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Lei et al.

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(54) **ADAPTIVE TIMER FOR LLC TYPE 2 RELIABLE TRANSPORT IN A COMPUTER NETWORK**

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(51) **Int. Cl.**⁷ **G06F 13/00**

(52) **U.S. Cl.** **709/235; 709/232**

(58) **Field of Search** **709/200-253**

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(List continued on next page.)

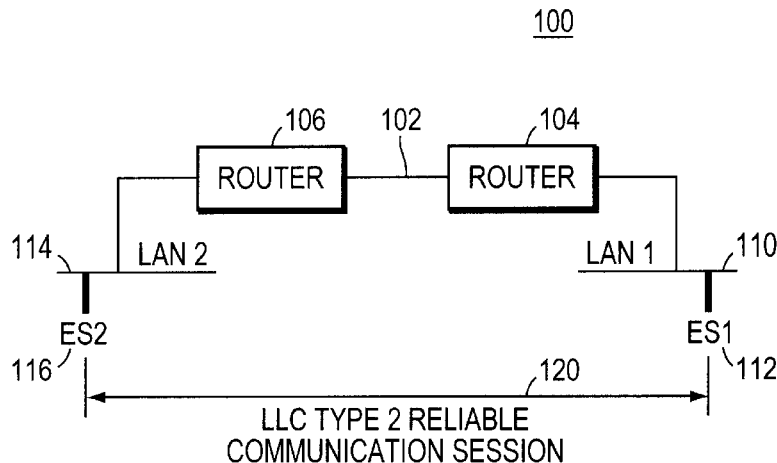
Primary Examiner—David Wiley

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(57) **ABSTRACT**

A method for computing an ACK timing interval for an ACK timer in a protocol layer LLC type 2 session first measures a time interval between transmission of a frame by a source computer joined to a to a destination computer by an intermediate link, and receipt of a corresponding acknowledgment frame by the source computer from the destination computer. The two events at the source computer, starting a timer upon commencement of transmission of a frame or sequence of frames and the later reception of an acknowledgment message indicating receipt of those frames, permits calculation of a measured time interval. The measured time interval is used to compute the bandwidth of the intermediate link. The required ACK timing interval for the ACK timer is then computed in response to the bandwidth, the number of bytes transmitted after starting the ACK timer, and the return time for an acknowledgment message. The ACK timing interval may be recomputed after every transmission of frames and receipt of a corresponding ACK message. The ACK timing interval is thereby dynamically adjusted to conditions on the intermediate link, including natural bandwidth for either a slow or fast link, congestion due to other traffic on the link, etc. The dynamic adjustment of the ACK timing interval prevents inadvertent timeouts of the ACK timer, and so prevents inadvertent breaking of the LLC type 2 reliable transport connection.

