

2004-2005 Annual Report of the Emory University Information Technology Division

EXECUTIVE SUMMARY

During the fiscal year, September 2004 through August 2005, the Information Technology Division (ITD) focused on five major objectives: 1) furthering partnerships with schools and administrative units; 2) making customer service a priority; 3) building a digital campus; 4) improving administrative processes; and 5) emphasizing operational quality.

This annual report outlines the substantial progress that was made toward reaching these goals.

Partnerships

Partnerships with academic and business customers is a way of life within the world of information technology (IT). From everyday production tasks to major enterprise projects, it is critical that IT professionals work closely with customers to ensure successful delivery of products and services. Academic and research partnerships this year included collaborative efforts with Emory College, the Biomolecular Computing Resource (BIMCORE), the Graduate School of Arts and Sciences and Emory Libraries as well as with faculty across the campus. Key administrative partnerships included data warehouse/business intelligence projects with the Finance Division, as well as with the Office of Development and University Relations (DUR).

Customer Service

Work on initiatives and projects that make customer service a priority cut across all ITD teams. One of the most significant was the rollout to the Emory community of a new Help Desk management system, ManageIT (Remedy). This implementation included a self-service, electronic support request system. The new system better supports customer service by allowing better communication on trouble tickets, improving reporting, and enabling customer satisfaction surveys. After an

evaluation of technology trends and evolving customer needs, management reorganized resources to take advantage of Data Center best practices. The process included ensuring that needed staffing skills were in place to run the reorganized systems and services. The reorganization netted a savings of \$450,000 to the enterprise.

Building A Digital Campus

ITD continues to make significant strides in building a digital campus for Emory. A new image database using Insight, a software for managing and presenting digital image collections, offers Emory classrooms network-shared university access to visual resources. The university's course management system, Blackboard, is the standard for the campus and continues to experience impressive growth. A more robust and secure test and production infrastructure was developed for supporting and upgrading Blackboard, and an audio module, Wimba, was introduced in departments as varied as music and pediatrics.

Components in the digital campus also include outstanding facilities and labs such as Emory's Center for Interactive Teaching (ECIT) and the Computing Center at Cox Hall. The Cox Hall lab supported nearly 16,000 users per month, up from 5,000 before its renovation. A new Social Science Data Lab was added in Tarbutton Hall. As part of supporting the second-year experience, ITD added support for two new classrooms and two collaboration labs in Woodruff Hall.

One of the prominent additions to the digital campus is a High Performance Computing Cluster located in a new DMZ/Research lab added to the Data Center. A joint project of BIMCORE, Emory College, and ITD, this cluster is

already in use by a number of subscribers for research in biology, human genetics, and pharmacology. The cluster became the most powerful computing environment on campus. New projects are in discussion for animation rendering, numerical and statistical analysis, as well as bioinformatics.

Improving Administrative Processes

Emory's enterprise systems are a vehicle for improving administrative processes through Web applications and self-service functionality for faculty, students, and staff. In partnership with the Registrar's Office, faculty online grade entry was implemented; the usage was an overall 31% both for fall and spring semesters. Online Pathway to University Students (OPUS), which serves as a portal for enabling 24/7 access to student services, was accessed over 44.5 million times from 33 countries during a 167 day period this year. Using OPUS, applicants are now able to pay their admissions' deposits online using checking or savings accounts as well as enroll in payment plans. A new online application for admission was designed and implemented for many of the graduate and professional schools.

For Emory employees, self-service e-modules were implemented for recruitment and employee profile updates. A major project was initiated and is underway to migrate the remaining Emory Healthcare entities, The Emory Clinic and Wesley Senior Living, to PeopleSoft HRMS. On completion of this project, all Emory University and Healthcare entities will be running PeopleSoft HRMS. Other administrative initiatives included the implementation of Kronos for time and attendance tracking and the continued deployment of R25 for scheduling events and rooms. Campus use of R25 expanded dramatically; the number of self-service

requestors doubled this year from 550 to 1100.

Emphasizing Operational Quality

Major strides were made to improve infrastructure and operational quality. The introduction of new blade technology for Windows and Linux servers enhanced the availability and robustness of the environment for server provisioning. In addition to the new hardware for the technical infrastructure, a project was initiated to implement grid technology with Oracle 10G. Work was also begun to build a more highly available software platform.

Server locations were architected on the network for better security, moving publicly accessible servers into a safe "DMZ" and back-end servers into an even more secure, trusted zone. Significant enhancements were made to a variety of systems, including system and application upgrades, improvements to backup systems, enhanced monitoring systems, and load balancing for performance and reliability – all aimed at improving the operational quality of the technical infrastructure.

