

## ABSTRACT

*Packet-based communications technology currently growing very rapidly to meet the needs of the users of the ever-increasing and diverse. One packet-based communications technology that continues to undergo development currently is Internet Protocol Multimedia Subsystem (IMS). The IMS has a variety of services, one of which interest is Internet Protocol Television (IPTV).*

*However, a problem that is owned by the IMS is the need to secure the private network data, so it needs the technology of Virtual Private LAN Service (VPLS). The network formed by the presence of VPLS can work the more perfect with the techniques to maintain links or commonly called by the Virtual Router Redudancy Protocol (VRRP).*

*VRRP mechanism will arrange the route data packets so that when the master router is experiencing interference, routes will be diverted via other routes, this process is commonly referred to by the router back up. The existence of this VRRP, expected technology VRRP can make network will be more reliable.*

*This last task will be made on testing performance against network Multicast VPLS on OpenIMSCore. Scenario testing is done among other things by looking at the comparison of network performance that use VRRP technology and without using VRRP, that is by checking the QoS parameter values, i.e. one way delay, jitter, throughput, and downtime.*

*From the result of testing and performance analysis of Multicast VPLS network will obtained the results that the network using VRRP technology will have better QoS than the network without use VRRP. There is an improvement of 38.76% at 0 Mbps for 1 Client and 33.79% for 2 Client. This is because the VRRP technology has a redundancy feature so the VRRP network can be well maintained.*

**Keywords: QoS, VPLS, VRRP, IMS, IPTV, Multicast, OpenIMSCore**