

Dynamic Web Service Composition Using Semantic Web

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ABSTRACT

Composing existing web services to deliver new functionality is an important requirement in many business domains. Service composition extends the notion of service discovery by enabling composition of existing web services to meet the requirements of a given high-level task description. Dynamic web service composition allows dynamic service discovery and composition of existing web services into a high-level web service at runtime. A dynamically composed web service becomes more reliable when it supports automatic replacement of a service component when the service component fails at runtime.

This project focuses on developing an ontology-based dynamic web service composition approach that uses Web Ontology Language (OWL) to register, query and dynamically invoke composed web services. The composition logic is defined using workflow constructs that supports reasoning at runtime. We demonstrate the invocation of a composed web service using a simple application where a service client discovers and invokes a composed web service at runtime. The service invocation procedure involves resolving the components of the composed web service, querying using the semantic description of the components, selecting the best matched web service for each component, and executing the composed web service according to the composition logic.