Origo - A Client for a Distributed Semantic Social Network

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Abstract. Origo is a Web-application that enables users to manage their social community profiles utilizing semantic technologies. It allows to unite their different profiles and to browse through their semantic social network across various platforms.

1 Motivation and Goal

Today personal profiles within one social networking platform are heavily linked between each other but are not connected to other networks. Semantic technologies such as the Friend-Of-A-Friend (FOAF) ontology[1] can break those data silos. This can be achieved by, first, describing persons in a semantic, machine understandable manner and second by linking their profiles with *foaf:knows* to express relationships between them. Furthermore the RELATIONSHIP ontology[2] is built on top of FOAF and is able to describe different types of relationships two person profiles can have between each other. However, since FOAF profiles are usually distributed, we need a way of accessing, maintaining and exploring them. Origo is the approach which implements this in terms of a server - Web-client application as follows. The preferred standard way of providing FOAF profiles is called Linked Data and makes use of dereferenceable URIs [1] applied to *foaf:Person* entities. In order to merge external profiles of one and the same person to one FOAF profile with a single personal URI we utilize the *owl:sameAs* property. RDF data can often be gained by building wrappers that translate custom data from social networks to RDF because they normally provide programmable interfaces (e.g. RESTful APIs).

2 Design and Implementation

Origo aims at supporting even those people without much background knowledge in semantic technologies establishing their personal URI within the Semantic Web and providing access to their social network in a user-friendly way. Therefore Origo has to fulfill different tasks. First, publishing the profile to provide access for others, second allowing the user to manipulate his own profile and third

[1] *http://xmlns.com/foaf/spec/*
[2] *http://purl.org/vocab/relationship/*

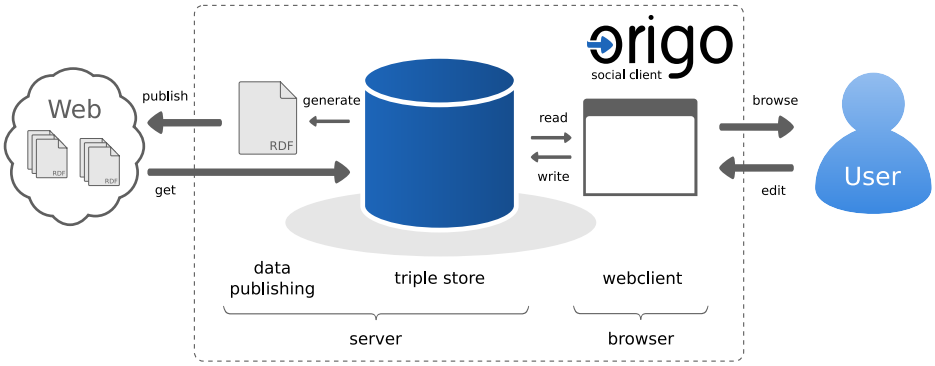

Fig. 1. Design of Origo

enabling the user to browse through the network. When others try to access the profile, Origo uses Content Negotiation to redirect to appropriate data formats (e.g. HTML or RDF). This approach is recommended by the W3C [1]. Origo generates different RDF serializations of the data from the triple store where all the semantic data is saved. The triple store is used to cache browsed profiles and to hold the own personal profile (Fig. 1). Also some basic inferencing methods can support the user while browsing. If, for example, person A is *rel:parentOf* person B, the system can inference that person B is *rel:childOf* person A by using the *owl:inverseOf* property. The Origo webclient is the connection from the user to the underlying system running on the server and consists primarily of an editor and a browser. The editor allows the user to insert properties describing his person (e.g. name, adress, etc.), to link to his other profiles and to manage his relationships. The browser displays the profile data that was loaded and renders relationships as a social graph.

The server-side tasks are implemented with PHP in order to have low requirements to the server. This enables users to install Origo even on cheap hosting packages. The ARC2 library[3] is in charge of working with semantic data and features a triple store with a SPARQL interface. The Origo webclient is implemented with Adobe Flex and therefore provides a desktop like user experience. Client and server are connected with a RESTful API delivering XML data.

Origo is still work in progress. Future work will adress privacy issues as well as optimization of HTTP communication. Origo is available at *www.origo-client.com* as an open-source software, trying to build a community of users and developers.

References

1. Cool URIs for the Semantic Web, Leo Sauermann, Richard Cyganiak, Editors. W3C, 03 December 2008. *http://www.w3.org/TR/2008/NOTE-cooluris-20081203/*

[3] ARC2 is an open-source PHP library (*http://arc.semsol.org/*).