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Quantitative
Modeling
In
Parallel
Systems

The Workload in the $M/G/1$ Queue with Work Removal

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Abstract We consider an $M/G/1$ queue with the special feature of additional negative customers, who arrive according to a Poisson process. Negative customers require no service, but at their arrival a stochastic amount of work is instantaneously removed from the system. We show that the workload distribution in this $M/G/1$ queue with negative customers equals the waiting time distribution in a $GI/G/1$ queue with ordinary customers only; the effect of negative customers is incorporated in the new arrival process.

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