



Semantic Evaluation at Large Scale Tutorial

Evaluation Description Definition

Jürgen Bock (FZI)

Michael Schneider (FZI)

Outline

- Evaluation Descriptions
- SEALS Evaluation Description Language (SEDL)
- Evaluation Description Bundles
- Evaluation Descriptions Repository Service (EDRS)

EVALUATION DESCRIPTIONS

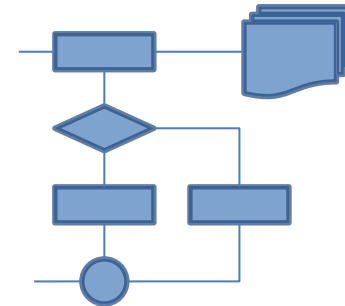
Evaluation Descriptions

Evaluation Description:

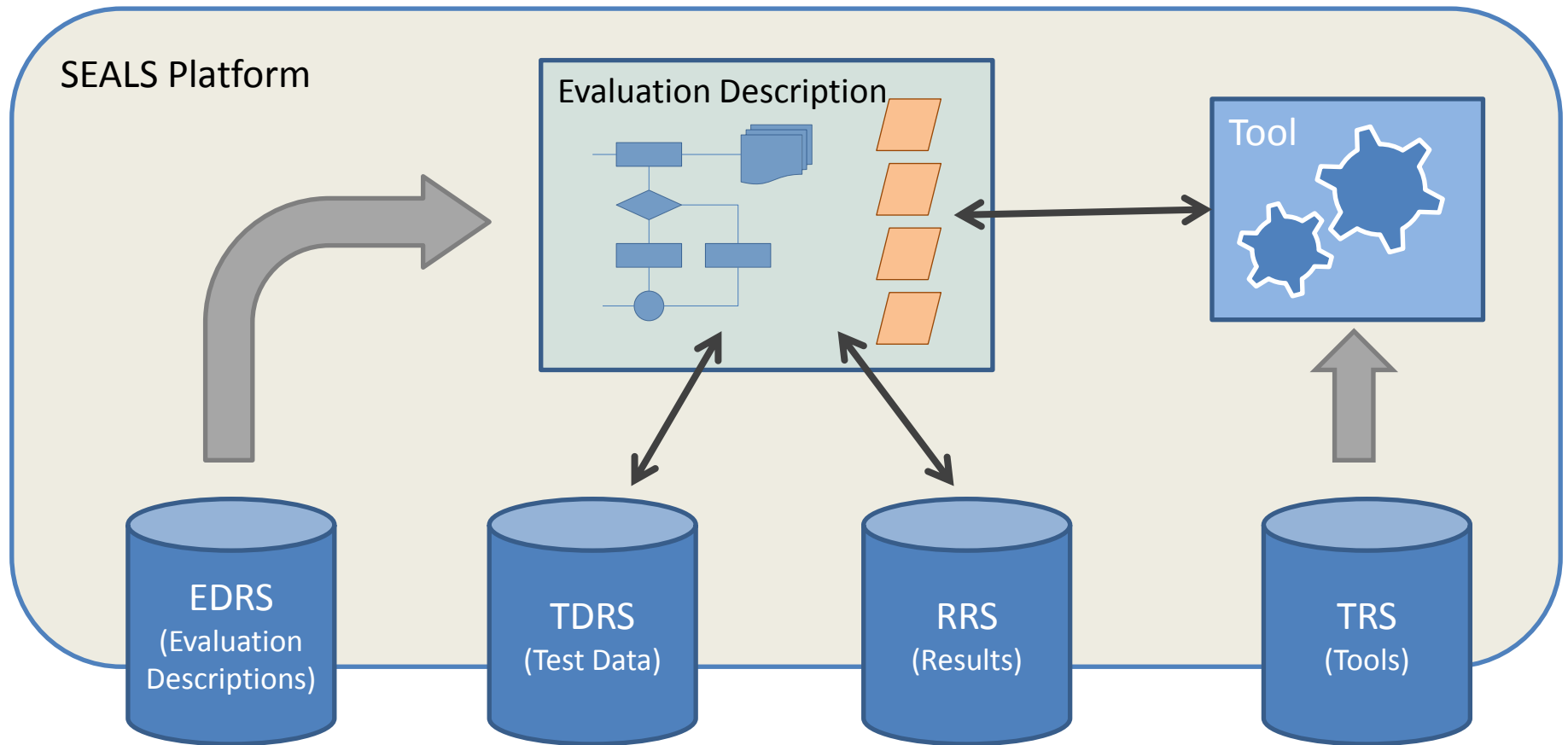
describes how an evaluation is to be conducted

