US005937169A

United States Patent [19]

Connery et al.

[11] Patent Number: 5,937,169

[45] Date of Patent: Aug. 10, 1999

[54] **OFFLOAD OF TCP SEGMENTATION TO A SMART ADAPTER**

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[73] Assignee: **3Com Corporation**, Santa Clara, Calif.

[21] Appl. No.: **08/960,238**

[22] Filed: **Oct. 29, 1997**

[51] **Int. Cl.**[6] **G06F 13/38**

[52] **U.S. Cl.** **395/200.8**

[58] **Field of Search** ..... 364/DIG. 1, DIG. 2; 395/200.3, 200.36, 200.37, 200.48, 200.5, 200.53, 200.55, 200.6, 200.66, 200.8

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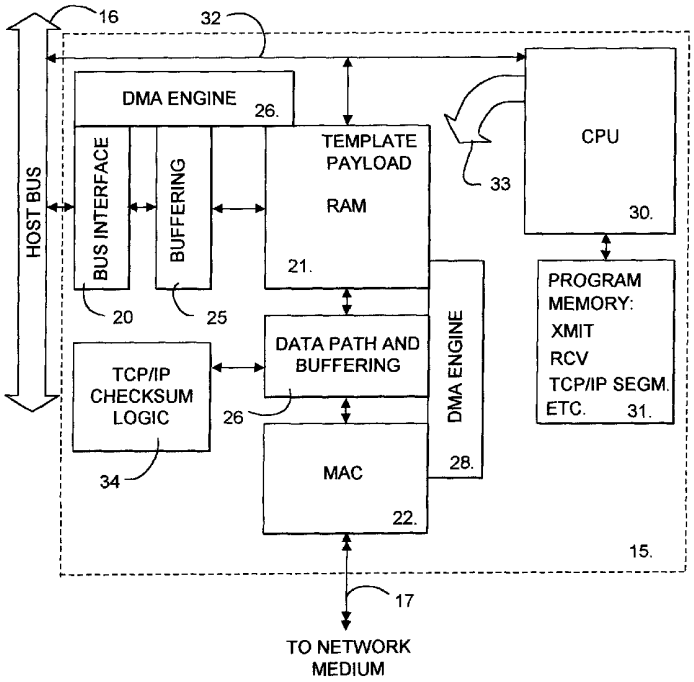
[57] **ABSTRACT**

A method is provided for sending data from a data source executing a network protocol such as the TCP/IP protocol stack, which includes a process for generating headers for packets according to the network protocol. The method includes sending such data on a network through a smart network interface. The network protocol defines a datagram in the data source, including generating a header template and supplying a data payload. The datagram is supplied to the network interface. At the network interface, a plurality of packets of data are generated from the datagram. The plurality of packets include respective headers, such as TCP/IP headers, based on the header template, and include respective segments of the data payload. The network interface supports packets having a pre-specified length, and the data payload is greater than the pre-specified length, such as two to forty times larger or more. Thus, the higher layer processing specifies a very large datagram, which is automatically segmented at the network interface layer, instead of at the TCP layer.

