

# Information Technology Services

FY2009 Annual Report

## “We Help You Succeed with Technology”

This year our report follows a template established by Academic Affairs. We examine our internal operations as well as our support for other departments in that light and pay particular attention to how ITS contributed directly and indirectly to student learning.

Note that many of the statistics or numerical measures will not compare directly with those in the 2008 annual report. The numbers presented below reflect a full fiscal year of activity and will compare very favorably to the numbers presented in the 2008 report since the deadline for the 2008 report was much earlier than for this year.

### I. Continuous Improvement

#### a. Recommendations from 2006 Five-Year Review

##### *i. Staff Recruitment and Retention*

Recruitment and retention of staff remains an acute issue as in previous years. Since the Review, the market for IT personnel has continued to be tight in comparison to other current labor markets, and UMSL salaries have continued to fall substantially below market. This is a problem across UM campuses and System. In FY2008, the CIOs worked with System HR on a plan to move the most vulnerable job descriptions up in salary ranges. The plan had to be moderated by budget considerations, and resulted in modest recommendations approved by the General Officers. In FY2009, salaries are still a concern, but we had to table this issue due to budget constraints. We look to the future to begin to actively pursue this issue.

##### *ii. Feedback*

We continue to enhance our communications with campus units. In FY2008, we made positive changes in the frequency and quality of our notices to campus about technological services that impact their work. In FY2009, we implemented an internal control system to obtain director level approval before we notify the campus community of outages, service updates and service notifications.

We also continue to solicit feedback from the campus community in a variety of ways. We have our long-standing regular surveys of faculty and students on MyGateway usage and labs/classroom support. Results are summarized in an annual report and posted on our accountability page:

<http://www.umsl.edu/technology/accountability/index.html>

The 5-year administrative review of ITS in 2006 suggested that we work with the Public Policy Research Center to develop better surveys. In FY2009, we signed a Memoranda of Understanding with Professor Cody Ding in recognition of the need to improve ITS' assessment of its service provision, impact on its customers and other measures of effectiveness. Professor Ding is a faculty member in the College of Education and holds an appointment with the PPRC. The Technology Support Center staff worked with Professor Cody Ding and his research assistants to come up with a new TSC assessment. This assessment went live in May 2009. We will continue to work with Professor Cody Ding to develop future measures of effectiveness as indicated in Gateway for Greatness.

### ***iii. Training***

We continue to encourage our staff to obtain training in a range of subjects, from advanced technical topics to general topics such as supervisory skills and customer service. Many of our staff members are also pursuing degrees and other certifications. ITS practice is very much in keeping with the concept of a learning organization -- we are better able to support student learning if we ourselves are engaged in continuing professional and personal development. In FY2009, due to budget constraints, all but the most necessary training had to be postponed.

### ***iv. Guest Accounts***

We have revamped our Network Access Control mechanisms to provide better security and a better user interface. The new system also enables guest accounts to be created easily by any UMSL staff person.

### ***v. Auto or "selfhelp" Helpdesk***

During FY2008, we implemented "Knowledge@UMSL" a helpdesk "knowledgebase" at: [https://help.umsl.edu:8443/ss\\_umsl/login\\_raremedy.jsp](https://help.umsl.edu:8443/ss_umsl/login_raremedy.jsp). In FY2009, we continued to expand the content. This allows UMSL users to get answers to many general technical questions as well as questions specific to UMSL. The knowledgebase is a commercial product that is regularly updated with information about common products such as Microsoft Office in addition to being expandable with custom UMSL information. Statistics on usage are provided in the section on the TSC below.

### ***vi. Access to Technology***

During the last two fiscal years, we worked with the Staff Association on a project that was supported in part by the Chancellor's Office and the Facilities Services department to implement computer kiosks for custodial and other "non-office" staff to give them access to email and web resources. There are plans to expand the number of kiosks.

In FY2008, we doubled the number of wireless access points targeted in the 2004 Action Plan. In FY2009, wireless internet connectivity was expanded further by the addition of eight wireless “hot spots” for faculty, staff and student use. Today, we have 170 secure Wireless Access Points on campus.

***vii. High Performance Computing***

We continue to develop our support for the use of HPC in research in the High Performance Computing Collaboratory. More detail is given in the section on HPC below.

We also continue to work with the Research Office by sharing a staff member.

***viii. Internal Communications and Staff Morale***

Most ITS units continue to require significant amounts of customer contact and problem resolution skills necessary for excellent customer service in support of student learning. As technology changes, each group relies on the others as vital resources to provide technical expertise and to devise common and consistent solutions for the campus community. We continue to develop our intradepartmental communications to that end.

Our intranet is an important tool in that regard. For example, ITS developed Memoranda of Understanding with various partners on campus to formalize agreements on policies, procedures, services, etc. To guide future development of MOUs, the signed versions are posted on the intranet.

***ix. Vendors and Strategic Development***

We continue to involve our primary vendors in developing strategic projects to benefit the UMSL community. The Director of Computing Services meets monthly with strategic vendors to promote understanding and awareness of our campus computing needs and strategic plans.

**b. Progress Made in Plans Devised After the Five-Year Review**

Our overall planning aligns with the campus Action Plan and mission. However, strategic and tactical plans also are developed in response to needs not specifically captured in the Action Plan. These activities are captured in more detail in the sections below.

**c. Other Critical Issues Since the Five-Year Review**

As a result of interest from UMSL faculty members and faculty at the other UM campuses, we began to evaluate learning management software. In conjunction

with the Senate IT committee, we chose Moodle, an open source community-based tool for learning. Our evaluation began in April 2009, and we plan to continue our evaluation in FY2010.

**d. Assessment of Activities**

Contributions to student learning are pointed out in the detailed activity descriptions in sections below.

