The University of Texas at Dallas

Operational Assessment Narratives

Information Resources Department

Communications and Technical Services (CaTS)

Jim Gary, Director of CaTS

CaTS_ Historical FY04-05

2003/FY04: implemented redundant WebCT and Pipeline servers

2004/FY05: Implemented High-availability web server cluster

2005/FY06: GigEdge, backups upgrade, webct upgrade, Luminis, voip production

2006/FY07: SAN upgrade, collaboration/documentation server, enhanced WebCT (LMO), H.323 gw, inca upgrade

Narrative

High-availability (HA) has become a priority for all units within Information Resources over the past few years and the implementation of such technologies has become an annual imperative within the groups comprising the Communications and Technical Services (CaTS) directorate. CaTS provides several business-critical functions, including core networking, WebCT course management, directory (LDAP) services, central UTD web server support, and many "utility services" such as DNS and DHCP. These services are interdependent and require a holistic approach to providing robust availability to our end users.

The need for achieving HA services has been recorded indirectly through several IR standard practices over time. These include coordination meetings of the weekly IR Senior Staff, quarterly coordination meetings between the major support groups witin IR, and the weekly status meetings from Networking, UNIX services, and Telecom. Further documentation comes from end user notifications of service outages and their impacts to the IR HelpDesk and support notifications archived in the ir.status bulletin board. Network monitoring and trend analysis has shown end user traffic is significant throughout the week and hence not amenable to having planned service outages outside of weekends in the very early morning hours.

The effectiveness of our HA implementations is generally tracked using automated monitoring tools, primarily Nagios. Nagios provides email alerts when services fail their status checks and upon resumption of service. In 2006, additional software was acquired to better monitor and report service outages. Formal reporting is planned going forward. Service outages continue to be reported in the ir.status bulletin board as well as cross-posted to the IR Forum web service run by TCS. Service outages and maintenance

operations affecting service delivery are reviewed at appropriate weekly status meetings, with high visibility issues being further reviewed in the IR Senior Staff meetings. Beginning in fall of 2005, IR implemented a more formal Change Management process which also tracks outages and their resolutions, including items reported to the ir.status bulletin board. The Change Control Board currently used a commercial product called JIRA for tracking issues.

In 2003, the UNIX group acquired redundant servers for both the WebCT and Campus Pipeline services. These items were largely in response to problematic maintenance experiences which resulted in unsatisfactory service outages. These units were configured for manual fail-over. By 2006, both services had evolved to the point of allowing clustered servers with automatic fail-over and load balancing. Uptime monitoring software was also added in 2005 to track performance, and annual reporting on service availability was included as part of the CaTS annual report to the IR Senior Staff. This reporting would be combined with HelpDesk statistics for the individual services to achieve a fairly broad picture on the quality of service delivery.

The UNIX group implemented a load-balancer system (Zeus software) in 2004 to simialarly enable HA performance to the main UTD web service. This load balancer was expanded to facilitate LDAP traffic in 2005. The university's Web Development Group was keenly interested in establishing a continuous web presence to bolster the increasing volume of web-enabled services being offered. It turns out that hardware failures are less of a threat to continuous operation than software updating. In this regard, the addition of Change Management has been more useful than load-balancing in proving quality web services. NFS mounts have historically been the most frequent cause of disabled web page availability as reported by the HelpDesk and automated monitoring systems, and in response the UNIX group redesigned the web cluster to lessen the impact of NFS "hangs" on general delivery. Problematic departmental mount points were isolated to only part of the web cluster such that the remaining servers would continue to deliver materials not affiliated with the ailing mounts.

Cross Applications Systems

David Holmes, Manager - Systems Analyst Services

The mission of the Cross Applications Systems unit is directly linked to that of the Information Resources department and onward to that of the University. Ideally, Cross Applications Systems offers technology services as a fundamental component leading to the accomplishment of the University's mission.

Cross Applications Systems provides services to a diverse community of constituents. Direct services and support are provided to other technical groups such as departmental programmer analysts and developers. Direct services are also provided to functional business units. A third constituency is comprised of vendors who have sold systems to the University. Typically Cross Applications Systems provides direct services to other University service providers whose clients are students, faculty, staff, and administrators.

Cross Applications Systems service offerings and support include

--server hardware specification, architecting, configuration, support, and management
- --server systems software specification, configuration, support, and management
- --server systems security and management of virus protection
- --backup and disaster recovery services
- --database services including configuration and performance management
- --limited application management and support
- --operations services
- --infrastructure services

Cross Applications Systems planning utilizes several methods.

