10-2007

Reduce Response Time: Get "Hooked" on a Wiki

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ABSTRACT
Managing the flow of information both within the IT department and to our customers is one of our greatest challenges in the Office of Technology Information at Valparaiso University. To be successful, IT staff first need to acquire the right information from colleagues to provide excellent service. Then, the staff must determine the most effective way to communicate that information to internal and external customers to encourage the flow of information. To advance the IT department's goals, how best can we utilize "information" and "communication" vehicles to exchange information, improve workflow, and ultimately communicate essential information to our internal and external customers? We've asked ourselves this question and have resolved that "information" and "communication" need to work cooperatively! How better than with a wiki?

Recent changes in departmental structure gave us the opportunity to examine our communication vehicles—specifically the software tools we use to facilitate the flow of information. Our previous knowledge base, First Level Support, a module of the HEAT support software produced by FrontRange Solutions, once met our needs as an internal knowledge base solution. We realized we had outgrown FLS and needed a more robust alternative. Our student employees asked for a newer, more interactive method of sharing information. With the assistance of our UNIX systems administrator, we investigated various options and decided to implement the MediaWiki™ system. As we had anticipated, use of this wiki system reduced the response time a customer must wait for an answer to their inquiry. What we didn't realize was that utilization of the wiki would meet many more needs than we had anticipated. It has also helped us meet other departmental needs, such as increased collaboration, an online knowledge base, and a training tool for staff. Come see how a sprinkle of pixie dust improved communication through adoption of the wiki, and brought information to the forefront of our operations.

Categories and Subject Descriptors
H.5.2 [**User Interfaces**]: Training, help, and documentation.

General Terms
Documentation, Human Factors, Management

Keywords
Collaboration, Communication, Help Desk, Information, Knowledge Base, Training, Wiki

1. INTRODUCTION
Information Technology (IT) Help Desks need to be able to quickly access information and relay this knowledge to the customer. How this is done can vary greatly between organizations, sometimes even within departments. Regardless of the nuances specific to any Help Desk, all of them have three primary needs in order to support their customers: personnel training, access to system-specific information, and quick access to general technology information. All three of these support needs can be facilitated through the use of a wiki.

2. ABOUT VALPARAISO UNIVERSITY IT STAFFING
To put the use of a wiki in proper context, one can take a closer look at our IT staffing within Valparaiso University (Valpo). Within the greater IT organization, we fall under the Networking and User Services unit. The IT Help Desk at Valpo is staffed by both professionals and student workers. There are two fulltime staff at the Help Desk, including the Coordinator of Help Desk Services and the Assistant Coordinator of Help Desk Services. We have approximately 20 student employees who work for the Help Desk, performing at multiple levels. These student employees are members of the recently-formed IT Fellows program, which gives students the opportunity to gain professional experience and transcript credit, while learning valuable hard and soft skills that they can apply after graduation.

2.1 The Crew
The Coordinator of Help Desk Services reports to the Director of Networking and User Services and is responsible for the overall strategic planning and execution of Help Desk functions. This individual works with senior management in the IT department and collaborates with them to set the tone and vision for our work. The coordinator also assists with budgeting and is the primary voice for the Help Desk when the department is setting future goals.

The Assistant Coordinator of Help Desk Services is mainly responsible for day-to-day activities at the Help Desk and assists with scheduling, administrative duties such as processing paperwork and timecards, training incoming staff members, administering the service request system for the department (FrontRange Solutions' Helpdesk Expert Automation Tool, e.g. HEAT), and overseeing the student employees on duty. This individual also facilitates customer service by answering phones, processing emails, and completing work on service requests.

2.2 The Lost Boys

The entry level student workers are IT Junior Fellows. These students are responsible for monitoring activity in the public computer lab near the Help Desk area. The Junior Fellows assist walk-in customers, answer phone calls, and review unresolved service requests to obtain further information.

The mid-level student workers are IT Senior Fellows, who serve as Shift Supervisors at the Help Desk. These workers are students who have already worked at the Help Desk for a period of time and have experienced a broad range of situations through their tenure. These students have the authority to delegate tasks, process incoming email and automated service requests (entered via our online request system), escalate customer issues, and contact other fulltime staff for further assistance.

The highest level of student workers are those designated as Student Managers. Their role is to assist in the training and mentoring aspects of working at the Help Desk, and participate in management functions, such as strategic planning and scheduling.

