

ABSTRACT

Metro ethernet is expansion of Ethernet technology with a large scale to cover a single urban area. The goals of Metro ethernet that is building a network with a large scale using existing technologies and known to the public. Some of the advantages of *Metro* Ethernet technology, these include: ease of use, more services, and QoS settings that varying.

This final project will be an analysis of the routing protocols RIPng (Routing Information Protocol next generation) and OSPFv3 (Open Shortest Path First version 3) on Metro Etherne area network in West Java. By using the three services ie voice, video and data (http). Both routing protocols will be tested in two scenarios. In first skenario, observed from the addition of background traffic. And in second scenario, the effect of failure link. This scenario is modeled and simulated using OPNET 14.5 education version.

The simulation results OSPFv3 and RIPng routing protocol, for the first addition of background traffic scenarios, the results obtained are: voice service in OSPFv3 throughput (5.75Kbps), packet loss (1.91E-06%), delay (60.5ms), jitter (2.8ns). While with RIPng the throughput obtained (5.68Kbps), packet loss (3.86E-06%), delay (60.5ms), jitter (2.87ns). In OSPFv3 video service throughput (2.708Mbps), packet loss (3.45E-05%) delay (4.39ms), the throughput obtained using the RIPng (2.704Mbps), packet loss (3.8016E-07%), delay (4.3ms) . In OSPFv3 HTTP services obtained throughput (753.88bps), packet loss (39%). By using the obtained throughput RIPng (778.897bps), packet loss (35%). In the second scenario failure link, prove that OSPFv3 faster updating routing is 105sec and 117sec on RIPng, on the failure link 100sec, causing OSPFv3 superior throughput compared with RIPng.

Keyword : OSPFv3, RIPng, *Metro* Ethernet, opnet 14.5