论文

Analysis and Computational Algorithm for Queues with State-Dependent Vacations II: M(n)/G/1/K

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摘要   We study a single-server queueing system with state-dependent arrivals and general service distribution, or simply M(n)/G/1/K, where the server follows an N policy and takes multiple vacations when the system is empty. We provide a recursive algorithm using the supplementary variable technique to numerically compute the stationary queue length distribution of the system. The only input requirements are the Laplace-Stieltjes transforms of the service time distribution and the vacation time distribution, and the state-dependent arrival rate. The computational complexity of the algorithm is O(K3).

关键词   M(n)/G/1 queue, queue length distributio

分类号

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Abstract We study a single-server queueing system with state-dependent arrivals and general service distribution, or simply M(n)/G/1/K, where the server follows an N policy and takes multiple vacations when the system is empty. We provide a recursive algorithm using the supplementary variable technique to numerically compute the stationary queue length distribution of the system. The only input requirements are the Laplace-Stieltjes transforms of the service time distribution and the vacation time distribution, and the state-dependent arrival rate. The computational complexity of the algorithm is O(K3).

Key words   M(n)/G/1 queue   queue length distribution   recursive algorithm   removable server   state-dependent ar

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