ABSTRACT

Triple Play is a form of communication that will need very high. This is communication involving all types of communication in the form of data, voice, and video. Therefore, various research and technological development carried out to create a new technology that all types of communication can be carried in a carrier medium in a wide range of areas.

Computer network is a system consisting of computers and other network devices that work together to achieve a common goal. Computers that are connected in a computer network must use communication rules (protocols) are equal. This meant that each computer can communicate well with other computers. Protocol with the International Standard is TCP / IP (Transmission Control Protocol / Internet Protocol).

Queuing management can be interpreted as effort of arrange of congestion and lessen delay at node network. Of course, it will improve performance of network. Queuing management that used in this research are FIFO *(First In First Out),* WFQ (*Weighted Fair Queuing*), PQ (*Priority Queuing*) and MWRR *(Modified Weighted Round Robin)*.

In this final task, simulating the Metro Ethernet network that can serve the needs of Triple Play in OPNET Modeler 14.0 are used different queuing management, different routers, different number of client and different buffer size. Then, analyze parameters of performance such as throughput, delay, packet loss, and jitter is obtained from simulations.

On CS12410 router with 60 number of client, MWRR queuing management and 1000000 bytes buffer size, delay is 0.085428 sec, jitter 0.03648 sec, packet loss 0.452284946% and throughput 69578588.92 bps.

Keywords: Metro Ethernet, Triple Play, throughput, delay, packet loss, jitter.