Francene C. Mangham
Interim Associate Vice President for
Academic and Administrative Technology

ACADEMIC TECHNOLOGY GROUP (ATG)

Over 2,100 classes had digital components last year with an average of 1,000 active online courses per semester and 28,199 hits daily to the BlackBoard Course Management system.

Classroom Technologies filled 16,523 support requests – a 100% increase over the past 5 years – and logged 74,470 requests for classroom AV equipment.

ECIT trained 535 faculty and staff and 700 students, and supported 75 instructional technology training sessions and 43 classes/workshops in 2004-05.

Building a Digital Campus

Important steps were taken this year that speak to the university's growing reliance on academic technologies as core tools to achieve teaching, learning, and research goals at Emory.

TEACHING

Art History Image Database

In teaching, an illustrative example of the emergence of the digital campus is Emory College's Art History image database. Using Insight, a software for managing and presenting images over a network, the digital collection is the product of four years' work in partnership with the Emory Libraries and Art History Department. The database offers resources that were previously available only from a 170,000 35mm slide collection in the Visual Resources Library. With a growing collection of more than 32,000 digital images, the Art History images are available to classrooms over the network. The initiative represents a pilot project that is part of ITD's and the Emory Libraries' long-term strategy to provide comprehensive, network-shared university access to image collections in the humanities and sciences.

BlackBoard Course Management System

BlackBoard, the university's primary tool for online instruction, experienced impressive growth. Over 2,100 classes had digital components last year, with nearly 1,000 active per semester. ITD made important steps to accommodate this demand by developing a more robust and secure test and production infrastructure. An audio module, Wimba, that can be used for recording and submitting course files online was introduced and is currently used in departments as varied as Music and Pediatrics. The coming year will see the full evaluation of BlackBoard's Content Management System, which will introduce ePortfolios and online document sharing as integrated tools of the BlackBoard suite.

LearnLink Online Community

LearnLink software was upgraded and a module introduced that indicates the online presence of community members, a capability widely adopted by students and faculty.

Faculty and Student Training

Seventy-five instructional technology training sessions and 43 classes/workshops were offered through Emory's Center for Interactive Teaching (ECIT) in 2004-05. Summer seminars included a three-week session for the faculty of Emory College and a three-week session for Candler School of Theology. ECIT also taught a week-long program specifically tailored to biology students in the Graduate School of Arts and Sciences. Language faculty participated in a two-week curriculum offered through Emory College's Language Center. Over 200 graduate students from the Arts and Sciences received a special orientation to Emory's digital resources and digital classrooms, and ITD held the fourth annual EduCATE Conference, "Understanding a New Generation of Learners," which offered speakers, sessions and workshops that highlighted best practices and encouraged networking and information sharing among faculty using IT.

LEARNING

Technology Centers, Labs, and Facilities

Creating a digital campus means providing educators with required resources and students with optimal learning environments. The Computing Center at Cox Hall supported nearly 16,000 users per month, up from 5,000 who used the facility before its renovation three years ago. In surveying students who use the lab, support for collaboration and group study were the prime reasons they identified for choosing Cox. In that vein, two formal collaboration areas were added to

The Computing Center at Cox Hall logged 15,927 entrances per month; groups and organizations made 751 room reservations in fall 2004.

223 requests were made for classroom videoconferencing with 9 international video-conferences.

Streaming video was accessed an average of 14,255 times per week, with 216 active streaming developers on campus. In the past 4 years, streaming disk storage use has more than quadrupled to 255GB.

In over 30,000 conferences on LearnLink, more than 300,000 messages were delivered daily.

ITD supports 68 campus kiosks and 100-plus technology-enriched classrooms and learning spaces.

support the growing number of graduate students in medicine, business, and law who use the lab to study for boards and prepare case studies and reviews.

In Tarbutton Hall, working with Emory College and the Graduate School of Arts and Sciences (GSAS), renovation went forward on the new Social Science Data Lab. Featuring a wireless classroom equipped with laptops, a touch-down space for tutoring, and a formal lab for data study, the facility also offers two large LCD's supporting group work. A position was added to support quantitative and qualitative statistics in the lab that is jointly supported by ITD and GSAS.

In extending the reach of the digital campus into the residence halls, one new facility and one renovated facility were added to campus resources. In Woodruff Hall, supporting the second-year experience, ITD consulted on the construction of two new classrooms within the dorm, as well as two collaboration labs that support group study and work using the latest technologies. At the Spanish House, ITD worked with the Department of Spanish and Portuguese as well as residents of the affinity house to support a pilot in residence hall technology. Slated to be installed this year, wireless networking will be added to the facility as well as a team lab to complement the newly equipped computer lab.

