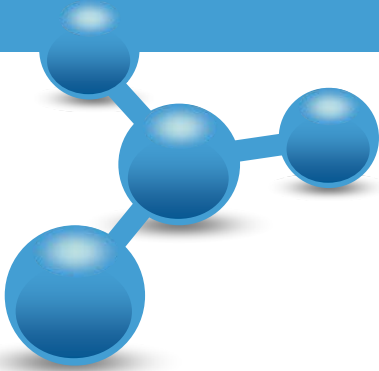


The Visual Wiki



Christian Hirsch

COMPSCI 732 – Mar 23, 2010



Overview

- Background / Research Area
- The Visual Wiki Concept
- 4 Example Visual Wikis
- VikiBuilder: a Visual Wiki meta-tool

thinkbase
alpha

THINKPEDIA
Visually Explore Wikipedia

ThinkFree

KaitoroBase

Background

Visual | Wiki

Information visualization

Knowledge visualization

DSVL

HCI

Cognition

...

Web 2.0

Enterprise 2.0

Knowledge Management

Tools / Technologies / Concepts

Semantic Web

...

Visually enhance Wikis in order to improve their ability as knowledge management tools.

(Wikis = "textual collaboration repositories")

Exploring synergic effects between Collaboration tools, and Visual representations.

Background

web 2.0 and enterprise 2.0 (lack of clear definitions)

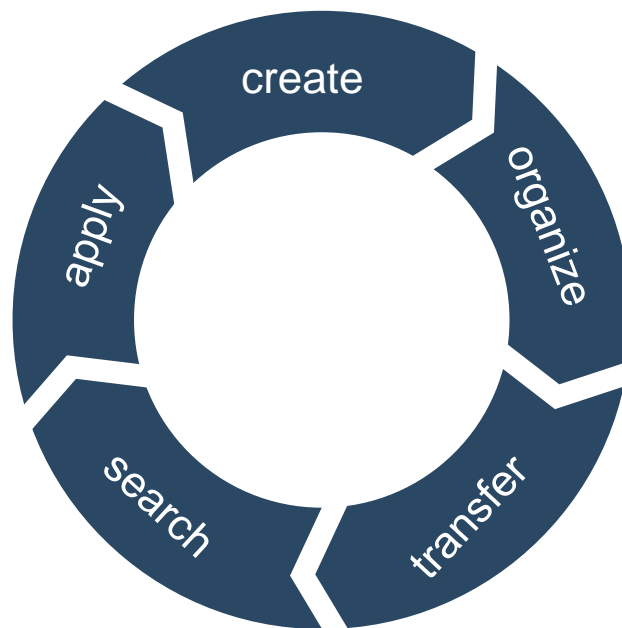
- *Technologies*: RSS, Ajax, ...
- *Tools*: wikis, blogs, social software, ...
- *Concepts*: user participation, mass collaboration, rich user experience, remixability, ...

Semantic Web:

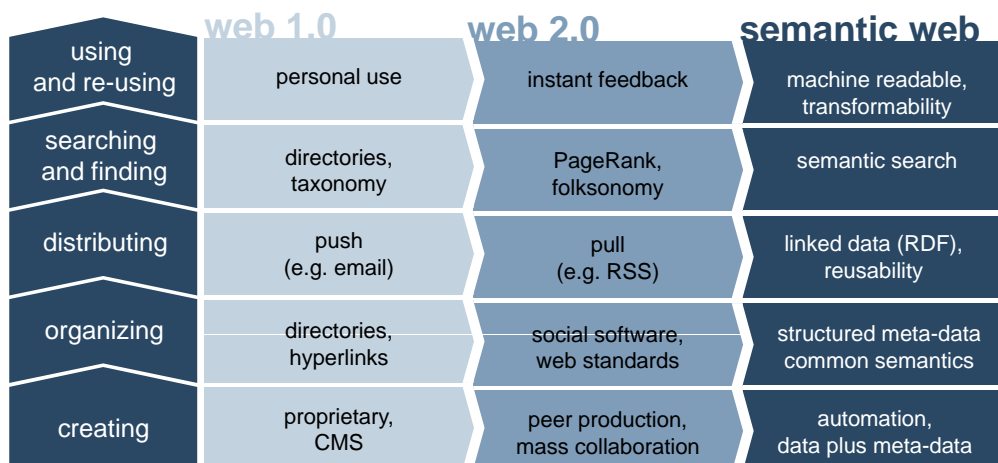
- *Semantics (meaning)* of information is defined in order to make content machine-processable
- RDF, OWL, ...

→ changing the way information is *processed*

Information Processing Lifecycle



Information Processing Lifecycle



- Underlying to these changes are: **technologies, tools, and concepts**
- All 3 areas are inter-dependent
- The evolution of the lifecycle is driven by the need to make sense out of more and more information

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Tools / Technologies / Concepts

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...

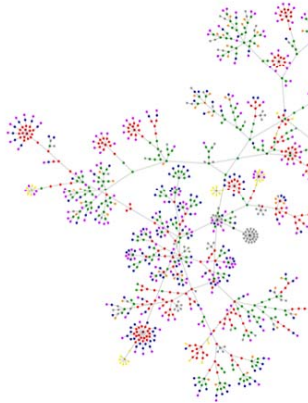
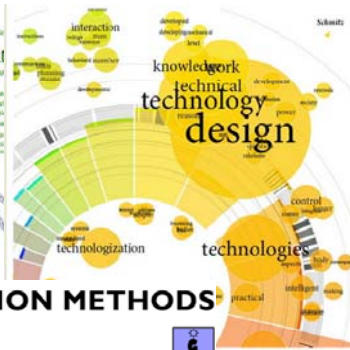
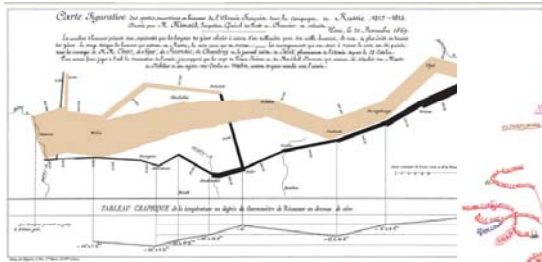
Information Visualization

- is an effective **method** for representing and organizing knowledge- and information-rich scenarios
- make use of the **human cognitive processing system** in order to create and convey content more efficiently

technique:

- resource object (underlying semantics)
- visual object (DSVL)
- purpose (create, organize, transfer, search, apply)

Information Visualization



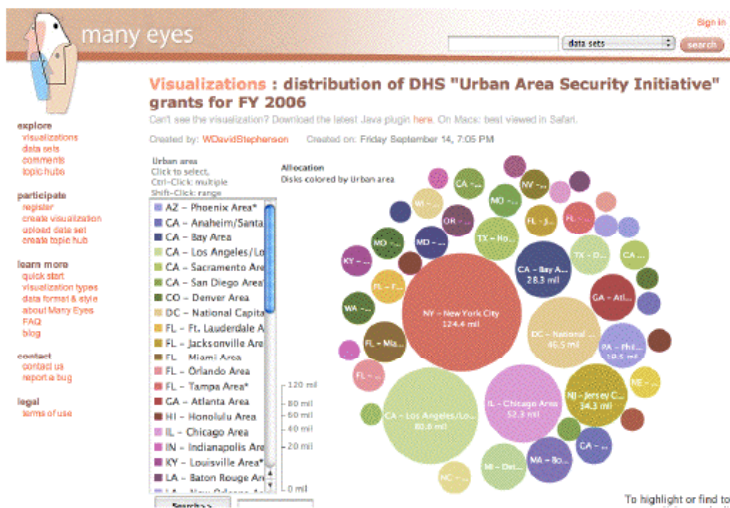
A PERIODIC TABLE OF VISUALIZATION METHODS

Data Visualization Visual representations of quantitative data in schematic form (often with or without axes)		Strategy Visualization The systematic use of complementary visual representations in the analysis, development, formulation, comparison, and implementation of strategies or organizations.	
Information Visualization The use of interactive visual representations of data to analyze and structure information. They also convey insight about the represented information through the key characteristics of the metaphor that is employed.		Metaphor Visualization Visual metaphors position information particularly in an abstract and structured information. They also convey insight about the represented information through the key characteristics of the metaphor that is employed.	
Concept Visualization Processes in domains, generally qualitative concepts, ideas, plans, and analyses.		Compound Visualization Processes in domains, generally qualitative concepts, ideas, plans, and analyses.	

http://www.visual-literacy.org/periodic_table/periodic_table.html

Information Visualization

- visualizations become more and more **web-based**
 - technologies (applets, DHTML, Flash, Silverlight, ...)
 - bandwidth...

