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Mean Value Analysis of Stochastic Petri Nets

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Abstract In this paper we present a Mean Value Analysis (MVA) algorithm for the solution of Product Form Solution Stochastic Petri Nets. Basic to the derivation of such an algorithm are recursive expressions of the performance indices that are a non trivial generalization of those derived for the Mean Value Analysis of multiple class product form queueing networks. In the paper we give a formal derivation of several recursive relations and a details on the implementation of these relations. The advantage that MVA provides for the development

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of approximation techniques is also investigated and a first method that gives satisfactory results is presented.
A few basic examples are evaluated with the techniques discussed in the paper to show the advantages of this approach.