

ABSTRACT

Multi-Protocol Label Switching (MPLS) is a method of forwarding data over a network by using information in labels attached to IP packets. The selection of the right routing protocol on the MPLS network is very important so that the network that is made becomes effective and efficient and is expected to be able to provide an increase in the value of Quality of Service (QoS) on the network. In this final project will use the routing protocol Open Shortest Path First (OSPF) and Intermediate System-Intermediate System (IS-IS) based on IPv6 network with MPLS VPN technique. Where the two protocols will be implemented in GNS3. The service used is video streaming. The service is added to the duration and quality of the video so that network conditions become like the real network. Quality for additional video ranging from 360p, 480p and 720p. While the duration used starts from 3 minutes, 5 minutes and 7 minutes. QoS parameters used: throughput, delay, jitter, and packet loss. The results of this implementation are expected to provide an overview in choosing the right routing protocol on the MPLS-VPN network. In the study, it was found that the OSPF routing protocol was better than the IS IS routing protocol, referring to the results obtained in this study. It can be seen in the difference in the OSPF throughput value of 58.984 Kbps. The OSPF delay value is 0.184 ms. In the video streaming service, the jitter of the OSPF value is 305.884 ms. The packet loss value for OSPF and IS-IS is the same, namely 0.00%.

Keywords: MPLS-VPN, GNS3, OSPF, IS-IS, QoS