

## ABSTRACT

Routing protocol is used to determine the path (routing) from source to destination. the selection of appropriate routing protocol will determine the quality of the information. Each routing protocol has its advantages and disadvantages for each traffic conditions. Therefore, research is needed to determine the appropriate routing protocol.

In this final project analyzes the advantages and disadvantages of the three kinds of routing protocols in order to know which one is suitable protocol is implemented in certain circumstances. The third kind of routing protocol is the Routing Information Protocol Next Generation (RIPng), Open Shortest Path First version 3 (OSPFv3) and Enhanced Interior Gateway Routing Protocol version 6 (EIGRPv6). To do the analysis, the three protocols are implemented using 4 pieces of routers that form a network topology. Implementation is done by using a streaming video application and background traffic in the form of ping packets 65500 bytes per second. The parameters are tested is convergence time, routing overhead, packet loss, throughput, delay, and interarrival jitter.

From the measurement results obtained that overall RIPng is better in terms of delay and interarrival jitter where the difference in value of delay in the first scenario is 0.028 s with OSPFv3 and 0.026 s compared EIGRPv6. While the difference interarrival jitter 0.2459798 ms with OSPFv3 and 0.0828207 ms with EIGRPv6. In the second scenario the difference in the value of the average delay is 0.016 s with OSPFv3 and faster than 0.012 s compared EIGRPv6. As for the difference in value of the average interarrival jitter compared with OSPFv3 is 2.1551134 ms and 0.7115777 ms compared EIGRPv6. For the third scenario the difference in the value of delay with OSPFv3 is 0.042 s and 0.02 s compared EIGRPv6. As for the difference in value of the interarrival jitter 0.418149 ms with OSPFv3 and 0.1312514 ms with EIGRPv6. But the data show that EIGRPv6 better in terms of throughput and packet loss. Difference between the value of the first scenario the average throughput compared to OSPFv3 is 0.0004 Mbps and 0.0024 Mbps to RIPng. While the difference in packet loss 0.022 percent with RIPng. In the second scenario the difference in the average value of throughput is 0.0022 Mbps to RIPng than 0.0044 to OSPFv3.

Keyword :RIPng, IPv6 EIGRP, OSPFv3, IPv6