

**UNIVERSITY OF SOUTH CAROLINA
UNIVERSITY TECHNOLOGY SERVICES
2005 Accomplishments**

During 2005, University Technology Services (UTS) made significant contributions to the University to directly support the mission of the University and the strategic goals of UTS.

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, storage area network, software and databases.

Upgraded BlackBoard to support the content management feature. Upgraded the application servers to RedHat AS 4 Enterprise and BlackBoard 6.2.3. Upgraded the database servers to Oracle 9.2 and implemented a stand-by backup recovery configuration.

Completed a major upgrade to the Breeze on-line presentation and video conferencing solution. Breeze had been piloted among a small, but rapidly growing faculty user community at USC. The upgrade included moving the system to a fully secured environment within the UTS Data Center, implementing nightly backup procedures, and bringing the Breeze environment in line with standard UTS operational support guidelines.

Engaged a Digital Asset Management consultant from the University of Michigan to help evaluate the feasibility of a Digital Asset Management system implementation at USC. Through a series of interviews and onsite visits, the consultant will assess USC readiness, educate faculty and staff about DAM concepts, processes and systems and help define strategic direction. The desired outcome of this assessment will be a project charter to implement a Digital Asset Management system at USC.

Managed the ElementK online training program for Office Productivity and Computer Professionals. Provided information, managed registrations and maintained vendor contract.

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.

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

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

Provided support for the OneCarolina Project

- Provided Project Management and Analysis staff in support of the OneCarolina project which will replace the administrative systems supporting Student, HR, Finance and Sponsored Programs. Activities included project planning, budgeting, academic and business functional analysis, RFP creation of functional script scenarios for Vendor demonstration evaluations.
- Constructed work space for project team and developed construction plan for OneCarolina training facilities.
- Developed a web-based system to provide for change management, issues management, training registration and an online document repository.

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Completed the user requirements for the enterprise Active Directory and Exchange implementation and completed the overall system design effort. 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. Installed network service for the early pre-production Active Directory/Exchange testing and worked on the build-out of the infrastructure that will provide connectivity for the addition of the new production Active Directory and Exchange servers. MailFrontier was procured as the new anti-spam system. More than 40 servers are currently being installed for email deployment beginning with the students in Spring 2006.

Initiated the Network Infrastructure Project (NIP) to provide three-tiered network architecture in support of University applications. The three-tiered network architecture implements networking segments separated by appropriate layers to ensure security, reliability, high-availability and redundancy within the USC computing environment. The architecture also includes an environment for the staging of pre-production applications.

Enhanced the University wireless network:

- Implemented Phase II of the outdoor wireless network infrastructure to complete outdoor wireless network coverage for the Columbia Campus. This new network infrastructure provides authenticated access to a seamless wireless network across all outdoor "green space" areas of campus. This project has laid 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.
- Designed, installed, configured and deployed new indoor wireless network infrastructure for the following locations:
 - 1600 Hampton St. (1st floor training room)
 - Capstone (1st floor, Gibbes Cafeteria)
 - Thomas Copper Library (full coverage)
 - Cliff Apartments (1st floor laundry and sitting room)
 - Columbia Hall (basement study area and 1st floor lobby)
 - DeSaussure (3rd & 4th floor offices)
 - East Quad (1st floor classroom and lobby)
 - Gambrell (2nd floor patio)
 - Harper/Elliott (1st, 2nd, 3rd floor offices)
 - Legare (1st floor common room, 2nd and 3rd floors offices)
 - Law Center (full coverage)
 - McBryde (1st floor areas)
 - McClintock (1st floor lobby and lounge, 2nd and 3rd floor study rooms)
 - McCutchen House
 - Maxcy (basement areas, 1st floor classrooms. 2nd and 3rd floor study rooms)
 - Osborne (selected office areas)
 - Patterson (basement lounge, cafeteria, 1st floor)
 - Preston (1st floor lobby and common rooms)
 - Russell House (full coverage)
 - Rutledge (1st floor chapel, 3rd floor offices)
 - Sims (1st floor lobby and lounge, 2nd and 3rd floor study rooms)
 - South Tower (1st floor lobby)
 - South Quad (1st floor lounge and classroom, 2nd floor lobby and conference rooms)
 - Thornwell (3rd floor offices)
 - Towers (1st floor offices, lobby areas)
 - University Technology Services (UTS) (full coverage)
 - UTS Annex (full coverage)
 - Wade Hampton (Basement break room, 1st floor lobby and lounge).
- Created a campaign to help educate students about the wireless network. Conducted training classes and provided written instructions and FAQs.

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Collaborated with MUSC, Clemson, Palmetto Health, Greenville Hospital System, and Spartanburg Regional Healthcare System (Health Sciences South Carolina Collaborative) to assess the possibility of building a research and education network for South Carolina with connectivity to the National LambdaRail. Drafted a business case documenting the potential benefits and risks to research, instruction, health care, competitive advantage and economic impact. Conducted site visits to multiple states to review best practices, organization, governance and network architecture.

