



IkeWiki and KiWi

Semantic Wikis for Collaborative Knowledge Management

Ontolog Mini-Series
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<http://www.kiwi-project.eu>
<http://planet.kiwi-project.eu>

Outline

1. IkeWiki Interface

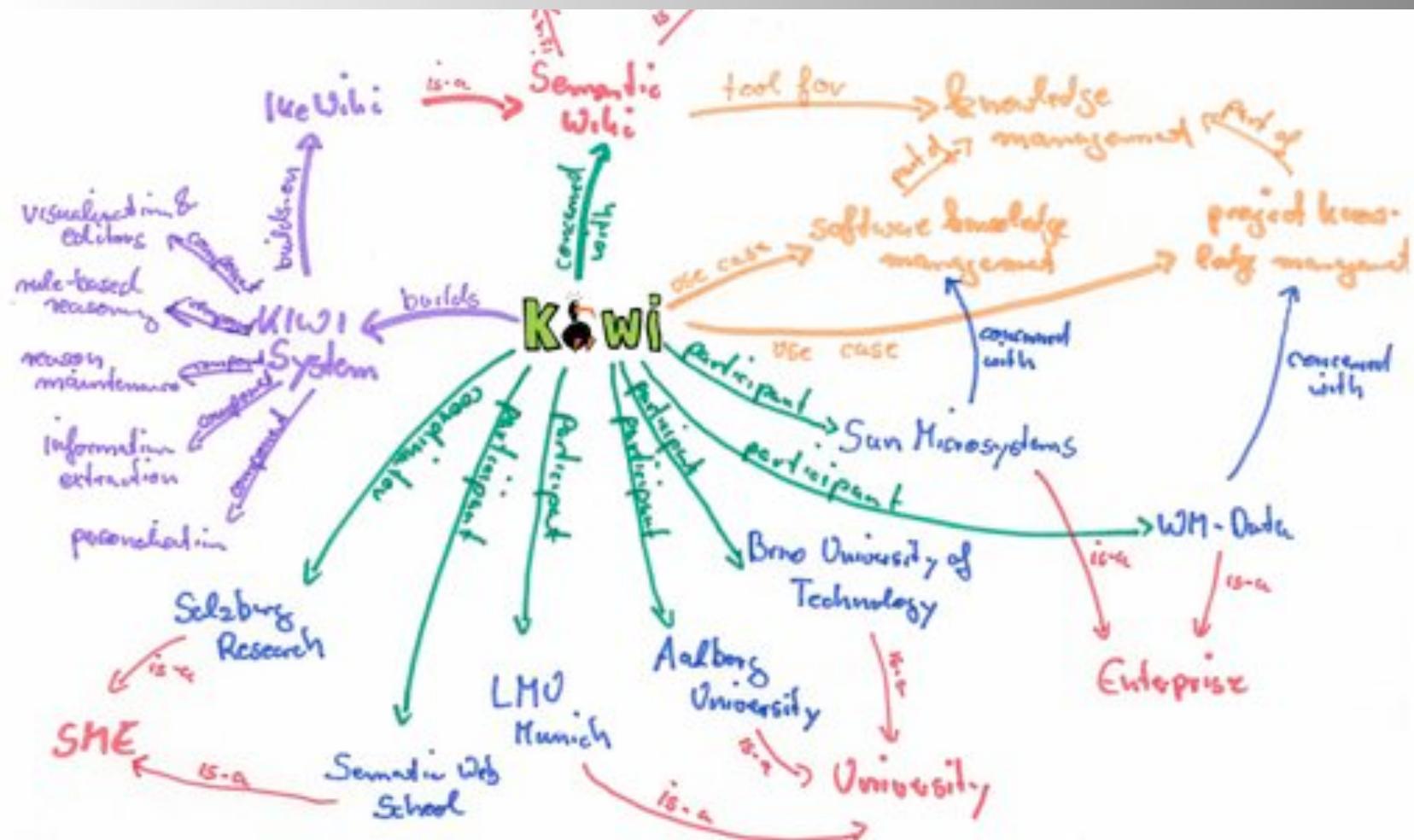
- | Wiki Interface
- | What to do with Semantic Annotations
- | How to do Semantic Annotations

