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# Multi-Server System With Multi-Threshold Service Policy

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## Abstract

In this study, we consider an M/M/r queueing system with infinite capacity, in which the number of working servers changes depending on the queue length. For such a system, the steady-state probability distributions and the expected number of customers in the system are derived. We also apply such a system to analyze the energy-saving policy in cloud computing data center. The operation of energy-saving policy is that in a data center, we separate the amount of data servers into two groups: the fundamental data server which is always in operation and the reserved data servers which can be switched on if needed. The decision to switch the server on or off are depending on the load level expressed by the queue length of jobs waiting. Some illustrative examples are provided to evaluate and present the effects of average waiting time and average power consumption of the investigated model.

## Keywords
M/M/r queue; average waiting time; average power consumption

## Biography
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