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

- Planning/Estimates/Design (only): 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 voice, data and video groups and provided an estimate of the job. Design and estimate projects for 2005 included:
 - Carolina Gardens
 - Distributive Data Center
 - Move to Bldg 143-144
 - New Law School
- 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, data and video 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.
 - Horizon Research Block
 - Omega Research Block
 - Baseball Stadium
 - Six new buildings in Greek Village
 - New Law School
- Installations (includes planning/estimates/design): 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 completion. Conducted final activation of all voice, data and video services for all projects as well as maintenance on existing service. Installation projects for 2005 included:
 - 1233 Washington
 - 2221 Devine St
 - 743 Green St. New Offices
 - 743 Greene Re-wire Bldg
 - Athletics Paciolan
 - Bull Street Garage
 - Business School 2nd Floor
 - Business School Enhanced Classrooms
 - Byrnes Fiber
 - Callcott Infrastructure Add
 - Campus Wireless Phase I
 - Campus Wireless Phase II
 - CarolinaCard III
 - CarolinaCard IV
 - Catawba Street Conduit
 - Coliseum Ticket System
 - Columbia Hall Phase II
 - Computer Room Copper
 - Computer Room Fiber
 - Davis College Wireless

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- EWS 5th Floor Lab
- Facilities Infrastructure Add
- Fiber Maxcy to Humanities
- Floyd Bldg
- Kirkland Apartments
- Law School Classroom
- Law School Libraries
- McCutchen House Wireless
- Newfilm Library Move (707 Catawba Street)
- Nursing Enhanced Classrooms
- Osborne 207
- Osborne 208 Move
- Osborne Area 107 Offices
- Osborne Student Affairs
- Osborne Thornwell Moves
- OSP McBryde Phone Cable Repair
- Pavilion Restaurant (Humanities)
- PSC - Renovation 7th Floor
- PSC – Fiber Break
- Russell House ATM Cluster Move
- Russell House Room 320 Test Center
- Taylor House Garage
- TCL-Russell House Wireless
- UTS Access Card Reader
- Wardlaw Fiber Distribution
- Wardlaw Wireless
- Wheat Street Renovation
- Wardlaw Drops 101-114
- Booker T. Washington 103
- Gambrell room 150 lab

In addition to projects supporting new construction and renovations (referenced above), the following locations had network infrastructure improvements in 2005:

- Redesigned, upgraded and enhanced the network infrastructure in Gambrell Hall which included a thorough redesign of the network architecture, including new IP addressing based on private addresses, improved manageability, performance, and protection from worms and viruses by way of subdividing what was once a large and unwieldy local area network into sixteen smaller networks with a pair of redundant multilayer switches.
- Designed and implemented a special Gb Ethernet network service for the new Geology Lab in the Earth, Water, Science building.
- Designed and implemented a special Gb Ethernet network service for the athletics department video server in the coliseum.
- Created new local area networks (LANs) to improve performance, reliability, and security in the following locations:
 - AFROTC
 - Thornwell Annex
 - 6th floor Williams Brice Nursing
 - College of Hospitality, Retail and Sports Management in the Coliseum—including wireless service.
 - Graduate Science Research Center
 - Lancaster Campus new Health Services Complex
 - Salkehatchie Computer Lab
 - Nanocenter
 - PSC 7th Floor
 - New IP addressing and network architecture for College of Pharmacy

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- Columbia Hall, Phase II
- Development –special network for the Ruffalo Cody Contract group
- Katrina Relief Center in Naval ROTC bldg.
- Installed Uninterruptible Power Supply (UPS) equipment to protect the network equipment in the following buildings:
 - Hamilton
 - Harper-Elliott
 - McBryde B
 - Sloan
 - Barnwell
 - Patterson
 - Osborne
 - Nursing
 - Humanities Office
 - Humanities Classroom
 - Calcott

Completed the documentation of all communication facilities across the University. This included:

- Identified copper, fiber and coaxial cables and adopted a labeling scheme for entry into the Pinnacle Call Management System.
- Identified all cable pair to switch relationships and identified all data port to room relationships. Completed documentation of the data network (the relationship of data switch port to jack).
- Numbered all communication closets.
- Created an inventory of all communication closets and estimated the cost to upgrade each to industry standard, secure spaces.
- Located all underground communication facilities including manholes and duct runs. Contracted with an outside vendor and completed documentation. Located and labeled all copper cables and manholes. Prepared CAD drawings showing the location and path of the cables and the manhole layout. These drawings show all conduit and cable running through the manhole.

Developed a process to recover all money spent with the State CIO involving cable pulls. In 2005 recovered 100% of cost outlaid for wire pulls.

Responded to 265 cable locates in an effort to reduce fiber optic and copper cable cuts.

Identified and responded to security incidents

- 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 copyright violations. In 2005, the Agent disposed of approximately 160 copyright infringement notifications from agencies such as the RIAA, ESA, BSA and MPAA. Created a new copyright infringement database to accurately track and monitor work done towards resolving these incidents.
- Submitted over 90 malicious code samples to anti-virus vendors.
- Monitored new security alerts and system vulnerabilities and published warnings to the appropriate USC communities.
- Removed over 800 infected or compromised computers from the network to safeguard the confidentiality, integrity and availability of the University network.
- Countered two Denial of Service attacks against the University, restoring the network back to a serviceable level with minimal downtime.

Enhanced Security of the USC network

- Engaged an external consulting firm to complete a security audit and assessment of UTS enterprise data, systems, and network. The goal of the audit was to ensure that UTS processes, procedures, systems and networks remain consistent with industry standards and are compliant with emerging

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legislation. A series of recommendations were generated to increase the effectiveness of security for enterprise systems and infrastructure.

