Adaptive dual threshold multi-class scheduling for packet switch.

ABSTRACT

Multimedia applications such as video conferencing, VoIP and data streaming require specified QoS to guarantee their performance. Multi-class switch has been introduced to handle different QoS requirement. In this research, a new way of handling multi-class traffic is presented. The analysis is done on N × N switch with two traffic classes; high priority for delay sensitive cells (class 1) and low priority for loss sensitive cells (class 0). In order to avoid starvation problem and to improve total mean delay in loss sensitive class, a novel approach has been introduced in the scheduling technique. The controller in the scheduler will adjust the threshold value adaptively based on the mean queue length and traffic load condition. By adjusting these parameters adaptively the best possible mean delay and throughput for class 0 can be achieved without degrading the QoS requirement for class 1.The proposed method has been simulated to show the performance of adaptive threshold as compared to priority queue(PQ) and Weighted Fair Queue(WFQ) in term of total mean delay and throughput. The results show that the proposed architecture has achieved better performance as compared to PQ and WFQ.

Keyword: Multi-class switch; Quality of Service (QoS); Adaptive threshold; Switching.