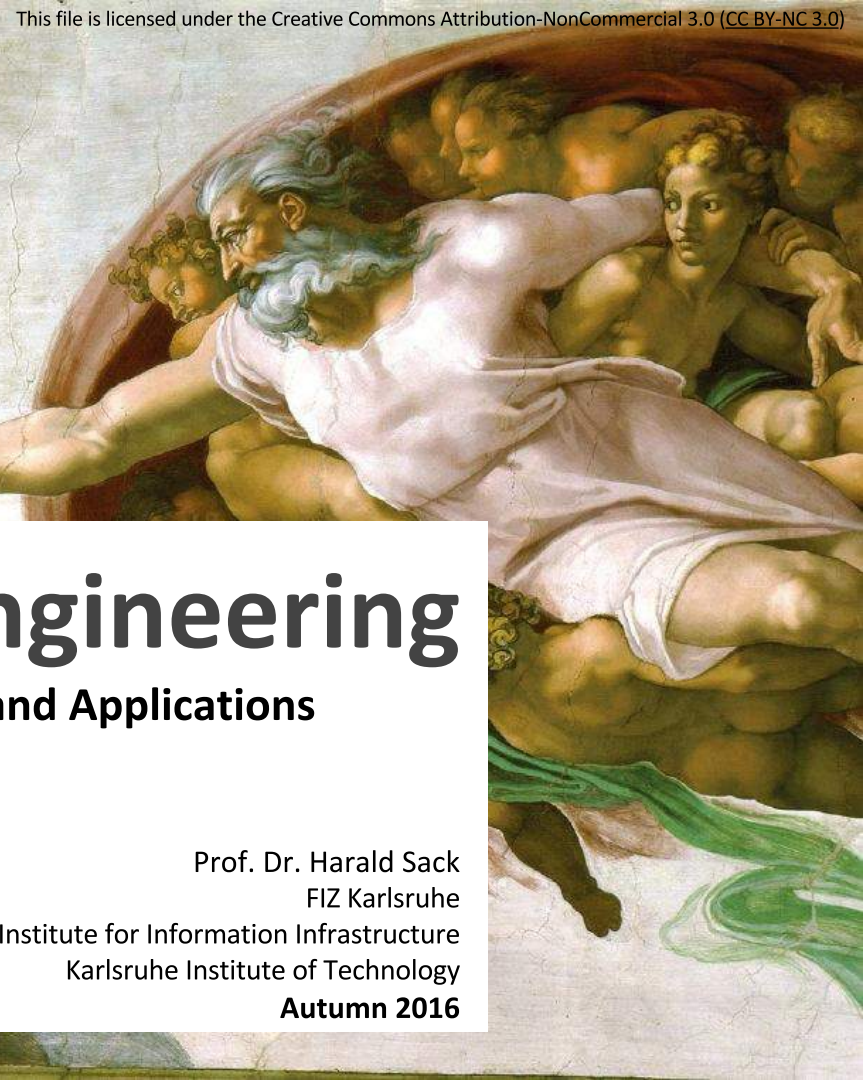




Lecture 5: Linked Data Mashups and Applications

5.1 How to Publish Linked Data



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The Web of Data and how we make use of it