83 Claims, 6 Drawing Sheets



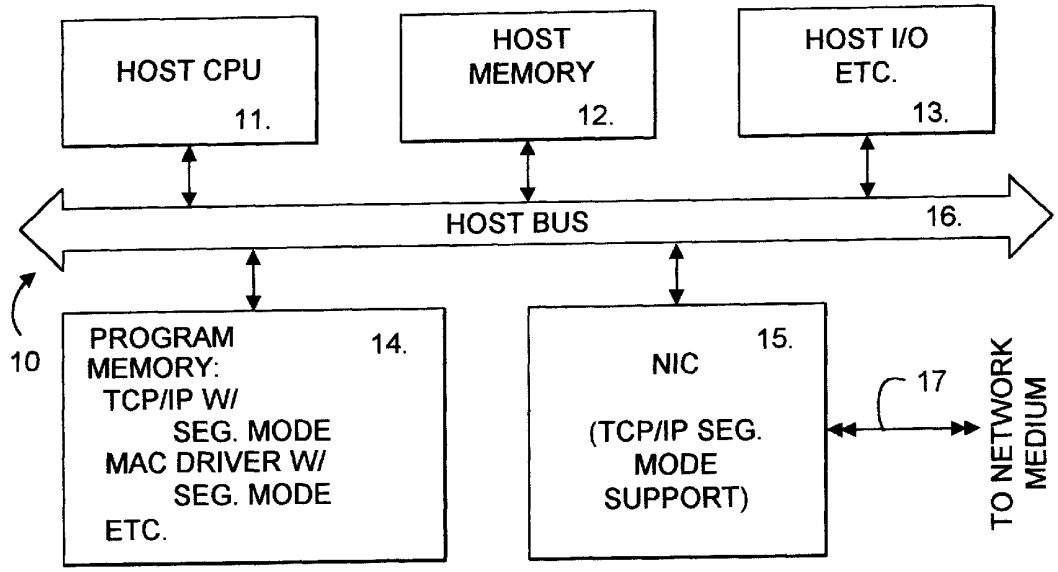


FIG. 1

