

Be IT

The Office of Information Technology



2012 OIT Awards for Excellence winners: Twanda Baker, Stan North Martin, Candance Warren

2011-12 Annual Report

Our Story

In November 2007, NC State's Office of Information Technology (OIT) was created from the consolidation of the two former central IT units for academic and administrative computing. In September 2008, the university hired Marc I. Hoit, Ph.D., as its first Vice Chancellor for Information Technology and Chief Information Officer (CIO). Former Chancellor James Oblinger charged Dr. Hoit to develop and execute a progressive information technology strategy for the university.

Within a few months of his hire, Dr. Hoit initiated a three-phase strategic planning process to improve the use of information technology as a driver for change. Phase I was the development of a Strategic Operations Plan for the central IT organization in order to make it more efficient, effective and responsive to its customers. Starting with its new vision and mission statements, OIT developed five Operational Goals along with broad strategies for achieving them.

In January 2010, OIT, in partnership with other campus IT organizations, initiated Phase II – improving IT Governance. A new inclusive IT Governance Structure model was created during the fall of 2011, bringing OIT and college/departments IT efforts together like never before. This new structure allows university IT to focus on five strategic areas: strategic alignment, value delivery, resource management, risk management, and performance measurement.

At its highest level, the IT Governance structure comprises the Vice Chancellor for Information Technology (VCIT) and Chief Information Officer (CIO), who receives advice and counsel from the IT Leadership Committee (ITLC). Along with the VCIT/CIO, the ITLC is comprised of the university's Chief Financial Officer; the Provost; and the Vice Chancellor for Research, Innovation and Economic Development. At the next level, in an advising role, are the IT Strategic Advisory Committee (ITSAC) and the Campus IT Directors (CITD) Committee. The ITSAC has a functional focus and it advises the VCIT/CIO on matters of policy, funding and business applications. It has the following six subcommittees that provide input to both itself and to the CITD: Academic Technology, Client and Application Support, Enterprise Applications, Infrastructure, Research Computing, and Security and Compliance. The CITD has a technical focus and it advises the VCIT/CIO on matters of architecture and infrastructure.

This summer, OIT and members of the newly developed IT Governance structure will begin Phase III - the launch of a comprehensive and collaborative NC State Strategic IT Plan.

The three-phase strategic planning process is another significant step in OIT's efforts and challenges to create strategic IT goals and underlying structures, tools and systems to help manage the university's complex IT environment today and in the future. Many of these efforts are incorporated in this fiscal year's 2011-12 Annual Report.

Our Units

With a staff of more than 250 people and a budget exceeding \$49 million, OIT is organized into eight units:
Business Services; Communication Technologies; Enterprise Application Services;
Infrastructure, Systems, and Operations; Outreach, Communications and Consulting; Shared Services;
Security and Compliance; and Technology Support Services.

Our Vision

Be the IT organization that people seek out as a partner for providing visionary strategies, creative solutions, objective information, and effective and efficient services in order to help them achieve their mission and goals.

Our Mission

To provide nimble, effective, efficient and collaborative IT services, solutions and strategies in a timely and helpful manner that assist the university, state and nation in achieving their strategic goals.