RESEARCH

High Performance Computing Cluster

Perhaps the boldest addition to the digital campus was the addition of a high performance computing cluster. A joint project with BIMCORE and Emory College, the 64-node Linux Cluster became the most powerful computing environment on campus. A full-time research engineer administers the cluster and consults, with colleagues from BIMCORE, on next-generation research applications. Already in use by a number of subscribers, the cluster saw research experiments from the Departments of Biology, Human Genetics, and Pharmacology. New projects are in discussion for animation rendering, numerical and statistical analysis, as well as bioinformatics.

Software Site Licensing

Two campuswide site licenses were finalized in 2004-2005 that enhance ITD's support for Emory researchers. Responding to the demand for statistical software, ITD expanded its license for SPSS to full campus distribution for Emory-owned computers, which doubled the number of licensed users. On a more targeted scale, the division also completed an agreement to license the software package, MATLAB. Already in wide use in the Departments of Mathematics and Computer Science, users in the Medical School and the Goizueta School of Business lobbied for expanding the license to include their projects.

Research Partnerships

In a first step toward evaluating the impact of the digital campus, ITD began a three-year study with Emory College Language Center and the University of North Carolina, Chapel Hill. The purpose of the study is to evaluate the impact on student learning of a technology-enhanced curriculum. Classes at both institutions will assess the outcome of using different curricula on beginning language skills. Assessed outcomes from the report will be used to determine the direction of language center and ITD projects that support Emory's teachers, learners, and researchers.



Improving Administrative Processes and Services

AIS improved processes and services in partnership with administrative units across the Emory enterprise; continued deployment of enterprise information and operational systems with an emphasis on self-service and Web functionality; and incorporated the use of data repositories, business intelligence tools and Web interfaces to improve delivery of data in central systems.

ENTERPRISE-WIDE INITIATIVES

Finance & Administration

In partnership with the Finance and Administration Division, we initiated the Finance Futures Task Force, a committee with the objective of identifying short-term improvements and enhancement with plans to bridge into replacement of Emory's legacy financial systems. The initiative is led by a core Finance Futures team reporting to an executive steering committee. The group also identified an advisory committee representing Emory University and Emory Healthcare.

The task force has worked on scope and business plans for several initiatives including Web application development, enhancing the data warehouse, and extending business intelligence. An initial workshop was held in August with the advisory committee to present these initiatives and obtain their priorities and feedback. The next step is to present proposals to the Finance Futures Executive Sponsors in early October. Representatives from the Finance Futures task force are also planning to attend a Quali briefing in October. Quali is the open source financial system under development by University of Indiana and partners.

Also in partnership with the Finance and Administration Division, we began a project in December 2004 to implement WebFocus and replace mainframe Focus reporting. Phase I to migrate the mainframe WebFocus reports to UNIX WebFocus reports was completed in early June 2005. Phase II to convert and migrate the Focus reports to WebFocus is still in progress. By the fiscal year end, all top priority year-end Focus reports will be completed. Of the over 900 total reports, about 250 will remain to be converted after fiscal year-end. Approximately 50 batch Focus reports will not be converted but will continue to run on a limited Focus license. We have extended IBI consulting to assist with completing the remainder by November 2005.

Development & University Relations (DUR)

Partnership with DUR included initiatives to upgrade the BSR Advance System from 7.1 to 8.2, enhance the Data Warehouse in support of the system upgrade, and provide analysis of a broadcast email application for DUR's use for the upcoming comprehensive campaign. Other projects included:

- Enhancing the interface between the PeopleSoft Student Administration system and Advance. This involved adding new parent and student entities, address, employment, marital, and degree information – a total of 7,617 new records.
- Adding faculty and management level employees from the PeopleSoft HR system, a total of 1,255 new records, including home and business addresses and employee information.
- Implementing an interface between the Finance Office and the Advance system to update the financial information of endowed accounts, in preparation for the hiring of a stewardship manager in the DUR division.
- Creating a database of "Affiliated Entities" (people who have connections to Emory through Emory Healthcare or Center for Lifelong Learning).
- Automated updates of address data in the Advance system with several interfaces: National Change of Address (NCOA), Alumni Finder, and HEP email addresses. USPS address standards are converted to user defined address format through in-house written routines.
- Enhanced Advance to Harris Online Web Community weekly transfer of data.

ADMINISTRATIVE INFORMATION SYSTEMS (AIS)

ITD's portfolio of administrative systems supports both Emory University and Emory Healthcare financial, human resources and payroll functions.

