2013-2014
IT@CORNELL
ANNUAL SHOWCASE

September 2014
Message from the CIO

When we set out to develop Cornell’s first campus-wide strategic plan for IT, we wanted it to guide us on the path forward, to be a cohesive framework for change and improvement. That’s a tall order for something as dynamic as information technologies. But keeping our eyes focused on the future is especially important in IT because of its ubiquity and pace of innovation. Otherwise, as Lewis Carroll famously said, “If you don’t know where you are going, any road will get you there.”

Yes, the pathway is important; more important is the action the plan inspires. And if you’ll allow a passage from another very quotable source, “Even if you are on the right track, you’ll get run over if you just sit there.” (Will Rogers)

We are now at the end of the first year of the IT@Cornell Strategic Plan. It is a natural time to take stock of what we, the IT@Cornell community, have accomplished and consider what lies ahead. That’s what our inaugural Annual Showcase is all about. Here you will learn of some of the many noteworthy accomplishments by our campus community.

We saw major improvements to our research network as a result of the Network Connectivity Program (on campus) and the move to 10Gb speeds beyond campus. Cornell joined the edX consortium and produced four MOOCs with four more in the pipeline to be offered in early 2015. Classroom technology upgrades are taking place across campus in the first phase of a multi-year program to support blended learning. The IT@Cornell community is becoming more diverse even as it is improving leadership expertise and planning for the IT skills of tomorrow. And we continue to embrace cloud technologies with dozens of services in domains too varied to mention.

It is clear to me that we are not “just sitting there”—we are making good and steady progress toward the future. I hope you enjoy the Annual Showcase and I welcome your questions, comments, and suggestions for improvement by email: ted.dodds@cornell.edu.
Key Accomplishments for IT@Cornell

- **Completed the Network Connectivity Program (NCP),** a three-year effort to upgrade the campus network infrastructure, providing connectivity for the first time in some areas and upgrading 31 percent of the billed telephones and network connections across campus. 29 buildings received wired and wireless upgrades and 17 wireless only upgrades. The project has resulted in faster network connectivity at the desktop, better wireless coverage, cost-saving VoIP phones that run on the data network, interior emergency telephones in buildings and upgraded and new telecommunication rooms that support modern equipment. As a result campus has a network capable of delivering information at the higher data speeds used by contemporary devices and with the bandwidth now required for network-intensive applications. Because funding was made available for a faster upgrade program than originally planned and because we focused on replacing existing “in-use” connections, the project was accomplished for $16.6 million in savings. **Next steps:** Upgrade and extend campus network infrastructure as needed to maintain it as a key resource for academics and research. **Read more** about replacing wireless access points on page 24.

- **Launched a classroom and learning space upgrade.** We were gratified that Cornell recognized the need to improve technology in classrooms and approved capital resources for phase 1 of a multi-year classroom and learning spaces refit. Capital funds are being used to equip six showcase classrooms (two each in Engineering, A&S and CALS). These rooms were selected after evaluating 60-plus rooms to determine the complexities involved in upgrading them. The showcase project offers the opportunity to equip multiple rooms, evaluate several vendors and solicit feedback about the rooms. Learning spaces are being designed and equipped in compliance with ADA guidelines. The upgrade project is a partnership between CIT, the university Space Planning office and the Vice Provost for Undergraduate Education, Laura Brown. **Next steps:** A room selection committee is considering classrooms and spaces for additional upgrades to be completed over the coming year. The total number of spaces to be upgraded with phase 1 capital funds depends on the type and complexity of each space. Typical upgrades include wireless network access, new projectors, monitors, cameras for lecture capture, sound systems, wireless projection capability, and improved room documentation and labeling.

- **Undertook an IT Skills Assessment initiative** to understand the collective skills of the IT@Cornell staff; to provide staff and managers with tools to improve career planning; and to take better advantage of the IT skills that we have at Cornell. We inventoried the IT skills of 650 individuals across IT@Cornell, developing an
aggregated view of skills and proficiency levels. We also completed Cornell’s Future Technology Skills report, a forecast of skills our IT organizations will likely need more and less of in three to five years’ time. Now IT directors, managers, and individual contributors can begin using the data and reports that have been compiled to make fact-based and thoughtful career and training decisions.

- **We invested in current and future IT leaders in units across Cornell.** For the third successive year we participated with peer institutions in the IT Leaders Program (ITLP). To date, 16 Cornellians have completed the program with eight more graduating in September. New this year, we launched our Emerging Leaders Program (ELP) with 27 staff graduating. These important programs illustrate that the “soft stuff” is really the hard stuff and help build the leadership talent we need now and going forward. Both programs emphasize change management so that we can adapt to and lead changes that are part of achieving IT service excellence. IT@Cornell will also invest in other opportunities for skills development throughout the IT community. Both programs will be continued in FY15.

- **Academic Technologies, eCornell, the Center for Teaching Excellence, and the Cornell University Library, partnered with faculty to create Cornell’s first four MOOCs.** Four more MOOCs are in the pipeline along with SPOCS (Small Private Online Courses) and a variety of innovative projects for online learning.

**A Look Ahead**

- **IT@Cornell is directly involved in the development of an online learning strategy for Cornell** that will enable the university to efficiently and effectively deliver courses for fee and for credit. A goal is a scalable framework and method for the ongoing production of courses that puts Cornell in the business of online learning.