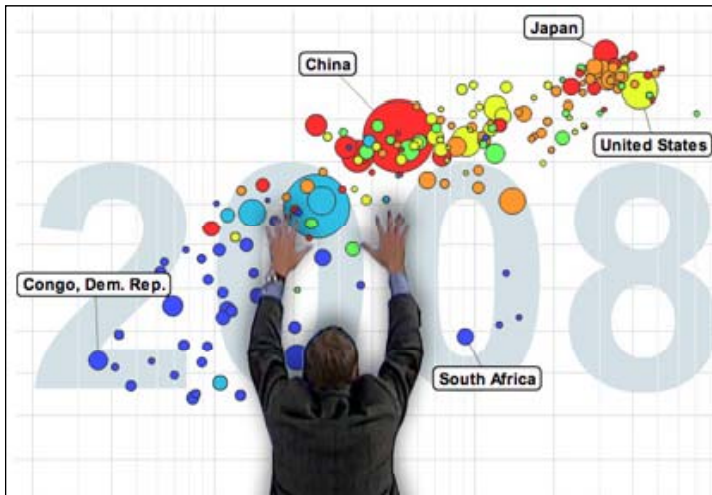


Many Eyes

To highlight or find to manyeyes.alphaworks.ibm.com

Information Visualization

- visualizations become more and more **web-based**
 - technologies (applets, DHTML, Flash, Silverlight, ...)
 - bandwidth...



Gapminder

<http://www.gapminder.org/>

Information Visualization

- visualizations become more **social**
 - collaboratively create visualization
 - share them



Mindmeister

www.mindmeister.com

Background

Visual | Wiki

Information visualization

Knowledge visualization

DSVL

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Cognition

...

Web 2.0

Enterprise 2.0

Knowledge Management

Tools / Technologies / Concepts

Semantic Web

...

Background

Both (**visual** and **wiki** part) have potential to improve knowledge management:

Wiki:

- represent dynamic content
- ad hoc creation
- this is closer to how humans process knowledge

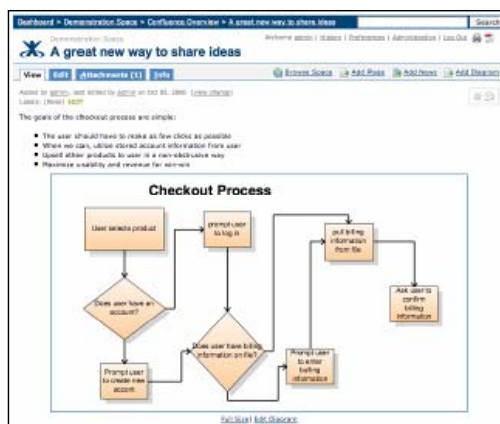
Visual:

- efficient way to represent and organize knowledge- and information-rich scenarios
- makes use of human cognition

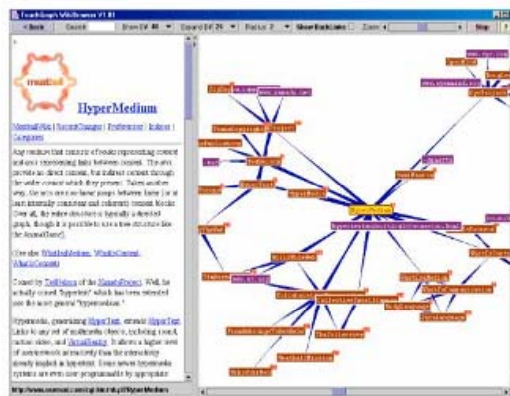
The Visual Wiki Concept

Visual Wiki Concept

Different existing approaches



Gliffy & Confluence

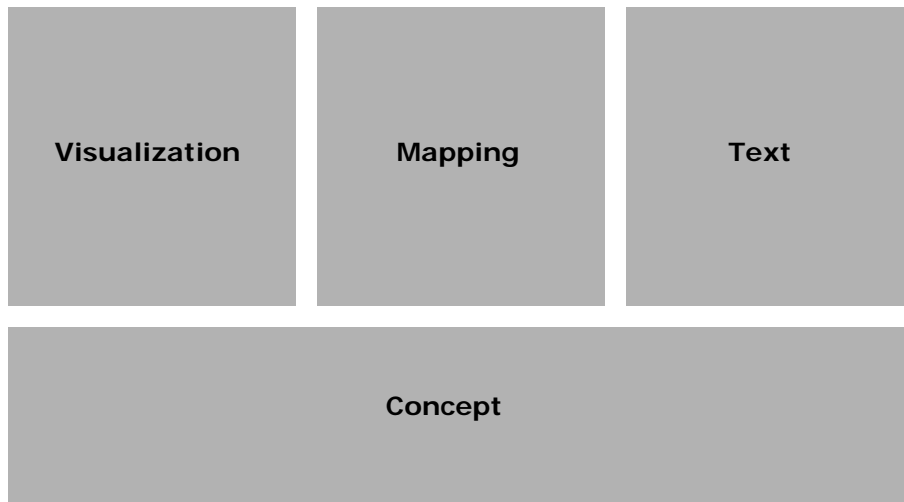


TouchGraph WikiBrowser

→ A general Visual Wiki model is needed

Visual Wiki Concept

The **4 Components** of the Visual Wiki



Visual Wiki Examples



The image shows a screenshot of a web browser displaying a search for 'Homer Simpson' on the Thinkbase website. The search results are shown in a dropdown menu. The main content area features a knowledge graph for 'Homer Simpson' and a profile page from Freebase.

Search Results:

- Homer (Film writer, Disabled person, Topic, Juggle, Author, Person,...)
- Homer (Statistical region, Topic, Location, Dated location, City/To...)
- Homer Simpson (Breakfast Cereal Mascot, Fictional Character, Topic, TV Char...)
- Homer (Statistical region, Topic, Location, Dated location, City/To...)
- Homer (Statistical region, Topic, Location, Dated location, City/To...)

Knowledge Graph:

The graph shows 'Homer Simpson' at the center, connected to various entities and relationships:

- Children:** Bart Simpson, Lisa Simpson, Maggie Simpson
- Spouses:** Mona Simpson
- Parents:** Abraham Simpson
- Other:** Nuclear Safety Inspector, Good Night, Homer's Cinnamon Donut, Springfield, The Simpsons, Matt Groening, Dan Castella, Quotations, Male, Safety inspector

Freebase Profile:

Homer Simpson

Homer Jay Simpson is a fictional main character in the animated television series *The Simpsons* and father of the eponymous family. He is voiced by Dan Castellaneta and first appeared on television, along with the rest of the family, in *The Tracey Ullman Show* short "Good Night" on April 19, 1979. Homer was created and designed by cartoonist Matt Groening while working at the animation studio Springfield.