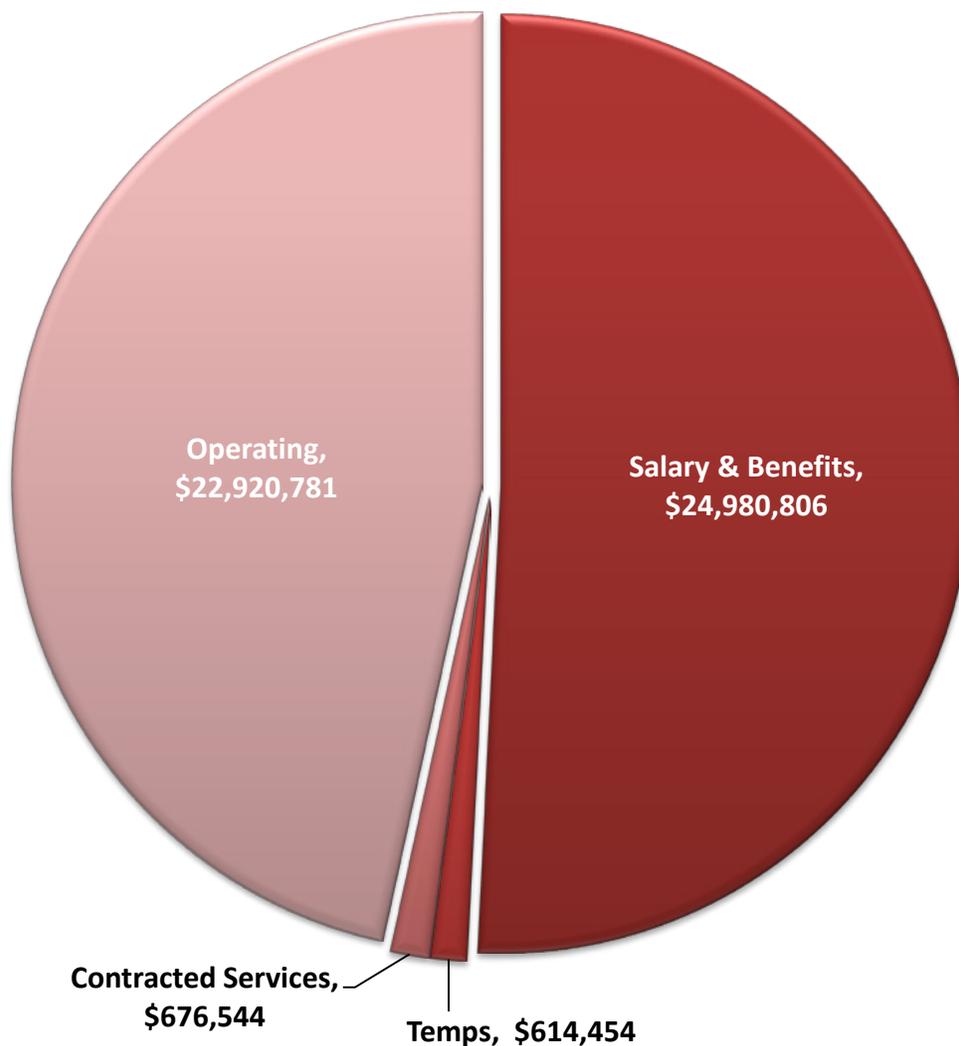
Budget Summary

OIT's budget for fiscal year 2011-12 was approximately \$49.1 million, with salary and benefits plus operating cost accounting for more than 97% (\$47,901,587) of the budget. The remaining expenditures included temps, \$614,454; and contract services, \$676,544.

Budget Reduction

The 2011-12 fiscal year and previous years' budget reductions continue to impact IT resources – both funding and personnel. OIT's portion of the mandated campus budget reduction for the 2011-12 fiscal year totaled \$2,380,799 or 10.1% of its state-appropriated continuing budget and resulted in the elimination of 22.25 FTE, which had a significant impact on its services. A number of services – Help Desk hours, consulting and Web services, classroom design support, and administrative support – were reduced; data centers had less staff coverage; security services were impacted; upgrades, enhancements and new services were delayed; and necessary equipment refreshes were postponed.

Fiscal Year 2011-12: Total \$49,192,585



Collaboration, Community and Learning



The Google Project Team hunkered down in “The Google War Room” (B3 Conference Room of Hillsborough Building) from early in the fall semester until “Google Day” in November.

NC State goes Google all the way!

Nov. 30, 2011, wasn't just any day at NC State. It was “Google Day,” which marked the culmination of a multi-year effort to migrate all university students, faculty and staff to a single email and calendaring system.



On that day, university employees remaining on the Novell GroupWise email system were migrated to Google Apps @ NC State, joining the tens of thousands of students and those faculty and staff who had previously moved to Google from

the Unity/Webmail system. Approximately 109,000 Unity/Webmail accounts and 7,000 GroupWise accounts were migrated.

Significant post-migration work continued throughout the year, including ongoing Gmail, Google calendar and Google Docs training; mail relay infrastructure updates; rollouts of new functionalities such as Google Drive; and removal of the Unity/Webmail and GroupWise systems from service. A Web Registry tool was also developed to request, manage and inventory Google generic accounts, Google calendar resources and Google groups.

OIT, University Communications to develop internal communications systems

OIT and University Communications are spearheading a multi-step effort to develop an effective, core internal communications system to enhance the distribution and impact of internal community communications. OIT will lead two of these efforts: a formalized email process for major internal campus communications and a unified central campus calendaring system based on Google Calendar. University Communications will direct a review of *The Bulletin*, NC State's internal faculty and staff newsletter to determine how this staff communication channel can be maximally effective and will also develop a Communicator's Toolbox, a comprehensive listing of campus communication resources.

You might as well get credit for it

A partnership between OIT and the McKimmon Center for Extension and Continuing Education led to the implementation of Destiny One, the university's first enterprise system for the management of non-credit course and certificate offerings.

NC State also became the first Destiny Solutions customer to implement the Conference and Event Management module last spring.

2012 FOSS Fair fares well

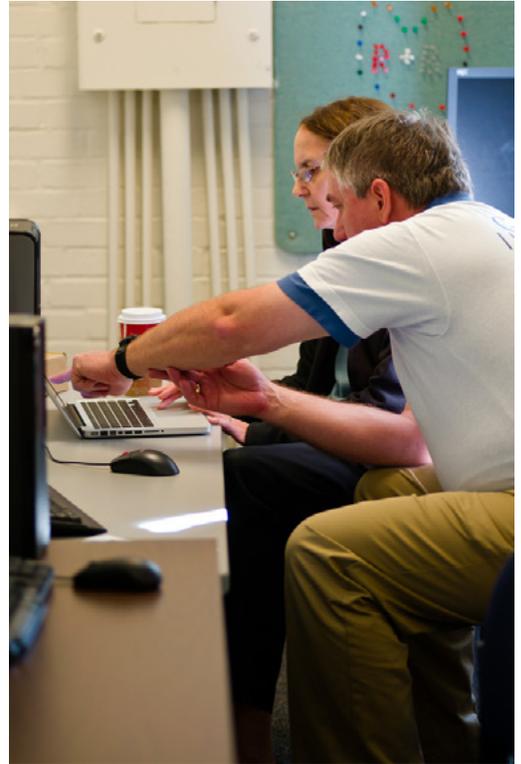
More than 70 people showed up for this year's Free and Open Source Software (FOSS) Fair.