2. IkeWiki Architecture

- | Storing Pages and Metadata
- | Rendering Pipeline
- | Transformation

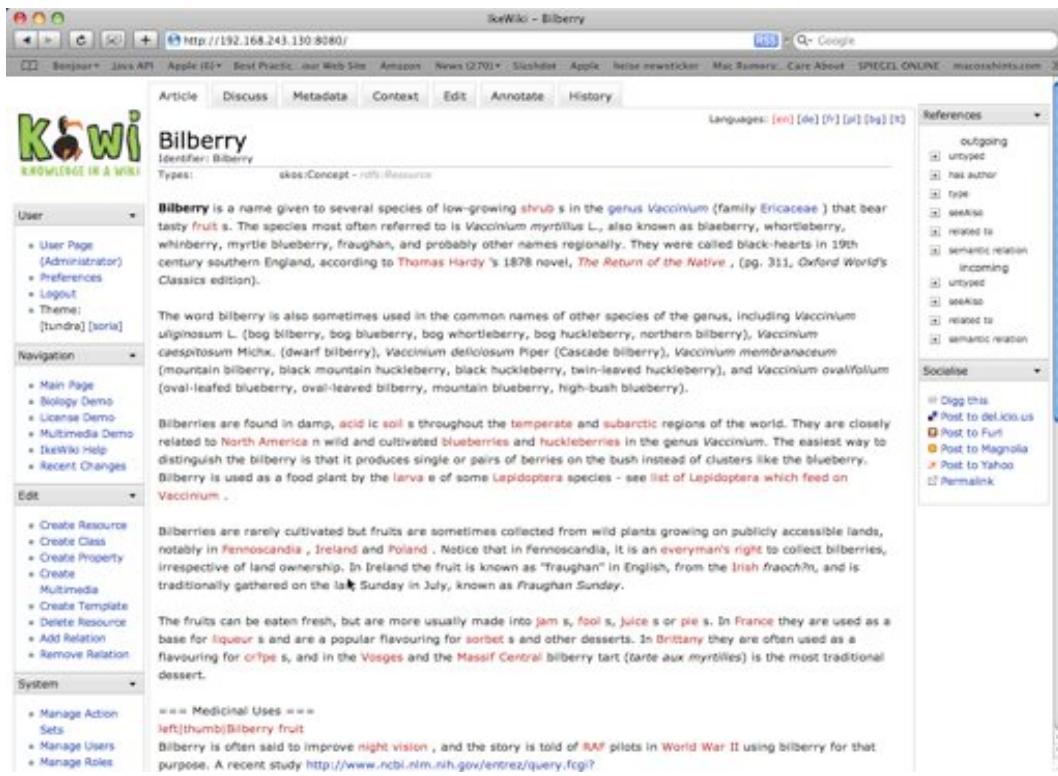
3. From IkeWiki to KiWi

IkeWiki Interface



IkeWiki Interface

- | „normal“ wiki interface for viewing/editing „normal“ content
- | somewhat resembling Wikipedia/MediaWiki



The screenshot shows a web browser window for the IkeWiki platform. The title bar reads "IkeWiki - Bilberry". The main content area displays the following information:

Bilberry
 Identifier: Bilberry
 Types: skos:Concept - rdfs:Resource

Bilberry is a name given to several species of low-growing **shrub**s in the genus *Vaccinium* (family *Ericaceae*) that bear tasty **fruit**s. The species most often referred to is *Vaccinium myrtillus* L., also known as blueberry, whortleberry, whinberry, myrtle blueberry, fraughan, and probably other names regionally. They were called black-hearts in 19th century southern England, according to Thomas Hardy's 1878 novel, *The Return of the Native*, (pg. 311, Oxford World's Classics edition).

