A Linked Data-driven & Service-oriented Architecture for Sharing Educational Resources

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Overview

• Federate different learning repositories and its challenges
• A Linked Data-driven & Service-oriented Architecture

Overview

• Data and Services integration: the Linked Services Approach
  – SmartLink: Linked Services editor and search environment
  – A RESTful API for Linked Services discovery and execution
• Metamorphosis+: An Application Layer Combining Social Computing with Semantic Data and Services Integration
• Conclusion and Future Work
Federate different learning repositories

• Aim to federate different learning repositories to support a single entry point for querying metadata of learning resources.
Challenges

(1) Retrieving distributed data from heterogeneous Learning repositories

- Teaching material
  - SOAP/XML

- Publications
  - OAI/XML

- Knowledge data
  - RDF/XML

- Other data
  - Other protocol

(2) Dynamic metadata mediation

- Dublin core
- OAI
- IEEE LOM
- Other
- mEducator

(3) Extensible learning environment

(4) Enriching existing educational resource metadata
Overall Architecture

Step 1: Repository/service integration via Linked Services

Step 2: Data integration via Linked Data
Data and Services integration: the Linked Services Approach

Developers

annotate & browse

Linked Services RDF store

iServe

http://iserve.kmi.open.ac.uk

API & SPARQL endpoint

discover & execute

Web interface

SmartLink NfP

http://purl.org/smartlink/service-nfp

http://iserve.kmi.open.ac.uk

Educator

Multi-type Content Repurposing and Sharing in Medical Education
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A RESTful API for Linked Services discovery and execution
Metamorphosis+
Conclusion and Future Work

- Discussed 4 challenges for federating different and distributed learning repositories
- Proposed a Linked Data-driven & Service-oriented Architecture
- A use case application has been illustrated

Future work:
- Integrating additional enrichment resources e.g. DBpedia and other domain specific vocabularies.
- Extending the framework with additional open repositories and data stores
- Integrating the APIs of the “data & services integration layer” with additional applications and use cases
Related links

http://www.meducator.net/
http://kmi.open.ac.uk/projects/name/meducator
http://smartlink.open.ac.uk/
http://metamorphosis.med.duth.gr/

Thanks and Questions