

USING A VISUAL WIKI FOR IT KNOWLEDGE MANAGEMENT

Abstract:

The catch cry of John Zachman when talking about Enterprise Architecture is 'Document, document, document, document.... {for as many times as possible until a deep breath and then) Document, document, document, document and document again'

This rallying cry fills a tertiary sector Enterprise Architect with foreboding daunted by the sheer amount of organisational information needed to constitute even a partially populated six by six dimension Zachman Framework

Forming and sustaining Enterprise Architecture (EA) is possible if authoring is distributed across an organisation. However existing EA diagramming and repository tools are aimed at EA practitioners and are not user or cost friendly for the general user populace.

Treating EA as a form of IT Knowledge Management and using the Confluence Wiki has improved the capture of IT information within The University of Auckland. However as the volume of information has mounted, the ability to navigate and sustain the knowledgebase has decreased. And the demand for 'simple diagrams showing everything' was not satisfied by Gliffy plug-ins.

Working closely with the Computer Science department of The University of Auckland, we have prototyped alternate ways of capturing IT information that allows visual navigation combined with the agility of Wiki's aka 'The Visual Wiki.

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Using a Visual Wiki for IT Knowledge Management

At the University of Auckland we have been experimenting with Enterprise Architecture as Knowledge Management. The problem is the same, requiring the organising of IT information into useful and digestible chunks that benefit decision-making. This approach also has the bonus of being non-threatening to business folk who can relate to the description of Enterprise Architecture as *'information about your IT systems and how they support what you do'*

Our Enterprise Architecture Office has spent time with architectural toolsets such as METIS and explored methodologies such as those from TOGAF and Burton Group. While these had merit the end results were disappointing.

The accessibility of the outputs was the primary problem. These usually took the form of documents or generated web sites that were static and hard to navigate, use and maintain.

The architect's experience of these tools ended up being one of a tool and document jockey, something that reassured our other IT colleagues as it meant we had less time to interfere with what they were doing

Several lessons came out of those exercises

- Models and diagrams are only useful when directly connected to supporting information
- Enterprise Architects do not always make good artists and the time spent rearranging object positions in diagrams is not highly productive work
- One architect's work of art is often another's dog's breakfast
- Documentation in the form of documents does not represent a knowledgebase well
- For enterprise architecture documentation to succeed in the Zachman sense, authorship needs to be widely distributed.

Luckily, being University, help was at hand. In the 2007 semestral break a research project was initiated to explore alternative approaches to knowledge management. The title of this project was called the Visual Body of Knowledge Explorer (VBKE).

VBKE bought together a dynamic visualisation system (ThinkMap) with the University's Wiki (Confluence). The wiki had been successful within the IT community as a handy place in which to put IT documentation. ThinkMap (www.thinkmap.com) provides the ability for users to visually explore a knowledgebase (or database) with diagrams being generated automatically.

The architecture of VBKE is one of a dynamic visualisation tool that works against a database that contains information objects that point to web pages (in this case wiki web pages). Figure 1 shows the components used to build VBKE

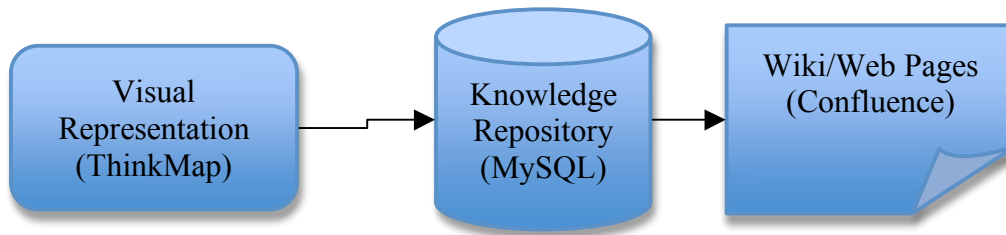


Figure 1 - VBKE Architecture

The benefits of this approach was that the free format wiki content could have a visual overlay added that allowed contextual navigation and searching across the entire wiki knowledge base.

Figure 3 shows an example screenshot of VBKE with the left hand pane providing a ThinkMap navigable diagram with links from nodes to textual information contained in the wiki in the right-hand pane.

As users click on a node, the right hand pane will change to reflect that nodes information. Users can right-click and search the Wiki or the entire University knowledge base for further information.

