

# University of North Carolina at Greensboro

## 2008-2009 Information Technology Services Annual Report

### Executive Summary

In the 2008-2009 fiscal year, ITS focused on technology enhancements that broadened access to ITS services across the University. Effort was also directed to efficiency and effectiveness objectives first identified under the UNC PACE initiative, to collaborative efforts benefiting all UNC system schools, to the consolidation and upgrades of enterprise systems, and to human and systems security.

- For Spring semester 2009, access to the **UNCG Virtual Computing Lab (VCL)** was expanded from a few pilot classes to all UNCG students and faculty.
- The **wireless network** in all academic buildings, Elliott University Center, and all outdoor and common areas was refreshed in 2008 - 2009.
- A **Voice over IP** design was completed and will be implemented in 2009-2010 which will leverage existing infrastructure investments to provision voice services in the most cost-effective way.
- **Microsoft Active Directory** campus computing environment design was completed in 2008 - 2009. Enterprise file, print and application delivery services will be migrated from Novell into the new environment in 2009 - 2010.
- ITS began a project in 2008 to leverage **server virtualization technology** to reduce the number of servers required to run core technology services for the campus more cost effectively and efficiently
- In August 2008, UNCG transitioned student email services from the UNCG ITS-managed e-Spartan (Lotus) system to the **iSpartan** service hosted by Google. This transition increased student satisfaction with email services while also providing a cost avoidance of ~\$3.50 per student mailbox.
- Mid-April 2009 marked the end of the first year of UNCG's **Campus-wide Hardware Procurement (CHP)** program which saved the University substantial money on Windows computer purchases.

Several collaborative efforts combined resources and skills effectively across the system, benefiting UNCG and UNC system partners. These included:

- UNCG and NC A&T completed a collaborative project to expand both campuses' main **network fiber infrastructure to the Gateway University Research Park South Campus.**
- UNCG continued work with UNC General Administration (GA) to improve the **Inter-Institutional Online Course Registration** system that facilitates registration for UNC students who wish to take classes at a different UNC institution through the University of North Carolina On-line.
- UNCG partnered with Appalachian State to implement a disaster recovery solution that provides a hot site for UNCG data recovery at Appalachian.

In support of University goals seeking improved efficiencies and more effective use of resources, the following major enterprise system consolidation and upgrade were completed:

- UNCG went into production with **Banner Human Resources (HR)**. This installation brought UNCG into production on the last remaining major Banner module, and consolidated UNCG's operational and decision-support data into a common architecture.
- In March, UNCG implemented current versions of all major Banner modules. This upgrade to Banner 8 includes technical, functional, and security enhancements.

Emergency notification in the event of a crisis continued to be a high priority for UNCG in FY 2008-2009.

- As part of a larger collaborative group, ITS worked to implement the recommendations of the EPART Emergency Notification/Crisis Communication Task Force.

## **Institutional Effectiveness Highlights**

### **Banner HR**

Banner Human Resources was the last remaining major Banner module, and its installation, on July 1, 2008, consolidated UNCG's operational and decision-support data into a common architecture. This project laid the groundwork for improvements in efficiency and effectiveness.

Throughout the course of this year, ITS has worked with campus clients to finish reporting and integration tasks.

### **Wireless Expansion**

The **wireless network** in all academic buildings, Elliott University Center, and all outdoor and common areas was refreshed with a controller-based architecture that allowed ITS to significantly improve services and coverage at one-third of the original cost. Outdoor wireless coverage was significantly expanded to include all common areas, outdoor areas surrounding the residence halls, and bus stops.

### **iSpartan email**

In 2005 and again in 2007, the Spartan Experience Questionnaire (SEQ) survey of undergraduate students identified e-Spartan email as a technology service with unusually low satisfaction ratings among students. In August 2008, following a successful 2007 pilot, ITS completed extensive account integration, support and migration work and successfully moved UNCG student email services to the iSpartan system hosted by Google. The project had a remarkable impact on satisfaction with email services, with the SEQ satisfaction ratings at 90.3% in 2009 as compared to 63.4% in 2007, making email services the highest-rated of the five technology areas assessed. The move to

iSpartan is also a UNC PACE initiative estimated to provide the University with approximately \$3.50 in cost avoidance per student mailbox.

#### **Campuswide Hardware Procurement (CHP)**

A 2007 analysis of University computer purchases indicated that departments paid widely varying prices for equivalent hardware depending on which of several available methods they used for obtaining quotes. Moreover, ITS found that no particular purchase method consistently produced the lowest prices. Following an RFP, extensive vendor negotiations and preparatory work, ITS launched a Campus-Wide Hardware Procurement (CHP) program in April 2008 that provided a consistent means for departments to obtain the lowest available prices for supported Dell and Lenovo desktops and laptops. The program is estimated to have saved the University approximately \$300,000 over state contract pricing in its first year of operation, and supports the UNC PACE "PC lifecycle management" initiative.

#### **Server Virtualization**

Leveraging **virtualization** technology to reduce the number of servers required to run core services for the campus, ITS has been able to replace 160 physical servers in the campus data centers with 16 virtual servers. Hardware cost savings are approximately \$320,000, and staff resource time to deploy new services is cut in half.