- **Throughout the coming year, we will be working toward a July 2015 upgrade of the PeopleSoft Alumni and Student System.** Read more on page 16.

- **In 2015, Cornell will begin a multi-year implementation of the Research Administration Support System (RASS).** Read more on page 18.

**IT Serving Cornell**

An in-depth look at some of our key accomplishments.

- Network Connectivity Program completion results in expanded and improved network
- Skill Up! Leverage IT Skills Assessment Information
- Emerging Leaders Class Defines Leadership
- Cornell’s first four MOOCs to launch next semester
Campus IT Partnerships

We used technology to enhance and support education, research and outreach through the efforts of the IT service groups that support schools and colleges.

- **Cornell University Library**
  - The Cornell University Library (CUL) launched a new single search box interface to the catalog, the Library web site and to millions of licensed articles, newspaper stories and ebooks. It is the result of an 18-month project that included collaboration between IT, usability experts, web designers and public service staff.
  - Mann Library and CUL-IT received a Gates Foundation grant to expand an electronic agriculture library to six African countries and Bangladesh. The grant funds technology that enables easy installation of the library on local area networks without requiring Internet connections, an important requirement for a high proportion of target institutions.
  - Mann Library and CUL-IT are collaborating with faculty and numerous state and regional organizations under the auspices of a New York State Energy Research and Development Authority grant, to create a climate change clearing house for New York state policy makers, scientists and officials for release in 2015.
  - CUL is working with Harvard and Stanford on the Linked Data for Libraries project funded by the Andrew W. Mellon Foundation to make books, articles and other materials scattered across many libraries and systems easier to find by using “Linked Data” to discover information and deliver it in a common format.

- **College of Human Ecology**
  - The College of Human Ecology Computing Services Group has methodically and intentionally leveraged external services and shifted its skill set in order to focus on supporting the college’s unique needs. By leveraging central commodity services such as the server farm and Shared File Services and by gradually redirecting staff effort from building local IT services to brokering and managing services available from other sources (IT organizations at other Cornell colleges and units, peer universities, CIT or the cloud), CHE is recovering cycles for work that serves the unique functions of scholarship, teaching and outreach in the college. Staff time available for strategic planning, instructional and research support and service brokering is up. CHE intends to continue on this trajectory by hiring for new skills and by redirecting recovered staff time into project management, business analysis and service brokering. This effort reflects the shared IT@Cornell goal of shifting IT resources to Cornell’s
academic mission by taking advantage of utility and community-sourced services whenever possible and helping staff develop skills needed for our fast-paced and changing IT environment.

- **School of Industrial and Labor Relations**
  - ILR’s Human Capital Development and Resident Faculty partnered with The Johnson School and various other faculty on an Entrepreneurial Leadership Initiative and certification for 30 Kuwaiti business people that focused on startups and small businesses as an engine for economic growth. This project was a cross collaboration between ILR, Johnson and various other faculty partners. ILR Technology Services put the entire curriculum on iPad Minis and helped students personalize the tablets so the devices would also function for continued personal use.
  - ILR Technology Services supported the elearning needs of external affiliates by automating materials originally developed for face-to-face learning so they can be used for on-demand, asynchronous education.
  - ILR Technology Services continues to leverage SalesForce for customer relationship management, and will use Chatter, Salesforce’s social component, to manage student communications, positioning students to use the same tool that companies use in internship and job selection processes. Because multiple schools and colleges are starting to use Salesforce and Chatter, IT@Cornell Salesforce users are discussing how they can share costs and coordinate related efforts.

- **College of Veterinary Medicine**
  - Veterinary Medicine IT (VMIT) is partnering with CIT on multiple fronts to deliver technology solutions for its many faceted and growing program. It is the first college IT organization to use CIT’s Planning and Program Management (PPM) resources for project management and business analysis. Leveraging CIT resources helps VMIT find cycles to investigate the important area of business intelligence, experiment with Google Glass as a way for students to observe surgeries, explore the possible benefits of 3D printing, and develop mobile apps to provide outreach to clients, streamline administrative tasks and improve decision making of our stakeholders.
    - VMIT is working with a project manager and business analyst from PPM to replace a LIMS (Laboratory Information Management System) with a new system called VetView for the Animal Health Diagnostic Center (AHDC).
    - VMIT tapped into project management from PPM and network architecture expertise from CIT to get the Long Island-based Cornell Ruffian Equine Specialists clinic for race and other horses up
and running in a compressed timeframe. The clinic improves the quality of race horse care in New York State and expands learning opportunities for Vet College interns and residents.

- The Vet College is serving as a pilot for the new Enterprise Document Management System (ECM), by using it to digitize the Animal Hospital Medical Records. Read more about the Enterprise Content Management system on page 18.

- The Birthing Center at the State Fair is an ongoing collaborative affair between VMIT and the Video Engineering group in CIT (among other groups), allowing people everywhere to witness the birth of a calf via webcam.

- VMIT has begun the department-by-department process of transferring initial calls and emails requesting help or services to the CIT Service Desk to free up its IT staff to deal with higher-level issues.

- The Vet College elearning committee has interacted with the central Academic Technologies group to understand services available centrally as it prepares for more learning spaces as part of the Vet College expansion.

