

## ABSTRACT

GPRS is a radio data packet of communication system service, which based on packet switched frame. GPRS used physical channel in GSM network. In GPRS system additional nodes are needed to integrate in to GSM network. Those nodes are Serving GPRS Support Node (SGSN) and Gateway GPRS Support Node (GGSN).

This final project discuss about the mathematic model to analyze packet delay across GSM/GPRS network. The research method that will be used is exploration method. The obtained data is secondary data which is that has been observe by other person, and then is going to processed with M/M/n/n queue for voice service and M/M/n/K for data service (GPRS). Some fundamental problems that being studied are blocking probability, throughput and delay packet probability

The result of this final project is to see the effect of special channel allocation for the service of GPRS to voice blocking probability, data of blocking probability, voice throughput, data throughput, and delay probability of packet GPRS. Analysis show that the increased of special canal amount for the GPRS result degradation QoS (Quality Of service) GSM and improve the QoS (Quality Of service) from GPRS.

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