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Major accomplishments

Last year, I said I saw four major priorities for this year: IT security and policy, administrative systems, IT collaboration, and advanced networking. Two more joined that list: development of recommended services, and CIT’s progress as an organization.

The highlights:

1. **We focused on extending security specifically to institutional data.** Cornell now has baseline security standards for any device used for conducting Cornell business, and a Data Incident Response Team (DIRT) to handle computer compromises involving sensitive data. Additional standards are being developed for any device that processes or stores legally protected data or other data that Cornell designates as “sensitive.”

2. **We upgraded PeopleSoft and established new administrative systems governance.** The PeopleSoft 8.0-to-8.9 upgrade was completed six months early and cost hundreds of thousands of dollars less than the original forecast, thanks to the project team’s hard work, skill, and good will. This feat enabled the PeopleSoft student project team to plan for implementation on their desired timeline instead of missing an entire student cycle.

   Possibly the most difficult but broadest accomplishment was developing a new administrative computing governance structure and process. Oversight of the university’s five-year rolling plan for investment in large systems projects now rests with the Administrative Computing Advisory Committee (ACAC).

3. **The IT Managers Council has become an invaluable forum for discussion and communication about important IT issues on campus.** Disaster recovery planning, collaboration on the Remedy effort, and the first-ever, exceptionally popular Cornell IT Forum were a few of this year’s accomplishments.

4. **We expanded our network options nationally and locally.** Cornell’s fiber link to Syracuse was lit, connecting us to National LambdaRail and thus to the emerging global optical network. We continued to expand our wireless service RedRover, and we implemented a secure version to protect transmission of important data.

5. **We developed new services recommended by the IT community.** Our hosting service lets departments focus on their applications and leave the underlying infrastructure to CIT. Our environments include Oracle, ColdFusion, and web site hosting, with more on the way. Our OnSite Solutions service provides cost-effective desktop support, audiovisual support, FileMaker development, and other services departments need.

6. **We are becoming a values-driven organization.** We have completed our employee leadership program. The Cornell community says they are more satisfied with our services. Our staff say their quality of work life has improved. To me, these results show that organizational culture can be changed and, when it does, how influential it can be on our relationships with each other, our work, and the people who use our services.

Priorities for next year

Looking into my crystal ball, I see five areas of emphasis in the upcoming year:

1. **IT security and policy:** To further protect sensitive data, everyone at Cornell will need to become aware of what data is on their computers and implement appropriate security practices. Also, the new Federal Rules of Civil Procedure will raise issues of privacy and institutional responsibility and possibly change how we mix our private and Cornell lives online.

2. **Planning for a new CIT building:** We will participate in design of a new building to house the rapidly growing number of research servers and all of CIT’s staff and systems.

3. **Administrative computing:** The PeopleSoft student implementation, one of the largest and most complex projects undertaken in the last decade, will be one focus. Another will be resolving the significant mismatch between the desire for systems enhancements and the institutional resources available.
4. **Disaster and emergency recovery:**
   To better protect Cornell from Hurricane Katrina-like disasters, we hope to receive funding for off-site data backup to supplement our current capabilities, and for a recovery site.

5. **IT collaboration:** With several other units, we will implement the Remedy issue tracking system. Success here could do more to improve IT service than almost anything I can think of. And, of course, I’m looking forward to the second Cornell IT Forum.

6. **Advanced networks:** Cornell-controlled fiber will link Ithaca to Rochester, giving us two physically diverse routes to the national and international backbones and providing the Geneva campus with bandwidth similar to that between Ithaca and New York City.

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**Dedication**

This year, I dedicate our annual report to the people in CIT and in departments all across campus who, together, are turning our needs for large, complex administrative systems into reality.

When I came to Cornell almost eight years ago, I encountered an institution demoralized over perceived failures with our first enterprise resource planning ventures.

Today, we all have confidence that we know how to do this work, and we demonstrate it repeatedly. Now our challenge is being able to do all that we want to do together. That is a great place to be and provides a wonderful foundation for the future.

So, thank you to the vice presidents, the college officers, and their IT staff, and to CIT’s Dave Koehler and his team. Thanks also to Steve Golding, our executive vice president, who helped put new governance in place to work on the larger issues. We can do this!
Goal
Provide IT leadership: OIT and CIT collaborate with the Cornell IT community and the Cornell University Library on shared IT issues and provide leadership for IT security, policy, architecture, and emerging technologies. We plan for and implement strategic initiatives that anticipate the university’s future IT needs; this includes planning for emergencies. We seek to benchmark our experiences with peer universities to ensure we are adopting and sharing innovative practices.

Progress
• Information Technology Managers Council
• Project management
• Advanced technologies exploration
• Launch of learning technologies program
• Security
• Policies and policy education

Maximizing IT efforts across the university
itmc.cornell.edu

The IT Managers Council continues to make strong progress in improving communication and trust among the university’s distributed IT units and CIT. Focusing on technical issues from a university strategic perspective, the ITMC works to maximize Cornell’s investment in IT.