- Maintained and upgraded the existing University firewalls to continually block external attackers at the border firewall. Processed over 1280 firewall requests for information, changes or additions to the rule sets in support of University objectives.
- Procured, installed and configured 10 new firewalls (one for LES, two for Hampton Street, four for the production Enable infrastructure and three for the pre-production Enable infrastructure)
- Updated the Security Operations manual and added over 30 pages of new content.
- Created over thirteen new general security procedures. Three of those procedures have been successfully submitted through the new UTS procedure process and are now official UTS procedures including Vulnerable System or Service Response, Malicious Code Response and Cleaning Systems Compromised By Common Malicious Code,
- Maintained, patched and updated the University Internet Access registration server (NetReg). Processed over 160 requests for information, changes or additions to NetReg.
- Maintained, patched and updated the Cisco Clean Access (CCA) servers used for providing access to the Universities residence hall and wireless networks. As a result, USC experienced a dramatic drop in the number of infected machines on the student network was noticed.
- Extensively utilized the existing intrusion detection system (IDS) to locate infected machines throughout our campus. This resulted in remediation of over 500 unique infected systems on the campus during the Zotob outbreak.
- Constructed a new lab for forensics analysis of IT equipment.
- Extensively utilized the existing IDS to locate copyright violators on our network.
- Performed routine vulnerability scans across the network, against individual machines and servers. Advised network managers concerning the results.
- Provided consultation services on risk analysis and remediation of vulnerabilities discovered.

Enhanced proactive monitoring of the USC network and systems.

- Set up a system for out-of-band management of the University's core network devices. This system allows UTS to manage and troubleshoot the core devices from remote locations even if Internet services are not available.
- Set up out-of-band management through dial-up modems over new analog phone lines for seven regional campuses. This allows UTS to manage the core devices on these campuses even if the main data communications link from the core is down.
- Maintained, patched and updated the Netflow server. Extensively utilized information from the Netflow server in order to find infected and compromised systems and to determine the source of the denial of service (DoS) attacks against the University.
- With the implementation of Cisco's Wireless LAN Solution Engine (WLSE), monitored and managed over 350 Access Points.
 - All configurations are archived. In the event of failure, the configurations can be downloaded to the replacement Access Point.
 - Access Point software can be upgraded in mass.
 - The WLSE allows personnel to review user access, performance and load trends in real time and provides historical information.
- Initiated a project to implement metrics and monitoring for all data center systems. Procured HP OpenView as the enterprise monitoring system for the data center. Project includes:
 - Automated monitoring of all network nodes
 - Self discovery for all new network hardware adds
 - Detailed monitoring of all production servers
 - Enhanced tools for the Help Desk to manage change and issues
 - Automated alert notification to email, pager or cell phone
 - Automated event escalation for more responsive customer service

Worked with the School of Medicine to design and build a new solution for videoconferencing. This involved the installation of new equipment to allow videoconferencing with points outside the University's

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networks. Re-engineered videoconference network to provide better security and performance in accordance with the new Palmetto College videoconferencing standards.

Installed a second Internet Services Provider (ISP) to provide redundancy to the Internet, eliminate potential single points of failure, and provide load-sharing of data while both links are active.

Enabled IP multicast with the Abilene network to allow the University to develop, deploy, test, and use multicast-based applications with the Internet2 community. Standardized IP multicast configurations on the Columbia campus.

Redesigned the videoconference network infrastructure at the Laurens campus in order to bring it up to Palmetto College standards for videoconferencing.

Reviewed and updated 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.

Enhanced the University Data Warehouse

- Acquired a campus site license for Cognos, including new tools for query, metrics, monitoring, event notification and dashboarding. Cognos is the University's provider of software for accessing reports and analytical data in the data warehouse.
- Began planning the implementation of the new tools in an upgraded data warehouse environment in support of customer self-service strategies.
- Developed and deployed new reports in the Human Resources, Payroll, and Student Enrollment databases.
- Developed and deployed two new analytical "cubes" in support of TERI end-date processing.
- Developed and deployed a new analytical "cube" for tuition analysis.
- Developed new Human Resources EEO reports within the data warehouse for USC's Office of Equal Opportunity Programs. These reports replace a previously time consuming, manually intensive data gathering and report generation process for EOP.

Enhanced University Library Systems

- Supported the installation and deployment of the new PASCAL state-wide library system. This project integrated all USC Libraries into a new web-based system (Millennium) which went into production in the Fall 2005 Semester. This new system consolidates all of the libraries' online activities such as the public catalog, acquisitions, cataloging, and circulation onto a single integrated system.
 - Performed a hardware needs assessment, procured and installed supporting hardware servers.
 - Provided data conversion and technical support for the successful installation of the new Integrated Library System (Millennium) software.

Enhanced HR/Benefits/Payroll systems

- Implemented changes to payroll to make available a new pre-tax retirement service purchase deduction code. The South Carolina Retirement System implemented a program to allow employees purchasing service credit with the Retirement System to purchase the time at pre-tax dollars based on recent legislative changes. This highly visible new benefit for numerous USC employees enables them to retain substantial savings on federal and state taxes.
- Enhanced the direct deposit pre-note verification process to enable the pre-note verification to occur prior to the next payroll process. These enhancements reduced the number of paper checks required and increased the turnaround time for employees signing up for payroll direct deposit.
- Provided programming support to the Payroll office to bring the Beaufort campus in line with standard operating procedures for four-year system campuses (i.e. Upstate and Aiken models) for student hires..

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- Developed an electronic submission process for the remittance of ORP and 403B data to TIAA-CREF affecting approximately 1000 ORP participants and an additional 250 403B participants at USC. This electronic solution replaced a manual re-keying process.
- Worked with Payroll to develop a new monthly business process for handling earnings record adjustments. This new process eliminated fiscal-year-end and calendar-year-end keypunch activities previously required by UTS resources.
- Completed several operational enhancements to assist with processing, tracking, and reporting payroll activity for USC employee's enrolled in the TERI program. These enhancements have positioned USC to better respond to changes in the TERI program in 2006 and going forward.