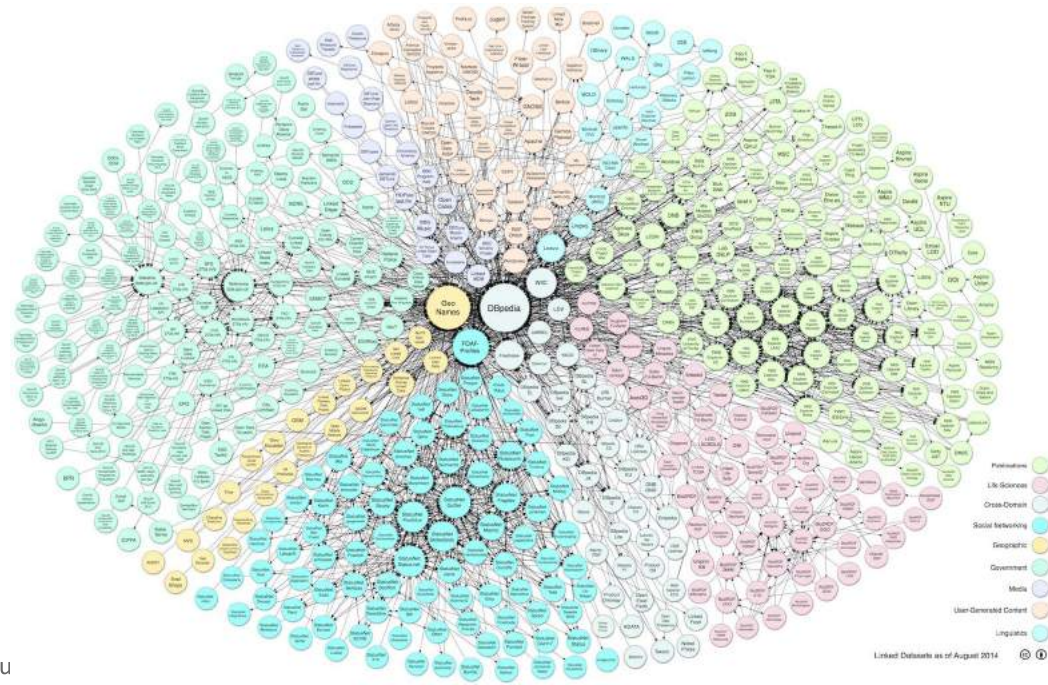
Linked Data

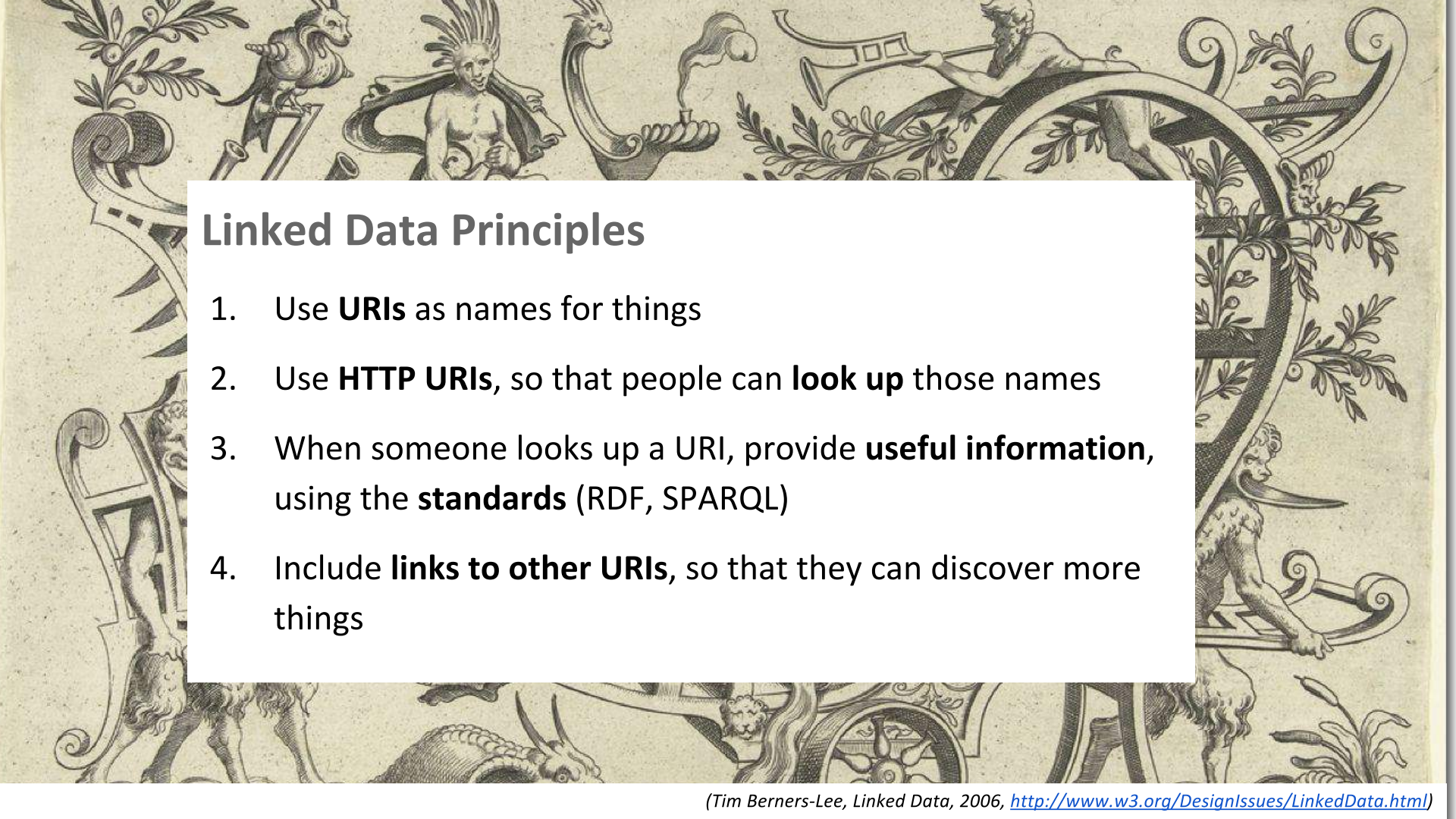
- Linked Open Data (LOD) denote publicly available (RDF) Data in the Web, identified via URI and accessible via HTTP. Linked data link to other data via URI

