



[54] METHOD AND APPARATUS FOR VIRTUAL SWITCHING

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[57] ABSTRACT

[21] Appl. No.: 366,227

A physical switching device for use in a communication network to switch Open Systems Interconnection (OSI) network layer packets and method of use therefor is provided. The physical switching device includes at least a first and a second virtual switch. Each virtual switch includes a decision mechanism for determining an associated directive based on a destination identifier within a particular packet received at a data port. A processor is coupled to each virtual switch to insert the particular packet into an outgoing data stream on another data port to deliver the packet. Both data ports are associated with a plurality of data interfaces in the physical switching device. A management apparatus is coupled to each virtual switch to maintain information on an association between the plurality of data interfaces and the virtual switches. The management apparatus limits each processor to only inserting the particular packet on another data port associated with the same virtual switch which received the particular packet.

[22] Filed: Dec. 29, 1994

[51] Int. Cl.<sup>6</sup> ..... H04L 12/56; G06F 13/00

[52] U.S. Cl. .... 370/60; 370/85.13; 370/94.1;  
395/650; 395/800; 395/200.02

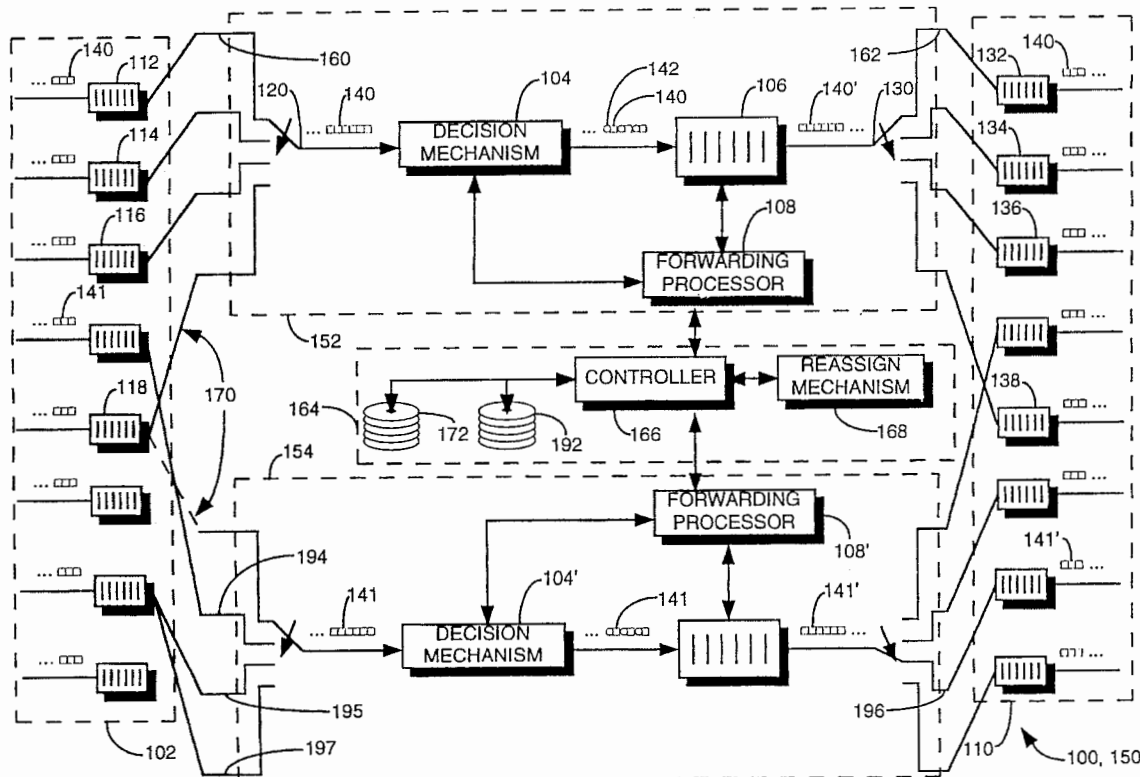
[58] Field of Search ..... 370/58.1, 58.2,  
370/58.3, 60, 60.1, 61, 79, 85.13, 85.14,  
94.1, 94.2, 94.3; 395/200, 325, 375, 650,  
800, 500