**e. Goals for the Next Five Years**

Our overarching goal is to find ways in which technology can contribute directly to accomplishing the university's mission – to enable and facilitate new ways of teaching, learning and research in the 21st Century. Technology has changed the way so many businesses operate and we need to find the appropriate ways in which technology can also change the academic enterprise for the better. All our activities are guided by that general directive.

Our goal as defined by the new Strategic Plan is to enhance UMSL's technological infrastructure. The new Plan articulates several specific measures of progress which we will achieve:

- number of technology-enhanced classrooms
- number of Learning Studios
- metrics of Technology Support Center effectiveness
- metrics of Faculty Resource Center effectiveness
- metrics of High Performance Computing effectiveness

These reflect activities already highlighted above, and are discussed in more detail below. We will also continue to develop appropriate metrics.

**f. Other Improvement Activities**

Other goals not captured in the new Strategic Plan include:

**i. Strengthen the File System Infrastructure (Completed FY2009)**

In FY2009, we identified improvement of the file system infrastructure as a goal due to the fact that the networks file system had not been as reliable as we had expected. We have implemented a Microsoft DFS cluster as a network file system and storage for MyDocuments shares, student shares, and departmental shares to replace the Sun 5320 NAS Gateway Cluster that had not performed satisfactorily. This goal is complete.

## **ii. Implement a Content Management System**

A content management system will enable faculty and students to manage their work products such as course materials, projects and writing. Such a system will also facilitate the posting of course material in MyGateway.

## **iii. Plan for Future Course Management Systems**

The software behind MyGateway is produced by Blackboard, to whom we pay considerable license and support fees each year. Open-source alternatives are maturing, so we began to investigate them to determine whether they are viable in our environment. We choose Moodle as our first alternative to study and identified faculty participants to help us in FY2009.

## **A. Teaching, Learning and Technology**

This section describes in more detail our most direct impacts on student learning.

### **1. Special Events**

- a) In Fall 2008, we again co-sponsored the Focus on Teaching and Technology Conference with the Center for Teaching and Learning. The Conference continued its expansion to include regional partners with the participation of SLCC and Maryville in the planning. Attendees came from our sister UM campuses as well as SLU, SLCC, SIUE and Harris-Stowe. Continued significant sponsorship from Blackboard, Dell, Apple, HP and other vendors allowed us to increase the scope of the program as well as the level of excitement. We increased attendance by another 50% over the 2007 event and planning is underway to make the Fall 2009 conference even more successful.
- b) ITS sponsored the Fall 2008 Innovation Grants.

### **2. Campus Partnerships for Student Learning**

- a) The Faculty Resource Center collaborated with the Center for Teaching and Learning to develop session topics and solicit faculty presenters to share their teaching with technology experiences and strategies at the annual Conversations about Teaching with Technology workshops held in Fall 2008.
- b) For the Fall 2008 semester, the Faculty Resource Center continued to collaborate with the Arts and Sciences departments to support their integration of technology to meet teaching and learning objectives (e.g., Political Science, Psychology, Foreign Languages and English).
- c) The Faculty Resource Center collaborated with Cheryl Bielema and Peggy Cohen, Center for Teaching and Learning, to host Part-Time Faculty orientation sessions in August 2008 and again in January 2009. These orientations focus on providing new adjunct faculty with invaluable information relating to: 1) campus services that support faculty and students, 2) introduction to MyGateway course

- management system, and 3) information about research and funding opportunities.
- d) At the request of Dean Julie Sebastian, the Faculty Resource Center worked with faculty and Ph.D students in the Doctoral Nursing Program to introduce Wimba Classroom (collaborative, synchronous meeting tool).
  - e) The Faculty Resource Center worked with the Learning Technology Inter Campus Collaboration (LTIC) training team to develop support materials for UMSL, MS&T and UMKC. The goal of the training team is to identify opportunities to collaborate and deliver training (e.g., online documentation, web-based, streaming/podcasts) on a unified level.
  - f) The FRC is currently working with the College of Education (ELAPS) in an effort to provide orientation for new faculty and to help keep current faculty informed of new technologies. In June 2009 at the request of Chair Paulette Isaac-Salvage, the FRC worked with eight instructors to answer a variety of questions relating to the use of MyGateway, MS Office products, videotaping, streaming and the appropriate use of collaborative tools to enhance student learning outcomes.
  - g) The FRC is working with two Foreign Language instructors, Donna Cays and Kimberley Sallee, in developing a model for creating and sharing student-created presentations. These presentations are course requirements and/or assessments.
  - h) The FRC is working with the College of Business Administration in an effort to develop and deploy a completely online PMBA program. Initial target for this program is Express Scripts Inc. (ESI).

### **3. Online Tools**

The Blackboard Intercampus Collaboration (BbIC) is transitioning to the Learning Technologies Intercampus Collaboration (LTIC). This should be completed early in FY2010. During the second half of FY2009 UMC online teaching technology personnel joined the BbIC team and the team decided to include other online teaching tools besides the Blackboard software. This will allow all four campuses to work together to achieve better administrative efficiencies and have more unified approach with all our online technology vendors.

During the spring semester, UMKC decided to transition their Blackboard hosting from the UMSL campus to UMC. UMSL and UMC will continue to collaborate on the technical details of hosting Blackboard via the new LTIC group. All four campuses will collaborate on other aspects of administering online learning technologies.

Outside of the UM System, collaboration continues with the Central States Blackboard Users Group (CSBUG). This group of nearly 200 members includes representatives from institutions in eight surrounding states. The group had four face-to-face meetings during the year, including one held in conjunction with UMSL's Focus on Teaching and Technology conference. The group has an active listserv and participates in a variety of meetings and training seminars. Our staff also participate in as many training opportunities as possible to keep current on a large range of online technologies required to support today's users.