The word bilberry is also sometimes used in the common names of other species of the genus, including *Vaccinium uliginosum* L. (bog bilberry, bog blueberry, bog whortleberry, bog huckleberry, northern bilberry), *Vaccinium caesicarpus* Michx. (dwarf bilberry), *Vaccinium deliciosum* Piper (Cascade bilberry), *Vaccinium membranaceum* (mountain bilberry, black mountain huckleberry, black huckleberry, twin-leaved huckleberry), and *Vaccinium ovalifolium* (oval-leaved blueberry, oval-leaved bilberry, mountain blueberry, high-bush blueberry).

Bilberries are found in damp, **acid** **soil**s throughout the **temperate** and **subarctic** regions of the world. They are closely related to **North America**'s wild and cultivated **blueberries** and **huckleberries**. In the genus *Vaccinium*, the easiest way to distinguish the bilberry is that it produces single or pairs of berries on the bush instead of clusters like the blueberry. Bilberry is used as a food plant by the **larva**e of some **Lepidoptera** species - see list of **Lepidoptera** which feed on *Vaccinium*.

Bilberries are rarely cultivated but fruits are sometimes collected from wild plants growing on publicly accessible lands, notably in **Fennoscandia**, **Ireland** and **Poland**. Notice that in Fennoscandia, it is an **everyman's right** to collect bilberries, irrespective of land ownership. In Ireland the fruit is known as "Fraughan" in English, from the **Irish** *fraoch*, and is traditionally gathered on the **la** Sunday in July, known as **Fraughan Sunday**.

The fruits can be eaten fresh, but are more usually made into **jam**s, **fool**s, **juice**s or **pie**s. In **France** they are used as a base for **liqueur**s and are a popular flavouring for **sorbet**s and other desserts. In **Brittany** they are often used as a flavouring for **crème**s, and in the **Vosges** and the **Massif Central** bilberry tart (**tarte aux myrtilles**) is the most traditional dessert.

==== Medicinal Uses ====
left:thumb/Bilberry fruit
 Bilberry is often said to improve **night vision**, and the story is told of **RAF** pilots in **World War II** using bilberry for that purpose. A recent study [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?log)

References

- [+] outgoing
- [+] untyped
- [+] has author
- [+] type
- [+] website
- [+] related to
- [+] semantic relation incoming
- [+] untyped
- [+] seekall
- [+] related to
- [+] semantic relation

Socialise

- [+] Digg this
- [+] Post to del.icio.us
- [+] Post to Furl
- [+] Post to Magnolia
- [x] Post to Yahoo
- [+] Permalink

IkeWiki Interface – What to do with Semantic Annotations?