- Additional key accomplishments from college IT groups are described throughout the Showcase:
  - The COECIS IT Service Group partnered with CIT to create a Software Defined Network for research in Gates Hall. Read more about an open flow research network in Gates Hall on page 14.
  - The SAS IT Service Group supported several of the key initiatives contributing to an improved student IT experience. Read more about SAS efforts on page 10.
  - Human Ecology IT is spearheading an innovative project to conceive, plan and build two student-designed, transformable classrooms that support both active and lecture-style learning with movable furnishings and IT tools for collaboration. Read more about it on page 12.
A Look Ahead

- **ILR Technology Services is supporting development of the new Executive Master of Human Resource Management**, a 15-month online degree for experienced human resources professionals, by contracting with eCornell and piloting CollegeNet, a social marketing tool for prospect nurturing, with The Graduate School. Initial delivery is scheduled for May 2015.

IT Serving Cornell

A look at collaboration between Cornell IT organizations.

- **Chemistry IT and CISER Collaborate to Serve Scientists' Complex Computing Needs**
- **“Cow-labor-ation” comes to IT@Cornell and the State Fair**
Student Experience

Major Accomplishments

- By working with our vendors we made more services available to students, notably Microsoft Office, lynda.com, and LabArchives. Students also benefit from upgrades to Blackboard, i>clicker GO which allows them to use smartphones and mobile devices to answer classroom polling questions, and our increasing capacity to capture lectures for out-of-class viewing.

- AA&D completed initial phases of a study designed to understand alumni needs and communication preferences. The longer term goal is to provide alumni with a better, more personalized and customized digital experience. Next step: New approaches derived from the research phase will be tested on the Alumni and Giving websites over the upcoming year.

- A cross-university committee rolled out Cornell’s mobile strategy in spring 2014, emphasizing as guiding principles, providing mobile-ready technologies and apps to support teaching and to improve the student experience. Next steps: IT@Cornell and partners will make recommendations for implementing the mobile strategy, work with the IT committee of the Student Assembly to develop a framework for student-developed mobile apps, and determine how to provide university data for mobile consumption.

- Student and Academic Services (SAS) launched AskEzra, a self-service “knowledge base” for students to ask questions and get answers related to financial aid, bursar bills and services, registration and academic records and Cornell’s Graduate School. Next steps: Plan for content ownership and then expand to include information about student organizations and services.

- SAS refined newstudents.cornell.edu, an interactive and personalized online guide and checklist for incoming first-year students, transfers and graduate students. New functionality in 2014 included a new Health & Community section with personal health, wellness, safety, support and community involvement resources and a reorganized to-do list that corresponds to related sections of the site. Additionally, SAS improved site traffic data gathering to better support data-driven functionality improvements in future years and completed a discovery project for an interface redesign in the 2014-15 academic year.

A Look Ahead

- SAS and the Graduate School are partnering on development of a student administrative portal, a one-stop-shop of links to Cornell’s student administrative services. The goal is to improve student access to and knowledge of services and to make finding them easier. The student administrative portal rollout is expected in fall 2014.
• SAS-IT is working with CIT to expand Cornell’s network backbone to 20 fraternities and sororities. Once the backbone is in place, wireless network access can be installed in these non-Cornell-owned buildings.

IT Serving Cornell
An in-depth look at some of our new student services.

• Microsoft Office available free to Cornell students
• WebEx Pilot for Student Use
• New Service: lynda.com online training is now available!
• i>clicker GO: Respond to Classroom Polls with Smartphones and Tablets
• ePortfolios Provide an Online Record of Student Achievement
Teaching and Learning Technologies

Major Accomplishments

- **Created a new taxonomy for learning spaces.** Since technology became widely available for use in classrooms and learning spaces, schools have described these spaces in terms of the technologies in them. We reframed Cornell’s “classroom tiers” to describe the teaching and learning activities enabled by the use of technologies. This new framework is being used to evaluate and implement innovative and cost-effective technologies in classrooms and learning spaces. The new Learning Technology Room Types document is online at [http://www.it.cornell.edu/cms/teaching/upload/RoomTypesMay2014.pdf](http://www.it.cornell.edu/cms/teaching/upload/RoomTypesMay2014.pdf).

- **Delivered MOOCs (massive open online courses), SPOCS (small private online courses) and online innovation projects.** We collaborated with eCornell, the Center for Teaching Excellence, and the Cornell University Library to help faculty create Cornell’s first four MOOCs. We are currently supporting development of SPOCS on the edX Edge platform and multiple online learning innovation projects funded by the Office of Provost. Work on four additional MOOCs is underway. **Learn more** at [Provost’s office funds MOOCs, online innovation](#).

- **Offered new course technologies.** We are offering an up-to-date suite of tools and supporting instructors’ more sophisticated use of them. Recently introduced tools include **i>clicker GO** which allows students to use laptops, tablets and smartphones to respond to classroom polling questions; **LabArchives** to store, organize and share lab data; **lynda.com** for just-in-time online training; and new **Blackboard** features.

- **Piloted new faculty support approaches.** Academic Technologies and IT staff in the College of Human Ecology (fall 2013) and Mann and Uris/Olin Libraries (spring 2014) and the College of Agriculture and Life Sciences partnered to pilot team support of faculty and refer them to the best resources for their teaching and learning technology needs. A new group has been launched that includes representatives from each of the colleges to discuss challenges in and best practices for support of classroom technologies.

