

**UNIVERSITY OF SOUTH CAROLINA  
COMPUTER SERVICES  
2004 Accomplishments**

During 2004, Computer Services made significant contributions to the University to directly support the mission of the University and the strategic goals of Computer Services.

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**GOAL 1: SUPPORT THE INSTRUCTIONAL MISSION OF THE UNIVERSITY**

- **CREATE AND MAINTAIN IT FACILITIES**
- **PROVIDE IT TOOLS**
- **ENHANCE IT INSTRUCTIONAL SERVICES**

Supported the 24x7 operations of the Blackboard course management system. Managed servers, software and databases. Migrated Blackboard content and databases to the Enterprise Storage Area Network to increase speed of access and reliability of the system and worked with Blackboard to improve system reliability and performance. Blackboard use by faculty and students was substantial:

- 172,720 Average Page Views per Day
- 414,190 Page Views on Most Active Day
- 1608 active courses in spring 2004 (62% increase over 2003)
- 1019 active instructors in spring 2004 (83% increase over 2003)
- 24268 active students in spring 2004 (45% increase over 2003)

Worked to educate faculty on Blackboard capabilities and expand the use of Blackboard within the University community to support online courses, programs and degrees as well as organizations.

- Planned and implemented the 2004 Blackboard Institute. Computer Services, DEIS, the College of Liberal Arts, Mass Communications and Information Studies and the College of Education collaborated to teach beginning, advanced and feature-focused Blackboard workshops to interested USC faculty and teaching assistants. Approximately 150 faculty members participated in more than 40 sessions. Classes included Blackboard Assignment Manager, Online Learning Activities, Respondus Software, PowerPoint use, Adobe Acrobat use, Flashlight, Camtasia Studio and Breeze.
- Created the 2005 Blackboard Institute brochure and raised awareness about the Institute through various media, including USC Times and the IT Bulletin.
- Planned and organized the 2005 mini-Blackboard Institute for the first week of spring 2005 semester.
- Planned and organized a series of Blackboard classes for students.
- Provided individual or group Blackboard tutorials to approximately 150 faculty.
- Helped faculty use course cartridges provided by book publishers and worked with publishers to resolve Blackboard course-key issues created by multiple textbook cartridges. Course cartridges are Blackboard content developed by publishers to go along with specific texts. Course cartridges frequently have PowerPoint presentations, lecture notes and quizzes among other forms of content, and the cartridges can be used as a complete course or a supplement to Blackboard content.
- Installed several Blackboard building blocks to enhance the operation of the system.
- Created and populated several organizations on Blackboard including organizations for all student residence halls. Taught classes to organizations on the use of the Blackboard organization feature.
- Trained 4 additional IT staff to provide Blackboard faculty/student support.
- Developed Blackboard usage survey to evaluate use and plan for future enhancements
- Worked with faculty prior to semester openings to create master courses and combine course rolls for multiple sections of a course and cross-listed courses.
- Worked with faculty teaching distance courses to non-degree students to assure timely student access to online course materials (official access delayed due to paperwork for these special students).
- Worked with USC Beaufort faculty to help prepare to teach online courses for the first time. Presented workshops, made recommendations and worked with faculty to facilitate the rollout of a new online program.

Merged faculty academic support resources from Computer Services and DEIS into one organization to provide more coherent support to faculty in support of instruction.

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Worked with Distance Education and Instructional Support to procure and implement Breeze presentation software and Breeze Live web-conferencing software. This software will allow faculty to easily add voice or other audio to PowerPoint presentations and save as a small flash file. These files can be published to the Breeze server and included as a resource in a Blackboard course. Breeze Live is video conferencing software that allows faculty to hold a web conference with live audio, presentation area and chat.

Worked with faculty to test plagiarism detection software. Worked with vendors to provide 100-day free trials on two plagiarism detection packages.

Worked with faculty in Technology Support and Training Management in the College of Hotel, Retail and Sports Management on a project that introduced the use of Personal Digital Assistants (Dell Axim PDAs) to student teachers.

Provided self-paced IT training for the University community.

- Managed the ElementK online training program for Office Productivity and Computer Professional. Provided information, managed registrations and maintained vendor contract.
- Created new video tutorials for Blackboard, Gamecock e-mail, and VIP using Camtasia Studio software.

Provided instructor-led IT training for the University community.

- Presented a workshop on instructional technology at USC for over 400 incoming graduate teaching assistants and new graduate faculty.
- Maintained and updated Windows XP Lab and CS Auditorium.
- Taught classes in Blackboard, Camtasia Studio, Breeze, Breeze Live, OnDemand, SAS, SPSS and GroupWise.
- Developed a web-based calendar and registration system for instructor-led classes at Computer Services. The system incorporates a yearly calendar to allow faculty and staff to easily get information about the upcoming classes, register for the classes and receive confirmation and class schedules. The system allows CS to monitor class enrollment, send out reminders and create class rolls.

Provided information technology software support for the University community.

- Provided support to students, faculty and staff on Blackboard, Breeze, Camtasia Studio, email applications, authentication and system access, VIP, LISTSERV, communication tools, Internet tools, ICPSR and research/data analysis support. Provided consulting for general IT issues.
- Provided support for statistical software. Updated software and instructions for SPSS and SAS. Upgraded SAS from version 8.2 to version 9.1. Upgraded SPSS from version 12.0 to version 13.0.
- Supported ICPSR (Inter-university Consortium for Political and Social Research) Direct Access for USC researchers. ICPSR maintains and provides access to a vast archive of social science data for research and instruction, and offers training in quantitative methods to facilitate effective data use. There were 113 studies and 1231 files downloaded in 2004.

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**GOAL 2: PROVIDE THE CORE SERVICES FOR THE UNIVERSITY IT INFRASTRUCTURE**

- **SUPPORT THE CAMPUS NETWORK**
- **PROVIDE PRIMARY COMMUNICATIONS SYSTEMS**
- **SUPPORT CORE INFORMATION SERVICES**

Enhanced the University wireless network:

- Designed, installed, configured and deployed new indoor wireless network infrastructure for the College of Hospitality, Retail, and Sport Management, College of Mass Communication and Information Studies and the West Quad Residence Hall.

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- Designed, installed and configured Phase I of the outdoor wireless network infrastructure. This new network infrastructure will provide authenticated access to a seamless wireless network across all outdoor "green space" areas of campus. This project will lay a foundation for many applications and services such as guest access to visiting students, campus-wide surveillance cameras for security and high-speed connectivity to campus police and emergency personnel. Phase I will be deployed in February 2005 and includes many residence halls, the Horseshoe, Russell House and Thomas Cooper Library (the area from the Horseshoe to the Roost).
- Designed Phase II of the outdoor wireless network infrastructure to cover the remainder of the Columbia Campus. Phase II will be deployed during the spring 2005 semester.
- Developed a communication and training plan to inform and educate the USC community on the new wireless network.

Procured and installed the Oracle Campus License Program (OCLP) to provide a standard enterprise data repository of Oracle database software technology. This solution is provided for students, faculty and staff of the University of South Carolina. Key benefits to USC are the unlimited number of internal and external users. This includes prospective students, alumni, parents and members of the community, who are granted access along with the full and part-time students, faculty and staff to the OCLP products in support of the University's academic, administrative, research and community service mission.

Enhanced the network infrastructure for the Palmetto College campuses as well as installed new data circuits to the campuses. The network enhancements provide the campuses with guaranteed bandwidth and the ability to prioritize voice, video and data traffic. By guaranteeing bandwidth and prioritizing the traffic, the campuses can offer reliable and stable classes to students via video.

Redesigned and upgraded the network infrastructure in the student residence halls. Installed 39 new Cisco 4500 series switches (large chassis based switches) and replaced over 100 smaller switches in 28 communication closets. This new network infrastructure allows for private or protected VLANs, Quality of Service (QoS) control (this allows for guaranteed bandwidth and prioritization of certain data types), encrypted network management, simplified network management and 802.11x authentication across the entire residence hall network infrastructure.

Designed a standardized IP addressing scheme for the entire campus and designated a block of addresses for the seven major divisions of the campus. This will allow USC to manage data traffic within the campus and influence how our traffic is presented to the Internet.

Installed and configured a second core multilayer switch into the network infrastructure. This allows for redundant uplinks to be connected from the six distribution layer multilayer switches to the core of the network infrastructure. This redundancy eliminates potential single points of failure, provides load-balancing of data while both links are active and provides a backup pathway for network traffic in the event of failure of one of the core switches or of failure of any single component in the path between the core and the distribution points.

Installed and configured new Supervisor Modules in the campus Internet router. By upgrading the Supervisor Modules the memory capacity of this router was doubled, which is critical to maintaining information on all of the routes used through the USC Commodity Internet and Internet2 connections.