[Read article at Wikipedia](#)

Character Created By: Matt Groening

Appears In These Fictional Universes: *The Simpsons*

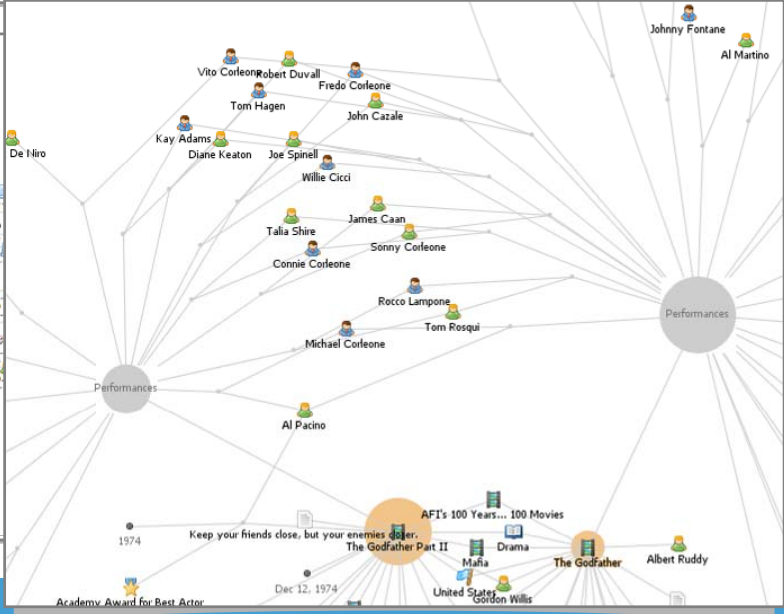
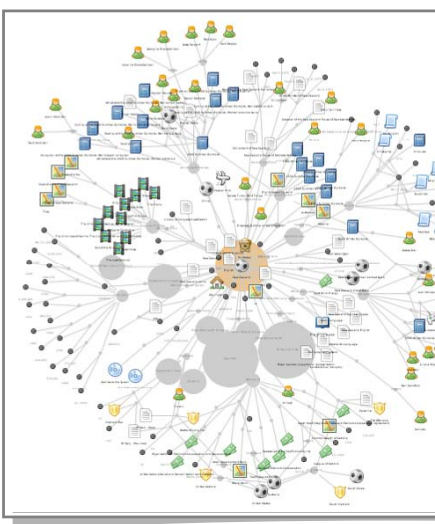
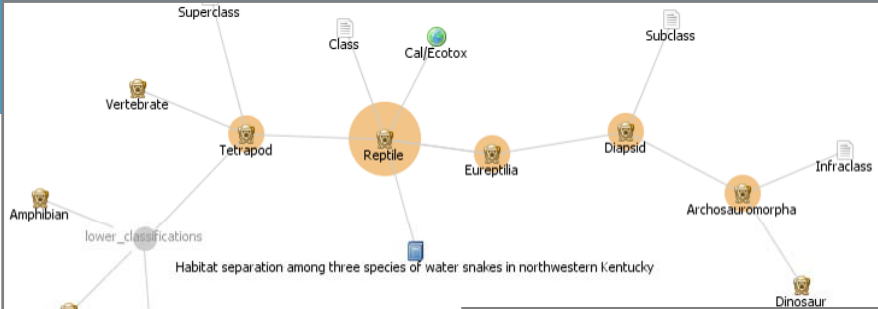
Also known as: Homer Jay Simpson

Character Created By: Matt Groening

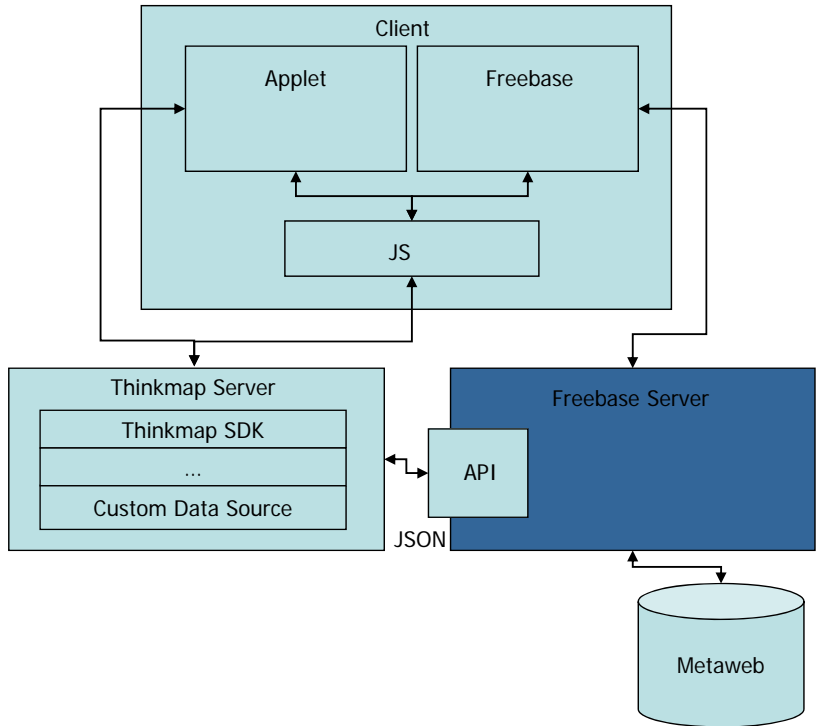
TV Character

<http://thinkbase.cs.auckland.ac.nz/>

powered by Thinkmap



Thinkbase



2

The screenshot shows the Thinkpedia website interface. The main content area displays a network graph centered on 'Albert Einstein', with nodes representing various categories like 'Person', 'Country', 'Organization', and 'City'. The sidebar on the right contains navigation links, a search box, and a toolbox. A large text box at the bottom right of the page reads: 'Extracting and visualizing structured content from Wikipedia'. At the bottom, a URL is provided: 'http://thinkpedia.cs.auckland.ac.nz/'.

3

ThinkFree

Search ThinkFree THE UNIVERSITY OF AUCKLAND NEW ZEALAND

nDeva

Description: Peoplesoft Student Administration Package

UoA Application

owned by: Student Administration

provided by: Oracle

Application Type: Package

uses Technology: COBOL, Crystal Reports, Java, Oracle DBMS, PeopleTools

Admissions, Enrolment, Fees and Charges, Graduation

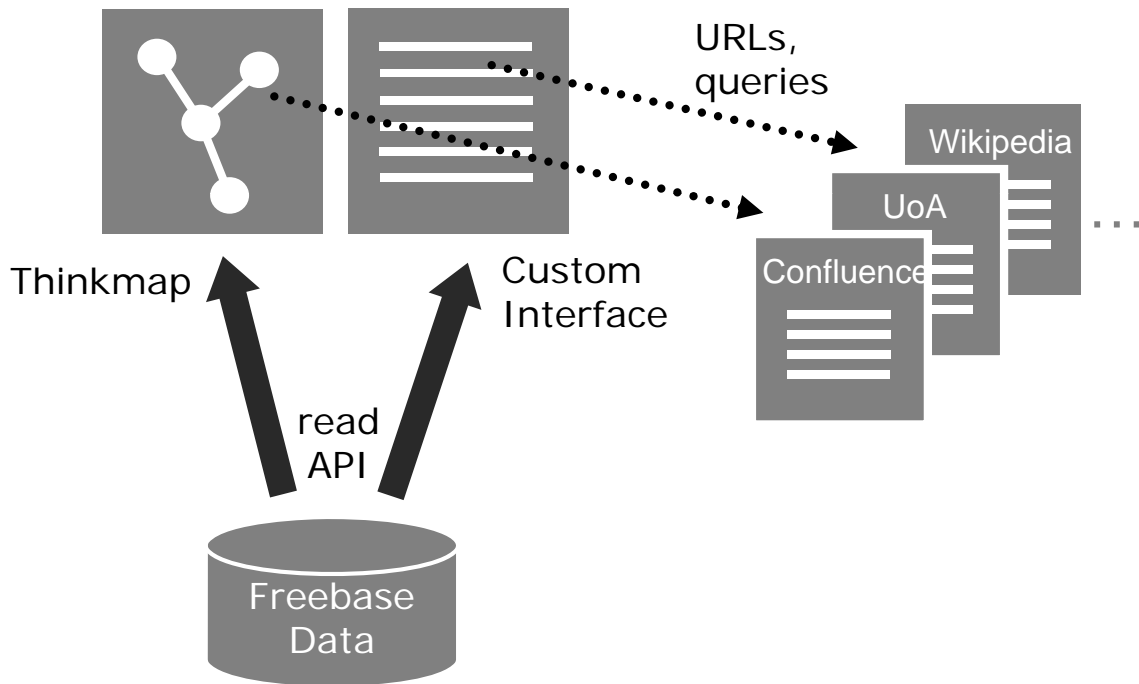
Also known as: Student Administration

Web Link(s): nDeva

powered by Thinkmap

A visual exploration tool for the IT infrastructure of The UoA

ThinkFree



The screenshot shows the ThinkFree web application interface. The browser window title is "ThinkFree". The page header includes "ThinkFree" and "THE UNIVERSITY OF AUCKLAND NEW ZEALAND". The breadcrumb trail is "Dashboard > Application Platforms > ... > Business Functions > Student Management Systems". The main content area is titled "Student Management Systems" and includes an "Overview" section with a description and a link to a team page. Below this are sections for "Business Functions", "Links to Related Information", "Change Requests", and "Applications". The "Applications" section lists several tools with their labels, such as "QAS", "nDeva - PeopleSoft Student Administration", "Fees Calculator", and "RightNow CRM Application". A "Contact Centre, recruitment and constituent relationship management:" section is also visible at the bottom.