Some additional highlights for FY2009 learning technologies include:

- a. Upgraded Blackboard to version 8.5, the most current version of level 8.
- b. Evaluated Blackboard level 9, but decided to forgo upgrading until FY2010 due to major feature changes and user training requirements.
- c. Increased uptime by improving load balancer health checks for failover, improving database maintenance, moving to more proactive monitoring and optimizing single sign on services.
- d. Worked with the database programming group to accelerate student data flows into Blackboard by creating more frequent and automated pulls of the data from real-time Peoplesoft tables.
- e. FRC and other campus support teams combined efforts to start building a repository of reusable training materials.
- f. Provided a show and tell to faculty members and administrators from Washington University.
- g. Implemented the SafeAssign anti-plagiarism tool, including collaboration with the Writing Lab to develop an online writing skills program used by more than 1,500 students.
- h. Mitigated the open redirect security flaw in Blackboard software and created an opportunity to improve support for security related issues by Blackboard technical support.
- i. Wimba Live Classroom and Voice Tools have again seen substantial growth in usage during FY2009.

**Wimba Live Classroom usage:**

FY2008: 1,323 unique users, 12,648.5\* hours of live usage, and 31,892 hours of archive playback usage

FY2009: 2,497 unique users, 16,120 hours of live usage, and 21,004 hours of archive playback usage, 223 unique classrooms created

**Voice Tools usage:**

FY2008: 248 unique users, 623 hours of live usage, and 642.93 hours of archive playback usage

FY2009: 1,273 unique users, 1,948.2 hours of live usage, and 1,693.93 hours of archive playback usage

- For Wimba Live Classroom, the number of unique users increased by 89% while live usage went up 27.4% and archive hours usage decreased by 35%.
- For Voice Tools, the number of unique users and live and archive usage went up by 413%, 212% and 163%, respectively.
- Wimba Voice Tool's dramatic increase in usage in FY2009 resulted from the fact that all Foreign Languages Courses sections are now using Voice Tools for all lessons and assignments. Adoption & Usage: four faculty members in FY2008 to 23 faculty members in FY2009.
- Cost efficiencies have been achieved by partnering with UMKC and Missouri S&T on the Live Classroom and Voice Tools licensing and additionally with

UMC on Voice Tools. This has resulted in a net annual savings of greater than 33%.

#### **4. Classrooms and Labs**

- a) Eight additional Media Enhanced Classrooms were added to the inventory of classrooms having at a minimum: instructor computers, overhead data projection systems, sound systems, VCRs, and Internet connectivity. There are now 110 such classrooms on campus.
- b) The Learning Studio's in SSB 449 and Clark 400 continues to be popular classrooms among faculty and students due to the multiple modes of teaching and learning that the room enables. In FY2009 there were 10 different departments that made use of the Studios. Plans are currently underway to open the first Learning Studio on South Campus in time for the Spring 2010 semester.
- c) In August 2008 an informal technology learning space was developed on the 1<sup>st</sup> floor of CCB. The space features, wireless internet capability, three KIOSK stations, tables and lounge furniture. The area is used for students to study, complete group course work, or learn in an informal environment.
- d) The Online Testing Center on South Campus moved to a new location for the Spring 2009 semester, and is now located in South Campus Computer Building room 107. Utilization of the two Online Testing Centers is good with over 7,000 exams taken in FY2009.
- e) We partnered with the several programs that work with pre-collegiate students, examples include; Bridge Program, STARS, GEARUP Summer University, and Xtreme IT. These partnerships provide technology classroom and lab resources to the students in these programs.

#### **5. Video and Multimedia**

- a) We continued our work on the independent film formally titled "Seamstress of St. Francis Street." The movie has been renamed "Pennies for the Boatman," and is being produced by the Department of Theatre, Dance and Media Studies in the College of Fine Arts and Communications. Editing and post-production for the film occurred during the months of October through March resulting in a rough edited cut of the movie. The World Premier of the rough cut of "Pennies for the Boatman" debuted at the Lee Auditorium in the Missouri History Museum in Forest Park to a packed crowd of 200+ plus. In June, work continued on the film including laying down the music sound track, editing the music score, sound editing, and continued film editing. Plans are underway to or submit the final version of "Pennies for the Boatman" to national film festivals.
- b) We provided a webcast of Vice President Joe Biden's campus visit for the Education Town Hall meeting. Not only did we provide a feed for our campus community, we provided a feed to the Washington DC press CORPS. A total of 380 unique webcast viewers watched online including Washington DC press staff and personnel in various governmental offices.

- c) We produced 60 video segments on Re-Imaginings Learning Spaces for the joint ELIXR Grant in cooperation with the California State System, CTL and ITS. This showcases five case stories in the uses of Learning Spaces in Higher Education. These case stories have become a part of the learning objects repository, Merlot.org as ELIXR content.
- d.) We provided a webcast of the Titan Arum (Corpse Flower) flowering. We video streamed the bud growth and blooming for 24 hours a day beginning on May 21<sup>st</sup> through June 10<sup>th</sup>. We ended up streaming 480 hours in total. The event attracted local and national press coverage. We also tracked 15,000 viewing hits online with over 1,000 unique viewers.
- e.) Video Streaming Statistics:

Windows Media Services

	<u>Unique Visitors</u>	<u>Hits</u>	<u>Volume</u>
FY2007	8,099	54,547	876.24GB
FY2008	10,799		84,476 1,613.82GB
FY2009	31,931	159,133	3,298.13GB

QuickTime Streaming Services

	<u>Unique Visitors</u>	<u>Hits</u>	<u>Volume</u>
FY2007	1,927	7,343	65.7GB
FY2008	1,367	6,328	75.9GB
FY2009	1,466	8,227	122.05GB

- As measured by “unique visitors,” overall usage grew by 33% during FY2008 and by 195% during FY2009. The continued growth is marked by growth in online courses using Windows Media streaming services. Measured by total “volume,” the usage grew by 84% during FY2008 and 104% during FY2009.

