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论文

STATIONARY BEHAVIOR OF THE TWO-STAGE TANDEM QUEUEING SYSTEM WITH FINITE CAPACITY AND MATCHED SERVICE

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摘要 The two-stage tandem queueing system M^(x)/M/c→o M^(r) / PH/1/n/K_1/K_2 is studied in this paper consisting of the stage-I service system and the stage-II service system. There are two trees of customers. Type-1 customers arrive at the stage-I service system in batches according to a Poisson process with the batch sizes being r.v.'s ranging over finite positive integers. Type-2 customers arrive at the stage-II service system in batches according to another Poisson process with the batch sizes being a positive integer.The stage-II service system has a finite capacity. One type-1 customer in the stage-II service system, which has been served by the stage-I server, must match n take-2 customers. The type-1 customer and the n type-2 customers are served together as a bulk in the stage-II service system. Only after being served by the stage-II server, can the two type customers depart from the whole system. The Q-matrix of the system state process is obtained, two sufficient-necessary conditions for the system stability are presented, the distribution of ststionary queue length and its algorithms are derived out.

关键词 state process, stationary probability ve

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