ThinkFree

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

back

nDeva All University Websites Search Advanced Search Search Tips

Search Results 1 - 10 of about 17000 for nDeva. Search took 0.01 seconds.
Next> Sort by date / Sort by relevance

Student Self Service (nDeva) **KeyMatch**
https://ndeva.auckland.ac.nz/

nDeva - The University of Auckland
... nDeva. nDeva is a student management system that students can use to apply to The University of Auckland and enrol in their individual classes. ... Log on to nDeva. ... www.auckland.ac.nz/uoa/home/for/current-students/cs-student-essentials/ndeva-20k - Cached

Navigate nDeva - The University of Auckland
... Navigate nDeva. The Course Catalogue shows ... Browse the Course Catalogue as a guest through the nDeva website. Course availability and timetables ... www.auckland.ac.nz/uoa/home/for/international-students/is-360-auckland-abroad/is-navigate-ndeva-25k - Cached
[More results from www.auckland.ac.nz/uoa/home/for]

www.auckland.ac.nz/ndeva

www.auckland.ac.nz/nDeva
[More results from www.auckland.ac.nz]

www.auckland.ac.nz/ndeva/

www.auckland.ac.nz/ndeva/

How to enrol on nDeva - The University of Auckland
<p>Step-by-step instructions on how to search for, add, swap and drop courses using nDeva.</p> ... nDeva Print. How to enrol on nDeva. ... www.auckland.ac.nz/.../ae-undergraduate-students/ae-enrolling-in-courses/ae-how-to-enrol-on-ndeva-31k - Cached

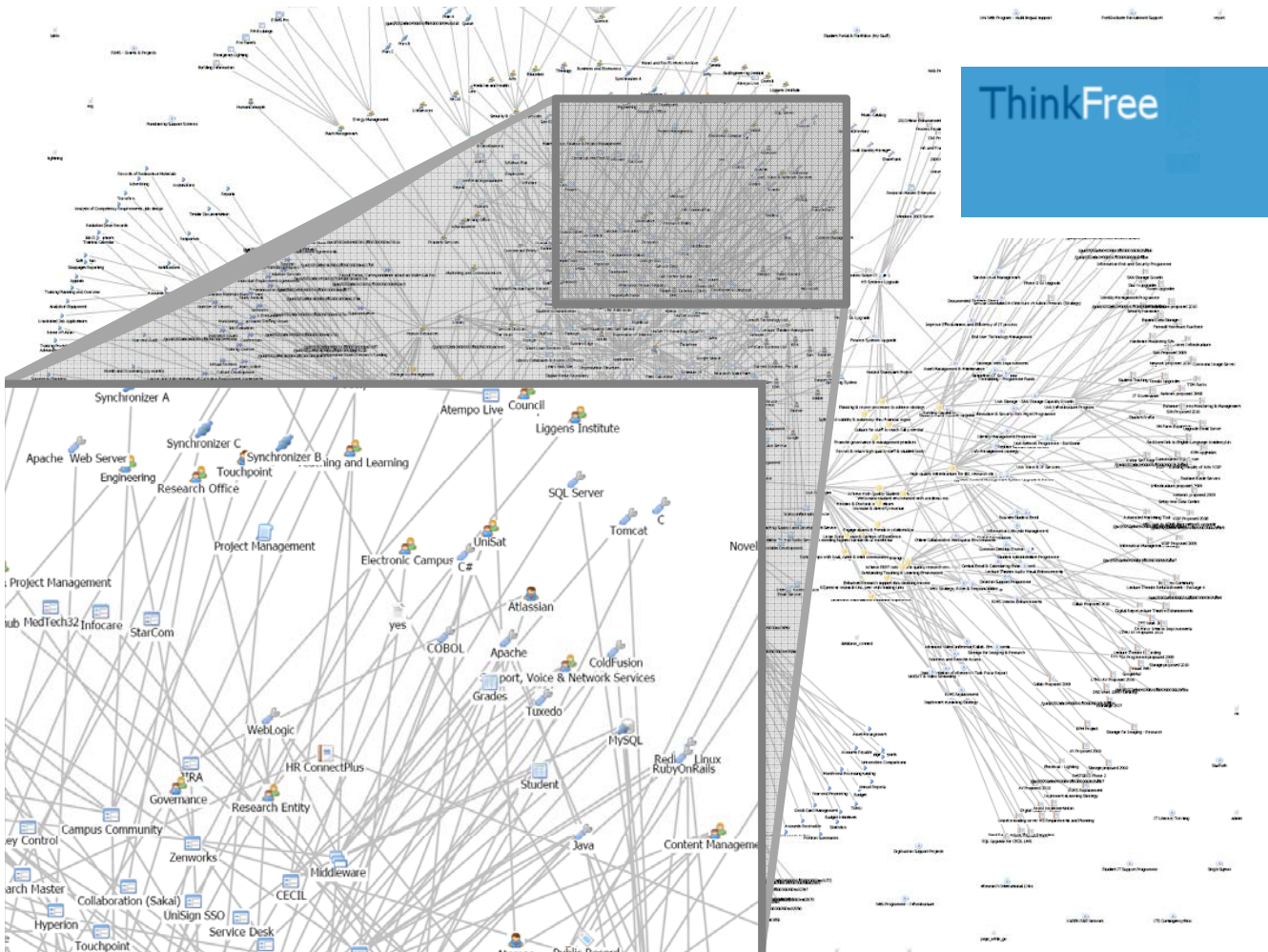
TEXT ONLY - FAQs - The Information Commons - Ururangi - The ...
Not a student? nDeva - 1. Where do I go for help with nDeva? 2. Where do I go for help

