

ABSTRACT

Multimedia technology provides new services, such as video, FTP, and HTTP. As the increasing number of multimedia service's usage and popularity these days, it is also establish a problem, called overcapacity of bandwidth demand the network could provide, which is cause congestion and data package queue. Therefore we need *Quality of Service* (QoS), to give schedule mechanism and management queue system in the network to each services as the desire of customers.

In this final task will be simulated the comparison of two scheduling scheme called WFQ (*Weighted Fair Queueing*) and PQ (*Priority Queueing*) in the IP network. The scheduling mechanism and queue management that will be simulated are video package, FTP, and HTTP using *Network simulator-2* (ns-allinone-2.33) as the software. The parameters in QoS (*Quality of Service*) are *throughput*, *delay* and *packet loss*.

Based on the simulation that has been done in this research resulted :

At scenario 1, the throughput of WFQ scheduling scheme is 0,064 Kbps maximum, minimum *packet loss* 0%, smallest *delay* 26,9258 ms, smallest jitter 0,220379 ms. The throughput of PQ with the *link capacity* 1Mbps, 5Mbps, 10Mbps is up from 0,00146667 kbps to 0,064Kbps. Its *packet loss* down from 97,7083% to 0%, The minimum *delay* 26,943 ms, minimum *jitter* 0,236353ms.

At scenario 2, when the application that has been sent is a video, both of the scheme has the same *throughput* and *packetloss* 0,0608Kbps and 0%. when the applications that has been sent are FTP and HTTP, the scheduling scheme resulted the same value for *Throughput*, *packetloss*, *delay* dan *jitter*. Each WFQ scheme values are 1,762Kbps, 1,2775%, 59,7648ms, 1,23053ms, and PQ scheme values are 1,6792Kbps, 1,26999%, 69,6178ms, 1,63239ms.

At scenario 3, The throughput values for the WFQ scheduling with a source value 5, 15, 30 are 0,128Kbps, 0,064Kbps, 225.875Kbps, 0,0636Kbps, and the values of *packet loss* are 0%, 0%, 38.46%, and 0,625%. The *delay* is about 27,09797ms to 52,5965ms, jitter 0,22399ms, 1,26147ms, 9,98519ms. The resulted throughput values of PQ are 0,126667Kbps, 0,06373333Kbps, 0,0632Kbps, the values os

packet loss are 1,041667%, 1,66667%, 1,25%, delay is about 27,0905ms-52,7099ms, and jitter is about 0,242881 to 11,3814ms.

At scenario 4, the differential values of buffer to 25, 100, 1000 in the WFQ scheme will effect the throughput value which is resulted maximum at 0,0638667Kbps, *packet loss* minimum at 0,625%, smallest *delay* at 61,8178ms, and smallest jitter at 6,77107 ms. In the other side, the differential values of buffer to 25, 100, 1000 in the PQ scheme, the *throughput* is up from 0,0626667Kbps to 0,0637333Kbps, the value of *packet loss* down from 2,08333% to 1,0416667%, with the minimum delay at 71,2055ms, and minimum *jitter* at 8,47431ms.

Keywords : Congestion, QoS, PQ, WFQ, Throughput, Packet Loss, Delay and jitter