

Report of the UPM-UK exchange

SUMMARY

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Host: **University of Karlsruhe, Germany**
Start time: **March 14, 2005**
End time: **April 14, 2005**
Topic: **(i) Ontology Metadata, (ii) Ontology Repository**

GOAL OF THE EXCHANGE

The goal of the exchange was to (i) agree on the final set of metadata for describing ontologies, in order to support an efficient exchange and reuse of ontologies. The resulting metadata would be used in the implementation of an (ii) ontology repository. For the development of the ontology repository we wanted to release our P2P approach, namely Oyster, and design its integration with a central repository.

TOPICS OF THE EXCHANGE

Topic 1: *Ontology Metadata*

Ontologies are commonly used for a shared means of communication between computers and between humans and computers. To reach this aim, ontologies should be represented, described, exchanged, shared and accessed based on open standards. Currently, most ontologies exist in pure form without any additional information, e.g. authorship information, such as provided by Dublin Core for text documents. This burden makes it difficult for academia and industry to identify and apply – basically meaning to reuse – ontologies effectively and efficiently. Metadata is meant as machine processable information for the Web. It is a systematic method for describing information resources, helps to improve their accessibility and gives other useful resource information to support their maintenance (e.g. to find data sets, to determine whether the data set is appropriate for a certain use, etc.). Thus, one key purpose of metadata is to facilitate and improve the retrieval of information.

Taking into account that ontology sharing and reuse is quite often difficult for academia and industry and the main features of metadata, they could be used for describing ontologies (the outcome of this would be ontology metadata) for sharing, exchanging and reusing them in a most efficient way. To achieve this goal, it is necessary to agree on a standard for ontology metadata that is a common set of terms and definitions describing ontologies, so called metadata vocabulary.

Topic 2: *Ontology Repository*

Implementing such a vocabulary will increase the value of ontologies by facilitating ontology sharing and reusing through time and space. If ontologies are described using ontology metadata standards, an appropriate technology infrastructure is required. For example, tools and metadata repositories, compatible to the ontology metadata standards, must be developed. These tools and repositories can as a consequence e.g. support the creation, maintenance and distribution of ontology metadata.

RESULTS ACHIEVED

Topic 1: *Ontology Metadata*

After discussing the ontology metadata presented on the deliverable 1.3.2, we realized that: (i) the metadata consisted only of attribute-value pairs, and does not consider the conceptual models (semantics) behind ontologies.

The work presented there established our first idea on ontology metadata, but after discussions we developed a new approach, so called Ontology Metadata Vocabulary – OMV-.

OMV distinguishes between an **ontology conceptualisation** and an **ontology implementation**. This separation is based on following observation: any existing ontology document has some kind of *core idea* (conceptualisation) behind. From an ontology engineering perspective, initially a person develops such *core idea* of what should be modelled (and maybe how) in his mind. Further, this initial conceptualisation might be discussed with other persons and after all, the ontology will be *realised* using an ontology editor and stored in a specific format. Over time, there might be created several *realisations* of this initial *conceptualisation* in many different formats, e.g. in RDF(S) or OWL.

For more information you can go to: <http://ontoware.org/projects/omv/>

Topic 2: *Ontology Repository*

Oyster - A Peer-to-Peer System for Sharing Ontologies

Oyster is a java-based system that exploits semantic web techniques in order to provide an innovative and useful solution for exchanging and reusing ontologies. For this purpose, Oyster provides facilities for managing, searching and sharing ontology metadata in a P2P network, thereby implementing the OMV proposal for the standard set of ontology metadata.

Oyster offers a user driven approach where each peer has its own local repository of ontology metadata and also has access to the information of others repositories, thus creating a virtual decentralized Ontology repository. The Oyster client on its own (e.g. disconnected from the P2P network) will already provide added value to its users as it will give developers an overview and search facilities of his/her own ontology metadata stored

in its local repository. The goal is a decentralized knowledge sharing environment using Semantic Web technologies that allows developers to easily share ontology documents. The Oyster system has been implemented as an instance of the Swapster system architecture. It uses ontologies extensively in order to provide some of its main functions: importing data, formulating queries and processing answers.

We did the release of Oyster and its home page. For download Oyster or for more information you can go to: <http://oyster.ontoware.org>,

The publications/events derived from the exchange are:

Name: Oyster - Sharing and Re-using Ontologies in a Peer-to-Peer Community.

Authors: Raul Palma, Peter Haase

Event: Semantic Web Challenge. 4th International Semantic Web Conference. ISWC 2005, Galway, Ireland.

Date : 11.2005

Name: Ontology Metadata Vocabulary and Applications

Authors: Jens Hartmann, Raul Palma, York Sure, M. Carmen Suarez-Figueroa, Peter Haase, Asuncion Gomez-Perez2, and Rudi Studer

Event: First IFIP WG 2.12 & WG 12.4 International Workshop on Web Semantics (SWWS'05). OnTheMove - OTM 2005 Federated Conferences. Agia Napa, Cyprus.

Date: 11.2005

Name: OMV– Ontology Metadata Vocabulary

Authors: Jens Hartmann1, Raul Palma and York Sure. Coautores: Peter Haase, Mari Carmen Suarez

Event: ISWC workshop on ontology patterns. ISWC 2005, Galway, Ireland.

Date: 11.2005