One of this year’s accomplishments was synchronizing an ITMC-initiated review of issues-tracking systems with a similar effort being done by the CIT Contact Center (HelpDesk), which ultimately resulted in the selection of Remedy (see page 24) and the decision to make it available to any interested unit at Cornell.

Another was the first university IT Forum, held in June 2006. Sponsored by the ITMC Professional Development Committee, the event drew several hundred IT professionals from many parts of Cornell. Keynote speaker Paul Glen gave a packed Statler Auditorium insight into effective ways to lead and manage people who deliver technology. Pizza, door prizes, IT special interest group sessions, and mingling with peers from other colleges or units and more than 15 vendors followed. Verizon Wireless, EMC2, and ServerWare Corporation helped sponsor the event.

Finally, ITMC representatives and designates helped develop the university’s IT plan for recovering from disasters on the scale of Hurricane Katrina (see page 25).

Putting project management into practice
projectmanagement.cornell.edu

The Cornell Project Management Methodology (CPMM) gives our staff tools that significantly improve how we execute projects. This year, more than 100 CIT staff completed our two-day “how to use CPMM” course, bringing our total to over 140.

In addition, we held several lunch-and-learn and just-in-time training sessions on topics such as critical chain project management, stakeholder analysis, lessons learned, and the new communication guide for project managers.

We also began development of a new project portfolio management process, in which managers rank priorities for prospective projects, assessing the importance to the university, the benefits and risks, and whether the right resources are available to accomplish the project.

Several hundred IT professionals from many parts of Cornell attended the first-annual IT Forum in June 2006, sponsored by the IT Managers Council.
Project Management Professionals
Eight more CIT staff members have completed the requirements (35 hours of training, extensive project management experience, and a four-hour exam) to achieve Project Management Professional (PMP) certification through the Project Management Institute.

Joining Jill Heneny, Catherine McNamara, and Noni Vidal are JP Brannan, Stephanie Herrick, Sasja Huijts, Ken Kline, Shannon Osburn, Tom Parker, Sanjeev Shukla, and Tom Theimer.

Advancing technologies
ata.cit.cornell.edu

Because top-tier research universities strive to provide the best computing resources possible, our Advanced Technology and Architectures group continuously investigates the most promising new technologies.

Last year, we facilitated the university’s migration toward service-oriented architecture (SOA), a more agile alternative to the multiple, independent IT systems that have developed over the years at Cornell. Instead of having to build a unique solution each time there is a new demand for data, as has been done in the past, SOA makes it possible to build solutions that can be integrated and repurposed.

We also launched a series of monthly seminars to share what we’re learning about emerging technologies. Some of last year’s topics included:

- The notification channel, which we developed in uPortal.Cornell for emergency alerts and user-configured notification of upcoming concerts, seminars, and other events
- Security vulnerability assessments for computers and networks
- SourceForge, a collaboration platform we introduced to combine aspects of project management and development in a centralized, searchable system
- Two-factor authentication (for access to systems with a physical token, such as a smart card or USB/flash device, as well as a password), which we continued to evaluate in light of anticipated requirements by government agencies regarding sensitive information.

Exploring emerging learning technologies

We began a new program in January 2006 to focus on exploring and evaluating new (and not-so-new) technologies that Cornell faculty can and do employ in their teaching, and on understanding

Mark Anbinder (right) and Ron DiNapoli organize monthly IT Architecture Forums where promising new technologies, as well as new approaches to using existing technologies, are discussed.
why and when faculty use these technologies and how best to support those uses. We are partnering in this effort with the university’s instructional technology community, and guided by the faculty as a whole.

This year, we began asking faculty how and why they use course-management technologies such as Blackboard. We also conducted a pilot project to better understand how many faculty are using, or would like to use, polling technologies and why, and to compare the most popular products. A Faculty Polling Advisory Group was formed to help guide the university’s approach to this technology and investigate licensing options.

We also continued to help raise awareness of interesting ways that Cornell faculty are using instructional technologies through our Innovation in Teaching speaker series, our participation in the Cornell Teaching and Learning Consortium, and our support of special interest groups.

Tightening security even more
www.cit.cornell.edu/security

Well before December 2005, when the New York State Security Breach and Notification Act took effect, we were actively engaged in a research-and-education mission: to discover where confidential data resides in the thousands of computers at Cornell and to advise on the risks of data loss. (The new state law, one of 38 in the United States, added a potentially costly consequence to data loss: an institution that fails to meet notification requirements—to report security breaches to three state-level agencies as well as each and every affected individual—can be fined hundreds of dollars for each failure to notify.)