Hosted by OIT Campus Linux Services and Red Hat Inc., the unconference style event ignited participants' interest in the latest free and open source software as well as helped to build up a community of open source software users.

Collaboration, Community and Learning

Additional 2011-12 Highlights

- **Web Hosting Services** – Introduced Web Hosting Services, providing campus units with a more cost-effective option to host their Web presence and to increase their flexibility and speed of deploying dynamic, database-driven website applications such as WordPress and Drupal. Features of the service include: an NC State-hosted URL, 10 GB of space, nightly backups, unlimited bandwidth and databases, and cPanel and Fantastico for administration and installation. Supported more than 75 unique cPanel accounts for OIT and other campus units.
- **ClassTech** – Added 10 new “110 classrooms” and now supports a total of 150 (110-type) classrooms. Oversaw the refresh of three conference spaces in the Park Alumni Conference Center.
- **Software** – Provided 10,074 software downloads to campus users (up from 9,311) and reduced software maintenance costs by \$234,686 for a net annual savings of \$131,956.
- **SAS** – Coordinated a new SAS licensing model, reducing the number of managed SAS sites.
- **Optical Mark Reading (OMR)** – Processed 220,000 test/quiz sheets.
- **Free Training and Workshops** – Offered 16 workshops with approximately 920 participants. Provided more than 20 custom classes.
- **Student and Employee Orientation** – Conducted 20 student presentations and 19 Info Fair sessions and produced the *Computing @ NC State* newsletter distributed to students and their parents during the 2011 New Student Orientation to educate them about IT resources and acceptable use. Conducted 41 presentations and three Quick Start sessions for new employees.
- **OIT News** – Published *OIT News*, the monthly IT e-newsletter for staff and faculty. Posted regularly on the OIT home page and from OIT’s Twitter account, with an average of 46 tweets per month from @ncsu_oit.



Everette Allen of OIT helps a campus user learn Google Apps @ NC State during Google Day!



Accessible Classrooms

Using the Crestron Classroom Control System, NC State graduate student Sina Bahram (left) and Ron Jailall (right) of OIT ClassTech are testing an accessible interface to allow people with visual disabilities to control equipment in campus ClassTech classrooms.

Campus gets latest 802.11n Wi-Fi technology

OIT has begun moving the campus wireless infrastructure to the latest Wi-Fi technology – 802.11n. This move was spurred by an increase in the number of wireless devices connecting to the campus network and an increase in bandwidth usage. The new wireless access points are 802.11n, which allows 802.11n-capable clients to connect at a faster data rate (up to 300 Mb/s depending upon configuration and the radio frequency band). The legacy access points have a maximum data rate of only 54 Mb/s.



To accomplish this task, OIT has divided the campus into five zones for wireless access point replacement. The initial campus rollout, on May 11, included facilities on the College of Veterinary Medicine campus. Approximately 85 percent of all campus wireless access points will be converted this summer. The last zone, Centennial Campus, will be converted during fall break.



Moving to IP

OIT continues its progress on Phase II of the campus IP telephony project.

Slated to be completed this summer, the project switches NC State's telephony service from AT&T-supported Centrex to OIT-supported Cisco Call Manager, resulting in on-going savings for the university.

During Phase II, more than 5,000 AT&T digital telephone lines will be converted, and the actual telephone sets currently used by customers will be replaced by Cisco Internet Protocol (IP) telephone sets. Customers will receive a new VoIP phone if they now have a Meridian telephone or if someone who answers their calls has a Meridian telephone.

OIT is funding this effort and customers will not have to pay for the replacement telephone sets.

New Internet protocol tested at NC State

NC State was one of the first 10 universities worldwide and the first in North Carolina to agree to test the new Internet Protocol version 6 during IPv6 Day on June 7, 2011. Current Internet Protocol (IPv4) addresses are projected to run out soon.

OIT has been planning the imminent campuswide deployment of IPv6 and made several websites accessible via IPv6 for the "World IPv6 Launch" held June 6, 2012. Sponsored by the Internet Society, both events were held to encourage organizations to permanently deploy IPv6.



Avoiding digital traffic jams with a network right-sized for bandwidth-intensive work

OIT recently upgraded the campus network backbone, including two data centers, to support up to 40 Gb/s of network traffic.

With maximally flexible architecture, a cost-efficient yet effective network can be maintained by providing a right-sized network connection to users ranging from 100 Mb/s, which is sufficient for most general use, and up to 10 Gb/s for specific bandwidth-intensive use. This upgrade is important and timely as more wireless than wired devices routinely connect to the campus network. Altogether, the campus network now supports connectivity for more than 120,000 devices, almost three times the number connected a few years ago.

