ebXML RegRep as Open Ontology Repository Server

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About the Speaker

- Founder and CTO - Wellfleet Software Corporation
- Lead Architect - freebXML Registry open source project
- Editor and contributor - OASIS ebXML RegRep standard
- Contributor - OGC WRS and Catalog specifications
- Co-chair - OASIS ebXML RegRep Semantic Content Management SC
- Specification Lead - Java API for XML Registries (JAXR) 1.0
- Previously:
  - Federated Information Management Architect - Sun Microsystems
  - Chief Technologist, Clinical Information Systems - Hewlett Packard
Agenda

- OOR Use Cases
- OOR Architecture
- ebXML RegRep: Overview
- OASIS ebXML RegRep as OOR Server
- Summary
- Discussion
Single OOR Node: Typical Use Cases

- Admin: Publish Term / Import Ontology
- Admin: Publish Policies
- Admin: Update / Version Term
- Reviewer: Use / Reference
- Reviewer: Review / Approve
- Reviewer: Change History
- Reviewer: Change Notification
- Deprecate, Delete

Note: Use cases start at 12 o'clock and goes clockwise
Single OOR Node: Hi Level Architecture

OOR Clients

- GUI Client (Web Accessible)
- Custom Client
  - Java API

Query Interface
- REST
- SOAP

Publish Interface
- REST
- SOAP

Service Interfaces

- Service Provider Interfaces (SPIs)
  - Authentication
  - Authorization
  - Validation
  - Cataloging
  - Notification
  - Reasoning
  - Mapping

Service Provider Plugins
- OpenId

OOR Server
Multiple OORs work together as one
- Organizations maintain admin autonomy over local OOR
- Access control is enforced
- Single sign-on or federated identity management
- Replication of data is possible but not required
- Federated search seamlessly returns results from multiple OORs
- Federation of federations
OASIS ebXML RegRep

- A generic registry / repository standard
  - ebRIM = meta infomodel, ebRS = services and protocols
  - Approved as OASIS and ISO standards
  - Version 4 of RegRep expected in 2008
  - Highly extensible

- Not specifically an Ontology repository, but can be made so
  - ebXML RegRep Profile for OWL-Lite is an approved specification

- Has rich feature set to support use cases and architecture
  - Extensible metamodel, extensible protocol, stored queries, extensible relationships, service model, validation, cataloging, subscription & notification, role-based access control and authorization, change history, federation / federated query, SOAP and REST bindings, Java API (JAXR)

- freebXML Registry provides a royalty-free open source impl
- Is more a toolkit than an out-of-box solution
Future Direction - OASIS RegRep 4.0

- REST and SOAP 1.2 interface
- Open Search 1.1 for search interface, ATOM 1.0 for response
- Choice of MTOM / XOP for binary content and Xlink for external content
- Full text indexing
- Slot extensibility – enables GML and other content as value
- First class type extensibility as alternative to Slots
- Pluggable Repositories modules (e.g. svn, cvs, other, ...)
- Checkout / checkin / lock / merge
- Alignment with WS-Notification, SOAP12-MTOM, XACML 2.0, WSS 1.1, WS-Addressing
ebXML RegRep as an OOR Server: A Proposal

- Build upon RegRep 4.0 impl from Wellfleet Software
- Implement OWL-Lite Profile (modulo RegRep 4)
- RegRep does not provide Ontology specific UI, use Protege
- Integrate RegRep 4.0 with Protege such that
  - RegRep serves as backend for Multi-user Protege client
  - Protege reasoning engine serves as Reasoning plugin for RegRep
- Initially deploy a single Root OOR instance with pilot users playing various roles in the collaborative ontology management use cases
  - Use OpenID as distributed identity management solution
- Later facilitate deployment of Community-specific OORs (e.g. Medical, GIS, Defense ... )
Issues

• Not an out-of-the-box solution – requires some development
• Potentially overlaps with goals of Protege's client-server
  – Needs collaboration with Protege team to harmonize
Summary

• ebXML RegRep has many of the features needed for OOR
  – Has strong suite of generic information management functions
  – Has an approved profile of ebXML RegRep for OWL-Lite
  – Version 4 has extension features that will allow more direct representation of ontologies

• Protege has strong suite of tools for ontology creation, visualization and utilization in creating knowledge bases

• Both ebXML RegRep and Protege are highly extensible

• Protege as front end, and ebXML RegRep as backend, leverages the best of both
Together, Protege and ebXML RegRep may be a thing of beauty.
Related Links

• OASIS ebXML RegRep:
  http://www.oasis-open.org/committees/regrep
  http://ebxmlrr.sourceforge.net/wiki/Overview

• Protege:
  http://protege.stanford.edu

• Open Ontology Repository (OOR):
  http://ontolog.cim3.net/cgi-bin/wiki.pl?OpenOntologyRepository

• Open ID:
  http://openid.net/what/
Discussion

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