ABSTRACT

Computer network nowadays has changed all aspect in the world, for instance we use it to get information when we are at school and we use it for communicating with each orher. Moreover, with internet we can make the process easier, faster and more useful. As in the Telkom University Dormitory Area, the internet network cannot be made only to the extent that it can be used, but it requires topology design, IP configuration and routing protocol configuration so that it can be used properly without any obstacles and disruptions to the connection.

Therefore a new network design was created for Telkom University Dormitory Area. The author designed that new network so that it can be a basic reference for use. By using Star Ring Topology combination which has different function. Ring topology can be used for outer network and star topology is for user networks, choosing a Star combination Ring topology is to avoid collisions and increase availability. OSPF and EIGRP are the types of routing protocols that the author uses in this new network design.

Based on new network research's result, the value of QoS index which was obtained by using OSSPF and EIGRP protocal in Cisco Packet Tracker is "really good". The smallest OSPF delay value IS 31,96ms and the biggest is at 160,58 ms. While the smallest EIGRP value is 31,82 ms and the biggest is 160,59 ms. For Jitter value of OSPF, the smaleest is 2,27ms and the biggest is 4,80 ms. While at EGRP the smallest is 2,02ms and the biggest is 4,73 ms. The results of measuring the value of throughput with OSPF are the smallest 6.23 KBps and the highest is 31.29 KBps. For the measurement of the value of throughput with EIGRP, the smallest is 6.23 KBps and the highest is 31.43 KBps. The amount of Packet Loss which was obtained with OSPF is 0% while with EIGRP the lowest is 0% and the highest is 2%.

Keywords **:** *Computer Network, Routing, Topology, Quality of Service.*