

## ABSTRACT

WLAN or often called a wireless network or wireless network type of computer network that uses radio waves as a medium for transmitting data. WLAN has been standardized by IEEE 802.11n and there have been several changes. Problems that often occur in wireless networks are signal strength, large delay, and radio propagation problems. This experiment shows the quality of a service (QoS) on wireless networks.

This Final Project uses the Network Simulator 3.26 (NS 3.26) application to detect QoS using parameters of delay, jitter, throughput and packet loss. The simulation is designed consist of five scenarios, namely method A, method B, method C, method D, and method E. The differences in each method are types of services and package sizes for each service. This is done to compare the best highspeed train Jakarta-Surabaya passenger communication services.

Based on the five methods produced, it can be concluded that the delay and throughput for each service are inversely proportional. This is because a large delay causes a small throughput. Based on method A, method B, method C, the best service that can be used is VOIP services with a delay of 2,617 ms and throughput of 0,0075 Mbps. This is because VOIP services have the highest priority level compared to other services. In the D mix service method, the best service that can be used is VOIP vs Data (web browsing) services with a delay of 2,644 ms and a throughput of 0,0098 Mbps. The mix of this services has a better performance than other services. In method E, the delay generated when using a channel is 6,933 ms and throughput is 0,0412 Mbps. This is because there is a reflection of the signal generated from the AP to the user which causes a large delay.

Keywords: WLAN, QoS, Throughput, Delay, Jitter, Packet Loss.