TOWARDS SEMANTIC INTEROPERABILTY
In-depth Comparison of Two Approaches to Solving Semantic Web Service Challenge Mediation Tasks

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Keywords: Semantic Web, Web services, B2B integration, business process, workflow.

Abstract: This paper overviews and compares the DERI and DEI-Cefriel approaches to the SWS-Challenge workshop mediation scenario in terms of the utilized underlying technologies and delivered solutions. In the mediation scenario one partner uses RosettaNet to define its B2B protocol while the other one operates on a proprietary solution. Goal of the workshop participants was to show how could these partners be semantically integrated.

1 INTRODUCTION

This paper compares two different approaches to semantic integration of a RosettaNet-enabled client with legacy systems in the context of the Semantic Web Services Challenge (SWS-Challange) [1] workshop series. Here we compare the submissions of the Digital Enterprise Research Institute[2] and the joint team DEI[3] and Cefriel[4] to the mediation problem.

The solutions of both groups differ quite substantially in terms of the underlying technologies. The DERI team based its solution on WSMO conceptual framework for Semantic Web services which comes from the quite young Semantic Web research area while DEI-Cefriel followed the path of well-established Software Engineering methods. We compare the similarities and differences of provided solutions mainly with respect to the data and process modeling, execution environments, tool support and changes required in the solutions once the integration requirements change.

The paper is structured as follows. First we overview our approaches, in section 2 the DERI team

submission is described while in section 3 that of DEI-Cefriel is described. Section 4 provides in-depth comparison of our submissions. In section 5, we provide reference points to other works in the area of semantic integration. Finally, in section 6 we describe our further plans and conclude this paper.

2 SOLVING THE SERVICE MEDIATION SCENARIO WITH WSMX

In order to address the SWS-Challenge requirements, DERI based its solution on the specifications of WSMO (Roman et al., 2005), WSML (Roman et al., 2005) and WSMX (Mocan et al., 2006b) providing a conceptual framework, ontology language and architecture for Semantic Web services.

2.1 Environment

The following artefacts have to be created during the design time phase to apply WSMX middleware to the system integration: ontologies for both involved parties (i.e. service requestors and providers), bidirectional XML–WSML adapters and lifting/lowering rules, WSMO Goals and Services, data mediation

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[1]http://www.sws-challenge.org

[2]http://www.deri.org

[3]http://www.elet.polimi.it

[4]http://www.cefriel.it