ABSTRAK

Quality of Service (QoS) is an important thing that must be considered in a communication system. Many considerations that need to be considered in quality score well on the network. To improve the network performance that can be done include differential service, resource reservation protocol (RSVP), multi-protocol label switching (MPLS), and the use of routing management.

Multi-Protocol Label Switching (MPLS) VPN (Virtual Private Network) is a method of forwarding data over a network by using the information in the labels attached to the IP packet. With the type of routing is applied to the MPLS VPN network, expected to be able to provide increased value of the QoS on the network .. Since the demand for exchange of information through the Internet continues to increase rapidly, MPLS network offering traffic-engineering functions are efficient, so the need for MPLS VPN is also rising rapidly. OSPF (Open Sorthes Path First) is a kind of VPN MPLS IP-Based VPN which provides ease in expanding the customer location because it has a peer relationship between the to-peer PE router (Provider Edge) routers and CE (Customer Edge) to customers.

In this final task will be to implement an MPLS-VPN technology in a small network of hub and spoke topology using GNS3 as MPLS Router. The result of this implementation is expected to provide a description of MPLS-VPN technology itself.

From the results of testbed conducted in the laboratory obtained results that the use of MPLS could produce a better QoS. Viewed from the results of throughput, delay, packet loss, and jitter is derived from the network using MPLS-VPN technology has a better value than OSPF network without MPLS.

Keywords : MPLS, MPLS-VPN, OSPF, HUB,SPOKE