Student Administration

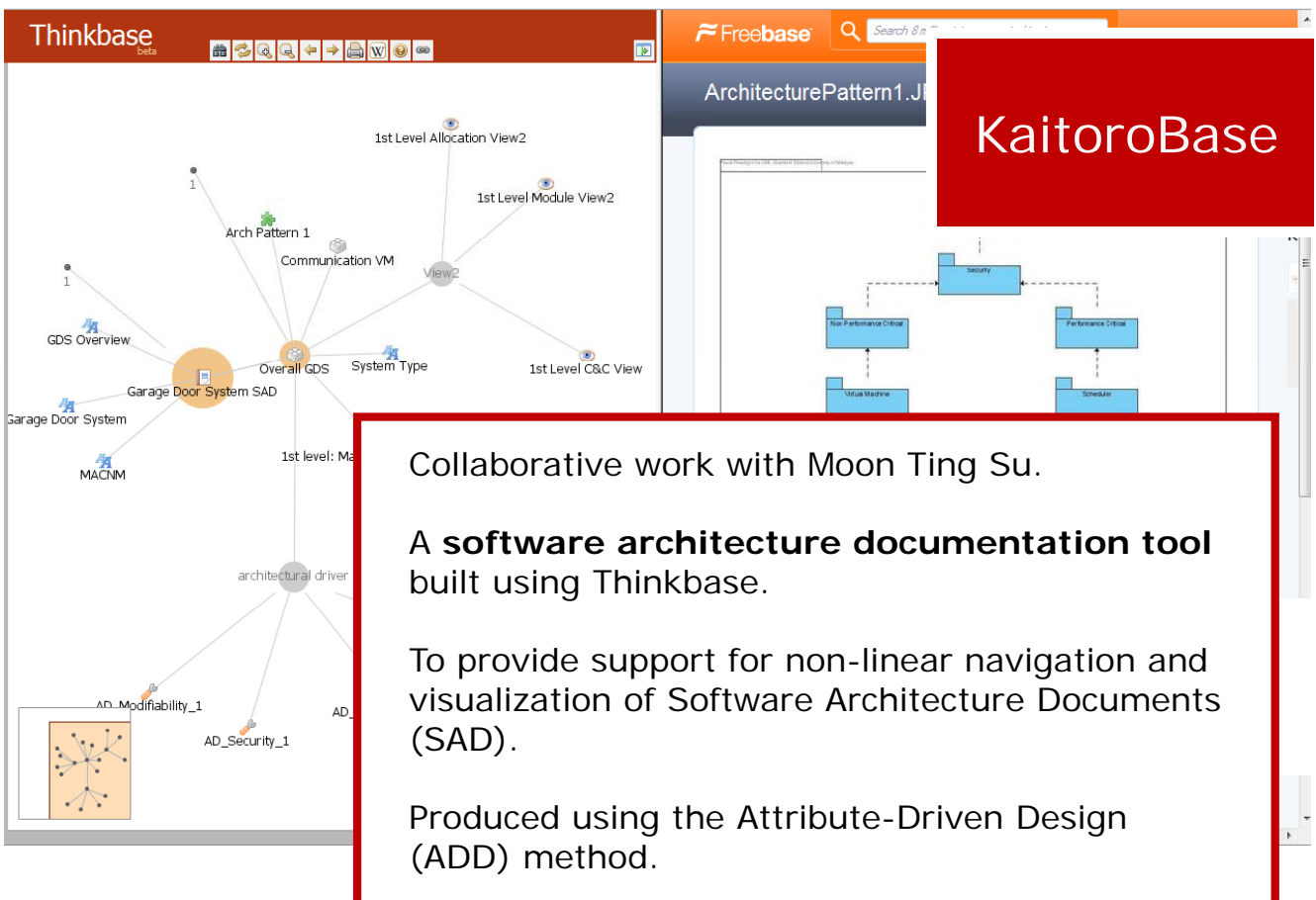
Enrolment

Processes

RELEASE 5 powered by Thinkmap



4



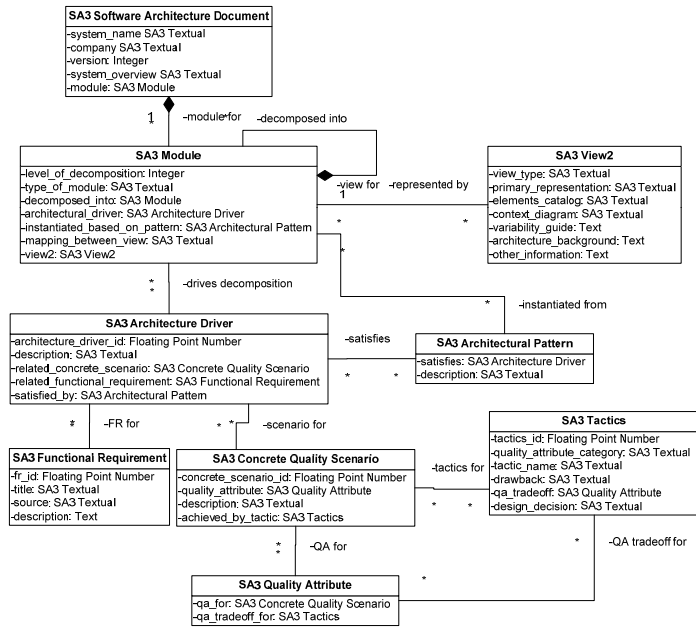
Collaborative work with Moon Ting Su.

A software architecture documentation tool built using Thinkbase.

To provide support for non-linear navigation and visualization of Software Architecture Documents (SAD).

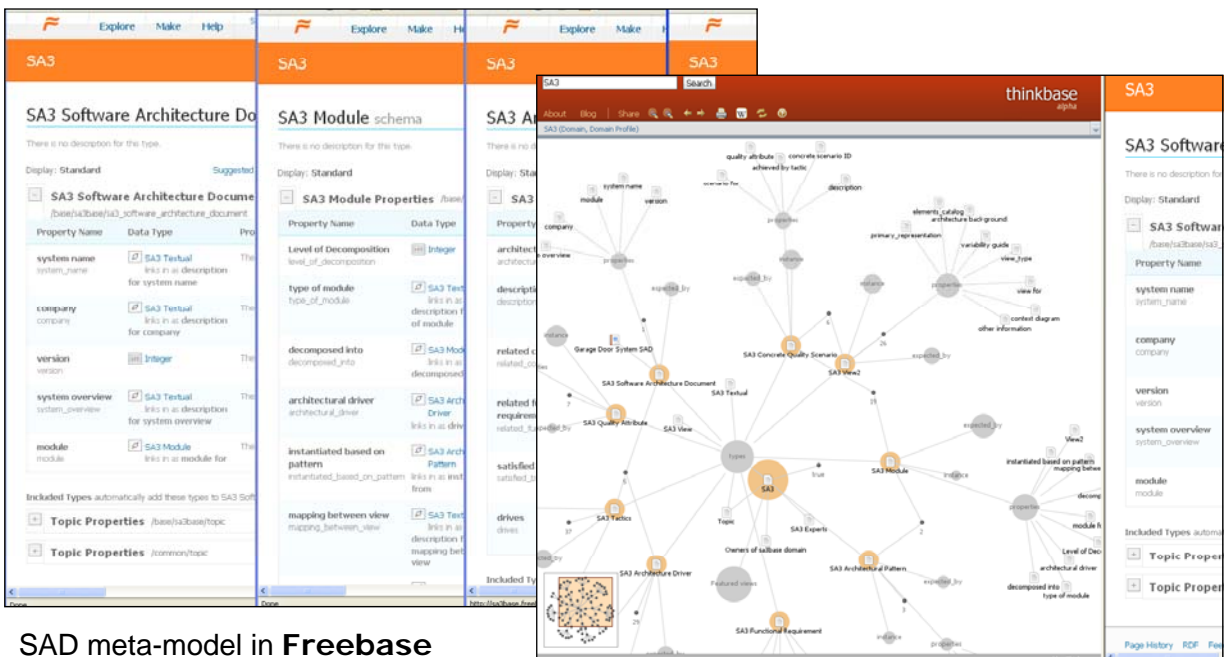
Produced using the Attribute-Driven Design (ADD) method.