3. TICK-TOCK THE CROCODILE

All Help Desk employees are expected to learn and retain information about all systems on campus, including email, network file storage, web services, data processing, telecommunications, courseware, and more. Since most student employees only work an average of 10-12 hours per week, the greatest challenge to this practice is that they may not have daily interaction with all systems. Additionally, they are expected to troubleshoot for those customers having difficulties and log the activity in the HEAT system. Keeping track of the various procedures for troubleshooting is a challenge for fulltime staff. What's more, the difficulty of retaining this information is inversely proportional to the hours worked by any given student.

4. PREPARING FOR BATTLE
4.1 Mock Battles

In order to deliver consistent quality service to customers, there needs to be a standard basis of knowledge among all staff. Once this base level of knowledge is established, the knowledge should continue to grow so that the quality of service delivered is perpetually improving. Training student staff members should not be entirely wiki-based, but rather supplemented by the use of the wiki to continue base level training.

4.1.1 Flying Lessons

Valpo utilizes an annual week-long training event, IT Fellows Leadership Academy, prior to the beginning of fall semester to train all student employees in their respective jobs. This week is a time when all student employees of the IT department gather and attend training sessions relative to the department and its functions. During the Academy, Help Desk student staff receive information on Valpo systems, general technical information, proper procedures for entering a call request into our HEAT database, troubleshooting practices, and general Valpo and IT policies. Upon completion, new student staff will have the foundation to answer calls and assist customers.

4.1.2 Joining Forces With the Picadilly Tribe

During the course of the academic year, the Help Desk management team provides opportunities to continue building knowledge through staff meetings, training opportunities, and ongoing dialogue via a variety of methods (e.g., mailing lists, instant messaging, and one-on-one sessions). Through utilizing the wiki tool, staff can accumulate knowledge independently and build their skill set to handle unforeseen situations. For some, the wiki will serve as a review of the material covered at Leadership Academy. For others, the wiki will allow them to offer feedback on the training they received. With this feedback during the year from front line support staff, the Help Desk management team can modify our training methods and sessions to best suit our staff and offer the campus community the most highly trained and effective Help Desk support possible. Additionally, the wiki helps in improving information retention after meetings and training sessions. Handouts from these sessions can be misplaced or discarded, so having an easily accessible repository of information allows staff to review information when it is needed.

4.2 Weapons For Battle

Although the wiki is not able to offer real time account information or user-specific information, access to system specific information such as account quotas, username contexts, email alias contexts, etc. can be generally specified within a wiki environment. Valpo's IT Help Desk maintains a manual for Help Desk policies and procedures. Several copies of this are available at the Help Desk workstations. A copy of the manual is also kept on a read-only shared network drive to which all IT Help Desk employees have access. The wiki is not intended to serve as a replacement for either of these, but can be very useful as a searchable glossary and index for the manual. Utilizing the search functionality of the wiki can enable a staff member to locate the information much more quickly than thumbing through pages or scrolling through a .doc file. Each portion of the manual has its page number located on its wiki page to allow staff to verify the correct information in the hard-copy manual. In addition to searching the manual, the wiki tool provides a mechanism for learning general how-to's for utilizing other IT resources such as accessing the online service center system status update area, using the Novell utilities to look up account restrictions, or resetting passwords via our interactive portal.

4.3 Mapping the Island

When the Help Desk receives technology questions (and unrelated questions), staff can often respond to our customers from memory and without having to perform an extensive search. However, there are invariably some instances where a question comes to the Help Desk about a service, system, hardware configuration, or software application that is not familiar to the staff member taking the call. Before staff can begin to formulate a troubleshooting direction or gather pertinent information for second level support

to address the issue, he or she must first understand what the customer is talking about. The wiki environment allows him or her to quickly search and locate information about that system, such as some history about how it is utilized within the organization, or a list of the information necessary for logging a service request. The wiki also offers some possible troubleshooting tips that staff can try. Staff can also add new information to the wiki entry that comes out of an inquiry. If there is no entry to facilitate an inquiry, the Help Desk attendant can do his or her best to assist the customer. Once a resolution is found, he or she can add the information to the wiki so other staff can benefit. Knowledge about an issue is built upon previous knowledge and is readily shared between staff. Although our call tracking system documents the specifics of a customer's problem, it isn't capable of retaining the full set of information about that type of problem as a wiki can. If a customer works with one staff member and then calls back later, the next staff member can use the wiki in cooperation with the call tracking system to become familiar with the situation and respond accordingly. As a result, the customer is afforded knowledgeable staff on multiple contacts without waiting for the person who helped before, or returning when a particular staff member is available. Every staff member's individual knowledge can be used to build a collective whole greater than the sum of its parts and assist colleagues in a cohesive manner to provide the best support possible to the customer.

