

ABSTRACT

With the increasing demand for the internet, telecommunications service providers are required to provide a telecommunications network infrastructure system that is capable of continuously improving the service system. One of the problems that hinder the availability of the service system, namely the disconnection of the internet connection is one of the factors that hinder the telecommunication service system. To be able to minimize the occurrence of this obstacle, one method that can be used is to implement a redundancy link and failover system by creating a backup path. The system developed in this study tries to provide a solution to this problem by building a redundancy and failover system mechanism to prevent a single point of failure on the service layer 2 VPN network with the fast-reroute MPLS traffic engineering method, the MPLS-TE network will use 3 paths. LSP, this network will be tested with data traffic flowing using an ostinato traffic generator as many as 200,000 data packets with 5 trials each will be sent with ICMP, TCP, and UDP data packet types. Implementation results In scenario 1, QoS results with packet loss ratio parameters show that the average value of the poor has an index of 1 based on the TIPHON category, with an average value reaching 100% and a failover time of 0 s on all types of data packets tested. In testing scenarios 2 & 3, the QoS results with packet loss ratio parameters show that the average value is very good, has an index of 4 with a value of 0.02% - 0.04% for testing the TCP packet data type, and the average value is very good. good with index 3 with a value of 5% - 6% for testing the ICMP packet data type, and the average score is bad with index 1 having a value of 40% - 50% for testing the UDP packet data type. For scenarios 2 & 3, the average failover time is around 10 s or about 10,000 ms.

Keywords : QoS, Redudancy, Failover, MPLS, Fast Reroute