Abstract

In the field of wireless networks one of the arduous assignments is to design an efficient MAC scheme. The key aspect in the design of any contention-based medium access control (MAC) protocol is the mechanism to measure and resolve simultaneous contention because of dynamic topology. IEEE 802.11 suffers from high collision rate which affects the performance of WLAN to overcome this many back off schemes have been proposed. IEEE 802.11, which provides technical specifications for wireless interfaces, uses DCF (Distributed Coordinated Function) as the MAC scheme. DCF uses BEB (Binary Exponential Back off) algorithm for Contention resolution among the stations. It performed well at the beginning but researchers found that DCF's main limitation is as the number of stations increases, number of collisions also increases to a great extent. Increased collision rate has affected other performance metrics such as decreased throughput. This has led to the DCF's performance degradation hence a back off scheme is needed to improve the performance of the network. It is found that to improve the performance of a MAC protocol, the back off algorithm play an important role. Hence, we have modified a BEB algorithm suitable for a MANET. The entire enhancement done to this algorithm is studied in depth. In this paper we discuss about the Sensing Back off algorithm which has been integrated with MAC protocol this algorithm greatly reduces the end to end delay and collision rate the important factor here is the proposed algorithm simulated at different data rate.
References

- Jochen Schiller, Mobile Communications, Pearson Education
- Hongi WU, Yi Pan "Medium Access Control in Wireless Network, Nova publishers"
- S. Xu and T. Saadawi, "Does the IEEE 802. 11 MAC protocol work well in multihop wireless adhoc network," IEEE Commun Mag vol. 39
- Z. Abhichar and J. M chang "CONTI constant-Time contention Resolution for WLAN"
- Shie-Yuan Wang, Chih-Liang Chou, and Chih-Che Lin, "The GUI User Manual for the NCTUns 6. 0 Network Simulator and Emulator

Index Terms

Computer Science Wireless Networks

Keywords

Mac Schemes Contention Resolution Back Off Algorithm Collision Rate