5. HOW WE GOT "HOOKED" ON A WIKI

A wiki is a funny name for a certain type of web application that allows for many different people to act as authors in the rapid creation of web-based content. The word "wiki wiki" is from the Hawaiian language and means "quickly." Each time an author edits or creates content within the wiki, the revision is logged and is able to be undone immediately if needed. This type of revisioning system enables not only a history of the content, but also a means to revert to a previous version when necessary. This collaborative environment encourages a free and simple exchange of ideas and knowledge while enforcing accountability, especially in an internal environment, like an intranet.

Nearly all wikis provide markup syntax to enable non-technical users to quickly format the content they wish to publish without having to learn HTML. This capability is a standard part of the wiki software and doesn't require any software other than a capable web browser.

These features enable universal access to a powerful content publishing platform that is easy to use and accessible from anywhere.

5.1 Drawing Up the Battle Plan

One important element in our implementation of a wiki was the need for moderation of new information entered, as well as updates to existing entries. This was not an issue of failing to trust the information provided by Help Desk employees, but rather it was an issue of ensuring the accuracy of information so that we do not inadvertently provide misinformation to our customers. The wiki includes moderation features that allow us to prevent information from being visible until it is approved by someone on the management team. This brings about multiple benefits for the Help Desk; first, the risk of someone stumbling upon misinformation and sharing it with a customer is reduced. Second,

the functionality is configurable to send email notices to the Help Desk staff responsible for approving wiki changes, which reduces the time needed to spend looking for tweaked information.

An added requirement was to have different groups within the organization have authority over their respective sections of the wiki. This allows first hand knowledge to be communicated authoritatively to the Help Desk from groups that would normally have to field questions on their own. For instance, common procedures and troubleshooting tips can be updated directly by those who are intimately affiliated with the area in question, while prohibiting any alteration from people outside of the group.

From a purely technical perspective, a wiki-based solution was identical to any knowledge base systems available. We decided on a wiki solution based on its unparalleled ease of editing and historical log of editing (a change log). After evaluating several different wiki systems, we decided on MediaWiki™.

5.2 Choosing Sides – Pirates Or Mermaids?

Once we determined the functions we wanted in a wiki, we had to evaluate systems-side needs and determine which wiki system would be best utilized in our organization. Ideally, we wanted something simple, ubiquitous, and cross-platform that was flexible enough to facilitate departmental collaboration and double as a knowledge base for our Help Desk needs.

We examined many different wiki products, both open source and commercial. Most would have been able to accommodate our requirements handily, but what set MediaWiki™ out from the rest of the pack was that it has become more or less an industry standard with arguably the largest wiki market share. Initially, the system administrator selected TWiki™, which is a highly extensible wiki platform. However, it was decided to forego the flexibility of TWiki™ for the familiarity of MediaWiki™. Having a familiar and common wiki publishing platform that has proven itself over the years is crucial for long-term maintainability and support.

MediaWiki™ is the most popular wiki software available today. It is not only free, but it is also the same software that powers the most popular wiki-based site, Wikipedia®, along with countless other wiki sites. Because of its popularity and open source nature, it is continually developed and improved upon, and there are many resources available for supporting and customizing the software. MediaWiki™ is built upon three well-known and free software technologies: the Apache web server, the PHP programming language, and the MySQL database application. This stack of software is widely used and heavily utilized in our organization, making it a consistent and well-supported application for our needs.

5.2.1 Walking the Plank

One requirement we had early on was the need to integrate whatever wiki product we chose with our existing LDAP authentication and access control platform. Spending excess time on working to integrate a wiki system's authentication method to fit ours was out of the question. Not only would it prevent a clean upgrade path to future versions, it would also require someone knowledgeable to fix each subsequent version in the future. While MediaWiki™ does not support LDAP out of the box, there is a robust and stable extension for it that suits our needs. Installing

and configuring this extension took very little time and worked like a charm.

