Automatic Discovery and Composition of Semantic Web Services Using AI Planning and Web Service Modeling Ontology

Abstract

In order to realize Service Oriented Architecture computing, Web services are the preferred standards-based way. One of the recent critical issues is automated composition of Web services. A number of approaches have been proposed to resolve the problem. However, discovery and composition of Web services have been neglected by majority of those approaches. In this article, we propose an approach called AIMO, based on AI-planning and Web Service Modeling Ontology (WSMO), which are adapted and extended to tackle the mentioned problem. In addition, we propose a translator to provide interaction between WSMO and AI-planning. We start with presenting the AIMO architecture which shows all components of the proposed approach. Moreover, we have implemented some parts of the AIMO. Finally, an experimental validation has been done using a complex case study, in order to evaluate the efficiency and effectiveness of the proposed approach. Based on these experiments, and the implementation, the proposed approach is useable and performed.