

ABSTRACT

Today's communication system growth is able to develop network system to carry various traffic such as voice, video, and data with different packet size each. In order to find out this communication system ability and quality, it needs to evaluate the QoS (Quality of Service) of network. Many considerations that need to be observed in order to get good quality in the network. Provide more bandwidth is one of many alternatives, but this does not increase network efficiency, because traffic which crosses the network is not always big. Increase network performance is able to be done by doing improvements such as differentiated service, resource reservation protocol, multiprotocol label switching, and routing management.

One of network technology growths is MPLS, this technology has forwarding methods across another network using information in labels which are stuck on IP packets. By using OSPF routing in MPLS network, MPLS is expected to increase network QoS. One of MPLS services is VPN (Virtual Private Network). This service implements a network across another network which is bigger and usually provides rental and security services to provide that network.

Traffic engineering is an extension that is able to make VPN MPLS more efficient. By using VPN MPLS TE, before packets are delivered to the destination there is a mechanism to evaluate network conditions, how is the bandwidth condition, whether the link is full or not, then do the route mechanism.

This project does analysis about how much MPLS TE affected VPN QoS performance and compares it with VPN that only uses MPLS with video traffic and background traffic which has varied lengths. Network QoS performance parameters which will be analyzed are delay, jitter, packet loss, and throughput.

Keyword: MPLS, MPLS TE, MPLS TE VPN, OSPF, delay, jitter, packet loss, throughput