OSLC and Lyo, Linked Open Data, XMP Photo Meta data, what do they have in common?

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The Semantic Web is a collaborative movement led by international standards body the World Wide Web Consortium (W3C).

- Plus sur Wikipedia
- Agris: International Information System for the Agricultural Sciences and Technology
- Business semantics management
- Computational semantics
- Corporate Semantic Web
- Entity-attribute-value model
- Internet of Things
- Knowledge engineering
- Buzzwords
- Web services
Why this talk?
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### Linked Data

In computing, Linked Data describes a method of publishing structured data so that it can be interlinked and become more useful.

- Plus sur Wikipedia
- Entity-attribute-value model
- Open Data
- Record linkage
- Identity resolution
- Data deduplication
- Buzzwords
- Semantic Web
- World Wide Web
Why this talk?

Explain Semantic Web and why you should care about!
Agenda

- Semantic Web
- Open Data & Linked Data
- XMP, OSLC
Semantic Web

Search Eclipse on Google

⇒ It is a WEB result
Semantic Web

Search Michael Jackson on Google

Michael Joseph Jackson was an American singer-songwriter, actor, musician, dancer, businessman, and philanthropist. Wikipedia

Died: June 25, 2009, Holmby Hills, Los Angeles, California, United States


Siblings: Janet Jackson, Jermaine Jackson, La Toya Jackson, more

Songs

<table>
<thead>
<tr>
<th>Song</th>
<th>Year</th>
<th>Album</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billie Jean</td>
<td>1982</td>
<td>Thriller</td>
</tr>
<tr>
<td>Thriller</td>
<td>1982</td>
<td>Thriller</td>
</tr>
<tr>
<td>Smooth Criminal</td>
<td>1987</td>
<td>Bad</td>
</tr>
<tr>
<td>Beat It</td>
<td>1982</td>
<td>Thriller</td>
</tr>
<tr>
<td>Man in the Mirror</td>
<td>1987</td>
<td>Bad</td>
</tr>
</tbody>
</table>

It is a **Semantic WEB** result
Semantic Web


Billie Jean  type:song  album: thriller  released: 1982

name: Janet Jackson  job: musician  Dateofbirth:  .....  Nationality: american  ....

Name: Elvis Presley  job: musician  .....
Semantic Web

Key Idea #1: Graph representation

Inference
“A man is mortal, Socrates is a man, Therefore Socrates is mortal”

Query
“Find all mortal in Greece where…”
Semantic Web

Key Idea #2: everything is a resource, everything can be linked and has a URI

http://dbpedia.org/resource/Eclipse_Foundation

http://dbpedia.org/resource/Canada
RDF: every knowledge can be defined using triplets (subject, predicate, object).

doc.html has Fabien as an author
Doc.html has music as a theme

doc.html author Fabien
doc.html theme Musique
Semantic Web
Vocabularies

**About: Michael Jackson**

- dc: description: Singer
- foaf: name: Michael Joseph Jackson
- foaf: surname: Jackson

**Dc = Dublin Core**

http://dublincore.org/2012/06/14/dctermns.rdf

**Foaf = Friend Of A Friend**

http://xmlns.com/foaf/spec/20140114.rdf

A vocabulary = some triplets in a rdf file
Semantic Web
Vocabularies

Michael Jackson
1,023,106 followers on Google+

Michael Joseph Jackson was an American singer-songwriter, actor, musician, dancer, businessman, and philanthropist. Wikipedia

**Died:** June 25, 2009, Holmby Hills, Los Angeles, California, United States

**Children:** Paris Michael Katherine Jackson, Prince Michael Jackson II, Michael Joseph Jackson, Jr.

**Siblings:** Janet Jackson, Jermaine Jackson, La Toya Jackson, more

**Songs:**
- Billie Jean: 1982, Thriller
- Thriller: 1982, Thriller
- Smooth Criminal: 1987, Bad
- Beat It: 1982, Thriller
- Man in the Mirror: 1987, Bad

**Property**
- dbpedia-owl:abstract
- dbpedia-owl:deathDate
- dbpprop:deathPlace
- dbpedia-owl:musicalArtist of
Agenda

- Semantic Web
- Open Data & Linked Data
- XMP, OSLC
Open Data & Linked Data

5 star deployment scheme suggested by Tim Berners-Lee

http://5stardata.info/
Open Data & Linked Data

make your stuff available on the Web (whatever format) under an open license

http://5stardata.info/

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Open Data & Linked Data

make it available as structured data (e.g., Excel instead of image scan of a table)

http://5stardata.info/

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Open Data & Linked Data

use non-proprietary formats (e.g., CSV instead of Excel)

