ABSTRACT

The needs for Quality of Service (QoS) in Internet Protocol (IP) multimedia network, some technologies are developed such us Differentiated Service (Diffserv) and Multi Protocol Label Switching (MPLS). The combination of both technology results a network architecture which covers each other in providing QoS. Beside that, queueing mechanism usage in the network can give optimum performance to avoid congestion problem in network.

In this final assignment, compare queueing mechanism Class-based Queueing (CBQ), Low Latency Queueing (LLQ), and Weighted Fair Queueing (WFQ) also compare routing link state algorithm and MPLS in IP backbone network, then analyze multimedia traffic QoS parameter such us delay, jitter, packet loss, and throughput. Multimedia traffic are used in simulation contain data, voip, and video. Research and network modelling use network simulator-2 (NS-2).

The results of analysis from simulation shows Diffserv which supports MPLS network architecture with CBQ mechanism gives better performance than LLQ and WFQ which gives minimum mean delay and packet loss at 56.5176 ms for delay and 8.03 % for packet loss. CBQ also gives maximum mean throughput at 36.6418 Kbps and minimum mean jitter at 3.0972 ms. WFQ gives worst performance in providing QoS.

Key words : IP QoS, Diffserv, MPLS, CBQ, LLQ, WFQ