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Semantic Web Services Composition in the Astrophysics Domain: Issues and Solutions

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Abstract

Semantic Web services (SWS) have been hailed for their role in realizing the potential of composing services in the context of service-oriented computing. However, many application domains, such as astrophysics, require a major rethinking of how service composition should take place despit his potential. In this paper, we describe an approach for automatic, user-friendly SWS composition for the astrophysics domain that features certain particularities like correlated or optional inputs, aggregates, and inclusion of non-Web services. The approach selects the best SWSs using non-functional requirements along with users' previous experience feedback and is demonstrated using some real astrophysics services.

Keywords:
Astrophysics, Semantic Web, User feedback, Web Service composition.

1. Introduction

Web Services Composition (WSC) and Automatic Web Services Composition (AWSC) are active topics in the Information & Communication Technology (ICT) community. In a short period of time, those topics made considerable progress with respect to many theoretical studies, but suffer from a limited number of concrete applications that could showcase the usefulness of Web services (Bartalos et al., 2011). Many approaches tackle WSC

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