

ABSTRACT

Telecommunication technology has developed rapidly as the society's need of social interaction with each others. Telecommunication network is also developing and it is enlarged to fulfill this society's need, especially metro ethernet network which is being developed.

Therefore, network performance with metro ethernet technology is necessity to be analyzed. One of them is *congestion control* impact analysis of that network.

Network data which use metro ethernet technology have to be obtained for analyzing its effect of network performance. QoS (Quality of Service) parameter and Fairness Index are analyzed to observe performance of this control algorithm impact. In this research it is used TCP-Vegas, TCP-Hybla and TCP-New Reno algorithms.

In this final task overall, node changing affects QoS value and Fairness Index because each TCP by its algorithm with congestion control mechanism managing window, flow, slow start, congestion avoidance, and fast recovery when the congestion is conducted. Delay values which is reached by three of TCP are still be tolerated because standard value of ITU-T G.114 is less than 150ms. Extreme value is obtained when background traffic is 80%. Extreme indication could be seen at packet loss. For TCP Vegas its value is 69.7479%, TCP Hybla is 71.4829%, and TCP New Reno is 71.6842%.

Key words: network, metro ethernet, performance, *congestion control*, QoS, fairness index