

Integrating Metadata Standards, Ontologies and the Web Services Model for Information Mediators

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1 The Information Seeking Problem

This poster includes some ideas for building information mediators in organizations or enterprises that access local databases or information providers on the web. Also its use can be also exclusively for the web like for example a travel planning assistant.

The search of information nowadays takes place in a distributed scenario composed of information providers or suppliers of data stored in heterogeneous structures. Known database systems, legacy systems with semistructured data models or possibly web pages arisen as possible information providers. Two aspects in this scenario are therefore important.

1.1 The relevant information is distributed and must be integrated dynamically

The answer to a need of information due to its complexity must be found not necessarily in a single source, generally more than one source must be accessed. Also the partial results of a subquery should be used to formulate the query to the next information provider. Today this is manually achieved by a user or information requester.

1.2 Success of the search process is based on the adequate selection of the search terms

Normally the information seeker selects search terms that not necessary were using by the indexing of the data at the providers. To overcome the Vocabulary Mismatch Problem, there must be another kind of comparison rather than the usually used syntactic-based retrieval.

2 Paradigms for the Web

2.1 The Semantic Web

The initiatives, which are pushing the Semantic Web, have as goal to provide more explicit machine-understandable semantic of information published on the Web. Within the Semantic Web, Ontologies play a key role providing a shared and common understanding of a domain that can be communicated across people and application systems.

2.2 Metadata Initiatives

The use of heterogeneous applications and the needed for the interchange of the data generated by them grows the interest

for creating standards to represent intermediate metadata format. One initiative in this direction is XMI pushed by the Object Management Group (OMG).

2.3 The Service Web

The vision of the Service Web is the automatically discovery and use of so-called Web Services from other applications over the Web. The hope is that an application interacts over a network with at run time finding modules to fulfill some business activity. The Web Services Model is composed of Service Requesters, Service Providers and a Service Registry.

3 Why to Integrate the Technologies?

Ontologies primary were thought for modeling explicitly the semantic of domain concepts and their relations independent of the datamodels and structures used to represent the domain data. Ontologies can be used to help describe the semantic of the content part of the information provider but a more specification is needed to describe its functionality. This last part includes the abstract description of the operations associated to the types of data in the providers, it indicates what the information provider does really.

So, there are different kinds of descriptions present in the model of an information provider: the Content Component, the Functionality Component and additional a Business Component. All these components of the different information providers integrated form the Extended Retrieval Ontology.

The modeling of the the different aspects are important for the information mediator to identify dynamically the adequate providers based on their content and capabilities. New providers offering these descriptions can be plugged to the information mediator.

4 Conclusions

The aim of the mediator is to give a transparent support for a person seeking for information to overcome the above problems in the scenario nowadays. The search for information is not a one-step process, it is a dynamic, iterative and interactive process. Studies for the use of the Web Service Modeling Framework (WSMF) for the information mediator will be done in the future.