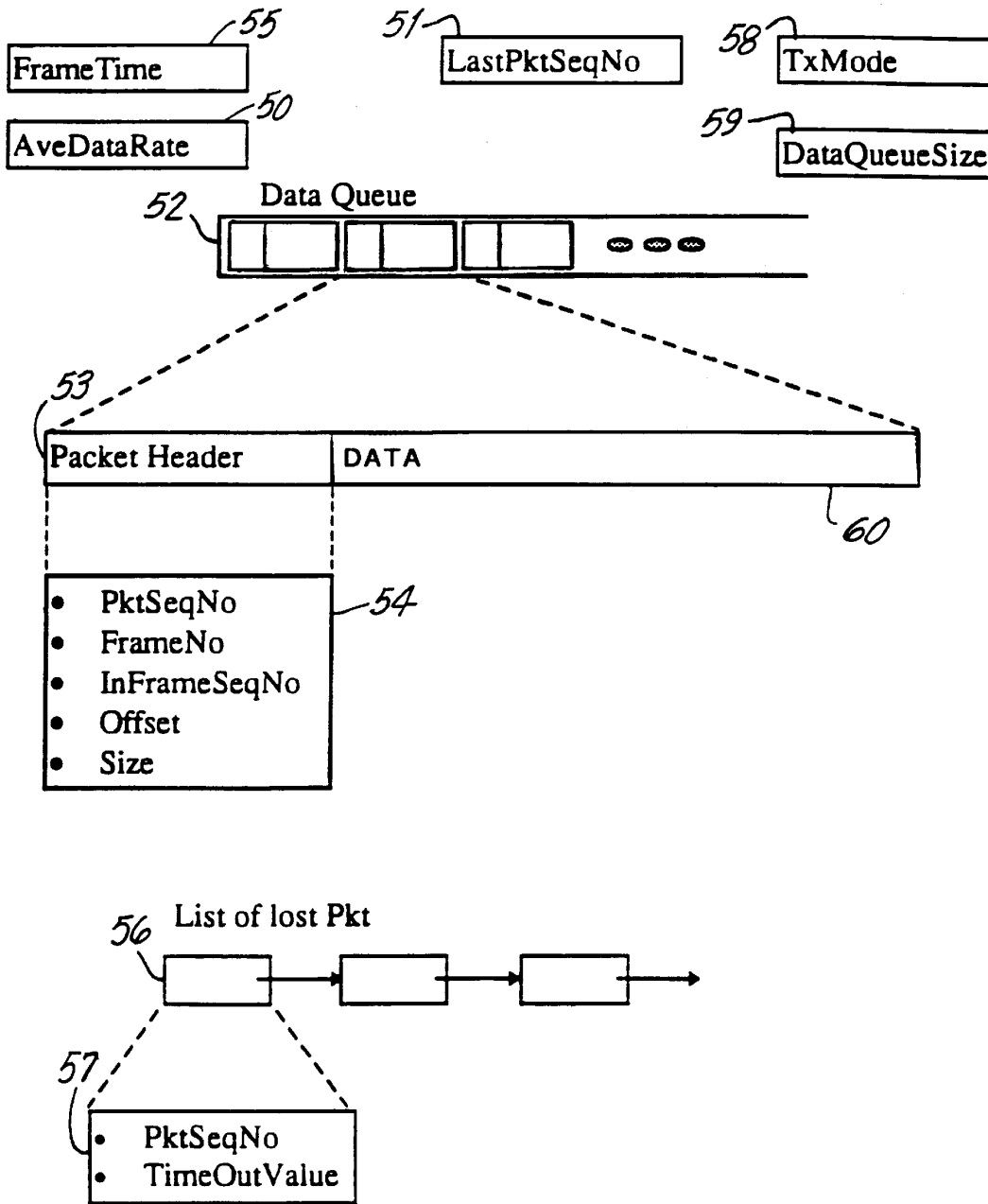


FIG.3

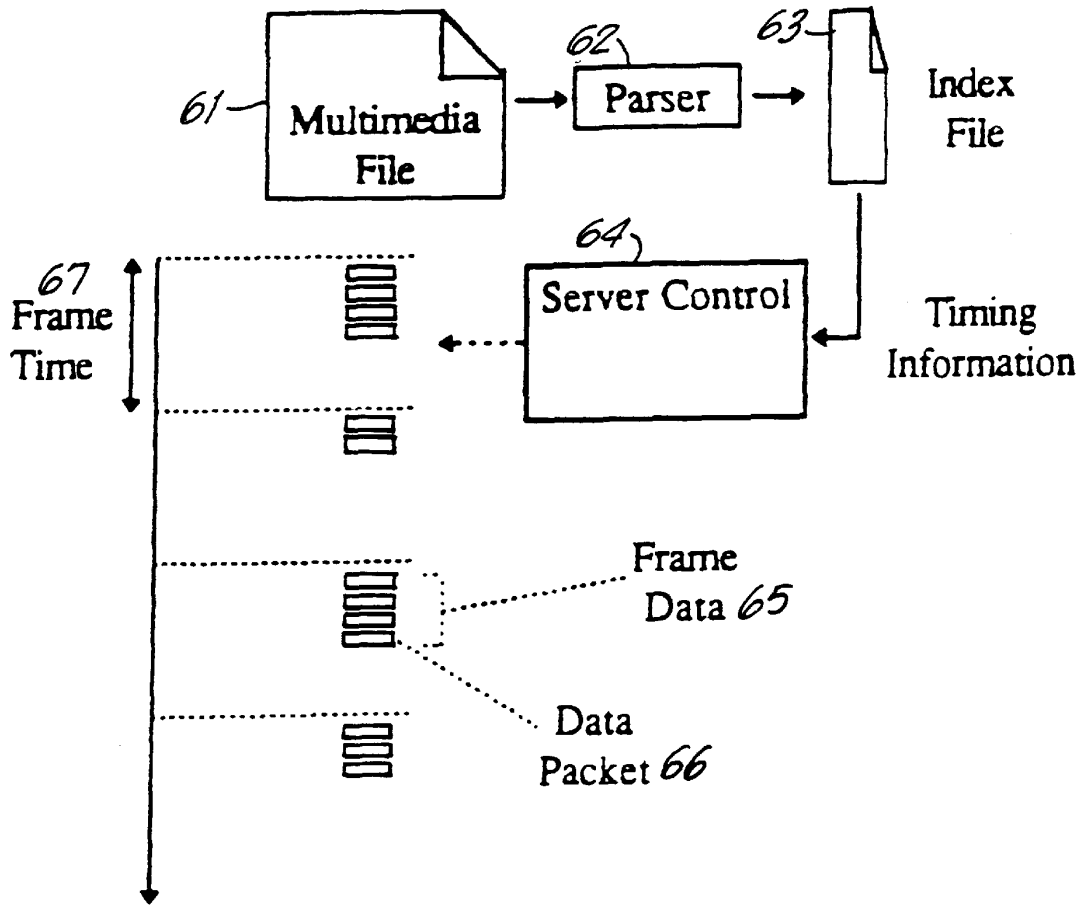


FIG.4

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