Semantic Web Services Approaches: A Comparative Analysis

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ABSTRACT

"Hyperlinks are legacy and Web Semantics is the future". This statement truly represents the spirit of future web. Web is the ever growing phenomenon and web services are one of the most important ingredients of the Web recipe. Our work-in-progress primarily focuses on the comparative analysis of various approaches for the Semantic Web Services. We are going to summarize the analysis on the basis of various functional and non functional parameters related to the Web Services. We will be delivering our findings in a ready-to-use comparative matrix which may be used by the semantic web development practitioners and the semantic web researchers alike.

INTRODUCTION

Enterprise application unification and Business process management are the heart and soul to run businesses in the current internet era and Web Services are one of the vital technical components, playing an integral role into it. Existing Web Services standards including UDDI, WSDL are playing a pivotal role in the current web services scenario by providing the syntax for development and implementation of the web service but they lack in providing the semantics. Semantics in the web is the key for the future web. Lots of efforts are being made in this direction and various Web Services approaches like WSMO, OWL-S, and WSDL-S are unfolded in the due process. These approaches have their own pros and cons with respect to fulfilling the expected functional and non functional requirements of any working web service. Few of the semantic web services approaches like WSDL-S are evolutionary and are based on the existing WSDL standards. On the other hand semantic web services approaches like WSMO and OWL-S are absolutely revolutionary.

We have selected four predominant semantic web services approaches for the detailed study with respect to the functional and non functional parameters, as expected from any working web service. We are in the process of comparing the WSMO, WSDL-S, OWL-S and SWSF semantic web services approaches on various functional and non functional parameters. Few of the functional parameters under considerations are web service publication, discovery, selection, composition, mediation, compensation, replacement, invocation, orchestration, choreography etc. Few of the non functional parameters on which we are focusing the comparison are robustness, availability, scalability, security, network-related QoS, transactional, performance, trust, reliability etc.

RESEARCH GOALS

Semantic web industry confronted with various Semantic Web Services approaches in its day to day development and implementation processes. We believe that this area is bit diverged. Our research is targeted to understand all the predominant semantic web services approaches and to compare all of them with respect to functional and non functional parameters. In the process we will come out with a detailed comparison matrix. We believe that our research findings will surely help the semantic web industry to take a big leap into the next generation of the web services.