ABSTRACT

To create and improve the quality of network services, a reliable and resistant network is needed, especially trouble with network links. A redundancy network system is needed, which is a technique by providing two or more connection links, where if one of the lines is interrupted or dies, the connection will continue to run supported by other backup links. The system developed in this study tries to provide a solution to this problem by building a network redundancy and failover system mechanism using the OSPF Loopfree-Alternate Fast Reroute method. The scenario for testing redundancy and failover networks with the OSPF Loopfree-Alternate Fast-Reroute method will use 3 end-to-end transport links, where 1 link serves as the primary path and 2 other links as secondary links. The network will be tested for 5 trials using 1,000 bytes ICMP packet data will be sent 50 times per trial. Based on measurements with QoS packet loss ratio parameters, redundancy and failover network systems using the OSPF Loopfree-Alternate Fast-Reroute method are able to minimize packet loss ratios of only 12.3%, which are included in the good category with an index of 3 TIPHON and the required failover time is only about 204.1 ms. In the application of scenario 2, and in the application of scenario 3, the redundancy and failover process using another backup path with the OSPF Loopfree-Alternate Fast-Reroute method has a packet loss ratio value of 10.56% and the failover time to another backup path is around 1024 ms. While the network without using the OSPF LFA-FRR method has a packet loss ratio value of 18.64% and a longer failover time of about 6,241 ms.

Keywords : QoS, Redudancy, OSPF, Fast Reroute