

ABSTRACT

NETWORK PERFORMANCE ANALYSIS OF MPLS L3VPN USING OPENSOURCE ROUTING FRRROUTING ON GNS3

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The need for the internet collectively or together in offices is urgently needed at this time because of the development of an all-digital era, gateways and routers play an important role in exchanging data in offices because a router is a device that functions to forward packets from one network to another network. Routers also have many types, there are open source and closed source where the use of open source routers can be an inexpensive solution for building servers and meeting internet needs collectively in office areas, open source routers that have implemented dynamic routing, one of which is FRRouting. FRRouting is a high-performance tool that can handle internet tables easily and can also run on a personal computer without having to use devices such as close source routing. In the digital era, it is indeed easier to exchange data, but data security in exchanging information must also be considered. To anticipate this, MPLSVPN can be used to create network infrastructure. That way the authors carry out an analysis to measure MPLSVPN network quality on an open source router, namely FRRouting, using the TIPHON standardization using delay, jitter, and packet loss as a reference to determine the quality of the tested network. The results of network testing obtained in the TIPHON standardization have a low delay value where the highest delay for the UDP protocol is 1.658ms and TCP is 88.8ms where these values fall into the very good category. And the jitter obtained is also in the good category with a value of 0.4615ms. And the throughput obtained is also more than 75% of the bandwidth indicating that FRRouting can forward packets properly. In this study, no lost packets were found, which means that the packet loss parameter has a value of 0% and is included in the very good category.

Keywords: *FRRouting, QOS, Routing, Open Source, MPLS, MPLSVPN*