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57 Claims, 35 Drawing Sheets



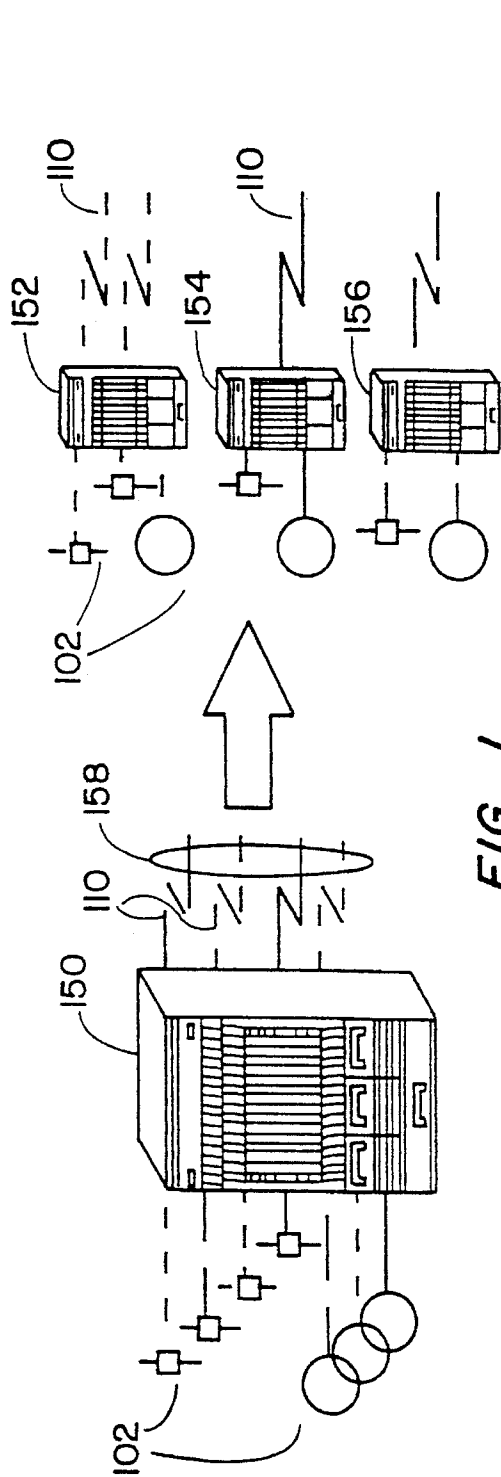