## 6. Faculty, Staff and Student Support

- a) Technology Support Center (Helpdesk)

We are well on our way to establishing meaningful metrics of TSC effectiveness. Improved customer service means that faculty, staff and students are better able to focus on student learning as technological issues are resolved more quickly.

- In FY2009, the total number of Remedy trouble tickets logged by Information Technology Services staff was 23,610. Of the 23,610 total tickets, the Technology Support Center staff logged 17,724. Technology Support Center staff created 75% of the request tickets that flow into ITS. The remaining 5,886 tickets represent self-service ticket creation (2,968) and tickets created by other groups within ITS (2,918).
- Out of the 17,724 TSC Remedy trouble tickets logged by the TSC in FY2009, TSC staff resolved 15,627. This represents a first call resolution rate of

88.1%, which is an improvement over the rate of 85.4% in FY2008 and of 82.7% in FY2007.

- Self-service Remedy Ticket Submission tools (excluding help.umsl.edu) were created in FY2006 to enable students, faculty and staff to generate support request themselves. Through the use of these tools in FY2009: 1,053 Instructional Computing support requests were generated; 1,039 University Meadows Data Access requests were generated by students; and 200 DSP Web Orders were generated by faculty and staff.
- In FY2009, 3,020 individual users accessed our self-help tool, knowledge@umsl, for 4,794 sessions and have executed 8,183 searches. A total of 243 users have solved their own issues by using the online tools provided without involving TSC directly. A total of 671 tickets were created through help.umsl.edu system that is powered by Right Answers. End user created tickets are entered into Remedy using our knowledge base. After its introduction in April 2007, 1,929 individual users accessed the site for 2,675 sessions and executed 3,893 searches. Use of the self-help tool set frees up staff member's time and allows staff to pay more attention to problems that require human intervention, thus improving both efficiency and customer service.
- In November 2007, the Technology Support Center introduced a new process of sending out customer satisfaction surveys directly. After a service request ticket is closed, an email survey is automatically sent to the customer. The survey asked each customer to rate their experience in terms of courtesy, technical skill, timeliness of service and quality. We used a five point Likert scale (1 = very satisfied; 5 = very dissatisfied) and provide space for comments.
- On July 15<sup>th</sup>, 2008, a Memorandum of Understanding was signed between ITS and Professor Cody Ding. This was the Assessment of ITS Progress and Improvement. Technology Support Center staff members met monthly with Cody Ding and his staff to collaborate on a new Customer Service Survey for the Technology Support Center. After several meetings, the Technology Support Center introduced a new process of sending out customer satisfaction surveys directly. We began this new process on starting on May 28<sup>th</sup>, 2009. After every third service request ticket is closed, an email survey is automatically sent to the customer. The survey asks each customer to rate their experience in terms of Knowledge, Manage Needs, Professional, Courtesy, Communication Skills, General Issues, Technical Issues, Emergency Issues and Maintenance Issues. The scale varies and is based on a 1-3 point scale with 3 representing the highest level of satisfaction. The average scores to date are:

Knowledge – 2.92

Manage Needs – 2.85

Professional – 2.92

Courtesy – 2.94

Communication Skills – 2.93

General Issues – 2.93  
 Technical Issues – 2.93  
 Emergency Issues – 2.89  
 Maintenance Issues – 2.91

These results indicate a high satisfaction rate. We continue to send surveys to detect early warning signs of where we need to improve. We are also trying to locate weak areas so that we can improve skill sets of the TSC staff. We also solicit direct customer comments.

b) The activity in support of exams and evaluations FY2009 amounted to:

- Sheets Sold – 60,620
- On Campus sheets scanned – 80,034
- Off Campus sheets scanned – 1,101
- Programming on Campus – 660.50 hrs
- Programming off Campus – 8 hrs

c) We continue to support student and staff learning by offering regular training workshops on a variety of technical topics to the campus community. These include workplace and academic productivity tools as well as tools that have specific application to teaching and learning with technology:

<u>Workshop Topic</u>	<u>Attendees</u>
Computer Access Kiosk Update	41
eInstruction - CPS	10
IC Short Course - 2007 PowerPoint Basics	34
IC Short Course - Adobe Photoshop Basics Session 1	47
IC Short Course - Adobe Photoshop Basics Session 2	35
IC Short Course - File Transfer and CD Writing Basics	9
IC Short Course - Macintosh Basics and UNIX Commands	10
IC Short Course - Microsoft Excel 2007 Basics Session 1	37
IC Short Course - Microsoft Excel 2007 Basics Session 2	14
IC Short Course - Microsoft Word 2007 Basics	32
IC Short Course - The Basics Marathon 'A'	9
IC Short Course - The Basics Marathon 'B'	9
IC Short Course - Web Page Building and HTML	44
Introducing Parallels	1
Making LanSchool Work for You	2
MyView Q&A Sessions for Student Records	36
Teaching in a Technology Classroom	3
Using SMART Symposium Technology	4
<b>Total Attendees</b>	<b>432</b>

## **B. Research Computing and Research Support**

- a.) The Grethor test cluster was placed on-line in July 2008. Initial configuration is (7) Hewlett-Packard ProLiant DL165G5 servers, each with two AMD Opteron 2376 4-core processors and 16GB of RAM. Interconnects are Gigabit Ethernet. The cluster was moved to the Lucas Hall machine room and placed into limited production in March 2009. This involved re-compiling applications such as MrBayes and QuantumEspresso for the AMD 64-bit processors and re-doing wrapper scripts to reflect the new environment. Blender image-rendering software was also compiled and installed for the Virtual Cities project.
- b.) In late January 2009, Expedition was updated to the current ROCKS 5.1 cluster management software from ROCKS 3.3. This updated the operating system, system libraries, and system compilers to current offerings. An additional file server was added to the cluster to reduce system lockups due to communications bottlenecks. The Intel compiler suite was installed to provide an optimizing compiler, which increases execution speed for applications. The MPI communications software has been updated to the latest available version.
- c.) We continue to try to improve Expedition's performance within the limits of its aging hardware. Usage is still very good. Due to the software update, full-year statistics are unavailable. Expedition has maintained nearly 100% utilization since the updates were completed.
- d.) In May 2009 quotations were solicited for equipment to expand the Grethor cluster to 128 processors, update and expand file services, and install InfiniBand interconnects. When the expanded Grethor is ready, Expedition will be de-commissioned after six years of service.