Designed, installed, configured and deployed a new Metro Ethernet service for the USC School of Medicine to provide high bandwidth capacity to support video delivery of courses and enhance collaboration between USC and MUSC. Before the Metro Ethernet service, the data connectivity between the Columbia campus, the School of Medicine site located by the Veterans Administration and the Richland Medical Park (RMP) site were partially-meshed with 3Mbps data circuits. The new Metro Ethernet service delivers fully-meshed Fast Ethernet (100Mbps) data connections between the main Columbia campus, the School of Medicine and Richland Medical Park. Total bandwidth was increased from 6Mbps to 100Mbps for roughly the same monthly cost.

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Provided network and telecommunications planning, design, estimates, installation and project management for existing buildings and new construction.

- Planning/Estimates/Design: Reviewed requests from customers/project managers when a building (or part of a building) was renovated or when departments or colleges wanted to increase or upgrade communications infrastructure. Made recommendations relative to the standards requirements, estimated the cost for parts and labor, coordinated with the WAN and Telephone communications groups and provided an estimate of the job. Design and estimate projects for 2004 included:
  - 1600 Hampton (Board of Trustees move, building backbone, building infrastructure, call boxes, department move coordination, disaster recovery facility)
  - 1718 College Street
  - 743 Green Street
  - African American Professors Program
  - Arnold School of Public Health
  - Baruch (Fiber Survey)
  - Business Administration - Building Renovations
  - Campus Wireless Fiber Infrastructure
  - Carolina Card
  - South Caroliniana Library (New Entrance Cable)
  - Student Residence Halls (Columbia Hall, Greek Village, Kirkland Apartments)
  - Drug Addiction & Studies Program
  - Field House Renovation
  - Greene Street Call Boxes
  - Health Services
  - Inn at USC, Conduit/Cable Re-route
  - Lancaster Church
  - Law School (Auditorium, renovations)
  - McKissick Museum Staff
  - Middleburg Annex T1
  - Music Library
  - Naval Reserve Site
  - Bull Street Garage
  - New River Campus
  - Old Credit Union Move
  - Palmetto College
  - Pearl Labs
  - Preston Green Call Boxes
  - PSC (7<sup>th</sup> floor Renovations, North Wing Re-wire - Water Damage)
  - Public Health (Nutrition, Promotion, Server Room, Preparedness – Washington Street)
  - Russell House (ATM Move, Russell House)
  - Salkahatchie Upgrade
  - Senate Street Garage
  - Sodexo Move to Hampton Annex
  - South End Zone Training Room
  - State House – Fiber Link to USC
  - Sumwalt Labs
  - Thomas Cooper Library 5<sup>th</sup> Level
  - Undergraduate Admissions
- New Construction: Attended building design meetings to present and discuss the communications standards requirements that apply during the construction phase. This includes the evaluation and specification of the entrance infrastructure needed to bring voice and data to the new building. During construction, reviewed the project to ensure the installation is done in accordance with USC and ANSI/TIA/EIA industry standards. Met periodically with the general contractor and installers to ensure the installation meets the standards.
- Installations: managed projects working with contractors and general contractors as required. Participated in design review and monitored work in progress. Performed final walk-thru upon project

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completion. Conducted final activation of all voice and data services for all projects as well as maintenance on existing service. Installation projects for 2004 included:

- o Byrnes (5<sup>th</sup> floor)
- o Child Development Center
- o 1600 Hampton Street (Controller, Purchasing, Regional Campuses)
- o Contract and Grant
- o Arnold Public Health Server Lab
- o Pendleton Garage
- o McMaster College
- o Sumwalt Nanocenter
- o University 101
- o McKissick Visitor Center
- o Student Residence Halls
  - o Sigma Chi
  - o Chi Psi
  - o West Quad
  - o Columbia Hall Renovation
- o Field House
- o 743 Greene Street (Facilities)

Made numerous network installations and/or improvements to colleges/departments on the USC - Columbia campus. Most of the network installations and/or improvements included new network hardware, Gigabit Ethernet uplinks (increases bandwidth to core network infrastructure), and had trunking configured on the uplinks. Some benefits of adding the trunking to the uplinks are as follows:

- allows for smaller networks (reducing dangers of virus contamination)
- allows for out-of-band management (improves ability to protect against virus contamination.)
- allows for inclusion of wireless networks
- allows for creation of new specialized networks
- improves network management and troubleshooting

In addition to projects supporting new construction and renovations (referenced above), the following locations had network infrastructure improvements:

- o LeGare, Bates West, Cliff, and Preston - separated student and faculty/staff networks
- o Columbia Hall - separated student and faculty/staff networks & added new switches, gigabit uplinks, and trunking.
- o College of Journalism and Mass Communications - new switches, gigabit uplinks, and trunking.
- o Graduate Science Research Center - new switches, gigabit uplinks, and trunking.
- o Career Center at BA – new switches, gigabit uplinks, and trunking
- o Hamilton College – new switches, gigabit uplinks, and trunking
- o Neutron Generator – new switches, gigabit uplinks, and trunking
- o Gambrell – trunking
- o Welsh Humanities – trunking
- o Law Center – trunking
- o Hospitality, Retail, and Sports Management – trunking
- o Russell House - new fiber path was installed, moved routing off of the LeConte distribution switch and brought straight to the core infrastructure to eliminate failure points and improve serviceability.
- o Geography Department in Calcott - new topology for improved reliability

The following locations had network infrastructure installations in support of "specialty" projects:

- o Thomas Cooper Library – created a new server network
- o Computer Services - Helpdesk
- o Computer Services – extended the student network to the CS Front Desk to assist in configuration of wireless service.

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- Computer Services Tech Computer Lab – created a special network for virus removal. The tech lab has access to the Internet for downloads and patches without risking contamination of the USC network infrastructure.
- West Quad – created a network to support environmental control which allows for monitoring of power usage.
- Coker, LeConte, Coliseum, Hampton St., Humanities, and CS Annex – created private networks on all campus distribution routers to assist Johnson Control in managing the campus HVAC systems and the door access systems in the residence halls.
- Colonial Center – created a new private network in the ticket office area of the Colonial Center and the implementation of a private secure connection over the public internet (VPN Tunnel).

Contracted with the State CIO to have technicians pull and terminate cable for small jobs. These small jobs, typically 5 or fewer cable pulls, do not require additional equipment in the Communications room or difficult routes to get to the locations. From April through December 2004 fifty-six small jobs were completed.

Designed, installed, configured and deployed a new network infrastructure for the new Beaufort - South Campus. This new network infrastructure allows for private or protected VLANs, Quality of Service (QoS) control (this allows for guaranteed bandwidth and prioritization of certain data types), encrypted network management, simplified network management and 802.11x authentication across the USCB network infrastructure.

Continued the project to document all communication facilities across the University. This includes:

- Identifying all copper, fiber and coax cables. In 2004, existing fiber backbone for voice, video and data were identified and a labeling scheme adopted for entry into the Pinnacle Call Management System.
- Identifying all cable pair to switch relationships and identifying all data port to room relationships. Documentation of the Data Network (the relationship of data switch port to jack) is complete for the student network and 75% complete for faculty and staff.
- Numbering all communication closets.
- Locating all underground communication facilities including manholes and duct runs. In 2004, contracted with an outside vendor to document Outside Plant. All copper cables and manholes will be located and labeled. CAD drawings showing the location and path of the cables will be prepared. CAD drawings of the manhole layout will also be provided; these drawings will show all conduit and cable running through the manhole. The contractor will also create a database containing information for each cable and manhole.

Audited and recommended services offered by the Local Exchange telecommunications companies such as Bellsouth and Spirit Telecommunications. Reallocated funds spent on existing services to provide new services with higher bandwidth to accommodate the University's growing needs.

Upgraded the campus backbone infrastructure and communications rooms. As part of this ongoing project, reviewed infrastructure to determine where additional cable was needed, upgraded aging or damaged cables and planned redundant pathways to improve the reliability of the backbone.

Reviewed 1469 PUPS notices. Identified and marked utilities to prevent damage to buried cables and conduits and eliminate costly unplanned outages.

Maintained the "Communications Cabling Installation Standards A1010" document which is a supplement to the American National Standards Institute, Telecommunications Industry Association and the Electronic Industries Association (ANSI/TIA/EIA) standards.

