ABSTRACT

Demand for multimedia services is increasing and make traffic on the network more dense. The need of bandwidth also increasing, so it must use a different method of sending data. Unicast data transmission method is no longer an option, because it is not efficient. Multicast become the method to send data, when using multimedia services, because the traffic is send only to certain group, thus improving efficiency in use of bandwidth. Redundancy protocol is used to create High Availabilty in network, so host will get better service

Implementation of multicast network can be done with routing protocol like Multicast Open Shortest Path First (MOSPF), Distance Vector Multicast Routing Protocol (DVMRP), or Protocol Independent Multicast (PIM). In this final task, Protocol Independet Multicast Sparse-Mode (PIM-SM) is used. Redundancy protocol used is Gateway Load Balancing Protocol (GLBP). This protocol has unique feature besides its main function as gateway redundancy, it also has load balancing feature.

In this test, the result are load balancing feature in GLBP protocol didn't work with PIM-SM protocol, because of only the designated router can send PIM-SM packets. End-to-end delay and jitter achieved in this test have satisfied the ITU-T G.1010 standard, which is under 10 seconds for end-to-end delay and under 1 ms for jitter. Downtime achieved for VRRP was 94.423 seconds, 92.108 seconds for GLBP, and 15.411 for VRRP after optimization. Audio streaming service is used in this final task.

*Keywords :*Multicast, *Redundancy Protocols*, PIM – SM, GLBP