# WICSA Wiki WAN Party: Capturing Experience in Software Architecture Best Practices

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## Abstract

Researchers, practitioners, educators, and students of software architecture would benefit from having online access to quality information about the state of research and practice of software architecture. In recent years, Wiki technology has enabled distributed and collaborative editing of content using only a Web browser. To explore whether Wiki technology would be effective in facilitating the ongoing discussion and evolution of ideas on software architecture, we hosted the WICSA Wiki WAN Party (WWWP) during the 4th Working IEEE/IFIP Conference on Software Architecture (WICSA 2004). We used a history tool developed at IBM Research to monitor site activity and provide daily feedback to conference participants. This report recounts experience hosting this Wiki site and summarizes the site activity.

**Keywords**: Software Architecture, WICSA, Wiki

## Introduction

The goal of the WICSA Wiki WAN Party (WWWP) was to begin to develop a web site that would provide a place for people to quickly find quality answers to software architecture questions, or at least starting points to make progress in finding answers. The idea of developing such a site and using Wiki technology grew out of a discussion among members of the IFIP Working Group on Software Architecture (WG-2.10); the purpose of WG 2.10 being to further the practice of software architecture by integrating software architecture research and practice [1].

We chose to hold the WWWP in conjunction with the 4th Working IEEE/IFIP Conference on Software Architecture (WICSA 2004), June 12-15, 2004 in Oslo, Norway because of WICSA's continuing tradition of providing software architecture researchers and practitioners a working-session centric conference atmosphere in which to interact [2]. WICSA working sessions have been used to collect examples of existing best practices; identify characteristics of existing methods and techniques; identify gaps in the state of the practice; and propose new techniques to fill those gaps.

The use of Wiki technology as a group communication mechanism allowed conference attendees, and other interested persons around the globe, to freely create and edit the WWWP Web site content using any available Web browser. Suggested topics of interest included themes from the WICSA technical program: Architecture Analysis, Architecture Evolution, Architecture in practice, Architecture Methods, Architecture Tools, Architecture Styles, and Architecture of Large systems. This provided an ideal forum to explore the potential of Wiki technology to foster idea exchange and to encourage ideas about software architecture to evolve as an ongoing discussion among members of the software architecture/WICSA community.

To assess the extent to which Wiki technology increased idea exchange among the conference attendees, we used a history tool developed at IBM Research to monitor the site. In this report we briefly describe the background, recount our experience, and summarize the outcome of activity monitoring.

## Leveraging Wiki Technology

We looked at content management systems offering a range of functionality and control including Wiki [3], Drupal [4], and Plone [5].

Wiki technology was deemed a good candidate to support the task of creating an online software architecture forum as it supports open-document authoring and publishing in any size chunks and is provided in an interactive Web Environment. However, we were not certain if it would support the goal for 'quality answers'. The most well-known example use of Wiki technology being used for a purpose similar to ours is Wikipedia [6]. People regularly find themselves pursuing Wikipedia in search of information on subjects of all kinds and anecdotal evidence indicates that the quality of the content they view is consistently very high and reliably correct.

Several characteristics of Wiki technology help explain the success of Wikipedia: it's collaborative, it's iterative, and it's rewarding. Anyone can contribute to a page, anyone can overwrite existing material, anyone can make a mistake and anyone can fix a mistake. The fact that Wiki site development is iterative and progressive allows a person to quickly enter an idea or a fragment and continue work on it later, perhaps after their entry has been edited by others. There's no need for perfection; the idea is to collect information and then refine it. And contributing to a Wiki is rewarding. A person can contribute and see immediate results and feedback from others. Wiki pages are analogous to a white board; one can contribute ideas early and often to get feedback on new and evolving ideas. They don't have to be fully baked or perfectly written before being exposed to scrutiny.

To help researchers interested in understanding why open-and-often editing results in high quality documents, Martin Wattenberg and colleagues from IBM Research developed a history flow visualization tool [7] which extracts Wiki history information and produces various forms of graphical output allowing one to visualize patterns of change to documents on the web site. We collaborated with Wattenberg in advance of the conference to set up monitoring of the WWWP Wiki.

## Experience

The WICSA Wiki WAN Party was advertised as a conference workshop in advance encouraging people to come to the conference early and attend the initial working session. This and other

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WWWP activities are described below. We made use of a wireless LAN at the conference site allowing participants to record minutes of working sessions, etc. in real time. We set up a kiosk in the reception area with the computer display projected on a large screen so that people could stop by to receive instructions on using the site and adding content or just to visit the site.

Shang-Wen Cheng hosted the WWWP Web site in a server in his office at Carnegie Mellon University using Wiki software from MediaWiki [8]. Kushal Dave of IBM Research monitored the site from his office in Massachusetts and provided history flow images on a daily basis, which were posted on the Web site and presented to attendees at the conference.