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Identified and responded to security incidents

- Worked with Network Managers, Student Judicial, Agent to Receive Notification of Copyright Infringement, and Law Enforcement to investigate security incidents and cases. Monitored new security alerts and system vulnerabilities and published warnings to the appropriate USC communities. Handled 2904 security incidents during the year: 1704 incidents from January-June, 1236 from July-December. This represents a 9.16% total decrease over the previous year. On the student network, incidents during the month of August (fall move-in period) decreased from 1293 in 2003 to 63 in 2004 (95% decrease) due to the successful implementation of Perfigo SmartEnforcer and student network enhancements.
- Notified 123 external organizations on the Internet of various malicious activities being perpetrated against the USC network by from the external organization.
- Coordinated the incident response of major outbreaks of the following worms/viruses on the USC network including several Bagle variants, Blaster, Nachi and Nachi variants, several SDbot variants, Gaobot, Doomjuice, Mydoom, Netsky, Slammer, Sasser, and Beagle. Enhancements made to security and the network reduced USC Internet outages due to worms/viruses by 71% over the previous year.

Enhanced Security of the USC Network.

- Implemented the Perfigo SmartEnforcer solution for the residential network to alleviate virus and worm outbreaks. The software prevents cross-infection from one machine to another and prevents any system that is not running current patches and anti-virus software from connecting to the network. The net result was an order of magnitude reduction in infections among student machines. In 2003, CS received reports of 3,000 infected machines within the first 2 weeks of the semester; the number in 2004 was reduced to 300 machines (assumed infected prior to arriving on campus).
- Launched a public relations campaign to inform incoming students living on-campus of the new authentication/validation system: SmartEnforcer. Handouts, presentations, and other materials were provided to instruct students on how to get connected to the USC Residence Hall Network. Nearly 80% of the students who needed help from Computer Services during Opening weekend were assisted. The remaining 20% were helped the week following. After Opening weekend, there were nearly 3,200 students connected to the network. The end result was a safe and reliable network with no virus outbreaks.
- Developed a general education campaign to make students aware of the need to protect personal computers from viruses, worms, and spyware. Updated the security and StudentIT web pages to reflect more detailed FAQs.
- Established the tech lab to provide a central location for student computer support.
- Maintained, patched, and upgraded the Netflow server, the IDS systems, and the netreg system.
- Maintained and upgraded University firewalls
  - Split the UNIX server farm firewall enforcement point off of the Sun Solaris Checkpoint Firewall Management station and onto two redundant Nokia IP 530 firewalls.
  - Migrated the Sun Solaris Checkpoint Firewall Management station to new hardware and a new operating system.
  - Changed the firewalls from the load balancing using the Cisco Content Switching Modules on the core and Internet routers to a redundant VRRP implementation.
  - Installed redundant Internet Border firewalls to increase capacity and performance.
  - Installed redundant firewalls to protect critical applications housed in the Server Farm
  - Implemented the Carolina Card server farm.
  - Maintained, patched, and upgraded a total of six firewalls protecting critical University assets.
  - Processed over 1000 change requests for firewalls.
- Performed vulnerability scans on individual machines and subnets and advised network managers concerning the results. Provided consultation services on risk analysis and remediation of vulnerabilities uncovered.
- Published a network security policy, IT 1.06, to ensure consistent implementation of network and data security across campus.

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- Updated the McAfee anti-virus software to the 7.1.0 Enterprise edition and repackaged so that DAT updates are available to the campus as soon as the vendor releases them. Students, faculty and staff can now download the anti-virus software from the CS website by using network name and password, without having to contact the help desk in advance.
- Created a new lab for PC security and forensic work to better the overall level of data protection and network protection for the University.
- To enhance physical security, installed Cisco 4500 switches in selected areas which have a twist-lock type power plug. Worked with Facilities electricians to upgrade the AC power outlets in 30 Communications Rooms to accept the twist-lock power cords for the 4500 switches.
- Initiated a security seminar series for IT personnel on campus and hosted a Microsoft security workshop.
- Initiated a project to conduct an external audit of the data and network security of the CS computer room. The goal of the audit is to ensure that CS processes and procedures remain consistent with industry standards and are compliant with emerging legislation.
- Designed the USC Security Lecture Series. Coordinated and taught Lecture 1 entitled "TCP/IP for Network Security and Intrusion Detection." Coordinated Lecture 2, "Microsoft Windows Security."
- Wrote a Security Operations Manual to document processes and procedures followed by the Security Group.

Initiated a project to design and implement an enterprise directory for USC faculty, staff and students using Microsoft Active Directory. This project includes the implementation of Microsoft Exchange 2003 as an enterprise messaging and collaboration system for the entire University community. The enterprise directory will be a cornerstone of the IT infrastructure and will provide a single-sign-on for enterprise applications and access to IT resources across the University.

Configured and put into service the network infrastructure for the Beaufort - North Campus. This new network infrastructure allows for private or protected VLANs, Quality of Service (QoS) control (this allows for guaranteed bandwidth and prioritization of certain data types), encrypted network management, simplified network management and 802.11x authentication across the entire residence hall network infrastructure.

Implemented or enhanced hardware and software tools to manage and monitor the University network.

- Configured network management software, CiscoWorks, to track and monitor approximately 18,000 network devices, servers, and desktops/laptops. CiscoWorks has 970 archived network device configurations which can be downloaded to any network device in the event of device failure and/or lost configuration. This minimizes network downtime and allows for faster network recovery.
- Defined regional campus topology maps in CiscoWorks to function in real time and give the campus IT managers an interactive map of the network infrastructure devices in the regional campus environments. This will reduce time to troubleshooting network issues.
- Installed and configured network management software (nGenius Real Time Manager) and Network Analysis Modules (NAMs). This network management software along with the NAMs will give the Network Services operations personnel and regional campus IT managers the ability to look at traffic trends in real time, hourly, weekly or a monthly time frames. This combination of software and hardware allows Network Services operations personnel and regional campus IT managers to analyze and track network traffic down to an individual user. nGenius RTM also gives the Network Services operation group the ability to produce network and application layer reporting.
- Implemented system monitoring on all critical servers, to monitor availability and network access, and to alert on-call personnel in the event of a failure.
- Added the student residential network to the Netflow monitoring and graphing.

Enhanced the University Data Warehouse

- Developed StarMart (Student Academic Record Data Mart) to improve retrieval and analysis of Student Data. The new Data Warehouse functions will provide an environment that will increase job performance by providing the users with a fast path to student information. StarMart provides support

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for advisement and information about enrolled students and includes information about degree candidates and course information for research purposes.

- Enhanced VCM Reports to include additional faculty data.
- Completed work on the Human Resources Data Warehouse project consisting of the publication of reports for use by HR contacts across the University as well as the Human Resources Division staff
- Developed reports for Telecommunications for Long Distance, Work Order and Monthly Recurring Charges. Billing reports and management reports from the Pinnacle Call Management System were made available to business managers throughout the University.
- Added additional hardware support for performance demands resulting from 15% increase in user growth now at 1,525 users utilizing the Data Warehouse.
- Migrated the Data Warehouse databases to the Enterprise Storage Area Network. This provided greater storage capacities and faster access to data and supports the addition of 54 new reports added to the Warehouse in 2004.
- Added new user functions which allowed the users to customize individual work environments to better match individual user needs. New functions included "Self –Service" access to auto-schedule reports to run at specified days and times.

**Enhanced University Library Systems**

Worked with the library to acquire a new Integrated Library System (Innovative Millennium) to replace the aging NOTIS library system. The new system is planned to be implemented by Fall 2005. Computer Services provided technical consulting during the RFP process, defined the hardware environment and ordered the necessary hardware and software.

**Enhanced HR/Benefits/Payroll systems**

- Modified the Student Batch Hire System (which allows departments to hire students through VIP) to meet new U.S. Department of Labor regulations regarding overtime pay. This automation eliminated the need for departments to manually determine exempt status of students.
- Modified State Benefits Reporting to include the detail wage information of employees who participate in the Optional Retirement Plan. This was mandated by the State Retirement System.
- Added new functionality to FTE Reporting to allow the capability to divide FTE (full time equivalency) and dollar amount per account. Human Resources and the Budget Office can now input a percentage to shift part of the "Other" fund to the State fund per campus.
- Enhanced Employee VIP Self Service options to allow employees to update campus address and phone number in the Job Profile. Also added option for employees to update emergency contact, emergency phone number and home phone number in the Personal Profile. These enhancements empower faculty/staff, eliminate data entry for Human Resources and improve timeliness of changes.
- Enhanced Benefits options for 2005 to include the new Health Savings Plan and the Health Savings Account. Added a new insurance reconciliation process for the Health Savings Plan between the State and USC. These were mandated changes by The State Office of Insurance.
- Upgraded Human Resources Organizational Reporting to the state and for in-house purposes. This was needed legally to meet the state's regulations for reporting to the S.C. Budget and Control Board under the Stephenson Accountability Act as well as to provide decision-support within the University.
- Modified the Human Resources/Payroll system to accommodate new faculty hiring plans. These modifications allow tracking of two new faculty hiring plans that were established by the President, Provost and Office of Research. Included enhancements to better track faculty and demographic data.
- Developed a program to provide a file of Faculty/Staff Eligibility for PE Center to grant access to the facility.
- Modified the system to comply with the new Fair Labor Standards regulations to classify certain non-exempt temporary salaried employees in a new grouping on the Time and Attendance system (ITAMS) and put in requirement on the Student Hire VIP subsystem that requires all Graduate Staff Assistants be non-exempt.
- Modified the system to comply with new U.S. Labor Department regulations concerning compensatory time. Non-compliance could have resulted in fines from the U.S. Labor Department.