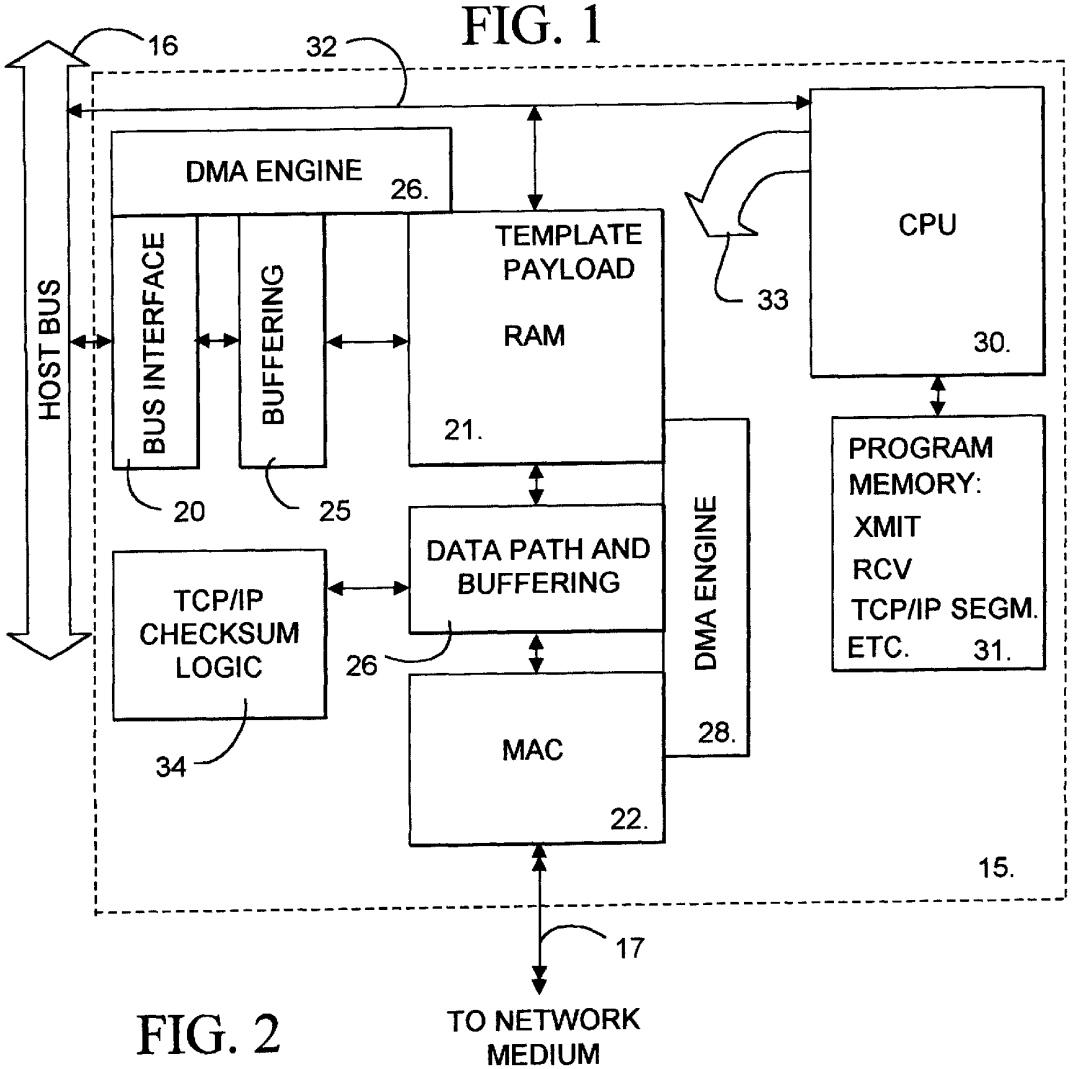


FIG. 2

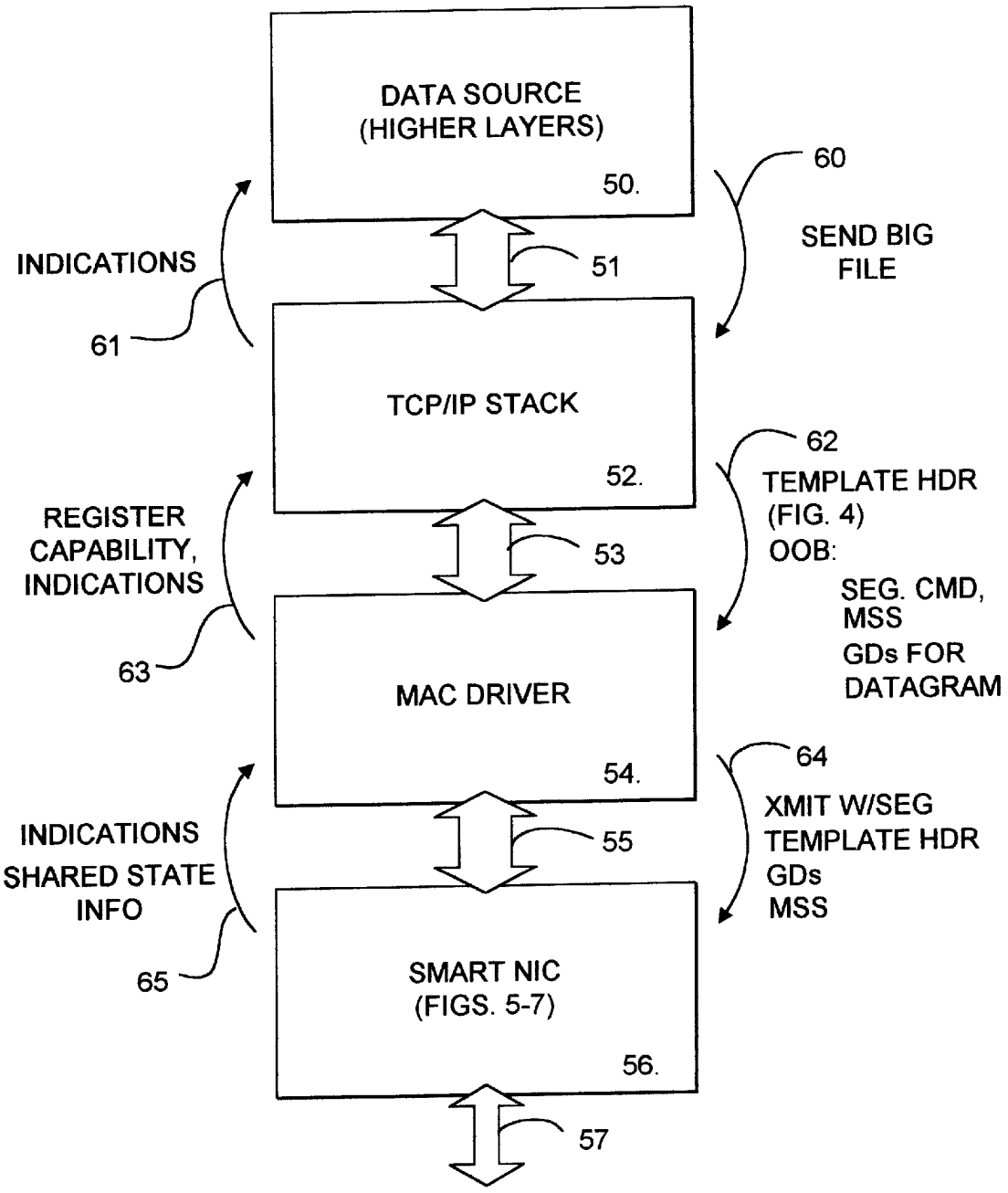