Employees and staff can now edit and change demographic data, enroll in benefits, and access current and historical payroll information online.

OPUS offered 24x7 availability for online registration, admissions, add/drop/swap classes, grades access, financial aid, viewing and editing demographic data and bill payment from any location around the world that has network access.

OPUS was accessed over 44.5 million times from 33 countries over a period of 167 days in 2005.

Faculty online grade entry was implemented and use for fall and spring semesters averaged 31%, which exceeded the goal of 25%.

Campus Life

In partnership with Campus Life, staff from AIS and Technical Services worked with Housing to assist in developing a RFP for a new housing system and attending vendor presentations. They also assisted in evaluating the RFP responses and identifying a selected vendor in an effort to ensure the new solution would meet ITD technical architecture standards and interface with PeopleSoft Student Administration.

Office of Research Administration (ORA)

A Service Level Agreement between ORA and ITD funded 20% of a business analyst III position. Major projects for this position included attending national level National Institute of Health Electronic Research Administration (NIH eRA) Commons Working Group and Federal Demonstration Partnership meetings to monitor federal plans, progress and future requirements for the Emory University Office of Research Administration; assisting with eRA vendor assessments and strategic planning; and facilitating projects to migrate the Office of Sponsored Programs' database to the Data Warehouse for reporting purposes.

PEOPLESOFT STUDENT ADMINISTRATION (PS SA)

Much of the work in enterprise systems this year involved deployment of self-service and Web functionality. Significant projects were completed in PeopleSoft and other systems.

Student Services Projects

For students, self-service functionality through Online Pathway to University Students (OPUS) continues to be a focus within all of the student areas. The team implemented OPUS Web pages to allow students to enroll in a payment plan; a Web page was also implemented that allows students to view and print their 1098T information. Students in Emory College can also now view their advisement data online, as well as view their honors and awards using an OPUS self-service Web page.

Applicants are now able to pay their admissions' deposits online using checking or savings accounts, including the tuition deposit, orientation fee, and housing reservation fee. The team is working with Emory College to develop an online course evaluation; and with Goizueta Business School on a similar project.

Graduate and Professional School Projects

A significant project was completed that developed an online application for admission for Graduate Business School, Oxford College, and Rollins School of Public Health applicants, functionality that was already in place for Emory College. The Nursing School began using the online application in September 2005. Data is loaded into PS SA. Prospects and applicants for admission to these schools can now sign up online for their events. Other functionality that was in place for the College was extended to prospective Graduate Business, Business PhD, Oxford, and Public Health students, who can now request information online. Students in the health professional schools, the Graduate School of Arts and Sciences, and international students can now view the requirements for purchasing health insurance or participate in a waiver process, a requirement for all students next year.

PEOPLESOFT HUMAN RESOURCES MANAGEMENT SYSTEM (PS HR)

Self-service e-modules for employees were implemented within PS HR: e-Recruit, e-Recruit Manager Desktop, Resume Handler and e-Profile Manager Desktop. The e-Recruit modules replaced a legacy departmentally-supported recruitment application. The module was implemented February 2005 and is in place for the university and healthcare. The e-Profile Manager Desktop allows university HR reps to enter salary increases, terminations, demographic changes, etc. This allows university HR to push routine HR transactions out to divisions and departments thus freeing up staff for other activities.

A project was initiated to implement PS HR for The Emory Clinic (TEC) and Wesley Senior Living (WSL, formerly Wesley Woods, Incorporated). It is scheduled for completion in the first quarter of 2006, when all Emory entities will be on PS HR. The project consists of converting TEC from Ross to PS HR (WSL was using ADP). All business requirements are defined. Project activities are identified, underway, and on schedule. Critical milestones are: HR/Benefits data converted and fully operational in PS HR by October 2005; open enrollment via employee self service in production by October-November 2005; payroll data converted and time entry to go live on December 18, 2005; and first live payroll runs for combined operations in January 2006.

A major business process and development project was begun to automate the courtesy scholarship application process. This project involves work within both PS SA and HR. The deliverables include a new HR self-service Web page for university employees to check their eligibility and an OPUS self-service courtesy enrollment Web page for students.

Success Factors Interface for Healthcare

For Healthcare, the team developed and implemented Success Factors interface; Success Factors is a hosted solution by Watson Wyatt. It is used by Healthcare management to enter employee performance reviews and comply with the pay for performance initiative. This system will be integrated with another Watson Wyatt hosted solution, REWARD and with PS HR. This pay for performance module calculates amount of increase based on performance levels determined by the Success Factors system. REWARD also allows managers to model how salary increases will affect their department budgets. REWARD is fed by Success Factors and PeopleSoft and returns a performance rating and percentage of increase to PS HR which allows an automating of yearly salary adjustments.

