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Quantitative assessment of workflow performance through PH reduction

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Abstract

Copyright © 2016 EAI. Workflows are logical abstraction of processes widely adopted in several contexts. Design and operation of workflows are critical stages where issues not manifested by the single block arise from compositions. To deal with such issues, proper techniques and tools should be implemented as support for workflow designers and operators. This paper proposes a solution for the evaluation of the workflow performance starting from the components' ones. Based on the stochastic characterization of the workflow tasks, phase type distributions and stochastic workflow reduction rules, our approach allows to overcome the limits of existing solutions, considering general response time distributions while providing parametric analysis on customer usage profiles and design alternatives. To demonstrate the effectiveness of the proposed solution an example from literature is evaluated.

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Keywords

Design alternatives, Non-Markovian behaviors, Performance, Phase type, Usage profile, Workflow

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