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Putting the Web to Work: Streamlining Work Flow via an Institutional Intranet

Perry Brunelli and Lynn Gunn

Information Technology Systems
Medical College of Wisconsin
8701 Watertown Plank Road
Milwaukee, WI 53226
(414) 456-8289
(414) 456-6505 (fax)

The Medical College of Wisconsin (MCW) is one of several institutions that comprise the Milwaukee Regional Medical Center (MRMC). MCW faculty and staff often reside or have offices within separate institutions on the MRMC - which include Froedtert Memorial Lutheran Hospital (FMLH), Children’s Hospital of Wisconsin (CHW) or Curative Rehabilitation Center (CRC). Providing information services and network support to MCW faculty who reside in disparate institutions is a challenge both for users, who are often unsure about what paperwork to complete for a given request and where to send it, and for IS staff who must work closely with their cross-institutional counterparts to coordinate wiring, port activation, software installations and the like. MCW Information Technology Systems has created a web-based instance of a common work order form that uses e-mail triggers to keep concerned parties notified as work requests flow through their system.
Putting the Web to Work: Streamlining Work Flow via an Institutional Intranet

The Medical College of Wisconsin (MCW) Department of Information Technology Systems (ITS) is responsible for campus network support, LAN administration, UNIX system administration, a help desk, and desktop support. In spite of the many technological hurdles we cross each day, our biggest challenge is not with technology itself, but rather in dealing with a dynamic environment; one in which users want service as quickly as possible, network jurisdiction crosses institutional boundaries, and the rules for doing one's job can change from one building to the next.

MCW faculty typically wear numerous hats. Many clinical faculty have offices both in the college facility proper and in a hospital or clinic. The former areas are directly controlled by the college, whereas a hospital or clinic site are the bailiwick of the member institution. Given that the various institutions in which MCW faculty reside have their own IS staff with their own policies and procedures for service requests, a simple work order request is not always a straightforward proposition.

MCW ITS has historically coordinated work requests via a form called the Facilities Service Order (FSO). As the name implies, the Facilities Service Order was initially deployed by the MCW Facilities Department, who ably provide carpentry, moving, and other such services to the campus. Additional service departments, including ITS, quickly found the form a convenient tool for submission of non-facilities requests for two reasons: 1) each department has copies of the form, negating the need to propagate a new form to the users, and 2) the FSO contains a lengthy work order description field (that is useful for detailing network as well as facilities requests). Typical ITS work requests include: connecting a workstation to the campus network, configuring a workstation for LAN services, installation of MCW supported software (Office, Network tools), and the like.

Work orders submitted to ITS via an FSO are assigned to an ITS staff person. The ITS staff person will then visit the site, determine what the job requires, (wiring, port activation, software installation, network card, etc.) and coordinate with other service departments and/or contractors to pull the job together. Again, the job location will determine who is involved in software installation, wiring and/or port activation, with MCW having direct control over MCW owned premises. If the site is in another institution, ITS would submit additional paperwork, as appropriate, to request these services.

The problem we faced with the FSO is one inherent in all paper-based work flow: delays while paper exchanges hands. Let's take a look at the paper flow involved in a typical FSO request.

<table>
<thead>
<tr>
<th>Description</th>
<th>Estimated time</th>
</tr>
</thead>
<tbody>
<tr>
<td>User fills out the FSO and sends to ITS via campus mail</td>
<td>1 day</td>
</tr>
<tr>
<td>FSO reaches IS; paper copy is placed in managers mailbox; order is entered into FSO database by hand</td>
<td>1 day</td>
</tr>
<tr>
<td>Manager assigns job to ITS staff; they estimate job</td>
<td>1 day</td>
</tr>
<tr>
<td>If fee involved, form sent back to department for authorization. FSO authorized and returned to IS.</td>
<td>2-3 days</td>
</tr>
<tr>
<td>If wiring involved, internal, cross institutional or external wiring contractor contacted to perform the work.</td>
<td>3-5 days</td>
</tr>
<tr>
<td>Wiring completed, activate jack and configure workstation. Notify user of job completion.</td>
<td>.5 days</td>
</tr>
</tbody>
</table>
PHASE I

In Phase I of our project we addressed the paper-based work flow problem by making the FSO available as a web page. To enhance user comfort levels with the page, the web version of the FSO was made to look very much like its paper counterpart. Our initial objective was simple: to receive feedback from user departments regarding this new method of submitting work orders. In addition to receiving critical and constructive comments on the page, Phase I helped pave the way for buy-in, as our users helped develop the page.

