THE M/M/1/K/N INTERDEPENDENT RETRIAL QUEUEING MODEL WITH CONTROLLABLE ARRIVAL RATES

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Abstract

In this paper an M/M/1/K/N interdependent retrial queueing model with controllable arrival rates is considered. The finite source of N customers arrive in a Poisson processes with two arrival rates, λ_0 , λ_1 - a faster and slower rate of primary arrivals which control the arrivals. The service times follow exponential distribution with parameter μ. If a primary customer finds some server free, he instantly occupies it and leaves the system after service. Otherwise, if the server is busy, the arriving customer enters an orbit and repeats his demand after an exponential time with parameter θ. Thus we are assuming that the repeated attempts follow the classical retrial policy. The steady state solutions and the system characteristics are derived and analysed for this model. Numerical results are given for better understanding.

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