The Web of Data

- 9,960 datasets
- >149 billion facts
- >800 million links
(Aug. 2016)

<http://stats.lod2.eu/>
<http://lod-cloud.net/>

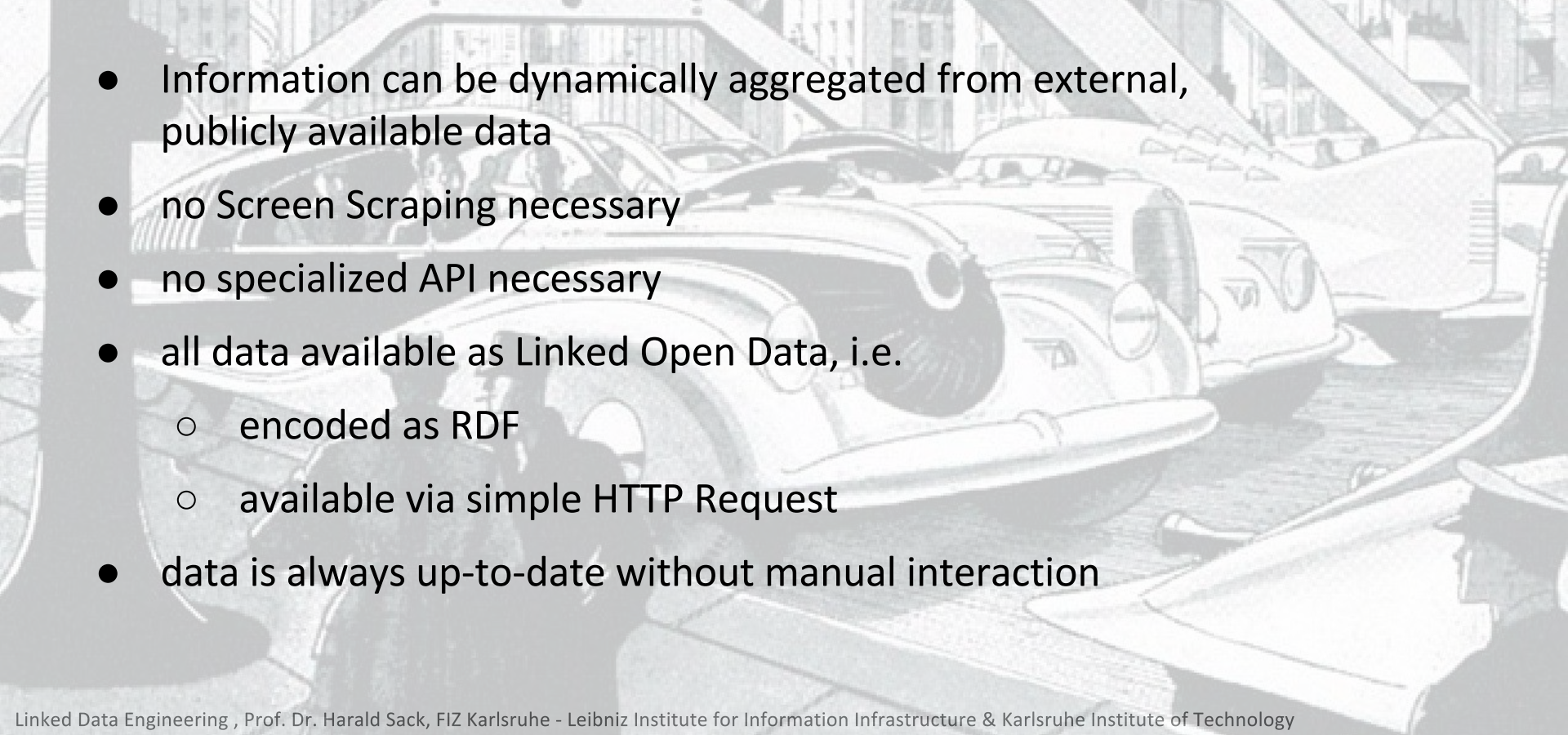


The background of the slide is a detailed, sepia-toned illustration. It features a variety of figures and symbols: a unicorn-like creature on the left, a figure with a large feathered headdress in the center, a hand holding a smoking pipe, a figure playing a trumpet on the right, and a figure with a long, curved horn. The scene is framed by elaborate, swirling acanthus leaves and scrolls.

Linked Data Principles

1. Use **URIs** as names for things
