

The $M/G/1 + G$ queue revisited

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Abstract

We consider an $M/G/1$ queue with the following form of customer impatience: an arriving customer balks or reneges when its virtual waiting time, i.e., the amount of work seen upon arrival, is larger than a certain random patience time. We consider the number of customers in the system, the maximum workload during a busy period, and the length of a busy period. We also briefly treat the analogous model in which any customer enters the system and leaves at the end of his patience time or at the end of his virtual sojourn time, whichever occurs first.

Key words. Single-server queue; impatience; balking; renegeing; workload; number of customers; busy period; cycle maximum.

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