PHASE II

After meeting with department representatives and reviewing comments on the page, we implemented changes and worked toward Phase II of the project: making the FSO page do much more than its paper counterpart ever could.

The first enhancement was to eliminate the need for data entry by writing electronic FSO submissions directly to a database. A second, more decisive enhancement, was the e-mail trigger, which provides for instant e-mail notification when jobs are submitted, assigned, authorized, etc. For example, when a user submits an electronic FSO, the ITS manager immediately receives e-mail notification of the new job. A separate section of the page allows the manager to assign jobs to an ITS staff person; when the assignment is made, the ITS staff person also receives e-mail notification. The trigger concept was propagated throughout the administrative sections of the page. When wiring is assigned, e-mail notification (including internal, cross-institutional and private) is sent to wiring contractors. When a job is estimated, e-mail is sent to department administrators requesting authorization of charges. Upon job completion, our department administrator receives e-mail notification that billing is required.

Each of the aforementioned e-mail trigger recipients have their own section of the FSO page. When wiring contractors complete a job, they can update their section of the page and, of course, generate e-mail back to the staff assigned to perform the work, notifying her/him that the wiring is complete. The same is true for department administrators, who can authorize charges on-line and automatically e-mail ITS staff notice to that affect.

Additional Features

Users who submit work requests can check on the status of their job through a special, password protected section of the page. The “check status” page allows users to easily check where a job resides within the work flow process. Comments on the “check status” page are derived from staff, wiring contractors and management, and are required to be updated whenever a job screen is updated.

Improved Work Flow

By initiating e-mail triggers at each critical point in the job process, we have eliminated 65% of the delays involved in processing a typical work order request. Perhaps just as importantly, if a job is held up for some reason (wiring, authorization) users have instant, on-line access to the reason why a job is detained.

Technically Speaking

The FSO Web page is written in HTML; Cold Fusion 4.0 provides links to an Oracle 7.3.3 database. Both Cold Fusion and the Oracle database reside on an NT 4.0 server. Demonstration versions of the FSO web pages are available at:

vail.is.mcw.edu/fso-demo/fso.htm (user pages)
vail.is.mcw.edu/fso-demo/login.htm (management pages)

These pages allow for entering your e-mail address. If you choose to provide it, you will receive the results of the various e-mail triggers as you walk through the page.
Why it Works

An important design tenet of this project was “hands off the user desktop”. Our goal was to avoid installation of additional software on a user desktop; no custom applications or plug-ins were installed. The only requirement for access to the page was that users have Netscape Navigator or Internet Explorer — these applications are commonly available across campus.

Unlike some large corporations where IS solutions are standardized and desktop resources are rolled over frequently, MCW is a diverse workstation environment. Our desktop resources range from 386 PCs to Pentium processors, Macintoshes and UNIX systems. By adhering to a “hands off the desktop” principle, ITS staff did not have to install software on 3000 user desktops to rollout the application. Consequently, ITS staff had more time to dedicate to developing the application — a much better use of resources.

Feedback and Future Directions

Feedback to the FSO page has been extremely favorable. Users appreciate the ability to check job status and to receive notification on work order progress.

ITS is currently working on several exciting additions to the FSO page. They are briefly detailed below:

Help Desk FSO

ITS uses a web-based system to track help desk calls. We plan to provide for converting open help desk calls to FSO’s, so that the help desk manager can automatically assign open calls to a specific ITS staff person.

Integration with additional Information Service Departments

ITS is negotiating with their Information Services counterparts on the MRMC campus to use the FSO page to submit work requests to their departments.

Integration with MCW Financial Systems

We plan to tie the FSO page directly into MCW's financial system for automatic billing.

Departmental Interest

ITS is working with MCW Human Resources and Communications departments to convert their paper request forms to web instances. In addition, several departments wish to integrate the FSO page to existing web pages for billing purposes.
Biographical Summary

Perry Brunelli manages network resources at the Medical College of Wisconsin. Prior to joining the Medical College, he served as User Services Manager for the University of Wisconsin-La Crosse.