Some thoughts on the Semantic Web

“In the Semantic Web, it is not the Semantic which is new, it is the Web which is new”

Dr. Chris Welty, IBM
Watson Research Center
Some thoughts on the Semantic Web

“A little Semantics Goes a Long Way”

Prof. Jim Hendler
Rensselaer Polytechnic Institute
Semantic Web from different perspectives

“Applications for SKOS are springing up all the time, as fast as people can grow the skills and vision to deploy them.”

Stella Dextre Clarke
Independent Consultant
Why SKOS could introduce Web 2.0 mechanisms to the „Web of Data“

- DBpedia, Geonames etc. are the „linked data highways“
- Linked Data is only partly „user generated“
- With SKOS virtually any user can provide some linked data bubbles which serve as side streets connecting many dots
SKOS Thesauri + Linked Data

Giving and taking of linked data with SKOS
PoolParty: Our approach

- punkt. netServices is a WEB company
  - Knowledge organisation + network effects + collaboration + ontology evolution

- Part of a large and fast growing global community: SemWeb meetups with ~8,000 members

- Platform developed for web- and enterprise applications

- Tool is not supposed to be used by rocket scientists
Linked Data - Benefits & Application Scenarios

**Thesaurus Management**
- Automatic population of thesauri
- Automatic categorization of new concepts
- Improved consistency checks

**End User**
- Content augmentation
- Improved recommender services
- Improved navigation elements, e.g. in web-shops

**Content Provider**
- Improved SEO
- Reduced costs of content management
- New services and mashups
Semantic Enterprise Wikis
PoolParty at a glance

- Developed by punkt. netServices
  Current release: PoolParty 2.8

- Main focus on three application areas:
  - SKOS Thesaurus Management
  - Linked Data (publishing & consuming)
  - Semantic Search & Semantic Indexing
Challenge for Content Management

1. **Annotation**: Add meaning to the content

2. **Link content**: Bring content together in a meaningful way

3. **Make content searchable**: Add background knowledge to the content
Traditional approach to put metadata on top of content

Apple is in the process of launching an application to allow iPhone, iPad and iPod Touch users to purchase Apple merchandise straight from their devices.
Semantic Web approach: Concepts & Relations instead of simple text

Apple is in the process of launching an application to allow iPhone, iPad and iPod Touch users to purchase Apple merchandise straight from their devices.
## Comparison of approaches

<table>
<thead>
<tr>
<th></th>
<th>Traditional approach</th>
<th>Semantic Web approach</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indexing paradigm</strong></td>
<td>Text &amp; phrases</td>
<td>Concepts &amp; named entities</td>
</tr>
<tr>
<td><strong>Background knowledge</strong></td>
<td>Not available</td>
<td>Thesauri, Linked Data</td>
</tr>
<tr>
<td><strong>Semantic search</strong></td>
<td>Statistical approaches</td>
<td>Statistical approaches &amp; methods based on knowledge models</td>
</tr>
<tr>
<td><strong>Similarity search</strong></td>
<td>Based on clustering and vector models</td>
<td>Based on clustering &amp; vector models enriched with background knowledge</td>
</tr>
<tr>
<td><strong>Application scenarios</strong></td>
<td>Out-of-the-box applications, SME´s</td>
<td>Large enterprises, domain-specific search engines</td>
</tr>
</tbody>
</table>
Thesauri & Semantic Web: SKOS (Simple Knowledge Organisation System)

- W3C Standard since 2009
- Based on Semantic Web standards
- Open for linking with additional linked data
PoolParty GUI
Full compatibility with SKOS/RDF
Some highlights: PoolParty thesaurus management

- Auto-Complete
- Advanced reporting functionality
- Import of thesauri (validator!) and CSV files
- Drag & drop
- Quality checker
- Visual browsing and map navigation
- Document analysis: phrase extraction
- Enrich concepts by using linked data
- Publish thesauri as linked data
- Wiki style collaborative editing of thesauri
Some Applications on top of PoolParty

- **Glossary plugin**: import SKOS thesauri and generate glossaries and automatic links within Wordpress.

- **Tag recommendation**: support users and content managers when annotating text.

- **Semantic Indexing**: PoolParty TagEvent Store as a basis for a semantic index (→ IndexBuilder).

- **Similarity search**: „Similarity“ is configurable: Certain features of a document can be „boosted“ (example: persons, places / user tags etc.).

- **Semantic Search**: Thesaurus can be used for facetted and moderated search (examples: emteba.at, ecoi.net).
Similarity search: finding the unexpected...

Expert #4532
Senior Product Manager
Enterprise Wiki
at MitchelLake Consulting
in Sydney Area

......

Project #AZ67
Integration of Confluence which is a web-based corporate wiki.
It is developed and marketed by Atlassian, Australia.