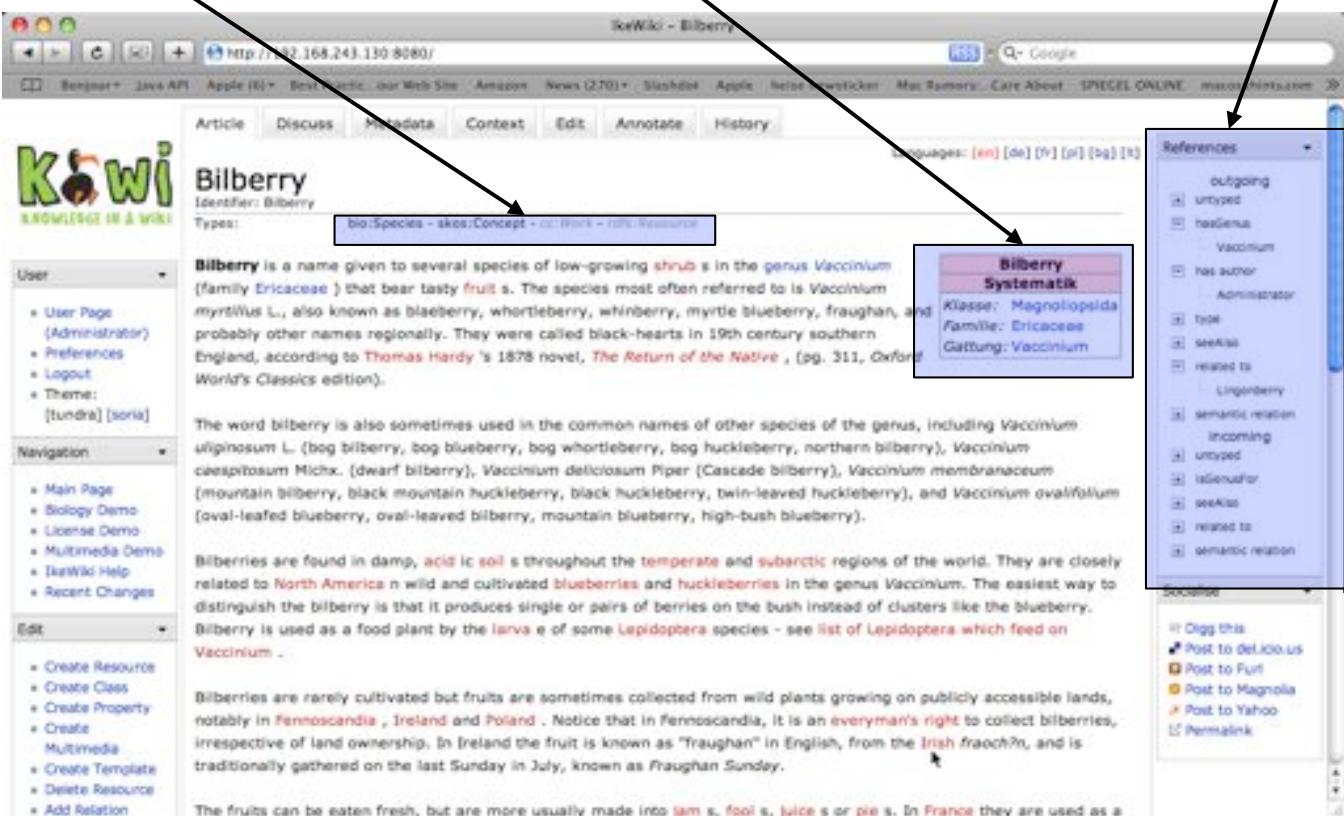
- | people will only use metadata when they see a benefit in it!
- | possible uses of metadata (for authors):
 - | support in editing (e.g. avoiding redundancy of data)
 - | interoperability and exchange between systems
- | possible uses of metadata (for users):
 - | improved search and navigation
 - | improved page presentation

IkeWiki Interface – What to do with Semantic Annotations?

categories/types

context-dependent
presentation

navigation



The screenshot shows a web browser displaying a page about 'Bilberry' on the IkeWiki platform. The page includes a sidebar with navigation links like 'User', 'Navigation', and 'Edit'. The main content area has a heading 'Bilberry' and a summary paragraph. A blue box highlights a semantic annotation: 'bio:Species - skos:Concept - dc:Title - rdfs:Resource'. To the right, a sidebar titled 'Systematik' provides taxonomic information: Klasse: Magnoliopsida, Familie: Ericaceae, Gattung: Vaccinium. On the far right, a 'References' sidebar lists outgoing and incoming semantic relations, such as 'hasGenus' pointing to 'Vaccinium' and 'hasAuthor' pointing to 'Administrator'. Below the sidebar are social sharing links for Digg, del.icio.us, Furl, Magnolia, and Yahoo, along with a 'Permalink'.

IkeWiki Interface – How to do Semantic Annotations?

