This is the first annual report of NC State University's Office of Information Technology (OIT). The OIT organizational structure became official on November 1, 2007, creating a new central information and communication technology organization for the university. A merger of the staff and functions of the former Resource Management and Information Systems and Information Technology Division, the reorganization is intended to more efficiently and effectively advance administrative, academic and research success. The merger marks a significant achievement in the evolution of IT programs and services at NC State.

Programs: Changes in scope, special achievements

The formation of OIT was a major step toward implementing Chancellor Oblinger’s decision to reorganize NC State's IT operations under the leadership of a chief information officer (CIO), as recommended in the university’s IT Scoping Team’s final report, published in June 2007. After a national search led by Provost Nielsen and Vice Chancellor Leffler, Dr. Marc Hoit was named NC State’s first vice chancellor for information technology and CIO. Dr. Hoit will join the university in this new role on September 1, 2008.

OIT continued to provide existing central IT services to campus without disruption throughout the challenging reorganization and transition process. The staff of nearly 300 are now organized into eight units. The following is an overview of the scope of programs within each unit and highlights of achievements during the past year.

**Advanced Computing**, led by Eric Sills, designs, develops and supports computing technologies for NC State’s core research and teaching missions. The OIT merger formalized the relationship between high performance computing (HPC) and virtual computing lab (VCL).
programs. Demand for both services grew significantly June 2007 - May 2008:

- HPC delivered more than 5 million processor-hours of compute service for researchers compared to about 3.5 million processor-hours during all of FY2006-2007.
- The VCL delivered about 193,000 hours of applications use for 127,500 reservations by nearly 8000 distinct users compared to about 88,000 hours of applications use for 63,735 reservations by about 4800 distinct users during FY2006-07.

In fall 2007, the NC Legislature appropriated $500,000 one-time and $131,000 recurring funding to support NC Community College System VCL pilots. In 2007-08, vendors including Intel, IBM and NetApp donated equipment to the VCL valued at nearly $5 million. The Chronicle of Higher Education featured an article about the VCL in May 2008.

**Business Services**, led by Karen Horne, brought together staff from several departments into a unit responsible for the OIT business operations. The unit provides budget management, accounting, procurement, human resources, asset management, and ETF management for all OIT managers and staff. Major achievements this year included reorganizing and combining units under new OUCs and budget codes and realigning previous budget processes and procedures to enable efficient business functions and enhanced accountability for OIT.

**Communication Technologies (ComTech)**, led by Greg Sparks, engineers, deploys and maintains campus-wide voice and data communications systems. ComTech existed as a unit before the OIT merger; calendar and e-mail staff and responsibilities were added to the unit in September 2007. The volume of ComTech’s campus services continues to expand. For example:

- Available network ports grew from approximately 55,000 to more than 60,000
- Wireless access points grew from 800 to approximately 950.

The ComTech Calendaring Team selected GroupWise as the single calendar system for
campus in fall 2007; implementation is planned for late 2008. Other achievements included:

- Installed wireless mesh network for Carter Finley for credit card transactions
- Implemented IPTV (IP Television) pilot in 13 buildings across campus and used IPTV to successfully broadcast several high profile campus events
- Made significant progress in centralizing data and telecom operations center.

**Enterprise Applications Services**, led by Gwen Hazlehurst, brings together staff that develop, implement and maintain campus-wide software and database systems that are essential to the modern business processes of NC State, including the campus portal and student information, human resources and financial data systems. Achievements this year included:

- Implemented Campus Community, Admissions and Student Financials within the Student Information System
- Implemented the eProcurement module within the Financial System (integrated into the MarketPlace)
- Developed and implemented the System of Assessments Guiding Education - SAGE (Education’s Licensure application)
- Converted TEARS (The Employee Activity Reporting System) to HR System
- Expanded the deployment of NelNet e-payment processing system.

