

Design and Development of a Planning System Based Web Service Composition Mechanism for an SOA Platform



J. Jona

jona.girl.johnson@gmail.com
Ph. No: 0 95384 05855

Student's Name J. Jona CSN (FT-2012)

Academic Supervisor(s) E. Ami Rai and Y. S. Yerragudi

Industrial Supervisor(s)

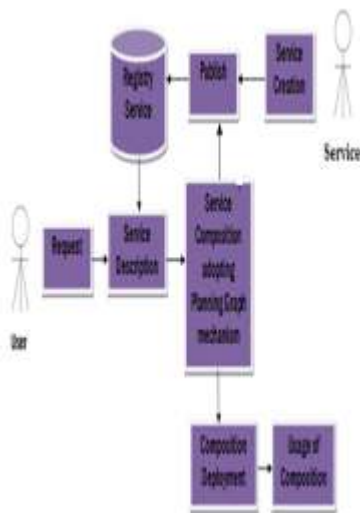
Keywords: Web Service Composition, SOA

Abstract:

In an SOA platform, a single Web Service can respond to its service request if and only if it provides the requested service. In certain situations, a required service may be provided with a combination of pre-existing services. However, the requester will be aware of existing services and cannot dynamically compose services based on existing services. To resolve this problem, Web Service Composition is considered wherein the correct Web Services are chosen and composed to meet the need of the requester. To develop the Web Service Composition, few algorithms are considered in order to compose the services and get the desired service as output by integrating this composition mechanism with the SOA which is the ultimate aim of this Project.

In this project, a planning system based web service composition for a SOA platform is designed and developed. A literature survey was done to identify the algorithms that are available for the composition of Web Services, amongst which Planning Graph Composition was chosen as it gives a composition solution with the removal of redundant Web Services and maximizes parallelisation. Pre-existing open source implementation of planning graph was adapted to provide composition as an enterprise service. To enable core Java implementations to serve enterprise level Web services, these implementations were integrated with a Web service and a persistence layer that maintains the available set of services. Facades were developed to abstract the persistence layer and provide object storage and retrieval functionality. The Web Service Composition services were published onto the registry as two Web Services: The Publisher service maintains the repository of available services on the SOA platform. The WSC service uses the knowledge of available services in the database and provides a planning graph composing these services for a given pair of input and output concepts.

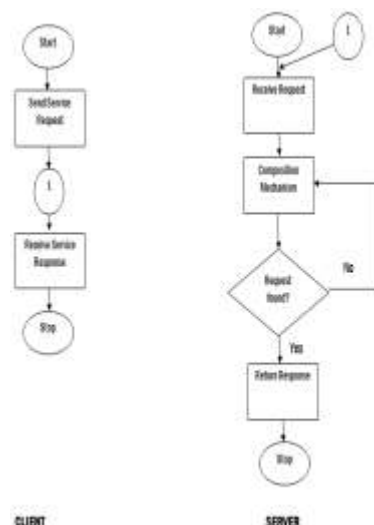
This project was successfully tested by running the JSP files created on the Client side which composes the services according to the inputs provided by the Service requester and responds back the request and also various test scenarios is evaluated. The response time shows variation from 3 ms to 8 ms for each level of composition and gives a planning graph by doing a back tracking. This can be made automatic by using reflections which is a recommendation for future work.



Over view of system



Services published on registry



Server client interaction