1. Access test data
2. Invoke tool
3. Collect results
4. Interpret results
5. Store results
- ...

orchestrated by an
evaluation workflow



Evaluation Descriptions in the SEALS Platform



Requirements for Evaluation Descriptions

An Evaluation Description must represent:

- *Evaluation workflow*
Which are the steps of the process to be executed?
- *Execution contract*
What kind of things are being evaluated?
- *Custom services*
implementations of evaluation-specific operations
- *Metadata*
Who, when, what, etc.?

Evaluation Workflow

- Workflow specified in WS-BPEL 2.0
(Web Services Business Process Execution Language 2.0)
- Platform compliance criteria
 - BPEL workflow must implement generic evaluation description WSDL
<http://www.development.seals-project.eu/resources/res/engine/evaluation/wSDL/{version}/evaluation.wSDL>
 - Pass-through of header information
(header part of BPEL input variable must be passed to header part of each invoked web service)
 - Asynchronous callback
(generic evaluation description WSDL specifies callback operation to be called when BPEL process terminates)

Execution Contract

- What test data, tools and results can a workflow consume?
- What results does it produce?
- Execution Contract specifies categories (in terms of ontology classes)
- Input arguments can be validated prior to execution
→ early check for compatibility

Custom Services

- Not provided by the *SEALS platform*
- Inherent to *evaluation description*
 - Result interpretation service
 - Special utility services
- Custom Services must be shipped with the evaluation description
 - Interface definition (WSDL)
 - Types (XSD)
 - Implementation (JAR)

Metadata

Evaluation Descriptions annotated with

- Name
- Author
- Creation time
- Description

Additionally: metadata managed by repository

SEALS EVALUATION DESCRIPTION LANGUAGE (SEDL)

SEALS Evaluation Description Language (SEDL)

- XML-based descriptor file format

- Contents:

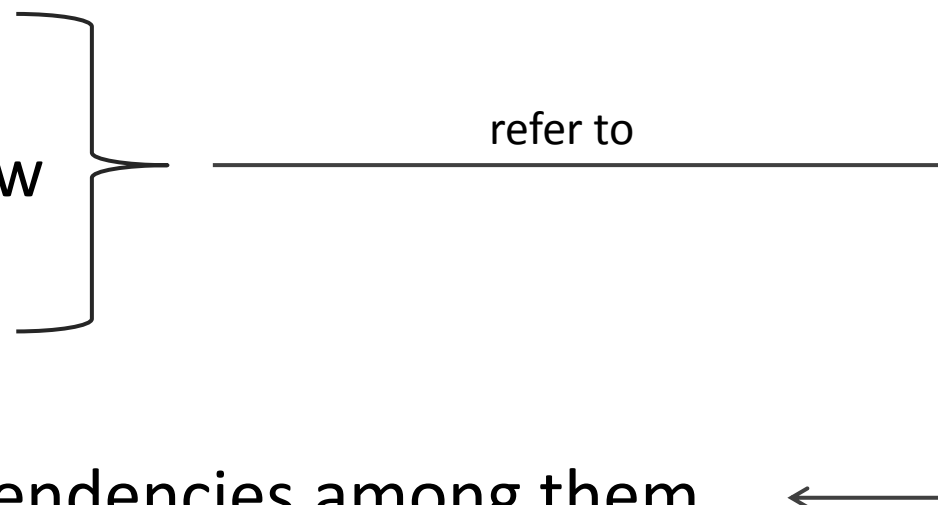
- Execution Contract

- Evaluation Workflow

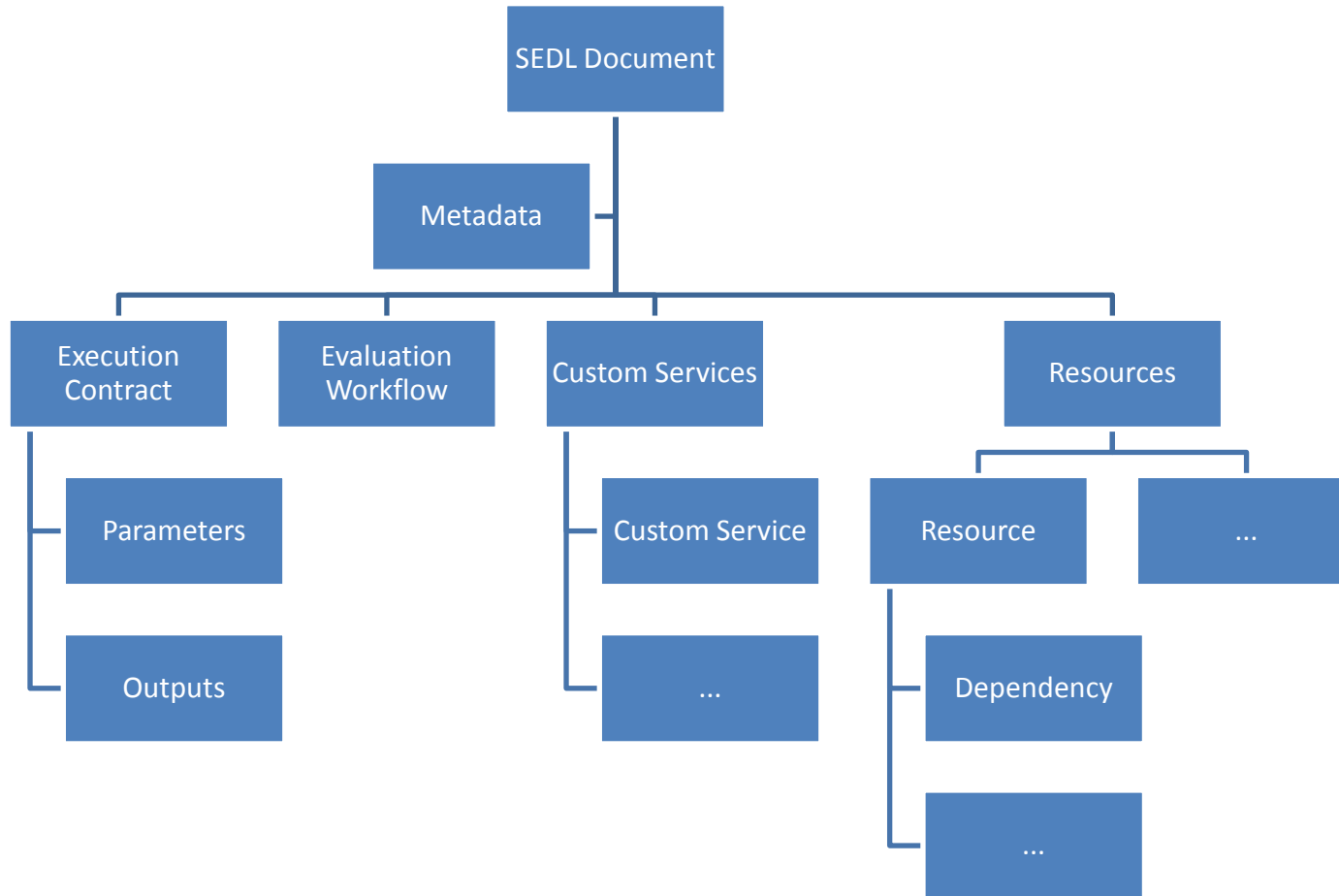
- Custom Services

- Metadata

- Resources and dependencies among them



SEDL Overview



SEDL Content Details: Execution Contract

- Parameter:
 - Name (refers to name of BPEL input argument)
 - Type (refers to ontology class)
 - Resource reference (refers to ontology resource, specifying the type class)
- Output:
 - same as above