FIG. 3

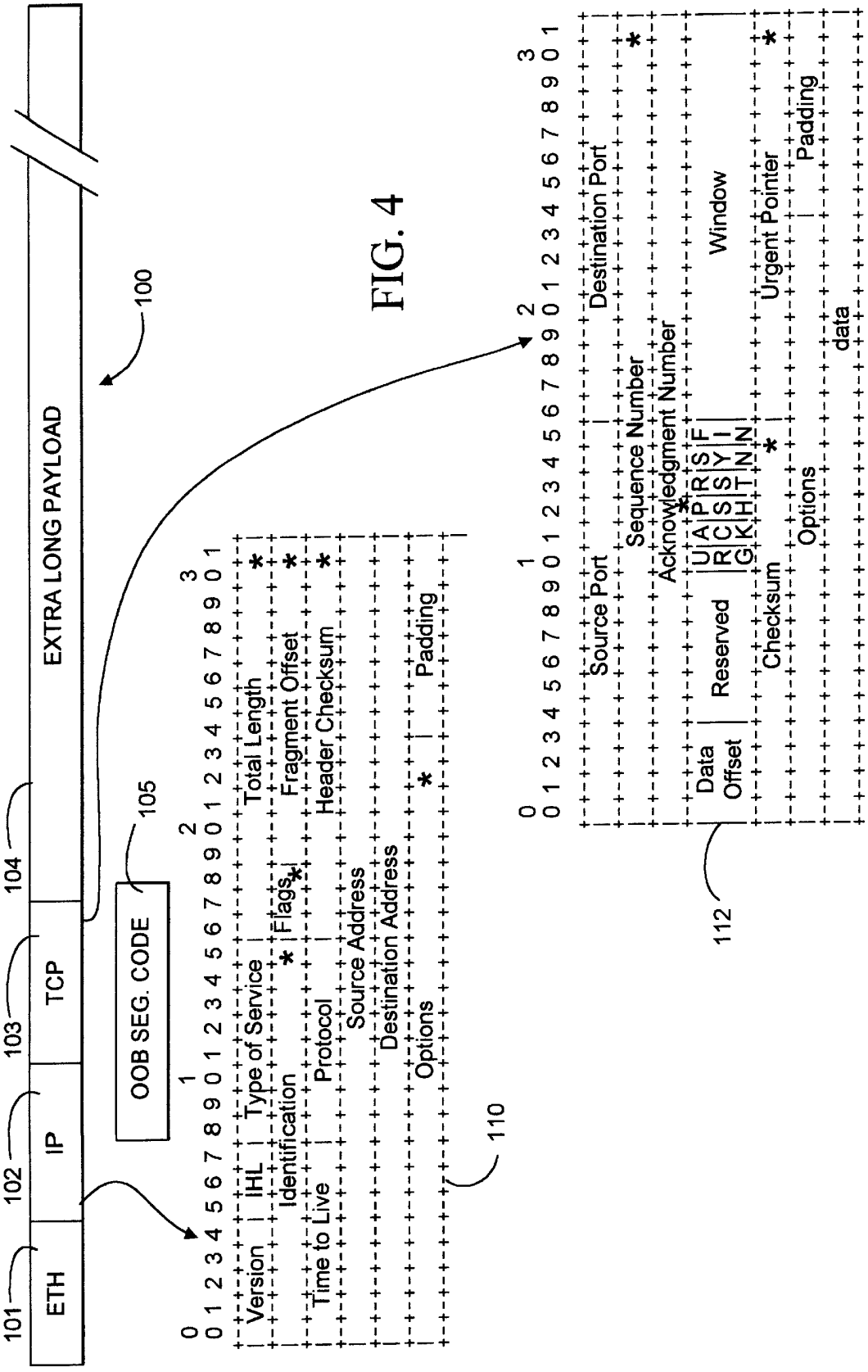


FIG. 4

