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Heil et al.

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(54) **SYSTEM AND METHOD FOR PEER-TO-PEER ACCELERATED I/O SHIPPING BETWEEN HOST BUS ADAPTERS IN CLUSTERED COMPUTER NETWORK**

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(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Under 35 U.S.C. 154(b), the term of this patent shall be extended for 0 days.

(21) Appl. No.: **09/022,350**

(22) Filed: **Feb. 11, 1998**

(51) **Int. Cl.**[7] **G06F 12/00**
(52) **U.S. Cl.** **711/148**; 711/147; 711/130; 711/153; 709/213; 709/214; 709/217; 709/212
(58) **Field of Search** 711/147, 148, 711/114; 709/213, 214, 215, 232, 231, 201, 206, 212, 244, 249

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Assistant Examiner—Kimberly McLean

(57) **ABSTRACT**

The present invention retrieves data across independent computer nodes of a server cluster by providing for I/O shipping of block level requests to peer intelligent host-bus adapters (hereinafter referred to as HBA). This peer-to-peer distribution of block I/O requests is transparent to the host. The HBA has the intelligence to decide whether to satisfy a block I/O request locally or remotely. Each HBA driver utilizes the I_2O protocol, which allows peer-to-peer communication independent of the operating system or hardware of the underlying network. In a first embodiment of the present invention, local and remote storage channels, within a node, are supported by a single HBA. In a second embodiment of the present invention, local storage channels, within a node, are supported by one HBA, and the remote storage channel, within a node, is supported by a separate HBA.

