Enhanced Low Latency Queuing Algorithm for Real Time Applications in Wireless Networks

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Abstrak

In recent times, the demand for the real time audio and video applications in wireless networks is very high due to widespread use of latest wireless communication technologies. Many of these applications require different Quality of Service (QoS) in terms of delay and throughput in the resource constrained wireless networks. In order to handle the resources effectively and to increase the QoS, proper packet scheduling algorithms need to be developed. Low-latency Queuing (LLQ) is a packet scheduling algorithm which combines Strict Priority Queuing (SPQ) to Class-Based Weighted Fair Queuing (CB-WFQ). LLQ places delay sensitive applications such as voice and video in the SPQ and treat them preferentially over other traffic by allowing the application to be processed and sent first from the SPQ. In this paper, an Enhanced LLQ (ELLQ) is proposed. An additional SPQ is introduced for scheduling the video applications separately along with the dedicated SPQ for voice applications. The performance of the proposed algorithm is compared with other existing algorithms through simulations using the OPNET modeler. Simulation and Statistical results show that the proposed algorithm has given 1.5 times performance improvement in terms of throughput and delay than the existing algorithms for the real time audio and video applications.