- **Human Ecology IT spearheaded an innovative project to conceive, plan and build two student-designed, transformable classrooms** that support both active and lecture-style learning with movable furnishings and IT tools for collaboration. Classrooms will be available for use in fall 2014. **Next step:** Feedback from initial users will inform classroom design for next phase of the Martha Van Rensselaer renovation. **Learn more** at [http://activelearning.human.cornell.edu/activelearning/index.cfm](http://activelearning.human.cornell.edu/activelearning/index.cfm)
A Look Ahead

- With the continuation of capital investments, we will be able to carry on with equipping and upgrading Cornell’s classrooms and learning spaces with innovative, cost-effective and consistent technologies.

IT Serving Cornell

An in-depth look at some of our teaching and learning technologies.

- Academic Technologies Supporting “Flipped Classrooms”
- Faculty Use of Panopto Lecture Capture
- Faculty Can Borrow HD Camcorders, Audio Recorders, Digital SLR Cameras, and Presentation Tools from the Academic Technology Center
- Bailey Hall Audio-Video Update Creates High-Tech Teaching and Performance Venue

More information

- Academic Technologies Annual Report: June 2013-June 2014
- Teaching with Technology Newsletters
Cornell Research IT Needs

Major Accomplishments

- **Upgraded Internet2 from 1Gb to 10Gb.** When the National Lambda Rail (NLR), which had supplied Cornell with the 10Gb capacity necessary for network researchers, suddenly shut down in February 2013, CIT worked with NYSERNet to set up both primary and backup 10Gb connections. The key to success was to work quickly in partnership with NYSERNet to replace the NLR service with upgraded Internet2 service and to maintain communication and transparency with researchers who depend on 10Gb capacity to do their work.

- **Weill Cornell Medical College (WCMC) and the Ithaca campus collaborated** to place WCMC network, servers, and storage into the Ithaca data center to facilitate remote WCMC research and disaster recovery. This effort included storage for an offsite archive and hosting for pilots of study databases.

- **Created on-demand access to advanced, scalable server resources.** Microsoft Azure is a cloud-based solution that provides researchers with subscription-based Infrastructure as a Service (IaaS). In minutes, instead of weeks or months, researchers have access to nearly infinite amounts of compute power. They pay only for what they use, and when their research is concluded, they end their subscription. Microsoft Azure is available now. An Amazon-based solution for Cornell is being negotiated.

- **Installed an open flow research network in Gates Hall.** The College of Engineering/Computing and Information Science IT Service Group worked with a vendor to install Software-Defined Networking (SDN) in Gates Hall, and CIT developed a network architecture that enables researchers to access the campus networks as well as the SDN. The SDN network uses the OpenFlow protocol to establish network connections and control how data flows through the network, resulting in benefits such as enhanced bandwidth control, performance monitoring, and higher quality connections. Three research groups writing the next generation of network control software are using the SDN network to experiment with this new direction in networking, and they can do this while safely using other campus computing resources, due to the integrated design developed by CIT and the local IT service group.

- **The Office of the Vice Provost’s Research Administration Information Services finished its first phase of design and development and started a phased rollout of new Research Administrator Dashboards (RAD) that make sponsored project data easy to find.** Read more about Research Administrator Dashboards on page 17.
A Look Ahead

- **Software-Defined Networking is emerging as a mainstream architecture.** The Gates Hall network is already a hybrid of standard networking protocols and SDN with a variety of both research and production machines on the SDN, and Cornell is a node in the national GENI network for SDN research. For the rest of campus, SDN is an emerging technology which has great potential for the future. As the industry evolves, Cornell will continue to investigate and test how SDN can benefit Cornell.

- **In 2015, Cornell will begin a multi-year implementation of the Research Administration Support System (RASS).** Read more about RASS on page 18.

IT Serving Cornell

And in-depth look at how the IT community collaborated to help chemistry researchers.

- **Chemistry IT and CISER Collaborate to Serve Scientists' Complex Computing Needs**
Enterprise Information Systems

Major Accomplishments

- Matured the Application Streamlining Initiative, a process for inventorying, evaluating and recommending applications for consolidation. An Enterprise Content Management system called Perceptive Content, one of the key applications recommended for consolidation as a result of the first inventory, is being implemented. (Read more on page 18.) Additionally, a database and application were developed to ensure the inventory, last updated in 2012, is both updatable and searchable. The intention is to update the portfolio every other year, but with the new tool and a more powerful search engine in place, IT units can update the inventory, identify opportunities for application consolidation and continually search the database for existing applications they may be able to leverage.

- Completed preliminary tasks for the PeopleSoft Alumni and Student System Upgrade. Along with our functional partners in Admissions, Financial Aid, Student Records, the Bursar’s Office, Contributor Relations, and the Graduate School, we completed the discovery project, engaged an upgrade partner, and have begun the implementation phase of the project. Next steps: Design and retrofitting will run through the end of 2014, the Testing Phase will begin in early 2015 and we are expecting to upgrade the Production environment to Campus Solutions 9.0 at the end of July 2015. Additional new functionality and enhancements will continue to the end of 2015.

