Abstract

This paper investigates the use of an efficient bandwidth management scheme by implementing cross-layer M/M/1 queuing model. Strict Open System Interconnection (OSI) layer to layer communication problem is solved by introducing a common database that automatically synchronizes the status of each OSI layer to all the other layers. First-In-First-Out (FIFO) queuing data structure and Priority Queuing (PQ) were deployed to the model to reduce data loss and congestion in low bandwidth interfaces respectively. The integrated model caters for the burst arrival into the system. Application of this model to a Wireless Campus Area Network (WCAN) show that 95 % and 95.26 % were the generated packets in the wireless channel and accounted packets respectively. Subsequently, 22.19 % of bandwidth has been saved using Real Time Packets (RTP) and Non-Real Time Packets (NRTP).

References


**Index Terms**

Computer Science  Wireless

**Keywords**

FIFO  NRTP  OSI  PQ  RTP  and WCAN.