## **C. Administrative Process Enhancement**

- a.) UMSL again hosted the Kids Voting Missouri project. ITS and College of Education worked together to create the scanning programs, assisted in coordinated data collection for tallying and posting Kids Voting results on the web for the State of Missouri. Combined and posted results from different sources including 17,417 on-line ballots from Rockwood and 152,479 scanned ballots from 28 St. Louis school districts and three other Missouri regions.
- b.) Fifteen new COGNOS data packages were created for producing reports on student enrollment, grades, athletic enrollment, international students and many other areas.
- c.) Several new surveys were created for 2009:
  - ITS Customer Satisfaction - new
  - MyGateway Student Survey – modified
  - Troubled Students survey – new (student and faculty versions)
  - ACP – course evaluations – new
  - ACP – new administrative functionality
  - Negotiation Pilot Web survey – new version of only 150 questions

- Civic engagement survey – (faculty, staff and student versions)
- d.) Due to the mainframe being decommissioned, four statistical applications were converted to SAS:
- Nursing course evaluation
  - Continuing education course evaluation
  - Music department course evaluations
  - Ed Psych course evaluations
- e.) Continuing changes to web applications to interact with the new PeopleSoft Student database. Some of these include:
- Class verification lists
  - Parking Permit tracking
  - ACP – Advanced Credit Program
  - Early Feedback survey
  - CLA – assessment center
  - Sevis – Changes for graduate/Doctorate
  - Reslife application for phone and Internet service
- f.) A web application was created for Senate Bill 389 (SB389). This bill mandated that a five question survey be given to students. The data is compiled and copied to PS tables through a process so students can see the results of courses and instructors from previous semesters when enrolling in course. An additional application was written to enable instructors to view their results.
- g.) An Online Orientation for Transfer Students application was created to aid in the acclamation of UMSL services. In coordination with Transfer Services, incoming transfer students can register early like ongoing students provided they complete an Online Orientation. Transfer students can go on-line and read and/or watch a video for each of six areas of the university. At the end of each section, they are presented with a quiz. All six quizzes must be completed in order for the student to prove they completed the orientation. Administrators can generate results and flag the student in PeopleSoft Student Administration which then allows the transfer student to register early.
- h.) The Graduate School replaced their scanned sheets with web based surveys. Administrators can extract the results in several common formats.
- i.) University Special Events registration was expanded to handle Founder's Dinner, Chancellor's report to the community, World Ecology conference, Alumni weekend and Economic Forecast Luncheon.
- j.) Oracle databases were converted from virtual servers to real hardware. The machine housing 10 databases was split into two real machines from one virtual environment. This increased stability and created a supported Oracle environment. The past unsupported environment experienced frequent "freezes" requiring re-starts and unscheduled outages. Since the new implementation there have been no unscheduled outages.
- k.) Several Oracle enhancements were implemented:
- a. Oracle userid reconciliation was performed on all databases.
  - b. New security standards for password changes were implemented.

- c. Consistent backups through RMAN were implemented for CLASS, Dev and Test databases to ease restoration.
- d. Grid manager was upgraded to most up-to-date version.
- l.) The Coldfusion 5 web applications were migrated to Coldfusion 7. This brought greater stability and reliability to the server environment. In FY2010, all CF7 applications will be migrated to a Coldfusion 8 which offers broader features and better operation.
- m.) A system to handle External SSO ids for Continuing Education and other non-UMSL liaison groups was created. Continuing Education students never received SSO's like regular credit students. With this new system all students that participate in MyGateway BlackBoard designated courses are automatically given a generated SSO and registered in MyGateway courses. Continuing Education staff can control password resets and program setups for all course offerings. Non-UMSL groups that need use of certain UMSL facilities are also able to control the generation of SSOs for their particular group. Current groups using the system are English as a Second Language, English Language School and Rankin students housed at UMSL's residential halls.
- n.) The Degree Audit Requirements System (DARS) statistics for FY2009:
  - a. Advisors – 154
  - b. Students – 8,247
  - c. Total Audits – 152,300
  - d. Advisor submitted audits – 79,852
  - e. Student submitted audits – 72,448
- o.) Campus BlackBoard scripts were enhanced with a “trigger” functionality allowing multiple updates from various external Student, Human Resources and Continuing Education databases. BlackBoard group is notified in detail of script completion and errors if any occur. Now, BlackBoard information is updated many times during the day instead of 1-2 times.
- p.) A project submission application for Institutional Research was created for customers to request reports. The system allows customers to submit request with preliminary information. Administrators are notified of requests and use the tool to track the solution for the customer. Administrators have the ability to view/change and report on the types of requests.
- q.) The MIS department created a new MIS Mentoring system for tracking mentors and protégés for the program. It allows students to be matched with mentors in their desired fields and gives administrators the ability to report, view, and modify information. Mentors are allowed to manage their information and availability.
- r.) A non-SSO login system was created for all applications that need uniform tracking of external customers for applications. Instead of having each application track an id for logging into an app, they use this new centralized service for validating the user's credentials.
- s.) In order to easily allow students to accept financial responsibility, a web application (SFR) was designed to present the student with the semester's

financial agreement and allow them to accept. The responses are migrated into MyView.