Additional 2011-12 Highlights

- MPLS – OIT deployed multiprotocol label switching (MPLS) to provide the university the ability to define entire virtualized network architectures for units and colleges, data centers and cloud computing environments over the campus network infrastructure. On-campus subnets and the systems they contain can be moved into different virtual networks with a simple configuration change. ComTech is currently piloting MPLS and will offer the new service to campus colleges and units soon.
- Wired Outlets and Ports – Wired outlets grew from approximately 36,000 to more than 37,000. Available wired network ports grew from approximately 67,000 to more than 71,000. Unique devices on the network grew to 59,500 wired and more than 62,000 wireless.
- UNC CAUSE – ComTech provided a wired and wireless network for the 2011 UNC CAUSE Conference.

Administrative Services & Support

It's all in the upgrades!

Human Resources & SIS

This fall, the campus community will see a new, improved Human Resources (HR) System as well as a new Student Information System (SIS). Both systems are being upgraded on Oct. 1 to maintain vendor support.

Human Resources and OIT will upgrade the current HR system to version 9.1, which will provide a new workflow-driven employee hiring process. New self-service features will include multiple account options for direct deposit of paychecks and paycheck statement printing enhancements.

At the same time, Registration and Records, the Graduate School and OIT will be upgrading SIS to version 9.0. This

upgrade will feature an enrollment wizard and an advisor dashboard. In addition, OIT is partnering with the College of Engineering Web Development Team and other campus IT units to provide mobile support for some SIS functions, such as class schedule and grade tracking.

Financial System

In March, the Financial System was upgraded from version 8.9 to 9.1 in a joint project with Finance and Business, OIT and campus customers. The upgrade maintained vendor support from Oracle and offered efficiencies in processing and sharing of electronic attachments, improving electronic workflow.

The upgrade also certified compatibility with more browsers, desktop applications

and operating systems and included a new Capital Asset Management (CAMS) application. The Surplus Request System was also updated and a new Chartfield Request System was implemented to eliminate paper request forms and improve efficiencies.

A privacy-preserving portal

Last October, OIT upgraded the university's PeopleSoft system to PeopleSoft Enterprise Portal 9.1 and PeopleTools 8.51 and "Shibboleth" the system.

Shibboleth is an open-source project that provides single sign-on capabilities, allowing sites to make more informed, secure and privacy-preserving decisions when connecting users to applications both within and between organizations.

WolfCopy enhancements — no longer "in the mail"

OIT provided key resources for project oversight, testing, and planning in implementing the ability to scan invoices and purchasing card (Pcard) statements into the Singularity system using WolfCopy multi-function copiers.

Singularity then sends the images electronically to Accounts Payable and Purchasing, reducing processing time (via campus mail) and freeing up central office resources for redeployment.

New student-accounted service

Also, WolfCopy, in conjunction with OIT, introduced a new student-accounted service for WolfPrint printers. Students now pay for their printing using the AllCampus card system instead of the infiNET QuikPAY system. Accounted printing services are now managed using PaperCut print management software, and

all printing funds in students' previous accounts were transferred into PaperCut as print credit.

Singularity

NC State continues with its multi-year project to adopt Singularity as its enterprise imaging product, which supports Accounts Payable, Purchasing, Registration and Records, Graduate School, Human Resources, Cashier's Office, Research Administration, College of Education, and other units on campus.

OIT converted more than 500,000 Registration and Records documents from DocBox to Singularity. With the new system, new document types can be processed, and 125 years of vault transcripts are available electronically.

Adapting to Daptiv

OIT began trying on Daptiv, its new portfolio and project management system. A stitch here and a tuck there are under-way to tailor the system to best fit organizational use.

The Daptiv training team pieced together five audience-specific Daptiv training sessions plus four general participation sessions and accessorized its Portfolio and Project Management website with help docs, a glossary, FAQs, and a training video. Daptiv also comes with appliques of resource management, time and expense accounting, and document management.

Additional 2011-12 Highlights

- Data Marts – Developed projects that gather data from many disparate university resources to provide meaningful analysis and to help the campus make intelligent business decisions and improve academic success.
- Advance System – Upgraded the Advance System to Sun-gard's Advance Web and Oracle 11g, enabling Web access.
- Kaba – Implemented the Kaba time clock system, replacing the Kronos System and providing Web-enabled time-punching.
- OnBase – Began the implementation of Hyland's OnBase imaging platform in the College of Veterinary School's patient intake system.
- SEVIS – Implemented the SEVIS module within SIS for Homeland Security reporting, replacing fsaATLAS.



Igniting a spirit of shared responsibility

Cyber security is everyone's responsibility and the key message delivered at the U.S. Homeland Security's Stop.Think.Connect. Campaign Cyber Citizen Forum. Last October, during National Security Awareness Month, OIT partnered with the Department of Computer Science to host the forum to initiate dialogue about daily online habits and protection from the four main issues affecting people online: cyber bullying, cyber predators, identity theft, and fraud and phishing. OIT sponsored several security awareness workshops during National Security Awareness Month.

Peer-to-peer file sharing!

Weighing the personal & legal risks

For the first time last year, OIT sent notices to both NC State students and employees alerting them of the personal risks and legal consequences involved with unauthorized distribution of copyrighted materials, including illegal peer-to-peer (P2P) file sharing.



From July 2011 to present, the university received 2,465 copyright infringement notices related to illegal file sharing.

The campus community was informed that while P2P file sharing software, itself, may be lawful, sharing copyrighted files (movies, music, video games, other files, etc.) without permission is not. Downloading or uploading even small parts of a copyrighted work without permission constitutes a copyright infringement.

