

## **ABSTRACT**

PT. Indosat is one of big cellular telecommunication operators in Indonesia, have to give the best service for their costumers. To reach that goal, PT.Indosat must increase their service. One of the way is to using MPLS system in their backbone network. Hence, it is necessary to analyze about the quality of service in their network.

Multi Protocol Label Switching (MPLS) is one of the data forwarding method through the network which using the information that attached IP packet. But IP network has a weakness in QoS implementation. MPLS has ability in traffic engineering and routing technic that can increase network optimization.

In this final project it will be compared between routing modul with delay, packet loss, and throughput parameter in MPLS network at PT. Indosat by making the simulation using NS-2 simulator. This final project have two scenario. In first scenario, there are four node which have functions as sender dan receiver which is two node for voice traffic and two node fore data traffic. And in second scenario, it will be added with video traffic and then analyzed just like the first scenario.

From the simulation and the analyze, it can conclude that in small traffic, the output from QoS using OSPF routing algorithm is better than RIP routing algorithm. And for crowded traffic (added the video on demand traffic), using the routing algorithm has not affect, this because of traffic density that cause the collision and in every node (router) in the network.