THE UNIVERSITY OF IOWA
INFORMATION TECHNOLOGY SERVICES
CONNECTING CAMPUS

ITS 2012 - 2013 Biennial Report

Enterprise Infrastructure
Research Services
Administrative Information Systems
Enterprise Services
Information Security and Policy
Instructional Services
ITS Business & Administration
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As Chief Information Officer, I facilitate coordination, planning, and delivery of IT services between all IT units on campus, and have oversight of the largest IT organization, Information Technology Services (ITS).

In addition to tending to the day-to-day IT needs of campus—everything from responding to 80,000 Help Desk contacts per year to maintaining 3,000 access points for wireless service—ITS employees are always looking ahead in the fast-changing world of technology with an institutional perspective, developing and revising the detailed strategic plans called road maps to be sure the university is poised to meet the IT needs of the future. I am continually impressed by the productivity, innovation, adaptability, and collegiality I see exhibited throughout the organization.

For that reason, I asked ITS staff to prepare our first biennial report, focusing on the many accomplishments of the 2012 and 2013 calendar years. I encouraged them to include metrics to illustrate use of the services provided, and to tell stories about how IT supports the teaching, research, and operational needs of the UI. The goal of this report is not only to keep record of the advances made each year, but also to celebrate our achievements, and to help others understand the scope and quality of work ITS does.

The theme of the 2012-13 report is collaboration. You will notice this common thread throughout the content because virtually every service or project ITS provides is a collaborative effort. To succeed, we must partner with IT professionals in colleges and departments, and work closely with faculty, administrators, and students on projects such as developing websites and applications, supporting high-performance computing, and developing faculty programs around pedagogically-sound use of technology. ITS also collaborates beyond campus borders with other Regents schools, Committee on Institutional Cooperation schools, and higher education IT organizations like EDUCAUSE, Internet2 and the Common Solutions Group.

You will first find a summary with highlights of the 2012-13 report and a preview of what we will be working on in the year ahead. The report is divided into seven sections: Administrative Information Systems, Enterprise Infrastructure, Enterprise Services, Instructional Services, Research Services, Information Security and Policy, and Business and Administration. Each includes an introduction and look at upcoming projects, stories about featured projects or services, a list of accomplishments, and interactive graphs and charts.

We hope you will find the content interesting and informative, and we appreciate you taking time to learn about how ITS supports the University of Iowa.

Thanks and best regards,

Steve Fleagle
Associate Vice President and Chief Information Officer
Highlights of 2012-2013

New guest wireless service

Visitors to the UI can now enjoy free guest wireless service without having to track down a guest ID. Courtesy of a partnership between ITS and AT&T, the university is now advertising the “attwifi” network across campus. ITS began offering this new service in late 2013 as a convenience to campus guests who want to quickly and easily access the Internet with their wireless devices.

Wireless enhancements and eduroam

Use of wireless on campus is growing fast, from about 17,000 total users in 2009 to over 32,000 in 2013. As demand increased, ITS has made several enhancements to the wireless network, including the addition of about 450 access points in existing buildings.

ITS shifted UI Wireless to eduroam (short for education roaming), an international wireless network offered at participating institutions in 54 countries. Once devices are configured for the eduroam network here, users can connect automatically at other participating institutions using UI credentials.

Supporting IT communities

About 800 IT professionals work at the UI, including those in colleges and administrative units, Health Care Information Systems (HCIS), and ITS. And, IT systems are heavily integrated and interdependent. For these reasons, it’s essential to foster IT communities that facilitate communication and collaboration. ITS is committed to supporting and being actively involved in these communities.

ITS helped to establish a new IT community focused on high-performance computing, as well as a new group for Linux users. There are now about 10 IT communities that bring together UI technology professionals with common interests, such as website development and IT security.

Tech support, training, and software

ITS continued to provide excellent technical support, implementing a better system to manage Help Desk tickets, expanding the Extended Technical Support team to meet the need for desktop support in other units, and responding to over 80,000 Help Desk contacts per year in both 2012 and 2013.

Staff taught Windows, Office, and Lync courses, and made available thousands of online IT and business skill tutorials through Lynda.com. Staff worked to assure legal compliance, negotiate the best possible terms and pricing, and manage the contracts and distribution for software licenses—including a renewed Microsoft Campus Agreement and site licenses for Matlab, Adobe, and ArcGIS.

Office 365 for students

In 2013 ITS began transitioning student e-mail to Microsoft Office 365 to provide larger mailboxes and a full portfolio of communication and collaboration tools. Students receive 25 GB e-mail boxes (compared to 1 GB previously) and can access software that’s part of the Office suite (Excel, Power Point, Word, and OneNote) and connect with others through instant messaging, video conferencing, and online meetings. Response has been positive; in fact, many students requested to be moved sooner than scheduled so they could take advantage of the new features and bigger mailboxes.

Security awareness and data protection

Training and outreach efforts continued to raise awareness about IT security in the campus community. A new resource was developed at http://learnaboutsecurity.uiowa.edu, and an awareness campaign called “It’s a Jungle in There” was launched with multi-mode marketing.

The security team also focused on data protection and risk assessment initiatives, including institutional data classification, enhanced monitoring of the network, a multi-factor authentication pilot for web services, and development of guidance for achieving regulatory and policy compliance.

Web accessibility

ITS made great progress in guiding the campus to meet web accessibility standards that provide equal access to web resources for all individuals, regardless of ability, impairment, or environment.

Since approval of the campus web accessibility policy in October 2011, ITS-led accessibility efforts have focused on helping units assess and improve their websites. This has included over 700 site assessments, training, and development of self-assessment practices and reference materials. The result has been significant improvements in accessibility scores for sites that were redesigned.

Mobile development

Catering to growing use of smartphones and tablets, ITS is ramping up mobile development efforts. New and enhanced mobile apps provide easy access to useful information about the university, and the campus can look forward to even more apps and mobile-friendly websites in the future.

HawkTools, a new mobile app designed just for UI students, allows them to find open laundry machines on campus, access course-management and student record systems, check e-mail, and view dining hall menus. It provides a connection to Bongo (Bus on the Go), where they can track arrival times of Cambus and city buses. They can also connect to the On Iowa website for orientation details.
Website and application development

There has been a significant increase in the demand for application and website development across the campus. ITS is meeting these needs by offering new tools for web development, and by providing services on a for-hire basis. This model gives units access to full teams of experts with a variety of skills, and allows them to pay for services on an as-needed basis, rather than hiring a staff member.

ITS launched a Drupal-based content management system for campus website hosting and development. It improves the consistency, accessibility, and mobile rendering of UI websites, but maintains the flexibility for each unit to customize their site and content. The new SiteNow Service offers do-it-yourself capabilities with user-friendly tools and customizable templates, or units can hire ITS for more complex sites. Since implementation, the web team has built over 100 custom sites.

Learning Commons completion

The Main Library Learning Commons is a one-stop academic resource center and tech-infused comfortable study space. Open 24 hours a day, five days a week, it offers both group study space for collaboration and individual study space. The 37,000 square foot renovated space includes desktop and laptop computers, multi-media resources and a 45-seat TILE classroom.

Students provided significant input in the design of the space throughout the planning process, and the project was a joint endeavor of the Office of the Provost, ITS, and University Libraries. Construction began after the Spring 2012 semester and was completed for the Fall 2013 semester.

Supporting student-centered learning

ITS continued its focus on the creation of learning spaces geared toward student success and retention. Staff helped open and plan for more TILE (Transform, Interact, Learn, Engage) classrooms that facilitate active learning environments, and worked closely with the Center for Teaching to provide training and support as faculty developed teaching strategies for student-centered learning.

ITS and the Office of the Provost co-sponsored a “large lecture transformation” project aiming to morph large courses into more active learning environments through technology and innovative teaching techniques. And, in collaboration with the College of Education, ITS embarked on a pilot project to understand how students use e-textbooks and whether the digital format has an effect on learning outcomes. ITS’ new assessment coordinator is analyzing how these efforts impact students.

Deploying all-in-one ID cards

ITS is playing an important role in the transition to new university identification cards that will also serve as electronic door access cards for buildings or rooms on campus. These electronic door access cards offer higher security than keys because when they are lost or when a cardholder leaves the university, the card can be deactivated remotely. The Iowa One Cards are used for meal plans and checking out library materials. They can also be used for financial transactions like charging purchases to a U-bill, or as an ATM/debit card when tied to a Hills Bank checking account.

Modernizing electronic research administration

Funded research accounts for over $430 million annually at the UI. To stay competitive and in compliance with changing rules and regulations, the UI has begun modernizing its electronic research administrative systems.

ITS teamed up with the Vice President for Research Office on a multi-year proposal bringing together resources to improve sponsored research administration. This resulted in the development of an application suite that integrates process, data, and information across the research enterprise, creating the foundation to meet future administrative, compliance, and reporting needs.

Research computing initiatives

High-performance Computing (HPC) supports research that would not otherwise be possible at the UI—in some cases condensing the time required to run simulations from years to days. The number of users soared from about 50 in 2011 to 450 in 2013, and the user base now represents 52 units from all corners of campus. The Helium HPC cluster provides more than 2 million compute hours per month to UI researchers, and in 2013 work began on building the next-generation HPC cluster, Neon.

In addition to operationalizing HPC, ITS deployed two new research data storage services, and worked to build good support staff for research computing. ITS Research Services continued to serve researchers and scholars by gaining visibility, building partnerships, participating in humanities efforts, and contributing to campus conversations about cyberinfrastructure and informatics.

Decommissioning the Jessup Hall data center

Mainframes powered decades of UI academic and administrative functions. (Sometimes called “big iron,” a mainframe is a large-scale computer that can support thousands of users simultaneously and run vital operations reliably and securely.)

As the UI transitioned to its new student record system, ITS was able to remove applications from the mainframe in Jessup Hall by retiring them or converting them to new platforms. The Jessup Hall data cen-
ter was decommissioned in 2013, and the mainframe powered down for the final time on April 1 of that year—50 years after mainframes first brought high-performance computing to the UI.

**MAUI milestones**

Project MAUI (Made at the University of Iowa), the new student information system custom developed by UI software engineers, achieved several milestones in 2012-13 as components for student records, admissions, degree audit, financial aid, and billing launched. MAUI manages vast amounts of data; in just a year’s time, that includes nearly 1 million communications with current and prospective students, disbursement of $300 million in financial aid, and collection of $450 million in tuition, fees, and charges. Course registration generates as many as a million transactions per day.

Development kicked off in 2006, after the UI found that products on the market didn’t meet the institution’s needs for replacing its 30-year-old record system. The homegrown system represents tremendous collaboration between ITS and Provost Office functional units and may even become a model for other schools that have expressed interest in developing similar solutions of their own.

**Putting ITF into production**

With construction of the new Information Technology Facility (ITF) complete, ITS staff members devoted countless hours in 2012 to putting the new data center into production—including the migration of more than 500 servers from the Jessup Hall data center. ITS security specialists designed, built, tested, and implemented the network firewall architecture, and subsequently created over 27,000 access control rules in the firewalls.

ITS was extremely proud to see the ITF become the first building on campus to achieve LEED Platinum certification. This is an especially noteworthy accomplishment, given the energy needs of a data center. Only a handful of data centers across the nation have earned LEED Platinum status.
The Year Ahead

A high-level summary of what ITS will be working on in the coming year:

**Research computing**
- Improve support and awareness of existing research computing services
- Provide support for the Iowa Informatics Initiative, and continue to actively participate in campus conversations about cyberinfrastructure and informatics
- Establish the Neon high-performance computing cluster as a productive tool for campus

**Records and administration**
- Continue work on a universal electronic workflow system that routes electronic forms for financial, human resources, and other purposes for approval by the appropriate individuals. Complete routing engine and convert forms to use the electronic workflow architecture
- Develop proposal for a Shared Service Center for Business Intelligence with dedicated resources; architect a BI infrastructure
- Expand Enterprise Financials application portfolio beyond PeopleSoft Financials
- Second-phase initiatives for the new student-information system, MAUI (e.g. syllabus repository, prerequisite checking, course renumbering, academic advising replacement system, enhanced guest accounts, advanced reporting, universal workflow integration)

**Communication and collaboration**
- Complete migration of student e-mail to Microsoft Office 365
- Implement Unified Communications via Lync 2013; expand Lync offerings to include web-based online meetings, audio conferencing, and improved mobile clients
- Upgrade SharePoint to improve collaboration and document-management capabilities
- Launch new cloud-based file storage service (OneDrive, formerly known as SkyDrive Pro), providing employees with 25GB of storage, easy file sharing, and access from anywhere with web or mobile devices

**Security initiatives**
- Conduct enterprise-level IT security risk assessment
- Enhance network monitoring to better correlate log information between systems, enabling quicker response to problems and helping to prevent costly exposures of information
- Continue bolstering databases and applications for protection against security threats
- Remediate Social Security Numbers from electronic records, create “vault” for secure storage
- Continue enablement of door-access systems to accept Iowa One Card credentials
- Develop isolated virtual network for credit card transactions; investigate an e-commerce gateway for processing the transactions in compliance with evolving security standards

**Learning technologies**
- Complete major upgrade to ICON (Iowa Courses Online), allowing instructors to more easily add and rearrange course content, providing new progress-tracking tools, and enabling text or e-mail alerts for deadlines, grades, and discussion posts
- Continue exploration of new instructional technologies related to student learning analytics, digital content solutions, and MOOCs (massive open online courses)

**Infrastructure and technology management**
- Upgrade core network routing infrastructure to increase speed, capacity, and features
- Review campus wireless network architecture, evaluate wireless equipment vendors, and begin to deploy the next wireless standard (802.11ac).
- Establish a Mac management service via Casper, in partnership with the College of Liberal Arts and Sciences
- Encourage migration from inefficient data centers to more efficient ones
Overview

Putting ITF into production

Construction on the university’s new Information Technology Facility (ITF) wrapped up in 2011, and the Enterprise Infrastructure team devoted much of its time in 2012 to putting the new data center into production, including the migration of more than 500 servers from the Jessup Hall (JH) data center.