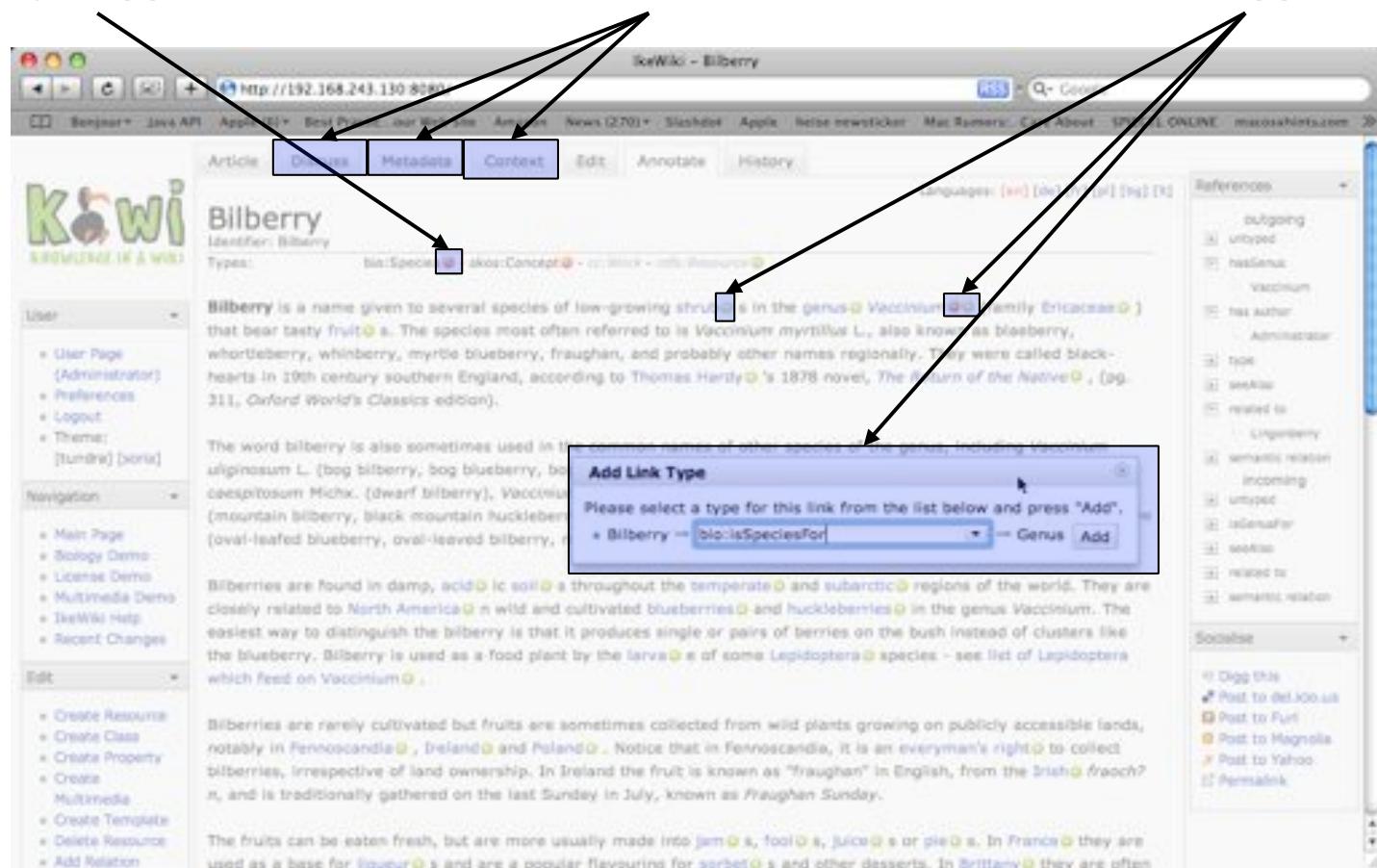
- | people will only use metadata if it is easy!
- | lower the technical barrier for metadata creation
 - | provide an easy to use interface for adding annotations (AJAX-based adding of link and page types)
 - | support the user by reasonable suggestions where possible (link and page type suggestions based on reasoning)
 - | support different levels of experience and hide unnecessary complexity (showing advanced features only to advanced users)
 - | allow domain experts and knowledge engineers to collaborate
 - | immediate exploitation of semantic annotations (instant reward)
 - | supporting different levels of formalisation (evolving knowledge models)

IkeWiki Interface – How to do Semantic Annotations?

