

ABSTRACT

Backlog and Occupancy in the $GI/GI/\infty$ Queue. (May 1994)

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This dissertation develops an analysis of the stochastic behavior of a $GI/GI/\infty$ queue. The $GI/GI/\infty$ queueing system is analyzed under the steady state and transient operating conditions. System behavior at arrival epochs is also studied. A unified analytical and computational framework to obtain various performance measures for the $GI/GI/\infty$ queue is presented. The distributions for system backlog and occupancy are characterized in terms of integro-difference equations. These distributional results developed are amenable to straightforward computational procedures. Expression for moments of backlog and occupancy are also presented.