Enhanced Educational Foundation/Development Office Systems

- Upgraded the USC Alumni/Development Call Center to a Master Call Center requiring network, server, desktop, and programming support. This was done to increase the effort to solicit contributions to the University.
- Upgraded the Millennium Constituent system versions and provided data analysis and report design and development support.
- Supported the implementation of Ruffalo Cody for University Advancement. This included creating and deploying an image to 32 new computers, joining PC's to the domain, and troubleshooting / supporting the application.

Enhanced Student Information Systems

- Enhanced the Student System to allow for a new type of student, "Capstone Scholar".
- Upgraded the Registrar's Office Darwin system adding a new web interface.
- Upgraded programs to support the merger and creation of the new College of Arts and Sciences. Changes were in direct support of Commencement, Diplomas and Seating Charts.
- Enhanced Student Fee Systems to support Palmetto College and Beaufort as a four year campus. Added programs fees for the new Upstate International Exchange. Changed all report references to accommodate Spartanburg/ Upstate name changes.
- Provided programming support for USC's HARD Waiver programs effecting data interfaces within Graduate School, Budget, Financial Aid, Grants, and Health Center offices.

Enhanced the CarolinaCard System

- Implemented the new CarolinaCard ID Card Management system providing new student features (card financial services) in January 2005. Implemented an online Student Accounts Receivable interfaces that allows CarolinaCard to receive payments of Carolina Cash, Dining Dollars and Meal Plans hourly. This allows money to be credited to student accounts quicker and allows the students, faculty, and staff faster access to their money.
- Implemented Atlas Snack Vending for CarolinaCard
- Implemented CarolinaCard at Parking Services and Bull Street Parking Garage to allow the University community to pay parking fees using the CarolinaCard.
- Implemented CarolinaCard at the Colonial Center for purchasing tickets and concessions
- Installed the CarolinaCard system at USC Beaufort, USC Lancaster and USC Aiken
- Installed Pay for Print functions at the College of Arts and Sciences
- Installed the Building Access module (security) within the CarolinaCard suite of systems to be used as an Enterprise Building Access system. USC Aiken was first to install and utilize this system.

Enhanced enterprise Imaging services (IBM Content Manager)

- Upgraded IBM Content Manager to release 8.3 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. Worked with IBM to diagnose and repair several major product defects following the upgrade.

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- There are approximately 290 active users including the following departments: Financial Aid, University Technology Services, Registrar, Development, SAM (Sponsored Awards Management) and Graduate School.
 - In 2005, the Law School, Human Resources and Trio Programs were added to Content Manager.
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GOAL 3: PROVIDE EXCELLENT CUSTOMER SERVICE

Provided a Help Desk for students, faculty and staff

- Processed phone calls, trouble tickets, and work orders for all areas in University Technology Services. This included creating tickets, troubleshooting, routing, escalating, billing, filing, information gathering, follow up and handling all of the associated paperwork involved in getting the authorizations. The Help Desk handled more than 35,000 calls to 7-1800 in 2005:
 - Faculty/Staff calls
 - 12,725 total
 - Average of 1,061 per month
 - Highest Monthly Call volume: 1,461 calls in June 2005
 - Student calls:
 - 12,234 total
 - Average of 1,020 per month
 - Highest Monthly Call volume: 2,770 calls in August 2005
 - Other calls:
 - 9,585 total
 - Work Order System tickets created: 20,422
 - 238 Academic Support
 - 386 Business Office
 - 116 Calling Card
 - 1546 Data Service
 - 206 External Line
 - 585 Infrastructure Support
 - 744 Network Support
 - 377 PBN
 - 47 Submitted from the Web
 - 8,374 Support Service
 - 2,161 Voice Mail
 - 106 Voice Mail Service
 - 8,433 Voice Service
 - 33 Web Submitted MAC
 - 70 Not Categorized
- Provided support through email and fax and supported the USC Summer Conference programs.
 - Responded to and processed 4,202 email requests for assistance
 - Responded to and processed 798 fax requests
 - Provided network access support to 220 USC Summer Conference attendees
- Installed a wall board system in the Help Desk area to display active call statistics and provide real-time monitoring of critical systems.
- Updated websites to reflect new standards and procedures for students to follow to get connected to the University network – both wired and wireless.
- Updated the UTS Help Desk survey to provide management with improved measurements of service.
- Redesigned the Help Desk telephone call vector to provide better customer support by routing calls to the correct agent.

Provided a Services Center to handle all walk-in traffic to University Technology Services.

- Provided general UTS information and issued visitor access badges.

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- Greeted and directed visitors, vendors, events and training session attendees for building events.
- Received/returned graders, scanners and teacher evaluations.
- Registered students for the iCARE Center.
- Configured wireless access cards for students and faculty/staff.
- In September 2005, the Services Center began answering Help Desk calls and handled 7,722 calls in addition to handling walk-in traffic to University Technology Services.
 - Average of 1,544 per month (August through December)
 - Highest Monthly Call volume: 3,143 calls in August 2005

Opened the iCARE Center

- Renovated and repurposed existing space to create the Computer and Resource Education Center "iCARE Center". The center teaches on and off campus students how to care for their computers. After the iCARE Center was opened in September, consultants assisted over 465 students with virus removal and cleaning, anti-virus protection software installation, connecting their computers/laptops to the ResNet (residential network). UTS consultants taught students how to keep their machine updated and secure.
- Created the iCARE Center web site and developed an online registration system to allow students to register for scheduled iCARE sessions.
- Provided 150 wireless configurations for access to the USC outdoor wireless network.
- Created awareness about the iCARE Center through press releases, media coverage, flyers, websites, advertisements, presentations and 'word-of-mouth' communications.
- Created a new survey for the iCARE Center to evaluate services.

