OOR Architecture
– Towards a Network of Linked Ontology Repositories

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Outline of the presentation

• Our background
• Is there a “one-size fits all” OOR solution?
• Our suggestion for the OOR architecture
• What next?

• Please forgive us if some of the issues have been already discussed.
Our (=SeCo) background

- Semantic Computing Research Group (SeCo), [http://www.seco.tkk.fi/](http://www.seco.tkk.fi/)
- Building a national semantic web infrastructure in Finland (FinnONTO), 2002-
- Running an ontology repository ONKI, 2008- (“production” use)
- Use cases we have been focusing on: annotating, ontology-based information retrieval, …
- For all publications, see: [http://www.seco.tkk.fi/services/onki/](http://www.seco.tkk.fi/services/onki/)
What can we bring to the table?

• Ideas and experience
  – Building a national semantic web infrastructure
  – Running an ontology repository, 2008- (“production” use)
  – ”LOOS API” – accessing distributed ontology repositories; implementing user-interfaces on top of the LOOS API
  – ONKI Selector widget
  – Implementations for different user-interfaces and ontology servers (generic ”ONKI SKOS”, geo ontology server, …)
  – …
Why we want to participate in OOR

• Sharing and developing best practices
  – APIs, specifications
  – Tools, components
• Improving our national ontology repository ONKI with content from international ontology repositories
• Networking and building a global community
• Benchmarking our work
There is no "one-size fits all" solution

• Different use cases
  – metadata creators ("annotators")
  – end-users that benefit from ontologies in e.g. information retrieval
  – ontology developers
  – developers of ontology-enhanced applications
  – ...

• Users with different background skills
  – non-expert library customers vs. subject specialists

• Different types of ontologies need for different kind of user interfaces
  – E.g. thesaurus-like concept ontology vs. geographical ontologies

• Different kinds of ontology service providers
  – E.g. corporate internal use vs. public service

⇒ Is it possible to implement a single OOR server that addresses these needs? (and needs that we don’t know)
Status now: non-interlinked repositories addressing different needs

=> What could we do together?
OOR = Connecting repositories

- Bioportal
- Cupboard
- ONKI.fi
- Pronto
- TONES

OOR Network

- OOR Registry

- ...

- ...
OOR Architecture: P2P

User-Interface X

Ontology Repository X

User-Interface Y

Ontology Repository Y

OOR API

sameAS

subClassOf
OOR Architecture: Global

Global Search

OOR Registry of Repositories

OOR API #2

Ontology Repository X

Ontology Repository Y

Other applications…
So what should the OOR APIs be?

- There could be e.g. following APIs:
  - OOR Content – get the content of a specific concept/ontology/repository
  - OOR Search – keyword search for concepts, ontologies/repository
  - OOR Update – update concepts/ontologies/repository
  - OOR Network – inter-repository content sharing, e.g. indexes

- API design principles
  - As simple as possible
    - let the OOR implementators choose which functionalities they will implement
    - do not require to implement all APIs
  - Support many technical solutions
    - E.g., REST, Linked Data, Web Service, SPARQL…
    - Clients/backends may be implemented e.g. with Java, PHP, Python, JavaScript…
  - A test suite for each API is needed
    - To help API implementators validate that their API implementation works correctly
    - E.g. implementing OOR API to your existing Ontology Repository or your CMS
LOOS API as an example

• search(query): supports keyword, type, etc.
• getLabels(conceptURI)
• getEquivalentConcepts(conceptURI)
• getConceptHierarchy(conceptURI)
• getOntologyOverview(ontologyURI)
• …
What next?

• Focus on APIs
  – Define APIs
  – Create test suites & baseline implementations

• Focus on enabling an ecosystem of Ontology Repositories (not on doing everything by ourselves)
  – Make a one-slide presentation on what are the benefits of joining the OOR network
  – Write a guide on implementing OOR compatible servers
    • In the spirit of Bizer et al. – How to Publish Linked Data on the Web
    – Should we organize a ESWC 2011 workshop on OOR?
Could we have something like this?