EmoryGives Online Contribution Feature

Per direction from the President's Cabinet, the team developed an online application within PS HR self-service to allow employees to contribute to EmoryGives including payroll deductions and the use of credit cards for contributions. The team also developed and implemented TALX UC Express interface for Healthcare and University HR to outsource unemployment claims processing.

KRONOS TIME AND ATTENDANCE SYSTEM

The Kronos time and attendance system implementation was completed. Kronos purchased DDI, our original time & attendance system. Kronos discontinued support for DDI necessitating a conversion to Kronos WorkForce Central. As part of the ongoing initiative of the university Finance Division to implement Kronos, the PS HR team continues to support the rollout of Kronos across the campus; this summer activity focused on the School of Medicine.

RESOURCE 25 (R25)

Campus use of R25 continued to expand dramatically: the number of self-service Web event requesters doubled this year from 550 to 1100. This number grew daily.

Emory Events Project

One major initiative involved a proposal to use R25 as the backbone for the new Emory Events Project. This would centralize event planning, allow for conflict identification and enable the expansion of the use of X25. This proposal was presented to the president's cabinet.

Self-Service Event Request Forms

The R25 team rolled out the use of self-service Web event requesting forms to the remaining major areas on campus: Law School, the SAAC, Grady Campus of the Medical

More than 1,575 employees took advantage of the EmoryGives online contribution feature this year.

Over 143,492 event reservations were made using Resource 25 event scheduling software, up from 136,330 last year.

School, the Alumni Area, Chemistry Department and the Winship Cancer Institute. The set up and testing phase of the Oxford College R25 project was completed this summer. Oxford campus data is ready to roll out the course and event data using R25. This project brings the Oxford campus on to the R25 system allowing them the use of the PeopleSoft R25 interface to import course offerings and merges that with native R25 event management.

X25 Phase

The team completed the X25 phase I installation for Emory College. X25 allows for detailed statistical room usage and event analysis. This analysis can be used by administrators to determine how well space is being utilized on campus and how space should be built or reconfigured to best serve the needs of the Emory community. The data from the spring 2005 semester is being analyzed by the College office and the next phase of the project will begin this fall.

Classroom Technologies Order Processing System

The team also completed testing of the Classroom Technologies orders processing system. This system allows for orders tracking and processing via the R25 Web form. Customized Orders reports were created as well; this new functionality moved into production in fall 2005.

DOCUMENT MANAGEMENT

The Document Management service developed new applications for the following areas:

- Accounts Payable (Sodexo Vouchers, etc.)
- Student Financial Services (Plus Loans)
- DUR office (BSR Advance Batch)
- Payroll Office (Employee Forms)
- Controller's Office (new form/screen, split screens for Vault)
- Psychiatry Department School of Medicine
- Business Office School of Medicine

File processing was automated for data loads from the Data Warehouse and BSR Advance, file loader from Purchasing system, SQL comparison in Optix to verify discrepancies between two systems, and improved COLD processing knowledge. Processes were scheduled and automated using Crontab and an interface link for WebFocus was provided. This link is significant in that it will enable financial system users to drill down to scanned documents through Web reports.

DEPARTMENTAL WEB DEVELOPMENT

Finance and Administration Website

The Web team designed, developed and launched a new Website for the executive vice president for Finance and Administration. The site features interactive "feedback" functionality that enables a comment and response from the executive vice president's office to be displayed on the site. Also, for the Finance Division, the team designed an internal and external newsletter, transferring content management to the division. We also served on an audit committee for Finance and Administration Websites.

Labor Distribution Project

Phase II of the labor distribution project, which included migration from DB2 was completed. Phase III, which will offer distributed keying, is in progress. This functionality will improve the retroactive salary transfer (RST) process.

An initial analysis is in process to build an account-create application for the Finance Division. The application will enable pending accounts to be created through an online form. The approval of the form will continue to be paper-based.

Other Web Efforts Included:

- **Trustees:** Created six Macromedia Captivate training videos for Trustee content managers. Videos are available on the secured Website. Created five new Web-based movies for online tutorial purposes for 16 trustee committee content managers.
- **Commencement:** Created 2004-05 Honorary Degrees site; created 2005 ceremony archive video
- **Sports Recruiting Forms:** Assisted in creating two Web-based forms to collect sports information for new student recruiting purposes.
- **Emory Budget Office:** Developed, with a consultant, and All Funds application for campus use.
- **Post Office Box Management:** Completed Phase II ,which added support for six digit box numbers, on November 2004. We are currently involved in support and minor upgrades to prepare for incoming students for fall 2005.
- **Charters & Research:** Completed Charter documents, including business requirements and initial estimates were for several areas such as ClickCommerce (IRB/IACUC Offices), CORE cashiering application, Labor Distribution Phase III, and extended access to systems for alumni and parents.