Provided Certified Dell hardware support for UTS customers with service level agreements.

Continued to work with Dell to provide a standard software & hardware configuration. Created a multiplatform image to work with all current Dell hardware platforms.

Managed the Dell preferred vendor relationship which provides substantial discounts for institutional and personal purchases for a number of standard desktop and laptop computer configurations from Dell. These prices result in substantial savings for the University and represent an average 15% savings over previous discounted prices. The preloaded USC software image improves IT security and reduces configuration time. The image includes Microsoft Office Professional, Virus Scan Software, all available security patches and critical updates.

Managed software licenses and software distribution, including cash sales, purchase requests, software inventory, CD copies, contract negotiation, tracking, and reporting. Licenses distributed included:

- SPSS – 750 licenses
- SAS – 920 licenses
- MiniTab – 228 licenses
- Notifylink – 56 licenses
- Ghost – 3384 licenses
- Adobe – 700 licenses

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

- A team of more than 100 UTS and IT staff worked during Opening Weekend (Fall Move-in) to help students connect to the USC Network from the residence halls. By Monday, 8/15/05, nearly 4,000 (3,892) students were reported as 'logged in successfully' to the University network out of the nearly 6,000 living on-campus. Remaining students were connected the week following Opening Weekend.
- Attended Residence Hall Association and Student Government meetings to pass out UTS information and discuss important announcements
- Participated in the 2005 Summer Orientation program and talked with 2,543 parents and students about computer recommendations, instructions and support.

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- Attended USC Scholars Day, Open House, Benefits Fair, Student Organization Fair and other on-campus events to promote IT at USC
- Worked with USC Human Resources to provide help for new University hires with IT support at University Orientation.

Enhanced the Pinnacle Call Management System

- Moved all billable services (i.e. specialized alarms, data circuits and voice services) associated with external vendors to the Pinnacle Call Management System. This consolidation allowed UTS to place all billing processes associated with communications into one system and provide customers with one monthly billing statement for all communications and network services.
- Since the implementation of the Pinnacle Call Management System in fiscal year 04-05, more than 20,000 tickets have been processed and closed through this system. The Pinnacle Call Management System consolidated all UTS work order processes associated with voice, voice mail, network and desktop support as well as long distance call rating.
- Organized the Pinnacle Management Team to provide oversight and guidance for workflow, work processes and procedures. Developed written procedures for processing calling cards, authorization code assignments and reactivations, account number changes, server support, infrastructure planning and consulting services.
- Began incorporating standard operating procedures utilizing the UTS standard procedures template and developed a workflow process diagram.
- Began discussions to implement the switch integration module to allow auto-updates of voice services and authorization code access from a work order to the telephone switch. This will ensure the synchronization of data between the telephone switch and the Pinnacle system.

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

- Added long distance and voice mail functions to accommodate changes made in the Pinnacle trouble ticketing system.
- Added new functionality for Columbia Campus Housing and Student Financial Aid.
- Added PDF forms for Human Resources administrative use to eliminate keying errors when completing forms to speed the updating of employee records. Added features to allow departments to complete PBP-4/5 for miscellaneous changes via the web. This new functionality assists departments in completing the PBP-4/5 for any changes that need to be made to an appointment. This solution provides a more efficient and effective way to make changes on current employees for the HR/Business managers and increased the accuracy of the information.

Provided support to the Hurricane Katrina relief effort

- Provided more than 1700 hours of support for the setup, operation, and maintenance of the emergency center for victims of hurricane Katrina located on the USC campus.
- Gathered over 70 donated PC's and printers, created multiple images for the different hardware platforms, prepared and delivered the PC's to the relief center, installed and configured a firewall and Intrusion Prevention Device for the new Katrina network and supported the center's computing needs.
- Provided and operated the ID Card Station and created approximately 2,500 ID Cards for people that evacuated to South Carolina.

GOAL 4: DEVELOP THE HUMAN RESOURCES WITHIN OUR ORGANIZATION

Participated in professional conferences and seminars including BlackBoard Users Conference, Educause 2005, Educause IT Security Boot Camp, Help Desk Institute's Higher Education Forum, inet.org Identity Management Camp, LISA/Usenix for UNIX systems administration, Microsoft Tech Ed, Paetec Pinnacle User's Conference, ResNet 2005 Conference, SC IT Directors Association, Southeast Regional BICSI conference

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Attended technical training required to support University applications including A+ Certification: Core hardware (part one and part two), Advanced Network Worm and Bot Analysis, Ant, Avaya G3R Switch Administration, Cisco CleanAccess Management Console training, CVS, Desktop application support and troubleshooting on the windows XP operating systems, Developing for Security, Eclipse, First Responder-nix, First Responder – Win32, Google Hacking and Defense, Hacker Techniques, Exploits and Incident Handling, Hibernate, J2EE, Java, JDBC, JSP, JSTL, JUnit, Linux System Administration, Mac OS X v10.2: Introduction, Mac OS X: Introduction, Mac OS X: Transition, Microsoft Security, Microsoft Active Directory 2003, Microsoft Active Directory Infrastructure, Microsoft Exchange 2003, Microsoft Desktop Deployment Hands-On Lab, Microsoft Windows 2003 Server, Microsoft Windows Operating Systems, Microsoft Windows XP Professional, Netware 5.1 System Administration, Oracle, Packeteer, Pinnacle, Resolving Hardware, Print, and Network Connectivity Issues on the Windows XP Operating System, Reverse Engineering Malware, SANS Intrusion Detection In-depth, Struts, System Forensics, Investigation and Response, Tomcat Wireless Configuration training, XML.