2. Use **HTTP URIs**, so that people can **look up** those names
3. When someone looks up a URI, provide **useful information**, using the **standards** (RDF, SPARQL)
4. Include **links to other URIs**, so that they can discover more things

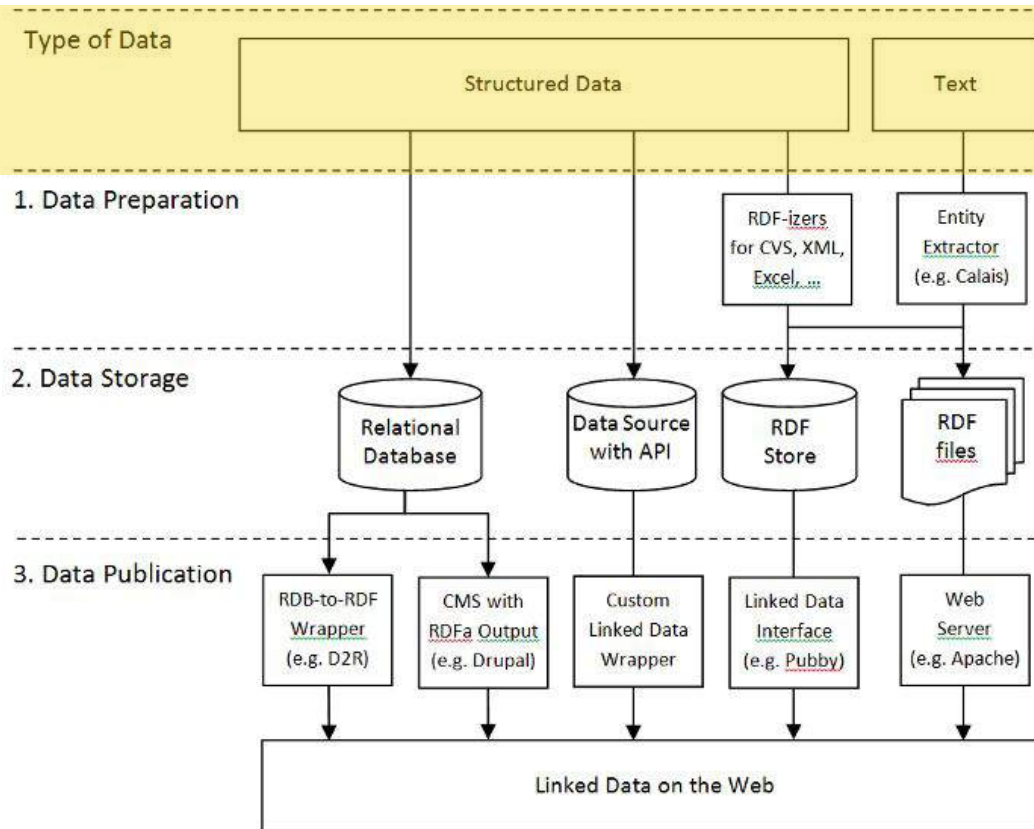
The Benefit of using Linked Data

- 
- Information can be dynamically aggregated from external, publicly available data
 - no Screen Scraping necessary
 - no specialized API necessary
 - all data available as Linked Open Data, i.e.
 - encoded as RDF
 - available via simple HTTP Request
 - data is always up-to-date without manual interaction