- In preparation for the fall 2014 KFS upgrade and in collaboration with DFA, invested in automated test suites and developed a collaborative approach to creating, running, and sustaining tests to assure the quality and performance of the system. The automated testing methodology, developed in partnership with the Kuali community, serves as a model for maintaining the quality of enterprise systems even as upgrades come faster and time for quality assurance diminishes. The KFS upgrade also prepares the way for the Research Administration Support System implementation. (Read more about RASS on page 18.) The Cynergy Rice layer, upon which both systems depend, will be upgraded as part of the KFS project.

- Launched the Longview Budget Management Tool in February 2014, making basic budgeting tools available through one system and offering an improved reporting capability. Broad engagement during planning with the University Budget Office and the University Budget Group, demonstrated the value of stakeholder involvement in developing the RFP and assessing vendors and their continued involvement as enhancements are considered. Next step: Provide a
Longview-based forecasting solution (scheduled to be rolled out fall 2014) as a first step toward more mature forecasting for Cornell.

- **CIT collaborated with HR and Payroll to develop, test, deliver, manage and stabilize the Workday software as a service (SaaS) launch in March 2013.** The effort included remediating and integrating multiple systems: Kronos Time Collection, PeopleSoft, Kuali Financial System (KFS), Identity Management and Data Marts. From July 2013-June 2014, CIT successfully supported three successive Workday SaaS updates in collaboration with HR and Payroll, and, in the process, created and documented a repeatable systems integration support and testing process for future Workday updates. In the fall 2013, CIT supported implementation of selected Workday Job Overlap features.

- **Pursued alternative personnel resourcing strategies including**
  - Running several [TopCoder](#) competitions to locate skilled design and development resources. [TopCoder](#) is a competition-based service for selecting designers, coders and algorithm developers to work with on a contract basis.
  - Offshoring development of the ASI application to build it and learn the benefits and pitfalls of using offshore resources. [Read more](#) about ASI on page 16.
  - Negotiating a contract to outsource PeopleSoft operation, maintenance and hosting.
  - Negotiating a contract to outsource hosting of the Kronos time collection system.

- **Research Administration Information Services finished design and development and started a phased rollout of new Research Administrator Dashboards (RAD) that make sponsored project data easy to find.** Stimulated by the need to replace the aging Sponsored Projects Portal and bring siloed data together in one place, the RAD project is providing better reports and access to research administration data now and will provide reporting for the Research Administration Support System (RASS). [Read more](#) about RASS on page 18.

  RAD is an exemplar of IT@Cornell’s strategic focus on usability. Project directors sought extensive input and incorporated feedback from research administrators across Cornell colleges, departments, and research centers and conducted usability and data validation testing with them. As a result, many conveniences requested by users are built into the new dashboards which are built on [OBIEE](#).

  **Next steps:** Continue the phased rollout of the dashboards and develop new functionality as time and funding permits. Develop requirements for a PI (principal investigator) dashboard with a clean, modern and mobile-friendly
interface. Continue the focus on usability by leveraging the Kuali UX (user experience) toolkit for the PI dashboard to ensure it reflects the same design choices users will see in systems like RASS.

A Look Ahead

• **In 2015, Cornell will begin a multi-year implementation of the Research Administration Support System (RASS),** with a goal of delivering an easy-to-use system for researchers and administrators to manage sponsored proposals and awards and research compliance. RASS (Kuali Coeus) is part of the Kuali suite of applications built by higher education for higher education. Implementing RASS requires significant business and process analysis, a thorough understanding of the system and its capabilities and decisions on how best to leverage those to meet customer needs. The goal is to reduce administrative burden and provide reporting and information that enables effective research administration and decision making.

The discovery and preparatory process, begun in 2014, will smooth the way for implementation, beginning January 2015, of the RASS “back office” modules in the Office of Sponsored Programs, followed by Proposal development in 2016 and then the compliance modules. Each implementation will follow a similar discovery, implementation and stabilization process, ensuring delivery of intended functionality, allowing full process analysis and streamlining, reducing disruption to business, and integrating training, change management and information delivery.

The RASS implementation is dependent on the KFS/Cynergy upgrade scheduled to go live October 20, 2014.

• **Cornell’s Enterprise Content Management (ECM) system, identified in 2012 as an Application Streamlining Initiative (ASI) priority, is underway.** A vendor was selected, a contract finalized, and the platform, originally hosted by SAS-IT was successfully migrated to an enterprise-ready platform by CIT Commercial Applications. More work lies ahead.

Also known at Cornell as Document Management, ECM is based on Perceptive Content (formerly ImageNow).

Three utilization projects, requiring close cooperation and collaboration between unit IT personnel and CIT, are in progress and expected to be in production fall 2014. Experience with all three projects will inform the ECM fall 2014 service launch.
- Digitizing medical records for the Cornell University Hospital for Animals.
- Creating and populating Electronic Student Records (ESRs) for the Graduate School. **Next step:** A project to retire Fedora and move all ESRs into ECM is in the planning stage.
- Creating a PCard Receipt submission solution for campus Business Service Centers, which also integrates with KFS to speed matching of receipts to bank records.

