ABSTRACT

MetroEthernet is a technology that used nowdays to fulfill of demand for build telecommunication network to connect some enterprise/instansi where separated by geography. A network with fast access and good ability is a condition to fulfilled to get the customer used the network not disappointed. To provide network (*metro ethernet*) many things should be consider, specially from the technology will be used at transport network. RPR (*Resilient Packet Ring*) and MPLS (*Multi Protocol Label switching*) are the technology hopped can be a solution.

At this final task, designed two *metro Ethernet* network and simulated use a network simulator (NS-2). First network use *MPLS* technology in network transport and the other network use RPR technology. In this case the data which sent are VoIP and generator traffic CBR (scenario I) and at scenario II added background traffic FTP use transport agent TCP. The aim of the research is to compare the *QoS* both of the network where it can used as reference to provide network at metro area specially to determine the technology at transport network.

From the simulation and analisys, got highest delay value for MPLS network is 26.648 ms and RPR the highest delay value is 48.318 ms. For jitter, the value where got in MPLS is 3.498 ms and *RPR* the value is 9.076 ms. The highest value of Packetloss for MPLS is 1% and for *RPR* is 47.124%. For throughput value, the highest from simulation at MPLS reach 0.488Mbps and for *RPR* reach 0.455Mbps. For any parameter still show a good value because equal with the standard. But at *RPR* for packetloss and jitter not appropriate with the standard.

Keywords: MetroEthernet, MPLS, RPR, and Quality of Service