

ABSTRACT

Telecommunication Management Network (TMN) System is used to manage Public Asynchronous Transfer Mode network. TMN has 4 hierarchy structural levels which consists of a Network Management System (NMS), some Element Management Systems (EMS), and a few agents and ATM switches.

This final project analyzes the performance of TMN system by using network queue modelling and Jackson's theorem. To assist the performance analysis, A Jackson's network queue modelling is used and numerical analysis and simulation are conducted too.

In this analysis, there are a few parameters which are used as based point for the performance analysis of TMN system, such as: queue length, waiting time, mean message response time, and maximum throughput (utilization factors). Based on those parameters, the result from numerical analysis and simulation are compared to determine the performance of TMN system in PublicATM network. Based on the comparison result, the most efficient number for EMS, agent and switch is 5. So it concludes that a TMN system with 5 EMSs, 5 agents, and 5 switches is a TMN system with optimal performance.

Keywords: ATM, Jackson's Theorem, TMN System, NMS, EMS, Agent, Switch queue length, waiting time, mean message response time, and maximum throughput (utilization factors)