

ABSTRACT

The development of telecommunication and information technologies in the working space needs a network that provides the traffic service for data sending purposes in high speed, the problem of data speed often occurred in computer networks. Therefore, the network performance can be enhanced by using MPLS, because MPLS is a data forwarding method that use information on labels attached on an IP through a network. This technology needs the concept of VPN which is a form of private internet through a public network. With the use of VPN technology, customer is able to interconnect with other vpn through a virtual tunnel between two nodes so that data transmission will be guaranteed while communicating. The Traffic Engineering feature on MPLS can move a traffic link that has congestion avoidance, therefore a link can be moved to an empty link. The MPLS VPN TE technology is the solution in increasing security and choosing the best route in a network.

Integrated service is one of a QoS model for bandwidth controlling problem on a network that is needed for MPLS VPN-TE technology for stability of network. Open IMS Core is a multimedia service server that is used on MPLS VPN TE technology by considering Quality Of Service on voice, video, and data service where the size of packet is different. The parameters used on Quality Of Service are delay, jitter, throughput and mean opinion score. The usage of BGP protocol is a type of routing that is expected to do an exchange of routing information by mapping an IP table network inter-Autonomous System by giving Qos enhancement on a network

In this final project, the author implements MPLS VPN TE on Mikrotik Router. The test result of Traffic Engineering feature on MPLS VPN network show improved 27,44 % in delay for Voip services, 11,14% for video call services. For Throughput parameter showed a improved 6,13% for Voip service, 56,6 for video call services. For jitter parameters result < 1ms.

Keyword: MPLS VPN, MPLS VPN TE, *Integrated Service*, QoS, OpenIMSCore,BGP