The JH data center was decommissioned in 2013, and the mainframe powered down for the final time on April 1 of that year—50 years after the first mainframes brought high-performance computing to the UI.

The university was proud to see its new data center, the ITF, achieve LEED Platinum certification. This designation attracted awards and publicity on and beyond campus. EI staff also worked to prepare the IT infrastructure for a $1 billion construction boom at the UI.

Responding to service growth

Throughout 2012-13, EI responded to the exponential growth in the use of wireless networks, storage of electronic information, and the number of fiber optic cables that provide high-speed electronic communication across the campus, making improvements to the UI’s wireless service (including joining the global network eduroam), adding more access points and Network Address Translation, and negotiating with the wireless provider to secure hardware to improve reliability. In late 2013, ITS introduced a new guest wireless service in partnership with AT&T and completed an upgrade of the university’s regional optical network (BOREAS), adding capacity for 100 Gbps connections.

The year ahead

In the coming year ITS will support the implementation of Unified Communications via Lync 2013. With campus partners, ITS will encourage units to move smaller data centers to more modern, secure, and efficient data centers like ITF.

Planning for network enhancements

ITS will upgrade the core network routing infrastructure to increase the speed, capacity, and available features of the network.

Staff will also review the campus wireless network architecture and evaluate wireless equipment vendors in order to deploy the next wireless standard (802.11ac).

This will increase the stability, speed, and capacity of the UI wireless service across campus.
Farewell to an old friend

On April 1, 2013, the university’s mainframe was powered down for the final time, more than 50 years after the first campus mainframes brought high-performance computing to the UI.

Mainframes powered decades of UI academic and administrative functions. Sometimes called “big iron,” a mainframe is a large-scale computer that can support thousands of users simultaneously and run vital operations reliably and securely. The mainframe probably got its name from massive metal frames that once housed it, often occupying thousands of square feet.

Aiding research

The university’s first computing center opened in 1958 with an IBM 650, the world’s first mass-produced computer.

Two of the center’s first customers were James Van Allen and E.F. Lindquist. Van Allen, professor of physics and astronomy, needed to crunch data from orbiting satellites. Lindquist, professor of education, was looking to score tests taken by thousands of schoolchildren.

Gerard Weeg, who became the computer center’s director in 1964, saw plentiful opportunities for expansion, and countless other researchers utilized the system throughout the years.

“Maybe even more than his predecessors, Weeg believed computing would be important to research and teaching in all disciplines,” says Bill Decker, former associate vice president for research and director of ITS.”

“We supported a lot of things over the years—the University Libraries catalog, payroll and financial transactions, student records, and so on,” says Rich France, a senior systems administrator who recently retired from ITS. UI Hospitals and Clinics operated its own mainframe, so France and colleagues also built bridges to share data across campus systems.

University business processes were running off mainframes, too. Administrative Data Processing was the home for much of this work.

By 1989, shifts in technology and demand let system administrators combine academic and business functions into a single mainframe, the one located in Jessup. And there were signs of even greater change to come.

“In the late 1970s, small personal machines—many of them hobby computers—had started to appear,” Decker recalls. “Those of us in the business saw a major impact coming, although no one could have predicted its extent.”

Faster, smaller, cheaper

As personal computers landed on desktops across campus, functions continued to shift away from the mainframe. Personnel data, library records, and more moved on to new platforms.

At the UI, new options provide the computing power required by today’s researchers. A high-performance computing cluster dubbed Helium debuted in early 2011, and another cluster—Neon—came online in late 2013. In the same timeframe, researchers with the computer science department expanded their Starexec Cluster by adding four high-density computing cabinets at the Information Technology Facility.

A couple of years ago, the academic side of the mainframe was shut down. Eventually, only student records remained on the administrative side. With the launch of MAUI in 2012, the time to retire the mainframe had come.
UI Wireless transitions to eduroam network

In summer of 2012, ITS began shifting UI Wireless to eduroam (short for education roaming), an international wireless network available at participating educational and research institutions in 54 countries. Once devices are configured for the eduroam wireless network here, users can connect automatically to eduroam at other participating institutions by logging in with their UI credentials.

Originating in Europe, eduroam has gained momentum in the education and research communities. It offers a secure connection based on the top encryption and authentication standards in existence today. Having instant access to thousands of eduroam hotspots around the world eliminates hassles for users, and can save students and institutions money by eliminating data roaming charges.

Convenience for UI travelers and visitors

Since eduroam was launched at the UI, students and employees have used it more than 10,000 times at other participating institutions, and people have used it nearly 1,500 times while visiting the UI campus.

“ITS is pleased to be able to offer eduroam to the University of Iowa,” says Associate Vice President and Chief Information Officer Steve Fleagle. “We believe students and employees will enjoy the convenience of logging in with their UI credentials when they travel to institutions that are part of eduroam. It’s also a nice amenity to offer guests from those schools when they visit our campus.”

List of eduroam institutions grows

Several Committee on Institutional Cooperation schools have deployed eduroam: Indiana, Northwestern, Penn State, Purdue, University of Chicago, Illinois, Minnesota, Nebraska, Wisconsin, and Maryland (which joins the CIC this year). Michigan is testing eduroam, and Michigan State has expressed interest.

A list of participating institutions in the United States is available at https://www.eduroam.us/eduroam_us_institutions, and an eduroam international map is available at https://www.eduroam.us/eduroam_international_map

ITF becomes UI’s first building with top LEED certification

The new University of Iowa Information Technology Facility (ITF) became the first building on campus to earn LEED Platinum certification—the ultimate standard for green design.

The new data center houses and protects computing and network equipment that is vital to the operations of the university and its hospitals and clinics. Completed in late 2011 after three years of construction and seven years of planning, the 43,000-square-foot facility provides a secure and reliable home for the institution’s IT systems.

Its durable outer shell is built to withstand severe weather, and back-up electrical and cooling systems are designed to keep essential technology up and running if primary utility systems were to fail. Two 7,200-square-foot data halls meet the electrical, ventilation, and air conditioning requirements for IT equipment and provide space for high-performance research computing.

“Data centers are among the most energy-intensive facilities you’ll find on a campus. To build ours to LEED Platinum standards speaks volumes about the UI’s commitment to energy conservation and sustainability,” says UI President Sally Mason. “Our goals for a sustainable university are stated in our strategic plan and 2020 Vision sustainability targets, and this major accomplishment significantly helps to bring those aspirations to reality.”

ITS and AT&T, the university is now advertising the “attwifi” network across campus.

ITS was pleased to begin offering this new service in late 2013 as a convenience to campus guests who want to quickly and easily access the Internet with their wireless devices. Using guest wireless requires just two simple steps: select the “attwifi” network from your wireless device, and use a web browser to agree to the terms and conditions.

Guests who need longer-term access to campus resources can get an eduroam guest ID. UI students and employees should use eduroam because it’s a secure wireless network that allows access to university resources, like file shares and printers.

Visitors can now enjoy guest wireless service

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Sustainable features

The ITF was built with green materials, and 86 percent of construction waste was diverted from the landfill. Other sustainable aspects include efficient fixtures to cut potable water usage, a bio-retention cell to retain and absorb runoff, a white roof and reflective materials to minimize the “heat island effect,” and ventilation and thermal comfort features that support indoor air quality.

Developed by the U.S. Green Building Council, the Leadership in Energy and Environmental Design (LEED) system measures sustainability in site selection, water efficiency, energy sources and consumption, materials and resources, air quality, and other environmental considerations. The ITF is believed to be the first educational institution data center certified as LEED platinum.

Choosing the right equipment

Sustainability was a top priority in the design and construction of the new data center, but the UI took efficiency a step further with a combination of energy-efficient server purchases and server virtualization, which allows multiple systems to share a larger host.

Server virtualization reduces overhead costs and allows for higher utilization of systems. Older server models were replaced by new ones with highly efficient power supplies and Energy Star-rated processors.

Cutting energy costs

“There’s no doubt that building a new data center is a substantial investment at the outset, but we knew that building it with sustainable features was the right thing to do and that it would pay off in the long run,” said Jerry Protheroe, data center manager for ITS.

The UI is already seeing the benefits of these sustainability efforts. At its peak, in January of 2010, the Jessup Hall Data Center used an average of 102 kilowatts (kW) of electrical power. But even as the ITF came online and picked up the full workload of Jessup, including computational growth through the remainder of 2013, its current production power usage (minus research computing) is only 80 kW.

Projections by design consultants on the project indicated that the ITF would use 37% less energy than a building without energy-efficient upgrades, resulting in significant energy savings and contributing to the university’s 2020 energy conservation goals. That’s especially important, considering that ITF has significant capacity for and is the future home to energy-hungry research computing systems. In fact, in the last quarter of 2013, ten high-density research cabinets were installed at ITF with a designed capacity approaching 150 kW total (15 kW per cabinet).

$272,000 rebate from Alliant

In addition to energy savings, the UI earned a rebate from Alliant Energy in the amount of $271,854 for participating in the Commercial New Construction program, which involved collaborating with building designers right from the start to make sure all options for energy savings were analyzed.

The rebate money will help the university drive IT energy conservation efforts to the next level. IT leaders, working with Facilities Management and the Office of Sustainability, have put together a data center optimization initiative to encourage units with less efficient data centers tucked in rooms and other data center spaces across campus to utilize the ITF.
Additional Accomplishments

Cable TV Upgrade

ITS upgraded the entire campus from the old analog channel format to a new digital feed. This required extensive changes to the university’s cable TV plant and allows subscribers to receive a much greater variety of channels in a crystal-clear digital and HD format.

Cyber Attack on Domain Name Service

In 2012, UI servers providing domain name service (DNS) for campus came under a series of Distributed Denial of Service (DDoS) attacks. Network Services worked with the ITS security office and server teams to mitigate attacks, then developed and implemented a long-term solution to protect campus DNS systems from future attacks.

Information Technology Facility (ITF) Migration

ITS implemented new network architecture focused on robust network availability and refreshed equipment, providing the foundation for data migrations to ITF. In addition, ITS implemented file virtualization for 125 network shares, enabling seamless migrations of departmental and research data to the new facility. ITS also moved over 500 systems from the Jessup Hall data center and 250 terabytes of storage to ITF while minimizing downtime for critical applications, migrated web servers to virtual servers, enhanced security, and standardized the production deployment environment.

IT Communities

ITS staff helped create an Iowa Linux User Group (ILUG), and restarted the System Center Configuration Manager (SCCM) Community for an upgrade to SCCM 2012. These and other IT communities help technologists across campus connect and collaborate around specific IT topics.

IT Services in New/Remodeled Buildings

Physical Infrastructure continued to design, install, and maintain a large amount of network infrastructure to new buildings and remodeled spaces, including: the new Football Operations Facility, the new West Campus Parking and Transportation Center, Bowen Science Building lab remodeling, remodeling on the fifth floor of the Main Library, and the new James M. Hoak Family Golf Complex.

Staff are also preparing for upcoming construction projects at: Pappajohn Biomedical Discovery Building (PBDB), the Football Operations Facility (Phase II), a new residence hall, the new Hancher, School of Music, and Visual Arts buildings, a Kirkwood STEM building, three additional TILE classrooms, the Bowen Science Building 2-400 re-model, remodeling at Med Labs, and the Pharmacy Building.

ITF Operational Procedures

At the new data center, ITS instituted and documented regular monthly exercise routines for the generator and air chiller, and instituted change and incident management as a collaborative effort among Health Care Information Systems (HCIS), Facilities Management, and ITS. The units established a joint on-call rotation for mechanical, electrical, or plumbing incident management at ITF, added electronic door access points, and established a door access review process that takes into account the special needs of health care audits.

Also in 2012, three large projects were completed to get ITF production-ready: redundant air-cooled chiller pump installation, roll-up chiller electrical panel installation, and arc flash mitigation.

The new operational procedures at ITF carried over to ITS’ other enterprise data center, located at the Lindquist Center (LC), in 2013. The East Area Maintenance staff and Facilities Management also partnered with ITS to advance the reliability and availability of mechanical, electrical, and plumbing service in the LC14 space.

ITS Outside Infrastructure

ITS made substantial additions to the ITS Outside Plant, the largest being a new redundant fiber route to the ITF. Another large project added a new duct bank to support copper and fiber from Lindquist Center up Court Street, to the future site of the new School of Music Building and other future projects in the area. Physical Infrastructure was also able to purchase a fiber optic splicing trailer, extending the services staff can provide to campus and minimizing the need to outsource this service.

Presidential Visits

Staff accommodated the IT needs of the President of the United States when he visited campus twice in 2012.

Supporting Next-Generation Internet Communications

Most campus networks now support IPv6 communications for the clients. ITS is in the process of converting services to support the new protocol. About 40% of services now support IPv6.