KaitoroBase - Model



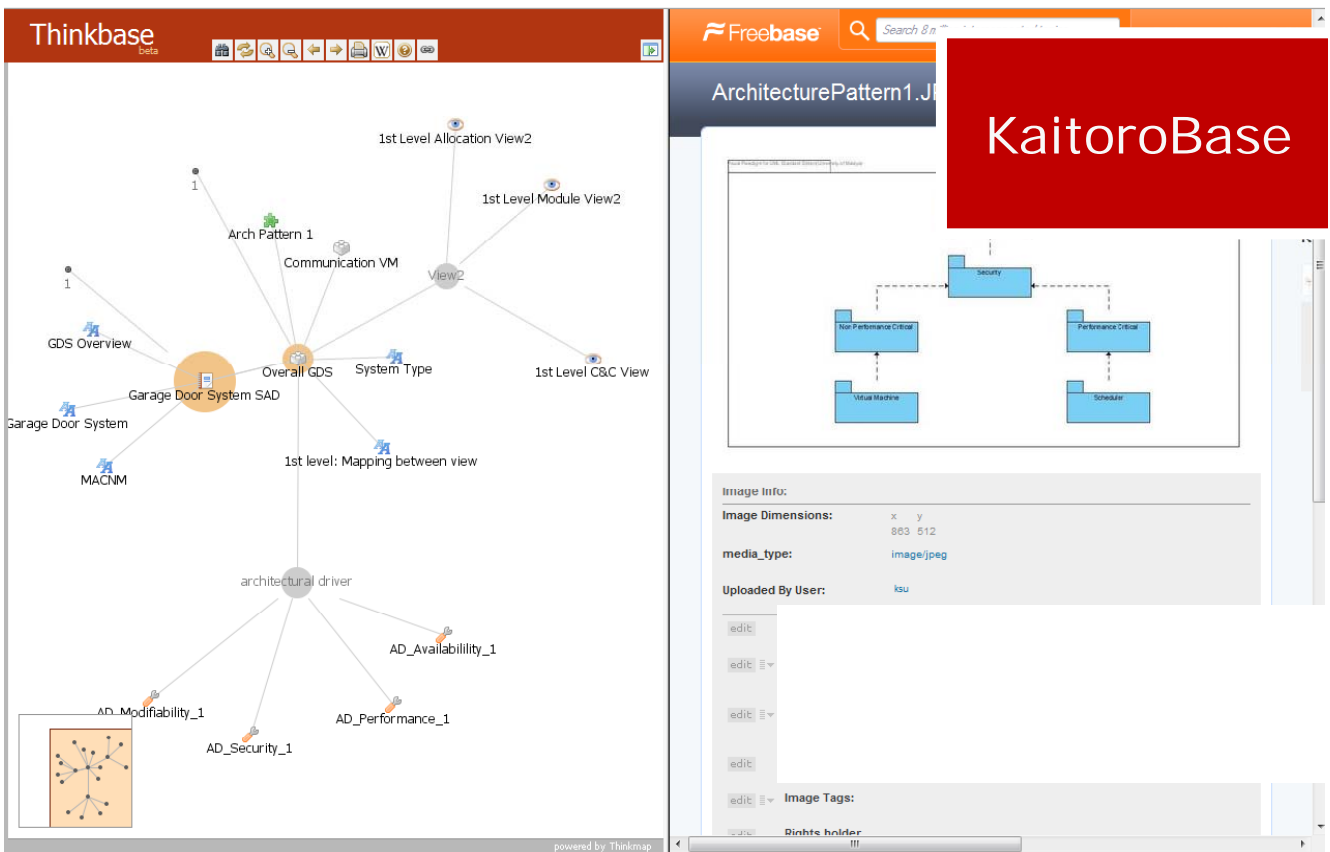
extracted from **Attribute-Driven Design (ADD)**
 [L. Bass, P. Clements, and R. Kazman, Software architecture in practice, Addison Wesley Professional, 2003]

KaitoroBase - Model



SAD meta-model in **Freebase**

SAD meta-model in **Thinkbase**

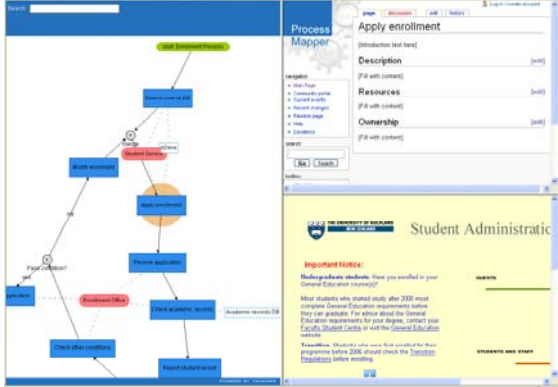


KaitoroBase

...more Projects

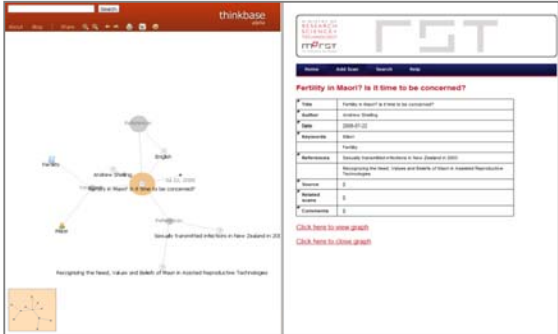
ProcessMapper

Visualizing Business Processes (BPMN), connecting to a process documentation wiki as well as other web applications.



MoRST Scan Visualizer

CSI Academy Project in 2008. Semantic annotation and visualization system for MoRST technology scans.



VikiBuilder – a Visual Wiki meta-tool

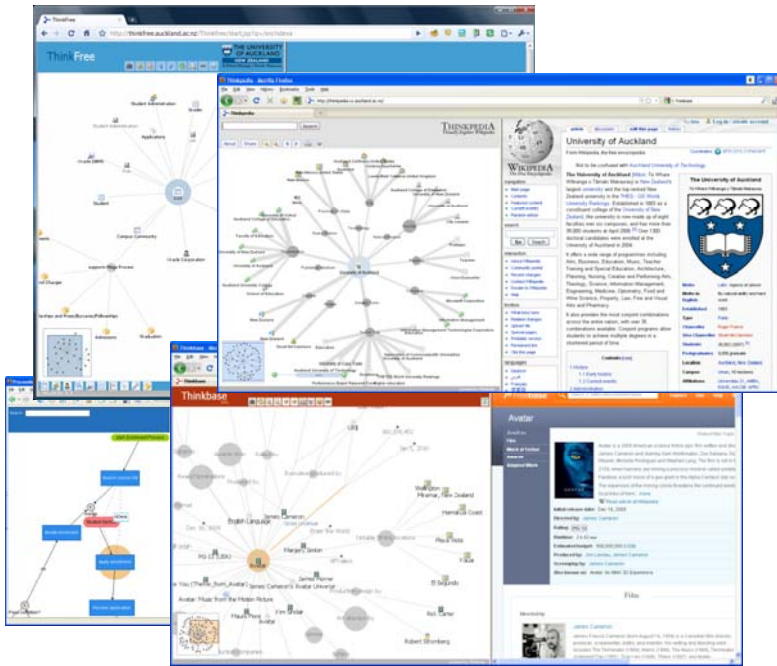
VikiBuilder

Objective: to create a Visual Wiki meta-tool – *a tool which allows end-users to specify (model) a Visual Wiki and automatically create it.*

Divided into 3 steps:

- (1) Development of a DSVL which describes the architecture of a Visual Wiki
- (2) Implementation of a tool which allows to visually model a Visual Wiki using that DSVL
- (3) Automatic generation of Visual Wiki instances based on the model

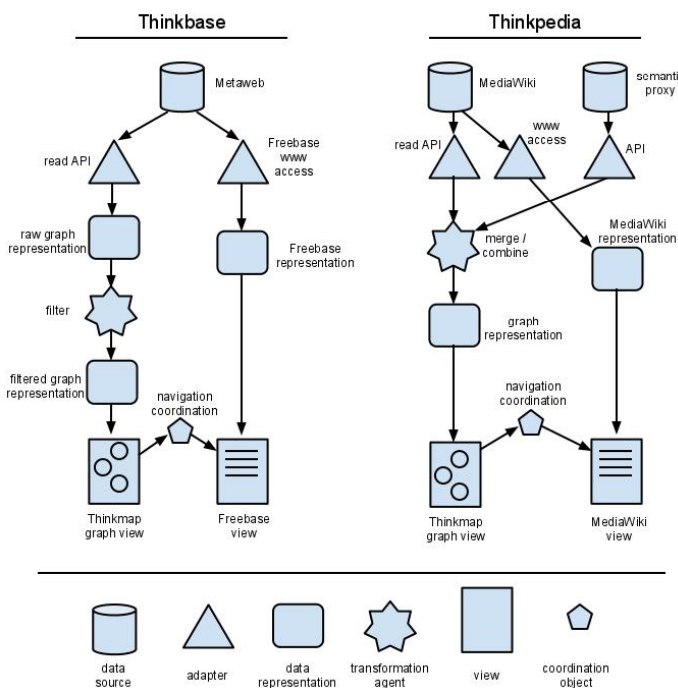
(1) VikiBuilder - DSVL



Aggregation of common design features, e.g.:

