Adaptive TXOP assignment for QoS support of video traffic in IEEE 802.11e networks

ABSTRACT

Quality of Service (QoS) is provided in IEEE 802.11eprotocol by means of HCF Controlled Channel Access (HCCA) scheduler which is efficient for supporting Constant Bit Rate (CBR) applications. Numerous researches have been carried out to enhance the HCCA scheduler attempting to accommodate the needs of Variable Bit Rate (VBR) video traffics which probably demonstrates a non-deterministic profile during the time. This paper presents an adaptive TXOP assignment mechanism for supporting the transmission of the prerecorded video traffics over IEEE 802.11e wireless networks. The proposed mechanism uses a feedback about the size of the subsequent video frames of the uplink traffic to assist the Hybrid Coordinator (HC) accurately assign TXOP according to the fast changes in the VBR profile. The simulation results show that our mechanism reduces the delay experienced by VBR traffic streams comparable to HCCA scheduler due to the accurate assignment of the TXOP which preserve the channel time for data transmission.