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- Modified SEVIS (Student and Exchange Visitor Information System -Federal) to accommodate 2004 government regulatory changes for record keeping and reporting of foreign student information.
- Worked with Payroll to implement mandatory electronic deposit of payroll checks. This will eliminate the laborious process of distributing paper checks and reduce costs.
- Provided a mass load program for employees parking payroll deductions. This eliminated manual data entry for each deduction for Payroll.
- Modified interfaces required by the ITAMS (USC Time and Attendance) system and included the Time-reporting Interfaces between ITAMS and FAMIS (Facilities Project Management) systems. New employee category and program modifications were also added to ITAMS and special file transfers were set up to provide the FAMIS system with HR & Leave data.
- Assisted Payroll in migrating all remaining departments to ITAMS (USC Time and Attendance). Resolved issues associated with full implementation of the new ITAMS including phasing out the old "paper" timecard/turnaround system and shifting data control to ITAMS.

**Enhanced Financial Aid Systems**

- Modified the Financial Aid system to accept and process 2004-2005 Federal Financial Aid applications (FASFA). These were federally mandated changes that were necessary to process Title IV financial aid such as PELL and Stafford Loans.
- Modified the award letter process to notify students via email when individual financial aid package has been awarded. This process replaces the process of printing and mailing the award letters to students. The benefits included reduced printing and postage costs as well as a quicker method to convey the information. Financial Aid estimates that this new process will save between twenty and thirty thousand dollars annually.
- Developed an online summer financial aid application within VIP. This new online application replaced the paper based application process. Financial Aid estimates that fifteen thousand dollars will be saved annually in staff time and printing costs.

**Enhanced Student Loan Accounting Systems**

- Implemented a new Master Promissory note system for the Perkins loan program to allow a student to sign one note which is good for all Perkins disbursements. Prior to the implementation of the master promissory note, a new note had to be printed and signed for each disbursement. The savings from printing, postage and processing will save the Bursars office thousands of dollars annually.
- Modified the Electronic Funds Transfer (EFT) process to electronically receive Alternative loan disbursements via EFT. This replaces the process of receiving paper checks from lenders and manually processing. This enhancement speeds up the time that the student receives money as well as minimizes the manual intervention required.

**Enhanced Educational Foundation/Development Office Systems**

- Developed of a web based form for the Office of Advancement to help collect and review information for fund raising initiatives.
- Enhanced the Millennium System to improve donor identification. Created a process that is easier for the Development Office to select data to be sent to a vendor for identification of major donors for further University communications. The data received from the vendor is loaded back into USC's constituent system which enables departmental solicitors to identify USC's major donor prospects for future solicitation of private support to the university.
- In Millennium, automated the process of loading scholarship recipients, chair recipients and the financial data of endowed accounts into the constituent system for an automated Endowment Letter Mailing to all of the major donors of the endowment accounts.
- Merged the Moore School of Business School Alumni / Development information from a departmental system to the University Millennium Constituent System. This was accomplished in an effort to combine all development activity into one system to better accomplish the goals of the University.
- Worked with Development Office to implement the RuffaloCody system to automate prospect calling. The Development Office Call Center solicits contributions for the University from a call center on campus.

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- Completed research and testing to install latest release of Millennium (7.3.1) which offers many valuable, new features for the Development Office and Department Development Officers.
- Created a system for the Development Office to review and upload personal and address data after information verification.

**Enhanced Financial Systems**

- Developed a web based data entry system for the Budget Office. This application was designed to replace the spreadsheets that were distributed to each Business/Budget Officer. This system provides a useful tool for submitting base budget changes and eliminates the use of the "Excel" spreadsheets and improves data control and processing. This application also improves data security, reduces consolidation errors, and saves time verifying the budget information.
- Enhanced the Accounts Payable check write process to allow remittance advice to be printed on multiple pages following the AP check. Previously all remittance advice was printed on the check stub and there was a limitation of 11 invoices per check causing multiple checks to be produced in a single check write for vendors receiving many payments by the University. This will help streamline the accounts payable process by reducing the number of checks written. It will also be of benefit to the vendors who will receive one check instead of several checks.
- Modified the Accounts Payable system to allow Direct Deposit of vendor checks. This enhancement provides authorized personnel the ability to collect and maintain vendor bank information. The Accounts Payable check write process was modified to forward payments and invoice information to the AP bank in one of several formats depending on the vendor's agreement with individual bank. Remittance advice is emailed to the vendors who have chosen to receive email notifications. This enhancement will increase the efficiency of payments made by the University, save the cost of printing and distributing checks, and improve communication between vendors and Accounts Payable.
- Developed a program for students to be able to use VIP to produce an auto receipt. The Bursar's Office will release the program to VIP following a testing period.
- Implemented 2004 Government regulations for producing 1098T statements to all students and for producing data interfaces to the IRS.
- Developed a new process for the Aiken campus to allow them to upload housing and meal plan charges directly to A/R, saving them much time in data entry.
- Updated the Cashier System (used in the depositions and many locations on campus) to facilitate new data entry requirements.
- Enhanced the Accounts Receivable System to more accurately report Title IV refunds to the lenders and the student, keeping USC in compliance with Title IV regulations.

**Enhanced Student Information Systems**

- Developed a process to charge students a rental fee for using a USC Post Office box.
- Implemented a Mandatory Student Health Insurance system in support of the Graduate School, Student Health Center, and International Office. Students are billed during major semester fees for insurance premiums based on Hard Waiver program criteria.
- Added new University fee classes and fees approved by the Board of Trustees. These fees and classifications included groups for Graduate Supervisory Teachers. Modified fee processing to calculate capping amount by course. Other fee changes included fee classifications for Supervisory Teachers and Under Enrolled Graduate Assistants.
- Implemented new processes to reduce paper work for staff and students to handle the fee that preserves registration for Senior Citizens and American Legion Scholars.
- Adapted the Life Scholarship System for new CHE regulations, including new transactions effective with the entering class of 2005. These changes enable non-remedial credit from any state supported South Carolina higher education institution to be evaluated toward continuing Life Scholarship recipient qualifications.
- Replaced the older tape delivery of SAT scores with electronic online delivery. Also, implemented electronic acceptance of undergraduate TOEFL scores.

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- Provided programming to accommodate new SAT and ACT writing scores that will be effective with the February 2005 test administration.
- Enhanced systems to support expanded data storage of USC Placement Scores to include past scores and 2 new foreign languages - Russian and Japanese. Also, USC Placement scores are now accessible on VIP.
- Changed all programs and reports that referenced Spartanburg to support the name change to Upstate.
- Implemented changes necessary to support the USC Beaufort change in status from a two year school to a four year school.
- Changed programs to combine College of Liberal Arts and College of Science and Math into the College of Arts and Sciences.
- To increase security and reduce the threat of identity theft, removed students' Social Security Number from reports which did not require SSN information for identification purposes.

Enhanced the University Housing System

- Developed a new online application on VIP that students can use to apply for campus housing. Students can now apply online for both traditional housing assignments and residential learning communities. This system is one more enhancement for the "Keeping Life Simple" campaign sponsored by campus housing.

Implemented the new ID card system for the Carolina Card Office which will be used by Columbia, Aiken, Sumter, and Upstate campuses. Customers are able to access account balances, deactivate lost ID cards, and put money in accounts through enhancements made to VIP. Also, during the beginning of a semester, money will be put in accounts and meal plans activated several times a day instead of the old once at night process. This will allow customers faster access and will eliminate customer problems and questions to the Carolina Card Office.

- Created a daily student data file for the new Carolina Card system to reflect a student's current enrollment status and address information which will enable the ID card system to contain up-to-date information.
- Developed a way for faculty and staff to put money on Carolina Card through VIP. This money can be used at the campus dining locations as well as the book store, health center and other locations. By making this available through VIP, the Carolina Card office saw an increase in deposits from faculty/staff. This enhancement also made it more convenient for faculty and staff to utilize the Carolina Card.
- Developed the interfaces for the new dining system so that Dining Dollars, Carolina Cash, Bonus Bucks and meal plans could be extracted from the Student Fee system and imported into the new dining system.
- Implemented a process where student dining privileges were granted within an hour of payment. This enhancement allowed students to eat in a timely manner and reduced the traffic in the Carolina Card Office.
- Designed and deployed a new network infrastructure to support Carolina Card. Established a new set of private networks across the campus that provided network service for every vending point on the campus where students, faculty and staff can use the Carolina Card (this currently serves 57 points including vending machines, snack bars, cafeterias, printers, and retail sales). This infrastructure allows for ease of management on the part of the Carolina Card team and better security control (VPN capability and simpler firewall configurations).
- Performed a risk analysis of unencrypted network traffic for the Carolina Card project. Installed Checkpoint VPN clients and Edge-devices to mitigate risk of clear text data exposure.

