ABSTRACT

Traditional IP networks offer users best effort service. In best effort service, all packets are indistinguishable and are given the same treatment. This has caused burden on the network with limited bandwidth and buffer space, resulting heavy congestion. With the presence of Quality of Service (QoS), IP network provides discriminate services.

Differentiated Service (DiffServ) is a mechanism used for increasing the Quality of Service (QoS) on IP network. Diffserv is an IP QoS architecture based on packet marking that allows packets to be prioritized according to users' requirements. Assured Forwarding (AF) is used for supporting in implementation of Diffserv. AF drops low priority packet more agresive than high priority packet. Usually, AF-PHB mechanism uses one of Active Queue Management (AQM) technique. Multi-level Random Early Detection (MRED) has been introduced afterwards as an alternative scheme which is recommended for supporting the implementation of Diffserv.

In this final project would be introduced three schemes of MRED, which are RED with IN/OUT Coupled (RIO-C), RED with IN/OUT De-coupled (RIO-D), and Weighted RED (WRED). The performance of these three schemes would be analyzed using ns-2 simulation software. The tested performance metrics are throughput, packet loss, delay, and queue length.

The result of simulation shows that RIO-D resulting the biggest throughput among two other schemes for each scenario, 0.43 % higher than other sceme. RIO-D also produce smallest packetloss among two other schemes. But on the other hand it has highest queue length which caused high delay. RIO-D produce queue length 23 packet and delay 0,494 ms.

Keywords : Congestion, Differentiated Service, AF-PHB, RIO-C, RIO-D, WRED.