EMORY SHARED DATA (ESD)

Functional and infrastructure enhancements to ESD were completed that increased its value to the campus:

- Completed the migration of ESD from DB2 to Oracle
- Began processing data from the new eRecruit system. This decreased the wait time for new employees and rehires needing access to Emory systems and applications.
- Enhanced the account sponsorship process via AINQ and completed the design for additional enhancements which will further streamline the sponsorship process. With approval from the Data Custodians, almost 200 system and application administrators are now permitted to use AINQ. AINQ is a Web based application which provides a comprehensive data view of the multiple roles of each person at Emory.
- Completed a new Web based University Hierarchy Maintenance application for use by the Finance Division. This facilitates the maintenance of data about the organizational units at Emory. This data is used universally to sort reports and secure access to data.
- Changed the email address generation process to support the move to @emory.edu addresses for most university students.
- Updated the student applicant processing in Emory Shared Data to support changes made to the PS SA business procedures.
- Began providing a weekly list of ITD managed accounts flagged for deletion based on staff termination data provided by PS HR. This will be used by the Account Management system to expedite the deletion of terminated accounts.

Over 7 million scanned documents for administrative departments, schools and divisions across Emory are now stored in the document imaging system, with 753 registered users, and an online volume of 391GB, up from 189GB in 2003-04.

DATA WAREHOUSE (DW)

Significant enhancements to add data and upgrade infrastructure were completed for the data warehouse. Selected work included:

- Added approximately 25 new Finance tables into the Data Warehouse and created and scheduled the jobs to load them.
- Created and loaded tables in the Data Warehouse in support of the new Finance Division Expenditures Report. The assistant vice president of Finance said the schools were using the concept behind the report to redefine their business processes.
- Created Data Warehouse tables to support the Finance Division's migration of their Effort Certification application from an MS-SQL database to the Oracle Data Warehouse.
- Added new tables and modified tables for DUR Advance system.
- Began the data modeling effort required to move data for the Office of Sponsored Projects into the Data Warehouse. Worked with IBM to obtain a proposal for consulting services to complete the remainder of the data modeling effort.
- Upgraded DataStage, our Data Warehouse development tool, to the most current version and moved it to a new Egenera blade server having considerably more capacity.
- Worked with Technical Services to implement a secured process for retrieving and delivering sensitive Data Warehouse input files from GE Capital.
- Moved our Data Warehouse and Emory Shared Data database behind a firewall to further secure the data.



Focus on Customers and Operational Quality

After careful evaluation of technology trends and the evolving business needs of customers, Operational Services (OS) reorganized resources to take advantage of current best models and practices for university business information systems. The process included ensuring that the staffing skills needed to run the reorganized systems and services were in place. The new organization allows for:

- A refocus of skills to provide support systems that can quickly adapt to changing business requirements while allowing a balance of business and technical skills to support customers and systems;
- Support of digital systems like Radiology, Cardiology PAC's and clinical paperless systems like EeMR that require applications to operate around the clock;
- Support for an infrastructure that is highly automated and virtual, with process driven by policy.

After promotions and money set aside to hire an additional senior storage engineer, the reorganization netted a savings of \$450,000 to the enterprise.

STORAGE INFRASTRUCTURE

The storage group worked with healthcare to design and implement a storage infrastructure to support testing, production and disaster recovery for PAC's. This improved the PAC's availability and eliminated the need for a tape subsystem. The DMX1000 to support phase I of the disaster recovery plan was installed to support approved administrative systems.

The group worked with Technical Services to provide storage to support the Oracle/Egenera engagement to install Oracle 10GB. Working with Emory Healthcare, a tiered storage infrastructure was installed that allows for mission-critical systems data to be placed on a high-end DMX; test, development and non-business continuance data to be placed on mid-tier Clarrion; and archive data to be placed on Centera.

Standards were put in place for drive size to allow for automated movement of data for upgrades, etc.

After working with Emory College to define requirements for comprehensive server disk storage and a back-up service for Emory departments, a pilot was launched with them. This included the purchase and installation of an infrastructure to support the college requirements to be able to serve up to 10TB of data for their customers and provide backup/recovery services. The infrastructure consists of two data movers, 10TB of EMC storage, EMC CDL, and IBM Tivoli storage manager to schedule and manage backups. A service level agreement with the college is in the process of being finalized.