### **Activities Related to Teaching**

#### **Wireless Expansion**

To ensure **high performing and highly available wireless connectivity in the classroom**, ITS network engineers were dispatched to the day and evening sessions of the Bryan School's ISOM 110 course (which has a laptop requirement) at the beginning of the fall semester to directly monitor and verify that the wireless network was functioning as expected and provide hands-on classroom support to ensure that all student laptops were properly configured for wireless access. ITS also staffed a Mobile Wireless Support Station in the Bryan 209 lab to assist students who were having problems connecting to the wireless network.

#### **Virtual Computing Lab (VCL)**

Following Spring 2007 and Fall 2008 pilots with select classes, ITS made the UNCG Virtual Computing Lab (VCL) environment available to all UNCG students and faculty for Spring 2009. To date, UNCG has installed 10 of the most popular academic software packages in our VCL environment, allowing students and faculty to access "lab" software remotely via wireless or computers located off campus. In conjunction with the refreshed wireless environment, VCL has been used for direct classroom instruction for classes within the Bryan School of Business and Economics, and has helped to permit the conversion of two wired labs into classrooms, allowing for more flexible use of

instructional space. ITS continues work to add more academic software to VCL to support additional classes.

### **Moodle Pilot**

In Spring 2008 in conjunction with the Division of Continual Learning, ITS launched a project to host select distance learning courses on a pilot instance of the Moodle Learning Management System. This project was undertaken to help support the anticipated expansion of the UNCG iSchool program to include courses from other UNC System schools, and to assess the feasibility of offering broader Moodle support for interested faculty.

## **Research/Scholarly Activities**

### **High Performance Computing (HPC) Cluster**

ITS supported the Chemistry Department's application for a North Carolina Biotechnology Center grant by offering hosting, at no charge, for a proposed Higher Performance Computing (HPC) Linux cluster. The award was granted, and ITS worked with Chemistry to install the equipment in the McNutt Data Center in summer 2009.

### **Telelearning Center Support of USDA Research Project Activity**

The Telelearning Center provided a connection to Thailand as part of a project for the Department of Consumer, Apparel, and Retail Studies in which UNCG students collaborated with students at Burapha University in Thailand. A videoconference between students at the universities was the culminating event of this project. This was one component of a larger USDA research effort focused on developing and testing various technologies appropriate for use in collaborative projects.

## **Public/Community Service**

### **AAUW (American Association of University Women) IT Awareness Day**

An ITS employee worked with Greensboro Chapter of the AAUW to organize and host UNCG's first IT Awareness Day for female students from local high schools. Designed to encourage girls to consider education and careers in technology fields, the well-received event included a tour of the McNutt Data Center, visits to campus administrative offices with technology-savvy female administrators (Business Affairs and Registrar's Office), and a presentation by faculty in UNCG's Department of Information Systems and Operations Management (ISOM). This event has created a foundation for future collaborations.

### **IT is for Girls (ISOM)**

In May 2009, the ISOM department hosted an "IT is for Girls" event in which approximately 50 local female high school students came to UNCG for hands-on technology workshops and a luncheon with area technology professionals to promote interest in technology studies and

careers. ITS assisted by providing three computing labs for the workshops, and by participating in the luncheon presentations.

## **Administrative/Staff Support**

### **Touchnet e-Bill Suite**

ITS supported implementation of the TouchNet e-Bill Suite for use with the Touchnet Payment Gateway. This is a cost-saving PACE initiative measure for the Cashier's Office in that payments for tuition, room and board and fees made via credit card will pass the usage charge on to the student instead of being paid by the University.

### **Campus-wide Hardware Procurement (CHP)**

The CHP program benefited campus staff not only through hardware savings accrued to departments, but by providing a centralized on-line point-of-sale to facilitate purchasing ([http://its.uncg.edu/Technology\\_Purchases/CHP/](http://its.uncg.edu/Technology_Purchases/CHP/)) and by providing staff with equipment that is configured and tested by ITS prior to delivery.

### **Banner HR**

Banner Human Resources was the last remaining major Banner module, and its installation consolidated UNCG's operational and decision-support data into a common architecture.

### **Web Services for Inter-Institutional Registration (IIR)**

UNCG ITS has partnered with UNC GA to improve a system that facilitates the registration process for UNC students who take classes at a different UNC institution through the University of North Carolina On-line. The system is hosted by UNC-GA, and UNCG is working with them on development and testing of Web Services.

### **Emergency Notification/Crisis Communication**

ITS worked as a part of a larger collaborative group to support and test implementation of the recommendations of the EPART Emergency Notification/Crisis Communication task force.

### **Room Management System**

ITS supported implementation of the RMS system for Residence Life. This system facilitates the room assignment process and will allow for student input via web.

### **Alumni Online Community System**

ITS has worked with Alumni Relations on implementation of the Alumni Online Community System. This remotely-hosted system allows alumni to manage their own directory information and access that of other alumni. ITS worked on data exchange with Banner.