The Grad ESR and the PCard projects automate a common business process with a solution that can be leveraged by multiple units. This is a step toward eliminating redundant systems, one of the intended outcomes of ASI, and is a likely direction for many of the upcoming projects based on ECM.

- **Implement the outsourced support model for PeopleSoft operation, maintenance and hosting** and transition staff from basic operational duties to value added roles important to delivering cost effective enterprise systems such as solution brokering, vendor management, system integrations, data management and business analysis. Anticipated benefits of outsourcing include:
  - Stable, secure, scalable datacenter facilities and that enable us to reclaim scarce campus datacenter space.
  - Improved disaster recovery and business continuity capabilities.
  - Deep experience and technical skills in contracted services.
  - Comprehensive support for the entire application “stack.”
  - Skills and certification in multiple platforms.
  - More predictable operating costs.
  - Improved implementation speed for small enhancements.
  - Improved regulatory compliance including PCI Data Security Standards.

**IT Serving Cornell**

An *in-depth look at how we bring enterprise systems to Cornell.*

- **Longview Brings Better Control of Cornell Budget**
- **Project in Progress: A Look inside the PeopleSoft Discovery Project**
- **KFS quality assurance brings collaborative testing process to Cornell**
IT Service Excellence

Major Accomplishments

- **Developed business plans for close to half of the CIT services** describing the need the service meets, who the customers are, competing services, service lifecycle and the cost/unit. We also defined service owner/manager responsibilities. This disciplined ITIL-based\(^1\) approach to service management leads directly to sound investment decisions—we are standing up only those services the campus needs, will use and that we can supply for a competitive price. Our transparent approach lets us see how services can be used or packaged together to provide even more value to the university. For example, a remote worker pack will tap into telecommunications, video and VDI services.

- **Reinvented the CIT Service Desk.** To better serve students, we opened an auxiliary service desk at the Cornell Store co-located with The Technology Connection. More satellites are planned in order to have a presence where service is needed and provide both central and unit-specific help. In the meantime, IT units are beginning to use the CIT Service Desk for take in of calls and emails requesting help or service. DFA, CALS, and the Vet School are experiencing a 10% return on capacity by leveraging this central resource. The CIT Service Desk continues to streamline by managing a higher call volume with fewer staff and driving down the time to close out tickets. As central, college and unit service desks merge some functions and as our self-service becomes more sophisticated, we look forward to less focus on a CIT Service Desk, more service where our customers are, and “genius bar” type service for those who need face-to-face, appointment-based support. Future self-service tools will contribute to this vision.

- **Leveraged remote and managed desktop tools to efficiently fix computer problems and update desktop computers.** 7000 computers (Mac and PC) are now maintained through managed desktop service.

- **Introduced more cloud services bringing the number of enterprise cloud services to 30. Ten additional cloud services are in use by departments.** In addition to Software as a Service, the Cloud Initiative offers Infrastructure as a Service (Microsoft Azure now and Amazon Web Service in the future) which provides on-demand access to advanced, scalable server resources and Platform as a Service, which provides tools and services for quickly and efficiently building and deploying applications and content. The video on demand platform based on Kaltura and Acquia Drupal’s web content management development platform

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\(^1\) ITIL (Information Technology Infrastructure Library) is a structured and widely used approach to IT Service Management.
are examples of Cornell’s deployment of PaaS. Our cloud initiative allows us to explore new business models. For example, this year we’ve run several competitions through [TopCoder] to learn how this competition-based outsourcing tool can be used at Cornell to get access to topnotch designers, coders and algorithm developers. We are investigating how to pay the “seat” cost and whether or not the return for Cornell is worth the expense.

• **Expanded and improved the campus network:**
  o **Eduroam** Wi-Fi—Retired RedRover Secure and switched users to the secure Eduroam service. Available worldwide, Eduroam allows Cornell students, researchers, faculty and staff to wirelessly connect on campus and when visiting other participating institutions.
  o Wireless expansion—Number of access points in 2008: 1,191. Number of access points in 2014: 4,642.
  o Cornell Network Extension—We are actively including remote sites in the Cornell network (60 Cornell Cooperative Extension sites, Washington, D.C., Cornell Tech campus in New York City, Ruffian Clinic) so users in these locations can access all Cornell services.
  o Network Connectivity Program (NCP)—Completed the Network Connectivity Program. 29 buildings received wired and wireless upgrades and 17 wireless only upgrades. Read more about NCP on page 4.
  o Internet2—Upgraded Internet2 from 1Gb to 10Gb. Read more on page 14.

• **CIT and its Cornell partners completed the deployment of a new cell tower, known as a “monopole,” located just east of the Cornell Plantations Arboretum.** The monopole provides a new home for three carriers’ antennas with room for more in the future. Care was taken in siting the monopole, resulting in improvements in coverage and service. Additionally, Cornell researchers, with the support of Verizon Foundation, are using the project to study ground-sourced cooling for telecommunications equipment. The project was undertaken, because the old location of antennas, the elevated water tank near the McConville Barn, is scheduled for demolition.

• **CIT planned and piloted a new service called Desktop Everywhere that enables full “desktop” access from any device and location with Internet access.** Desktop Everywhere uses fast and cost effective Virtual Desktop Interface (VDI) technology to keep applications and data on Cornell servers and provide a fresh, secure desktop to users every time they log in. It reduces costs for departments which can pay a small monthly fee for the service and no longer have to worry about maintenance since OS and application upgrades are part of the VDI service. Even equipment costs can be reduced when “thin clients” replace PCs on the desktop.
Desktop Everywhere is useful to students, providing them with a convenient option for accessing class software normally available only in select computer labs across campus.