File sharing also creates the substantial risk that others will gain access to confidential data on users' computers or will plant destructive computer viruses that can possibly spread across the university's network.

New security framework to protect university assets

To comply with a recommendation from the University of North Carolina General Administration (UNC-GA), NC State and other system institutions are developing a comprehensive security framework based on ISO 27002 information systems standards.

OIT submitted to UNC-GA an initial gap analysis to determine the additional documentation necessary for compliance. Upon completion, the security framework will provide the means to secure university assets and information as well as provide consistent guidelines for internal and state auditors to follow.

Additional 2011-12 Highlights

- Payment Card Industry Data Security Standards (PCI DSS) – Avoided a higher audit category for PCI DSS compliance because SunTrust, the university's merchant bank, declared University Dining as a separate Merchant Chain.
- PCI/DSS v.2.0 – Completed a line-by-line gap analysis with scope definition.
- PCI DSS monthly compliance monitoring for credit card merchant accounts – Increased from 216 to 283. New accounts increased to 75.
- Recording Industry Association of America (RIAA) Ranking – Dropped from the top 25 to 91 in copyright violation notices.
- Click-Wrap – Developing software license Click-Wrap Risk Assessment Tool to assess risk of many software titles and to simplify the licensing process.
- Public Record, Litigation Hold and eDiscovery Requests – Remains at 18.
- Information Security Services and IT Policy/Compliance – Formed new organizational structure in Security and Compliance.
- Data Sensitivity Framework – Continued review to identify and classify sensitive data.
- Financial Audit – Coordinated information systems portion of 2011-12 State Auditors Financial Audit. There were two recommendations.
- Mobile Devices – Facilitated development of requirements and guidelines.
- Security Incidents Reviews/Exercises – Assisted with 11 incident reviews, resiliency tests/exercises to improve internal operational efficiencies.

Advanced Research

Protecting public health and safety with NCB-Prepared

Through NC State's Virtual Computing Lab (VCL), OIT continues to provide the cloud-computing infrastructure for the North Carolina Bio-Preparedness (NCB-Prepared) Collaborative project. A federally-funded project, NCB-Prepared provides North Carolina with a research system to quickly detect and analyze biological threats to public health and safety.



With NCB-Prepared funding, OIT has enhanced its hardware capabilities to handle increased data throughput as well as incorporated NCB-Prepared requirements in the VCL development work.

NCB-Prepared is led by UNC-Chapel Hill, NC State and the SAS Institute with participation by the N.C. Division of Public Health and the Veterans Affairs Medical Center in Durham. The project's co-principal investigators are Marc I. Hoit, Ph.D., NC State's vice chancellor for information technology and chief information officer, and Dr. Charles B. Cairns, UNC-Chapel Hill Department of Emergency Medicine's professor and chair.



CentMesh is new outdoor, experimental wireless network

NC State's Centennial Campus recently implemented "one of the country's first large-scale, outdoor, experimental wireless networks using open source software."

The Centennial Outdoor Wireless Mesh Network Testbed for Research and Education (CentMesh) began operating in February and is made up of 14 wireless access points positioned on campus.

OIT re-designed much of the existing Centennial Campus outdoor wireless coverage and partnered with the Institute for Next Generation IT Systems (ITng) and its constituent Open Systems Collaboration and Research (OSCAR) Lab and Secure Open Systems Initiative (SOSI) in the installation and maintenance of the CentMesh network.

HPC and VCL usage

During this fiscal year, OIT expanded the utilization of High Performance Computing (HPC) and the Virtual Computing Lab (VCL) to provide more support for faculty while developing leading-edge cyber infrastructure models for networking, visualization and analytics. Other highlights include:

- **VCL Apache** – OIT's VCL Apache open-source project has graduated from the incubator phase to a Top-Level Apache Software Foundation Project, recognizing OIT's conception of the idea of cloud services before the term "cloud" was so ubiquitous. Top-level status is given to projects that have matured to being accepted and supported by a diverse open source community.
- **Reservations** – Through April 2012, the VCL had more than 180,000 reservations this fiscal year, using more than 925,000 hours by nearly 16,000 unique users.
- **CPU Hours** – Through March 2012, HPC service had delivered 9.5 million CPU hours to 124 projects and 536 unique users. The HPC service also added generally available compute nodes with low latency, high bandwidth InfiniBand links between nodes. Previously, this level of capability was only available to a few HPC partners who had purchased this specialized hardware.
- **VCL Code** – Version 2.3 of the VCL code is expected to be released before the end of this fiscal year.

Technical Support

New NC State Help Desk model, new operating hours

The NC State Help Desk transitioned to a new Call Center model with a new student-staffed Tier 1 component.

This new model provides improved availability of agents, so that clients are less likely to end up in a hold queue. From July 2011 through March 2012, 91 percent of calls to the Help Desk experienced no waiting time.



In addition to its current responsibilities, the Help Desk will now be providing support for OIT's email and Google Apps services.

New Hours

In order to meet budget reduction goals, the hours for the Help Desk were reduced from 7 a.m. to 6 p.m., Monday through Friday, to 8 a.m. to 5 p.m., Monday through Friday. Options for IT support outside of regular operating hours include email submission of questions, Web-based tools, and searches in the Help Desk knowledgebase (via help.ncsu.edu).