SEDL Content Details: Evaluation Workflow

- Evaluation Workflow:
 - Process name
(refers to name of the BPEL process)
 - Resource reference
(refers to BPEL resource specifying the process)

SEDL Content Details: Custom Services

- Custom Service:
 - Documentation (textual description of the service)
 - WSDL
 - Port type (refers to port type for this service provided by the WSDL)
 - Resource reference (refers to WSDL resource specifying this port type)
 - Implementation
 - Class name (refers to the name of the implementation Java class)
 - Resource reference (refers to binary resource specifying this class)

SEDL Content Details: Resources

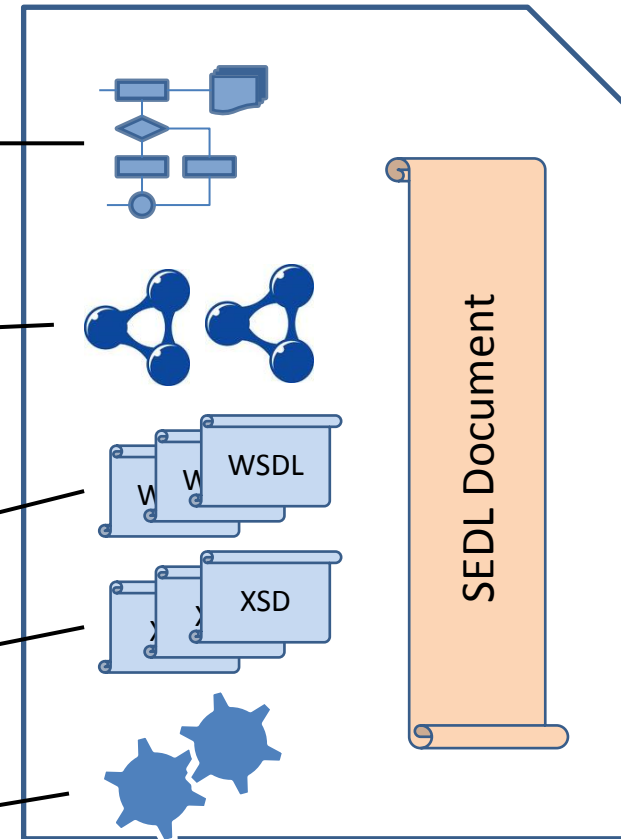
- Resource
 - Location
(pathname relative to the SEDL document)
 - Dependency
 - Either with reference to another resource ...
 - ... or with child resource elements

EVALUATION DESCRIPTION BUNDLE

Bundle Contents

Everything is a resource

- Evaluation BPEL workflow
- Execution Contract requires
 - ontologies
(to define category classes)
- Custom Services require
 - WSDL definitions
 - XSD type definitions
 - Implementation JAR binaries

