

On a $M^{[z]}/M^{[b]}/1$ Queueing System with correlated Server Vacations

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Abstract

A queueing system with bulk input following a compound Poisson process and bulk output following the $\min(n \geq 1, b)$ rule for batches is studied. The server vacations, if taken at all, start at time marks t_0, t_1, t_2, \dots of service completions of various batches and are correlated. The vacation periods are assumed to follow a general distribution with an arbitrary pdf. The probability generating functions for the number in the system are obtained for various states of the system and some known time-dependent results are derived in particular cases.

Keywords: Bulk Queueing System, Poisson Process, Correlated Server Vacations, Time-dependent Solution.