A Finite Capacity Single Server Retrial Queue with Two Types of Calls

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Abstract

A single server retrial queueing system with two types of calls type I and type II are considered. Arrivals are according to Poisson processes with rates λ_1 and λ_2 and service time distribution is exponential for both the calls. In case that arriving calls are blocked due to the server being busy, type I calls are queued in a priority queue of finite capacity K whereas type II calls enter the retrial grou in order to get service again after a random amount of time. For this system the joint distribution function of the number of calls in the priority queue and the retrial group in closed from is obtained. The results for particular cases are presented. The optimal value for K is numerically obtained.

Keywords: Retrial Queue, Finite Capacity, Optimal Value, Non-Preemptive Priority.