31 Claims, 7 Drawing Sheets

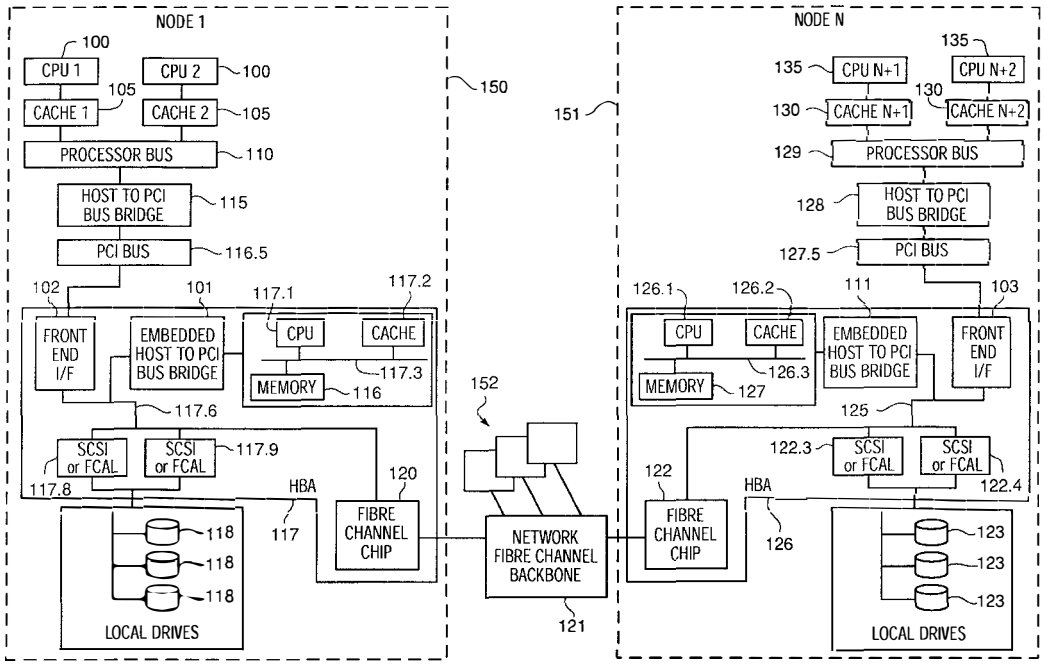

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FIG. 1

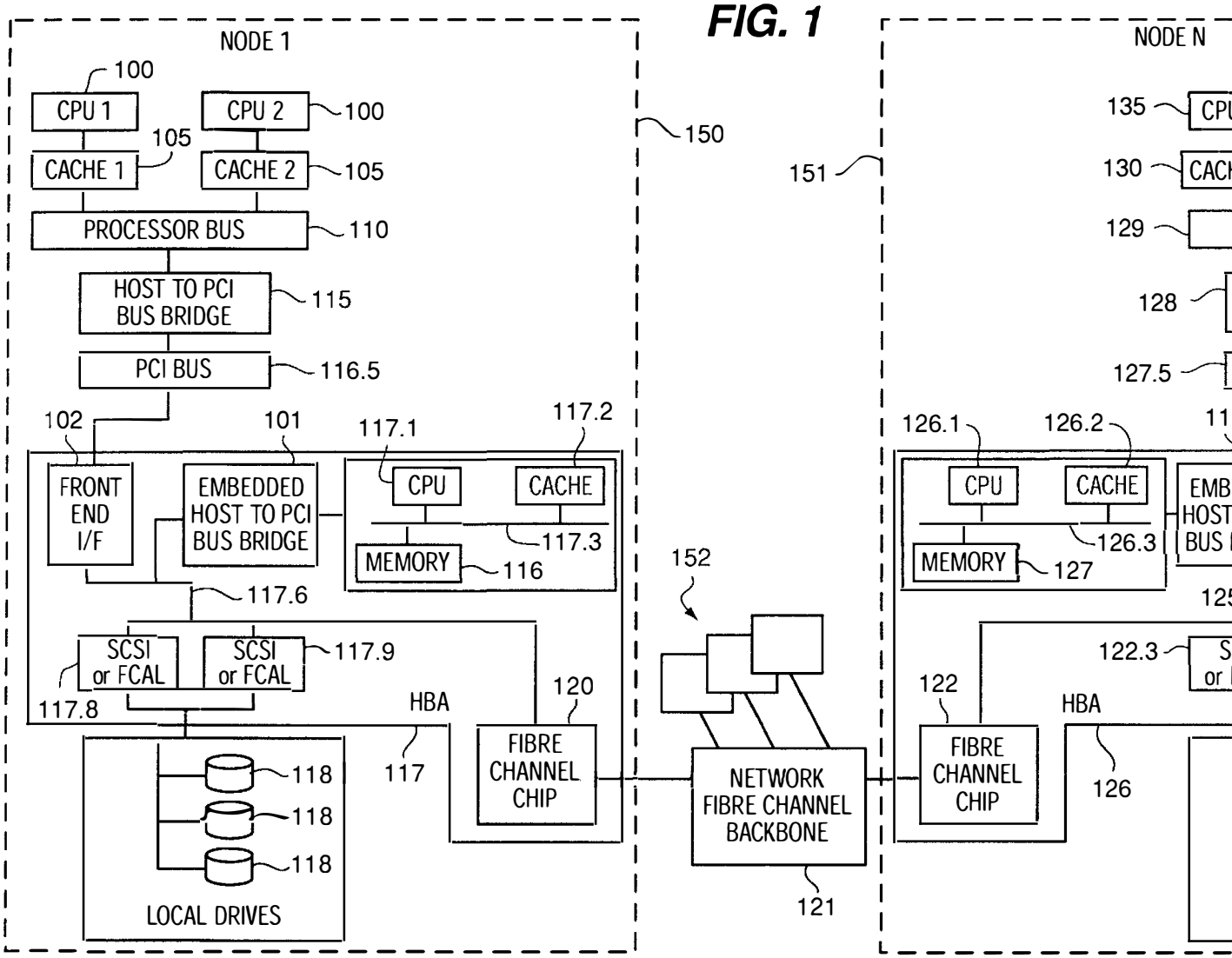

