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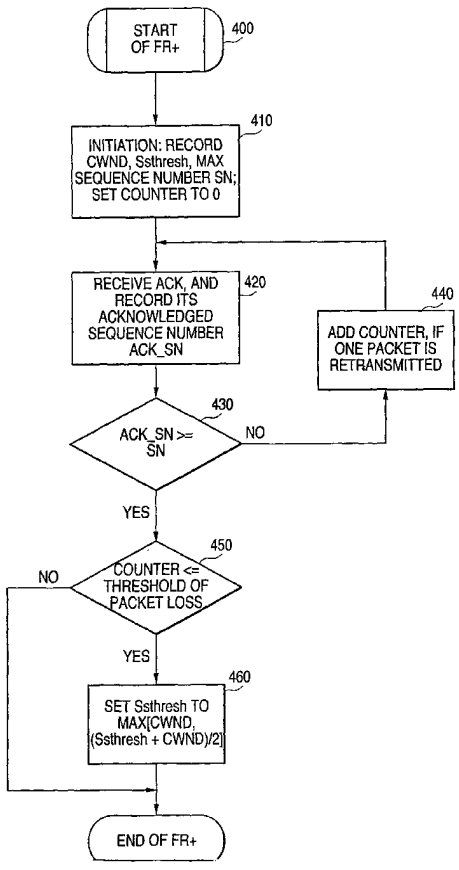
(54) Title: PERFORMANCE ENHANCEMENT OF TRANSMISSION CONTROL PROTOCOL (TCP) FOR WIRELESS NETWORK APPLICATIONS



(57) Abstract: A new Fast Recovery Plus (FR+) mechanism, and associated method, for wireless and/or mobile network applications to avoid network congestion in a TCP/IP packet-switched network. A method of flow control and congestion avoidance congestion in a network comprises the steps of: transmitting, at a source node, data packets to a destination node, via at least an intermediate node; receiving, at the destination node, data packets transmitted from the source node, via the intermediate node, and generating a duplicate ACK back to the source node to inform the source node that a data packet was received out-of-order in the network and serves as an indication that a data packet has been lost; upon receipt of a designated number of duplicate ACKs, at the source node, determining that a data packet has been lost; initializing a counter, at the source node, and recording a congestion window CWND, a slow start threshold Ssthresh, and a maximal sequence number SN that has been sent into the network; upon receipt of a next duplicate ACK, at the source node, recording its acknowledged sequence number ACK SN; determining, at the source node, if the acknowledged sequence number ACK SN is no more than a recorded sequence number SN; otherwise, incrementing the counter, at the source node, and re-transmitting a lost packet; if the acknowledged sequence number ACK SN is no more than the recorded sequence number SN, determining, at the source node, if the packet loss is due to transmission error; and if the packet loss is due to the transmission error, setting, at the source node, the slow start threshold Ssthresh to Max(CWND, (Ssthresh + CWND)/2), wherein CWND and Ssthresh exhibit values recorded.

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