--Users of Cross Applications Systems services are formally and/or informally solicited with respect to current and future service needs during regular University business cycle activities
--Cross Applications Systems uses industry standards and guidelines for planning purposes
--Regular interactions with various University constituencies establish bases for future development of support and services

Cross Applications Systems actively participates in the review and specification of systems considered for acquisition by various institutional units whenever the opportunity is offered.

Technology Customer Services (TCS)

Doug Jackson, Director of Technology Customer Service

Technology Customer Services (TCS) is a department within the division of Information Resources (IR) at the University of Texas at Dallas. TCS has multiple charges including the delivery of high quality customer service, both for its own services and also for other services within IR as a whole. The primary service areas of TCS include (but are not limited to) Helpdesk services to students, faculty and staff; general access computer labs for students; orientation & training to faculty, staff and students; and a wide array of Active Directory services across the campus network (this includes Exchange email services and AD support services).

During FY05, TCS engaged in a substantial effort to improve the overall responsiveness and time-to-resolution for the Helpdesk. This was an effort based upon both real and perceived problems as noted by customer feedback and by performance statistics. During this period, the number of customers utilizing Helpdesk services increased exponentially as the student population became very active in accessing the Helpdesk for various problems, most notably wireless and user account problems. In addition, the Helpdesk had perceptual issues across campus that existed a few years before, but had not been appreciably changed or advertised.

The focus of the improvements centered around faster and more effective handling of initial contacts with the Helpdesk. The Helpdesk staff received significantly more training on the customer service aspects of dealing with customers as well as continued emphasis on determining and resolving actual problems. To support this effort, substantial documentation was provided online in a readily accessible fashion for the staff to quickly and easily access. Another tool was added to the repertoire with a network-based direct-support chat service that also allowed a support person to connect directly to the computer in question (once given permission) and control of the customer machine. Subsequently, Helpdesk staff could resolve the problem while the customer watched the resolution process. This has turned out to be extraordinarily effective and popular with the customers. The final piece of the puzzle was to schedule both more effectively to meet peak demands and to open satellite offices during student move-in's to residence apartments.

It was also determined during this time that a problem existed in students getting proper user-id's and passwords setup and working. Subsequently, orientations were provided for incoming freshmen on how to get their user-id's and the were actually taken through the process. In addition, other orientation sessions combined with specific webpages were provided for new students to assist them in becoming effective on the campus

network in the shortest possible time. This has been beneficial not only to IR, but also to other campus services where students have to access the campus network in order to interact with those services (and must use their NetID and password).

The general access student microcomputer labs are funded for a 1/3 annual replacement of systems. This is done in order to keep the systems from getting too old and thus facing avoiding the budget exigency of having to replace all the systems in all the labs at once. Even though there are different systems in the labs, this process allows for reasonable replacement on a defined and rational schedule. It is a regular budget item and one that is considered crucial to student computing support across campus. The onset of laptops and wireless connectivity across campus has altered the way that students utilize the lab resources, but has not appreciably diminished it.

The UT System contract with Microsoft has provided innumerable benefits to students , faculty and staff since its inception. It has also provided the basic software infrastructure to allow the integration of other software and services into the overall mix of what the campus utilizes in a regular fashion. Students have been limited to one campus mail service and have subsequently begun to come to campus with a myriad of commercial services (Yahoo, Hotmail, etc.). The decision was made to provide a second mail service utilizing Microsoft Exchange as the host service. Exchange offers email, excellent calendaring, contact management and collaboration services and has been adopted by other institutions in the region with some success. Hardware and software was acquired and the process of providing this alternative email service to students has begun. Students, staff and faculty have expressed more than a passing interest in such a project and it is on track for final adoption. One of the goals was to provide a second email solution with a GUI interface that students could use and thus reduce their reliance/dependence upon external services.

University Management Systems

James Vernon McCardle, Manager, Systems Analyst Services

Narrative

The process to set and meet objectives and goals within the Office of Business Affairs and the Business Systems group is a continuous and participatory one that is based on awareness of customer needs, alliance with University and Information Resources strategic plans, federal / state regulatory compliance and application systems vendor required upgrades. This process includes the identification of outcomes to increase effectiveness, assessment of progress towards the outcomes, and incorporation of strategies for improvement. The objectives are specifically related to actions that will enhance the Business Systems group and Office of Business Affairs effectiveness in meeting the University's goals and President's initiatives. Analysis of assessment data and the subsequent planning and evaluation in relation to the objectives and goals occur at two levels: the functional departments within the Office of Business Affairs and Business Systems management and technical leads.

Annually the Business Systems group completes a fiscal year status report that documents the degree to which objectives were achieved and identifies how accomplishments of the objectives contribute to the continuous improvement of the Office of Business Affairs and/or processes within the Business Systems group. An opportunity is given to identify objectives or outcomes which may need to be continued in the next planning cycle, either as stated or revised for further improvement.