Enhanced enterprise Imaging services (IBM Content Manager)

- Upgraded IBM Content Manager to provide additional workflow, security and web access to meet the growing needs of the University's imaging community. This upgrade included creating an image of the production operating environment with all major subsystems to serve as a test environment and loading of test data to represent the production environment.

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- Thoroughly tested the new version of Content Manager as well as new versions of Kofax (the input scanning and indexing software used in individual departments). Diagnosed and repaired data errors to improve backup and storage hierarchy selection.
  - Migrated all data to the new version of Content Manager and worked with the customers to verify function and data integrity. This process required approximately 500 jobs be generated, manually updated and executed over the 3-day conversion period.
  - Re-indexed approximately 400,000 images for user friendliness and modified indexes on approximately 25,000 images for the Registrars Office.
  - Assisted new departments in implementation which included conversion and migration of all imaging data from old systems. In 2004, the following departments were migrated to IBM Content Manager Version 8.2: Financial Aid, Registrar Office, SAM (formerly SPAR), Development Office, CS Business Office and Graduate School.
  - There are approximately 290 active users in the following departments: Financial Aid, Computer Services, Registrar, Development, SAM (Sponsored Awards Management) and Graduate School. The following departments are scheduled for implementation in 2005: Housing, Bursar and Human Resources.
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**GOAL 3: PROVIDE EXCELLENT CUSTOMER SERVICE**

Implemented the Pinnacle Call Management System

- Installed the Pinnacle Call Management System and deployed into a production environment in July 2004. This system consolidates CS work order processing, call rating, and billing for telephone lines, voicemail, work orders, and long distance. It consolidated the functions and replaced the IRIS ticket system, COMAN, and the mainframe long distance billing system. Pinnacle allows the customer greater flexibility and access to departmental telephone, network and support services and improves the ability of Computer Services to provide service.
- During Phase II, CS will implement the interface between the G3 telephone switch and the Pinnacle application to eliminate duplicate data entry and improve data integrity. Phase II will also include modules to track the USC infrastructure (cabling) and inventory.
- Redefined roles and responsibilities for the CS Business Office, Help Desk, Technical Services and Support, Communications, Infrastructure and Network Services.
- Created custom views of work orders, recurring and long distance charges in the data warehouse to allow University departments to retrieve information and save billing reports in Excel, html or Adobe Acrobat formats.
- Replaced the TMS server and pollers with Omintronix Datalinks for collecting call detail records (CDR). The Datalinks collects call records that track long distance calls for billing purposes.
- Developed a communication and training plan to inform the University community on system capabilities, training opportunities, instructions and support of the new system.

Provided a Help Desk for students, faculty and staff

- Processed phone calls, trouble tickets, and work orders for Network, Telephone and Software Support. This includes creating, troubleshooting, routing, escalating, billing, filing, information gathering, follow up and handling all of the associated paperwork involved in getting the authorizations.
- Answered approximately 4500 calls per month. During the peak period of August 2004, answered included 3479 student calls and 1769 faculty/staff calls.
- Created a total of 9,530 tickets in IRIS (Jan 1 – July 11). This included 2301 communications tickets, 3710 networking tickets, 3150 residence hall tickets and 369 software support tickets. Following the implementation of Pinnacle, created a total of 11,237 tickets (July 12 – Dec 31). This included 3836 telephone/voice mail tickets, 1185 network/infrastructure tickets, and 6429 support tickets.
- Responded to 5,039 email requests for assistance.

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- Managed the Tech Lab for wireless configuration, virus removal and cleaning, anti-virus protection software installation and updates for students for approximately 1200 PCs. In addition, distributed 350 CDs to students for virus cleaning and spyware protection.
- Handled warranty repair for Dell/Apple hardware for SLA departments.
- Created and implemented a new student survey designed to create better customer service for the CS Help Desk. Responded to questions and feedback from faculty, staff and students to the CSDPR email address.
- Managed software licenses and software distribution, including new licenses for Oracle, Citrix, Perfigo and NotifyLink. Assumed responsibility for distribution of STRATA software for the College of Liberal Arts.

Participated in USC events for prospective students, parents, current students and faculty/staff

- Provided incoming students with necessary information on computing at USC and coordinated an increased Computer Services representation at Summer Orientation. Provided one-on-one consultation to approximately 2600 incoming students at Orientation.
- Assisted Student Government with annual Student Involvement Questionnaire administered at summer orientation for new students.
- Worked with Human Resources to create a Computer Services presence at all faculty and staff orientations for new employees.
- Participated in planning, preparation and implementation of Opening Weekend 2004: including pamphlet and website review, FAQ revisions, StudentIT revisions and planning sessions for Opening weekend. Created brochures, flyers, hand-outs and other marketing materials for students upon the arrival to the USC campus. This was to inform them about Computer Services, how to contact various departments and important announcements about staying 'clean' on the network. New pages and updates were provided for the University 101 textbook. Worked with the University Bookstore to ensure Ethernet cards, patch cords and Ethernet switches were stocked. Worked with Housing to update the on-campus student technology services information available on the Internet and in brochures. Provided support for virus tickets and other problems that occurred at the beginning of the semester

Continued support and maintenance on the Business and Finance Book Adoption web site to allow faculty to enter book adoptions for the coming semester online. This system will facilitate the ordering of books in coming semesters and provide the bookstore with up-to-date information on requested books.

Researched PDA and SmartPhone plans and equipment in order to provide a recommendation to the University community for purchase.

Worked with the Office of the Provost to develop a web-based site for the creation of Tenure and Promotion documents by faculty. Only Faculty members have access to individual data and can produce this in the acceptable T&P format when needed. The system is secure and provides a common set of tools for producing the documents.

Enhanced the VIP web-based portal to include additional new functions and self-service features.

- Added the ability for faculty to set VIP class roll preferences to show the students USC official GEM email address which will allow faculty to identify a student by an email address instead of social security number.
- Enhanced the VIP web registration process to return a warning message to students if there is a meeting day, meeting time or session conflict in class schedule when adding a course or changing the section of a course. This will allow students to avoid scheduling conflicts early in the registration process.
- Obtained a campus license for Gartner Research and provided direct access to research documents to faculty, staff and students.
- Enhanced VIP to provide greater billing detail for telephone usage for University based telecommunication services.

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- Improved access to Carolina Card information, student Foreign Language Test Score availability and online updates of campus address/phone, education profile, and emergency contact information for Faculty/Staff.
- Maintained the VIP Demo to stay in sync with the enhancements that have occurred over the year. This demo gives customers a way to experience a test drive of VIP functionality without actually logging in.
- Developed an auto-response system for email questions sent to VIP. This auto-response contains a list of frequently asked questions (FAQ's) which address over 90% of the typical VIP inquiries. Created a means for customers to send anonymous suggestions for VIP.

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**GOAL 4: DEVELOP THE HUMAN RESOURCES WITHIN OUR ORGANIZATION**

Participated in professional conferences and seminars including Educause 2004, SC IT Directors Association, Blackboard User Conference, Blackboard Southeastern User's Group conference, Blackboard Building Blocks Conference, Wake Forest Instructional Technology Conference, SANS Security Conference, SANS "Intrusion Detection In-Depth", SANS "Reverse Engineering Malware", SANS "Hacker Refresher", Educause Security Conference, Educause Policy Conference, Gartner Storage Conference, LISA/Usenix for UNIX systems administration, Pinnacle User Conference, Novell BrainShare Conference, Gartner Data Center Conference, Seminar on Novell's Directory Services, InfoTech 2004.

Attended technical training required to support University applications including Windows Operating Systems, Use Case Analysis and Development, Oracle DBA Administration, Avaya Call Vectoring with ACD Administration, Avaya Basic Switch Administration, Pinpoint E911, SAS Macro Language, Dreamweaver, Apple i-movie video production, Pinnacle, Linux, Microsoft Windows Server 2003, Active Directory 2003, Exchange 2003, CheckPoint Management Class, Active Directory Infrastructure, TCP/IP, Microsoft Security, Pinnacle, Microsoft Project 2003.

Attended professional development training on business processes and management skills including Project Management (Managing Project Communications, Advanced Project Analysis and Control, How to Access and Manage Project Risk), business management, employee management, accessibility, SCGMIS training and workshops, time management.