Each node type is given a visual representation which lets users at a glance see the relationship between different types of entities. The diagram automatically draws itself out to two nodes deep and automatically tries to re-arrange to minimize cross over lines. If need be the user can shift to manual mode and arrange the diagram as they see fit. If the diagram is too busy then filters can be turned off and on for entity types simplifying what is shown.

This application is based on JavaScript to remove any barriers to access.

The screenshot shows a web browser window titled "VBKE General Prototype" with the URL "http://bvlgari.its.auckland.ac.nz/Frames". The browser's address bar and tabs are visible at the top. The page content is divided into three main sections:

- Navigation Sidebar (Left):** Labeled "Ignore nodes:", it contains a vertical list of icons and labels: App, Org Type, Org Unit, App Type, Tech, Tech Type, Vendors, Service, Tag, DB, Plan, dir, Objective, Programme, Initiative, and Strategy.
- Diagram (Center):** A central node labeled "Maximo" is connected by lines to four other nodes: "Oracle DBMS" (top-left), "Package" (top-right), "Property Services" (right), and "IBM" (bottom).
- Content Area (Right):** This section is titled "Application Platforms" and "Maximo". It includes a search bar, a welcome message for "Timothy Chaffe", and navigation links like "History", "Preferences", "Administration", and "Log Out". Below this is a table of contents with links for "Introduction", "Architecture" (with sub-links for "Component Flavours" and "Architecture Layers"), "Hardware and Software Requirements" (with sub-links for "Client Workstation", "Administrative Workstation", "Application Server", "Database Server", and "Reports Server"), "About the Application Server", and "Further Information" (with sub-links for "Resources", "People", and "Scratch References"). An "Introduction" section is also visible at the bottom of the content area, starting with the text: "Maximo is a leading Work Management system that was developed by MRO Software before that company's acquisition by IBM. The Property Services division of The University of Auckland has been running the Maximo 4i System since 1998, and that version of the software has now fallen out of vendor support. In September 2007 a project was initiated to upgrade Maximo to the latest Maximo Enterprise Suite (MXES)."

Figure 2 - VBKE Screenshot

While this approach showed promise several problems became apparent

- The wiki was free format and the structure of content was hard to match to any structured information approaches. A example of this was the desire to capture information common to object types (e.g. “Status” of “Applications” (production, planned...))
- As new content is added to the wiki, it must be manually entered in to the Knowledge Repository. This defeats the desire for distributed authorship and ownership of IT information.

Christian Hirsch, a University of Auckland Computer Science masters student has developed an alternate approach to the Visual Wiki concept based on ThinkMap combined with Freebase (www.freebase.com) a semantic wiki available on the Internet. The results of this work can be found on his ThinkBase site (thinkbase.cs.auckland.ac.nz) . The components used to build Freebase are outlined in Figure 2.

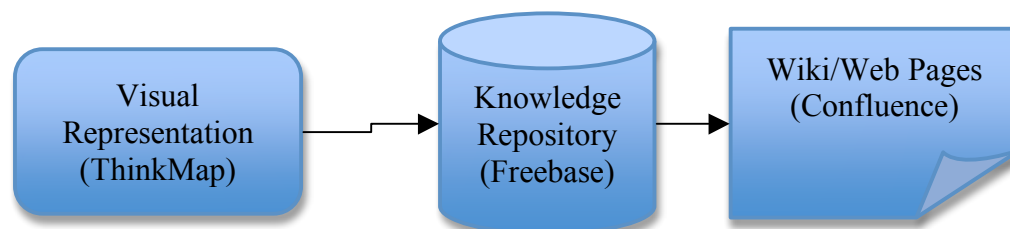


Figure 3 - ThinkBase Architecture

We are now experimenting with ThinkBase as an approach to resolving the problems mentioned for VBKE. Freebase allows schemas to be defined that appear as web pages which users can populate with new instances of information (e.g. UoA_Application). These instances can also be linked to wiki articles as needed. Figure 4 shows a screenshot of Thinkbase

The primary benefit of this approach is that when new objects are entered in to FreeBase it is possible to refresh the ThinkMap representation without having to re-enter overlay data. The added bonus is that the information captured is much more structured than in a pure wiki model.

Summary

The Visual Wiki approach to IT Knowledge Management has merit. There is still a strong need for structured information but the visual metaphor assists users with information discovery.

The ThinkMap SDK provides an intuitive powerful navigation capability which when combined with either a traditional wiki (Confluence) or a Semantic Wiki (Freebase) unifies textual data with visual navigation.

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Figure 4 - ThinkBase