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Performance Analysis in Semantic Web Services Composition

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Abstract

Nowadays, academic as well as industrial communities focus one part of their research and development activities around semantic Web services composition which is a great challenge problem that should be addressed both from business and technological points of view. Nowadays, there is not yet a defined model to evaluate the performance when semantic Web services are composed into virtual applications. The Web services composition is the ability to provide a new functionality obtained from a combination of several Web services offered by various providers. In this paper, we proposed an approach which ensures a performance evaluation in semantic Web services composition. The proposed system is modelled as a queue network to analyze its performances on a large scale. Thus, the system can be represented by a set of requests (client's requests and semantic Web services developed by several providers). The discrete event simulation is used. We suppose that the arrival process of requests and Web services is a Poisson process and the treatment time of composition is exponential. To validate the proposed model, a simulation program based on Matlab has developed. The analysis and simulation results obtained show that is possible to be used in intra-enterprises and Internet.

Keywords
Modeling and simulation, Services Systems, Systems engineering.