page types

advanced features

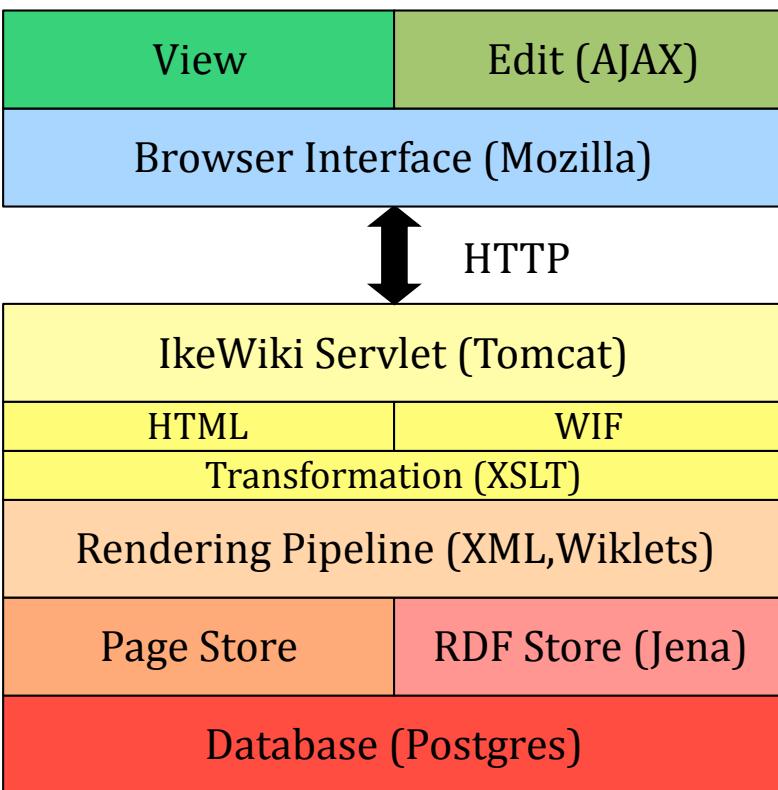
link types



The screenshot shows the IkeWiki interface for the page "Bilberry". The top navigation bar includes tabs for Article, Details, Metadata, and Context. The main content area displays the text of the Bilberry article, which includes several semantic annotations (e.g., "bio:SpeciesFor", "kows:Concept"). A modal dialog box titled "Add Link Type" is open, prompting the user to select a type for a link from a list, with "Bilberry == bio:isSpeciesFor" selected and a "Genus" button highlighted. The sidebar on the right contains sections for "References" (listing outgoing, untyped, hasAuthor, hasTitle, type, section, relatedTo, semanticRelation, incoming, isAuthor, section, relatedTo, semanticRelation) and "Socialise" (with links to Digg, Post to del.icio.us, Post to Furl, Post to Magnolia, Post to Yahoo!, and Permalink).

IkeWiki Architecture



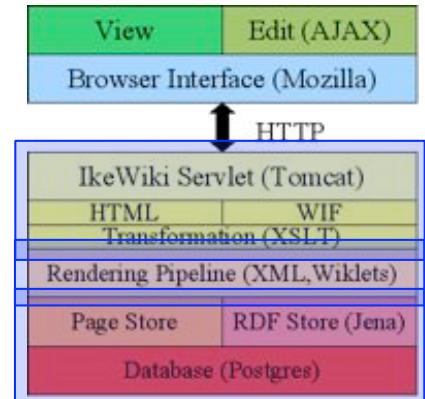


- | Page Store: XML content
- | RDF Store: RDF metadata
- | Rendering Pipeline:
combination of content and
metadata
- | transformation into HTML
and other formats
- | AJAX editing and viewing in
Mozilla/Firefox

IkeWiki Architecture

Storing Content and Metadata

- | page content and metadata stored separately
 - | *page content*: PostgreSQL database
 - | *metadata*: Jena RDF memory model with OWL-DL reasoning, backed by a database model for persistent storage
- | rendering pipeline combines page content with metadata
 - | „wiklets“ enrich page content with information from the knowledge model
- | XSLT transformation transforms „enriched“ page content to different formats
 - | HTML for presentation
 - | HTML for tooltip
 - | XML/WIF for exchange



