

## ABSTRACT

Performance of the Quality of Service (QoS) is very important in a communication system. Many of the considerations that need to be considered to get good quality on the network. Procurement of a large bandwidth is one alternative, a way enlarge the bandwidth does not mean improving the quality of the network because it will make the traffic be bigger. One way to improve the quality of the network that can be done, among others, Differential Service, Resource Reservation Protocol (RSVP), Multi Protocol Label Switching (MPLS), and the use of routing management.

In everyday life we always need it for streaming services such as street highway traffic monitoring, security cameras, communications and entertainment. Multi-Protocol Label Switching (MPLS) is a method of forwarding data over a network using the information in the label attached to the IP packet. With this type of routing is applied to the MPLS network, expected to provide increased value to the network QoS for MPLS traffic-engineering functions offer an efficient way to accelerate the pace of data. By increasing the number of multicast features users will have no effect on this quality.

The results of measurements with 50 Mbps background traffic can see that MPLS-VPN multicast has the smallest delay that is 2015,671 ms. Besides it is also the value of 0.911685 Mbps throughput and packet loss generated is 2.100581% and jitter is not fixed. It can be concluded that the lack of stability delay in GNS3. Multicast mode MPLS-VPN is a good choice when applied to the dense traffic conditions such as live streaming service with background traffic up to 50 Mbps. Users actually feel the difference Multicast-VPN MPLS services, it is evident from the spread of satisfaction polls. Of scale values from 1 to 4.5 can be seen that the MPLS-VPN multicast has the score 4.2957 to customer satisfaction issues.

Keywords: MPLS-VPN, QoS, WLAN, and MULTICAST