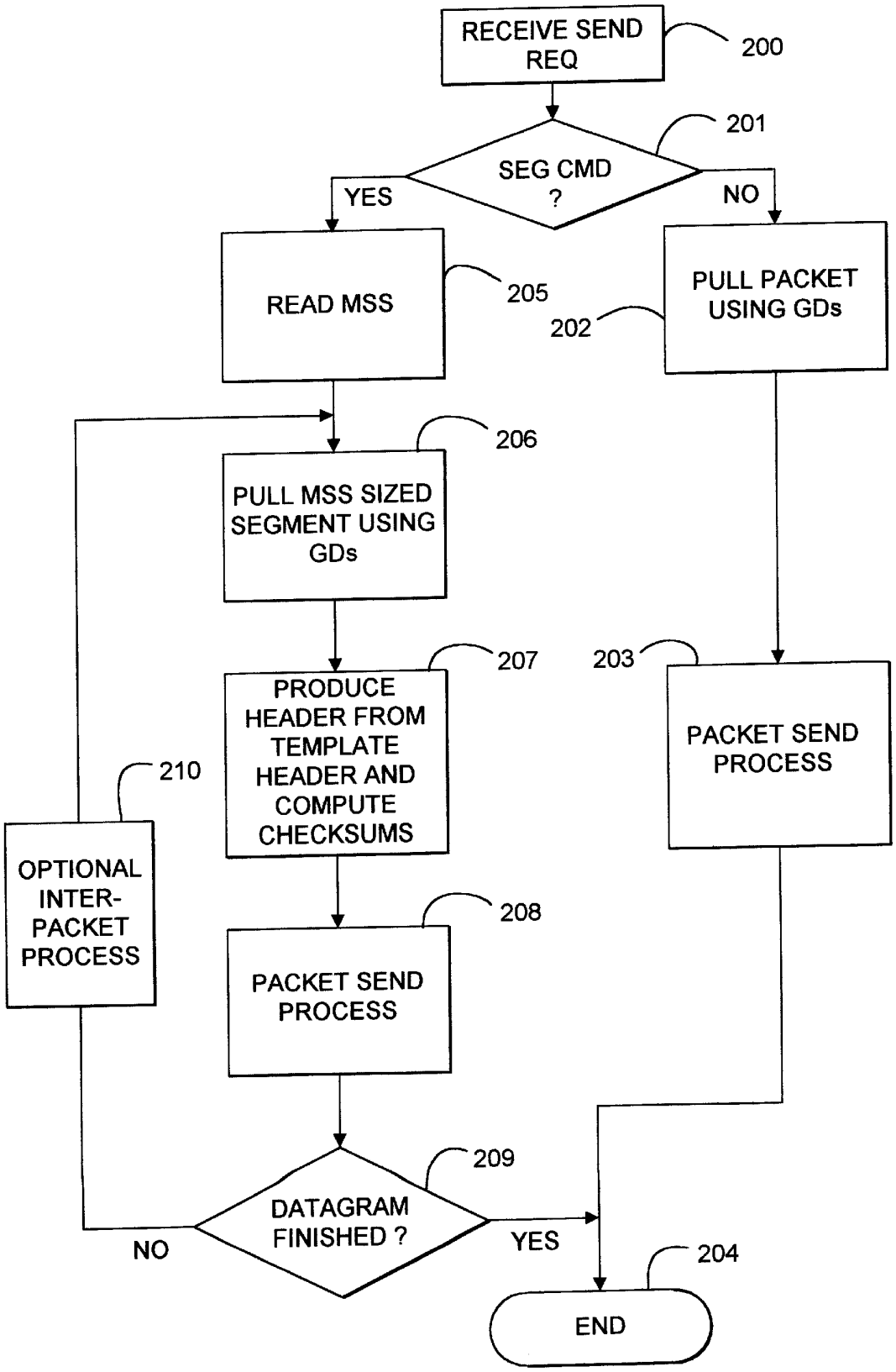


FIG. 5

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