5.3.2 Marooned During High Tide

One requirement we expected from the wiki we chose was that it fit in with our web server system architecture, which currently consists of Sun Solaris, Apache web server, PHP programming language and the MySQL database. While this is a very common system configuration, there are many wiki applications that are not built upon this stack of technologies. Some are written in Perl (like TWiki™) while others in Python (MoinMoin) or Java (XWiki).

5.3 Fighting Off Homesickness

The wiki platform allows instant updates or additions of information by anyone using the wiki, so anyone can update information they come across and know to be out of date. The on-the-spot updates ensure real time evolution of the knowledge base, by eliminating the need to wait for designated persons to update it. Wikis also enable management staff to easily monitor recently updated pages, regardless of where they are in the overall structure of the knowledge base, and verify that information is accurate. This is the same for new pages. Using this functionality, staff who would have been required to regularly read information and update content can now quickly observe what content is being updated and with what information.

Previously, Valpo's Help Desk utilized the First Level Support (FLS) knowledge base included with our call tracking software, HEAT. This solution required users to know the password necessary for editing and approving changes to the knowledge base, including creation of trees, adding or updating branches, and adding or updating specific information nodes. Modification of the information nodes was restricted to authorized users who knew the shared password, due to access permissions and password security. This made the update process cumbersome, as a greater burden was placed on those fewer selected individuals who were trusted with the shared password. FLS required the user to login and navigate to the specific node that was entered in order to check the content, and did not notify anyone if an update had been made. One challenge we have found in our use of the FLS portion of HEAT is that information can quickly become obsolete, or can change on an hourly basis. Given the poor moderation functions in FLS, we didn't have a way to monitor entries that were changed, or to prevent unapproved information from being visible to all staff.

Further, access to the knowledge tree was only accessible by those who had both a HEAT account and the desktop client software installed on their workstation, which eliminated any off-site usage of the knowledge base by staff deployed to a user's office. Issues related to information updates, insecure shared passwords, the ability to search, and new information node creation made this a difficult knowledge base to keep current and effective.

To transition to the wiki tool, we reviewed and updated all information nodes contained in our FLS knowledge tree. When the update was complete, we transcribed the information to the wiki. This process showed over 50% of the information nodes to require updating or modification within the organizational scheme. As nodes and branches of nodes had been added to FLS, the levels of information continue to grow and the organization of the support tree became more complex. In some instances, there were information entries buried several levels deep for software that had been unsupported for more than a year.

When searching for information within a wiki, the search returns results by page name and by page content. It also organizes the search results by most likely matches and displays a portion of text from the page to assist with identifying the correct page you are looking for. Being a web-based platform, staff can easily bookmark pages that they wish to return to later, without having to memorize the exact location or conduct the search again. In contrast, when entering an information node in FLS, staff is required to enter keywords to allow for search capabilities. This was often cumbersome as the search results yielded only the node name, delimited to 25 characters. Those entering the node needed to predict what words would be used in the future to search for this solution, or train staff on using only certain search keywords. Additionally, the truncated node names in the search results caused countless opportunities for confusion and inefficiencies, effectively slowing down the customer service process.

5.4 Growing Up

The implementation of MediaWiki™ was very simple. Beyond the initial installation, all that was needed was the LDAP authentication extension to be installed and configured correctly, which, as stated above, was a quick and simple process. As we were not making this publicly available, the system requirements were lightweight and have allowed us to run it on our main intranet web server.

5.4.1 Was It Just a Dream?

The Help Desk management team worked with the UNIX administrator to determine a reasonable and realistic implementation schedule for rolling out the wiki. Unfortunately, we deviated from our schedule due to factors beyond our control. However, we were able to tweak our schedule and adjust it to make up for those factors, and come close to our original final release date.

The system needed to be operational in time for our weeklong leadership training academy before the start of the 2007-08 academic year. We used the talents and skills of our summer student employees to assist in transferring information from the HEAT FLS system into the wiki.

6. LEAVING NEVERLAND

In conclusion, from students to professional staff, from earliest attempts after training to mature collaboration and communication, it is easy to see how we became hooked on a wiki. We evaluated the options, identified the needs, and used a little pixie dust to achieve creative solutions to the roadblocks along our journey. All these combined have allowed us to pull up anchor so we can sail the seas of customer service.

7. ACKNOWLEDGMENTS

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