Remedial Help Desk 101 at Florida State University

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ABSTRACT

The User Services division of the Office of Technology Integration is the "safety net" for computer support at Florida State University (FSU). Areas of support include training, help desk services, campus-wide software site licensing and assistance by highly trained computer technicians. Support is provided seven days a week for 40,000 students, faculty, staff and university administration. This paper outlines the steps taken to update, improve and expand the technological support services offered at FSU and is directed to other university support staffs considering similar expansion.

The entire software system of collecting, recording, and tracking problems is undergoing an update to the present-day needs of the technological community at FSU. Currently, two job-ticketing systems are in use, Lotus Approach© and an older version of the Remedy Action Request System© (ARS) for administrative and academic support. Updating involves moving to a single job-ticketing system (ARS) and incorporating the best features of both into the help desk support process. The needs of the various support groups using the system have been met through improved form design, automatic notifications, escalations, and the addition of data analysis methods for reporting information gathered into the database. Another improvement includes a web-accessible means to tap into ARS that will provide greater ease of use by technicians in the field. In addition, a self-help knowledge base using customized CGI scripts is being developed to allow general users to mine data on frequently occurring problems.

In order to meet growing demand the User Services staff continues to examine and expand its role to provide up-to-date, efficient response on support issues facing the users of technological resources at Florida State University.

Keywords
User support, help desk, web access, self-help knowledge base.

1. INTRODUCTION

The User Services division of the Office of Technology Integration (OTI) at Florida State University is a relatively new computer support department at the university. It is composed of computer support pieces that were formerly a part of the two sister divisions of OTI (Academic Network and Computer Services and Administrative Information Systems). It was decided that common computer support details could be better served under a single administration by pooling some of the resources from the other divisions.

User Services was formed in 1999 with the task of managing a computer support help desk, software training, campus-wide software site licenses and technical computer support. The help desk in particular required special treatment, as two help desks existed, serving two different constituencies at the university. The administrative help desk was open during normal business hours and provided phone as well as detailed electronic remote access to the administrative computer users. The academic help desk had a longer workweek and catered to primarily students and faculty, with typically a quicker turn-around on problem calls. Each help desk had it's own ticketing system, which were not compatible. Much effort was spent ensuring that the combined help desk continued to provide the same level of support (or better) to each of the former constituencies. This was done with cross training of personnel, increasing the size of the phone system and re-scheduling the work hours. The remaining piece of integration is the most difficult – the revamping and merging of the electronic ticketing systems. This paper addresses the issues involved in rebuilding an electronic ticketing system for a computer help desk.

2. PAST PROCESS REVIEW
2.1 Comparison of software products

The first step in the process of improving the system used at FSU involved examining the software products used to report problems under the two-help-desk scheme. The comparison of Lotus Approach© and the Remedy Action Request System© followed the same considerations as a report that appeared in a PCWeek Online Review [1].

Each product was examined in the areas of knowledge base (the ability to store problem report data and easily search for problem resolutions), escalation (the ability to recognize and notify users of high-priority reports), skills-based routing (the ability to route tickets to appropriate staff members according to the problem type), and client and administrative interfaces (the ease of use of the interface both from the administrative and help desk staff perspective). Also examined were customization tools

(the ability to tailor the product application to the needs of the user groups), database integration (the ability to import legacy data into the product database), ease of training (overall training required for both the staff and administrative levels), and web accessibility (the ability and limits of using the product from the Internet).

2.1.1 *Lotus Approach©*

The strong points of Lotus Approach© were in the client/administrator interface and ease of training [2]. The users could quickly learn the uses of the forms developed and also develop custom reports from the product. The spreadsheet-style listing of records provided an overall view of reports current in the system. The form-style view of the records provided a concise means for filling out problem reports and auto-fill features drew on information accumulated in the database. The form was compact and straightforward with easy access buttons to run macros for different user views of the information. Customizations tools ranked high as well, giving the administrators flexibility to adapt the system for the FSU help desk staff. Staff members could quickly be trained on problem-report creation and assisted on macro development through a GUI that provided ease of use. The basic implementation was developed in about a month's time with new features added as time passed and additional user needs addressed.

Skills-based routing involved a more cumbersome method of electronic mail notification that required complete construction of each notification. Escalation was handled through manual priority settings within the form and indicated by the user filling out the problem report. Web accessibility proved to be the greatest weakness as the product did not allow for database updates via a web interface. Snapshots of the database could be viewed for research purposes through manual HTML generation of the spreadsheet.

2.1.2 *Remedy Action Request System©*

The strong points of ARS were the ability to automate many communication features to provide for escalation notification and skills-based routing of problem reports [3]. Through customized system-composed electronic mail messages to specific support staff groups, information could be communicated quickly according to designated problem-type categories. In addition, a web access component tool, ARWeb, allowed for immediate update to the system database through a pure HTML interface similar to the client tool for Remedy ARS.

