ABSTRACT

Development of internet has exponential quality into *IP based access network* that support many services and strive for a high of QoS *(Quality of Service)*. VoIP *(Voice over Internet Protocol)* technology is a solution that will change function of PSTN. Protocol in VoIP communication is growth from H.323 by ITU-T into SIP *(Session Initiation Protocol)* by IETF. Because of demand of great network, it need a protocol technique that secure QoS,i.e. RSVP *(Resource Reservation Protokol)*.

In this final task, performance analysis of VoIP communication using SIP as *signal*ing protocol is done. Beside this, it uses RSVP protocol to look a reliability of QoS's increase. Performance's parameters that are used in this final task are *Delay*, *Jitter*, *Packet Loss*, and MOS (*Mean Opinion Score*) calculation.

Result that can be taken from RSVP application in VoIP SIP communication is signifier improvement of performance from *delay, jitter*, and *packet loss* than without using RSVP. *Delay* improvement in using *codec* G711, G723.1, G729 are 62.2%, 43.51%, 44,34%. Beside this, value of packet loss that have been gotten, using RSVP can minimize its percentage $\pm$ 2 %. Analysis of calculation MOS's value result, there is value increase in RSVP application. From simulation result, it can be look that resource reservation cause VoIP likes *connection oriented*.

Keyword : VoIP, SIP, RSVP, *Delay*, Jitter, Packet Loss, MOS.