The Interactive Knowledge project and Open Cms
15 June, 2009, Open Cms Days 2009
Andreas Gruber, Salzburg Research

Overview

| The Interactive Knowledge Stack – an European integrated research project |
| Quick overview: Semantic Web Technologies |
| Semantic enhancements for Open Cms |
WHO and WHY? → Six Industrials and seven Research Groups make a start …

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<th>IKS has 6 SME CMS technology providers</th>
<th>4 of them are fully based on open source CMS</th>
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The CMS Vendors want to introduce knowledge based technologies into their existing software frameworks

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<th>The research and development will be focusing on extending current CMS technology with:</th>
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<td>Intelligent User Interfaces</td>
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<td>Knowledge based Systems Modelling</td>
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<td>Software Engineering Methodology</td>
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<td>Future Internet – Ambient Intelligence applications</td>
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<td>Semantic Web Application Building</td>
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The IKS Consortium

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<tr>
<th>Project Lead and Coordination</th>
<th>Salzburg Research</th>
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</table>

- Deutsches Forschungsinstitut für Künstliche Intelligenz (DFKI)
- Consiglio Nazionale delle Ricerche (CNR)
- Software Research and Development Consultancy Ltd (SRDC)
- Nuxeo Sa.
- TXT Polymedia
- Nemein Oy
- Università di St. Gallen Institute of Technology Management
- University of St. Gallen
- Software Quality Lab
- Hochschule Furtwangen
- Universitat Paderborn
- Alkacon Software GmbH
- Pisano Holding GmbH
- Day Software AG
**Interactive Knowledge Stack**

A Reference Architecture for Semantically Enabled Content Management Systems

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**Comparison of Technology Stacks**

**LAMP, IKS and JEE**

The IKS Stack is a working hypothesis at present ...

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**LAMP CMS Stack**
- PHP, HTML
- XML, CSS, bespoke Code
- PHP bespoke Code
- PHP bespoke Code
- Apache
- SQL
- MySQL
- Entity Identifier Systems, Operating Systems, etc.

**Interactive Knowledge Stack**
- User-centered interaction with Knowledge Objects
- Presentation, Modality & Discourse Patterns
- Knowledge Representation for dynamic models (Rules & Reasoning)
- Knowledge Representation for static models (Schemas & Ontologies)
- Distribution: Transactions & Services
- Data Access: High-level DDLs, Query languages & APIs
- Models of Persistence (Relational, O-O, TripleStores...)
- Entity Identifier Systems, Operating Systems, etc.

**JEE-based CMS Stack**
- AJAX, HTML, ...
- CSS, XML forms, Java bespoke code
- Java bespoke Code
- OO Model + Java Code
- JBOSS
- SQL, OQL, Java Code
- RDBMS, OCDBMS, JCR
- Entity Identifier Systems, Operating Systems, etc.
The Interactive Knowledge Stack must live alongside a real architectural stack!

Here is the Open Cms Stack …
IKS components must be usable from within …

IKS must offer value to every CMS technology provider who wants to move into „semantics“

HOW? → Benchmark the state of the art, Build IKS, validate it with 50 CMS SMEs

Give Industrial Partners semantic CMS Challenges
- See where the current technology “breaks” or fails
- Develop requirements for more effective CMS functionalities

Develop the Interactive Knowledge Stack
- Take the challenge to the open source developer communities!
- (1) Requirements for advanced, semantic CMS
- (2) Specification of the Interactive Knowledge Stack
- (3) alpha-, beta-, and final implementation of the Stack

Validate the Stack with 50 external CMS providers
- Show the early adopters how to use IKS modules
- They bring their business problem to the party
- They try IKS and tell us whether it worked for them

DEMO, DEMO, DEMO, ............ As soon as possible
- An early demo will be about semantic search!
Plan: 48 Months for Building a Technology Basis for Semantically enabled Content Management

Major Expected Results of IKS

| 06/2009: First Community Workshop (29/05/2009) |
| 12/2009: Scenarios; IKS Stack Spec.; 1st Demos |
| 06/2010: Alpha-prototype of the IKS Stack |
| 12/2010: Validation Results of IKS Stack Alpha |
| 06/2011: Beta-Version of the IKS Stack |
| 12/2011: Final Version of the IKS Stack |
| 06/2012: Early Adopter Success Stories |
| 12/2012: Impact Assessment of IKS on CMS Market |
First expected results of IKS

- Semantic search prototype
  - validate semantic “capability” of WCMS
  - show new search paradigms (LATCH, faceted search)

- Semantic WYSIWYG editor
  - help authors with semantic annotations
  - use context to improve recommendations
  - link to Open data

- Usability
  - user interfaces and interactions with graphs
  - large data sets

What are Semantic Web technologies?

- A Stack of web technologies
- Bottom up development
- Mature
  - URI
  - RDF/S
  - (Sparql)

- In development
  - OWL, Rules …
### Now possible: Linking Open Data Project

- Provide open datasets in RDF
- Set RDF links among the data items from different datasets
Why should you pay attention to semantic web technologies?

- Is already adopted / partly supported by major industry players
  - Adobe, Oracle, IBM, HP, Software AG, GE, Northrop Gruman, Altova, Microsoft, Dow Jones, ....
  - Yahoo, Google (recently)

- Early adopters still welcome ;-) Technological and methodological hurdles still there, who masters them first, will be leading edge.

- Usecases for semantic web:

“Freedom’s just another word for nothing left to lose!”

“GET IT WHILE YOU CAN!”
Current technical approaches ...

| microformats |
| community, small set of patterns/formats |

| RDFa |
| W3C draft recommendation, provides the link to RDF |

| microdata |
| newly proposed for HTML5 draft |

Tools to read microformats and RDF

| Operator for Firefox, Oomph for Internet Explorer |

What are Microformats?

| small patterns of HTML |
| to represent commonly published things |
| like people, events, blog posts, reviews and tags in web pages. |

What can you do with microformats?

“With Microformats, you can send & publish things like events, business cards, and product reviews as meaningful XHTML that a person can read in a browser, but a program can import, index and remix as native data.”

(Michael McCracken)

Example: A hCalendar event

<div id="hcalendar-Open-Cms-Days-2009" class="vevent">
  <a href="http://www.opencms-days.org/en/index.html" class="url">
    <abbr title="2009-06-15" class="dtstart">June 15th</abbr> :  
    <abbr title="2009-06-16" class="dtend">17th, 2009</abbr> 
    <span class="summary">Open Cms Days 2009</span> at 
    <span class="location">Cologne, Germany</span></a>
  <div class="description">OpenCms Days 2009 will focus on how OpenCms can be used to deliver top notch web projects and help to successfully overcome shrinking IT and marketing budgets. </div>
</div>

This hCalendar event brought to you by the hCalendar Creator (http://microformats.org/code/hcalendar/creator)

Join the IKS Community at www.iks-project.eu

IKS Kick-off Meeting in January 2009
First Community Workshop on IKS Requirements in May 2009

IKS invites „governance by stakeholders“ → more than 20 people from CMS communities joined us for the first workshop in 2009!