......

same topic

near location
PoolParty DemoZone

- compare thesaurus based approach with traditional approach
- tag recommender
- similar documents
- find images which fit to your document
- browser bookmarklet

http://poolparty.punkt.at/dem ozone/
Wordpress Glossary Plugin

- automatic generation of glossaries for Wordpress blogs
- SKOS compatibility
- automatic link detection and linkage with glossary term

http://wordpress.org/extend/plugins/poolparty-thesaurus/
Integrate with CMS/DMS - Example: emteba.at
Multilinguality

Selected Languages

English [en]
German/Austria [de-at]

Available Languages

German [de]
German/Germany [de-de]
German/Luxembourg [de-lu]
German/Switzerland [de-ch]
Greek [el]
Greek/Greece [el-gi]
Hebrew [iw]
Hebrew/Israel [iw-il]
Hindi/India [hi-in]
Hungarian [hu]
Hungarian/Hungary [hu-hu]
Icelandic [is]
Icelandic/Iceland [is-is]
Italian [it]
Italian/Italy [it-it]
Italian/Switzerland [it-ch]
Japanese [ja]
Japanese/Japan [ja-jp]
Korean [ko]
Korean/South Korea [ko-kr]
Latin [la]
Concept mapping

- `skos:exactMatch`
- `skos:closeMatch`

→ used for linked data mapping

→ used for concept mapping, e.g. after having imported a thesaurus
Associating notes with concepts

- `skos:historyNote`
- `skos:changeNote`
- `skos:editorialNote`

→ used to trace meanings of a concept

→ used to discuss meanings of a concept
Introduce individual relations between concepts

Create your own individual inverse or symmetric relations between concepts!
Document processing

- analyze web-pages, doc, pdf, ppt etc.
- glean new candidate terms to extend your thesaurus
- build tag recommender services
- build a semantic index of your document collection

The city of Berlin, Germany is built around the River Spree in Brandenburg, the federal state of Brandenburg. Berlin is Germany’s capital city and has undergone enormous changes in the past 100 years. No longer divided, this city is now a thriving, modern and exciting destination, welcoming tourists and business visitors alike. Since World War II, the city has emerged from the past and undergone the biggest construction project in Europe. Much of Berlin has been rebuilt, restored or rejuvenated and there is some wonderful architecture, both old and new, standing side by side. Many come here for the exceptional nightlife alone, while others prefer the tourism aspect offered by the city. Those who choose to sightsee by day will discover that many of Berlin’s landmarks come with their very own observation decks, such as the Reichstag (the German Parliament Building), the Europa Center on the Zoologischer Garten, the Kollhoff Tower on the Potsdamer Platz, the Siegessäule (Victory Column) in the Tiergarten area, and the Fernsehturm on the Alexanderplatz, the latter of which is a television tower and the tallest structure in the city, boasting a revolving restaurant. Popular districts with appealing accommodation include Charlottenburg, Friedrichshain, Kreuzberg, Mitte, Prenzlauer Berg and Wilmersdorf. When the Berlin Wall was destroyed in 1989 this was an enormous turning point for the city, which has previously been divided for over 28 years. East and West Berlin are now thoroughly unfixed, although there are still some signs of division in these areas. There are countless landmarks throughout the city and popular sights include the Berliner Dom - a huge domed cathedral standing within the Mitte borough; the Brandenburg Gate - the former city gate and now an iconic symbol of Germany; the Potsdamer Platz - one of the busiest squares in Europe, full of shops, bars, cafes and places of entertainment, Checkpoint Charlie - probably the most famous part of the old Berlin Wall; and the imposing Reichstag, home to the German parliament and just as impressive today as when it was completed in 1884.
Import / export / reporting

- import & export of SKOS using various RDF serializations
- import of CSV
- import of Zthes
- import/export of sub-trees
- custom reports and XML exports based on PoolParty’s template engine
Quality checks and validation service

Check thesauri to:

- be complete
- be non-cyclic (e.g. no circularity in the broader/narrower hierarchy).
- have no disjoints between related and hierarchical paths.
Visual browsing
Use your favourite theme!
Publishing linked data with PoolParty

- using linked data patterns and „Cool URIs“
- linked data front-end
- additional wiki front-end to support collaboration efforts
Linked data frontend
Consuming linked data

- advanced linked data look-up services
- expandable number of linked data sources already integrated
- linked data synchronisation mechanisms (beta)
PoolParty Wiki

- enterprise-wide collaboration on thesauri
- Integrated with linked data frontend
- Search
- RDFa
LOD2 - EU Project (FP7)

- enterprise-ready tools and methodologies for exposing and managing very large amounts of structured information on the Data Web
- a testbed and bootstrap network of high-quality multi-domain, multilingual ontologies from sources such as Wikipedia and OpenStreetMap.
- algorithms based on machine learning for automatically interlinking and fusing data from the Web.
- standards and methods for reliably tracking provenance, ensuring privacy and data security as well as for assessing the quality of information.
- adaptive tools for searching, browsing, and authoring of Linked Data.

http://lod2.eu/
More information on PoolParty

1. Try out the DemoZone: http://poolparty.punkt.at/demozone
2. Get an account: http://poolparty.punkt.at/try-it
4. Read the manual: https://grips.punkt.at/display/POOLDOKU
5. Follow us on Twitter: http://twitter.com/PoolParty_Team
6. Or contact our friendly staff: http://poolparty.punkt.at/company-contact
Contact

punkt. netServices GmbH
Lerchenfelder Guertel 43
A–1160 Wien / Austria
http://www.punkt.at/
http://poolparty.punkt.at/

Mag. Andreas Blumauer
Managing Director
blumauer@punkt.at
+43-1-8974122-27