**Infrastructure, Systems and Operations** staff research, plan, configure, deploy, manage, secure and monitor the equipment and systems that underlie all NC State's centrally-supported administrative and academic computing services and data resources. Several highlights of this year’s achievements included:

- Expanded virtual server infrastructure: now hosting 200 virtual servers
- Began migration of LDAP and print services to blade-based virtual machines
• Implemented more aggressive spam filtering on email relays to reduce amount accepted from approximately 65% to 45%

• Rolled out three PeopleSoft environments in support of the campus portal and the student information system

• Migrated all OIT-hosted web services from PHP4 to PHP5

• Created secure subnet for payment card industry servers

• Delivered updates to 100+ applications for the Unity Windows academic computing environment, including all major application suites and accessibility applications.

**Outreach, Communications and Consulting**, led by Stan North Martin, works to improve the overall effectiveness of OIT and to enhance NC State’s use of technology. Programs and services range from IT orientation and training to AV technology design and integration for campus classrooms. Program highlights within the past year included:

• Provided IT orientation materials and training for more than 6,000 new students and their parents, and more than 1,000 new employees

• Taught custom and pre-scheduled IT workshops for more than 1,000 clients

• Consulted on AV for 139 spaces, completed integration for 46; 25 were “110” classrooms

• Designed and supported 23 new websites for campus clients and 12 within OIT

• Produced two editions of *Computing@NC State* newsletter including one to introduce the new OIT organization

• Launched *OIT News*, a new monthly email/web-based newsletter aimed at faculty/staff

• Coordinated numerous IT events for campus and OIT staff events.

**Security and Compliance**, led by Mardecia Bell, enhances the university’s information technology infrastructure and operations by implementing and enforcing industry best policies,
regulations and procedures to protect and secure critical university systems and data. Significant achievements for this year included:

- Increased monthly monitoring from 43 to 52 merchant accounts to assure compliance with Payment Card Industry Data Security Standards (PCI DSS)
- Increased volume of Electronic Data Interchange (EDI) transactions by 10%
- Increased monthly payroll direct deposit transactions by 63%
- Increased security incident investigations: computer misuse peaked at 60 incidents per month; copyright infringement notifications peaked at 250 per month; and there were a large number of targeted phishing attempts compared to none in 2006-07
- Negotiated campus site licenses for Windows Server products, SPSS and AMOS
- Selected and purchased improved anti-virus software solution for campus
- Selected and began implementation of Sun IdM as a replacement for ASAP
- Established Campus Community database as the single source of record for identity activities.

Technology Support Services, led by Susan Klein, dramatically increased its scope of services as a result of the OIT consolidation. The unit now provides a wide range of technology support and consulting services for the NC State community, including ClassTech support, Client Solutions, Distributed Support, NC State Help Desk, Remedy problem-tracking services, ResNet and Unity lab support. Technology Support Services achievements included:

- Officially launched the new NC State Help Desk service in January 2008. Combining the functions of the help desks of ITD and ETSS, the group now responds to questions from all NC State affiliates about services offered by OIT and other campus IT groups, including the MyPack portal, email services, Administrative and Unity desktop environments,
password resets, Unity accounts, WebCT Vista, and more

- Supported expanded campus use of the MyPack portal and other administrative applications
- Created a new lab for testing applications and browsers, enhancing testing service
- Developed a new Walk-in Center in the West Dunn Building, opening in August 2008, to provide enhanced walk-up support services for NC State students
- Expanded the Business Objects service to enhance campus business analytics capacity.

Compact Plan: Major Initiatives

- Classroom Technologies initiative awarded $290,000 in continuing support funding
- Data Center II power and cooling expansion completed
- Data network backbone baseline performance surpassed, with 99.998% availability
- HR System upgrade to version 8.9 accomplished
- Identity and Access Management (IAM) initiative in process
- IP Telephony deployment initiative transitioned 2,588 lines to IPT
- Portal redesign, upgrade and expansion to all campus users completed
- Project management methodology developed
- Student and Financials/HR Steering and Assessment teams partnerships continue
- Student Information System team completed initial phases and made significant progress on subsequent phases
- Tape backup and storage management systems capacity increase implemented.