Attended professional development training on business processes and management skills including Frye Leadership Institute, Project Time and Cost Management, Advanced Project Analysis and Control, Project Time and Cost Management, Associate Public Manager, Communication: It's Everyone's Business, Privacy of Educational Records (FERPA), Accessibility, SCGMIS workshops, Successful Supervision.

Obtained technical and professional certifications including State Certified Senior Project Manager (SCSPM), Certified Business Continuity Professional (CBCP), Microsoft Certified Professional, Dell Certified Warranty Repair Technician Certifications for Dimension Desktops, OptiPlex Desktops, Dell Precision Workstations, Dell Notebooks, and Dell Servers and Storage, Polycom Videoconferencing Engineer Certification, GIAC Certified Intrusion Analyst, GIAC Certified Incident Handler, GIAC Certified Forensics Analyst , GIAC Reverse Engineering Malware, Microsoft MCSE certification.

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

Initiated a disaster recovery project to address incident and disaster recovery for all enterprise solutions. Completed several project objectives during 2005:

- Conducted a mock disaster drill to establish a baseline for UTS ability to recover from a disaster. Subsequent analysis yielded a series of recommendations to be implemented over a period of 12-18 months.
- Conducted informal business impact analysis (BIA) with UTS management staff
- Collected contact names, addresses, phone numbers, emergency contact info for all UTS staff, and created organizational charts for UTS areas
- Documented recovery items (things that exist but need to be collected for offsite vaulting or processes that exist but need to be documented and kept in a repository)
- Documented recovery issues (things that need to be mitigated in order to recover from a disaster),
- Documented prevention issues (things that need to be mitigated or procedures developed to avoid an incident or disaster).
- Worked with the head of USC police and Facilities to create a solid work relationship, awareness and understanding of recovery requirements and accomplish prevention measures and maintenance for the computer room.
- Established a process methodology by which all internal work instructions and processes are documented in a process repository. Formally adopted 18 procedures and completed drafts for 44 procedures. Hired an additional person to focus on documenting operational processes and to accelerate the completion of this effort for disaster recovery.
- Worked with Facilities Management, Health & Safety and Law Enforcement & Safety to initiate a series of disaster prevention steps:

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- Inspection and repair of computer room floor tiles and stanchions that support the raised floor
- Install UV lights in the air handlers to kill mold and initiated scheduled facilities maintenance
- Rebuild/replace the fresh air return unit for the computer room to prevent mold and better maintain the computer room.
- Tested the backup chillers to ensure the units function in the event of a primary failure. Initiated a monthly testing program.
- Scheduled numerous repairs and upgrades to facilities, including a new roof on the outside electrical and HVAC room for 1244 Blossom.
- Developed an ongoing HVAC renovation program to ensure proper system operation, clean air, leaks are discovered and fixed before becoming a threat.
- Evaluated air quality, mold, mildew, asbestosis and particulate matter in the annex. Air inside was found to be of better quality than air outside the building on the top floor. Similar testing is underway in the computer room.
- Installing water detection systems to protect the Computer Room from damaging leaks due to air handlers and steam tunnel.

Improved internal business procedures

- Established a Project Management Office for UTS projects. UTS has adopted a project management methodology based on the PMI Project Management Body of Knowledge (PMBOK). UTS project managers have been working with the SC State CIO office to institute best practices in project management among state agencies. Five University Technology associates have been certified as Senior State Project Managers.
 - 25 Active Projects
 - 17 Opened in 2005
 - 6 Projects Closed in 2005
- Begun initial groundwork for establishing ITIL standard practices for IT services management.
- Established a source control repository for non-mainframe applications and systems software.
- Defined and implemented change management. All modifications to UTS systems and network infrastructure must be scheduled, documented with test and back-out procedures, and implemented during planned change windows.
- Defined and implemented root cause analysis (RCA). Any unplanned outage must be analyzed to understand the root cause of the system failure and to implement proactive measures to ensure that the problem does not occur again.

Managed the State IT Plan for USC for fiscal year 2006/2007 for requests totaling \$10.9 million. Facilitated one-time IT approvals for research equipment and administrative purposes over \$2 million.

Researched digital music options for students and provided a website that documented findings. Worked with University Housing, other staff within the Division of Information Technology, network managers, and student groups to gauge the interest level of the University community.

Implemented a wider usage of mobile devices for faculty and staff on the USC campus to be used for email, web browsing, phone and calendaring. Provided PDA support (for example, installing GroupWise). Created a new website for mobile devices.

Developed the IT Connection system to facilitate communication from University Technology Services regarding planned outages, unplanned outages and general information. Conducted surveys to determine the level of communication desired by students. The system is scheduled to move into production in March 2006 and will be integrated with the new Metrics and Monitoring tool.

Continued support and development of the Extended Graduate Campus (EGC) Course Request System. Phase II of this system was completed and replaced the use of Microsoft Word Documents with an online system for administering contracts for the teaching of courses.

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Continued support and maintenance of the DEMS course management system for Distance Education. Created a web based prototype to help alleviate double entry of certain course information.

Continued support and development of the assessment tool for school programs to allow colleges to create, edit, and submit the annual program assessment plan that adheres to the SACS standard. The Assessment Plan Composer has been installed at USC Upstate, USC Beaufort, Spartanburg Technical College, and Coastal Carolina. Our next installation will be at USC Sumter.