System Center 2012

ITS deployed several Systems Center 2012 products for improved management: Configuration Manager, Operations Manager, Service Manager, Data Protection Manager, and Endpoint Protection Manager.
TILE Classroom Support

Four new Transform, Interact, Learn, Engage (TILE) classrooms came online, bringing the total number of active-learning classrooms on campus to seven. Physical Infrastructure played a key role in these projects, assisting with design and technology installation.

Upgrades to Regional Fiber Optic Network

Network Services participated with Broadband Optical Research, Education, and Sciences Network (BOREAS) partners (Iowa State University, University of Minnesota, and University of Wisconsin) to plan and implement an upgrade to increase both available bandwidth capacity and density. The upgrade to this regional fiber optic network added the capability for multiple 100 Gbps connections for the UI, a tenfold increase over the previous maximum of 10 Gbps. It also provides the capability of significantly more 100 Gb circuits, longer optical reach, and a higher-density and more robust switching fabric than the current system.

Wireless Enhancements

ITS developed a wireless vision and completed nine recommendations. Wireless network coverage was expanded by adding 446 access points in existing buildings and coverage to 20 underserved buildings. Staff designed a new network architecture to incorporate new equipment based on the new 802.11ac standard, continued mobile growth, increasing voice use, and the addition of the AT&T guest wireless service. They developed and implemented a Network Address Translation (NAT) solution for the wireless network; without this solution, wireless users were consuming IP addresses at a rate that was not sustainable. In addition, ITS worked with the equipment vendor to upgrade 20 controllers and replace 1,095 access points to resolve ongoing wireless problems, and partnered with Health Care Information Systems to coordinate wireless service for the ITF.
Metrics

Wireless Growth

Wireless use on campus has grown tremendously, with the number of wireless users since 2009 almost doubling. Even more astounding, the number of devices connecting to the campus wireless network is nearly four times what it was four years ago. More than 75% of the total users are students.

Growth 2009-13

» User growth: 88%
» Device Growth: 290%
» Devices Per User: 108%
» Percentage of users who are students: 76.74%
Wireless Devices Per User

The average number of devices per user is now close to 2.5, and climbing—twice what it was in 2009.

Maximum Concurrent Connections

The number of concurrent connections has increased 2.5 times over two years.
Total Wireless Access Points

As demand for wireless connections increases, ITS has installed thousands more wireless access points in buildings all across campus. The number of wireless access points continues to grow, and has quadrupled in the last five years.

Wired Data Ports

Although use of the wireless network has increased rapidly in recent years, demand for wired data ports also continues to rise. ITS provided approximately 30,500 ports in 2003 and more than 51,000 in 2013.
ITS Storage Services - Disk Storage Growth

The storage capacity provided by ITS has approximately doubled every two years since 2005, but the cost per gigabyte of storage is less than half of what it was three years ago, due to increases in labor productivity and decreasing hardware costs.

ITS Storage Services Hardware/Software Cost Per Gigabyte
Servers Managed

The number of servers managed by ITS more than doubled in the last five years, but physical server counts have actually decreased since 2010. That’s because virtual servers (servers that run independently but share hardware for efficiency) now account for about 72% of total servers. In 2013 alone, ITS took 58 physical servers out of production. Results of this shift are energy savings and a reduction in the labor required to manage the servers.

![Servers Managed Chart]

Additional Enterprise Infrastructure Metrics

- Increased centrally managed storage by 61%, from 959 terabytes to 1.5 petabytes
- Increased storage managed per full-time employee by 61%, from 260 terabytes per FTE to 420
- Increased number of managed Fibre Channel fiber optic ports by 28% (from 320 ports to 408)
- Wireless: Provided service for 80,512 unique devices and 32,488 unique users via 3,147 access points
- Provided 19,401 telephones & 47,969 wired data services
- Maintained 16,801 miles of singlemode fiber strands & 1,170 miles of multimode fiber strands
- Maintained 118 maintenance holes, 358 handholes, & 18 splice cases for telecommunication
- Identified and documented 371 fiber cables
- Provided 933 cable services to campus clients, & 3,462 to residence hall clients
Overview

Serving both researchers and scholars

In 2012, ITS-Research Services focused on operationalizing high-performance computing (HPC), piloting data storage platforms, and building good support staff. RS continued to push its mission to serve both researchers and scholars by gaining visibility, participating in campus humanities efforts, and building partnerships.

The team continues to expand as ITS is able to fund the services RS provides for the campus. Three full-time positions were added to support HPC, cyberinfrastructure, and Galaxy, a web-based platform for data-intensive biomedical research. Overall, HPC consumed about 75% of RS efforts.

In 2013, RS focused on deployment of two new data storage services and on building the next-generation HPC cluster, Neon. Contributions to the campus conversation about cyberinfrastructure and informatics were also a focus.

Plans for the year ahead

For 2014, the focus will be on improving support and awareness of existing services, improving the research computing community, and making the Neon HPC cluster a productive tool for the campus.
UI introduces second high-performance computing cluster, Neon

Building on the success of its first high-performance computing (HPC) cluster, the University of Iowa has now built a second “supercomputer” that became available to researchers in late 2013.

The UI’s first HPC cluster, Helium, came online in 2011, and with rapid increase in usage by UI researchers is now operating near capacity, at more than 90 percent utilization. In Sept. 2013, the state Board of Regents approved the purchase of the new system, Neon. The addition of Neon significantly boosted the university’s HPC capacity from 3,700 to 6,132 processor cores.

“The decision to invest in Neon is based on the tremendous success we’ve experienced with Helium,” says P. Barry Butler, executive vice president and provost. “By matching central resources with faculty-generated grants we’ve been able to build a shared, high-performance computing environment that’s available to all faculty, whether they have grant funding or not. The efficiency of this approach to shared investment is something I think the university should be very proud of.”

From years to days

HPC supports research that would not otherwise be possible at the UI, in some cases condensing the time required to run simulations from years to days by using multiple processors that work on single or multiple computational tasks at the same time. UI investigators use Helium for a wide variety of projects, like modeling flood scenarios to help Iowa communities make decisions about mitigation, understanding how uterine cancer develops, and modeling climate change and airflow in the lungs.

Twenty-five research groups from seven UI colleges have already invested $700,000 in the new system. The university centrally funded the remaining $500,000 of Neon’s total $1.2 million cost. The system has a safe, secure home at the UI’s new Information Technology facility, and is administered and maintained by the ITS Research Services team.

History and rapid growth of HPC at the UI

HPC got its start at the UI two years ago, when the Institute for Clinical and Translational Science, IIHR-Hydroscience and Engineering, and ITS-Research Services teamed up to launch Helium.

The initial investment that made Helium possible came from a faculty member in the College of Engineering, and investments from a dozen other researchers followed, providing the startup funds. A centrally funded expansion of the system in fall 2011 opened it up to users across the institution.

Users from all across campus

Use of Helium increased dramatically in its first year. By the end of 2012, the system had provided 2,200 compute years of service, up from just 250 its first year. The number of users soared from about 50 in 2011 to over 200 in 2012 and then on to 450 users by the end of 2013, and the user base now represents over 60 units from all across campus.

Today Helium consists of 3,700 processor cores and over 500 terabytes of data storage. It provides over 2 million compute hours per month to UI researchers. At current market rates, utilizing external HPC resources such as Amazon’s compute service would cost the UI over $300,000 per month.

The installation of Neon, built using the latest generation of compute, storage, and network hardware, will help meet the increased demand for HPC capabilities on campus by providing an additional 2,432 processor cores, 1,440 co-processor cores, 7,488 Graphics Processing Unit (GPU) cores, access to large amounts of memory, and 216 terabytes of storage capacity.

HPC success stories

Predicting flood impact for the state of Iowa

More than 1,600 communities across the state are at risk for flooding, and researchers at the UI-based Iowa Flood Center are using high-performance computing (HPC) to improve flood monitoring and prediction. With complex mathematical algorithms, the HPC cluster produces projections every 15 minutes of what river levels in each town will be for the next five days.

Severe flooding of the Iowa and Cedar Rivers in 2008 was the catalyst for the center, established with support from the National Science Foundation and the state legislature. A portion of the funding was invested in Helium. A website provides access to the Iowa Flood Information System, which features inundation maps, real-time flood information, forecasts, and interactive visualizations.

Prediction models mimic the aggregation of water, taking into account rainfall, water levels, soil type, information about land use and vege-
tation, and where crops are in the growth cycle. Different models also factor in unknowns that influence flooding—for example, researchers do not have data on saturation, which means it’s hard to say how much of the rain will infiltrate to the rivers.

Contributing to the challenge of predicting river levels are the state’s size and the need to produce timely forecasts. Iowa consists of over 56,000 square miles of land and 3 million water pathways, and new rainfall data comes through every five minutes. HPC is necessary to make calculations for such an immense area at a pace fast enough to keep up with rapidly changing circumstances.

“There is no operational system in the world as detailed as ours,” says Flood Center Director Witold Krajewski, a professor of civil and environmental engineering at the UI. “It’s fair to say that if not for the HPC cluster, we wouldn’t be doing the work we are doing.”

Modeling climate change

One UI researcher using HPC is Pablo Saide, who is pursuing a PhD in environmental engineering. He is from Santiago, Chile, where air pollution is a major concern. The surrounding Andes Mountains and seasonal weather conditions cause vehicle and industrial emissions to linger, and the local government uses predictions to declare air pollution episodes. If an episode is imminent, measures are taken to reduce smog and people are encouraged to stay indoors. But often it’s too little too late.

“Forecasts are conducted 24 hours in advance, but by waiting until an episode is imminent, the efforts to prevent the episode don’t do much good,” he says. “Hospitals are full of people with asthma and kids. And people develop cancer and long-term health problems because of the pollution.”

With HPC, Saide is developing computer model simulations that can forecast air pollution three days in advance. Data for the simulations comes from measuring stations around the city that monitor how the plume moves, horizontally and vertically. The air-quality measurements, along with meteorological and forecasting data, feed into models that can be quickly processed by Helium. This enables scientists to quickly generate high-resolution simulations to predict pollution.

Understanding Huntington disease

HPC is also being used by UI neuroscientists as they study changes in the brains of Huntington disease (HD) patients before they begin to experience symptoms. The research could lead to earlier interventions for people diagnosed with the hereditary disorder, which causes widespread brain tissue atrophy, interfering with mobility, memory, speech, and mood.

The PREDICT-HD study involves 1,500 research subjects worldwide. Researchers analyze brain scans from the patients over a 10-year period and apply algorithms to extract measurements that quantify the progression of the disease. Measurements include changes in brain volume, tissue composition, structural size, anatomical regions, and cortical depth. Researchers look at how changes in different regions of the brain correlate with psychiatric, behavioral, and cognitive measures.

Testing each algorithm’s effectiveness takes more than 42 hours of computation per imaging scan session. There are 4,400 data sets to test with each method, and many parameters to modify.

“Testing the algorithms on a single computer would take two or three years of data processing,” says Hans Johnson, Ph.D., an assistant professor of psychiatry. “Helium allows us to do that in one day.”

For more stories on HPC research and details on UI HPC resources, visit http://hpc.uiowa.edu.
Additional Accomplishments

Deployed Data Storage Services

Research Services deployed two new data storage services in 2013. The first, launched in February, is targeted at high-performance and high-capacity users. It is a paid service, and users bought more than 500TB of storage in the first six months. The second, launched in October, provides 3TB of standard network drive space to users with more moderate capacity and performance requirements.

Increased Collaboration

RS continues to build collaborations all across campus. A partnership with the Iowa Institute for Human Genetics led to the deployment of Galaxy, a web-based platform for data-intensive biomedical research that enables non-bioinformaticians to create, run, tune, and share their analyses.

Collaboration with EPSCoR, the Experimental Program to Stimulate Competitive Research, led to the hiring of a new employee to provide cyberinfrastructure support. He works with colleagues at Iowa State University and in ITS to support researchers working on renewable energy initiatives.

RS also participates in Digital Studio for Public Humanities meetings, began engagement on a campus GIS initiative, and formed a Research Computing group of about a dozen members from various areas of the UI that collaborates on maintenance of Helium and other research computing projects. In addition, RS spearheaded an eResearch advisory group that provides feedback and guidance on cyberinfrastructure (CI) initiatives and developed recommendations for improved CI support.

Increased Training

Helium funding and ITS investments allowed for more training in HPC and related areas, such as an introduction to computing on Helium, and working with Infiniband, a high-speed networking technology. Opportunities to leverage national curricula such as those provided by Xsede, the National Science Foundation national network of high-end cyberinfrastructure providers, or the EPSCoR Cyberinfrastructure program are also being utilized.

System Enhancements

Enhancements to Helium in 2012 included improved storage performance, data transfer bandwidth, and stability. RS also made increases in the amount of publicly available scratch storage, as well as software package deployments to support the broader user base. In addition, staff members improved documentation and system statistics collection and reporting, deployed GridFTP, and registered Helium with a national data transfer service, Globus Online.
Metrics

HPC Users by College

The user base for the Helium HPC cluster represents more than 60 units from all across campus. The College of Engineering and the Carver College of Medicine represent the highest percentage of total users, followed by the College of Liberal Arts and Sciences.