NEW RESEARCH LAB

A DMZ/Research lab was created within the Data Center with a separate entrance door for access to the equipment by non-ITD staff without allowing access to the remainder of the Data Center environment. The work space was redesigned and video equipment installed that allows Data Center operators to work more efficiently.

OTHER OPERATIONAL PROJECTS

Other projects included the roll out of Exchange, EeMR, Egerera, Blackboard, Emory Medical Care Foundation and the implementation of an enterprise backup/recovery system.

Work was initiated on moving away from old server technologies to a virtual blade environment. This strategy will improve availability, free up resources to do other work and, over time, will reduce costs. All university and healthcare service levels were met (see stats). A preferred vendor contract with EMC was signed.

OPERATIONAL SERVICES (OS)

All OS hardware/software maintenance contracts were reviewed and overall costs were reduced by negotiating better prices, changing vendors and working with customers on product use. These practices cut costs by \$350,000.

At the "command central" location in the North Decatur Building, the Data Center is the heart of Emory's IT infrastructure, operating around the clock, 365 days a year to monitor, troubleshoot and assure continuous coverage for Emory University and Healthcare's mainframe and server applications; computing hardware; and other host systems including email, the Emory Web, PeopleSoft, FAS and the Healthcare Networked Architecture.

Data Center servers maintained up to 99.9% uptime, 24 hours a day, 7 days a week.

Approximately 92,000 pages per day were printed and delivered to locations throughout campus.

TECHNICAL SERVICES (TS)

Help Desk technical staff responded to 65,000 telephone requests for support from faculty, staff and students.

Approx. 4,500 Electronic Support Requests were serviced for campus customers.

169,010,390 ITD email messages were relayed to Emory University mail services.

1,610 automated electronic mailing lists (LISTSERVs) delivered over 24 million email messages.

Improving Infrastructure and Client Services

The university's planning process was supported by Technical Services partnerships with schools and administrative units; system groups were reorganized; customer service initiatives were implemented; new measures were instituted to protect Emory's networked information resources, and strategic improvements were made to the technical infrastructure that serves the Emory enterprise.

CAMPUS INITIATIVES

- **EmoryLink:** In partnership with the executive vice president for the Finance and Administration Division and the provost, coordinated the initiative to examine and define the requirements for an enterprise-wide email, calendaring, and collaboration solution. The goal of this initiative is to offer a common platform for email, calendaring, and collaboration that will replace current systems and provide a stable and robust service for the university.

Coordinated the EmoryLink Advisory Group, which produced a report that summarized Emory community feedback and outlined next steps.

- **Exchange:** In partnership with the executive vice president for Finance and Administration, designed, provisioned, and deployed a highly available, robust Microsoft Exchange environment to replace the service offered by the B. Jones Administrative Support unit. The scope of the project was to migrate approximately 500 users to the new environment, but architect the infrastructure so that it is scalable for larger populations. The new environment was in production on schedule and within budget.

Implemented a new Microsoft Exchange environment to replace the service offered by the B. Jones Administrative Support unit.

- **Woodruff Libraries:** accessed the technical infrastructure required to upgrade cataloguing systems.
- **Network Communications:** enabled authentication scheme for wireless access, including guest accounts, as well as completing several security projects, including an intrusion prevention system.
- **Office of Research/Grants & Contracts:** with the IRB and the School of Medicine, jointly presented the Click Commerce project to the Ways and Means Committee. The project was funded and will commence in the fall of 2005.

- **Consulting Partnerships**

WHSC Leadership Council: completed an analysis of local support issues in WHSC business units.

Oxford College: completed analysis of IT issues and faculty/staff/student needs at Oxford College.

CLIENT SUPPORT SERVICES

The Client Support Services unit, which operates the ITD Help Desk, Client Services Development, and Software Distribution, made significant strides towards improving customer service. The focus was on providing frontline assistance for IT related issues and providing additional support for the network of distributed Local Support Providers on the Emory campus.

ManageIT

A new Help Desk management system, Manage IT, on Remedy IT Service Management software was rolled out to the Emory community. Manage IT offers a consolidated computing support solution that optimizes interactions and workflow between Emory's distributed campus IT units, ITD, Network Communications and local support providers.

Problem tracking and resolution tools save campus IT professionals time in resolving customer support requests, and customers have added features – a message board, request status tool, and customer satisfaction feedback opportunities – when using Electronic Support Request (ESR), the online contact point for answers to non-critical computing support questions. Software Distribution

Through our Software Distribution service, approximately 2800 orders for various software titles were processed, generating \$298,653 in revenue to offset the cost of the service. A detailed analysis of software purchases from Software Distribution Database informed negotiations for a Microsoft campus agreement, which is in progress. In addition, a quality assessment of the Software Distribution service was performed, including customer input via survey, and resourced the service to improve overall operation.