The WWWP occurred in four segments as follows:

1) Saturday morning, June 12, 9:00 – 12:30.
   Workshop Session: Kick Off
   - Introductions and position statements from the participants
   - Discussion on the goals of workshop
   - Visualizing the collaborative process with the history flow application (intended use)
   - Wiki walkthrough – philosophy, architecture, mini-tutorial
   - Capturing experience in software architecture best practices

2) Saturday afternoon, June 12 – Tuesday morning, June 15.
   Virtual Workshop
   WICSA attendees contribute new material and revise existing material on the Wiki server.

3) Tuesday afternoon, June 15, 13:30 – 15:00.
   Working session: Wrap Up
   - Workshop wrap-up to reflect on the Wiki experience
   - Visualizing the collaborative process with the history flow application (results)
   - Summary of software architecture best practices

4) Tuesday afternoon, June 15, 15:30 – 16:30.
   Workshop summary
   Plenary session at end of the WICSA conference to report on the Wiki experience to the WICSA conference attendees.

The Saturday morning workshop session was a preparatory session, and all WICSA attendees were invited to join into the virtual workshop and later working session. Attendees of the morning session influenced the themes and organization of the initial Wiki online material; thus, it reflected the issues important to them and led to interesting discussions with their peers. The morning session also provided an opportunity to learn about Wiki technology and history flow visualization.

One-third of the conference attendees registered as users and two of the conference working sessions used the site to capture preparatory materials, discussions during the session, and post-mortem results and reflections. New pages were created on the topics such as: Organization, Software Architecture Bibliography, Recovery Tools Techniques, What to Recover, Why Recover, Stakeholders, Feedback, Current Events, Scenario-Based Architecting, and COPA. Some of the conference sessions, such as the keynote address, were summarized and discussed.

The Wiki pages received varying amounts of activity with the most active being the Main page, Working Session 1, the Software Architecture Body of Knowledge, and Working Session 3 receiving the highest number of accesses (in that order); Working Session 3 was the most active in terms of revisions.

Factors that affected the activity level were level of instruction in the use of Wiki technology, encouragement to use it for a specific purpose at the outset (e.g., Working Session 3 promoted its use as a record of the session), busy schedules during the conference, and the availability of the internet during the conference (several attendees were unable to use the available wireless network). Mini-tutorials on using the Wiki and editing pages were provided at the kiosk and tee shirts were distributed that displayed the Wiki crib-sheet on the back for easy reference (see Figure 1). Our observation was that once people were registered and shown around the site they enjoyed working with it; but without the kiosk and instruction available, activity would have been significantly lower. The kiosk was continually in use during the breaks and about half the users registered during this time period with assistance from the instructor.

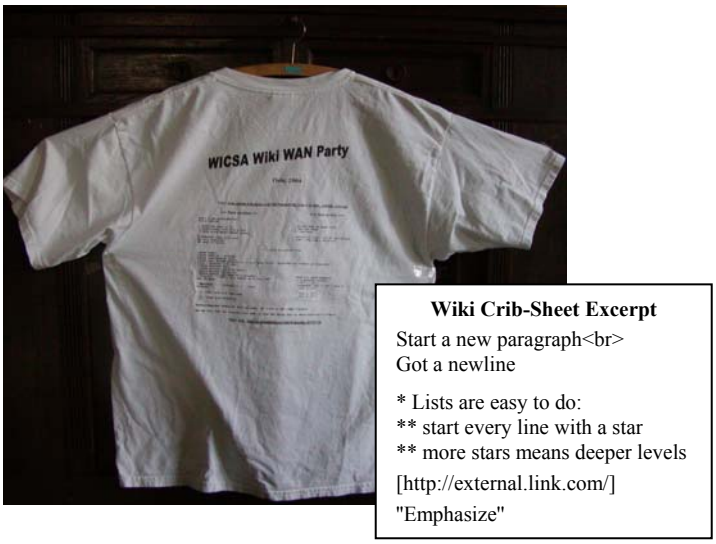


**Figure 1: WICSA Wiki Wan Party Crib-Sheet T-Shirt**

The history flow for Working Session 1 is shown in Figure 2. The graph shows an increase in participation and in the number of posts as the conference progressed because attendees are adding notes from the sessions to the site. It shows the different people contributing information that was added, expanded, and deleted over the course of the conference. Each colored line is associated with a unit of text and the various colors are associated with people doing the editing. The growing height of the colored area shows the growth in the size of the document as time progressed from left to right. The Wiki provided an outline of issues before the working session was held. It functioned as a repository to capture the discussion during the working session, and as an archive to return to after reflecting on the experience to capture the final working session report.