Widely flexible applications could be developed through the administrator interface but could not be customized to a great extent through the client tool. The system would require a considerable investment in time to learn for administrators. In order to reach the potential vision for the User Services support process, an investment in human resources and time to learn the system was recommended. To that end, a single staff member has invested several months in identifying how to provide for and implement a smooth transition to the latest version of the product.

2.2 Single software product decision

While the Lotus product proved the easiest to use, it would never provide the features that had been discussed as potential considerations for the improvements to the FSU process. The Remedy product was specifically designed for uses similar to the help desk application process and already provided many of the features that would provide for efficient communication of problem report information for FSU User Services. The final recommendation suggested a staff member be designated solely to administer the system (instead of juggling many tasks, as in the past). The software administrator would be tasked with taking all user groups into account in updating the software use to the present needs and consideration be given to the anticipated future needs of the users.

The Remedy product was chosen to replace the Lotus Approach method as a more adaptable system tailored for help-desk support applications with additional potential for the future vision of the expanding role of the help-desk support staff in serving the FSU computer user community.

3. REMEDY ARS SYSTEM

The Remedy ARS is based on a multi-tier client/server architecture. The client layer provides all of the user interface functionality through various software tools. The ARS server controls workflow processes and access to the database. The ARS web server allows using the system from a web browser. The database server acts as the data storage and retrieval engine. The servers combined can be compared to a library with reference material and librarians available to help those requesting information [4].
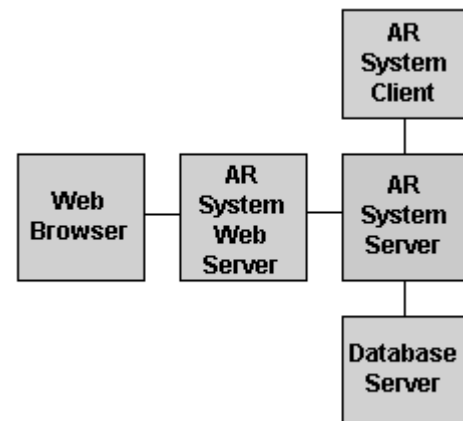

Figure 1. Remedy ARS multi-tier architecture.

3.1 Components of ARS
3.1.1 *Forms*

The main component used is the form. Users create requests to be entered into the system database through the form component that holds information fields to be filled in. Remedy ARS provides for defining different views of the forms fields appropriate for different user roles. For example, a form can be developed to provide quick-action buttons for the technical support group viewing the form, but are not visible to the data entry group viewing the same form.

3.1.2 *Menus*

The menu component provides for listing multi-tiered views of information to assist in filling a field of the form. ARS menus can be defined explicitly or can be dynamically built from

information within the form or through search action from information provided from other forms in the system. In addition, it is possible to create a menu definition that allows for appending new choices to the current menu list.

3.1.3 *Active Links*

The active link component of ARS is an action or group of actions performed on the client-side of the system. The actions are triggered in response to user actions on the client screen. Active links can be created to verify data input and initiate automatic filling of form fields. Grouped together, active links can be used to create a user guide for assisting the user through the form.

3.1.4 *Filters*

The filter component provides for server-side actions within the system. As the ARS server processes a request submitted to the system, actions defined through filters are triggered. One use of filters is for ensuring system and data integrity. Comparisons of transaction and database-stored, form-field information can be accomplished through filter actions.

3.1.5 *Escalations*

The actions of escalations within ARS occur at administrator-defined regular time intervals. Similar to active links and filters, escalation actions are defined according to criteria associated with the state of certain requests within ARS. When the criteria is found to be true, the escalation action is executed for the time intervals defined until the criteria is no longer true. Support groups can be notified of unassigned requests through the escalation action with notification repeating until the requests have been assigned.

3.2 Client Tools

ARS client tools are available for Microsoft Windows 95/98/NT/2000, UNIX/X Windows and the web (using ARWeb or Remedy Web). Unfortunately, Macintosh client tools are no longer supported [2]. FSU is examining access to ARS from web-based tools for Macintosh users.

3.2.1 *User*

The User tool provides the interface for day-to-day access to the ARS applications. Through the User tool form "requests" are submitted or modified. The User tool also provides for searching previous requests and generating reports. In the most recent version of the User tool, 4.05, the user is able to customize the view of the graphical display through font, color and format choices accessible in the tool.

3.2.2 *Administrator*

The Administrative tool (available for Microsoft Windows) provides an interface for system administrators to develop or modify applications relating to the needs of the users of the system. The administrator of the system can utilize the tools to create customized uses for the components available to build forms and create workflow actions. Active links, filters, menus and escalations are also defined through the administrator tool. Individual user and group access permissions are defined at the administrator level.

