

ABSTRACT

Video streaming is a service that allows a server to send video to multiple users in a network. For example, video streaming services can be used for long distance learning. To provide long distance learning requires a network that can maintain client privacy and provide QoS guarantees. This can be overcome by tunneling on the network technology of Virtual Private Network (VPN). But this has the disadvantage of tunneling network complexity and high cost of the device used. Thus was born the technology of Virtual Private LAN Service (VPLS) which can solve the problem. With the addition of multicast in VPLS technology is expected to improve the QoS services that have point-to-multipoint characteristics such as video streaming.

In this final project, Multicast VPLS network for video streaming service is tested. Scenario of the testing is conducted, among others, to compare the performance of the OSPF network and VPLS, and the effect of implementation of multicast in VPLS, the influence of variations in bandwidth, bitrate variations, and variations in the number of clients that access the streaming video service.

From the results of the testing and analysis of system implementation Multicast VPLS, VPLS network is obtained which has a better QoS than OSPF network because it can reduce the delay up to 20.03%, increase throughput up to 23.13% and reduce packet loss up to 79.91%. The addition of multicast technology is proven to increase the performance of the VPLS network can reduce the delay up to 25.66%, increase throughput up to 34.27%, but the packet loss generated by multicast is larger that has up to 3.54% difference compared to unicast. Then the bandwidth, bitrate, and also the number of clients that access a streaming video service shown to affect the performance of multicast VPLS network for video streaming service.

Keywords: QoS, MPLS, VPLS, Multicast, Tunneling