15 Claims, 9 Drawing Sheets



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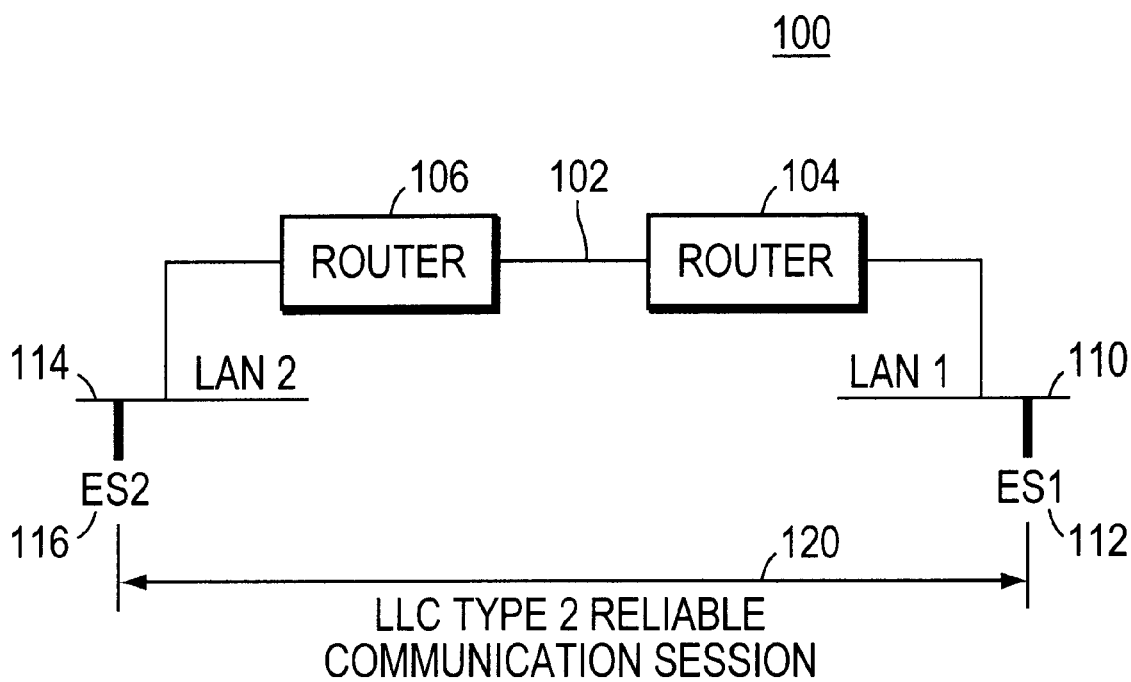