**Next step:** Desktop Everywhere will be available to Cornell beginning fall 2014 and is a good option for remote workers and “light use” desktops—those that run Office, web browsers, and small applications.

- **CIT’s Custom Development group responded to the campus’ growing appetite for web sites, web-based applications, and a variety of hosting and content management solutions** by developing and launching numerous Drupal sites on campus and in the cloud, including the IT@Cornell community and CIO web site; hosting a Drupal camp that attracted 200 attendees from Cornell and other colleges as well as vendors; providing project management services for the www.cornell.edu redesign; launching a new Cornell Hosting Stack that consolidated the LAMP and ColdFusion hosting services and lowered costs, made upgrades easier, and enabled hosting of larger applications; and developing many responsive web sites suitable for mobile viewing. **Next steps:** Continue evaluating additional cloud hosting options for customers, focus on responsive design and usability, and leverage SharePoint’s web site capabilities.

- **Increased planning and project management capabilities within CIT** by restructuring to focus on portfolio management, instituting a competency center for project management and business analysis, and emphasizing the importance of pre-planning and discovery projects. We also developed a new capital planning process that focuses on portfolios versus individual projects to improve budgeting for capital funded projects.

- **Launched a first-generation IT Governance model** and leveraged it to conduct a broad IT review and assessment of projects proposed for FY15 capital funding. **Next step:** We are revisiting the IT Governance model to tighten relationships and increase collaboration with academic and business leaders in colleges and units, with a goal of improving strategic planning and resulting IT investment decisions. We expect to maintain and enhance much of the advisory structure currently in place and improve our model for engaging with decision makers.

- **Co-organized and presented a series of three workshops on ADA (Americans with Disabilities Act) accessibility issues** to increase local expertise and establish broad awareness about assistive technologies. Workshops focused on how to add captions to enhance video content, using Cornell IT with assistive technologies, and assistive listening systems on campus.
The IT Security Office (ITSO) focused resources on risk assessment and security awareness.

- Security assessment of cloud services—Assessed cloud vendors and their solutions to determine risks associated with their technologies and how they operate. Worked with Cornell service owners to mitigate the identified risks.
- Research Data Risk Assessment—Worked with a committee to develop recommendations, requirements, and guidelines for how researchers should handle data in order to manage risk. Analysis of research data and risks associated with them is complete, and the next phase of the effort will focus on developing awareness materials for the research community.
- Facilities risk assessment—Worked with Facilities to assess risk associated with embedded control systems for water, electricity, and buildings. These systems are increasingly Internet connected and viewed as commodities, so it is important to understand how they are protected and improve that protection where necessary. The immediate assessment is mostly complete but will need to be repeated for new buildings and updated technologies.
- CIT Desktop Security Program—Rolled out Operational Procedures for Confidential Data for Central IT Employees and required compliance with these procedures to reduce Cornell’s risk of exposure of confidential data. Additionally, a working group is positioned to cope with practical IT security issues that arise within CIT.
- Net+ project—Participated in the Net+ initiative to assess, negotiate and bring selected cloud services to university campuses. Currently working on Amazon Web Services and LastPass, a secure service for storing passwords. Cornell is participating in, sponsoring, or part of an on-going customer advisory panel for these Net+ efforts: Docusign, Acquia, Globus Online, Blackboard, LabArchives, LastPass, Kaltura, Box and Amazon services.
- AD security improvements—Assisted with the security of Cornell’s Active Directory environment. Currently working with SIGs, IT service group directors and the IT Security Council to share security best practices for department-run Active Directory environments.
- PCI SIG—Established the PCI SIG to help Cornell devise common solutions for complying with the rigorous PCI (Payment Card Industry) requirements. Because compliance is both essential and expensive, we are focused on centralizing Cornell’s credit card transactions by leveraging the Cornell Store system which will enable compliance for less cost.
• **Increased the satisfaction and efficiency of users by investing in user experience design and usability testing.** Usability findings inform requirements, identify workflow issues and likely user errors/misunderstandings, highlight accessibility problems, and prioritize development work. Major projects included:
  - Institutional Biosafety Committee: system enhancement; used by researchers to request review of projects involving biohazardous materials
  - Kuali Foundation’s User Experience Initiative: a design guide and component library
  - Kuali Financial System Effort Certification: converting paper process to online; used by faculty principal investigators and administrative staff to verify effort for employees who are paid on sponsored awards
  - Research Administrator Dashboards (RAD): a data warehouse and dashboards; to be used by researchers and research administration staff for compliance and financial reporting.
  - [www.cornell.edu](http://www.cornell.edu) redesign: early usability investigation for Cornell’s public-facing web presence.
  - Web site usability reviews: standard component of web development process.
  - CSS Framework: Cascading Style Sheets for controlling the look, formatting and usability of web sites. [CSS framework files](http://cssframeworkfiles.com) (click on “Free offerings”) are available to campus.

