

## ABSTRACT

IP Multimedia Subsystem (IMS) is a telecommunication network architecture based on IP (internet protocol) multimedia. The concept of this technology is controlling the session of each services. The abilities and ease of IMS, which are integrating many multimedia communication services, QoS guarantee, handling many session (multiple session) in communication process, make IMS as the solution of future communication demand.

Quadruple play is an integration service included voice, video, and data presented with wireless communication. Quadruple play service give ability for user to communicate using the services with only just once registration and one account. Quadruple play service is suitable implemented on IP Multimedia Subsystem because the architecture is designed for the needs of multimedia communication based on IP (internet protocol) which support easier and wider development.

In this final project, implemented and analyzed quadruple play services on existing IT Telkom network. From this implementation, will be analyzed the aspect of QoS (Quality of Service) with delay, jitter, throughput, packet loss, and MOS parameters. Analysis based on the result of voice service, video service, data service testing from user to user with adding various background traffic on available bandwidth link. In this final project, also test server performance by seeing CPU utilization with a number of simultaneous call per second.

Based on testing and analysis, gotten better result of QoS and MOS on intra subnet communication than inter subnet. Adding maximum traffic, which is allowed for quadruple play services on inter subnet communication with available bandwidth  $\pm 19$ Mbps, is 17 Mbps. Whereas, for inter subnet communication with available bandwidth  $\pm 18$ Mbps allowed adding maximum traffic is 10Mbps. With that condition, the lowest MOS got is 3.72 which means the build network have high level of service satisfaction although the given traffic is maximal for the available bandwidth. Whereas OpenIMS Core server can handle call simultaneous total as many as 30 calls/per second.

**Keyword :** *IMS, Quadruple Play, Voice, Video, Data, Wireless Communication, QoS, dan MOS*