Significant new additions to our Software Licensing efforts included site licenses for MatLab and SPSS [see ATG “Software Site Licensing, p. 3”] and a renegotiated Oracle contract.

Clean Room Services

In partnership with ATG staff, the Clean Room initiative provided technical service to students whose computers needed to be cleaned/patched because of viruses or other IT security vulnerabilities.

Services for Local Support Providers

New self-service tools, a Premier Support Program, and coordinated regular meetings on a variety of topics provided outreach and support for the distributed Local Support Providers on campus and included: enhancements, additions, and maintenance for Software Express, TechTools, and development of automated installers in support of these sites; coordination of cross-functional desktop standards committee (DeskNet); coordination of monthly IT Briefing with campus tech professionals; and identified need and objectives for a Premiere Support program for LSPs; began rollout.

SECURITY

Top Issues for ISS this year were security policy (policy approval and support for enforcement); required ISS involvement in reviewing the security implications at the onset of new projects; enlisting upper management's support of security initiatives; HIPAA (finalizing the security approach for HIPAA-recognized entities); and dealing with security implementations within the framework of decentralized and distributed campus IT infrastructure.

ISS Advancement Projects

- **ITD Managed Server (Symantec):** Implemented and assisted with numerous local support server installations.
- **Virus Reporting tool (SESA):** implemented and deployed to numerous local support teams using a local managed server.
- **Central Managed Server** implemented for campus and students (Symantec).
- **Firewall Service:** Implemented firewalls to protect Administrative Trusted Core, Academic Core, School of Public Health and Resnet. Implemented new Web application firewall service.
- **Intrusion Prevention Service (IPS):** Implemented the IPS service across the university network.
- **Vulnerability Scanning Service:** Implemented both self-service and on demand vulnerability scanning utilizing the Nessus and WebInspect tools.
- **Network Registration Service:** Implemented network registration of student computers on Resnet.

Until this year, security incidents doubled annually since figures were first kept (1999-2000). ISS's proactive Security Awareness program and advancements to security services cut incidents in half – from 884 (2003-04) to 442. [Estimates of the cost to Emory of each security incident start at \$15,000.]

Gateway scanners filtered 4.5 million viruses and worms and tagged 85,000,000 pieces of spam.

898 students took advantage of Clean Room Services (28% freshman, 39% upper class residential, 5% graduate residential, and 28% off-campus) between August 2004 and May 2005.

- **Security Awareness Service:** Implemented awareness services including mini-conferences, brochures, student newspaper security section, orientation presentations, updated Website information and a LearnLink Conference.
- **Security Audit Services:** On request auditing of applications, machines and systems.
- **Security Incident Response Service:** Coordinating of incident response for the campus in cooperation with Netcom and Client Services.
- **SSL Certificate Service:** Implemented SSL Certificate service for servers.

BUILDING IT INFRASTRUCTURE

Significant improvements were made in ITD's technical infrastructure this year. The introduction of new blade technology for Windows and Linux servers enhanced highly available, robust environment for server provisioning. The first applications to move into production on the new environment will be for our Web infrastructure, including the Emory home page and Web applications provided by the Division of Business and Finance. Following those will be the applications and databases for the Data Warehouse and Emory Shared Data.

In addition to the new hardware for the technical infrastructure, a move is being made toward a more high-availability software platform, including Linux, Oracle 10GB Real Application Clusters, and the latest versions of Apache and Coldfusion.

Server locations were architected on the network for better security, moving publicly accessible servers into a safe "DMZ" and our back-end servers into an even more secure, trusted zone. Where possible, encryption was enabled, such as implementing IMAPS (IMAP over SSL), Authenticated SMTP, and SMTP over TLS/SSL for Eagle mail. Eagle mail users now have the option of guaranteeing all communications between their e-mail client and Eagle mail servers is completely encrypted. On the mainframe, we have implemented SSL support for TN3270 access.

During the past year, an automated account management system and end-user self-service tools (<https://acm.service.emory.edu>) was rolled out. The system manages the creation/disabling/deleting of accounts & passwords for email, Timeshare & Active Directory. This includes role-based processing, such as automated mail forwarding address setup. We also accomplished the final retirement of the legacy NIS+ environment.

To improve operational quality for the technical infrastructure, significant enhancements were made to a variety of systems through system and application upgrades; improving backup systems; enhancing monitoring systems; and load balancing for performance and reliability.