Mediasite captures classroom lectures for university faculty, students

OIT and Distance Education and Learning Technology Applications (DELTA) partnered to deliver expanded classroom capture solutions to the campus community using Mediasite, a rich-media capture system.

Mediasite is a combined hardware and software system that allows faculty to automatically or manually record audio, video and content from other peripheral devices from the classroom for live or later viewing by students.

Classroom capture services give students the ability to listen to and watch their class lectures, presentations, etc. well outside the actual classroom.

OIT and DELTA currently provide classroom capture services in more than 100 classrooms and recording studios. Mediasite is

now the most prevalent classroom capture system across campus.

OIT ClassTech is responsible for developing and implementing a strategy that allows recorders to be used in classrooms without an operator.

Making antivirus protection the Trend

OIT released an updated version of the university's antivirus provider, Trend Micro OfficeScan Version 10.6. Antivirus protection is required for all computers connected to the campus network. OfficeScan is available free of charge to all students, faculty and staff, whether it is for home or campus use.

Moving to Windows Active Directory

More than 3,000 university employees are transitioning from the current Novell-based environment to the new OIT Managed Desktop Environment, which uses the Windows 7 operating system.

The managed desktop enhances OIT's ability to manage and support client workstations at scale, while providing more file space to users. The target completion date is early 2013.

Casper Suite provides "friendly" hardware management, inventory service

The Casper Suite has been deployed as a campus enterprise service to more effectively manage the university's growing numbers of Apple OS X and iOS devices.

OIT is using this service to manage its lab machines, private workstations, kiosks, and digital signs. Other campus units have purchased a Casper Suite license and share the service to manage and inventory their hardware.

Did You Know?

Remedy, OIT's call tracking system, had 99.9% availability (20 minutes of unscheduled downtime) during the past year. About 107,538 calls were logged, and there are now 873 active Remedy users at NC State. The system was upgraded to version 7.6.



Tropical Fun

Last July, OIT staffers got together at the JC Raulston Arboretum to beat the summer heat and to have some fun - tropical style!

Dressed in leis and flowered shirts, they enjoyed island music, food and various board games.

Major Appointments

- John Baines is the new assistant director for IT Policy and Compliance.

Recognition

- Twanda Baker, Stan North Martin and Candace Warren received the 2012 Office of Information Technology/University Awards for Excellence. Also nominated were Bala Arunagirinathan, Josh Jury, Rachele Olsen and Vic Lynn.
- 2011-12 T.O.A.S.T. Award recipients included Jason Austin, John Baines, Rhonda Batts, Carrie Brown, Rhonda Greene, Tim Gurganus, Dan Perry, Tony Lawrence, Dolores Leonard, Verna Little, John Martin, Kathy Mayr, Mike McComas, Richard McLane, Scott Moore, Gene Morse, John Perry (two-time recipient), Laverne Petit-frere, Jennifer Riehle, Vanessa Smith, Steven Stewart, Dana Strickland (two-time recipient), Kevin Swann, and Karen Tabron.
- 2011-12 Pride of the WolfPack Award winners included: Everette Allen, Pat Gaddy, Josh Jury, and Jason Valencia.
- Hal Meeks won the College of Design Award of Achievement.
- The 2012 Student Calendar garnered two SIGUCCS Communications Awards of Excellence in Printed Quick Reference Guides and General Service Promotional Materials. Traci Fisher was the editor and designer.

Professional Activities

- Everette Allen presented “BYO...IT?! - They Don’t Need Us Any More” for the JAMF Software Regional User’s Group.
- Mardecia Bell served as chair-elect of the University of North Carolina (UNC) IT Security Council.
- Rick Brown is serving as president for the Association of Higher Education Cable Television Administrators (AHECTA).
- Marc Cloutier is serving on the Building Industry Consulting Services, International (BICSI) Ethics Committee and the Educational Advisory Committee.
- Bill Coker renewed his Software Manager and Advanced Software Manager certifications.
- Darren Fallis and Neal McCorkle are advisers to the Institutional Review Board (IRB), which is a federally regulated committee that evaluates technical security and privacy issues in research involving human subjects.
- James Glover, Verna Little, Mike McComas, Bob Pilot and Shawn Van Hulst completed the Pathways Leadership Program.
- Tim Gurganus received the Certified Information Systems Security Professional (CISSP) certification and also was certified by the Payment Card Industry consortium as an internal security assessor for the university.
- Gwen Hazlehurst is serving on the Business Operations Realignment Steering Team (BORST) and as chair of the BORST Processes/Metrics Subcommittee.
- Dr. Gary Howell served as general chair for the High Performance Computing (HPC) 2012 Conference.
- Greg Kraus gave numerous accessibility presentations for Accessing Higher Ground, the CSUN Annual International Technology and Persons with Disabilities Conference, EASI, Meredith College, UNC System Attorneys, and the EDUCAUSE National

Staff Diversity

There are currently 253 talented IT professionals in the Office of Information Technology. They include 170 men and 83 women who are:

American Indian: 1 (1%)
Hispanic: 6 (2%)
Asian: 17 (6%)
African American: 32 (13%)
White: 197 (78%)

Staff

Conference.