Years CPU Time/Quarter

One measure of HPC use is the number of years of Central Processing Unit (CPU) time used. (This is how long the calculations would take to perform if a single CPU system were used; for example, to perform 100 years of CPU time on a dual core desktop system would take about 50 years.) ITS has observed significant growth in the CPU hours used by UI researchers since the implementation of HPC. During the first quarter of 2011, about 61 years of CPU time were used, but during the final quarter of 2013, more than 678 years were used.
## Additional High-Performance Computing Metrics

<table>
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<th>Year</th>
<th>Users</th>
<th>Processors</th>
<th>Storage</th>
<th>Largest Memory Node</th>
<th>Racks</th>
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<td>1600</td>
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<td>8</td>
<td>4Gb</td>
<td>250 Years</td>
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<td>2012</td>
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<td>500TB</td>
<td>144GB</td>
<td>16</td>
<td>10Gb</td>
<td>2200 Years</td>
</tr>
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<td>6300</td>
<td>1400TB</td>
<td>512GB</td>
<td>23</td>
<td>10Gb</td>
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</tr>
</tbody>
</table>
Overview

MAUI milestones

Project MAUI, the new student information system, achieved several milestones in 2012-13 as remaining modules and components for student records, admissions, degree audit, financial aid, and billing launched. Significant progress was also made on initiatives for the next phase of the project.

With MAUI implemented, ITS was able to move all applications off the mainframe computer. Twenty-six systems were converted to other platforms or retired, including grant accounting, student records, admissions, identity and directory services, student health, and human resource applications. The mainframe was retired in April 2013.

Modernizing electronic research administration systems

Funded research accounts for over $430 million annually at the UI. To stay competitive and in compliance with changing rules and regulations, the UI has begun modernizing its electronic research administrative systems. ITS partnered with the Vice President for Research on a multi-year proposal bringing together resources to improve sponsored research administration, promote collaboration, and ensure compliance. This resulted in the development of an application suite that integrates process, data, and information across the research enterprise, creating the foundation to meet future administrative, compliance, and reporting needs.

New faculty administrative applications workgroup

In 2013, ITS partnered with the Provost’s Office to create a new workgroup focused on supporting faculty administrative applications, integrations, reporting, and business processes relating to their career lifecycle. The team’s initial projects include: Academic & Professional Record, Faculty Public Engagement, and integrating workplace conflict-of-interest forms into the existing electronic conflict-of-interest system. A workgroup leader was hired to provide project-management support.

Identity management initiatives

Major restructuring of core identity-management processes has resulted in significantly improved responsiveness. HawkIDs are now created in real time, and updating of identity data and service provisioning occurs four times a day rather than as a single batch in an overnight process.

Good progress was also made in the convergence of physical and electronic identity credentials. The Directory and Authentication Team partnered in several deployments of the Iowa One identity/door-access cards, and developed an event-driven automation that grants access at designated times to 6,000 students living in residence halls. This access-control system was extended for other critical 24/7 facilities including the Learning Commons, Information Technology Centers, and walkways between buildings.

2014 and beyond

With the foundation of MAUI in place, AIS will turn its attention in the coming months to a host of second-phase initiatives: a syllabus repository, supplemental application attachments, prerequisite checking, course renumbering, an academic advising replacement system, enhanced guest accounts, integration of universal electronic workflow, and advanced reporting.

Work will also continue on a universal electronic workflow system that routes electronic forms for financial, human resources, and other purposes for approval by the appropriate individuals. Staff will complete the routing engine and convert forms to use the electronic workflow architecture.

To address increasing security threats, ITS will continue hardening its databases and applications. Significant effort will be placed on remediating Social Security Numbers from electronic records, and on creating a Social Security Number “vault” to ensure secure storage.

Also in the year ahead, AIS will focus on business intelligence (BI), which continues to be a strategic focus for the campus. Staff members are developing a proposal for a BI Shared Service Center with dedicated resources, and will be architecting a BI infrastructure based on Microsoft SQL Server 2012.

Improvements in financial systems

The Enterprise Financials application portfolio will be expanded beyond the PeopleSoft Financials application. It will include a web-based reconciliation system for bank receipts, along with enhancements to existing electronic procurement, flood-related reimbursements, and the grant accounting applications.
Identity management

In 2014, ITS will continue to enhance identity management infrastructure, middleware components, and additional self-service tools. Having upgraded the federated identity technology stack in 2013, the Directory and Authentication team will expand its federation support model to meet the growing use of cloud services.

The emphasis for ID card efforts will be on making the academic campus a “one-card campus.” Deployment of the Iowa One Card as the primary credential for the AMAG security system will be completed for anyone issued the upgraded Iowa One Card, and much progress will be made in converting the legacy electronic access control system to use the same credential.
ITS launches internally built student record system

Information Technology Services and campus partners unveiled several major components of Project MAUI (short for Made At the University of Iowa), a new student-information system that was custom developed by a team of UI software engineers. The last big pieces of MAUI, modules used for financial aid and billing, went into production in early 2013. The homegrown student record system manages vast amounts of data, including nearly 1 million communications per year for more than 300,000 prospective students, 40,000 applicants, and 4,500 first-year students. Each year the system facilitates the disbursement of over $300 million in financial aid and the collection of $450 million in tuition, fees, and charges. More than 30,000 enrolled students register for classes online, generating up to a million transactions per day.

Seven years in the making

The student information system development efforts kicked off in 2006, after the university investigated vended solutions to replace its 30-year-old student record system and discovered that the products on the market didn’t meet the institution’s needs.

In building MAUI, developers used the existing student self-service portal (ISIS) as a foundation, and addressed technical limitations with a more contemporary user interface, better integration with other systems, additional features, and enhanced functionality. In the end, the custom system with re-engineered business processes based on new technologies was much less expensive to build and maintain than a vended system.

“ITS has provided the university with a fantastic tool,” says UI Director of Admissions Emil Rinderspacher. “By having a system built by our own internal staff, we have the flexibility to shape our technology in the future, adding enhancements that work specifically for us.”

Features for students and applicants

Through an online portal, students can view schedules, grades, and financial aid information, and receive and pay their U-bills electronically. Students like the new degree audit format, which is more user-friendly and easy to read. Integrations with the course-management system and a student success early intervention system help officials identify at-risk students so the university can reach out to offer extra resources they may need.

Freshmen applicants can now find out within 48 hours whether they have been accepted to the UI, sparing them the inconvenience of waiting a couple weeks to receive a decision. That’s possible because MAUI is able to read data submitted by the applicants and apply business rules to determine whether they meet the basic criteria for admission, the honors program, and certain scholarships. The new system also automates processes for placement testing and transcript submission.

Conveniences for UI administrators

MAUI is a great step forward for the admissions office, in part because it allows staff to work remotely—which is vital to those who are on the road representing the UI at high school visits or college fairs. New members of the team get up to speed quickly because the system is so intuitive.

A new built-in communication engine, Dispatch, is a big improvement from the previous commercial system. In 2013 it generated and tracked over 4.2 million e-mails and printed 360,000 documents.

The Academic Advising Center likes the “my advisees” page, which allows advisors to review caseloads from a variety of parameters. A feature that allows students to add or drop courses online during the first week of class is much more efficient than the old paper method, and advisors can easily track which advisees make changes to their schedules.

Aiding efficiency

MAUI saves the financial aid office time by creating session-based costs of attendance using tuition and fees tied directly to a program of study. It allows staff to check student eligibility before releasing aid to billing, eliminates paper flow, and provides real-time simulations for awarding, requesting, and disbursing aid. Automated communications can now be sent with the click of a button.

Admissions is fond of the TeleHawk function, which supports calling campaigns by providing a call sequence and script, along with the ability to capture call details and outcomes. Integration into MAUI allows direct access to student attributes and eliminates the need for data imports and exports.

“Aiding efficiency

MAUI has already proven its flexibility and expandability in supporting new gender codes for admissions and the first-week add/drop course functionality for student records. And, the custom-built system may even become a model for other schools. ITS has already heard from colleagues at other institutions who are interested in developing MAUI-like solutions of their own.

A monumental effort

MAUI has already proven its flexibility and expandability in supporting new gender codes for admissions and the first-week add/drop course functionality for student records. And, the custom-built system may even become a model for other schools. ITS has already heard from colleagues at other institutions who are interested in developing MAUI-like solutions of their own.
“Project MAUI represents a monumental effort and tremendous collaboration between ITS and Provost Office functional units,” says Mike Noel, senior director of ITS-Administrative Information Systems. “Our initial vision has been realized, and we now have a solid foundation to build on.”

MAUI Milestones

2012
- Tuition and fees assessment component
- Modules for grade processing, advisor assignment, tuition/fee assessment, and end of session
- Final components of admissions module (applicant processing, decisions)
- 48-hour admissions application decisions
- Degree audit and transfer articulation module
- Communications processing engine, Dispatch

2013
- Final components of financial aid module (verification, awarding, disbursement, academic progress)
- Final components of billing module (charges, payments, financial aid allocation, U-bills, accounting, collections)
- New student orientation system, SOAP
- MAUI security audit and ISIS penetration testing
- Admissions Office call center application replacement, TeleHawk
- Advance placement and testing score integration and processing
- Automated course waitlists pilot
- MAUI data warehouse and reporting
- Automatic trigger of degree audits when a student’s record is modified
- Electronic drop/add process during first week of classes
- My Advisees (simple advisor view of core information about advisees)
- Financial aid and billing reconciliation reporting

MAUI Metrics

Fall 2013 Financial Aid
- Awarded $72 million in loans and $75 million in grants and scholarships to 19,457 students from over 1,000 unique sources

Fall 2013 Billing
- Assessed $77 million in resident tuition for 16,202 students, $154 million in non-resident tuition for 13,784 students, and $4 million in tuition for 1,205 online students
- Processed 54,423 U-bills for 29,342 students, 10,088 employees, and about 15,000 others
- Sent 39,000 (over 70%) of U-bills electronically
- Enabled 80% of U-bills to be paid electronically through payroll deduction or ACH payments

First-week Electronic Add/Drops
- Spring 2013: 11,488
- Fall 2013: 16,925
ITS is playing an important role in the transition to new university identification cards that will also serve as electronic door access cards for buildings or rooms on campus.

These electronic door access cards offer higher security than keys because when they are lost or when a cardholder leaves the university, the card can be deactivated remotely. The cards are used for meal plans and checking out library materials. They can also be used for financial transactions like charging purchases to a U-bill, or as an ATM/debit card when tied to a Hills Bank checking account.

The Directory and Authentication Services (DNA) team is heavily involved in the Iowa One Card project, working in partnership with UI Police, Facilities Management, and the Treasury Office.

Planning for Iowa One

The new Iowa One Cards converge electronic identity (HawkID) and physical identity (ID card and electronic door-access card). DNA Team leader Chris Pruess co-leads the identity convergence project and participated in planning the re-carding project. She was also instrumental in the redesign of the card and in reviewing the request for proposals for the banking relationship aspect of the card.

In 2011, ITS accepted technical support responsibilities for UI ID cards. DNA upgraded the Iowa One Card management system to contemporary technologies and performed Social Security Number remediation. Since then, the DNA team has been steadily adding needed features and functionality.

Work behind the scenes

Several significant projects took place behind the scenes to fully utilize the door-access function of the new Iowa One cards, including upgrades to the ID Card system, electronic access control systems, and identity-management tools and processes.

In 2013, ITS and Facilities Management staff upgraded the underlying infrastructure of the UI’s door access systems, AMAG and Millennium, to current supportable levels of hardware and software. This included relocating servers to ITS data center space. Technology advancements associated with the software upgrade provided full compatibility with the Iowa One Card door-access capabilities.

Automations and process improvements were deployed for loading and managing cards in the door-access systems. ITS staff has been working closely with Facilities and local departments to coordinate the timing of Iowa One Card-AMAG migrations.

Simplifying off-hours access to buildings

In August 2013, three engineering facilities became the first buildings on the Millennium system to use the Iowa One Card, simplifying off-hours access by eliminating the need for a separate door-access card. Going forward, efforts will continue on re-engineering access control data management processes, Iowa One Card conversions, and support enhancements.

Developing an electronic conflict-of-interest app

Many faculty and staff are obligated to disclose potential conflicts of interest to internal and external authorities, and adhering to federal reporting requirements has become more time-consuming due to new regulations.

In an effort to streamline this process, the Conflict of Interest in Research Office reached out to other university units responsible for complying with the reporting obligations.

To standardize the process and reduce the administrative burden of filing the disclosures, a cross-departmental team developed a consolidated Electronic-Conflict-of-Interest Application, which they called eCOI for short. In just the first year, UI faculty and staff submitted almost 11,000 disclosures.

eCOI wins IOWA Award

In August 2013, three engineering facilities became the first buildings on the Millennium system to use the Iowa One Card, simplifying off-hours access by eliminating the need for a separate door-access card. Going forward, efforts will continue on re-engineering access control data management processes, Iowa One Card conversions, and support enhancements.
The eCOI won an Improving Our Workplace (IOWA) Award, designed to recognize UI employees who demonstrate initiative and innovation that has a positive impact in their workplace.

Members of the eCOI team were: Charlotte Talman of the Conflict of Interest in Research Office; Jose Jimenez, Gayle Elliott, and Ashok Vijayendra of Research Information Systems; Denise Krutzfeldt of UI Hospitals and Clinics’ Conflict of Interest Office; Diane Finnerty of the Provost’s Office; and Susan Zollo of the Continuing Medical Education Office.

**Impressive cooperation**

“The award is well deserved, and I am thrilled that the group won,” says nominator Jim Walker, an associate vice president for research. “It’s a challenge to coordinate IT and personnel components of a project of this scope at a large institution. We were under a tight time frame, and I was impressed by how smoothly the team moved forward to create a consolidated system that meets diverse needs.”

Walker noted that the project could not have been successful without contributions from many other employees in Health Care Information Systems, ITS, and RIS.