- t.) The College of Business Administration now offers an online advising scheduling for all MBA students who seek counseling about registration, graduation requirements, transfers, and more. Since the advisor knows which student is expected, he or she has the opportunity to gather together and review the student's records in advance. This allows the advisor to provide more in-depth and personal advising, and allows the advisor and student to get to know each other. Students always have the opportunity to select the advisor with whom to make an appointment. Administrators of this application are able to add, update, and delete student appointments, and advisors' leave and work schedule. Advisors and other administrators can manage and maintain this application.
- u.) The College of Business Administration now has online advising for undergraduate students. The application allows advisors to maintain their working schedule hours, manage appointments and make notes. The students can make or cancel appointments through the web at any time.
- v.) The University of Missouri-St. Louis Office of Precollegiate Programs strives to provide area St. Louis students with program opportunities that emphasize academic achievement and preparation for college and career. The Bridge Program (Summer and Saturday Academies) is one of a variety of structured programs that prepare, engage and support students and parents for college success. Each year, there are over 400+ applications to the program. Starting in summer 2009, the program can be applied online. An application was created to streamline the application process for students and parents. It also tremendously reduces administrative efforts by eliminating inputting the data on these applications manually. Administrators of this application are able to view and delete student applications and other administrators can manage and maintain the application, and add, update and delete programs.
- w.) Students can electronically sign-up for an appointment with staff at the Executive Leadership Institute (ELI) for a brief orientation of the Executive Lunch Series. The purpose of the Executive Lunch Series is for students to interact with business leaders in an intimate and personable lunch setting. This is a great opportunity for students to meet, mingle and lunch with some of the region's most accomplished executives. Companies include Commerce Bank, HOK and Enterprise Rent-A-Car. Administrators of this application are able to view and delete student reservations; view, add, update, and delete the Executive Lunch Series sessions; and manage and maintain this application.
- x.) A conference reservation system was also created for the Executive Leadership Institute (ELI). This system reduces the workload in preparing for their conferences by allowing the registrants to use the web.
- y.) A suggestion box was created for the College of Nursing because they would like to hear the ideas on steps they can take to improve their academic programs and to continue to increase efficiencies in these challenging economic times.

- z.) An application for the Office of Transfer Services invites students to take an opportunity to preview UMSL and discover how our faculty, administrators, and staff can assist them with continuing their education and reaching their career goals. Students can choose and register for a session online. Administrators of this application are able to view and delete student registration, add and delete sessions, and add and delete other administrators to manage and maintain this application.

## **C. Core Infrastructure**

### **1. E-mail and Identity Management**

We continued to pilot student email with Microsoft's OutlookLive@edu, a free email service operated by Microsoft for any U.S. university. This product would allow us to offer students email for life using the Outlook Web Access interface which they are currently using through the campus offering. Moving the students to Outlook Live would increase their mailbox size to 10 GB from 50 MB. This represents 2,000 times more storage space for their mail. We are hopeful that we will be able to move students starting in Fall 2009 and completely transition within 90 days from the start time. This service has the potential to save the UM System approximately \$300,000 per year and provide much more storage for student email.

### **2. Information and Network Security**

- a) Continued to deliver security awareness presentations to colleges and departments on campus. Started yearly scheduled presentations for compliance areas like HIPAA and PCI.
- b) Moved to Windows Vista Bitlocker for a free/seamless encryption option for portable computers.
- c) Moved to a more aggressive patching schedule and alert systems with WSUS to improve Microsoft Patching.
- d) Implemented Network Access Control for all campus systems to help ensure campus systems are meeting security standards.
- e) Started implementing a Data Classification System on University owned servers to better identify and protect sensitive data. This will be an ongoing process.
- f) Worked with Campus Department to start the process of reducing the use of Social Security Numbers in files and better protecting files with SSNs where needed.
- g) Worked with security administrators from the other UM System campuses to develop and institute a System wide Information Security Program.

### **3. Desktop System Plan**

The Desktop System Plan was placed on hold in December 2008 due to the request to cease computer orders for the remainder of the fiscal year. Only 50% of the Year 3 recipients received an invitation to order a new computer in FY2009.

- a) The base configurations offered were: HP dc5800 Microtower or Small Form Factor with 19" flat panel monitor, HP 8510p or 8530p laptop, Apple iMac with 20" LCD and Apple MacBook Pro. Users with no monitor, a CRT-style monitor, or a 15" flat panel monitor received a 19" flat panel monitor. Users with existing 17" flat panel monitors did not receive replacements.
- b) Year 3 had an increase of 3% (10) new eligible DSP recipients added to the program.
- c) The year 3 database indicates 391 records. The status of each is as follows:
  - i. 199 – Year 3 orders installed.
    - 140 – HP dc5800 desktops
    - 23 – HP 8510p or 8530p laptops
    - 20 – Apple iMacs
    - 12 – Apple MacBook Pro
    - 4 – other
  - ii. 5 – Open slots
  - iii. 192 – Did not order

The Desktop System Plan has been restructured for the upcoming fiscal year, moving from a 3-year replacement cycle to a 4-year replacement cycle. These changes are expected to save the campus approximately \$70,000.

#### **4. Networking**

- a) Wireless Internet connectivity was further broadened across campus as eight additional wireless “hot spots” were created for faculty, staff and student use. A total of 170 secure Wireless Access Points have now been deployed on campus.
- b) Networking Services continued a life-cycle management project for network hardware. This is a three year project which includes updating data wiring closets with newer hardware and wiring. At the same time we are consolidating equipment when possible to reduce maintenance requirements and purchase costs. End users now have access switches that will provide functions and features that are required over the next several years for enhanced services. During this past year, 10 network data closets had a total of 21 user access switches upgraded.
- c) Provided special support for such events as the Vice Presidential Debate in conjunction with KWMU, as well as a later visit to campus by Vice President Biden, various student summer camps and other groups meeting on campus that required network connectivity.
- d) Working with MOREnet, network services completed a 10 gigabit connection to the MOREnet’s new backbone. This is a tenfold increase in capacity over the existing link. This will enable future growth for both intercampus connectivity, as well as access to Internet 1 and Internet 2.
- e) A point-to-point wireless solution was tested for use in extending the network between buildings. This solution can be used as alternate to fiber, although the bandwidth capacity will be less than fiber. This was done to provide a quick deployment in-case the current fiber infrastructure is damaged. While bandwidth would be limited in some cases, it would provide the necessary connectivity to continue business operations. It can also be used to extend access to locations on campus where adding fiber may be costly as long as the bandwidth requirement

can be met using the point-to-point wireless solution. Currently, the point-to-point wireless solution is being studied for four possible upgrades to locations that need limited bandwidth, thus reducing cost versus adding additional fiber infrastructure.

