

Abstract

IP Multimedia Subsystem (IMS) is a telecommunications network architecture based on multimedia IP (*Internet Protocol*). Implementation of *IMS* in *Metro Ethernet* networks in general have a chance in terms of increased *revenue* from the competitive climate of intense competition with the price of multimedia services and Internet access are likely to decline and grow into a commodity consumption. This has resulted in gains of diminishing *carrier*. Therefore, as a pre-causing steps to suppress decrease in revenues, telecommunication operators have to seek and identify new services, that is *IPTV* services which is using the already available network. It is expected that customers can enjoy a *fixed telephone* service, speedy *broadband* and *IPTV* uses the existing telephone network with limited bandwidth, but customers can enjoy all three services.

In this final simulated architecture of *IMS-based IPTV* service on PT Telkom's *Metro Ethernet* network Kebalen Surabaya using Network Simulator 2. From the simulation was conducted measurements of QoS Throughput, Packet Loss, Delay and Jitter for analyzing speedy performance-based *Metro Ethernet* network with the addition of new *IPTV* services. Scenario analysis based on distance as the delay from the server to the client with various bitrates speedy service as background traffic, the addition of *users*, *IPTV codec* variants.

From the results by the testing and analysis obtained that background traffic which is allowed in the system is 1 Mbps for 960 Kbps bitrate codec *IPTV* which resulting packet loss 0%, while the background traffic is 512 Kbps with 1152 Kbps bitrate codec *IPTV* generated 0% packet loss. The result has met the standards of cisco packet loss is 1%. The influence of the greater distance is directly proportional to the delay which would increase significantly. Results obtained are still below the maximum limit of standardized ITU-T, Cisco, and Thipon, then the conclusion is a simulation system to function properly and feasible to implement

Keyword: *IP Multimedia Subsystem, Metro Ethernet, IPTV, background traffic*