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FIG. 2

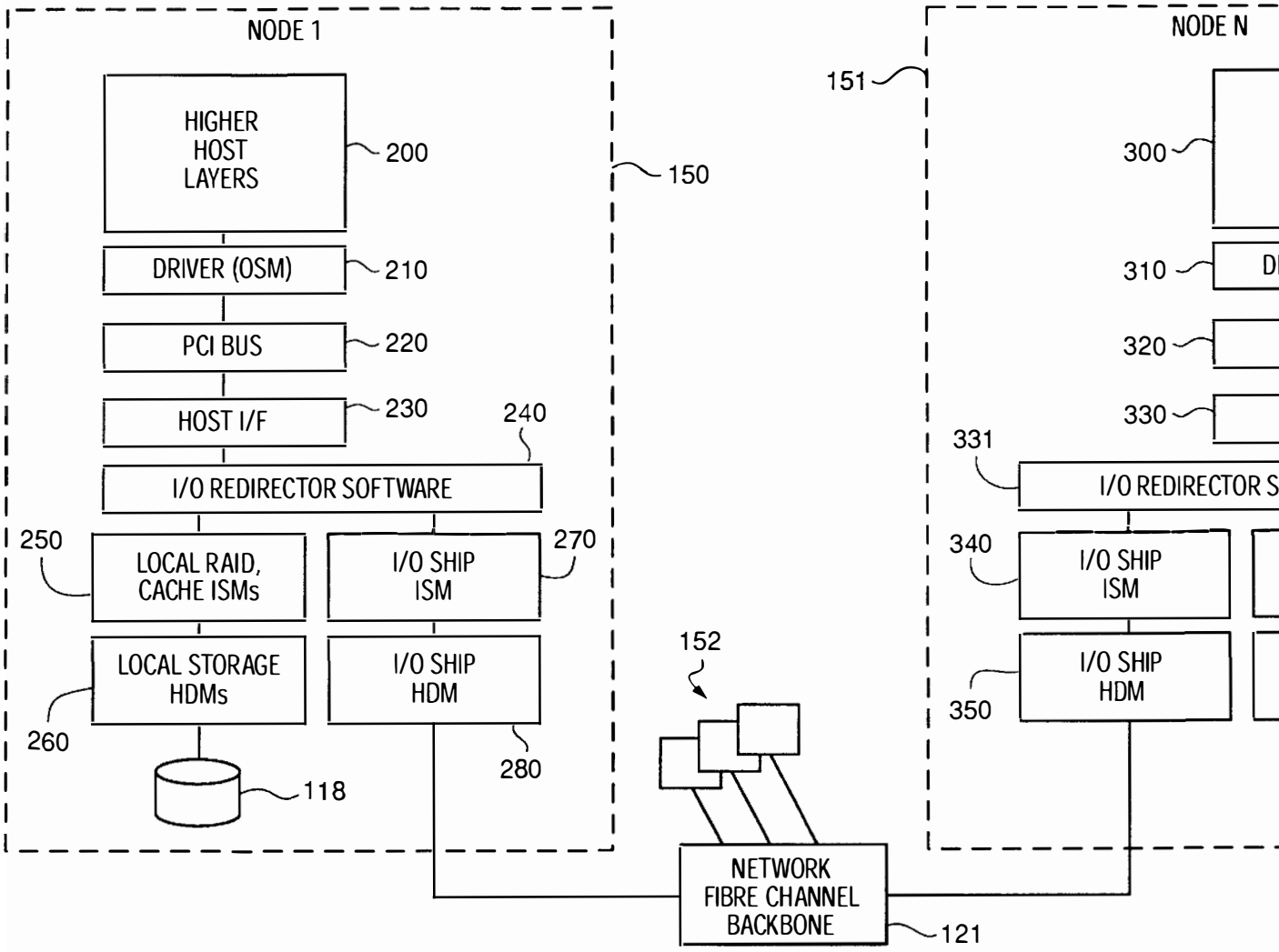

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FIG. 3

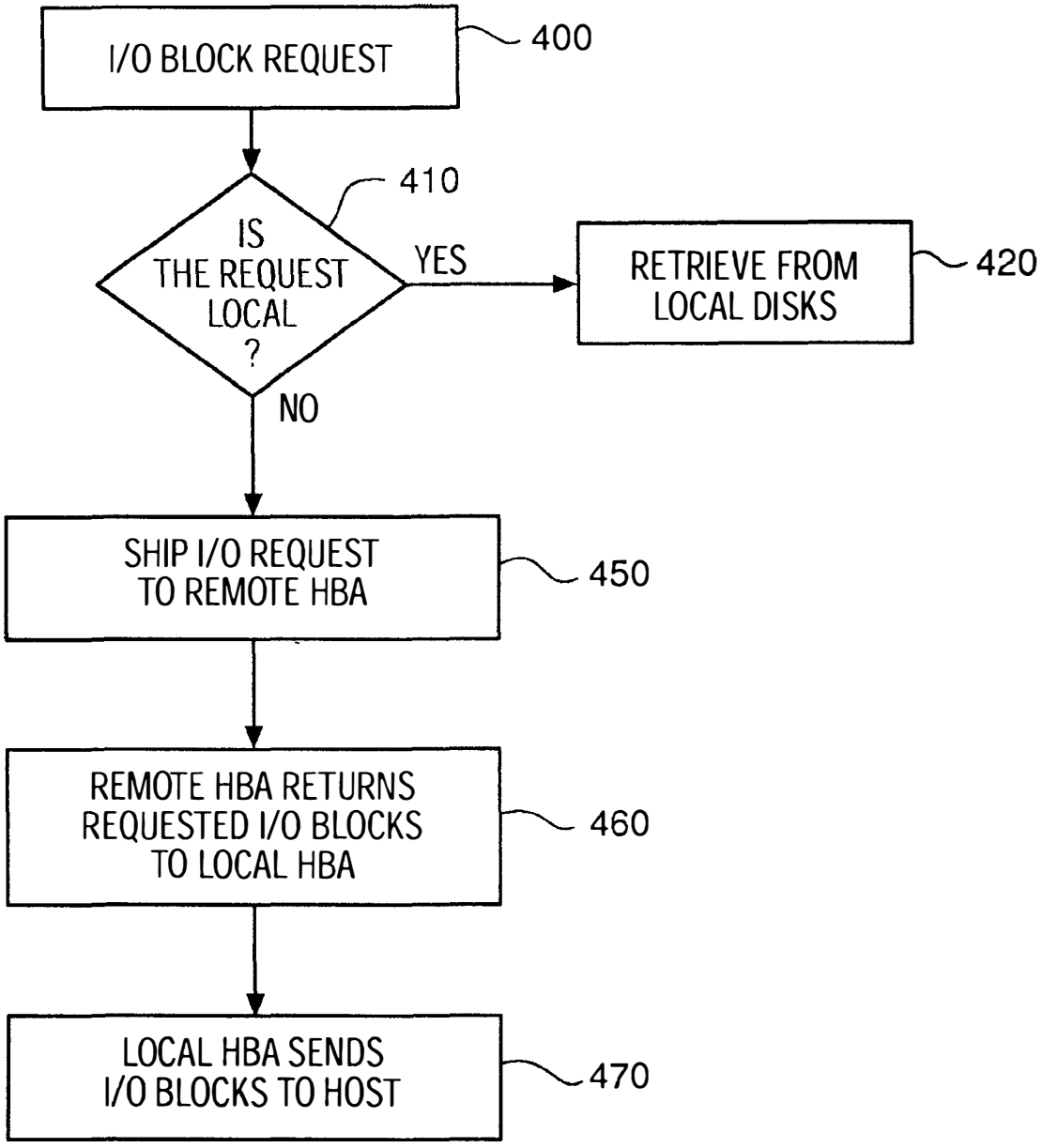