• **In collaboration with Cornell Tech administrative, academic and IT leaders, the Ithaca-based CIT organization extended Cornell’s network and telephone services to the current “tech” campus located in in New York City’s Chelsea neighborhood.** Additionally, CIT audio-visual (AV) and academic technologies specialists consulted on classroom systems, including annotation technologies that let instructors write in real time on projected presentations, and conference room AV systems. An IT Steering Committee was a key element of the successful collaboration. **Next step:** CIT network infrastructure, AV, and academic technologies professionals are and will continue review and provide feedback on Roosevelt Island technology plans as requested.

**A Look Ahead**

• **We are revising our information about regulated data types** and the applications suitable for sending, sharing and storing those data types by making the published guidelines more useful and meaningful to both end users and data stewards. We expect publication in fall 2014.

• **We are requesting capital funds to replace 2500 wireless access points that will reach end of life in 2016/2017.** New equipment will provide better service and its installation will create an opportunity to analyze wireless coverage and enhance it where needed.
• Planning and Program Management plans to introduce a Business Process Streamlining service to help units create more efficient approaches to work, especially when procedures and methods must cross multiple units.

• Having filled the position of Chief Data Officer and head of the Office of Data Architecture and Analytics, we are positioned to provide leadership in data governance, business intelligence, big data analytics, and many aspects of data mining and management. The CDO will focus on institutional data as an asset, how to leverage it for decision making, and how to make it accessible.

IT Serving Cornell
An in-depth look at selected new services, support stories and IT governance.

• Services
  o Next-Day Dell Hardware Warranty Service Available
  o What’s Next for SharePoint Online, Lync, Office, and Office 365 Web Apps
  o How cloud computing services benefit Cornell University
  o College of Engineering and Custom Development Partner to Deliver a Dozen Sites
  o The Future of Campus Collaboration Tools, Including Confluence and SourceForge

• Support
  o Executive Technology Support helps President Skorton “Virtually Chair” California meetings
  o CIT AV Services Supports Cornell Trustee-Council Annual Meeting

• IT Governance
  o Web Accessibility Is Coming to Cornell
  o IT Governance proposes CIT projects for FY15-19 Capital Plan
IT Career Framework
Major Accomplishments

- **Created an IT Career Framework Resource Center** as well web sites to support the IT Leaders Programs. Read more about investing in future IT leaders on page 5.

- **Launched and completed first phase of IT Skills Assessment.** Read more about it on page 4.

- **Developed and published IT competencies for the IT community.** Members of the IT@Cornell community who possess these skills are well on their way to succeeding in their positions and becoming “T-shaped” employees—people who have both depth in their fields and the breadth of understanding expressed in our IT Competencies.

- **Introduced lynda.com**, high quality video-based training for learning how to use the latest software. This service is for students and faculty as well as staff. We consider it part of our IT Career Framework because our IT community can use it on demand to learn a particular skill or familiarize themselves with a new tool as required.

- **Arranged temporary rotations for those interested in exposure to other professional roles** by placing them in positions within and outside of the IT community. Rotations between CIT and DFA have been particularly active. For career development but also to help with the CIT Service Desk onboarding transition and understanding of each other’s environment, a representative from the CIT Service Desk worked at the Vet College and an IT support professional from the Vet College worked at the CIT Service Desk for several weeks. We plan to continue the rotation program as part of our focus on assisting staff with career development.

- **Hosted two interns, one in Academic Technologies and one in Business Intelligence, as part of our program to** provide IT staff with opportunities to develop supervisory and managerial skills through short-term assignments leading interns.
A Look Ahead

- **Supervisors and staff will begin using skills assessment information in career development discussions.** We will create an updatable and searchable database to support both the annual skills assessment cycle and the ability of IT directors to leverage needed skills that may reside in other organizations.

- **An IT orientation pilot will be developed and then hosted in CALS IT** to provide a baseline experience that can be evaluated and built on as we work toward developing a campus-wide IT orientation program.

IT Serving Cornell

An in-depth look at career development in the IT community.

- **Skill Up! Leverage IT Skills Assessment Information**
- **Emerging Leaders Class Defines Leadership**
IT Community

Major Accomplishments

- Hosted the third annual IT Community Conference on IT’s role in streamlining administration in spring 2014 with registration topping 300. Many people participated in a multi-session IT@Cornell Fall Workshop, by attending one or both days (70 people at each) or contributing to the community-sourced agenda (180 voted).
- Launched the IT community web site as a space for sharing resources and events of interest to all IT@Cornell organizations.
- Published a weekly IT@Cornell News blog and migrated it to the IT community web site for a more integrated web experience.

A Look Ahead

- Plan and hold the fourth annual IT Community Conference in June 2015. Experiment with smaller workshops and IT community events between annual conferences.
- Begin using the resources generated by the IT Skills Assessment project to leverage skills that exist within IT@Cornell community for projects outside the organizations that host those skills. Read more about IT Skills Assessment on page 4.

IT Serving Cornell

An in-depth look at community conferences and workshops.

- IT@Cornell Community Invited to 2014 MOR Leaders Conference: Register Now
- Anne Margulies, Harvard, and Ted Dodds, Cornell, Set to Keynote June IT Conference
- Registration is open for IT@Cornell Fall Workshop: Full program now available
- Solutions and Champions Emerge from Day 2 of IT@Cornell Fall Workshop