ABSTRACT

Direct communication with all the progress that technology based on IP (Internet Protocol). This technology will make users can connect remotely to the appropriate quality standards and relatively low prices. IP-based communication is strongly influenced by the delay, packet loss, and other parameters. On the other hand voice and video communication should be realtime and reliable. This final project will tested the feasibility of voice and video services that flow on IP-based network.

Multi-protocol label switching (MPLS) is a method of forwarding data over a network using label information attached to an IP packet. With this type of routing that applied to the MPLS network, MPLS expected to be able to provide increased value QoS on the network. Multi-Protocol Label Switching-Traffic Engineering (MPLS-TE) is a technology that offers Traffic Engineering capabilities in MPLS technology. It is very efficient to optimally utilize network utility. This is done by utilizing a low utility lines as a transmission line so that the package can minimize the queue at the router.

In this final implementation done using MPLS-TE router Mikrotik RB750 with video conferencing services. Testing was conducted on the measurement of QoS parameters such as delay, packet loss, jitter, throughput at the client side. From testing and analysis of the results showed that the use of MPLS-TE can result in better QoS. From delay measurement, using MPLS-TE network for video conferencing services has better delay for average of 2.86 ms. For the use of MPLS-TE throughput has greater throughput as much as 0.616 Mbps. Packet loss decreased by 84% and MPLS-TE has 4.76% lower jitter. From the implementation and results showed that MPLS-TE produce a better QoS than the original MPLS whether in a normal link or failure link.

Keywords: Video Conference, SIP, OpenIMSCore, MPLS, MPLS-TE, QoS