How to Publish Linked Data on the Web

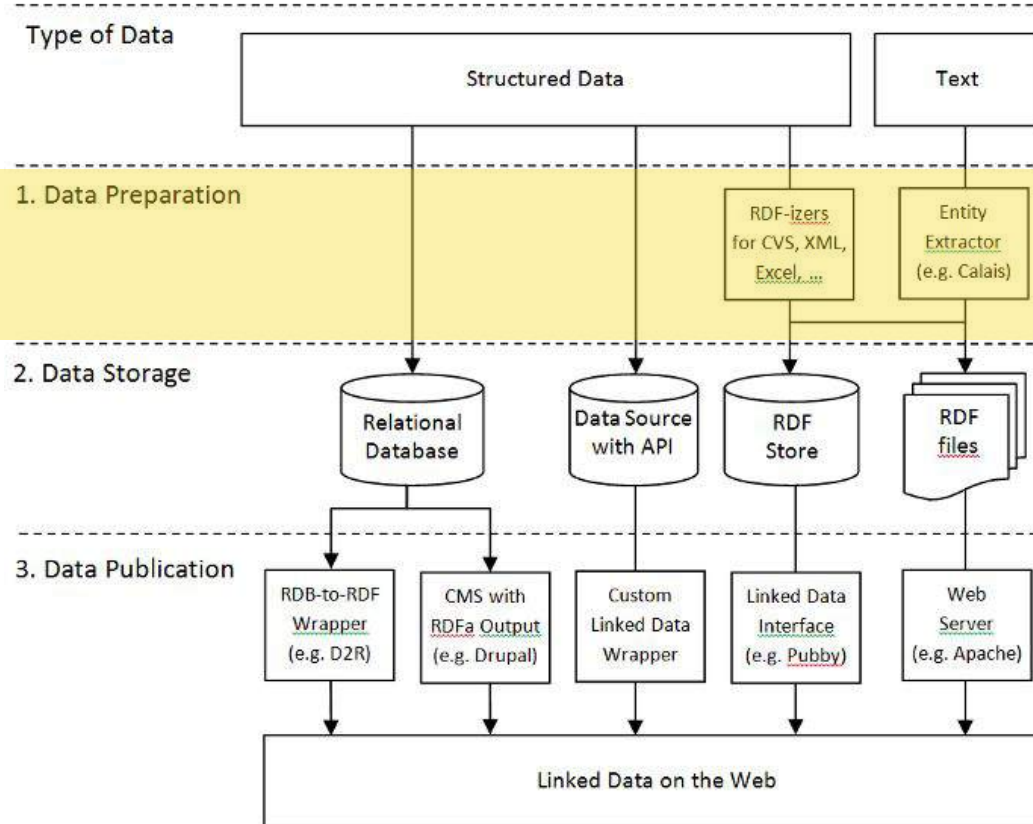
- Typically there are the following ways how Linked Data can be presented on the Web:
 - Dump files
 - SPARQL Endpoints
 - Dereferencable URIs with Content Negotiation
 - RDFa