In addition to the annual report, regularly scheduled meetings are held between the Business Systems group and the functional users within the Office of Business Affairs. These meetings are grouped into two categories; (1) Human Resources Management (HRM), (2) Finance; with the Budget Office participating in both meetings. The HRM meeting is held every other week and the Finance meeting is held monthly. The purpose of theses meetings are: (1) to review all open work requests; (2) assign priorities; (3) review progress on work requests and objectives; (4) review implemented objectives as to their effectiveness and make necessary adjustments if deemed necessary; (5) identify and discuss new objectives.

Specific examples of objectives and goals identified by Business Systems and Office of Business Affairs:

1. Replacement of Social Security Number as primary identifier for employees to meet mandate from State of Texas and to protect personal identification information
2. Replacement of manual processes with automated processes by developing 3 PC-based systems for (1) Case Management System for HRM, (2) AP Check Inquiry System for Finance and (3) COA Inquiry System for Finance
3. Replacement of manual processes with automated processes by providing automated feed to Finance System of office supply purchases made via office supply vendor website

Student Systems

James Michalek, Director of Student Systems

The Student Systems group sets its goals based on the plans of the Student Affairs departments. Since the Student Systems role is that of support to the business unit, the business units' goals mostly drive this process. Additional input comes from the Information Resources planning, technology issues that occurred during the year and technology advances in the market place.

Functional Area Driven Goals

Functional projects are identified during the weekly Enrollment Management meetings held my Dr. Rachavong. When these are identified and they require technology, the appropriate Director and the Student Systems Director determine roles, responsibilities, time frames and resources needed. If the project being proposed is scheduled for the current year, appropriate schedule changes are made to accommodate the new project along with the old project. If there are not enough resources to execute the project in the required time, consulting resources may be obtained or the schedules may be adjusted. When competing projects cannot be supported within the time, budget and resources, a discussion is held in the weekly Enrollment Management meeting to prioritize the work. If the project is scheduled for the next fiscal year, the new project is worked into the normal budgeting process and schedule for the year. When resource conflicts occur, they are resolved either by Director level negotiations or a recommendation by Dr. Rachavong.

Technology Experience Driven Goals

Throughout the year, students, faculty and staff report problems, make enhancement requests or make new system requests. Daily, the Student Systems Director or designate reviews new requests and makes work assignments. Problem reports are treated with the highest priority and are usually assigned to an analyst immediately. The analyst reviews the issue and will address it providing the initial scope of the problem has not changed and that it is an actual problem. The analyst works with the person who made the technology request in order to address all items in the project. Once the issue has been addressed, the issue is put into a "resolved" state. The Student Systems Director reviews all issues in a "resolved" state to determine completeness and customer satisfaction, and then closes the issue. This activity is recorded in a software product called JIRA. During the annual planning cycle, the Student Systems Director reviews the activity that occurred during the year to determine if a new project would be appropriate to address chronic problems.

During the year, between 1 and 200 sets of software changes are supplied by SCT in order to comply with changes to laws and regulations and provide new functions to the Student Information System. All of the software changes are implemented as quickly as possible. New functions that are complex in nature (like CWID) are implemented but not activated. In these cases, the Enrollment Management team will decide if/when the new capabilities will be activated. Depending on the magnitude of the effort, a project will be setup to manage the set of events.

Policy Driven Goals

On occasion, new policies may be implemented that will require work to be performed by the Student Systems group (e.g., use of UTD e-mail address). In these cases, one of the Enrollment Management Directors will sponsor the project within Student Systems and it will be added to the appropriate year's planning.

Plan Review

Once the Student Systems Annual goals have been established, the results are reviewed by Dr. Rachavong and the Executive Director of IR.

Information Security

Leah Teutsch, Manager - Computer Services

We employ a continuous improvement process whereby we review the progress on our objectives and goals quarterly and revise or update them accordingly. If goals are not met, a remediation process is defined and implemented. As goals are met, an evaluation is done to determine additional goals.

We measured the number of attacks against our network and investigated ways of preventing these attacks from compromising our systems. We attended a presentation given to the UT System Information Security Officers on strategies for defending the network. After further investigation and review of alternative solutions, we determined that an Intrusion Prevention System (IPS) would be the most cost effective method of reducing this risk. After developing and reviewing a list of potential products, we conducted a thorough evaluation of products that most closely matched our needs. After this evaluation, we chose the best solution. IR Senior Staff was kept apprised of implementation progress. Information Security reviews the IPS reports on a daily basis and continues to see a dramatic drop in network exploits.