

## **ABSTRACT**

Benefits in IP network and lacks in circuit switch network (TDM) motivate the convergences of all applications become IP based. Softswitch technology is the intermediate between circuit switch to packet switch. Softswitch has a component, called Media Gateway, which has conversion function from circuit format to packet format. Remembering that softswitch network is IP based, bandwidth requirement becomes a problem. Bandwidth utilizing on IP network have to be more efficient compare to TDM network. In other hand, headers in IP network raise the bandwidth up. So, for saving the bandwidth in IP network is used compression technique (codec).

In this final project had done the observation and analyze bandwidth utilization in PT.Telkom because it had not done measurement for bandwidth per channel. For network dimensioning, bandwidth is necessary point that has to be known. This project investigated how the voice data on TDM network turn into voice packet and sending through a softswitch network which is an IP based technology with MPLS as the backbone. Compression calculation consists of G.711 and G.729 where two techniques, Voice Activity Detection (VAD) and Non VAD, were used on each compression. Measurement covers the bandwidth amount, call attempt, QoS parameters such as delay, jitter, and packet loss.

From the measurement and analysis process, it was found out that bandwidth for VoIP is more efficient compare to TDM. Besides, users get satisfied quality voice.

Keyword: Bandwidth, softswitch, VAD.