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Minimizing loss probability in queuing systems with heterogeneous servers. (English)

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Summary: The probability of losing a customer in $M/G/n/0$ and $GI/M/n/0$ loss queuing systems with heterogeneous servers is minimized. The first system uses a queue discipline in which a customer who arrives when there are free servers chooses any one of them with equal probability, but is lost otherwise. Provided that the sum of the servers rates are fixed, loss probability in this system attains minimum value when all the service rates are equal. The second system uses queue discipline, in which a customer who enters into the system is assigned to the server with the lowest number. Loss probability in this system takes the minimum value in the case when the fastest server rule is used in which an incoming customer is served by the free server with the shortest mean service time. If the mean of the arrival distribution is fixed, then loss probability is minimized by deterministic arrival distribution.

MSC:

90B22 Queues and service in operations research

60K25 Queueing theory (aspects of probability theory)

Cited in **3** Documents