Glue - Semantic Web Service Discovery

News

[June 20, 2006] Glue contributes in making the PoliMI - CEFRIEL solution **the most complete coverage of SWS-Challenge 2006 problem**. As C. Petrie said, "[we] accomplished this coverage by teaming up approaches best suited for each part of the challenge".

What's **Glue**

Glue is a **WSMO** compliant discovery engine that aims at developing an efficient system for the management of semantically described Web Services and their discovery.

WSMO has been chosen because it is a strong conceptual model based on a sound separation between ontologies, goals, web services and mediators, and because it is founded on the two clear principles of strong decoupling and strong mediation.

Glue is built around an open source f-logic inference engine called **Flora-2** that runs over **XSB** , an open source implementation of tabled-prolog and deductive database system. Flora-2 provides only the reasoning support, while **Glue** wraps the inference engine and builds a WSMO infrastructure around it.

The basis of **Glue** infrastructure is a set of facilities for registering and looking up WSMO components (ontologies, goals, Web Services descriptions and mediators). Using these components we implemented a matching mechanism that relies on wgMediators as envisioned in **section 4.2.1** of **WSMO Primer**:

[...] a Web service, may be linked to certain goals that are solved by the Web service via special types of mediators, named wgMediators . These links are useful in the Web Service Discovery phase [...]

In order to use wgMediators, we distinguish between classes of goals (or classes of Web Services descriptions) and instances of these classes. In our approach requester entities must register a class of goals in order to be able to submit a

goal. Similarly, in our approach provider entities must register a class of Web Services descriptions in order to be able to publish a Web Service description.

The rational behind this choice is twofold. At set up time, a **Glue** administrator can develop a wgMediator by using f-logic rules to assert the similarities that link a class of Web Services descriptions to a class of goals. At discovery time, it enables the use of a simple look up mechanism for selecting the most appropriate wgMediators for the submitted goal and the use of such mediators to match a goal instance against numerous Web Service description instances. The discovery mechanism, then, becomes a composite procedure where the discovery of the appropriate wgMediator and the discovery of the appropriate service is combined.

Online Demo

SWS-Challenge Demo

A Demo of Glue applyed to the **SWS-Challenge Discovery Scenario** is available at **http://webml.org/sws-challenge.html**. To run the demo follow the Web Service Discovery Demo (user: demo , psw:demo) and then follow either purchase goal or shipment goal.

The semantic descriptions in F-Logic of Goals, Web Services and Mediators are available at **http://sws-challenge.org/2006/submission/polimi-cefriel-submissionII/discovery-scenario/**.

Healthcare Demo (deployed in COCOON Project)

A Demo of **Glue** in an healthcare scenario is available at: **http://glue.cefriel.it/glueclient**. Some tens of Web Service descriptions have been published.

To discover one or more of them you should set some preferred datetimes using the graphic interface and you should use one of the following keywords that correspondes to concepts of the internal ontology:

- atenolol
- betaBlocker
- blocker
- tenormine
- hypertension
- heart

Resources

Download some of the internal F-Logic entities

Download Glue from SourceForge.org

Acknowledgments