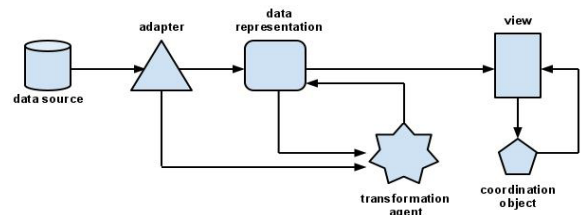
- "data source"
- "adapter"
- "data representation"
- "transformation agent"
- "view"

(1) VikiBuilder - DSVL

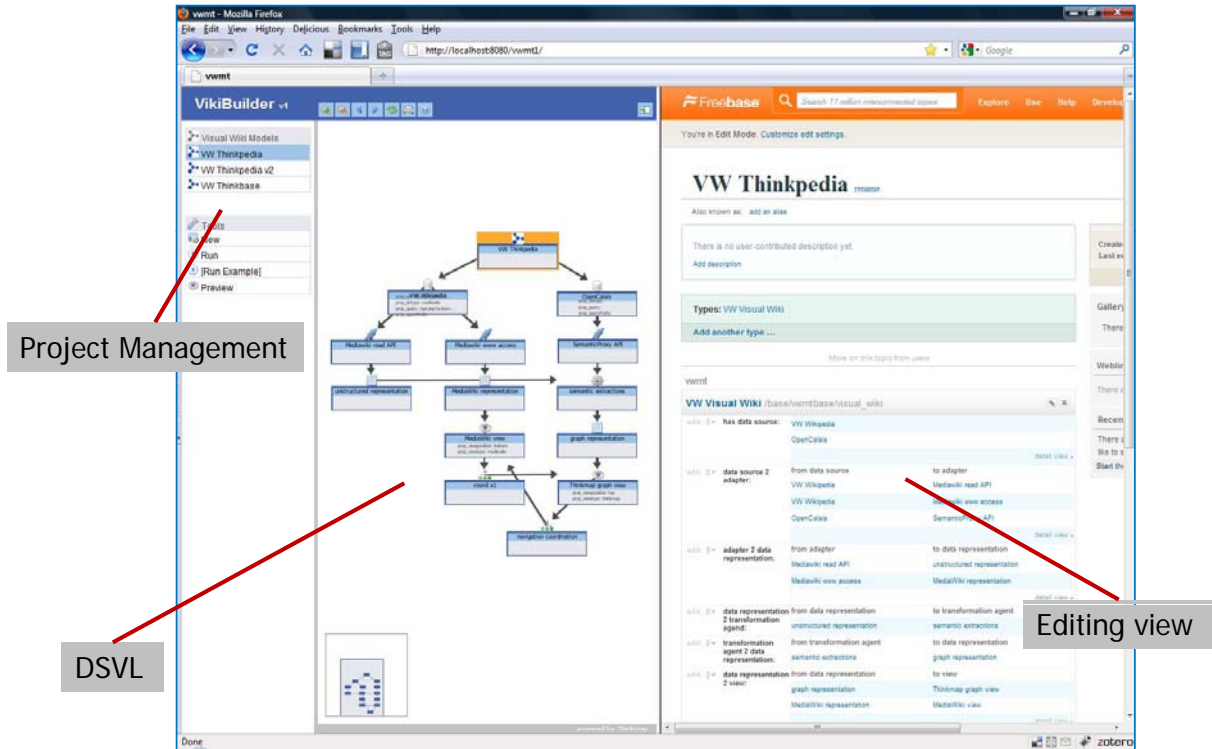


Left: description of Thinkbase and Thinkpedia using our DSVL (using a data pipeline metaphor)

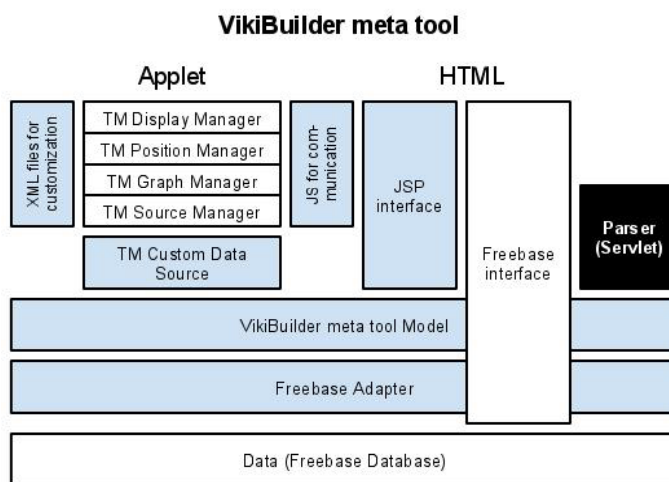
Bottom: the model of our DSVL



(2) VikiBuilder



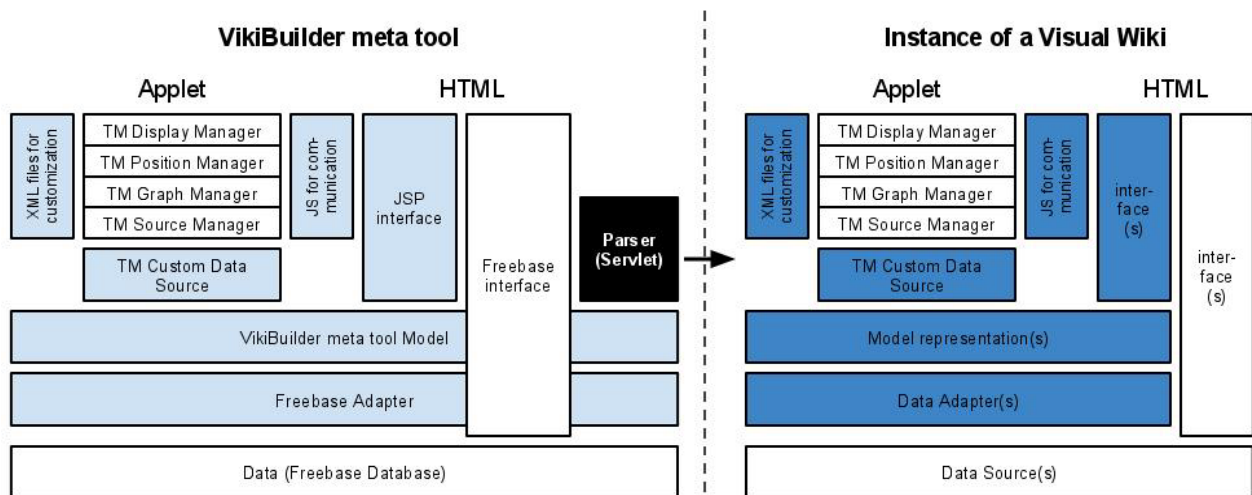
(3) VikiBuilder – autom. Visual Wiki generation