- Garrison Locke presented “Object Oriented Javascript: Techniques for Managing Your Unwieldy Javascript” at php|Tek.
- Yessy Mendoza-Tate served as chair of the Oracle General Ledger Product Advisory Group and presented at the 2012 Oracle Alliance (Higher Education User Group) Conference.
- Maryam “Samila” Mohseni earned her doctorate degree in technology education from NC State College of Education. Her research focused on IT governance for higher education institutions.
- Jack Neely organized the university’s fourth annual Free and Open Source Software (FOSS) Fair.
- Sarah Noell and Leslie Dare presented at the Southeast Regional EDUCAUSE Conference on the Google Day migration processes.
- Ron Reed served on the Administrative Process Review Committee (APRC).
- Jennifer Riehle presented “Community Building Online” at the Social Media Strategies Summit.
- Dr. Eric Sills served as infrastructure co-chair of the 2011 Supercomputing (SC11) Conference.
- Greg Sparks is serving on the Association of College and University Telecommunications Administrators (ACUTA) Regulatory and Legislative Committee.
- Bert Stoner received the Information Technology Infrastructure Library (ITIL) Foundations certification.



- Several OIT staff presented at UNC CAUSE 2011 this year, including: Everette Allen, “App Store Survival”; Greg Kraus, “IT Accessibility: Changes and Trends in Policy and Technology” and “Accessibility Resources and Collaborations”; Jennifer Riehle, “Laying Down the Law: Developing Social Media Policy for Campus”; Chris King and Franklin Finch, “Déjà Vu All Over Again: Bringing Students Back Into the Help Desk”; John Martin, “Communications Metrics: A Case Study”; and Nick Young, “Drupal.”

Improving Staff Working Conditions

Two primary sources — the OIT Employee Satisfaction Survey and the OIT Town Hall Meeting — revealed that the organization needed to improve the staff’s working conditions.

The OIT Employee Satisfaction Survey, with an objective to enhance organizational performance and employee morale, was completed during the second quarter of 2011 and had a 73% participation rate. OIT employees received the results in the fall at an HR-moderated presentation. Ratings were shared for overall leadership, leadership at the department and unit levels, at the senior leadership level, as well as overall employee satisfaction.

While overall satisfaction was relatively positive, development opportunities in several areas were identified, which are being addressed through management consultation with HR and attempts to improve communication practices.

In addition to the results of the survey, the agenda of a November town hall meeting included a budget overview, an update on key organizational initiatives and major projects, as well as a question-and-answer session. As a result of the meeting, several organizational needs were identified and initiatives were developed later to address the needs.

Employee Relations Committee becomes the Staff Relations Team Leadership convened a task force to review the charter of the existing Employee Relations Committee to more clearly define and document its focus, scope, membership, structure, and administration. Along with a name change, the task force helped propose and document details about the membership and roles of the team. The new Staff Relations Team has launched and is using employee feedback to make a number of changes, including a new staff website.

Accessibility

Ensuring that all people, especially those with disabilities, are able to participate in online environments on campus is a challenge due to the rapidly changing nature of information technology. To minimize the number of barriers to technology, University IT Accessibility Services has engaged the campus in numerous efforts this fiscal year:

- The Information and Communication Technology (ICT) Accessibility Regulation was revised to help define the responsibilities of content creators on campus. A set of frequently asked questions also accompanied the regulation to provide guidelines on how to accessibly use emerging technologies on campus.
- Significant research was done to evaluate the accessibility of the Google Apps for Education suite. Guidelines on how to accessibly use Google Apps within courses and other contexts were created, and feedback to address current accessibility issues was provided to Google Inc.
- University IT Accessibility Services has collaborated with DELTA to address accessibility issues in the selection of a product to replace Elluminate, a Web conferencing program, and also to address and correct accessibility issues within future versions of Moodle, a learning management system.

Recommendations and Concerns for the Future

OIT leadership and staff are very concerned about the ongoing impact state budget reductions have had on division resources – both funding and personnel.

Budget:

- Budget concerns include availability of sufficient resources to fund various implementations, upgrades and migrations, particularly management resources to oversee and coordinate the large volume of planned technical activities; competitive salaries to retain and recruit adequate staff talent for OIT's complex scope of services; and staff training on IT security, new technologies and existing systems.
- The previous years' budget reductions have also eroded much of the headway OIT had made in obtaining life-cycle funding for network equipment. Currently, OIT is fully funded for network backbone upgrades, but has less than one-third of the necessary funding to upgrade wireless and wired ports throughout campus buildings within reasonable time frames. In addition, there is not sufficient funding to meet current and anticipated demands of the data center, even as some services are moved to externally-hosted providers.

Recommendations:

- Maintain senior management commitment for sufficient resources for priority projects.
- Maintain engagement of central office leadership with evolution of enterprise systems.
- Work to resurrect the "Triangle rate" for IT banding and find funds to reward top performers within the constraints of the Career Banding System.
- Refresh cost models for voice and data services based on the wide array of new architectures developed over the past year and share the new model by the end of 2012.
- Develop and implement a new data center strategy to address increased operational efficiency, energy conservation and data security.

