ABSTRACT

Triple play is the integration of services that include voice, video, and data. Triple play service provides the ability for the user to perform communication using the three services simultaneously. Triple play can be built on shared platforms and systems that have sufficient capacity. The simplest implementation is on the network based on Internet Protocol (IP) that supports the wider development than the other network.

The implementation of triple play service is still hampered by the separation of each service with different standards and the needs of a great resource if it is implemented in a single system. The solution of implementation of the triple play services is to combine the services that already exist so that it can provide better load balancing system and not requesting changes to the standard of each service.

In this final task conducted the design and analysis of triple play services on IP-based network. After this implementation, further analysis will be done on the aspects of QoS (Quality of Service) with the parameters: delay, jitter, throughput, packet loss, and MOS. Analysis based on the results of the pilot service voice, video, and data from user to user with some variation in background traffic. At the end of this task also tested the performance of the server based on CPU utilization and memory usage.

From the test and analysis, it is obtained that maximum background traffic allowed for triple play service is 90 Mbps. In this level of background traffic, voice service has a MOS value of 4.081 means that the network has built has level of satisfaction: SATISFIED. Video server that was built has a capacity of 25 simultaneous video call session, or 5 simultaneous video conference sessions. Meanwhile, the VoIP server has call handling capacity up to 550 calls.

Keywords: **triple play, IP-based networks, QoS, delay, jitter, throughput, packet loss, and MOS.**