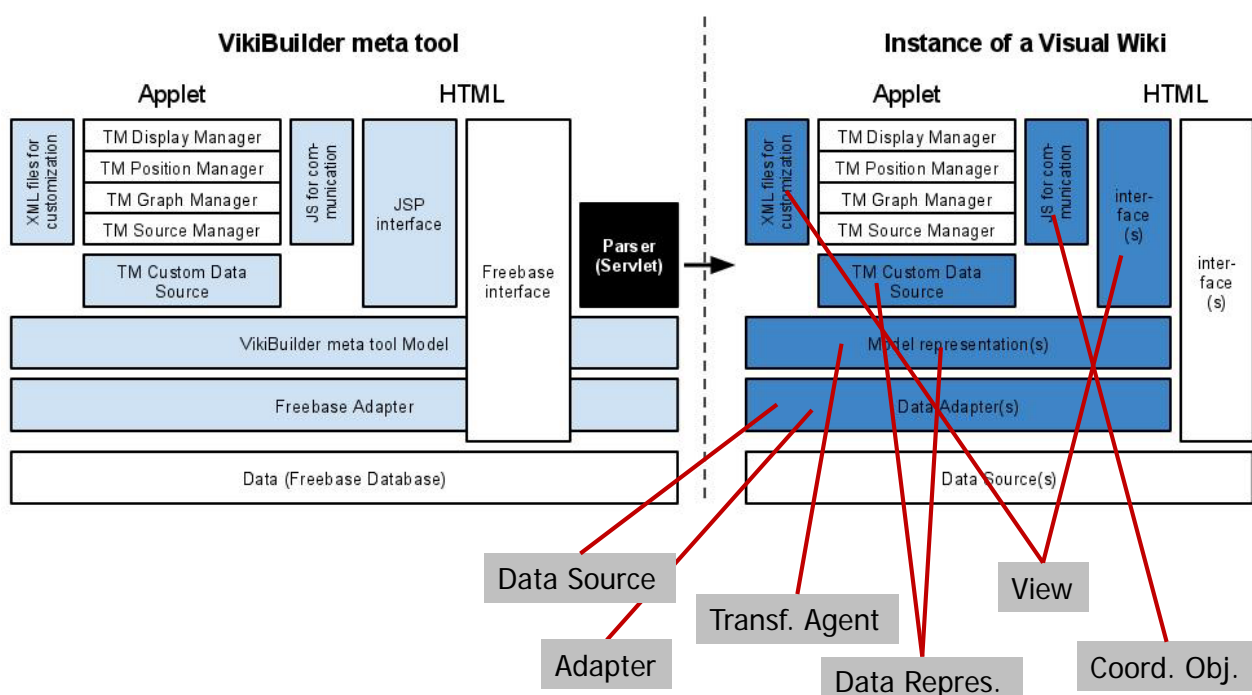
VikiBuilder itself is a Visual Wiki

Uses Freebase as its data source and Thinkmap for the visualization

(3) VikiBuilder – autom. Visual Wiki generation

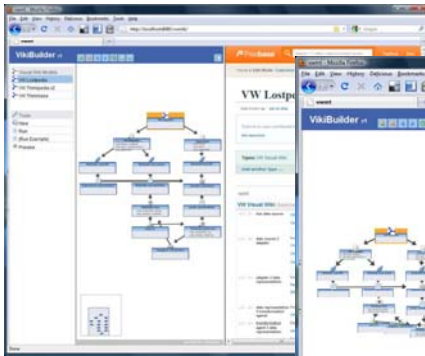


(3) VikiBuilder – autom. Visual Wiki generation

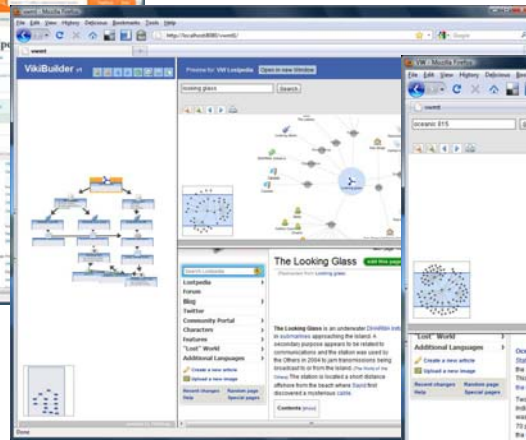


VikiBuilder

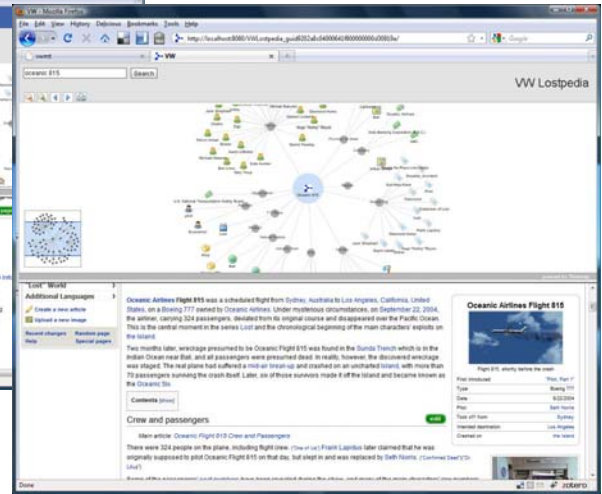
Model



Preview

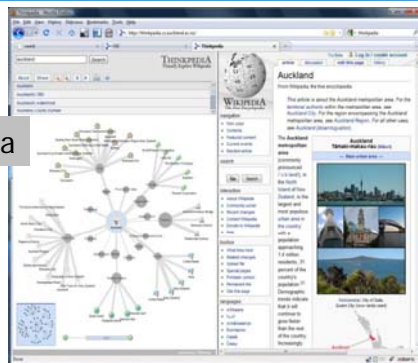


New Instance

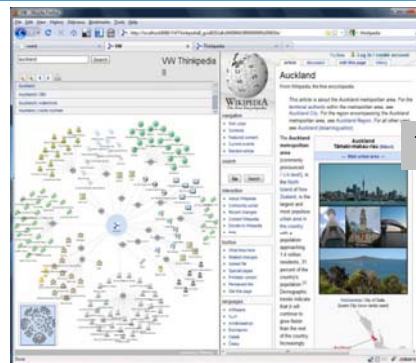


VikiBuilder

Thinkpedia



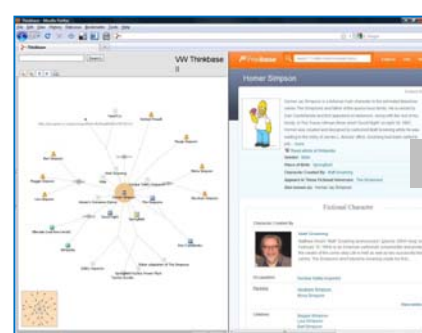
Thinkpedia II



Thinkbase



Thinkbase II



Recommended Readings

Web 2.0 / Enterprise 2.0

What Is Web 2.0: Design Patterns and Business Models for the Next Generation of Software. (O'Reilly, T.)

Enterprise 2.0: the dawn of emergent collaboration. (McAfee, A.P.)

Corporate wiki users: results of a survey. (Majchrzak, A., et al.)

Information Visualization

Visualizing Knowledge and Information: An Introduction. (Keller, T. and Tergan, S.O.)

Many Eyes: A Site for Visualization at Internet Scale. (Viégas, F.B., et al.)

Pipeline model

A Taxonomy of Visualization Techniques using the Data State Reference Model. (Chi, E.H.)

Visual Wiki

The Visual Wiki: A New Metaphor for Knowledge Access and Management. (Hirsch, et al.)

Acknowledgements

Prof John Hosking

Prof John Grundy

Su Moon Ting

Tim Chaffe

David MacDonald

Yuriy Halytskyy

Publications

Hirsch, C., Hosking, J.G., Grundy, J.C. *Interactive Visualization Tools for Exploring the Semantic Graph of Large Knowledge Spaces*, 1st Int'l Workshop on Visual Interfaces to the Social and the Semantic Web (VISSW 2009), Sanibel Island, Florida, 8th February 2009. [PDF](#)

Hirsch, C., Hosking, J.G., Grundy, J.C., Chaffe, T., MacDonald, D., and Halytskyy, Y. *The Visual Wiki: A New Metaphor for Knowledge Access and Management*, In Proceedings of the 42nd Hawaii International Conference on System Sciences, Big Island, Hawaii, Jan 5-8 2009, IEEE CS Press. [PDF](#)

Hirsch, C., Hosking, J.G., Grundy, J.C. *Thinkbase: A Visual Semantic Wiki*, Poster and Demo Session of the 7th International Semantic Web conference (ISWC2008), Karlsruhe, Germany, Oct 26-30, 2008. [PDF](#)

John Hosking, *The Visual Wiki: a new approach for knowledge representation and management*, Google Tech Talks, June 4th 2008. [YouTube Video](#)

More Info

Thinkbase: <http://thinkbase.cs.auckland.ac.nz/>

Thinkpedia: <http://thinkpedia.cs.auckland.ac.nz/>

Thinkmap: <http://www.thinkmap.com/>

Freebase: <http://www.freebase.com/>

SemanticProxy: <http://semanticproxy.opencalais.com/>

Christian Hirsch: chir008@aucklanduni.ac.nz