**2013 enhancements**

In 2013, the eCOI application was enhanced and expanded to include the new Provost Office and Human Resources conflict-of-interest reporting policies. The new enhancements are ready for the 2014 reporting cycle.
Additional Accomplishments

Business Intelligence

As part of the MAUI student system, staff developed a comprehensive BI solution that includes SQL Server Reporting Services (SSRS), Oracle data warehouse, and a sophisticated row-level data access security model. Features include parameter-driven reports with drill-down capabilities, hyperlinks to MAUI application pages, and Excel downloads. Staff also assisted the College of Liberal Arts and Sciences in porting a Microsoft Access-based financial reporting system to SSRS. Staff members are currently working on an Excel-based financial reporting project with the State Hygienic Lab.

Cloud Service Support

Adoption of cloud services continues to grow on campus, and to simplify the user login process, ITS uses a single sign-on solution called Shibboleth. In the last two years, 16 new service providers were added so users can use HawkID credentials to gain access for research, collegiate, CIC, and Regents collaborations. ITS began moving student e-mail to the cloud-based Office 365 solution in 2013, and by the end of the year about 7,000 accounts had been moved to Office 365.

Development and Operations Infrastructure

ITS manages over 44 enterprise applications across 34 servers. Improvements to ITS’ internal application deployment, change management, and logging infrastructure supported 1,175 application deployments in 2013 with a 99.94% uptime for critical systems ITS monitors. Improved change management processes include approval, history tracking, and scheduling features. Standardization of application logging infrastructure helps staff efficiently search log files, and expanded monitoring utilities provide better metrics tracking.

Directory Services and Identity Management

A new real-time HawkID assignment process allows admissions applicants to select their HawkID. The Identity Warehouse was extended to include University Housing and Dining and Athletics ticketing information, and the HawkID login page is now mobile friendly. The printed UI Student/Staff/Faculty Directory (Herd Book) was replaced by the online-only version, a “greener” sustainable solution with automated updates and better search capabilities. In partnership with the UI Unix/Linux community, staff extended the enterprise identity management infrastructure, implementing services that provide tighter user and group integration with the Unix domain.

eFlood Application Support

In February 2012, the eFlood application went live tracking flood-related expenses. The team worked throughout 2013 on second- and third-phase initiatives that improve the application’s ability to handle complex general ledger transactions, integrate with Risk Management’s adjustment, reimbursement, and eligibility workflow, and provide better labor expense processing and reporting.

Electronic Procurement Enhancements

The e-Pro system was integrated with UI contract pricing information that drives purchasers to use the university’s preferred vendors. Payments can now be made with prepaid debit cards in addition to checks, and processes for business justifications and technology reimbursement were enhanced.

Electronic Research Administration (eRA)

The initial research portal went into production with single sign-on, alerts/notifications, and the ability to drill down to core eRA system data. It now includes federal announcements and personalization features. Several other components within the eRA system were also upgraded:

- The non-monetary contract submission component of the pre-award system was improved to provide better grant and contract information access for investigators and to integrate with UI workflow.
- A new system for animal research protocols provides smart forms and templates, and work continues on the protocol review and amendment process, in preparation for a pilot.

Enterprise Database Support

ITS assumed system administration, hosting, and database administration for the College of Dentistry’s clinical applications. ITS also commissioned over 40 new SQL Server database instances in 2012, including the first two installations of SQL Server 2012, and another 27 instances in 2013. The Enterprise Data Warehouse (UDW) tripled in size to 4.1 terabytes of data with the addition of the remaining MAUI Student Information System data.

ePost Application Support

With the Grant Accounting Office, ITS completed several major enhancements to the post-award grant accounting application, ePost. These improvements eliminate over 2.2 million printed pages per year. A new effort-reporting module calculates the time spent on each grant award. ITS worked with the IMFO team to create a grant reporting and distribution module that provides more useful and detailed information to researchers and administrators. Star Metrics data extracts were created to capture impact and outcomes of federally funded research.
HR Collaborations

ITS partnered with IMFO on several major projects in addition to universal electronic workflow, including a PeopleSoft HR version 9.1 upgrade, two PeopleTools upgrades (8.5.2 and 8.5.3), a hardware infrastructure update, and hosting JOBS@UNI for the University of Northern Iowa.

PeopleSoft Financials Enterprise Resource Planning

Staff performed several process improvements, including the development of an encumbrance reconciliation process and streamlining the property management quarterly capitalization process from months to minutes.

Also completed were several major system integrations, including a PeopleSoft inventory process integration with the new UI Hospitals and Clinics Main Operating Room supply management system, and security integration that allows PeopleSoft Financials to use HawkID credentials.

The Human Resources bank account reconciliation process was integrated into the existing PeopleSoft Financials process, allowing retirement of the mainframe BARS system. In addition, ITS implemented the inventory function for eight campus units including the Iowa River Landing pharmacy and material services.

Security

Application and database security efforts ramped up with a proliferation of threats and attacks. Staff performed penetration testing and security audits, added more application monitoring capabilities, and improved processes for authentication, account provisioning/de-provisioning, and application development. New HawkID login security efforts included the implementation of additional authentication protocols (two-factor and OAuth2), a redesigned login page, and self-service tools for reviewing logins.

Social Security Number Remediation

Many legacy databases were dependent on Social Security Numbers (SSN) as primary keys. Database administrators developed scanning processes to identify and inventory possible SSN exposures and assisted system owners with remediation. Scans detected 19 systems with just over 400 tables containing SSN vulnerabilities. About 60% are remediated, and plans are in place for the remainder.

A major strategy in remediating the remaining systems involves a newly architected SSN vault that encrypts and isolates SSNs from other personally identifiable information. Applications that have an approved business need for SSNs can access the vault through a secure web service. When the conversion is complete, over 1.4 million SSNs will be stored in the secure vault.

Universal Electronic Workflow

Development continued with the deployment of a new workflow system, a joint project with the Human Resources Information Management, Finance Operations (IMFO). Work in 2012 focused on building tools to manage workflow routes at both the form and office levels. Staff developed services for handling attachments, built interfaces for managing office structures, and established the unified workflow inbox. The inbox was piloted and put into production in 2013, allowing ITS and IMFO to retire disparate MAUI and Self-Service inboxes. To date, there have been over 270,000 logins.
Metrics

HawkIDs Managed

Two of the primary electronic identities are the University ID and HawkID. While the growth of HawkIDs remains fairly constant, there is more variability in University ID creation due to campus Social Security Number (SSN) remediation projects. In 2003, ITS began generating University IDs for current faculty, students, and staff. In 2004, ITS assigned University IDs to alumni and former students. Final SSN remediation efforts began in 2013 with the retirement of the mainframe.

The total number of HawkIDs managed has nearly quadrupled since 2002, from about 58,000 to more than 224,000.

University IDs Assigned

ITS now manages over 1 million University IDs.
HawkID Logins Through the Single Sign-On Solution

HawkIDs are used to authenticate to both on and off-campus systems. In 2010, ITS implemented a federated authentication system, Shibboleth, that allows the use of HawkIDs to access off-campus and cloud-based systems.

» Use of the HawkID Single Sign-On Solution has grown by 269% since 2006
» ICON now makes up more than 50% of all logins
» Use of HawkID by other systems has more than doubled since 2006
» In 2006, there were over 6.5 million HawkID logins; by 2013, there were 17.5 million

Shibboleth Federated Authentication Support

Since the implementation of a federated authentication solution in 2009-2010, the number of services that use it has grown steadily, as has the number of logins.
Daily Wait List Entries

In the fall of 2013, ITS implemented a Course Wait List Pilot for 315 courses across various colleges and departments. Just over 200 of the courses had actual wait list activity. About 650 students accepted open seats, close to 100 declined seats, and almost 200 notifications expired without action. About 750 students were still on the waitlists at the start of the semester. Half of the students notified of an open spot responded in less than an hour, with 80% responding in less than 8 hours. Wait list data will be very useful in course registration analytics.

The graph below shows wait list entries by day through the spring early registration period.

![Daily Waitlist Entries Graph]

ISIS First Week Electronic Adds and Drops

In the spring 2013 semester, ITS implemented a new program that allowed students to electronically drop and add courses the first week of school, without intervention from instructors, advisors, or the Registration Center.

![ISIS First Week Electronic Add/Drop Graph]
Annual Oracle Database Growth

From an Oracle database perspective, ITS supports 115 test and production databases containing over 21 terabytes of institutional data across 30 database servers.

Microsoft SQL Server Major Customers

From a Microsoft SQL Server perspective, ITS supports over 2,000 databases containing over 9 terabytes of institutional data across 144 database servers.
2013 Enterprise Financials Activity

Since the implementation of PeopleSoft Financials in 1998, the system has provided general ledger, purchasing, accounts payables, asset management, inventory control, and supplier contract management services. Providing services and supporting a growing health care enterprise presents different challenges than the academic and research missions due to high transaction volumes and mission criticality.
A majority of campus purchases are made through electronic procurement systems. Users can choose to purchase directly from vendor catalogs using eBuy, or create orders using PREQs, an internally developed electronic requisitioning application. Organizations that support inventory business units also generate purchases through an auto replenishment process directly through PeopleSoft Purchasing.
Overview

Demand for web development increases

In 2012-13, ITS experienced a significant increase in requests for website development. The ITS Web Services team expanded from two staff members to 13, and the team built well over 100 new sites, including ITS’ own at http://its.uiowa.edu, Human Resources at http://hr.uiowa.edu, and the new UI Home page, http://uiowa.edu.

The expansion of the web team was funded by customer payments for services, and this approach results in costs savings for the UI. Units benefit from having the varied expertise necessary to build a site consolidated in one larger group, and they only pay for services as needed rather than having to hire their own staff. Leveraging the knowledge of the entire ITS team also allows more effective solutions to be developed because IT experts can match up the right development frameworks and tools for each business need.

In tandem with the web team expansion, ITS launched a Drupal-based content management system for campus, providing a more user-friendly tool for developing and updating websites. Customers can choose from two levels of service depending on their customization needs.

IT support, training, and software

Enterprise Services continued to focus on providing excellent technical support for the UI, implementing a new system to manage Help Desk tickets, and expanding its Extended Technical Support team to meet the need for desktop support in other units. Staff taught courses on IT topics such as Windows, Office, and Lync, and ITS made available thousands of online tutorials through Lynda.com.

In 2013, ITS signed a new five-year agreement with Lynda.com. This new agreement includes hospital staff and provides an enhanced Lynda.com service including a customized user experience, playlists, and much better reporting. The new service will launch in early 2014.

ES staff worked to assure legal compliance, negotiate the best possible terms and pricing, and manage the contracts and distribution for software licenses across the campus — including a renewed three-year Microsoft Campus Agreement and site licenses for Matlab, Adobe, and ArcGIS.

New tools ahead

In 2014, ITS will implement new communication and collaboration tools for students, faculty, and staff. ES will complete the migration of student e-mail to Microsoft Office 365, a cloud-based solution that provides increased storage and a companion suite of new communication and collaboration applications. Nearly 10,000 students transitioned to Office 365 in 2013.

Also in the coming months, ITS will expand Microsoft Lync offerings for faculty and staff to a production-level service with a new version that provides web-based online meetings, audio conferencing, and improved mobile clients to go along with existing features such as unified messaging, chat, and desktop sharing. And, staff are working to upgrade the campus SharePoint infrastructure to SharePoint 2013. The new version will provide improved collaboration and document-management features for campus.

ITS will launch a new cloud-based file storage based on Microsoft’s Office 365 service called SkyDrive Pro. All faculty/staff will have access to 25GB of storage, the ability to share with colleagues around the world, and the ability to access their files from anywhere with web or mobile devices.

Also, a new campus Mac management system based on Casper will be offered in 2014. This service will be provided as a partnership between ITS and the College of Liberal Arts and Sciences.
New student e-mail system offers larger mailboxes, more tools

In 2013 ITS began transitioning student e-mail to Microsoft Office 365 to provide larger mailboxes and a full portfolio of communication and collaboration tools.

With Office 365, students receive 25 GB e-mail boxes (compared to 1 GB previously). They can also access software that’s part of the Office suite (Excel, Power Point, Word, and OneNote) and connect with others through instant messaging, video conferencing, and online meetings.

About 5,000 first-year students began using Office 365 at the start of the fall 2013 semester, and more than 4,000 second-year students made the switch over winter break.

The rest will be transitioned in 2014. Response to the change has been positive; in fact, more than 100 students requested to be moved sooner than scheduled so they could take advantage of the new features and bigger mailboxes.

Extensive analysis of vendors

Moving e-mail to the cloud is a major trend in both higher education and corporate business as companies such as Google and Microsoft are now offering high-quality e-mail services to universities. Microsoft has over 20 million users of their cloud services in education alone, and several other schools, such as Nebraska, Duke, and Ohio State have moved or are in the process of moving to 365.

ITS conducted an extensive analysis and comparison of vendors, finding that the Office 365 solution integrates much better with the UI’s existing Microsoft Exchange infrastructure. Security and privacy are a chief concern, and the UI worked with several other institutions to negotiate strong contractual agreements with Microsoft, including a Business Associates Agreement that covers HIPAA data.

Office 365 is initially targeted for students. Faculty and staff represent more complexity because of the kinds of information they communicate using e-mail. ITS will work through those details to see if it’s appropriate to move faculty/staff, and will evaluate the performance of the service for students.