Linked Data Publishing - Options and Workflow



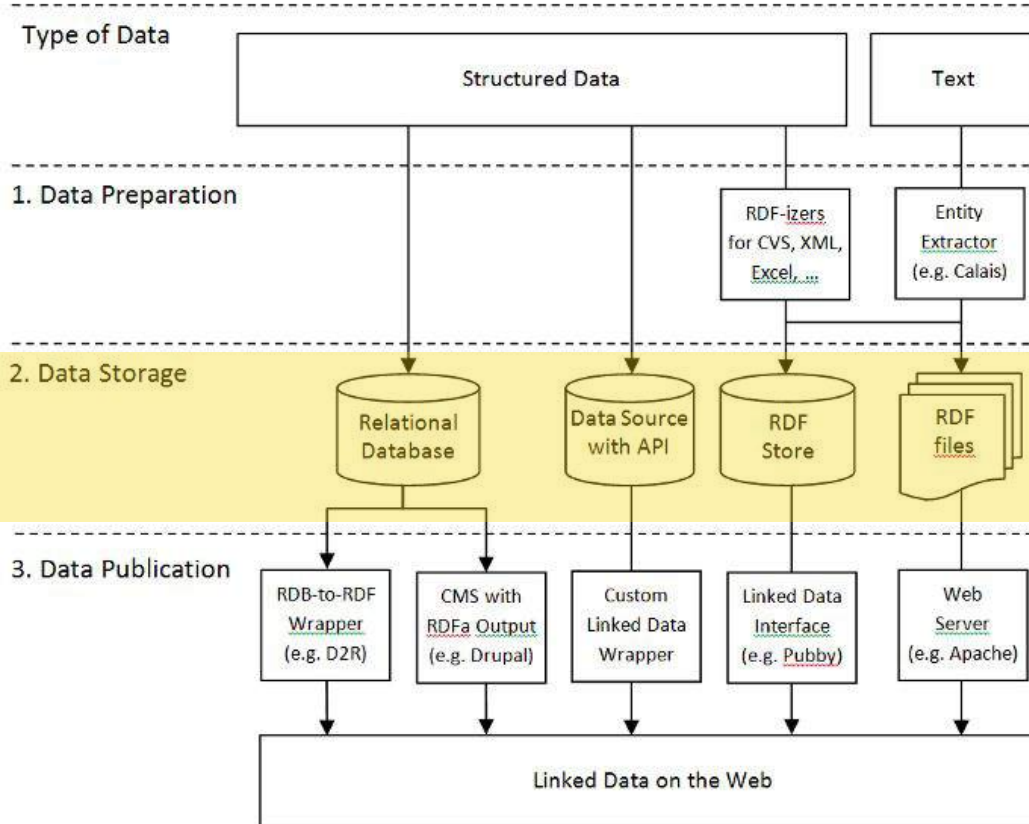
<http://linkeddatabook.com/editions/1.0/>

Linked Data Publishing - Options and Workflow



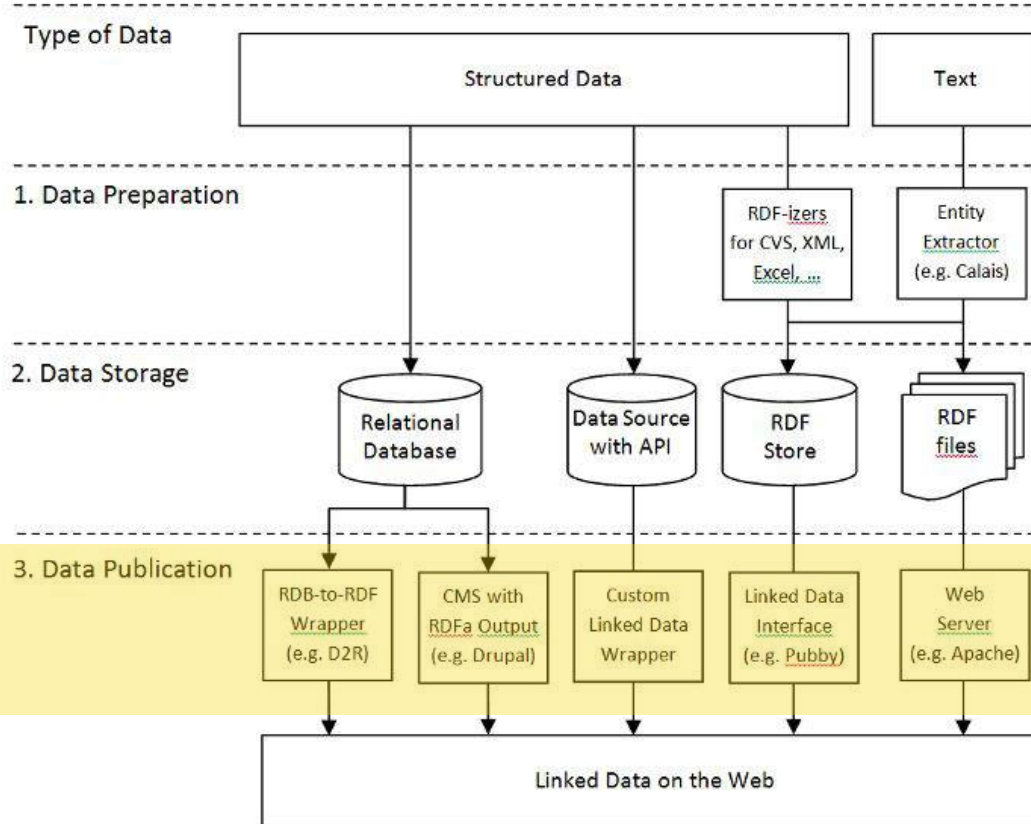
<http://linkeddatabook.com/editions/1.0/>