3.2.3 *Notifier*

The Notifier tool has been described as a desktop "pager" [2]. The tool provides actions to alert the user of incoming requests submitted to the system by changing color, blinking, making an audible sound or opening a pop-up message window on the desktop. An alternate method of notification is electronic mail, where form-field information is automatically included in a message sent according to administrator-defined actions.

3.2.4 *Import*

The Import tool is utilized to import and export data into ARS forms. The import and export formats supported include AR Export (*.arx) for ARS-to-ARS movement of data, such as from one ARS server to another and comma-separated value (*.csv) as well as ASCII (*.asc) for movement from external data sources into ARS. Import and export of form and other component definitions are handled through the Administrator tool only.

3.2.5 *Flashboards*

The Remedy Flashboards tool provides real-time or historical viewing of ARS data through graphical displays. The tool can provide a view of events and entries to monitor the state of the ARS workflow. Display methods include charts, bar graphs and meter formats. Managers can utilize the tool for more effective gathering of employee productivity measurements and evaluation of overall staff efficiency [5].

3.3 Issues with the Remedy products

During the process of upgrading the Remedy products in use, FSU User Services found some aspects needing improvement.

The software complexity necessitates a staff member devoted to administering and maintaining the system. The development time for the administrative side of ARS is lengthy and user-initiated improvements are limited to the display of the client tool. Most action-related changes must be provided through the acting administrator. The documentation for the system is thorough, but incorporates several manuals and many hundreds of pages to research. (The technical support provided from Remedy Corporation, however, is excellent and has always demonstrated efficient turnaround on all support requests by FSU.)

The web-based display of the customized forms provides little flexibility in RemedyWeb due to cross-platform considerations. At the present time, the login window screen display is tied to the task window or form display size and if configured to display the form in the browser window can be too large. This problem is to be addressed in the next version of RemedyWeb due to be released later this year.

The problem of no support for Macintosh users (through client tools) is proving to be a problem at FSU. Configuring web browser access to ARS for Macintosh users has proved to be difficult.

4.   IMPROVING THE PROCESS AT FSU

A series of user group meetings were held to gather information from users of both systems to identify key issues that would be incorporated into the final resulting solution demonstrated in the Remedy product. Interviews with staff members and managers provided insight into improvements that would greatly enhance the efficient use of the problem reporting system employed by FSU User Services. Listening to the input of the day-to-day users of the system also proved to be extremely helpful in the transition from two software products into a single system.
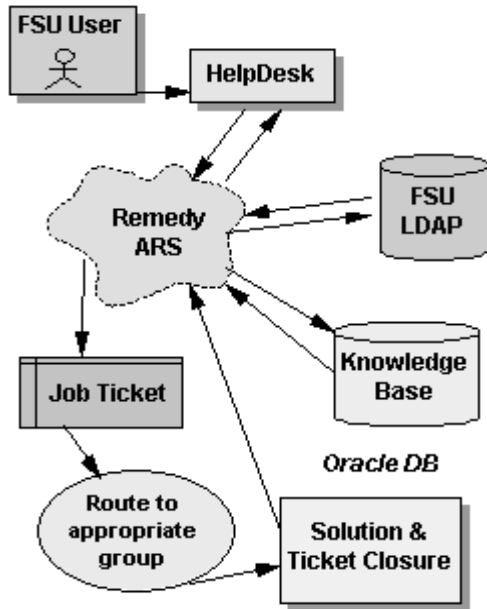
Figure 2. FSU User Services process workflow.

4.1 Improved Infrastructure

Additional computer hardware and software was purchased to ensure sufficient horsepower for current and expected future growth of the ticketing system. To this end, a Sun 420R server with four 450 MHz UltraSparcII processors, 4 GB of RAM, and sufficient hard disk space was purchased and installed. Software included Solaris 8, the latest Apache web server and Oracle 8i, as well as the latest version of the various Remedy products described earlier.

4.2 The Form

Many improvements were requested in the Remedy form used by the help desk staff. Users requested that related fields be positioned together for greater ease in filling out the form. The older version of the form needed updating to reflect the current user groups and associated problem categories. Many users requested the form choices (in selection lists and menus) be simplified for more efficient use. Day-to-day users of the software requested quick-action buttons to automate filling out problem reports for routine tasks, such as resetting passwords. In addition, several users noted that the university held several databases that could be tapped to automatically fill fields on the form relating to the identity of the person reporting the problem. Taking advantage of the FSU version of Lightweight Directory Access Protocol (LDAP), an auto-fill feature in the form would greatly reduce keystrokes required by the staff member and provide more consistency in the data stored from problem reports.

