Pro-active QoS resource management schemes for future integrated packet-switched networks

ABSTRACT

In this research two pro-active dynamic QoS resource management schemes are designed, namely the dynamic QoS control scheme with delay estimation, and the hybrid dynamic QoS control scheme. In both schemes, every new packet arrival is compared against the computed estimated delay it will experience, prior to being admitted into the buffer. If the computed estimated delay expires the requested delay bound, then the packet is dropped. In the hybrid scheme, every packet is first assessed for the estimated delay prior to being admitted into the buffer, subsequently the packets which have been successfully admitted into the buffer are evaluated on the actual delay experienced before being transmitted to the receiver. The paper studies the performance of the two proposed schemes with a dynamic resource management scheme, known as the OCcuPancy_Adjusting (OCP_A). The results obtained through the simulation models show that the proposed schemes have significantly improved the average delay for different traffic patterns. In addition to improving the average delay in delay sensitive traffic, improvement is seen in the average packet loss ratio, and subsequently increasing the throughput of delay sensitive traffic.