

Abstract

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ENHANCING QoS OF NON-REAL-TIME APPLICATION IN WIRELESS NETWORK THROUGH FIXED BACKOFF STAGE

Due to the increasing demand on wireless technologies, many researches targeted the improvement of quality of service (QoS) of global wireless networks such as 802.11 and 802.16. Most researches targeted the physical layer (PHY) parameters and medium access control (MAC) mechanisms to improve QoS, but they didn't guarantee the QoS of each type of application. To overcome this deficiency we provide a simple analytical model based on fixed number of backoff stages before giving up and retry as a new packet to maintain the quality of service for wireless networks for non-real-time application with the aim to improve the capacity and throughput taking into consideration fairness and damping of collision frequency. The proposed model is analytically proved using Markov chain, taking into account the maximum contention window size, the exponential back-off procedure as well as considering the bandwidth and time needed and the possible time out for lost packets. We validated the accuracy of the proposed model by simulation and comparing with the standard model of the IEEE 802.11.