Enhanced MAC Parameters to Support Hybrid Dynamic Prioritization in MANETs

Abstract

Quality of Service (QoS) for MANETs becomes a necessity because of its applications in decisive situations such as battle fields, flood and earth quake. Users belonging to diverse hierarchical category demanding various levels of QoS use MANETs. Sometimes, even a low category user may need to send an urgent message in time critical applications. Hence providing prioritization based on user category and urgency of the message the user is sending becomes necessary. In this paper we propose Enhanced MAC parameters to support Hybrid Dynamic priority in MANETs (H-MAC). It combines both prioritizations based on user categorization and dynamic exigency. Order Statistics is used to implement dynamic priority. We propose dynamic TXOP, Proportional AIFS and Proportional dynamic Backoff timers based on weights and collision, to avoid packet dropping and starvation of lower priorities. The model is simulated in ns2. We compare our results with IEEE 802.11e and show that, 16% more throughput is achieved by H-MAC during extensive collision. We also observe that starvation and packet drops are reduced with proportionate bandwidth sharing compared to the existing model.

References

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Index Terms
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Hybrid Priority  Dynamic Mac Parameters  Order Statistics  Proportional-share Scheduling