ITS launches Drupal-based SiteNow website hosting service

Using the Drupal content-management system as a framework, ITS in 2012 launched a new website hosting service called SiteNow, allowing customers to build and customize their own websites from a standard starting point, or to hire experts from the ITS-Enterprise Services web team to help create their site.

Drupal, an open-source content management platform, provides user-friendly tools for creating and maintaining websites. In developing the Drupal-based SiteNow service at the UI, ITS wanted to ensure accessibility, mobile device compatibility, and usability of the university’s websites across all user devices and operating systems. This service is designed to be simple to use and maintain and includes functionality to support web forms, people directories, calendar events, rotating banner images, and basic news items.

ITS also worked with University Communication and Marketing to maintain UI branding standards and create some continuity in the look and feel of UI websites. Users can create and maintain new sites using design elements from the new UI Home Page.

Two levels of service

SiteNow comes in two flavors, standard or custom, depending on the level of service the customer needs.

SiteNow Standard

The SiteNow Standard option allows UI students, faculty or staff to start with a basic template and theme in Drupal and customize it with their own content, layout, and color palette. This option is well suited for many of the basic websites maintained by student organizations, units or departments, labs, studios, or classes that do not need special capabilities. It replaces the 15-year-old static HTML central web-hosting service (known internally by the server names Lime and Fog), and is available at no cost.

SiteNow Custom

The SiteNow Custom option is for sites that have advanced graphic design needs, require integration with other UI systems, have complex development requests, or are of a scale that won’t fit the standard service. UI customers hire ITS to develop their sites.

ITS provides project management, card sorts, surveys, custom design and logos, and module integration with campus systems such as Master Calendar, Academic and Professional Record (APR), and
White Pages. Other customers go with the “lite custom design,” which offers custom development and integration using a variation on an existing template or theme for the design.

2 years, 100+ sites

In 2012-13, the web team built more than 100 new sites for the university.

The team redesigned the Office of the President’s external site and introduced a refactored version of the UI’s outreach site, complete with a state map that highlights how the UI impacts the lives of Iowans and is viewable by County, House, Senate, and Congressional districts.

The team also designed new sites for University Housing and Dining including http://dining.uiowa.edu as well as housing and catering, the Office of the Provost (6 sites), Finance and Operations (8 sites), and Athletics (4 sites).

Greater focus on mobile development

It seems everyone has a smartphone these days, and mobile devices now account for more than a quarter of all Internet traffic, according to a Boy Genius Report. First-year UI students are among the first generation to grow up with the devices, so using them comes naturally.

To cater to this trend and to meet the needs of today’s students, ITS is ramping up mobile development efforts. New and enhanced mobile applications provide easy access to useful information about the university, and the campus can look forward to more apps and mobile-friendly websites in the future.

HawkTools

HawkTools is a new mobile application designed specifically for UI students. Within three months of its August 2013 launch, there were nearly 3,000 iPhone and Android downloads of the app.

The app allows students to view open laundry machines on campus, access course-management and student record systems, check e-mail, and view menus for the Burge and Hillcrest dining halls. HawkTools provides a connection to Bongo (Bus on the Go), where they can track arrival times of Cambus and city buses.

The app also provides access to the On Iowa website, an orientation resource for first-year students. During On Iowa weekend, just prior to the start of the fall semester, 40 percent of traffic to the site was mobile.

UI Mobile

UI Mobile is an app designed for campus guests—like families of current students here for Family Weekend, prospective students and their families on campus visits, or alumni returning to town. This app provides access to athletic game schedules, events occurring in Iowa City, and links to the UI’s social media sites.

What’s new?

Previously, Hawktools and UI Mobile were combined in one application. But certain features didn’t apply to all users—for example, visitors didn’t need access to course-management systems, laundry availability, or residence hall menus. Splitting up the app allowed for less confusion and more usage for everyone.

ITS also introduced a new version of Bongo for Apple, and in the fall 2013 semester alone, it was downloaded more than 4,000 times. An updated version for Android is coming soon.

What’s Next?

The next step is bringing more UI websites to mobile using responsive design tools. In collaboration with University Communication and Marketing and Facilities Management, the ITS web development team wrapped up work on a new campus maps site at the end of 2013. The next step will be to make the site accessible via the Hawk-Tools and UI Mobile apps.

Faculty, staff, and students are also developing innovative new apps. ITS maintains UI’s iOS license, so other mobile developers work through ITS to release apps. The license requires that the apps be free to users.

Use of cloud-based survey tool Qualtrics continues to rise

A new cloud-based survey tool deployed by ITS is proving to be a successful solution for the UI.

Since its summer 2011 launch, the number of people using Qualtrics to create surveys topped 4,500. In 2013, over 8,800 surveys were created and 375,000 survey responses were collected.

ITS has continued to hear positive feedback from customers who expressed appreciation for the new service.

A variety of uses

The UI uses online surveys for a wide variety of data collection, from conducting Institutional Review Board-approved research to seeking feedback on customer service. Event organizers create Qualtrics surveys for registration, and service managers use it to gather information from customers as they assess demand and preferences.

In 2012, Qualtrics was used for the Working at Iowa survey, which helps the UI understand how employees feel about their work environment and is used to support continuing improvement and engagement. In 2013, Qualtrics was used for the annual campus IT survey, which helps IT professionals understand how employees feel about technology on campus, where it is working well, and where it can improve.
User friendly and flexible

Ben Earnhart, who handles technology for the Department of Sociology and the Iowa Social Science Research Center, has worked with Qualtrics on several projects, including one that garnered about 1,400 responses.

“For the most basic functionality, it’s really simple to use. For more advanced users, the flow control, randomization capabilities, and presentation of questions can be incredibly powerful,” he says.”

Earnhart says Qualtrics meets researchers’ needs for security and compliance, and that collaboration capabilities allow them to easily edit surveys. He can maintain control over the technical aspects of the survey but still allow clients to view results in real time. Another plus is the presentation options, which range from built-in templates to custom colors, spacing, and graphics.

UI technology experts say in most cases, people can create, test, and deploy a survey in less than 30 minutes. Users can log in using their Hawk ID, and Qualtrics is hosted and fully supported by the vendor. Users receive help directly from Qualtrics by phone or e-mail, Qualtrics provides a wealth of support information, and training is available in a number of formats at no additional cost to users.

Successful transition to cloud

Prior to Qualtrics, the UI had used WebSurveyor since May of 2005. The Survey and Desktop Applications Group in ITS-Enterprise Services investigated what the market had to offer and guided the transition once Qualtrics was selected.

The Directory and Authentication Group hooked Qualtrics into the university’s Shibboleth to allow enterprise authentication. By January of 2012, everything was shifted over and ITS was able to retire the old tool.

Qualtrics is one of the first cloud-based services ITS has deployed for the entire campus. In evaluating future cloud possibilities, the UI will look at this as one of the successful transitions for campus.

For more on Qualtrics, including training and support information, visit http://its.uiowa.edu/qualtrics.
Additional Accomplishments

Application Development
ITS developed several new applications for the campus.

» A Healthy Hawk Survey Engine surveys UI sophomores about their health practices across a variety of categories to identify students who may need UI support services.

» A Recital Attendance Application for the School of Music replaces a manual paper card and database entry system, reducing the staff time necessary to manage the course by 75%.

» The Honors Application automates processes for tracking, applying for, and awarding scholarships to students in the Honors Program.

» The Career Graduation Survey Tool enhances reporting capabilities for measuring placement rates of graduating students.

» ITS also wrote and deployed a Placement Score Portal for Examination and Evaluation Services.

» Most recently ITS deployed a new application for the Office of the President to support increased transparency on the Open Records (FOIA) laws for the State of Iowa.

Bongo (Bus on the Go)
Bongo is a GPS-based, real-time passenger information system that allows riders to find current bus locations as well as predictions for upcoming bus arrivals for Iowa City, Coralville, and the UI. In 2012, the mobile app reached 14,211 downloads for iOS and Android, and in 2013 the downloads reached 16,922.

Work also began for a new trip planning service to assist bus riders in creating detailed itineraries to travel between locations. The trip planning service will be deployed in early 2014.

Enterprise Communication and Collaboration
In 2013, ITS upgraded the UI’s Lync environment to the latest 2013 version. The new service provides web-based online meetings, improved video conferencing capabilities, mobile apps (iOS, Android) and more.

ITS has also been working to roll out a new Unified Messaging service to replace a 20-year-old voicemail system. The new system allows people to receive voicemail messages directly in their e-mail.

Printing, File Storage, and Digital Signage
ITS moved all printers on ITS print servers to Local Scoped Addressing (LSA) to reduce security risk and conserve scarce Internet Protocol (IP) address space. Several departments, including Facilities Management, Chemistry, Vice President for Research Office, Division of Continuing Education, and the Career Center, were moved to the central file service and 70 printers from Facilities Management and Housing and Dining were moved to central printing.

The Research Data Storage Service (RDSS) was moved from pilot to production. In addition, staff completed a major upgrade to AxisTV, which powers the digital signage service, including new hardware to improve performance. The Master Calendar service also received several software upgrades over the past two years.

Project Delivery and Process Improvement
Staff members designed an automated workflow process for Alternative Media Services in Student Disability Services to manage requests. In addition, staff conducted IT needs assessments for Communication Sciences and Disorders and for the Office of the Vice President for Research.

After completing a vendor review, ITS selected Team Dynamix as a new time-tracking and product and portfolio management tool. The new application was piloted internally in fall 2013 and will be launched ITS-wide in February 2014. Exciting new reporting options will come online as data is entered into the new system, providing insight into ITS projects and services and the impact of these on campus constituents.

Software Licensing
ITS negotiated a three-year renewal of the Microsoft Campus Agreement, and worked with a number of colleges to change how the Matlab license is funded. Departments can now deploy Matlab to as many computers as they want, and researchers and students can access the software at no additional charge. Also changed was the way students receive Microsoft Windows and Office so they can now download the software any time of the day at no charge.

In 2013, a campus-wide Adobe license was negotiated that provides the majority of Adobe products to campus as well as a home-use program for UI employees.

Training
ITS partnered with UI Learning and Development to teach Office, Windows, and Lync classes. Lynda.com training video views reached almost 100,000 in 2012 and over 110,000 in 2013.

User Support
ITS evaluated the technology support needs of the Vice President for Research, recommending several changes to provide better support
and more consistent practices. ITS contracted with several offices on campus to provide Extended Technical Support: the Pomerantz Career Center, the Academic Advising Center, and the administrative offices of the Division of Student Life.

In addition, ITS implemented the ticket-tracking tool System Center Service Manager as a replacement for the old system, Remedy. Also implemented was LogMeIn Rescue, a remote assistance and online chat support tool.

To raise awareness of IT tools and services available to the campus, ITS published new editions of its Technology Resource Guide for students and developed separate versions of the guide specifically for faculty and staff.
Metrics

ITS Help Desk Contacts

The ITS Help Desk provides support to students, faculty, and staff on a variety of technology-related topics, including operating systems, software applications, networking, security, and consulting on IT purchases. Support is available by phone, e-mail, and online chat, or at the walk-in desk on the second floor of University Capitol Centre. In the past decade, the number of Help Desk contacts has grown tremendously, from about 33,000 per year to nearly 81,000.
Managed PCs

The UI uses Microsoft System Center Configuration Manager (SCCM) to efficiently manage computers across the network. IT professionals can centrally manage systems (for example, deploying/updating software or operating systems) and provide support with remote tools from anywhere on campus. Use of SCCM has increased steadily.

Lynda.com Training Videos Viewed

Lynda.com is an online training library that provides access to 900 courses and over 56,000 tutorials on technology topics. ITS deployed this resource to the university in January of 2011, and it is now accessed more than 25,000 times per quarter by employees and students seeking to learn new technologies or keep their skills up to date.
Reduction in Needed Student PC Repairs

The ITS Help Desk implemented better tools and training to address hardware, software and malware issues for students on a walk-in basis, and a new online system allows students to more easily install Microsoft software on their own. Combined, the changes resulted in a 60% decrease from 2011 to 2013 in the number of student-owned computers that had to be left with ITS overnight or longer for repairs. This saves staff time, and students experience less down time of lost productivity.
Overview

Raising awareness

The Information Security and Policy Office (ISPO) continued training sessions and other outreach efforts to raise awareness about IT security in the campus community. A new security awareness resource was developed at http://learnaboutsecurity.uiowa.edu, featuring information about information-stealing attacks (a.k.a. phishing), security training, and IT compliance information and checklists. An awareness campaign called “It’s a Jungle in There” was launched in December of 2013 with multi-mode marketing.

Staff also worked collaboratively with campus stakeholders to implement a video surveillance policy and a secure, centralized video surveillance service.

Securing the ITF

ISPO was heavily involved in the transition to the new Information Technology Facility. Staff members designed, built, tested, and implemented the network firewall architecture and subsequently created over 27,000 access control rules in the firewalls to support the migration of over 500 servers into this facility.

Data protection and risk assessment

In 2013, ISPO efforts focused on several institutional data protection and risk assessment initiatives, including an institutional data classification project, enhanced monitoring of the network for malicious activity, a multi-factor authentication pilot for web services, development of guidance and assessments to achieve regulatory and policy compliance, and continued development of a “cloud computing” security strategy and cloud vendor assessment procedures and resources.