http://5stardata.info/

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Open Data & Linked Data

use URIs to denote things, so that people can point at your stuff

http://5stardata.info/

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Open Data & Linked Data

link your data to other data to provide context

http://5stardata.info/

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Open Data & Linked Data

When sites globally use RDF and semantic Web
Agenda

- Semantic Web
- Open Data & Linked Data
- XMP, OSLC
XMP, OSLC
XMP, OSLC

- XMP
  - a simplified RDF vocabulary
  - Based on dublin core
XMP, OSLC

• Semantic Meta data to Media

Sample:
XMP, OSLC

• Semantic Meta data to Media

Sample:
XMP, OSLC
XMP, OSLC

OSLC applies Linked data to engineering data

<http://rm-tool/req/123>
concept oslc_rm:requirement;
OsIc_rm:satisfied-by <http://dm-tool/models/xyz>;

Requirement REQa

Satisfies, traces

Satisfied by

<http://dm-tool/models/xyz>
OsIc_rm:satisfies <http://rm-tool/req/123>;

Req. Mgt tool

Design. Mgt tool

Design Model DMb
Resource Requirement

The meaning of Requirement resource properties are defined in the tables below, together with their multiplicity constraints. Requirement resource properties are not limited to the ones defined in this specification, service providers may provide additional properties. It is strongly recommended that any additional properties be defined in XML namespaces distinct from those defined by OSLC in these specifications. Requirement creation through a Creation Factory resource in the Service Description is REQUIRED by this specification.

Any resource asserted to be of rdf:type http://open-services.net/ns/rm#Requirement MUST conform to the constraints and meaning of properties defined below. Notice that partial representations of a requirement resource are admitted by this specification (for example, in query results, or where oslc.properties has been used), and such partial representations will in general not conform to these constraints.

- Name: Requirement
- Type URI: http://open-services.net/ns/rm#Requirement

<table>
<thead>
<tr>
<th>Prefixed Name</th>
<th>Occurs</th>
<th>Read-only</th>
<th>Value-type</th>
<th>Representation</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>dcterms:title</td>
<td>exactly-one</td>
<td></td>
<td>XMLLiteral</td>
<td>n/a</td>
<td>n/a</td>
<td>Title (reference: Dublin Core) of the resource represented as rich text in XHTML content. SHOULD include only content that is valid inside an XHTML &lt;span&gt; element.</td>
</tr>
<tr>
<td>dcterms:description</td>
<td>zero-or-one</td>
<td></td>
<td>XMLLiteral</td>
<td>n/a</td>
<td>n/a</td>
<td>Descriptive text (reference: Dublin Core) about resource represented as rich text in XHTML content. SHOULD include only content that is valid and suitable inside an XHTML &lt;div&gt; element.</td>
</tr>
<tr>
<td>dcterms:identifier</td>
<td>zero-or-one</td>
<td>True</td>
<td>String</td>
<td>n/a</td>
<td>n/a</td>
<td>An identifier for a resource. This identifier may be unique with a scope that is defined by the RM provider. Assigned by the service provider when a resource is created. Not intended for end-user display.</td>
</tr>
<tr>
<td>oslc:shortTitle</td>
<td>zero-or-one</td>
<td></td>
<td>XMLLiteral</td>
<td>n/a</td>
<td>n/a</td>
<td>Short name identifying a resource, often used as an abbreviated identifier for presentation to end-users. SHOULD include only content that is valid inside an XHTML &lt;span&gt; element.</td>
</tr>
<tr>
<td>dcterms:subject</td>
<td>zero-or-many</td>
<td>False</td>
<td>String</td>
<td>n/a</td>
<td>n/a</td>
<td>Tag or keyword for a resource. Each occurrence of a dcterms:subject property denotes an additional tag for the resource.</td>
</tr>
<tr>
<td>dcterms:creator</td>
<td>zero-or-many</td>
<td></td>
<td>Resource or Local Resource or Reference or Inline</td>
<td>any</td>
<td>Creator(s) of resource (reference: Dublin Core). It is likely that the target resource will be an foreign resource but that is not necessarily the case.</td>
<td></td>
</tr>
</tbody>
</table>
XMP, OSLC

XMP, OSLC

Technology sub project: http://www.eclipse.org/lyo/

*: by partners in various European projects
Useful links

• RDF & Java
  • Sesame : http://www.openrdf.org/
  • Jena : https://jena.apache.org/
• RDFa (RDF in HTML)
  • RDFa : http://rdfa.info/
  • In drupal : https://drupal.org/project/rdfa
• Triple stores (Semantic Web Database)
  • Virtuoso : http://virtuoso.openlinksw.com/
  • Sesame
• Linked Open data
  • Datalift : http://datalift.org/
• OSLC
  • http://open-services.net/
  • http://www.eclipse.org/lyo/
Thank you

• Questions?

• For more information:
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  • Thierry Caminel: thierry.caminel@atos.net