Security and Regulatory Impacts:

- Potential changes to the Universal Service Fund and continuing pressure in general for heavier regulation of network services – along with government laws, statutes and regulations; and industry standards – all have the potential to create unfunded mandates for OIT in terms of personnel, hardware and software.
- The security of Internet cloud-based IT applications is still maturing and requires careful consideration, policies and a strong effort to ensure NC State's data is protected.
- The delay or failure to patch third-party software as well as "bring your own devices" (BYOD) contributes significantly to compromised devices on campus.

Recommendations:

- Acquire additional security tools to enforce security policy and strengthen the Internet perimeter, which is resulting in constant attempts at exploitation of vulnerabilities from outside the university.
- Identify and protect highly sensitive data, including research data.
- Secure funding to train university students and staff on IT security, new technologies and existing systems.

Technology:

- The video over IP (IPTV) market is moving at an extraordinary pace, making it extremely difficult to chart a course for providing TV services to student residents.

Recommendation:

- Continue to look at hybrid solutions that leverage new technologies, minimize capital investment, and leave options open for future integration of in-house and outsourced video content.

Accessibility

- Communication channels are increasingly shifting toward Web-based delivery, and individuals who communicate via these means have a responsibility to create accessible content for emails, Web pages, online newsletters, etc.

Recommendation:

- Broaden the university community's understanding of the shared responsibility for creating accessible Web content. Continue to broaden partnerships with other units and organizations, like StateCOMM, and to create additional training resources for non-technical audiences.

Strategic Goals

The following OIT initiatives are in alignment with NC State's Strategic Goals:

University Goal 1: Enhance the success of our students through educational innovation

- Provided a highly flexible platform for delivery of applications and environments to students via the Virtual Computing Lab (VCL).
- Completed Google Apps @ NC State migration, allowing employees and students to be on the same mail and calendaring system.
- Provided a centralized sustainable model for technology support of many of the university's general purpose classrooms, including an accessible interface to the Crestron classroom control system.
- Collaborated with DELTA to utilize the centrally provisioned VMware infrastructure to serve distance education students.
- Worked with DELTA to establish a server that allows the campus to partially automate the creation of captions for videos, thus saving users around \$40-\$50 per video hour.

University Goal 2: Enhance scholarship and research by investing in faculty and infrastructure

- Collaborated on the implementation of the Centennial Outdoor Wireless Mesh Network Testbed for Research and Education (CentMesh), one of the country's first large-scale, outdoor, experimental wireless networks using open source software.
- Expanded the utilization of High Performance Computing (HPC) and the VCL to provide more support for faculty, while developing leading-edge cyber infrastructure models for networking, visualization and analytics. Offered opportunity for researchers to leverage central VCL resources to support their work rather than purchasing and deploying servers locally.
- Provided a new Web Hosting Service that provides campus units a more cost-effective option to host their Web presence and that increases their flexibility and speed of deploying dynamic, database-driven website applications.
- Developed data marts that gather and mine data from many disparate university resources to provide meaningful analysis to help the campus make intelligent business decisions and improve academic success.

University Goal 3: Enhance interdisciplinary scholarship to address the grand challenges of society

- Provided the cloud-computing infrastructure for the North Carolina Bio-Preparedness Collaborative project, which detects and analyzes biological threats to public health and safety.

University Goal 4: Enhance organizational excellence by creating a culture of constant improvement

- Planned to split the combined Student and the Human Resources Systems into two individual systems, in conjunction with the upgrades to version 9 in October 2012. Improved the accessibility of the PeopleSoft applications within the Portal.
- Examined the possibility of a new data center to address increased operational efficiency, energy conservation and data security.
- Worked collaboratively to achieve consistency in portfolio and project management processes.
- Developed, in collaboration with other IT campus units, a new IT Governance Structure.
- Transitioned more than 3,000 employees to the new OIT Managed Desktop environment, which utilizes the Windows 7 operating system and provides more file space to users.
- Identified critical file storage needs and streamlined the locally-hosted systems.
- Upgraded the campus network backbone including data centers to support up to 40 Gb/s of network traffic.
- Launched a comprehensive identity management program.
- Developed an initial gap analysis for a comprehensive security framework based on ISO 27002 information systems standards.
- Educated campus community on how to recognize and protect themselves from cyber security threats.
- Helped the university move to modern IT constructs such as cloud services.
- Upgraded the campus wireless infrastructure to the latest 802.11n standard.
- Introduced with University Communications a multi-step effort to develop an effective, core internal communications system.
- Worked with DELTA to evaluate products to replace Elluminate as the Synchronous Learning Management System (SLMS), bringing special focus to accessibility concerns. Also worked with DELTA to evaluate the accessibility of Moodle 2.1

University Goal 5: Enhance local and global engagement through focused strategic partnerships

- Graduated VCL to a Top-Level Apache Software Foundation Project.
- Partnered with a number of other University of North Carolina System institutions and the North Carolina Community Colleges to deliver VCL service to a wide range of higher education students across the state. Provide HPC services including scientific support for UNC-Greensboro researchers and students.
- Participated in and coordinated the Access Technology Higher Education Network (ATHEN) Collaboration Groups to improve the accessibility of products multiple campuses use, like Google Apps and Blackboard Collaborate.