FIG. 1

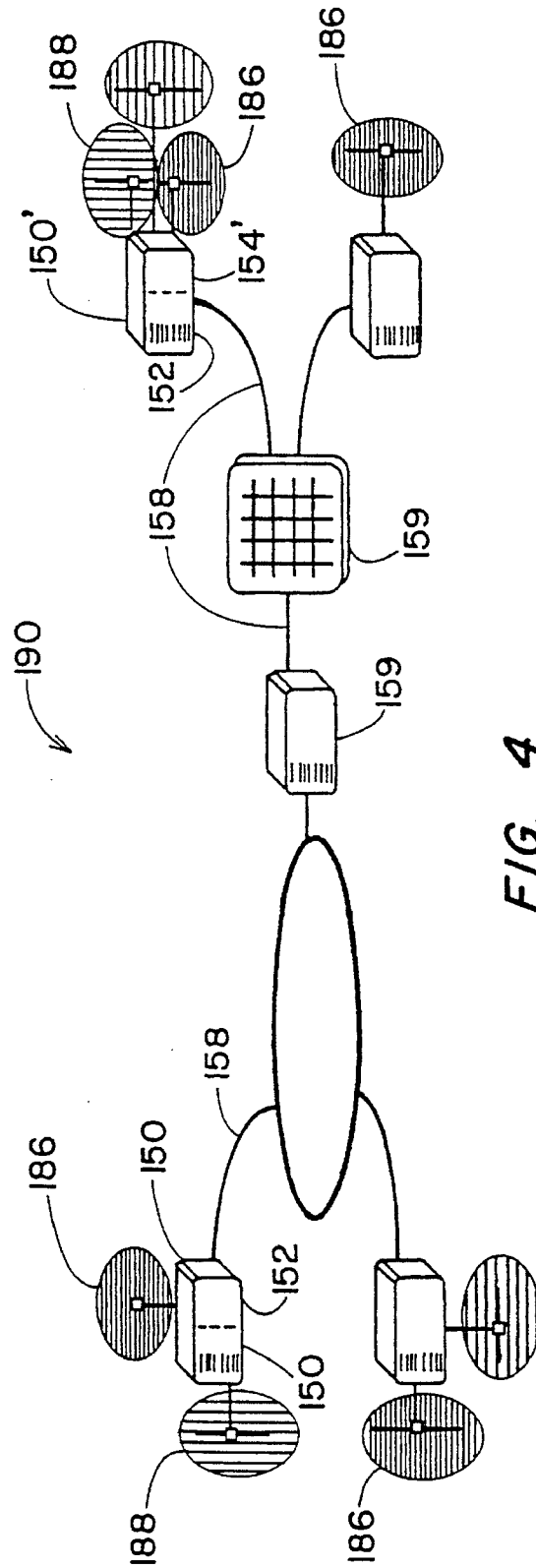


FIG. 4



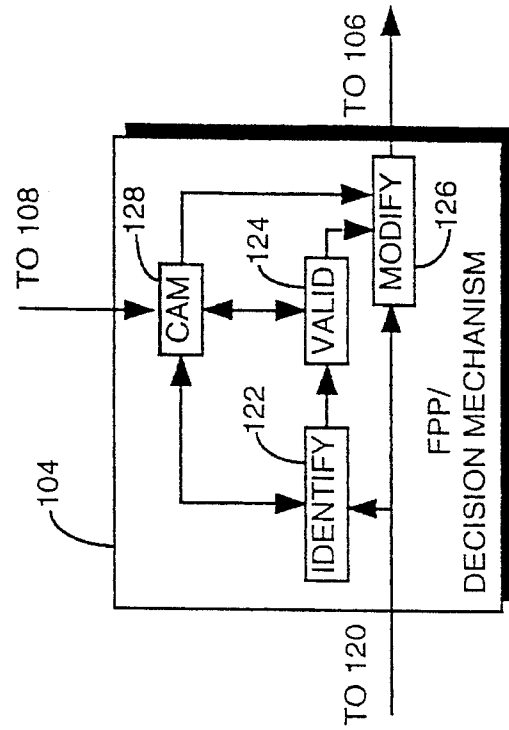


FIG. 5

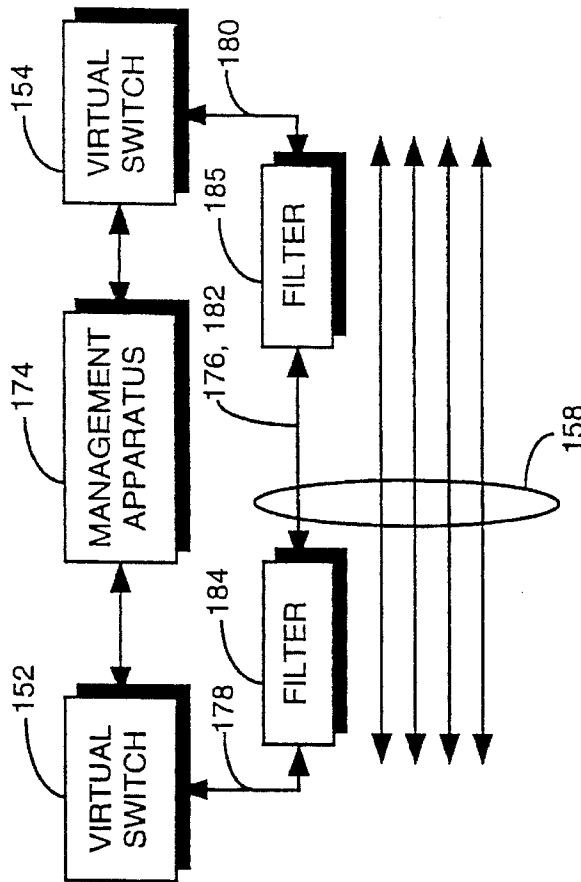