Plans for 2014

The Information Security and Policy Office has several strategic projects planned or underway for 2014. Development of an isolated virtual network specifically designed for carrying sensitive credit card transactions will be completed, and point-of-sale applications used by the university will be migrated to it. This will help the UI meet the newly revised Payment Card Industry Data Security Standards v3.0. A shared e-commerce gateway for processing credit card transactions is also being investigated as another way to help the university meet these evolving security standards.

Enterprise-level risk assessment

An enterprise-level IT risk assessment is also on the roadmap for 2014 to provide a high-level perspective on the strength of the university’s security program and any weaknesses that may be present in the highly diverse and complex computing environment at Iowa. A risk assessment of this nature provides executives with additional assurance that the university is addressing institutional risk in IT with appropriate controls, policy, and procedures.

Enhanced network monitoring

Another important goal for the year is to plan for and develop the infrastructure to enable the indexing of many different types of log information created and collected by the university’s network and computing systems. The UI has had visibility to detect problems occurring over the network for many years, but a more robust solution will enable visibility into critical application or server activity. In addition, the future capability to correlate between systems and network activity will enable staff to respond to problems more quickly and help prevent costly exposures of information.
Additional Accomplishments

IT Security Policy

ITS updated the Network Scanning policy to address audit requirements for Network Penetration Testing, and updated the University Credit Card Handling Policy to meet evolving industry security requirements. In addition, the policies for records management, mass e-mail, and acceptable use of IT resources were revised and adopted.

Network Monitoring & Intrusion Detection

Staff designed, procured, and implemented a next-generation monitoring and intrusion detection system for the UI campus network. The system supports monitoring of higher capacity network traffic, as well as both IPv4 and IPv6 network communication protocols, and provides a scalable solution that will support future network improvements.

Security Outreach

The Information Security and Policy Office conducted its eighth semi-annual university “Security Day” awareness and training event for the UI campus, offered bi-monthly security seminars and training classes, and updated online security awareness courses and materials for both students and staff.

Security Service Pilots and Vendor Evaluations

ITS completed a pilot for a new two-factor authentication solution on the Virtual Private Network (VPN) service, and another for user security certificates, which can be used for encryption, digital signatures, or authentication. Security evaluations were completed for 14 cloud-based applications.

Wireless Security

Staff assisted with specifications, design, and implementation of an updated network architecture for the UI Wireless service, involving utilization of private (internal-only) addresses and a gateway/translation service for Internet access, as well as basic security access controls.
Copyright Infringement Complaints

The university responds to reports of copyright infringement through procedures outlined in the Digital Millennium Copyright Act, which include prompt removal or deactivation of access to the copyrighted material, and notification to the alleged infringer. Because of improved awareness of copyright law, as well as technical measures that restrict sharing of copyrighted material, the number of infringement complaints received by the Information Security and Policy Office about UI campus users is about one-eighth of what it was three years ago.

Percentage of Faculty and Staff Using VPN for Off-Campus Access

About 65% of faculty and staff report using the Virtual Private Network to access their files from off-campus, an increase from only about 53% two years ago.
Number of Faculty and Staff Completing Security Awareness Course

One of the best ways to prevent IT security breaches is to increase user awareness, so a lot of effort goes into educating users about ways they can help protect both personal and institutional data.

- The number of faculty and staff who have completed the ITS online security awareness course has increased almost 2.5 times since 2010.

Visits to IT Security and Policy Office Website
Overview

Supporting student success

In 2012, ITS-Instructional Services continued its focus on the creation of learning spaces geared toward student success and retention. The UI opened and planned for more TILE (Transform, Interact, Learn, Engage) classrooms that facilitate student-centered, active learning environments.

Working closely with the Center for Teaching, ITS provided training and support to faculty as they utilized the technology in these classrooms and developed new teaching strategies to shift from a lecture-based model to a more student-centered learning environment. In 2013 this work expanded to begin partnering with the College of Engineering’s Lectures and More, which are ongoing, regularly scheduled efforts to expand faculty use of student-centered learning methods.

ITS hired an assessment coordinator to analyze how these efforts are impacting students, and published papers and book chapters to share what was learned. In addition, the UI began to explore and assess emerging instructional technologies such as electronic textbooks.

Plans for the year ahead

Supported by the outcomes of a 2012 assessment of the learning management system, ICON (Iowa Courses Online), plans are underway for a major upgrade. This upgrade will include a rebuild of the underlying infrastructure, refresh and rebuild of all third-party integrations, a major upgrade to the underlying software, a refresh of the branding, and a rollout of new training methods for increasing and improving faculty use of the system. The new system will be available to campus by the end of May 2014.

Even while supporting numerous enterprise teaching systems and facilities, ITS-Instructional Services is exploring other new technologies including student learning analytics, expanded digital content solutions, and MOOCs - massive open online courses.
TILE: Transform, Interact, Learn, Engage

TILE classrooms are technology-rich spaces that facilitate student success by promoting active and inquiry-based learning, in-class collaboration, and increased interaction with faculty.

In a conventional classroom a teacher speaks from the front of the room while students listen. TILE rooms are designed for student-centered learning, with collaboration technology and furniture arranged for group work. Specially trained instructors use new teaching techniques to inspire peer-to-peer instruction and hands-on learning.

The result is a welcoming atmosphere. Professors are approachable in this open environment and can help students learn on a more personal level. Assessments indicate that students enjoy these courses more, and perform better. Critical thinking and collaboration skills gained in a TILE room are crucial to their careers.

UI opens seventh TILE classroom

The UI established its first TILE classroom in 2010, patterned off of a model at North Carolina State. Two TILE rooms were added the following year, and four more opened in 2012 and 2013.

To date, more than 300 UI courses have been planned around the unique TILE design, and nearly 4,500 students have enrolled in those courses. TILE classrooms are currently located in:

- Main Library (2)
- Van Allen Hall
- Biology Building
- Trowbridge Hall (2)
- Phillips Hall

The UI is now considered a national leader in this area, and staff members are sharing assessment results, lessons learned, and techniques through papers, book chapters, and conferences.

TILE ‘boot camp’ for instructors

To teach in the TILE setting, faculty members are required to complete a three-day institute or a four- to five-hour intensive “boot camp.” The training helps them learn the concepts and technology of a TILE classroom, and to adapt to the more student-centered environment. There are also ongoing programs for professors who wish to continue developing these skills.

So far, 123 faculty members have been trained, representing nine different colleges and 51 departments. Many believe this preparation is one reason TILE is working so well at the UI.

Transforming large lectures into active learning experiences

Large lecture courses aren’t for everyone. Efficient as they may be, there is no guarantee that students are engaged—or even coming to class. It’s easy to hide in the masses and tune out.

A new project sponsored by the Office of the Provost and coordinated by ITS aims to improve the large-lecture experience for University of Iowa students. Through technology and innovative teaching techniques, the goal is to provide students with a more active learning environment.

So how does it work? Different models are necessary for different courses, but here are some of the elements instructors can incorporate to transform their courses:

Establishing a baseline

Students may be asked to complete brief assessments, either online or live in class, to see what they already know about a topic. This establishes a starting point so the instructor can tailor course content to focus on new material or to review key concepts.

In-class interaction

Students use technologies like “clickers” (hand-held response systems) or smartphones to provide instant feedback during class. This helps the instructor gauge whether they understand the material, or whether more time should be used to clarify a concept.
Flipping the classroom
Rather than coming to class to hear the lecture content, students do that part in preparation for class, through readings or audio/video recordings. When they come to class, they are ready to apply the knowledge through problem solving activities, engage in deeper discussions, and ask more specific questions than they could if hearing the material for the very first time.

Lessening the intimidation
Raising your hand to ask a question in a room of 200 people can be scary. But if you’re feeling lost in the midst of a lecture, waiting until after class to ask the instructor isn’t a whole lot of help. “Lecturetools” will be incorporated into the classroom. This is a web-based platform that makes lecture slides accessible to students. They can ask questions during class and either the instructor or the TA may monitor and address questions.

Small-group discussions
Large lectures are frequently paired with smaller discussion sections, which are typically held weekly and led by graduate teaching assistants. New student-centered learning spaces called TILE (Transform, Interact, Learn, Engage) classrooms help to facilitate collaboration in these small-group settings. Furniture configurations encourage group discussion, and technologies such as large screens make it easy to share work and offer peer-to-peer feedback.

Putting techniques to the test
Three courses from two UI colleges will put these models to the test over the next year. The courses span a variety of fields, starting with Introduction to Environmental Science and Media History and Culture in the spring, and adding Statistics for Strategy and Circuits for fall.

Over the next several semesters, staff in ITS-Instructional Services will monitor the success of these courses and conduct formal assessments to evaluate the experience for students and instructors. Eventually, more classes will be added to the list of transformed lectures.

The Large Lecture Transformation Project is one of several student success initiatives underway on campus. The overarching goal of this project is to create processes and tools for instructors to optimize time in the classroom and to provide a more engaging experience for students—after all, the more lively the lecture, the more incentive a student has to go to class.

New Learning Commons provides flexible, tech-infused study space
The Learning Commons opened with the start of the fall 2013 semester, and the 37,000-square-foot facility is already buzzing with activity—groups clustered in study rooms, solo studiers camped out in nooks, students taking breaks in the centrally located café.

Built for flexibility and interaction, the new tech-infused study space is a major upgrade to the UI’s Main Library, occupying much of the building’s first floor. The facility is the result of collaboration between University Libraries, Information Technology Services, and the Office of the Provost. In its first semester alone, nearly 2,000 students utilized the new space on a daily basis.

Designed specifically for students
The Learning Commons is open all day and night with the exception of Friday and Saturday nights, in direct response to students’ ongoing requests for 24-hour study space on campus.

Students can reserve open study areas and private group study spaces that seat up to six. In both spaces, they can connect their laptops to LCD screens to display and share content. They have their pick of 100 new desktop computers, and can lounge in the expanded Food for Thought Café with a menu of made-to-order sandwiches, fruit smoothies, snacks, espresso, and gourmet coffees.

One-stop shop for academic resources
The library’s Service Desk is also located in the Learning Commons. Staff members are available to check in and out library mOneateials and to answer library, academic, and basic technology questions.
Engage classroom with glass walls and sliding doors, printers and scanners, TVs and projectors, and multimedia resources.

“Our design team spent a lot of time watching how students study, and particularly noticed how much they leveraged technology in their daily work habits. This space, with its multimedia resources, collaboration technologies, and wall-to-wall wireless, is reflective of the way today’s students integrate technology into their lives,” says ITS Learning Spaces Director Chris Clark.”

What’s ahead for the Learning Commons

The Learning Commons is now hosting a variety of tutoring services. Students can find statistics tutoring, writing center satellite stations, and SWAT (Study, Workshops, And Tutoring) sessions in the space. Also held there is an Express Workshop series featuring weekly 20-minute sessions on a variety of relevant academic topics, from information literacy mini-lessons to software training.

UI collaborates with UNI on ifolio project

A team of ITS staff members teamed up with colleagues at the University of Northern Iowa (UNI) to build the necessary infrastructure to deploy the UI’s electronic portfolio for UNI students, and the collaboration saved the state thousands of dollars. While the academic technology staff at the three institutions has a long history of collegial networking, this effort is one of the first collaborative instructional technology services between Regents schools.

The UI had developed and deployed ifolio just as UNI was looking to replace its vendor-supported product. UNI found that ifolio was customizable, included more features, and saved the school about $20,000 per year in licensing fees. The two universities worked together to provide appropriate integrations to identity management systems, training for support staff and faculty, ongoing support for students, and local branding for each of the schools and departments.

ifolio wins IOWA Award

In spring of 2012, the team received an Improving Our Workplace Award (IOWA Award) from the UI. The awards recognize employees who demonstrate initiative and innovation that has a positive impact in their workplace. Members of the ifolio team were: Annette Beck and Sue Almen-Whittaker of ITS-Instructional Services; Andrew Rinner of ITS-Enterprise Services; Chris Pruess, Nick Roy, Gary Rogers, Greg Nims, and Rebekah Ahrens of ITS-Administrative Information Systems; and UNI staff members Aaron Thompson, Lori Seawell, Jason Vetter, Jeffrey Ries, and Donna Vinton.

“The ifolio project involved collaboration within the university community and across boundaries to UNI,” said ITS-Instructional Services Senior Director Maggie Jesse, who nominated the team. “It exemplifies cross-Regent communication, careful long-term planning, and measurable results.”

UI participates in e-text pilots

Digital technology is driving a period of rapid change in higher education, and nowhere does that change seem more apparent than with e-textbooks and digital course materials.

In fall of 2012, the UI joined an e-text pilot to evaluate technologies and business models in the transition from traditional textbooks to electronic content. Co-sponsored by EDUCAUSE and Internet2, the pilot was conducted in partnership with McGraw-Hill Education and Courseload. In collaboration with the College of Education, ITS received a $20,000 grant in support of the study.

E-text piloting ramped up the following year as the UI explored products from four distinct vendors with nearly 1,800 students enrolled in 25 different courses. There was another pilot with Courseload, and there were also pilots with Biportal, Mindtap, and CourseSmart. Each system included different features, such as note-taking and sharing functions, and embedded quizzes, videos, and activities.

Assessing learning outcomes

In fall 2012, ITS and the College of Education evaluated how students’ experiences with e-texts compared to traditional textbooks. The goal was to see whether the interactive e-textbook platform was associated with learning outcomes.

The study involved nearly 600 students in 17 courses. For comparison, researchers matched up the courses so one class used e-texts, while the other class enrolled in that same course used books.