Linked Data Publishing - Options and Workflow



<http://linkeddatabook.com/editions/1.0/>

Linked Data Publishing - Options and Workflow



<http://linkeddatabook.com/editions/1.0/>

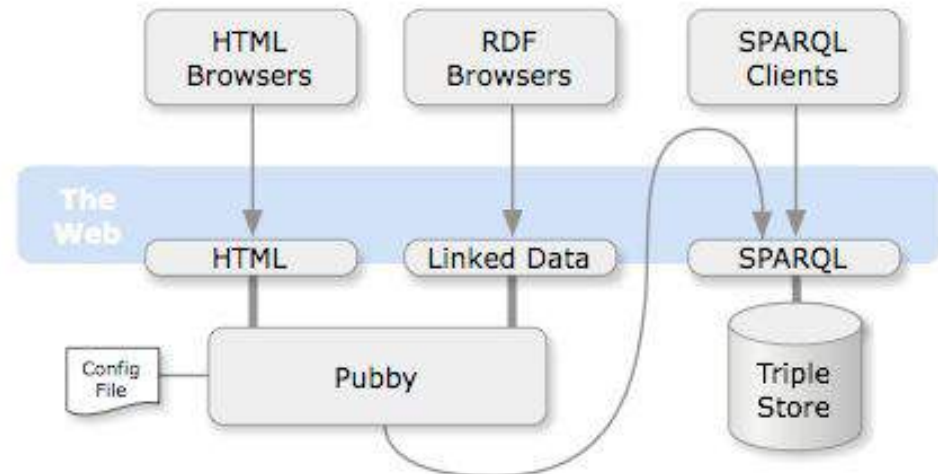
Linked Data Publishing on the Web

- **Native publication**
 - Triple Stores (SPARQL Endpoints)
 - OpenLink Virtuoso, Sesame, Fuseki, ...
- SPARQL endpoints are **RESTful Web Services**
 - HTTP GET Request with SPARQL query
 - Result available as
 - XML, JSON, plaintext (SPARQL Select/Ask)
 - RDF/XML, NTriples, Turtle, N3 (SPARQL Describe/Construct)
 - Data format can be determined via HTTP Accept Header
e.g. `Accept: application/sparql-results+json`
(or via parameters of the SPARQL query)

Linked Data Publishing on the Web

- **Native publication**

- Triple Stores
 - OpenLink Virtuoso, Sesame, Fuseki, ...
- Linked Data Endpoints
 - Pubby, ...

