

## **ABSTRACT**

Telco network (PSTN/ISDN and PLMN) being based on circuit switched with its main element is telephone central have many limitations either from its architecture factor and also its efficiency in resources usage (bandwidth). From its architecture: control element, media element and application are proprietary (vendor dependent) resulting expensive cost and also difficulty in its development. From canal bandwidth usage, since its connection is dedicated which has TDM (Time Division Multiplexing) character, low utility of canal resulting inefficiency.

On the other hand, IP network which its protocol has open system character and switch package mode which more efficient, making IP network is able to rapidly developed, more dominate and it even start to take over the role of PSTN/ISDN, even PLMN or cellular. This application is comprised of Voice over internet protocol (VoIP), multimedia conference, Instant Messaging, and etc, in line with NGN goals. This management function can be done by Session Initiation Protocol (SIP). Security factor is important aspect in information system. SIP with its advantage which is simple (based on text) and easily to develop, but this protocol is not easy to be secured. Being operated by involving many users, intermediate element and other protocol causing security factor is far from modestly.

One method which can be used to increase security factor for VoIP application is increasing and making process efficiency which happened in its application such as firewall, encryption, and secure network become solution to fix it, so that it will be found marginal point between security and good quality of service.

The results of security process from VoIP application above are increase the resistance and constrict space for intruder to exploit VoIP application. Thus, needed more effort, cost, and time to intrude on system.