Supported 24x7 computer operations which included:

- Upgraded support for all UTS data storage systems IMS, DB2, and systems security. Includes support for Decision Analyzer product(upgrades and enhancements), 577 IMS databases, 216 user defined DB2 databases and DB2 system tables, Over 3,000 Application programs recompiled as a result of necessary business and academic enhancements including regulatory requirements.
- Provided support for 4,570,931 line of COBOL code in 6,853 members. 259,149 lines of Assembler code in 871 members. 454,955 lines of JCL in 7,601 members and 110,419 lines of DA code in 938 members. All systems are accessible and restorable from libraries with 100% recoverability.
- Mainframe Scheduled uptime verses Actual uptime – 99.7 percent.
- Tapes mounted (both real and virtual) – 724,300.
- Batch Jobs Processed – 420,448 of which 221,582 were Production jobs. .
- Scanning services completed scanning of over 280,000 forms including 1980+ graders, 150 sets of teacher evaluations and 160 other form batches.
- Upgraded documentation and job scheduling system software (Docutext and JobScan) to improve ability to maintain technical documentation.
- Served as liaison between vendor and for microfiche services:
 - Processed over 9800+ original microfiche
 - Processed 3300+ duplicate microfiche
 - Converted all files transferred to secure FTP.
- Maintained mainframe, Solaris and UNIX machines supporting mission critical application such as DNS and LDAP.
- Provided online report viewing through OnDemand for more than 3,894 reports.
- Provided backup services for over 130 servers through Harbor tape backup system and 14 servers on the Veritas backup system. Converted all Windows servers to be a host initiated backup to ensure backup and recovery. Provided backup-only SLA for 37 departmental servers.
- Applied maintenance upgrades and installed new versions to mainframe operating systems and subsystems supporting the University, including z/OS and z/VM and all associated subsystems.
- Upgraded the DB2 Database software to version 8. All production DB2 database regions were upgraded to the new version of DB2. The upgrade was required to support the new release of Content Manager and On-Demand.
- Upgraded Xpediter and File Aid for the programmers
- Provided campus time servers, which can be used to synchronize computer clocks to a known accurate source.

Supported EVM (Enhanced Voice Mail) to allow 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 and eliminates the need for a fax machine to receive faxes.

Supported the NotifyLink server which allows USC employees on campus to receive their GroupWise email on a handheld device such as a BlackBerry, Treo, or Windows Mobile PDA.

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

- Supported approximately 4000 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.
- Designed and implemented a call center application for USC Habla Project which supports DHEC and DSS customers.
- Reprogrammed the Service Observer application for the USC Development Office and the Institute for Public Service and Policy Research. Increased both call centers to 30 agents.
- Renegotiated the Avaya maintenance contract to reduce annual maintenance by \$167,000 per year.
- Installed a new telephone system for the President's House and integrated with the University's main telephone system.
- Assisted USC Beaufort campus with programming 911 services.

Supported the 24x7 operations of the University network

- Supported more than 1225 network devices.
- Supported more than 46,500 available network connections (36,000 active).

Provided Desktop Support to students, faculty and staff

- Processed hundreds of requests to allow gaming devices to access the student network.
- Provided service and support for more than 7,500 students living in on-campus housing. Supported the Cisco CleanAccess software distribution and installation, configuration, and login for secure connectivity to the network, anti-virus protection, and general computing at USC.
- Supported more than 45 departments and 1500 users under Desktop SLA. Supported Microsoft Windows and Macintosh desktop operating systems.
- Completed the migration of all SLA departments to Windows XP.
- Upgraded the computers in the TRIO lab to Windows XP which included the creation of four new images.
- Migrated SLA customers from Software Update Service (SUS) to Windows Server Update Service (WSUS). This provided customers with updates to the Windows OS as well as updates to other Microsoft products.
- Completed PC replacements for the following departments; HR, Admissions, UTS, and the College of Nursing.
- Supported Admissions with the creation of their satellite office on Senate Street.
- Assisted with the relocation of users in support of the renovation of the Osborne building.
- Moved Parking and Vehicle Management to the Consolidated Server
- Assisted with the relocation of users in support of the renovation of the Summer Programs office.
- Provided support for the growing PDA / GroupWise Notify Link program.
- Added Health & Safety to the Desktop SLA.

Provided 24x7 service and support for Servers

- Supported more than 170 servers under Server SLA
- Supported more than 35 NetWare file servers running University systems such as: Consolidated File and Print servers, GroupWise, LDAP and client Authentication, Software Distribution, TCL Public Labs and FTP Services.
- Supported more than 65 Windows 2000/2003 servers running University systems such as: ITAMS, Data Warehouse, CarolinaCard 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 more than 70 Linux/UNIX servers running University systems such as BlackBoard, SPAM filtering, firewall services, University web pages, security services, student email, Oracle development services and the library Millennium system.
- Provided ongoing supported of three Macintosh servers.