Another consideration that surfaced during the information-gathering stage was the different user groups required specific information to be gathered to address the problem being reported. In addition to the User Services help desk and technical support staffs, the Academic Computing and Network Services support staff on campus use the system to report and address campus-wide network and server problems. This year, the Office of Distributed and Distance Learning and Office of Telecommunications joined the groups utilizing the help desk problem reporting process (and software) to address their support needs.

At this point, either different forms needed to be developed for the different groups or a "super form" developed that would take into account the specific information needs of all groups. In the interest of ease of use, a super form was developed that provided information fields common to all help desk generated problem reports. Specific areas were designed for the groups requiring task-related information to be included in the problem report. Additional forms were created for use within particular groups where the information related only to that group and did not directly affect other groups. For example, the Computer Labs and Classrooms group requested a form be developed to monitor hardware and software maintenance for lab computers.

Additional fields were added to the form to reflect the elapsed time in resolving the problem reported. The status log diary field of the form was put into use as a collection field to provide technical support staff a history of the progress of the problem resolution.

4.3 Notifications to users

Both managers and staff requested notification on problem report assignments. The Remedy system provides for administrator-defined elements to "fire" actions to provide notifications on problem report assignments and reassignments at the group and/or individual level. The administrator can develop the framework for the notification, designate the situations (or rules) under which the notification should be sent out and define the time intervals that the notification should be distributed.

High-priority problem report notifications were developed for immediate distribution to the group assigned to handle the problem. Notifications on problem reports that lingered for specified periods of time were developed to assist managers in follow-up on problem report resolution turnaround.

4.4 Help

The previous application of the Remedy product did not provide customized help for the users of a particular form. Administrator-defined, context-sensitive help was added into the forms to assist all staff members, regardless of experience, to understand the uses of the fields of the super-form.

In addition, user guides were developed to instruct users of the super-form step-by-step through the fields of the form using the interactive guide application available in Remedy. The guide application allows the user to step through the form fields, displaying context-sensitive help in an information text area, and permits the user to fill in the form while working through the guide.

Materials and documentation have been developed to assist training new staff members in using the problem reporting process and software. Similar documentation is being developed for administrative-level users of the ARS software.

4.5 Web accessibility

One of the most requested improvements to the process has been the ability to access the system from the Internet and eliminate the need for the client tool to research and update problem reports.

Previously, the technical support members that traveled on-site to address problem reports often carried printed versions of

the problem report and at a later time entered resolution information into the database from handwritten notes.

With the addition of RemedyWeb, the technical support staff can enter information on site while the information is fresh and also check on other new problem assignments prior to returning to the office.

5. FUTURE ENHANCEMENTS

At the time of this writing several considerations for the improvements to the FSU process were ongoing or were to be addressed in future enhancements.

Currently, FSU is finalizing LDAP usage on a university-wide basis. Once finalized, User Services will take advantage to automatically fill identity and location fields of the problem reporting form within ARS. This is a much anticipated time-reduction feature for the help desk staff.

Customized CGI scripting is planned for allowing general users of the web-based FSU system access for login authentication, access to the self-help knowledge base and providing responses on problem report resolutions that reduce user-initiated electronic mail. CGI forms for registration will simplify the process for FSU students, faculty and staff wishing to attend User Services training courses.

CGI-driven forms that allow administrative personnel to view current site license information as well as licenses held by the departments will reduce telephone queries and assist in record keeping. Automatic notifications on upcoming software site licensing renewals will provide for reduction in time spent tracking and following up on renewal requirements for users and the site-licensing branch of User Services.

In addition to licensing renewals and training requests, User Services is examining maintaining records on hardware maintenance for university laboratory computers and equipment in technologically-enhanced classrooms on campus. Software maintenance and recommended upgrades could be incorporated through integration of the latest software information held in site licensing data and tracking software installed on computer lab equipment.

Also, FSU is beginning to investigate the Remedy Palm Link component tool for consideration of Palm OS access to the ARS. This feature would provide even more freedom for technical support staff that must travel to address problem reports.

6. CONCLUSION

Computer support for a large organization is a complex business, demanding that resources be dedicated to provide immediate, accurate and sufficient talent. The computer support help desk is the "front line" of support at Florida State University and is tasked with focusing the computer technical talent on solving user's problems.

User Services at FSU, soon after inception, realized the need for continual restructuring and development of an electronic ticketing system. The Remedy ARS System provides a framework for building a support structure to satisfy the needs of many technological problems that surface among the community at the university. Key components such as forms-based data entry, active links, filters, escalation mechanisms, multi-platform and client access, as well as integration into existing database systems are essential to the success of any ticketing system. The resulting production ticketing system is an on-going dynamic process of making sure computer support continues to stay at the forefront of user's needs.

7. REFERENCES

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