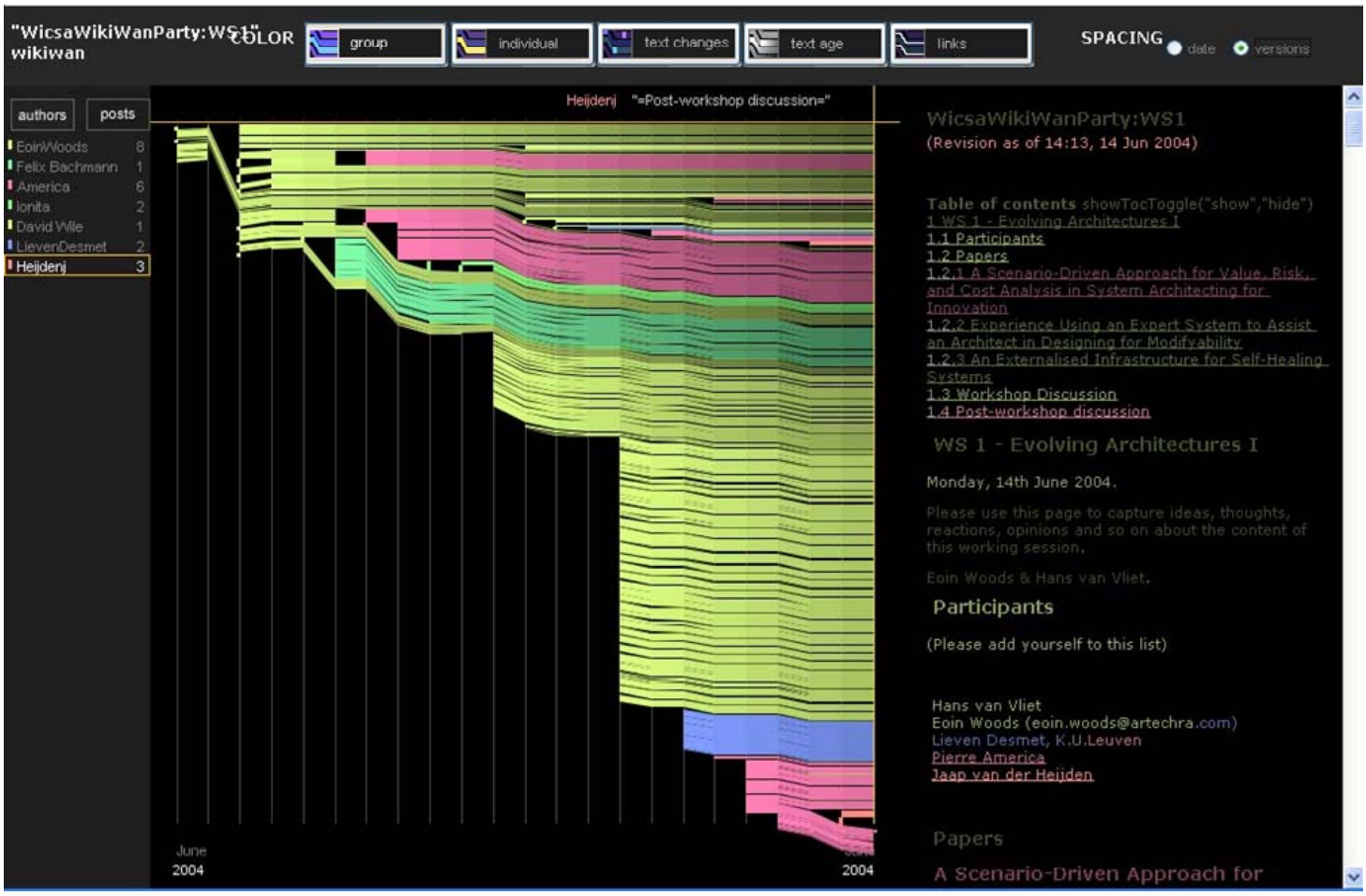


**Figure 2. History Visualization for Working Session 1**

## Future Plans

The consensus of conference attendees at the conclusion of the conference was to keep the site running until the next WICSA conference to gauge interest in maintaining a community site.

While the "party" metaphor was appropriate for the conference, it was decided that a new main page and metaphor would be created for a permanent site. One metaphor suggested was that of a Software Architecture Online Library consisting of many rooms, such as:

- Reference room (bibliography, dictionary, FAQs, etc.)
- Café (chat room, discussion forums, etc.)
- Current events room (listings of conferences, etc.)

This is the metaphor currently in place; you can access the site at: http://wwwp.dnsalias.org.

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