- f) A test lab has been created to test and simulate some of the functionality of the campus network. This is used to test new designs without impacting the production network. In addition to a test lab, the components in the test lab also serve as strategic emergency spares for the production network which allowed this lab to be created without adding additional cost. By having these spares readily available in the test lab, we were able to lengthen our vendor contract response times of these key components thus reducing the maintenance cost. This actually improved response times as these components are onsite versus the four hour response time previously contracted. This reduced the overall cost of the maintenance contract as response times for component replacement could now be changed to next business day versus the previous four hour response, which offset the cost of obtaining the equipment used in the lab.

## 5. Telephone Services

In FY2009, Telephone Services accomplished several projects:

- a.) Installation of a new fire suppression system in Benton Hall.
  - b.) Upgraded the PBX system software and backplane hardware and converted super loops.
  - c.) Upgraded the Telephony Manager hardware and software system.
  - d.) IP reconfiguration of the switch room network equipment.
  - e.) Upgraded Contact Center Manager hardware and software system.
  - f.) Installed new batteries for rectifier.
  - g.) Supplied four wire circuit service for two events: NPR coverage of a Vice Presidential debate and Vice President Joe Biden's visit to campus.
  - h.) Provided phones service to several new locations including the new observatory, the new ball park, and the south campus trailer.
  - i.) Deployed on-line work order application.
  - j.) Implemented Customer Service Survey.
  - k.) Deployed of VoIP testing groups – Desktop and soft phones.
  - l.) Audited phone lines associated with alarms on campus.
- b) Telephone Statistics – July 1, 2008 to June 30, 2009
- a.) Remedy Tickets
    - i. 1,229 – Total for repairs, work orders, feature changes, voicemail changes
    - ii. 513 – Total for University Meadows phone service requests
  - b.) Telephone Work Orders
    - i. 74 Install Work Orders – resulting in 100 installations
    - ii. 63 Disconnect Work Orders – resulting in 228 disconnects
    - iii. 94 Move Work Orders – resulting in 158 moves
    - iv. 40 Upgrade Work Orders – resulting in 45 upgrades

- c.) Information Access Services (phone and data) registrations for University Meadows students:
  - i. 84 – Summer 2008
  - ii. 202 – Fall 2008
  - iii. 184 – Winter/Spring 2009

## **6. Machine Room**

- a) After the internal Data Center audit in early 2007, we improved Data Center security and access by implementing new regulations such as requiring a Director's authorization for new employees requiring Data Center access. We also run quarterly reports of employees with Data Center access, and keep signed hardcopies of this information on file.
- b) With the Data Center staffed 24x7, our operations staff has expanded its ability to report and correct campus wide problems and issues with the use of the Remedy software. This ticketing software is the same used in the Technology Support Center so we have a consistent way to dispatch, track, and correct any problems or issues campus wide.

## **7. Servers and Storage**

- a) Continued to expand the VMware installation, which we use to create several virtual Windows or Linux servers on each physical server, saving money on hardware, power, and cooling. We have consolidated and reduced our total number of VMware servers from five to three by replacing the existing hardware with a more robust server with additional resources. We are supporting a total of 52 virtual servers which are a mixture of production and test servers of both Linux and Windows platforms. We expect to increase the number of VMWare hosts by a minimum of 10 to 15% over the next year.
- b) We have implemented a VTL into our backup infrastructure to alleviate issues with backing up all our storage in a reasonable backup window.
- c) We have implemented a Microsoft DFS cluster as a network file system and storage for MyDocuments shares, student shares, and departmental shares to replace the Sun 5320 NAS Gateway Cluster that had not performed satisfactorily.
- d) We have also put extensive planning into expanding storage, both for primary storage and for mirrored volumes by purchasing a new storage array to replace an existing one. This new hardware has also reduced maintenance costs for storage equipment overall.
- e) We have worked with the Touhill Performing Arts Center in a massive upgrade to its hardware and software.
- f) We have upgraded many of our UNIX servers operating systems to Solaris 10, including the campus webserver, and will continue to upgrade the remaining systems to Solaris 10 by Winter 2009.
- g) We have upgraded many of our existing Windows servers operating systems to Window 2008 server and will continue to upgrade additional systems over the

- coming year, including our Active Directory infrastructure, which should be complete by Fall 2009.
- h) We are currently testing a Solaris 10 Logical Domain (LDOM) technology to consider reducing the overall hardware footprint for Solaris servers. We plan to complete testing over summer 2009 and expect to implement in a production environment by Spring 2010.
  - i) We have developed a Microsoft Remote Application server that will allow students to utilize software applications that have only been available within the physical labs and classrooms from a remote location through VPN access and Microsoft Terminal Services. We expect this to go into production for Fall 2009.

