Smart tools to easily discover and query decentralized Semantic Web data

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Abstract. Even if more and more RDF data are available on the Semantic Web, finding and querying it is still difficult due to its decentralized nature. In this demo, we will detail a distributed architecture involving different scripts that interact with each other to help finding and querying such data, with emphasis on user participation and intuitive user interfaces. Key components of this architecture are the Semantic Radar used for discovery of Semantic Web data, Ping The Semantic Web service for aggregating locations of RDF data and users of RDF data such as doap:store.

1   Introduction

As the Semantic Web meme is spreading on the Web more and more people publish RDF data, from bloggers and bulletin boards making their data available with SIOC[1] to open-source software developers using DOAP[4] to describe their projects. Some of the existing tools offer functionality to browse this data and to navigate through the Semantic Web, and search services such as Swoogle[2] try to help find RDF documents but it is still a difficult task because of the decentralized nature and relatively low concentration of these documents on the web.

We have implemented an architecture involving scripts with easy-to-use interfaces enabling us to (1) discover decentralized Semantic Web documents; (2) maintain an up-to-date database of URIs of these documents thanks to user participation, and (3) allow external services to use this architecture to find RDF data and offer user-friendly browser and query interfaces.

2   Architecture of the system

Based on a distributed architecture, our system involves the following components (see Fig. 1):

- Data sources – RDF documents spread around the Semantic Web, created by people themselves or by the applications they are using such as SIOC exporters[5];
- Semantic Radar[6] – a Firefox plugin that allows anyone to be part of the collaborative discovery of Semantic Web documents by simply browsing the Web, using autodiscovery links to find RDF data on the Web.
- Ping The Semantic Web[7] (PTSW) – a webservice that maintains a list of RDF documents it recieves pings about, from the Semantic Radar and other services;

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[4] `http://usefulinc.com/doap`

[5] `http://sioc-project.org/exporters`

[6] `http://sioc-project.org/firefox`

[7] `http://pingthesemanticweb.com`

– Browsing and querying services – applications that use the list of documents URIs provided by PTSW API and provide a better interface to this data, e.g., the doap:store[8] search engine dedicated to projects described with DOAP.
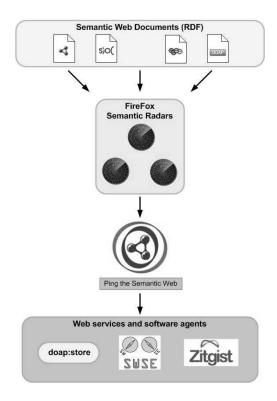

Fig. 1: Architecture of the system

There is no user effort required - they just browse the web, discover RDF documents and get notifications about RDF documents found. PTSW acts as an open repository of RDF document URIs which any application can build upon. Finally, applications such as doap:store provide a friendly user interface to this information.

3 Demonstration

In the demonstration, we show how this complete architecture works thanks to user participation, and how they can get immediate benefit from it. By simply browsing webpages that contain RDF autodiscovery links and using Semantic Radar extension users discover Semantic Web documents and help to maintain the PTSW database in real-time. Then, doap:store regularly retrieves DOAP document URIs from PTSW database to update its local triple-store, in order to provide a user-friendly querying and browsing interface dedicated to software projects described with DOAP.

References

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2. L. Ding and T. Finin. Characterizing the semantic web on the web. In *Proceedings of the 5th International Semantic Web Conference*, 2006.

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[8] http://doapstore.org