FIG. 1

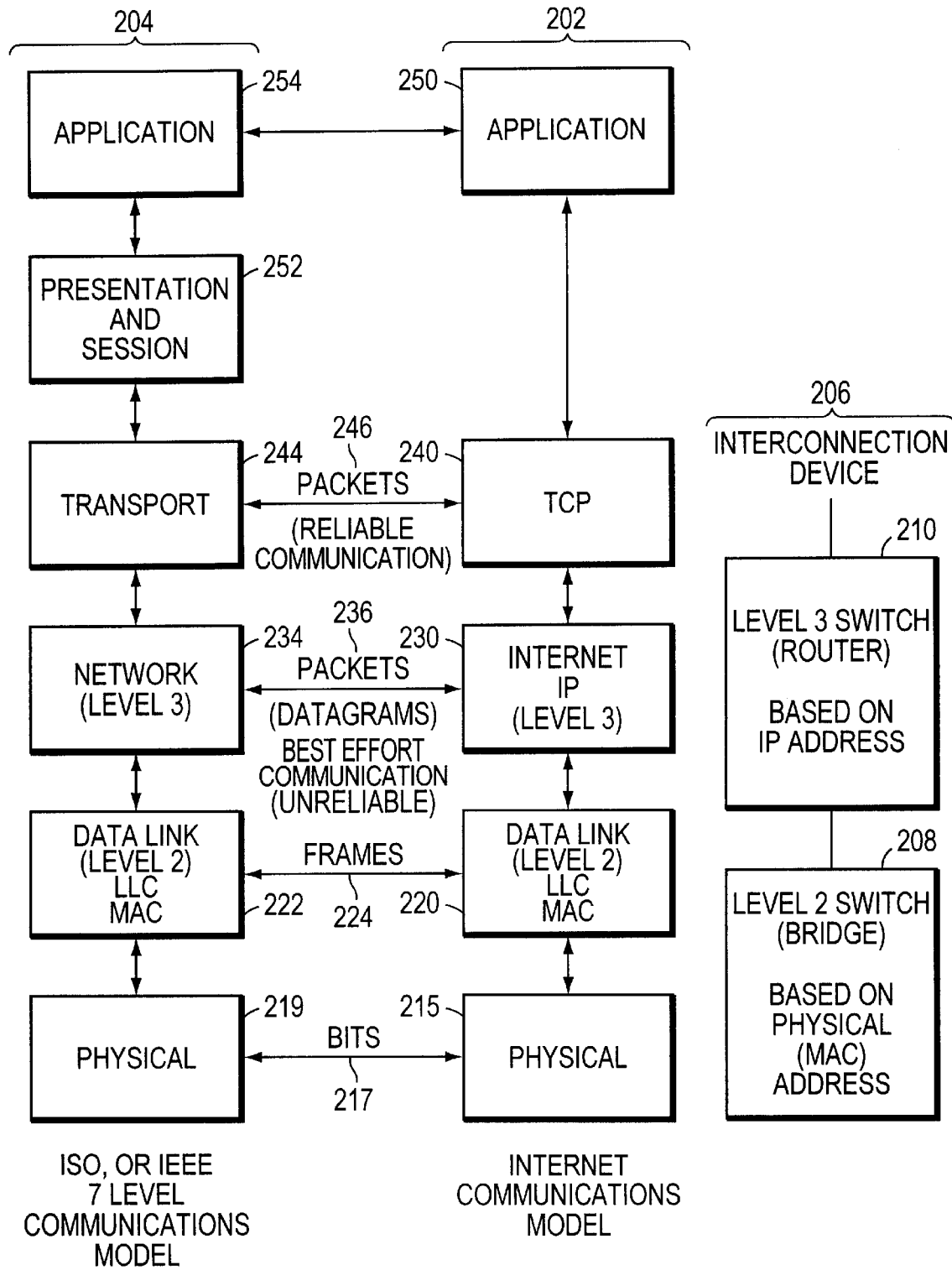


FIG. 2

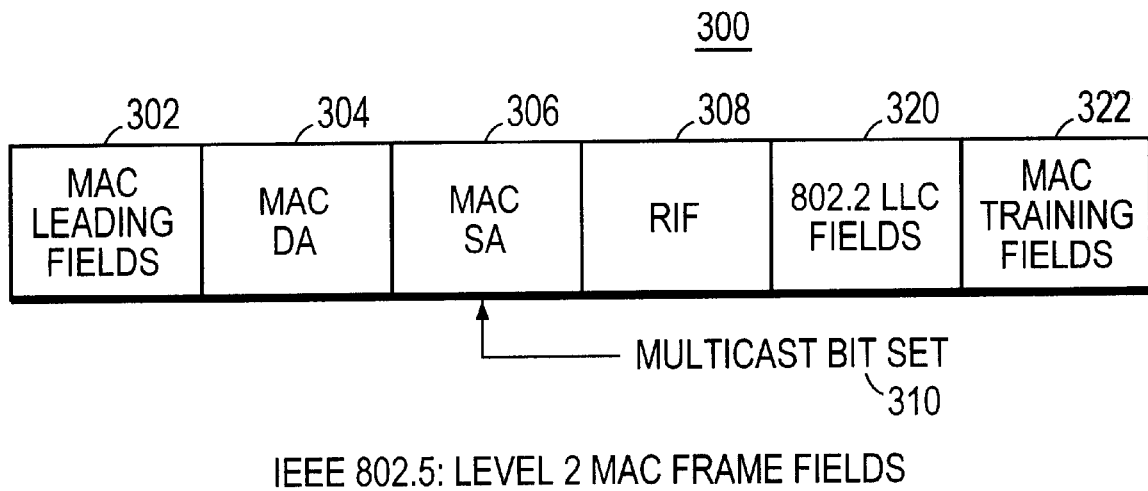


FIG. 3

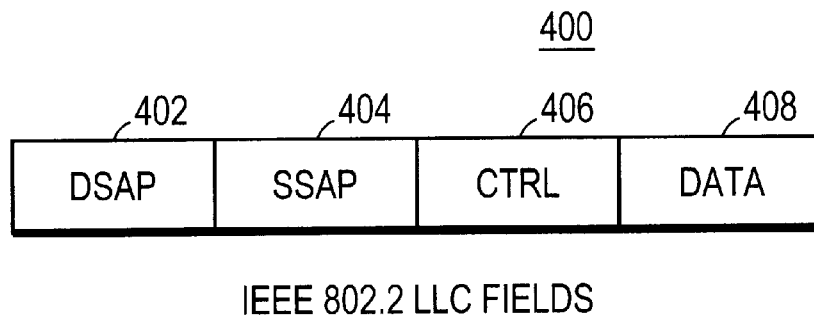


FIG. 4

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