

PH/PH/1 Queueing Models in Mathematica for Performance Evaluation

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Abstract—A review of queueing applications indicates that many researchers have intelligently adapted its theoretical results to develop an easy and effective analytical tool that can be applied to manufacturing system planning. In particular, the PH/PH/1 distribution has been studied extensively for GI/G/1 queue models. We present *Mathematica* programs that calculate algebraically the probability distribution of the system states from the Matrix-Geometric solution procedures of a PH/PH/1 queue with first-come first-served discipline. The advantage in using *Mathematica* packages (1996) for solving a general queueing problem is also described.

Keywords—Queueing theory, Phase-type distribution, Matrix-geometric solution

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