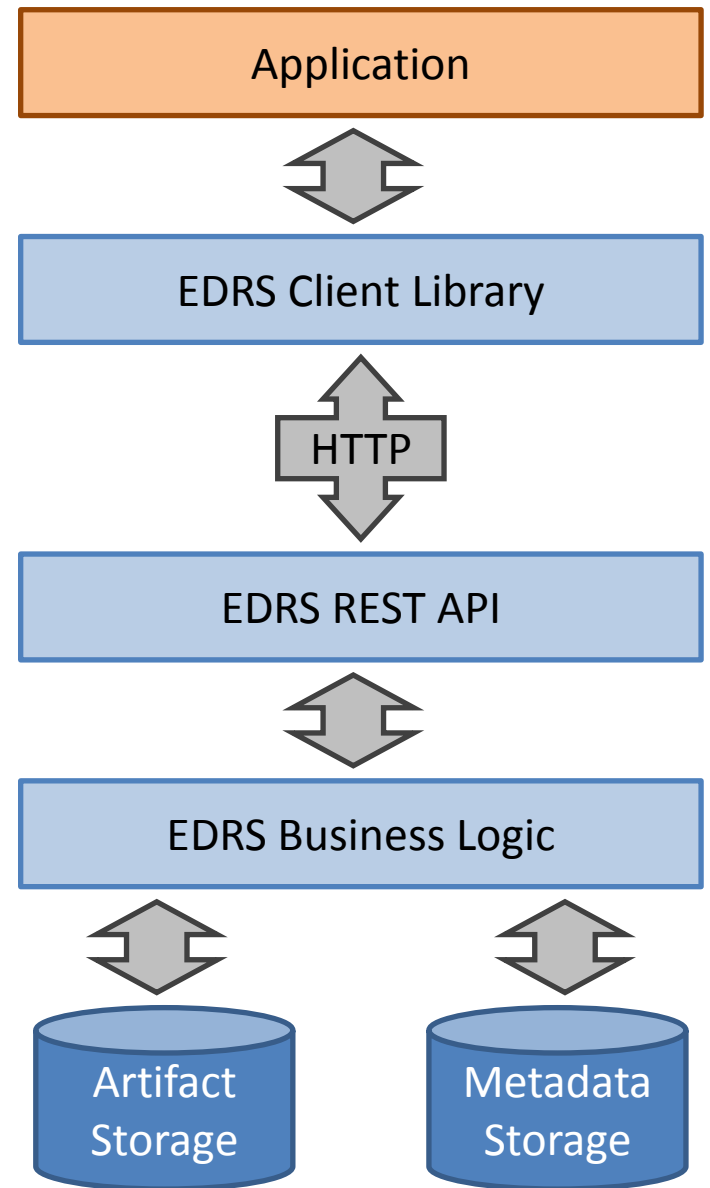


EVALUATION DESCRIPTIONS REPOSITORY SERVICE (EDRS)

Evaluation Description

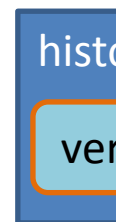
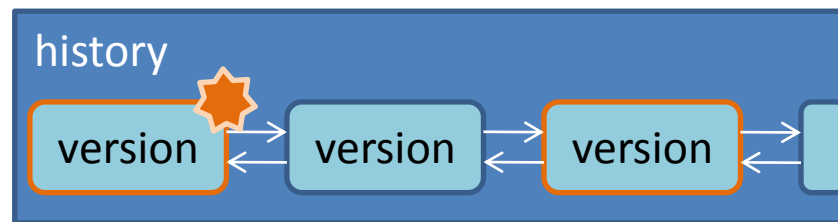
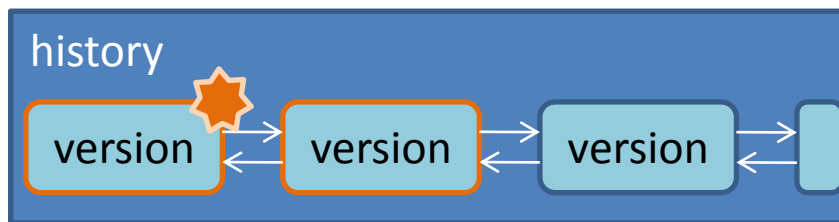
Repository Service: Service Stack

- Client-side Java API
- REST API
- Server-side Java API



Artifact Histories and Versions

- EDRS stores evaluation description artifacts
- Several versions per artifact: a *history* of artifacts
- Evaluation Description (ZIP bundle) is a version



current version



published version



unpublished version

Repository Access (REST API)

HTTP Resources

- **Artifact history collection resource**

`http://[prefix]/eds`

- **Artifact history resource**

`http://[prefix]/eds/[history]`

- **Artifact version resource**

`http://[prefix]/eds/[history]/[version]`

- **Publication resource**

`http://[prefix]/eds/[history]/[version]/pub`

Repository Access (REST API)

HTTP Operations

- HTTP GET
Retrieval of metadata / artifacts
- HTTP POST
Registering of artifact histories,
Storing of artifact versions,
Publication of versions
- HTTP PUT
Update of metadata
- HTTP DELETE
Removal of artifact histories / versions,
Unpublication of versions

Thanks for your attention!