Obtained technical and professional certifications including South Carolina Senior Project Manager (a certification required for SC State IT projects budgeted at \$1,000,000 or higher), Dell Certified Warranty Repair Technician (Dimension Desktops, OptiPlex Desktops, Dell Precision Workstations, Dell Notebooks, and Dell Servers and Storage), Apple Certified Technician.

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**GOAL 5: SUPPORT THE OPERATIONS AND CONTINUAL IMPROVEMENT OF OUR INSTITUTION**

Compiled the State IT Plan for USC and Computer Services for fiscal year 2005/2006 for requests totaling \$10.7 million. Facilitated one-time IT approvals for research equipment and administrative purposes over \$1.8 million.

Enhanced Darwin and DarsWeb

- Completed the conversion from the mainframe student transfer and Advisement system (DARS) to the windows based client application (Darwin). Darwin is used to produce a Student Progress Report for student Advisement and to show the evaluation of student transfer work from other colleges. It is used by all campuses in the registrar's offices, admissions offices, financial aid offices, colleges and Dean's offices.

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- Implemented the DARS web product (DarsWeb) to add enhanced remote access flexibility through the web for remote use of the DARS system.

Provided for the distribution of timely announcements and notices to the University community via the ANNOUNCE service.

Supported 24x7 computer operations which included:

- Mainframe Scheduled uptime versus Actual uptime – 99.8 percent.
- Tapes mounted (both real and virtual) – 626,836.
- Batch Jobs Processed – 502,892 of which 212,125 were Production jobs.
- Scanning processing – 1,800+ graders, 120+ sets of teacher evaluations and over 220+ batches of other types of scanning. Totaling over 300,000 forms scanned.
- Data Entry Services – Weekly timecards (12,500+), bi-monthly turnarounds (600+) and other applications.
- Microfiche Services – Processed over 9,500+ original microfiche and 2,300+ duplicate microfiche.
- Converted all files transmitted to secure FTP.
- Maintained mainframe, Solaris and UNIX machines supporting mission critical application such as DNS and LDAP.
- Provided support for the campus DNS servers.
- Provided online report viewing through OnDemand for more than 3,894 reports.
- Provided backup services for approximately one hundred servers through Harbor tape backup. Tuned the Harbor tape backup process for all servers under backup SLA on campus. Implemented two backup gateways to improve the overall performance of tape backup/restores. Reconfigured the backup process to increase security.
- Provided ongoing support of the University Enterprise Systems which includes: 577 IMS databases and 216 user defined DB2 tables, 4,570,931 lines of COBOL code in 6,853 files, 259,149 lines of Assembler/Format code in 871 files, 454,955 lines of JCL in 7601 files and 110,419 lines of Query programming code in 938 files. Performed 24 production IMS data organizational updates and reorganized 12 IMS test databases. Recompiled over 3,000 application programs as a result of requested database reorganizations. These changes continue to allow for systems that are accessible and restorable from libraries with 100% recoverability. All databases continue to run efficiently and optimally to provide the University with the fastest response times possible.
- Applied maintenance or installed new versions to mainframe operating systems and subsystems supporting the University, including z/OS and z/VM and all associated subsystems.
- Provided campus time servers, which can be used to synchronize computer clocks to a known accurate source.
- Procured and installed a main processor upgrade in the University mainframe from a 9672-0B1 to a 9672-0X2 to increase capacity from 120 MIPS (millions of instructions per second) to 150 MIPS. The upgrade added a second processor and increased total throughput and supported the addition of Content Manager as a production application without exceeding existing capacity. Added a CPU to support the operation of Linux only.
- Procured and installed an optical disk replacement from a 3995-133 to 3995-C36 which increased total storage from less than 100GB to about 800GB and resulted in slightly reduced maintenance costs with more performance and reliability. Migrated all data on the old optical storage device to the newly installed 3995-C36.

Supported the 24x7 operations for the University telecommunications and voice mail systems.

- Supported approximately 3900 voice mailboxes for students, faculty and staff. Supported approximately 17,000 telephone lines for faculty, staff and students.
- Completed 2664 Phone and 681 Voice Mail work orders.
- Supported 111 automated attendants.

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- Supported an average of 3 conference calls per week.
- Implemented EVM (Enhanced Voice Mail). This system allows customers to have voicemail and faxes go directly to an email inbox. Benefits include an electronic version of faxes and voice mails which can be archived for future reference. This feature also eliminates the need for a fax machine to receive faxes.
- Installed IP Trunks for Beaufort South (New River). This allows calls between the regional campuses using a Dial Access Code (DAC) over IP instead of incurring long distance charges. This also provides the Columbia campus with the ability to access the Beaufort switch to provide programming assistance and diagnostics if needed.
- Installed an Avaya Partner R7 telephone system for the Nutrition Center in the Arnold School of Public Health providing the ability of electronic transcription of interviews through the voice mail system. This system replaced the existing micro cassette transcription gear.
- Designed and programmed a Call Center application for the Department of Justice National Advocacy Center to support Tech One Hotline. Supports twelve call center agents.
- Programmed a Service Observer application for the USC Development Office to provide the capability to monitor 20 call agents and ensure quality service is provided.
- Assumed responsibility of running quarterly backup for the National Advocacy Center's voice mail system.
- Designed and implemented an internal CS/DEIS Meet-Me-Conference Bridge to provide the ability to schedule a conference call via GroupWise scheduling and reserve the time and duration of the conference. The conference bridge is capable of handling 6 participants.
- Implemented Avaya Extension to Cellular (EC500) to offer one-number portability and one-number access to the University. This feature allows calls to an office phone to be answered from a cellular phone, increasing customer satisfaction and raising productivity
- Installed a new Avaya Partner R6 telephone system in the USC President's House. This system includes a paging system and door answering capability.

Supported the 24x7 operations of the University network

- Supported more than 1200 network devices.
- Supported more than 35,000 available network connections (22,000 active).

Provided Desktop Support to students, faculty and staff

- Provided service and support for more than 7000 students living in on-campus housing. Assisted with the Perfigo SmartEnforcer software distribution and installation, configuration, and login for secure connectivity to the network, anti-virus protection, and general computing at USC. Provided support during the January and August Move-in efforts.
- Supported more than 44 departments and 1000 users under Desktop SLA. Supported Microsoft Windows and Macintosh desktop operating systems.
- Certified technicians in the Dell Premier Access Program for warranty repair on-site and in the Tech Lab.
- Added 3 Desktop Service Level Agreements – Media Relations, Pre-Professional Advising, and the Alumni Association (Blackbaud users only).
- Assisted with the move of the users from the 1600 Hampton Annex to the 1600 Hampton Street Main Building. Approximately 110 users from Development Office, Media Relations, the Employment Office, Dining Services, and USC Press were moved, workstations reconfigured, virus protection verified, and security patches loaded.
- Migrated the Parking and Vehicle Registration office to a new VLAN (network).
- Installed 50 new computers and migrated Computer Services to Windows XP with SUS and other security settings.
- Migrated Admissions to the Consolidated Server SAN environment.
- Assisted with the move of Special Events from McKissick Museum to the Currell building.
- Assisted with the move of University 101 from 1600 Hampton to College Street.
- Assisted with the move of the McKissick Museum staff to the third floor of the museum.

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- Assisted with the move of the Visitor's Center to the McKissick Museum.
- Established security standards including patches, critical updates, and security settings in Windows for all Desktop SLA customers and applied this security configuration for HR, Graduate School, Admissions, and Computer Services.
- Created 9 new Dell images for laptop and desktop configurations for institutional and personal purchases.
- Implemented Microsoft Software Update Services (SUS) to keep workstations patched and secure.

