

# Change Point Estimation in an $M/M/2$ Queue with Heterogeneous Servers \*

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## Abstract

The change point problem in the inter-arrival time of an  $M/M/2$  queue with heterogeneous servers is studied here. In this model, it is assumed that the queue is in a steady state and that customers are served by the fastest available server and that there is no transfer of customers between servers. Maximum likelihood estimators are deduced for the arrival rates after and before the change point and for the service rates. Monte Carlo simulation results are presented that attest to the effectiveness and efficiency of the deduced estimators.

**Keywords:** Heterogeneous servers;  $M/M/2$  model; maximum likelihood estimators; change point; likelihood ratio.