

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in partial fulfillment of the requirement for the degree of Master of Science

**QUEUE MANAGEMENT IN NETWORK PROCESSORS
PERFORMANCE AND QUALITY OF SERVICE**

By

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This thesis conducts an implementation for Random Early Detection (RED) queue as a well known Active Queue Management (AQM) Scheme as well as the Differentiated Services DiffServ architecture by using *ns* network simulator in order to investigate and analyze the performance aspects and the provision of quality of service in queue management mechanisms used in Network Processors. The simulation studies demonstrate the controllability of RED queue occupancy by using thresholds and queue weight parameters, which helps predicting the maximum delay. The effect of granularity on the precision of the measurements of queue length was highlighted. Also, Differentiated Service DiffServ architecture has been implemented to demonstrate that DiffServ can guarantee negotiated values of bandwidth while protecting certain flows from aggressive UDP background flows and prevent the unfair advantages.