

An Enhanced Hybrid Backoff Technique for Minimizing the Occurrence of Collision in Mobile Ad Hoc Networks

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Abstract : In Mobile Ad-hoc Networks (MANETS), every node performs both as transmitter and receiver. The existing backoff models do not exactly forecast the performance of the wireless network. Also, the existing models experience elevated packet collisions. Every time a collision happens, the station's contention window (CW) is doubled till it arrives at the utmost value. The main objective of this paper is to diminish collision by means of contention window Multiplicative Increase Decrease Backoff (CWMIDB) scheme. The intention of rising CW is to shrink the collision possibility by distributing the traffic into an outsized point in time. Within wireless Ad hoc networks, the CWMIDB algorithm dynamically controls the contention window of the nodes experiencing collisions. During packet communication, the backoff counter is evenly selected from the given choice of $[0, CW-1]$. At this point, CW is recognized as contention window and its significance lies on the amount of unsuccessful transmission that had happened for the packet. On the initial transmission endeavour, CW is put to least amount value (C min), if transmission effort fails, subsequently the value gets doubled, and once more the value is set to least amount on victorious broadcast. CWMIDB is simulated inside NS2 environment and its performance is compared with Binary Exponential Backoff Algorithm. The simulation results show improvement in transmission probability compared to that of the existing backoff algorithm.

Keywords : backoff, contention window, CWMIDB, MANET

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