ABSTRACT

In modern telecommunication era, network backbone is the most important thing to provide connectivity among every telecommunication services. Reliable national backbone with high bandwidth and bit rate is really needed. For users who need fast data connectivity in distant, the best media to use is fiber optic, because it has very high speed connectivity and very low delay.

Metro ethernet network is metro data communication network which use ethernet as its data transport protocol. Metro ethernet technology is a development from city metro ethernet equipped by many features found in general ethernet. Metro ethernet network has high reliability supported by fiber optic backbone. To prevent backbone from accidental link failure or data overload, backup backbone is created in Bandung which make costumers won't notice any interruption if any disruption appears. In this Final Assignment, an existing network performance is measured and a PT. Telkom metro ethernet network simulation is done. Simulation is done by Network Simulator-2 software. QoS parameters measured are throughput, delay and packet loss.

From Alcatel-Lucent core network measurement, it is known that maximal bandwidth utilization is 0.551% , mean delay is 1.03ms and mean delay is 1,1624 ms. Whereas backup backbone link measurement shows maximal bandwidth is 0.4%. Therefore, it is concluded that backbone network core will be saturated if user amount in simulation reaches more than 5000 and network disruption reaches 80%. So that, creating a backup backbone is really important to increase costumer's satisfaction.

Key Words : backup backbone, Metro ethernet, QoS parameters