The key findings were:

» Students generally preferred books over e-texts, reporting that they were easier to access and more useful for learning. Some students used the interactive tools, but most did not engage in bookmarking, annotating, or taking notes. Overall, e-text users were less satisfied.

» There was no significant difference in the final grades of students who used e-texts and those who used textbooks in a matched course.

» Students who were required to use the interactive tools were more likely to believe that the e-text had a positive effect on their grades. This suggests that the instructor’s role in promoting tool
usage is critical for students’ adoption and successful usage of e-texts.

» A strategy of using bookmarks along with frequent reading was associated with student learning outcomes in the form of final grade. (Not many students used bookmarks extensively, though, so this is a topic the researchers want to revisit in future studies.)

» Early attitudes are a factor in students’ inclination toward using e-texts throughout the semester. Instructors can assess these attitudes at the start of the semester and use that information to help students who may otherwise shy away from e-texts. Structured activities on how to use the mark-up tools could benefit both students and instructors.

A spring 2013 follow-up study examined how students used e-texts to achieve course benchmarks. It focused on a course that was part of the Internet2/EDUCAUSE pilot, involving 87 students who used a Courseload e-text and 25 students who used a CourseSmart e-text. Preliminary findings indicate that students believed e-texts were useful when they thought e-text activities aligned closely with the goals of their assignments. CourseSmart received higher marks overall; this could be related to a variety of factors, including the ability to access the system through mobile devices and online.
Additional Accomplishments

Assessment Activities

ITS hired a full-time assessment coordinator and completed additional TILE assessments, along with a campus-wide assessment of computer lab usage that is being used now to create recommendations for future strategic direction. Results of assessment activities are also being shared through a book chapter on TILE, several articles, and presentations at national meetings.

The assessment coordinator also completed a campus-wide assessment of ICON. The outcomes of that assessment are being used to plan and support a pending major upgrade to ICON; the largest upgrade since ICON’s inception in 2005.

Innovations in Teaching with Technology Award Improvements

The Innovations in Teaching with Technology Award process was greatly improved in 2012; applications are up 200% over last year and 350% over two years ago, and the quality of proposals also increased. ITS worked with two faculty members from the 2011 cohort to explore commercialization of their innovation.

The 2012 awardees are now beginning to report back on their successes that range from meeting initial proposal goals to leveraging the award into additional funds from other units and agencies. The 2013 call for proposals has gone out and the Academic Technology Advisory Council is currently reviewing applications.

Student Success Proposals

ITS was awarded a Student Success Proposal for the upcoming Large Lecture Transformation project, and participated in preparing several successful Student Success Proposals (International Programs, Rhetoric, and the Institutional Research Office).

A full-time instructional designer was hired in 2013 to support faculty in the Large Lecture Transformation project. Four courses have been identified for transformation and the first of these will be delivered during the spring 2014 semester.
New Wiki Pages Created

The wiki service offers a web-based tool for collaboration and discussion—for example, sharing team notes, group editing of documents, or working with classmates or external researchers on a project. Features of the wiki include threaded discussion, embedded media, revision history, and seamless integration with the course-management system (ICON) dashboard. Since 2007, the number of pages created per year through the UI's wiki service has grown from about 3,100 to over 26,000.

Wiki Facts:

- **53,736**: Total number of users
- **507**: Total number of connected ICON courses
- **5,673**: New users in 2012-13
UI Capture Sessions Recorded

UICapture (also known as “lecture capture”) creates digital recordings of audio, video, and screen content and makes it available as streamed presentations or downloadable podcasts. Students can watch lectures on demand to review content, or to make up for a missed class. The College of Medicine uses the service to capture all of its lectures, and UICapture has also been helpful to international students and students with learning and other disabilities. In 2013, nearly 10,000 sessions were recorded, and views reached more than 436,000.

UI Capture Sessions Viewed
Active ICON Courses by Semester

Iowa Courses Online, or ICON, is the interactive web space for UI courses. The course-management system is used by students and instructors to share course content, submit assignments, facilitate quizzes and discussions, post grades, and more. Use of ICON has grown steadily. In spring of 2008, about 2,400 courses were using ICON; by fall of 2013, there were nearly 4,400 on the system.

Unique ITC Users per Calendar Year

Use of the campus Instructional Technology Centers (ITCs) remains strong, even though nearly all students report using mobile devices and their own laptops. The number of unique users of the ITCs hit an all-time high in 2012, and remained strong in 2013. The hours of total usage dropped off some, indicating that more people overall are using the ITCs, but are spending less time. (Counts include unique login IDs over all semesters in a year, so the total numbers are higher than any reported enrollment for a single semester.)
Instructional Services: Metrics

Hours of ITC Use per Calendar Year

![Bar chart showing hours of ITC use per calendar year from 2006 to 2013. The chart indicates a consistent usage with slight variations across the years.](chart_image)
Overview

Business, financial, human resources, and strategic communications

ITS Business and Administration handles the business, financial, human resources, and strategic communications for the ITS organization, and supports the CIO broadly in his campus-wide responsibilities and facilitation of the IT communities.

In 2012-13, staff focused on enhancing both internal and external communication, refining the management of financial and human resources, and cultivating positive vendor interactions. ITS made great strides in restructuring its project and service categories, improving the way time-management data is collected, and simplifying how the cost of services ITS provides is measured.

Staff also conducted annual campus-wide IT surveys to assess the satisfaction, usage and needs of campus technology users, and continued to encourage and support the IT communities on campus. ITS made great progress in guiding the campus to meet web accessibility standards and improving measured web accessibility scores.

Recruiting and retaining

Talented, motivated, and engaged staff are the core of ITS’ success, and recruiting, retaining and rewarding them is one of the organization’s biggest challenges. To meet demand for IT personnel, ITS competes head-to-head with the private sector, and is constantly looking for talented IT professionals both within the university and externally. The competition also means ITS must strive to foster the advancements of its talented people so they know that their hard work is noticed and have opportunities for new challenges and professional development.

Often the best candidates for position openings are from within ITS or other UI departments, creating a need to backfill those positions. More than 12% of ITS staff were new employees in 2012-13 or changed positions within ITS. In this regard, it was a fairly typical year and highlights the importance of recruitment and retention efforts to keep ITS moving forward.

Rewards and recognition

Several staff members were recognized with IOWA Awards they earned through their contributions to improving the UI workplace. ITS is proud of the fact that all of these awards were received in collaboration with other departments. Several employees earned career advancements and flexible pay awards in 2012-13, recognizing their progress and extraordinary contributions.

The ITS Leadership Team held events like the annual soup cook-off and holiday luncheon, Meet & Greet networking sessions, and directors’ Q&A panel discussions; these activities aim to recognize and appreciate employees, foster a strong sense of community within the organization, and provide opportunities for feedback and interaction in a variety of venues.

Professional development opportunities

Development opportunities were offered to staff through the tuition reimbursement program, leadership programs, and technical training courses. In 2013 the IT Leadership Development Team, which includes representatives from ITS and other units on campus, planned the first IT Professional Development Day. The event was made possible with support from the CIO Office, and all 75 registration slots filled within minutes. The team also instated an IT Leadership Award, which was presented to Doug Eltoft of the College of Engineering at the Tech Forum in May.

In August of 2013, ITS hosted Drupal Corn 2013, a three-day statewide Drupal camp for developers, designers, and others who wanted to learn more about the web content-management system. Several ITS employees were involved with organizing the program and participated in the regional conference.

Working at Iowa Survey

In 2012, 85% of ITS staff members participated in the university’s Working at Iowa Survey. Results showed that 96% of ITS staff feel the organization is clear about what is expected of them, 92% feel the feedback they receive from their supervisor helps to improve their performance, and 91% said their supervisor acknowledges them for doing good work. In addition, 92% feel ITS supports a healthy work-life balance.

In the past year, ITS staff members made considerable improvements in the areas of exercise, managing stress, nutrition, and weight management. Data from the university’s LiveWell program show that ITS staff members overall have moved to lower-risk health categories.

Plans for 2014

In 2014, ITS will continue efforts to raise awareness on campus about
the services it offers through several efforts: establishing a social media presence for the organization, continuing to refine the newly redesigned ITS website, and building strong relationships with leaders of other units on campus. Staff will put into production the updated cost-by-service reporting, and will reach out to all campus IT professionals to encourage involvement in the IT communities.

Metrics will be another area of focus, as ITS works to define which metrics are most useful to collect, and how the data will be organized and distributed. ITS will consolidate its HR personnel into the Business and Administration department and work to make the new employee onboarding process more comprehensive and consistent. Next steps in web accessibility will focus on tracking efforts in this area, and on making online PDFs, multimedia, and instructional materials more accessible.
UI makes significant progress in web accessibility

The UI is committed to providing equal access to web resources for all individuals, regardless of ability, impairment, or environment.

Since approval of the campus web accessibility policy in October 2011, the ITS-led web accessibility efforts have focused on helping campus units assess and improve their websites. This has included over 700 site assessments, training, and development of self-assessment practices and reference materials. With the wide implementation of the SiteNow content-management system, accessibility assessment scores have continued to improve for new websites.

Results of the 2013 faculty/staff IT survey show that 58% of campus respondents are aware of the Web Accessibility Policy. Two recent comparisons of university websites show that in a limited measurement of key campus web pages, Iowa has made significant progress in comparison to its ranking in 2009, both among CIC institutions and against a national group of 226 institutions.

Next steps in web accessibility

In 2013, the scope of accessibility efforts expanded to include application development, administrative PDFs, and multimedia. These efforts will continue in 2014, with the addition of educational materials, and more focused training for web developers on specific accessibility concepts.

Iowa is also an active participant in the CIC Information Technology Accessibility Group (CIC ITAG), sponsored by the CIOs of CIC institutions. In 2014, the Iowa web accessibility group will continue to collaborate with other CIC teams on accessibility projects addressing web design, media development, vendor relations, and assessment techniques. The outcomes of these projects are expected to yield a body of tools, standards, and practices that will improve accessibility across a spectrum of IT.

IT survey evaluates satisfaction levels, usage trends

The results of the 2013 campus-wide Faculty/Staff IT Survey showed that campus users continue to have high satisfaction with many core IT services. For 17 of the 20 satisfaction indicators measured, over 80% of respondents were satisfied or very satisfied with the service. These results are consistent with measures collected in 2012 and 2013.

This survey was administered to all full-time faculty and staff outside UI Health Care, a total of 5,894 subjects. There were 2,535 responses to the 2013 survey, a response rate of 43%; this was nearly 1,000 more responses than in 2012. There were nearly 3,000 responses to five open-ended questions about how services could be improved, running to a total of 200 pages.

Growth in wireless devices and remote access to information

In addition to questions about service satisfaction and improvements, the survey sought information about how people use IT services. Results showed continuing growth in wireless devices and access to campus information away from the office.

Ownership of smartphones increased from 45% to 56% of the population; tablet use rose from 26% to 42%, a 61% increase. Over 70% responded that they read e-mail on a phone or tablet, and nearly 80% of the respondents use smart phones or tablets for UI business. Wireless usage jumped significantly, and satisfaction with wireless increased by 12 percentage points.

About half of the respondents are bringing personal technology to campus to conduct campus business.

Results specific to each college and business unit were distributed to the IT directors managing services in those units for their consideration and action. A comprehensive report showing results for the last three years is posted at http://cio.uiowa.edu/faculty-staff-it-surveys.
Additional Accomplishments

Centralizing ITS Human Resources and Financial and Accounting Transactions

To gain efficiencies and improve quality, ITS implemented shared services across all departments to centrally manage the human resources, accounting, and financial functions of the organization.

HR Training

ITS completed Gift Law, FERPA, and HIPAA training for staff throughout the year and was 100% compliant in sexual harassment prevention training of staff. ITS staff also received training on goals and performance reviews as the university transitions to an online tool as part of the My UI Career initiative.

Internal Communication Efforts

The ITS Leadership Team began hosting quarterly Meet & Greet and Q&A sessions for staff, providing new opportunities for relationship building, information sharing, and the exchange of ideas. The LT also began providing more detailed summaries of its biweekly meetings to keep staff up to date on projects, policies, and plans.

ITS Cost Recovery Billing

Using TNSConnect, ITS centralized all billing into one system and consistent process.

ITS Logo

ITS developed and implemented a new logo that incorporates the tagline “Connecting Campus,” and provides a fresh graphic identity for the new website. The logo is intended for use as a complement to the UI’s traditional dome logo to help ITS distinguish itself on campus. ITS received approval from campus marketing officials and began to utilize the branding elements in publications, websites, presentation slides, digital signage, and shirts for staff members.

ITS Website Redesign

ITS launched a new website with a fresh, graphical look and feel. The new site features improved navigation (content organized by audience, and “information centers” to group support articles and related services). It utilizes the content-management system Drupal. Since the site’s launch, the website team has actively sought feedback through a number of mechanisms, and continues to make enhancements to ensure that users will be able to easily access the information they need and want.

Social Media

In conjunction with the website redesign, ITS assessed how IT departments at peer institutions are using social media, investigated applicable policies and guidelines, and discussed how staff would manage and utilize social media platforms here at Iowa. This planning has prepared ITS to introduce a social media presence in the coming year.

Tech Forum

In both 2012 and 2013, ITS brought together more than 300 IT professionals from across campus for a daylong conference at the Iowa Memorial Union. The forum promotes collaboration in IT at the university by providing a networking opportunity and an introduction to UI IT Communities. In 2012, a poster session was added to provide additional exposure to IT communities and projects, and in 2013, the planning committee began using Twitter and Facebook as tools to promote the event.
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