FIG. 3

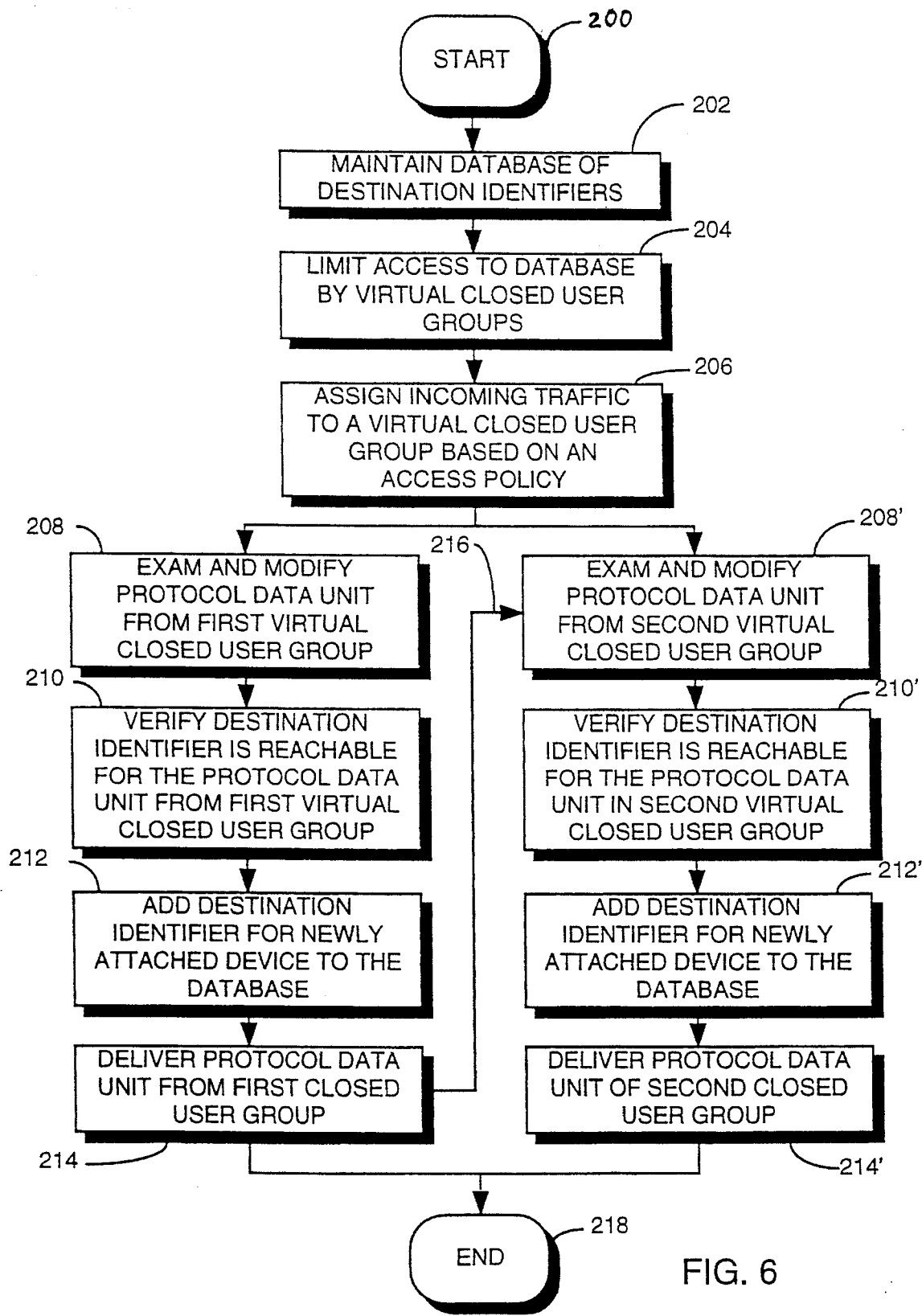


FIG. 6

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