Provided 24x7 service and support for Servers

- Supported more than 40 NetWare file servers running the following University systems: Consolidated File and Print servers, Departmental File and Print servers, GroupWise, LDAP and client Authentication, Software Distribution, TCL Public Labs, FTP Services and LaserFiche Imaging.
- Supported more than 65 Windows 2000/2003 servers running the following University systems: ITAMS, Data Warehouse, Carolina Card system, Degree Audit Reporting System (DarWin), the Student and Exchange Visitor Information System "SEVIS" i1440 compliance software, the USC Electronic Research Administration (USCeRA) application, Health Center's Clinic Management System, Development's Millennium and RuffaloCody systems, Blackbaud Accounting system, Harbor Gateways for accelerated backups, Athletics tutoring application, Enterprise Information Portal "EIP" application, HiCommand for Hitachi SAN, CiscoWorks system and the TACACS system, USC Departmental web sites, SC Department of Social Services web server, and more.
- Supported 3 Macintosh servers.
- Supported 100 servers on the Harbor backup system and 14 servers on the Veritas backup system. Converted all Windows servers to be a host initiated backup to ensure secure backup and recovery.
- Supported more than 125,000 user objects in the NDS Tree for faculty, staff, and student authentication. Verified the version of Directory Services on 102 servers in the NDS Tree and performed updates necessary to prepare for the installation of NetWare 6.
- Patched and secured the Server Farm by applying critical updates, working with the Security Team to implement an internal firewall, requiring SSL and secure data transfer.
- Installed Mailbox Manager for the Enterprise Voice Mail (EVM) system and configured SSL and the email templates.
- Installed and tested SUSE Linux Enterprise Server v8 in the test lab.
- Converted Blackbaud Accounting System to Gig network connectivity.
- Moved the file server for Institute for Families in Society to the Server Farm.
- Reinstalled and reconfigured the Ciscoworks server.
- Moved the file server for Financial Aid to the Server Farm.
- Upgraded the Blackbaud Accounting Software application.
- Configured the dat mirror and secure LDAP authenticated http download options for McAfee software.
- Supported more than 80 network administrators on server, desktop, backup, and GroupWise issues.
- Reinstalled and reconfigured the Windows 2000 servers for Pinnacle Call Management System.
- Reinstalled and reconfigured the Windows 2000 server for the Student and Exchange Visitor Information System "SEVIS" i1440 compliance software.
- Reinstalled and reconfigured the Windows 2000 server for Basic Call Management System (BCMS).
- Installed, patched and secured, and provided support for new, high-performance, redundant NetWare Servers for the following University-wide applications: GroupWise, student government email address, and general shared resources.
- Installed a server and LTO tape library to manage the backups for the GroupWise System and the seven post offices managed by Computer Services.
- Installed 2 new servers for GroupWise Web Access and upgraded to Web Access v6.5.
- Installed new server for IMAP access.
- Upgraded the servers for Housing and Athletic Department to NetWare 6.
- Installed three new Netware servers to support authentication and LDAP services for Faculty, Staff, and Students.

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- Installed, patched, and secured new, high-performance, redundant Windows 2000/2003 Application Servers and Windows 2000/2003 Database Servers for the following University-wide applications: Octel Voice Mail Server, Microsoft Software Update Services (SUS) Servers, Microsoft Project Server for Computer Services, Electronic transcripts "SPEEDE", Degree Audit Reporting System (DarWin) Servers, Graduate School Web Server, Oracle Test Servers with Red Hat Linux, Citrix Server for Content Manager and Pinnacle, BindView software and security auditing server, Development Office Call Center Application Server (RuffaloCody), Data Warehouse Test servers, Carolina Card servers, Harbor Gateway servers to decrease the time required to perform backups.
- Maintained the Server Farm infrastructure which houses mission critical applications, data, and services for the entire USC System. Constant maintenance and upgrades are performed to keep the equipment at the most current level to provide the highest quality of service and availability. Several major upgrades were performed over the past year to increase the speed, performance, power redundancy, and manageability of the infrastructure and systems in the Server Farm.
- Enhanced the test lab to improve testing and evaluation of the IRIS enhancements, NetWare 6, Native File Access for Macintosh, Mac OS X, GWAVA for GroupWise Virus Checking, NetMail, XP Home Edition, MS Project Central, NDS for NT and Microsoft Active Directory.

Supported the public labs at Thomas Cooper Library

- Maintained and updated PC and Macintosh images for the TCL Level 5 Computer Lab, Business Library Computer Lab, Thomas Cooper Library Reference Pods, Music Library Computer Lab, and TCL Science Lab.
- Installed a Mac server and implemented LDAP authentication to access Mac computers in the TCL Level 5 Computer Lab.
- Converted the TCL Public Access server to Gig network connectivity.

Supported the 24x7 operations of the GEM E-Mail system

- Supported more than 117,500 accounts, 62,000 mailboxes, 24,000 active users.
- Processed 25,000-110,000 pieces of email daily, a decrease of approximately 25,000 messages per day from a year and a half ago, due to SPAM filtering.
- Upgraded the web-front end server and installed a new software release with more features and improved performance.
- Provided testing, documentation, and support for the new version of GEM for greater system stability and improved security. Implemented and publicized changes to the GEM email system for its use as 'official' USC email for delivery of important notifications from USC offices to USC students.

Supported SPAM filtering for University email

- Upgraded two SPAM filtering machines located at the USC network border. Introduced heuristic scoring of email to determine the likelihood that a message is spam. End users can use these scores to filter unwanted e-mail.
- Of the 400,000+ emails received daily, spam management is rejecting an average of 28% of the email at the border and then marking an additional 48% of what is delivered as potential spam with a spam score of 3 or above. The most frequent scores for spam range between 5 and 9. An additional 5% of the mail is quarantined from the virus scans.

Supported the GroupWise email system

- Supported more than 6380 GroupWise mailbox accounts for the USC GroupWise system. More than 9 million GroupWise messages were processed per month. The virus scanning servers for the GroupWise email system clean or block an average of 10,000 viruses per month. This number has decreased due to the filtering that is occurring at the border of the network.
- Migrated all Post Offices POCOLA1-7 and the College of Liberal Arts Post Offices to LDAP login authentication and SSL for all client access to provide encrypted data transfer of email to and from the GroupWise servers
- Migrated users to IMAP and discontinued POP3 for access to GW from non-GW email clients
- Applied space limitations to user mailbox size to ensure system integrity.

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- Implemented filtering for internet email with a Spam score of 15+ and began including the Spam score in the subject line of internet email messages with a Spam score of 3+.
- Implemented a Junk Folder to help with Spam email.
- Upgraded GWAVA to v3.01, which scans all incoming and outgoing Internet email and internal email for viruses.
- Began distributing the new Mac GW client.
- Tested, installed, and configured NotifyLink for access to GW from PDA devices.
- Upgraded server hardware and re-tasked to maximize the performance for IMAP, routing of internal GroupWise email, and Web Access.
- Supported more than 2150 GroupWise mailbox accounts for the Columbia College GroupWise system. Maintained SLA Support for GroupWise email service and system level support for Columbia College faculty, staff, and students.

Provided service and support for Departments supported by the Bulk Email SLA. This service allows departments to send bulk email to students, faculty, staff, applicants and other affiliates without the cost of letterhead paper, envelopes, handling charges and postage. This new service is less expensive than the US Postal Service and is designed to serve those customers who currently spend significant resources doing mass mailings.

Supported the 24X7 operations for the University ListServ server.

- Provided technical and customer support for over 1000 LISTSERV lists, used for research, organizational, and instructional purposes, including approximately 250 used specifically as classroom complements.
- 11,000-45,000 messages per day.
- Performed semester-end class list archive cleanup and prepared for spring 2005 removal of old lists.

Supported the 24X7 operations of the University web presence

- Developed web sites using the new web standard for the Law School (including redesign of online catalog, Legal Times and Annual Report), Black Law Students Association, the Research Consortium on Child and Family Studies (RCCF is a multidisciplinary USC endeavor drawing together faculty from behavioral/social sciences and closely related disciplines who conduct grant-funded research related to children/youth and families), Biomedical Research (Office of Research), Homeland Security (Office of Research), University Foundations, and Tenure and Promotion.
- Maintained University web sites, including the USC home page, Computer Services, Bursar, USC Map, A-Z Index, USC search engine, Office of Research, School of Music, Norman J. Arnold School of Public Health, USC Post Office, College of Social Work, Business and Finance, Center for Child and Family Studies, USC Alumni Association, Faculty Senate, Nanocenter, Campus Planning and Construction, Chemistry, Thomas Cooper Library, USC Printing, Law Enforcement and Safety, Office of Provost, Office of Research, Faculty Senate, Office of Information Technology.
- Re-designed and maintained the eForms system and the IT Bulletin.
- Began development on the new "Getting Connected" websites – designed to better help the University community learn how to get connected to the USC network.
- Developed parking presentation to show animated campus parking moves, shuttle routes, core area parking and future parking plans.
- Developed web sites for the Johnson Controls Energy Refresh Project, a web enabled campus map for displaying construction projects and National Conference for Law Review.
- Created the flash announcement for the Sponsored Programs and Research name change to Sponsored Awards Management (SAM) and provided support for the main Research web site, USC BusinessLink and the Nanocenter.
- Handled an estimated 1500 inquiries sent to the USC Webmaster, USC Map, Search USC and VIP.
- In the capacity of "Agent to Receive Notification of Copyright Infringement," worked closely with Student Judicial Programs, the Office of the General Counsel, and the University Data Security Officer on sensitive security and copyright violation matters. Since January 2004, the Agent has disposed of an estimated 200 copyright infringement notifications brought against the University.

**UNIVERSITY OF SOUTH CAROLINA  
COMPUTER SERVICES  
2004 Accomplishments**

Worked with University judicial services to assist students who committed IT infractions to allow the student to make restitution for abuse of University IT services.

