QoS Enhancement with Admission Control Adjustment Algorithm in WLAN

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ABSTRACT

As the advancement in information technology, the requirement of data communication increases dramatically. In the past, the type of data transmitted in the networks is only text. Nowadays, many types of data emerge from the applications of business, education, social activity, and so on. Different types of data transmission have different requirements. How to meet the requirements of different data transmission service becomes an important issue as known the QoS (Quality of Service) problem. In order to solve the QoS problem, IEEE 802.11 Task Group proposed the 802.11e [1] standard in 2005. The 802.11e standard provides priority parameters for different access categories (AC). However, according to the study of Andreadis[2], 802.11e cannot provide strict QoS service guarantees for real time traffic without restricting the number of connections in a WLAN area. In this thesis, we propose an Admission Control Algorithm (ACA). The proposed ACA adopts an index of system load and sets a threshold for the connection permission of new arrival traffic. In order to increase the system capacity, the transition probabilities of traffic departure are calculated and compared to a threshold. When the transition probabilities of traffic departure are greater than the threshold, the new arrival traffic will permit to establish the connection. The NS-2 simulation tool and two scenarios are used to evaluate the performance of the proposed ACA. The simulation results show that the proposed ACA can improve the system capacity without sacrificing the QoS when the system load is heavy.

Keywords : WLAN,802.11e,QoS

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