## **II. Response to HLC Review of 2008-2009**

### **A. Activities that ITS has undertaken to enhance the UMSL Brand**

- a.) In an effort to improve the University's image before the accreditation visit in September, many older looking websites were converted to a standard look as described in the [University of Missouri - St. Louis Web Standard Policy](#). The standard template includes consistent page layout photo bar, page identifier, UMSL logo, left navigation, font size, typeface, font and page color, contact information, and address footer.
- b.) We updated the entire the UMSL site's A-Z index for easier navigation and correct entries.
- c.) We created Prospective Student landing page to better serve potential students with input from Student Affairs.
- d.) We created the "About UMSL" web pages based on a suggestion by Dr. Martinich, College of Business Administration.
- e.) We created UMSL homepage rotating graphics for use throughout the UMSL website.
- f.) We added "Apply Now" feature to UMSL homepage.
- g.) A web application was created for Senate Bill 389 (SB389). This bill mandated that a five question survey be given to students. The data is compiled and copied to PS tables through a process so students can see the results of courses and instructors from previous semesters when enrolling in course. An additional application was written to enable instructors to view their results.

### **B. Evidence of Data Driven Decisions**

- a.) Eight additional Media Enhanced Classrooms were added to the inventory of classrooms having at a minimum: instructor computers, overhead data projection systems, sound systems, VCRs, and Internet connectivity. Every semester, data is gathered by surveys. There are now 110 such classrooms on campus.
- b.) The Learning Studio's in SSB 449 and Clark 400 continues to be popular classrooms among faculty and students due to the multiple modes of teaching and learning that the room enables. This has been shown true by collecting

data about the Learning Studio's usage. In FY2009, there were 10 different departments that made use of the Studio's. Plans are currently underway to open the first Learning Studio on South Campus in time for the Spring 2010 semester.

### **C. Improved Communications with Students**

- a.) An Online Orientation for Transfer Students application was created to aid in the acclimation of UMSL services. In coordination with Transfer Services, incoming transfer students can register early like ongoing students provided they complete an Online Orientation. Transfer students can go on-line and read and/or watch a video for each of six areas of the university. At the end of each section, they are presented with a quiz. All six quizzes must be completed in order for the student to prove they completed the orientation. Administrators can pull the results and flag the student in PeopleSoft Student Administration which then allows the transfer student to register early.
- b.) We created the Suggestion Box found on UMSL's homepage. This suggestion box allows faculty, staff and students to provide input on enhancing the quality of our programs, improving basic campus efficiencies or processes and, when possible, saving money. Comments are sent to the appropriate vice chancellor for full review and action. Reports of comments received and actions taken are made to the University Assembly, Staff Association, and SGA.
- c.) A web application was created for Senate Bill 389 (SB389). This bill mandated that a five question survey be given to students. The data is compiled and copied to PS tables through a process so students can see the results of courses and instructors from previous semesters when enrolling in course. An additional application was written to enable instructors to view their results.
- d.) In Fall 2008, we again co-sponsored the Focus on Teaching and Technology Conference with the Center for Teaching and Learning. The Conference continued its expansion to include regional partners with the participation of SLCC and Maryville in the planning. Attendees came from our sister UM campuses as well as SLU, SLCC, SIUE and Harris-Stowe. Continued significant sponsorship from Blackboard, Dell, Apple, HP and other vendors allowed us to increase the scope of the program as well as the level of excitement. This event was free for students, faculty and staff to attend.

### **D. Linkage of G4G with Unit Strategic Plans and Revenues**

As stated above, our goal defined by the new Strategic Plan is to enhance UMSL technological infrastructure. The new Plan articulates several specific measures of progress which we will achieve:

- number of technology-enhanced classrooms
- number of Learning Studios
- metrics of Technology Support Center effectiveness

- metrics of Faculty Resource Center effectiveness
- metrics of High Performance Computing effectiveness

Depending on the results of the assessments, ITS may need more revenue.

### **III. Overall Assessment of ITS**

#### **A. Measurements of Services and Effectiveness**

Note that many of the statistics or numerical measures will not compare directly with those in the 2008 annual report. The numbers presented below reflect a full fiscal year of activity and will compare very favorably to the numbers presented in the 2008 report since the deadline for the 2008 report was much earlier than for this year.

Measurements are contained in the sections above and include:

- a.) Wimba Live Classroom usage
- b.) Wimba Voice Tools usage
- c.) MyGateway Student Survey
- d.) Windows Media Services
- e.) QuickTime Streaming Services
- f.) Technology Support Center Customer Satisfaction Survey
- g.) Workshop statistics
- h.) Degree Audit Statistics
- i.) Telephone Services Statistics

#### **B. Actions Taken as a Result of the Assessments**

Data generated from statistics and customer satisfaction surveys, are regularly used in the decision making process. Examples include:

- a.) Due to the increased demand for streaming services as evidenced by the dramatic increase in usage, larger hard drives were ordered to meet current and anticipated demand.
- b.) MyGateway Student Survey includes information about MyGateway from the student perspective. Data has shown that students continue to be frustrated by the inconsistent use of MyGateway from instructor to instructor, and by the resistance of their instructors to use the system at all. We use this information to aid in planning our outreach efforts by the Faculty Resource Center staff members so that instructors know how to use the system and what tool is most beneficial to achieve the instructor's learning objective.
- c.) Hardware changes were made based on the Windows Media Services and Quicktime Streaming Services statistics.
- d.) Workshop attendance statistics offer staff insight in to the training needs of the campus.

### **C. Overall Evaluation and Areas Needing Specific Attention**

As we examine our internal operations as well as our support for other departments, ITS contributes directly and indirectly to student learning. In many other universities, the role of the IT organizations stops at a basic level. Direct support for teaching and learning, even with technology, is often provided by a separate organization. At UMSL, the role of ITS includes support of technology for learning. We are able to build on the foundation afforded by a solid infrastructure to support higher order goals such as faculty and student success. Out of that work, we learn what to do to develop the infrastructure further.

To further our support of the campus, we need to continue working diligently towards our goal as defined by the new Strategic Plan. We will enhance UMSL technological infrastructure. The new Plan articulates several specific measures of progress which we will achieve:

- number of technology-enhanced classrooms
- number of Learning Studios
- metrics of Technology Support Center effectiveness
- metrics of Faculty Resource Center effectiveness
- metrics of High Performance Computing effectiveness