### **Apply Yourself**

ITS assisted the Graduate School with implementation of the remotely-hosted Apply Yourself system, which manages applications, references and other supporting documentation for each potential students.

### **Admission Pros**

ITS assisted the Office of Undergraduate Admissions with implementation of the Admission Pros system, which creates a custom

admission environment for prospective students and internal staff members. ITS worked with the vendor on establishing a server environment and data exchange with Banner.

#### **Telelearning Center**

During the State travel restrictions enacted in Spring 2009, the UNCG Telelearning Center accommodated a tremendous increase in videoconferences to replace travel for face-to-face meetings. April saw the largest increase, with the number of non-class related videoconferences rising 150%, from 14 in April 2008 to 35 in April 2009.

#### **Webfocus Security Changes**

ITS adapted the WebFOCUS reporting architecture to utilize Oracle database security instead of the WebFOCUS application security. ITS worked with Client divisions to provide a more consistent access control system.

#### **Retire Student Data Warehouse**

ITS has worked to retire the legacy Student Data Warehouse. This project will lead to the creation of an ad hoc WebFOCUS reporting dashboard for student data.

### **Activities Related to Technology**

#### **Campuswide Network Refresh**

In the summer of 2006, ITS began a five year refresh cycle for the wired campus network. To date, refresh of the core infrastructure is complete, the data center network has been refreshed, enterprise intrusion prevention and network load balancing have been deployed, and 36 campus buildings have been refreshed. Network gear in the 23 remaining non-Residence Hall campus buildings will be refreshed over the next two years. As a result, the main campus core network now provides 10Gb speeds for primary paths (upgraded from 1Gb) and 1Gb for secondary backup paths. Once the network refresh is completed, all campus buildings will have 1Gb connections (upgraded from 10/100 Mb). Today, UNCG faculty, staff and students enjoy an unprecedented level of network performance and availability.

#### **Active Directory**

The design and build of the new **Active Directory** campus computing environment has been completed, which will allow ITS to consolidate its enterprise file, print and application delivery services onto a single platform to provide the highest level of services to campus in the most cost effective way. Campus users and services will be migrated from Novell into the new Active Directory environment in 2009 - 2010.

#### **General Computing Network (GCN)**

Leveraging the new capabilities of the refreshed campus network infrastructure, ITS has designed and built a new campus General Computing network (GCN) that will provide faculty and staff with significantly improved security protection, while retaining the functionality that users need to do their jobs effectively. Computers in the GCN will be

privately addressed (no longer accessible on the public internet) and will benefit from a number of security enhancements. Faculty and staff will be migrated into the new General Computing Environment concurrent with the transition from Novell to Active Directory in 2009 - 2010.

#### **ITS Software Image Management**

In December 2008, ITS completed a project to comprehensively improve and document processes regarding ITS management of standard campus software loads ("images"). Work completed benefits the campus by helping ITS to maintain and distribute software images that are up-to-date and have enhanced security and reliability.

#### **Disaster Recovery at ASU**

The Banner **disaster recovery hot site** at Appalachian State University is in production. This cooperative arrangement with ASU provided a model where remote disaster recovery could be supported at a fraction of the cost of implementing a commercial solution, and allows ITS to substantially reduce possible data loss and recovery time from days or weeks to a few hours.

#### **Fiber Network to South Campus**

In partnership with NCA&T, UNCG ITS has completed the build of significant fiber infrastructure to the South Campus, which extends the full functionality of both Universities' networks to faculty & researchers located there. A second partnership with MCNC allowed expansion of the project to include creation of a redundant "North Loop" of fiber to the South Campus at no cost to the Universities. When the project completes in late summer 2009, both Universities will own an extensive **Greensboro metro fiber ring** that will connect both redundantly to each other, the South Campus, and NCREN.

#### **Voice Over IP (VOIP)**

Information Technology Services completed the design for a new hybrid **Voice over IP** voice services model that will allow UNCG to effectively leverage its existing investments in network, fiber, data center and telecommunications closet infrastructure to provision voice services in the most cost-effective way.

### **Facilities/Auxiliary Services**

#### **Blackboard Transaction System**

ITS worked closely with the UNCG First Card Center to deploy the Blackboard Transaction System (BbTS) as a replacement for the FirstCard ID card system. BbTS will modernize the way in which money is exchanged on campus as well as add more functionality for ID card users and administrators. New functionality for administrators will include online, trackable, real-time transaction logs for all campus Points of Sale. Users will benefit from online viewable logs and balances that are available 24 hours a day via the community portal within Blackboard, centrally stored and trackable balance amounts that can roll over from a lost or stolen card to a new card, and real time meal plan management.

### **Point of Sale Registers on Dining Network**

ITS worked with Dining Services to deploy a new point of sale (POS) network that replaced use of slower dialup connections at the cash registers in the Dining Hall and EUC Food Court. ITS installed network ports at cash register locations where they did not already exist, and configured network access for new network-based card swipe readers. Not only was the new service much more secure, it also yielded much faster authorization than the old dial-up devices, and allowed Dining Services to provide improved service to students by significantly reducing waiting time in line at the registers. Dining Services reports a 60% reduction in wait time for students at registers.