Diversity initiatives

The university IT accessibility coordinator continues proactive testing of web resources and software to ensure the usability of IT resources for students and others with disabilities.
Highlights this year included developing language to encourage the purchase of accessible IT products and services, which Purchasing now includes in its Instructions to Bidders.

All OIT staff and managers completed the Discrimination and Harassment Prevention and Response Training sponsored by the Office of Equal Opportunity in 2007.

**Staff: Major appointments, professional activities and recognition**

OIT staff presented papers or served on committees for numerous professional conferences within the past year. These included Saroj Primlani at EDUCAUSE 2007, Seattle, WA; Eric Sills, SC 07 supercomputing conference, Reno, NV; Tanja Davidson, Oracle Alliance Conference, Las Vegas, NV; Hal Meeks, Distance Teaching & Learning, Madison, WI; Carrie Levow, ResNet 2008, Fredericton, NB, Canada; Rick Brown, Association of Higher Education Cable Television Administrators conference, Providence, RI; Mariela Montero, Compco Users Forum, Nashville, TN; and Susan Klein and Stan North Martin, National Extension Technology Conference 2008, Raleigh. Many OIT staff presented at and helped facilitate UNC CAUSE 2007 in Asheville; Computer Security Day held in November 2007 at the McKimmon Center, Raleigh; and the VCL team and others presented at the UNC Teaching & Learning with Technology conference, Raleigh. OIT staff with significant roles in local organizations included Sam Averitt, John Baines and Mark Schieble, MCNC; Sam Averitt, Greg Sparks, and Matt Valenzisi, NCREN; Henry Schaffer, UNC-TLT Collaborative; Gwen Hazlehurst, UNC Shared Services Alliance; Susan Klein and Harry Nicholos, UNC CAUSE; Craig Zimmer, Project Management Institute; and John Baines, Association of Information Technology Professionals.

Lisa Gallond and Brandon Barbour received Pathways Achievement Awards, and Karen Horne of Business Services and Jennifer Riehle of Outreach, Communications and Consulting received the first OIT Awards for Excellence.
Concerns and recommendations for the future

**Staff:** Additional funding is needed to address salary inequities created by the January 2008 legislative salary adjustment. Competitive salaries and professional development opportunities are needed to hire and retain the talent necessary for the complex, expanding scope of OIT services. Non-competitive wages in senior technical positions have resulted in lengthy recruiting periods (8-12 months).

**Regulatory compliance:** Continued pressure from the RIAA for universities to proactively police traffic could have a significant financial impact should Congress mandate network monitoring. The FCC’s Universal Service Fund reporting and contribution obligations could have an impact on Voice over IP services in the future.

**Continuing funding for HPC and VCL:** HPC has been funded since 2003-2004 with year-by-year support from the Provost Office and the Research Office. VCL has not received any specific base funding beyond two shared positions between OIT and the College of Engineering. Both areas provide critical production services for instruction and research.

**Space:** The task of functionally unifying the staff and operations of OIT is being made more difficult by the widely dispersed and inadequate facilities for staff. Power and space limitations in Data Center I and II continue to impact the delivery of IT service.

**Vision:** OIT staff and the university as a whole need an OIT strategic plan that includes clear direction and an inspiring vision for the future of IT at NC State.
Examples for University’s five focus areas

Many of the technology systems and services provided by OIT contribute directly or indirectly to NC State’s five focus areas. For example:

**Creating Educational Innovation:** This year the VCL continued to receive state-wide and national recognition as a powerful educational innovation (see Advanced Computing programs). OIT staff have researched and implemented faculty-requested technology in campus learning spaces so faculty may introduce innovative educational methods for their students. The presence of wireless access, interactive displays for annotation, video and audio capture devices to record and podcast lectures, and increased use of classroom response systems, aka “clickers,” can improve teaching and learning.

**Innovation in energy and the environment:** The virtualization of servers in the data centers allows OIT to consolidate space and in many cases reduce power and cooling needs. Computers used in OIT-supported labs and classrooms, along with most new purchases by OIT staff, are certified at the silver or gold level of EPEAT environmental performance.