

An approximation to the distribution of number of renewals in Markov arrival processes

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Abstract

This paper considers the distribution of the number of renewals in time interval $(0, t)$ in Markovian arrival processes. We show that the distribution may be approximated by the distribution of the number of renewals before an Erlang (n) distributed random time with mean t . We show that the latter can be calculated efficiently and provides an accurate approximation of the former when the order of Erlang distribution is high. The accuracy of the approximation improves with the use of Richardson extrapolation.

Keywords: Renewal processes, random time interval.

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