- Maintained the hardware, system and security of the main USC web server: [www.sc.edu](http://www.sc.edu).

Continued work with the Bursar's Office to develop an e-commerce site to provide a standard way of collecting payments on the web for University sponsored store fronts. This system will allow for the acceptance of credit card payments for merchandise and conferences and will be integrated with the USC general ledger and receipting system. Added the ACH portion and incorporated the University receipting process into the workflow. The USC Mall is scheduled to be available early 2005 and will allow for the acceptance of credit card and electronic check payments for merchandise and conferences.

Provided a personal purchase program for a number of standard desktop and laptop computer configurations from Dell, USC's preferred PC vendor. The program provides for discounts to USC faculty, staff and students and includes the USC standard software image preloaded by Dell to improve IT security and reduce configuration time. The image includes Microsoft Office Professional and McAfee Virus Scan Software. All available security patches and critical updates have been applied to prevent known security risks, and the built-in Windows XP Internet Connection Firewall has been enabled and configured. The image also includes a folder on the desktop including optional installations of standard USC applications such as the Novell client, GroupWise, Adobe Acrobat Reader, VPN Client, Host Explorer and OnDemand.

Supported the Enterprise storage area network (SAN) to provide high availability storage for administrative and research data. The storage architecture is designed with redundancy built-in, protecting against any single point of failure, including failure of an individual disk, power supply, or fiber channel connection to the storage. Upgraded the enterprise storage area network with 64 additional fiber channel connections for servers and with an additional 4TB of storage. ITAMS, GroupWise, Veritas Backup System for GroupWise, Carolina Card System, Test Data Warehouse, Test Millennium System, Software Distribution, Imaging and Blackboard were upgraded to utilize the enterprise SAN storage, providing additional reliability and performance. Currently 1.5 TB of storage are allocated for mainframe use and an additional 4.25 TB are allocated for the enterprise application servers. There are a total of 36 servers currently attached.

Installed another enterprise UPS to provide battery back-up and power conditioning for non-mainframe enterprise systems. The UPS maintains power during a short power fail interval and provides for graceful shutdown of servers and systems in an extended outage.

Improved internal business procedures

- Adopted a formal project management methodology. Created a project management site for the collection and monitoring of projects within Computer Services. This site provides individual project rooms for projects and allows the project manager and team members to share documents and communicate.
- Worked with USC Law Enforcement and Student Judicial Services to investigate and seek reimbursements from students who used other student long distance codes without authorization. In FY 03-04, collected over \$700 of the total \$2000 in unauthorized charges.
- Implemented a collection procedure using a state contract vendor to recover student long distance charge offs. In FY 03-04, recovered approximately \$3,800.00 of the estimated total potential loss of \$5,045.00.
- Migrated University cellular and pager billing to departments. This change in University policy and procedure (IT 2.18) assures administrative and academic units manage procurement and accountability functions for cellular and pagers services within the responsibility unit.
- Moved the responsibility for quality assurance of work order billing to the Business Office to facilitate better tracking and reconciliation of transactions.

**UNIVERSITY OF SOUTH CAROLINA  
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2004 Accomplishments**

Created a web-based mini-tutorial for the Institute for HIV Prevention (IHPL) in the Arnold School of Public Health. This mini-tutorial was designed for HIV prevention program managers in community-based organization to learn and test individual knowledge on HIV prevention.

Developed an application for Health and Safety to identify and track all laboratories and special equipment in use within the USC system. The application facilitates the monitoring of lab instructors, hazardous materials, inspection dates, fire pumps, generators / fuel cells, storage tanks and fume hoods.

Continued support and development of USC Graduate School - Extended Graduate Campus (EGC) Course Request System. This system permits certain entities specified by EGC to request courses offered by EGC to be taught at various times and locations on a tuition or contract basis for payment. Information for all requests include the course being requested with dates and times for the course, course capacity, credits, instructors, and for contract courses various contract details such as contacts and signatories. EGC administrators review the requests to either approve or reject the request and generate an extensive list of documents including pricing memos, invoices, salary letters, course approval forms, roll verification and student list forms, contracts and contract cover letters along with various sets of mailing labels.

Created a Departmental Administrative Database System for Philosophy. This system utilizes the web to obtain data from Faculty, Staff, Students and Alumni, collecting various types of information such as Demographic, Office Hours, Research Summaries, Education, Honors and Awards, Presentations, Publications, Courses, Professional History, Services, CV's and Mailing List subscriptions. System Administrators can use the system to maintain mailing lists, key and building information. Users of this system can dynamically generate a personal web page by choosing which categories to display.

Continued support and development of the College of Education Office of Program Evaluation. The SC Arts Assessment Program is a standards-based testing system that allows students to take tests online. This year the addition of online videos and multiple-choice questions pertaining to the video subject were added. Enhancements have also been made to the layout of the administrative area.

Created a Field Instructor Supervision Competencies Survey for the College of Social Work.

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**GOAL 6: ENCOURAGE THE EFFICIENT USE OF COMPUTING AND NETWORKING AMONG DEPARTMENTS**

Represented USC at SC ATAC (SC Assistive Technology Advisory Committee) meetings participating in workgroups on Web Policy, Outreach, Training, and State Government Webmasters.

Initiated a project to develop the IT Connection system to improve communication between Computer Services and the USC community. This system will also send notifications on planned and unplanned outages and will incorporate multiple media outlets such as USC Times, Gamecock Cable, WUSC, and listservs.

Designed and distributed a brochure for all faculty and staff including information on available products and services. Information included how to purchase computers at a bargain price, voicemail and phone features, Oracle and SAN options.

Enhanced the existing IT Bulletin to include the time/date stamps, links and the overall design of the page. Worked to ensure an average of 10 articles is included in each month's edition including pictures taken from events, lectures and presentations.

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2004 Accomplishments**

Created a faculty support group consisting of members of instructional technology support teams from a variety of departments across campus. Met several times throughout the year. Created a listserv to communicate with the group.

Participated on a variety of University committees including Information Technology Council, Network Managers, GroupWise Managers, Opening Weekend committee, Human Resources IT Curriculum Committee, Distance Education Advisory Committee, Mac Users' Group and Computer Services Disaster Recovery Team, Faculty Academic Support Team.

Through the Contractual Services Group, supported other state agencies and entities

- Continued development and support of the Center for Child and Family Studies (CCFS) Training Registration System. This system is a web-based system primarily for employees of the SC Department of Social Services from across the state to register over the Internet for training courses offered by CCFS. CCFS staff maintains course information, class schedules, class rolls, and student grades and transcripts through administrative screens.
- Creation of a new website for the SC Patients Compensation Fund Web site.
- Supported business office software for 23 State Agencies utilizing the State Agency Accounting System (SAAS) and the Basic Agency Reporting System (BARS). These systems interface with the Statewide Accounting and Reporting System (STARS) requirements, and Governmental Accounting, Auditing, and Financial Reporting Procedures (GAAFR) to fulfill accounting and personnel requirements.
- Provided support for the NSLDS System used by the SC Student Loan Corporation. This system is used to report outstanding student aid loans to the US Department of Education.
- Provided Independent Verification and Validation Oversight for the statewide child support enforcement system to meet Federal certification requirements. Provided comprehensive assessments of CSES activities to the SC Department of Social Services and the Federal government on a quarterly and mid-quarter basis. In this role, the IV&V project team is essentially serving as 'the eyes and ears' of the Federal government which is funding two-thirds of the cost of development.
- Continued development of the StationView product for the management and identification of Geodetic horizontal and vertical control points in South Carolina. These points are used to tie mapping projects to a known coordinate system for accuracy and elevation. In 2004, a 3-hour training program was incorporated into the continuing education units for surveyors at the request of the SC Society of Professional Land Surveyors.
- Continued support and development of the Comprehensive Aviation Information Reporting System (CAIRS) for the SC Department of Commerce, Division of Aeronautics. Enhancements to both the Access and web based mapping system were made. Two major changes were the addition of new aerial photography and aeronautical charts.
- Continued work with web development for the Public Service Commission Intranet and web presence for the public.
- Transitioned the Public Service Commission public complaint system to the State Office of Regulatory Staff.
- Continued work with mapping projects to supplement the Suwannee River Water Management District staff.
- Continued work with Kershaw County parcel project. Completed a full year of production in the creation of a countywide database for the County Assessor.
- Provided AS400 support and maintenance for the accounting systems in the following agencies: SC Student Loan Corporation, Fairfield County, Consumer Affairs, Labor Licensing and Regulation, SC Parks Recreation and Tourism, SC Department of Archives and History.
- Provided support for the enterprise server databases for Medical Examiners, Dentistry Board, SC Retirement Systems, and BCB Office of Research and Statistics. Support involved tape conversions, FTP access, and file changes.