

ABSTRACT

In this digital age, much more devices that require the use of IP address. A fewer IPv4 allocation of the required network protocol, cause IPv6 will replace IPv4. Therefore it require a necessary mechanism for connecting networks with IPv4 or IPv6 network that can be passed or be shared by network protocols IPv4 and IPv6 network protocols. One of the mechanisms that may be used is a dual stack mechanism. With such a mechanism, the data packets in IPv4 network and the IPv6 network can be passed on the same network.

The goal in this research is to analyze the interconnection network between IPv6 and IPv4 with dual stack mechanism. As well as investigating the performance and analyze the performance of the two routing protocols OSPF and RIP. Which routing protocols determine the best route for transferring data from one to another node and determine how the router communicate between one and the other. This final project will be focus on the Routing Information Protocol (RIP) and Open Shortest Path First (OSPF), which RIP is a distance vector protocols and OSPF is a link-state routing protocol. The measurements using video calls as a service.

From the test results on the specified scenario, the obtained results comparison of both OSPF and RIP routing protocol on the mechanism of dual stack. Dual stack mechanism does not affect the both of routing, it can be seen from the results of the QoS parameters on a dual stack scenarios before and after the dual stack which has a stable results. Average end-to-end delay for the video call service showed constant returns. An increase in the value of delay is influenced by background traffic on the network. The larger the background traffic, but given the delay value obtained is also likely to rise looks when added to background traffic 25 Mbps to 75 Mbps, the delay between 37 ms to 39 ms, and increased significantly (up to 28 s) when the network is flooded with background traffic of 100 Mbps and 125 Mbps. Increasing the value of this significant delay caused by the link capacity is set only at 100 Mbps. On condition of routing overhead, routing protocols OSPF has a higher value on the whole scenario with the highest value at a link failure scenario that is 12 344% and 3,211% in the RIP routing.

Keywords: Dual stack, OSPF, RIP, QoS, OPNET