

ENHANCED PCS AND RI-NST MECHANISM FOR EFFECTIVE MEDIUM ACCESS IN WIRELESS AD HOC NETWORKS

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ABSTRACT

Aggregate throughput of a wireless ad hoc network is diminished by hidden terminal problem which can cause packet collisions at the receiver and fair access of the medium is also lessened by receiver blocking problem which can induce unnecessary backoff circles and packet retransmissions. In this paper, a new Medium Access Control (MAC) scheme which uses enhanced Physical Carrier Sensing (PCS) with tunable carrier sense range based on transmitter-receiver distance has been proposed to eliminate the hidden terminal problem, aiming to enhance the aggregate throughput of wireless ad hoc networks. For having fair medium access, Receiver Initiated Notification of Successful Transmission (RINST) mechanism has also been introduced to prevent the receiver blocking problem. Extensive simulation results verify that our proposed MAC scheme gets higher aggregate network throughput and better fairness than the conventional MAC scheme.