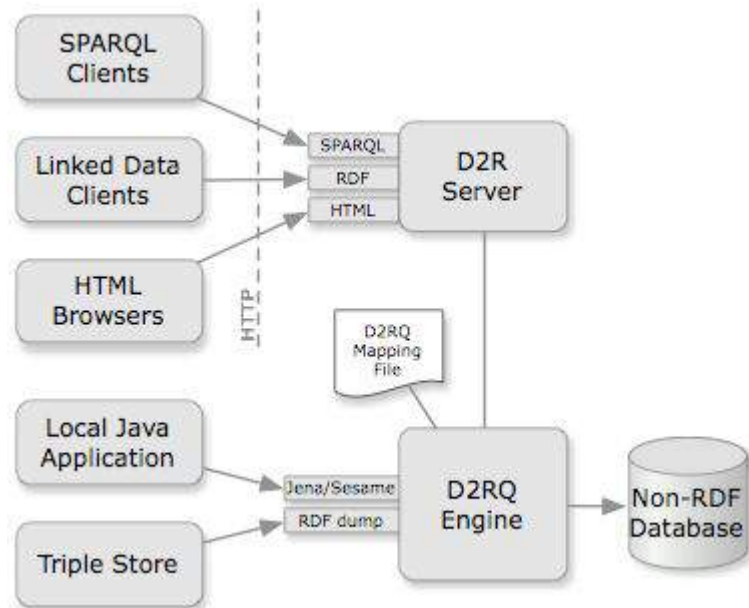


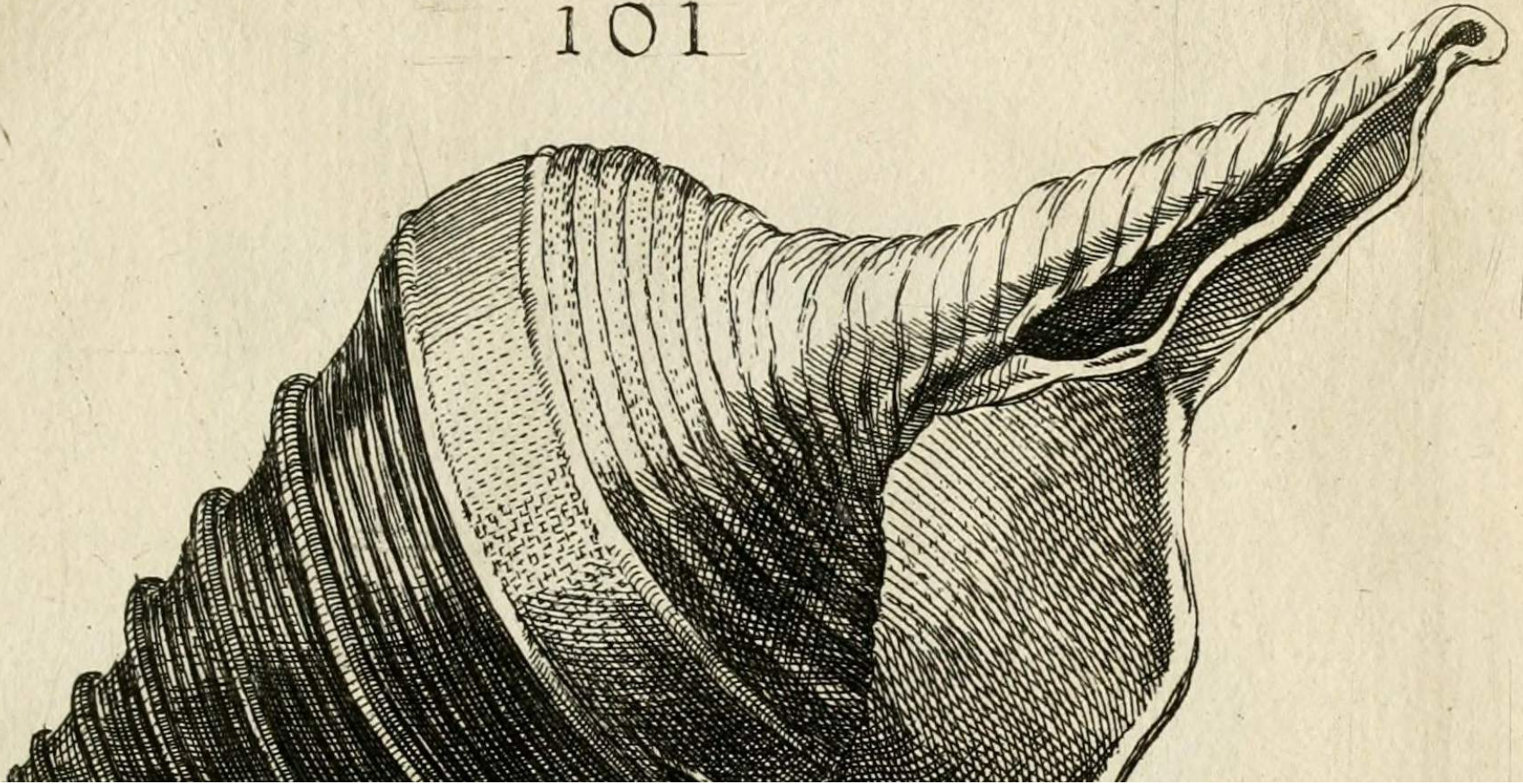
<http://wifo5-03.informatik.uni-mannheim.de/pubby/>

Linked Data Publishing on the Web

- **Native publication**

- Triple Stores
 - OpenLink Virtuoso, Sesame, Fuseki, ...
- Linked Data Endpoints
 - Pubby, ...
- D2R Servers
 - D2RQ, RDF2RDF, ...





Next: 02 - Publishing Linked Data - Best Practices

Lecture 5 - Linked Data Mashups & Applications - OpenHPI - Course Linked Data Engineering