From IkeWiki to KiWi



KiWi: A Flexible Platform for Semantic Social Software

- | most Social Software systems build on the same principles like Wikis: everyone can participate, easy linking, easy editing, versioning
- | KiWi uses the Semantic Wiki technology as a platform for many similar kinds of Semantic Social Software systems (see next slides)
- | KiWi provides the technological infrastructure in the areas of content access (data + metadata), transactions, versioning, reasoning, information extraction and personalisation
- | different Social Software applications can be implemented easily as “perspectives” (or “view plugins”) on top of this infrastructure

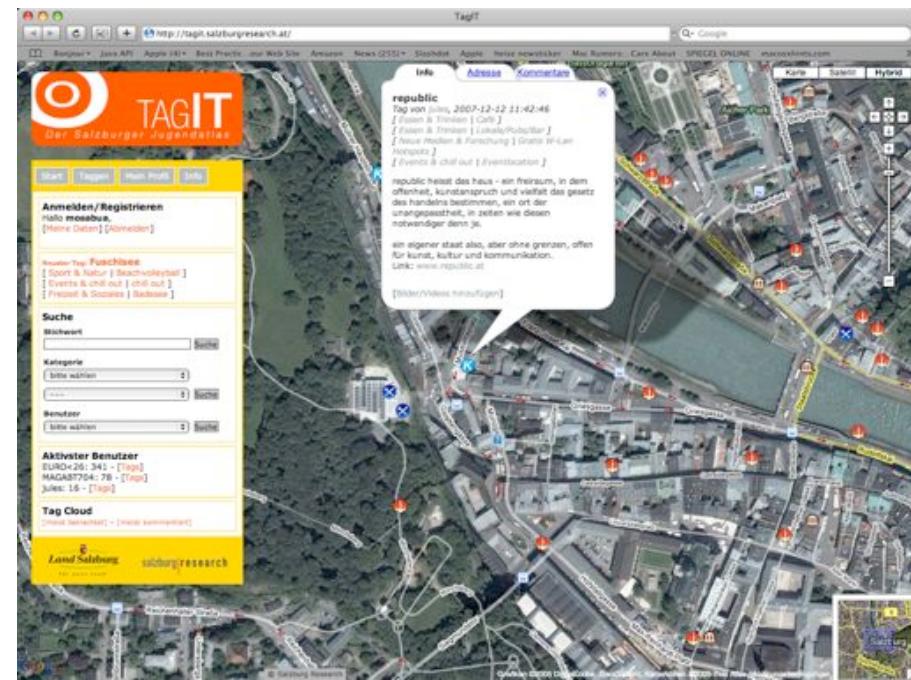
Example Perspective: Wiki

- | ordinary Wiki interface (View, Edit, History, ...)
- | similar functionality like IkeWiki (Semantic Annotations)
- | implemented as a generic perspective on KiWi



Example Perspective: TagIT

- | tagIT: map based interface to describe locations ("youth atlas of Salzburg")
- | youths can „tag“ locations on a map, add descriptions, photos, comments, etc.
- | search by various different „navigation paths“:
map, full-text, topic, user, rating, ...



KiWi Technology

- | component-based Java EE/JBoss Seam application
- | core components:
 - | KiWiEntityManager: access to content and meta-data, transactions, revisions
 - | Facades: different (Java) perspectives on content and meta-data (similar to Elmo but more powerful)
 - | Services (stateless EJB): provide common functionality (e.g. recommendations, tag clouds, ...)
 - | ActionBeans (stateful EJB): provide user interaction functionality for the user interface
 - | JSF Views: specify different user interfaces



Project Facts

- | EU FP7 research project
 - | started in March 2008
 - | duration 36 months
- | Partners: Salzburg Research, University of Aalborg, University of Munich, Technical University of Brno, Sun Microsystems, Semantic Web School, WM-data

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