Data Integration with SMW+

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SMWCon Fall 2011, Berlin
Data Integration Scenario

- Enterprises typically manage their **data in relational databases**
- Often a landscape of isolated **data silos** grows
- **Wiki provides one platform for sharing information**
- Nevertheless,
  - the data bases exist
  - contain valuable information
  - will not be deserted
- The enterprise use cases we see, often require access to external data from within the wiki
  - Usually the external data sources are relational databases
  - Wiki is used as a data access and visualization tool
  - Wiki users should be able to formulate queries
Architecture

SMW+

Application level

Queries

Results

Annotations

Triple Store Connector

OntoBroker

Ontology / Rules

Semantic Facts
Workflow for Data Integration with SMW+

- **OntoStudio**
  - Lift database schema
  - Model wiki ontology
  - Map database ontology to wiki ontology
  - Test and refine mappings
  - Export ontologies
  - Transfer to Wiki server

- **SMW+ / TSC**
  - Import ontologies
  - Formulate queries (QI)
  - Create articles containing inline queries
  - Browse database via Non-Existing-Pages
  - Potentially, enhance model via annotations
  - Adapt and extend wiki ontology
  - Export ontology as OBL
Query Answering

TSC with OntoBroker

mapping results

manual mappings

query

integrated results

generated ontologies

mapping rules

Wiki ontology

facts from source

lifting rules

automatic schema mapping

databases
Queries and Results use the Wiki Vocabulary

TSC with OntoBroker

- mapping results
- manual mappings
- query
- integrated results

- generated ontologies
- mapping rules
- Wiki ontology

- facts from source
- lifting rules
- automatic schema mapping

- databases
Screen Capture Lifting and Mapping
Summary and Outlook

- SMW+ and TripleStoreConnector realize
  - Access to relational data from within SMW
  - Using the wiki vocabulary
  - Live queries
  - Enhance/Extend the data by wiki users in the wiki

- Currently working on
  - Supporting the same feature for SPARQL endpoints
Lifting SPARQL Endpoints

- Approach
  - Endpoint is queried for its schema information
  - Schema is extracted
  - Lifting rules are generated
  - This results is an ObjectLogic ontology
  - This ontology can be integrated and mapped into the wiki ontology
  - It can even be mixed with other data sources, e.g. DBs.

- In the wiki
  - Wiki ontology can be used to query and visualize remote data from the endpoint
  - Query Interface supports query building out of the box
Architecture

External Data Sources

Application level

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Semantic Facts

External Data Sources
Thank you!

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