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- Supported more than 125,000 user objects in the NDS Tree for faculty, staff, and student authentication. Verified the version of Directory Services on 90 servers in the NDS Tree and performed necessary updates.
- Supported more than 80 network administrators on server, desktop, backup, and GroupWise issues.
- Installed and tested SUSE Linux Enterprise Server v9 in the test lab.
- Implemented Microsoft Windows Software Update Services (WSUS) to keep servers patched and secure.
- Implemented a Microsoft Windows Terminal Server to allow secure remote connectivity to the Windows server environment in the UTS Server Farm and allow secure remote management of the servers.
- Implemented a secure FTP server in the Data Center providing compliance with HIPPA and FERPA requirements.
- 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.
- Upgraded and installed servers in support of the following areas and projects:
 - Law Enforcement and Safety server upgrade
 - Development Call Center (Ruffalo Cody) upgrade
 - Acquisition and installation of 2 servers for Breeze
 - Acquisition and installation of 41 servers for the AD/Exchange project
 - Acquisition and installation of 7 servers for the UTS/USC web server project
 - Acquisition and installation of 2 new servers for the Pinnacle Billing system
 - Acquisition and installation of 5 servers for BlackBoard
 - Acquisition and installation of 2 servers for ReportNet
 - Acquisition and installation of 1 server for Content Manager
 - Assisted in the move of Parking (staff and data) to consolidated server after the demise of the Parking departmental server
 - Assisted in the move of Nursing (staff and data) to consolidated server after the demise of the Nursing departmental server.

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

- Supported more than 114,500 accounts, 69,500 mailboxes, 39,500 active users.
- Processed 80,000-200,000 pieces of email daily

Supported SPAM filtering for University email

- Of the 1,200,000+ emails received daily, spam management is rejecting an average of 78% of the email at the border and then marking an additional 69% 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.
- On average, 400 messages per day are quarantined from the virus scan.

Supported the GroupWise email system

- Supported more than 7000 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 3,500. This number has decreased due to the filtering that is occurring at the border of the network.

Provided service and support for 11 departments supported by the Bulk Email subscription service. 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.

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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 200 used specifically as classroom complements.
- 8,000-50,000 messages per day.
- Performed semester-end class list archive cleanup and prepared for spring 2006 removal of old lists.

Supported the 24X7 operations of the University web systems and services

- Maintained the hardware, system and security of the main USC web server.
- Redesigned the main UTS web presence with a new look and a database driven content management system. This allows specific users to maintain their part of the portal with an administrative backend that eliminates the need to request changes through email.
- Developed new web sites for a variety of programs on campus including:
 - Center for Teaching Excellence
 - Teaching Services and Support
 - Administrative Employees Club
 - Women's Club
 - Innovista
 - Grant – Gamecock Research Administrators Network Training
 - Environmental Research
 - Office of Undergraduate Research
 - School of Nursing – Connections site for moms and their teenage kids
 - OneCarolina
- Maintained University web sites and supported departmental requests for web development and intranet including:
 - Alumni Database
 - Business and Finance
 - Office of Information Technology
 - Budget Office
 - Campus Planning and Construction
 - Center for Child and Family Studies
 - Coliseum and Capitol Tickets
 - Children's Law Office
 - College of Education
 - College of Social Work
 - School of Law
 - Department of Chemistry and BioChemistry
 - Educational Leadership and Policies
 - Exercise Science
 - Facility Services
 - Health and Safety
 - Housing Services
 - Human Resources
 - Institute for Families in Society
 - Law Enforcement and Safety
 - Music Library
 - Nanocenter
 - Norman J. Arnold School of Public Health – Intranet and online tutorials
 - Office of PreProfessional Advising
 - Office of Program Evaluation
 - Office of Research
 - Parking and Administration
 - Printing Services
 - Post Office

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- University 101
- Faculty Senate
- University Foundations
- University Libraries
- Visitor Center
- Handled approximately 570 USC home page requests including requests for changes to headline news and featured sites; banner additions; any changes to the main sub-pages (colleges and schools, faculty and staff, a-z index, etc.).
- Handled approximately 160 Server support questions including help with technical issues, such as Feedback Forms and statistics.
- Handled approximately 85 requests to create/delete user accounts and create/delete directories
- Handled approximately 240 Email requests from www@sc.edu and searchusc@sc.edu including emails related to technical issues (a broken link or a page not working) and emails related to difficulty finding information on the Web (the "help, I can't find how to get a transcript" type of emails).
- Handled approximately 80 USCMAP updates and emails (uscmap@sc.edu) including requests to change building information in the map database and requests from people asking where certain buildings are located.
- Updated University Technology Services websites to increase functionality' and improve navigation. Pages updated include various departmental pages, Services and Support, News and Information, UTS Help Desk and the creation of the Division of IT website.

Developed a system for Law Enforcement and Safety to allow internal and external mapping program for tracking crimes. Worked to develop a site for the logging of faculty/staff and student personal property to provide campus police with a mechanism for matching recovered items with the rightful owner.

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 8TB of storage (Total storage now 16TB). Storage access also now includes iSCSI access for those departments on campus who want to take advantage of enterprise class storage and still maintain their server systems local to their departments. There are a total of 54 servers currently attached.

Enhanced the Patron ticketing system in the Colonial Center to establish and maintain secure communications with Paciolan Headquarters.

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

Represented USC at SC ATAC (SC Assistive Technology Advisory Committee). Discussions included Web Policy, Outreach, Training, and State Government Webmasters.

Participated on a variety of University committees including University Enrollment Council, University Information Technology Council (UITC), Live!Innovista Committee, Network Managers, GroupWise Managers, Opening Weekend committee, Human Resources IT Curriculum Committee, Distance Education Advisory Committee, Mac Users' Group, Faculty Academic Support Team.

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

- 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

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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.

- 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.
- 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. Creation of the airport facility guide was completed and published.
- Continued support of the public complaint system for 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. Complete 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
- Worked with the SC Department of Education and collected the data, scored and printed the SC Readiness Assessment Reports for SC Schools.
- Continued development of the StationView product for the management and identification of Geodetic horizontal and vertical control points in South Carolina.