ABSTRACT

PT Indonesia Comnet Plus (ICON +) is a subsidiary of PT PLN (Persero) which is engaged in telecommunications. One of the services of PT. ICON + based on MPLS network is the IPVPN service. PT ICON + also has customers with different network priorities. QOS (Quality of Service) is an important thing that must be considered by telecommunications service providers such as PT. ICON + to guarantee network quality. Along with the increasing number of telecommunications service users, the capacity of traffic will increase, it is necessary to apply a method to maintain the QoS of PT.ICON + services. MPLS QoS Diffserv model is a method offered to maintain QoS by classifying and managing network traffic based on the priority of each class.

In this final project, MPLS network designed using the diffserv method for IPVPN service of PT.ICON+. The design is done using NS3 Simulator and QoS analysis will be performed based on parameters of delay, throughput, and packet loss that will be added background traffic.

The result of this final project is to design a network-based PT.ICON + MPLS VPN method and MPLS QoS Diffserv on NS3. In this final project, the decrease in the value of throughput for VoIP traffic and Best effort on the MPLS Diffserv network is not too large and still meets TIPHON standards.. In MPLS Diffserv network can maintain delay value better than MPLS VPN without Diffserv method, but still under the TIPHON standard, which is <150ms. MPLS network difserv method can maintain the quality of packet loss better where by using the diffserv method can keep packets sent nothing is lost or damaged with a percentage value of 0% when flooded with 0-95Mbps traffic.

Keyword : MPLS, QoS, Differentiated Service, IPVPN