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FIG. 4A

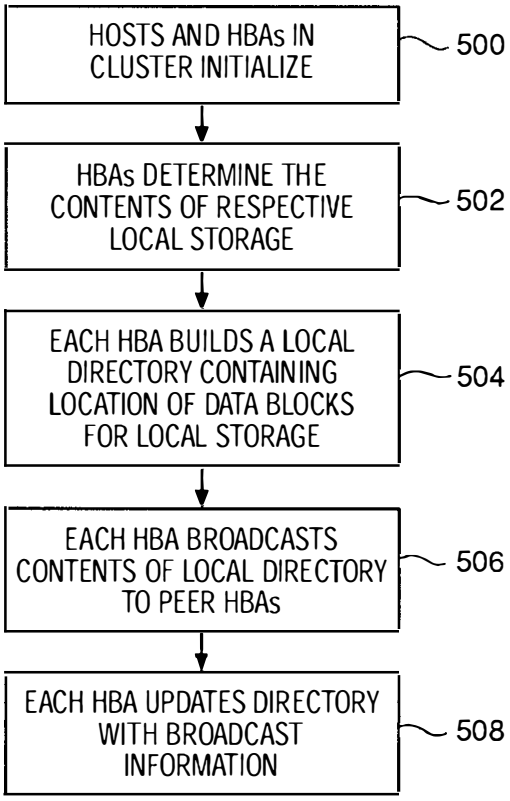
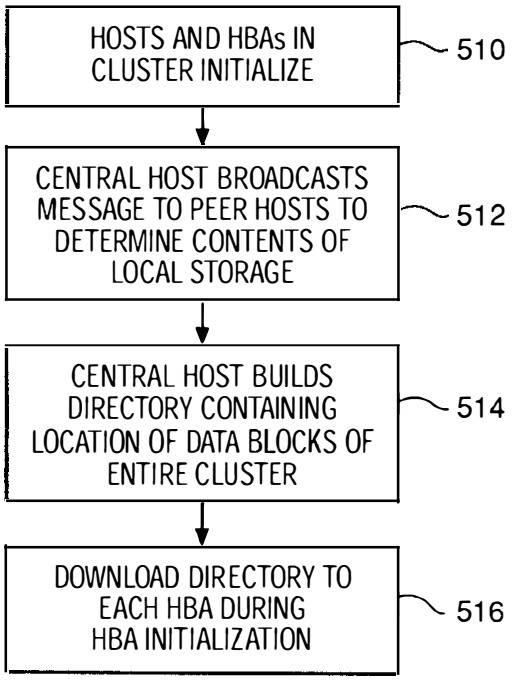


FIG. 4B



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