QoS provisioning in CSMA/CA-based opportunistic random access for WLAN

ABSTRACT

Toward the realization of Internet of Things (IoT), the rise in number of mobile terminal has been drastic and increasingly diverse. Carrying the purpose to complete task with great complexity and self-configuration ability based on different scenario, the access to the great pool of information has never been more important. In order to provide the seamless connection continuously, resource allocation method, mainly the widely adopted CSMA/CA MAC protocol must be revised. In this paper, we had shown that exploitation of node and temporal diversity can improve the system throughput and increase the reliability of data transmission. According to the data rate adaptation process, a lightweight algorithm will be used to adapt the contention window based on different scenario. Through simulation and analysis, we demonstrate the improvement of system throughput with proposed scheme in adaptive CSMA/CA with QoS provisioning over the conventional CSMA/CA.

Keyword: Contention window; CSMA/CA; IEEE 802.11