Our research showed that an estimated 65 percent of computers on campus have one or more kinds of confidential data—anything from Social Security numbers (the most ubiquitous) to credit card numbers, driver’s license information, bank account data, and student grades. Our assistance to computer users across campus who face data loss ranges from prevention and remediation to damage control. In the past year we:

- Advocated for the more secure default-deny strategy that allows into Cornell’s networks only expressly permitted services and turns others away. In the first year, several major units changed from the much less secure default-allow strategy, which defines only the services to be blocked
- Greatly increased the use of systems analysis tools such as Spider, which probes hard drives in search of data such as Social Security numbers and credit card information, so that steps can be taken to secure it or delete it
- Continued educating incoming students about security risks and resources
- Implemented a rigorous scanning process for ResNet (the residence hall networks) that searches for common vulnerabilities on students’ computers when they attempt to connect to the network
- Supported the formation of an IT security special interest group, which discusses security topics, advises on best-practice standards, and reacts to specific security issues
- Strengthened Network Quarantine, a Cornell-developed system that responds to security-breach incidents by isolating the affected computers from the rest of the campus network
- Increased the resources devoted to DIRT (Data Incident Response Team), a team that investigates incidents involving the potential loss of confidential data; comprised of representatives from University Audit, Risk Management, Cornell Police, University Counsel, University Communications, and CIT
- Published our recommendations for preparing the university to handle incidents involving loss of sensitive data

This year’s University Computer Policy and Law Program held eight events on topics ranging from network-based security and privacy to changes in how music is distributed online. Tracy Mitrano (bottom) directs the program.
IT Funding: Fiscal Years 1997–2006 in 1997$ (in $1,000s)

What Cornell’s IT Dollar Buys: $59.4 Million Actual Expenses
(Fiscal Year 2006)

University Computer Purchases
(Fiscal Year 2006)

* Some eCornell staff merged with CIT in 2005. The Educational Television Center (ETV) and Web Production Group (now called Integrated Web Services) migrated to CIT in 2004 from the College of Human Ecology.
faces of CIT

(Clockwise from top) Tracy Mitrano, Glenn Larratt, Dan Adinolfi, Catherine McNamara, Ron Parks, Dan Clark, Steve Schuster
Promoting policies that protect data and people
www.cit.cornell.edu/oit/PolicyOffice.html

Through our IT Policy Office, we facilitate the development of university information technology policy, and promote discourse on IT policies and ethics through the University Computer Policy and Law Program and the EDUCAUSE/Cornell Institute for Computer Policy and Law.

This year, we continued working with the University Policy Office on four new policies:

- Proposed Policy 5.8, Authentication of Information Technology Resources: rules about Cornell NetIDs, passwords, and password complexity
- Proposed Policy 5.9, Privacy of Network: university’s position on monitoring, posting, or removing content material from its networks and computers, as well as the rules for disclosure of IT data under the purview of the authority of the vice president for information technologies as a data steward
- Proposed Policy 5.10, Information Security of Institutional Data: proper security and privacy management of institutional data
- Proposed Policy 5.11, Web Accessibility: standards for the design of university web pages to provide greater accessibility by people with visual, hearing, and some cognitive disabilities

One area of education we focused on this year was social networking sites such as Facebook and MySpace. Our overview, “A Wider World: Thoughts on Facebook,” is intended to help students make informed choices about whether and how to use these sites. A related article, “Youth, Privacy and Social Networking Technologies,” by our policy director Tracy Mitrano, is slated for publication in the Nov./Dec. 2006 issue of Educause Review.
Goal
In concert with colleagues from Cornell’s administrative units and university leadership, CIT is deeply engaged in the ongoing effort to modernize student and administrative systems. We are working toward these strategic goals with Human Resources, Alumni Affairs and Development, Student and Academic Services, Budget and Planning, the Office of Sponsored Programs, and Administration, Facilities, and Finance.

Progress
• PeopleSoft 8.9
• STARS
• ImageNow
• Kuali financial systems
• CATS (Cornell Asset Transfer System)

Project planning eases transition to PeopleSoft 8.9
Six months ahead of schedule and considerably under budgeted estimates, PeopleSoft 8.0 was updated to version 8.9 this year. We worked with units across campus to migrate the administrative systems that Cornell uses for human resources, payroll, alumni affairs and development, and student courses, among others. A hard-working project team, with a project guided by the Cornell Project Management Methodology, pulled off the upgrade over a weekend in July 2006.

Tracking students in STARS
stars.sas.cornell.edu
In Sept. 2005, we reorganized the STARS (System for Tracking Administrative Records of Students) project to implement all four of the student-related PeopleSoft modules in an integrated way.

Simplifying electronic management of application materials
Admissions staff in the College of Arts and Sciences are using an interface we developed to view admissions materials online, both materials that originate from Undergraduate Admissions’ ImageNow system, as well as materials that the college adds. The interface taps into the open-source product Fedora, developed jointly by Cornell University and the University of Virginia.

Developing Kuali financial systems
kuali.org
We continued working with other educational institutions on Kuali, an open-source, modular approach for developing financial-management software tailored to the needs of higher education. Together we produced Kuali Test Drive in March 2006. We also prepared for the Sept. 2006 phase 1 release, which is undergoing community-source review.

Cornell’s own eBay
cats.dfa.cornell.edu
Equipment that is no longer needed is less likely to clog campus hallways and loading docks now that the university has CATS, the Cornell Asset Transfer System. At the request of Administration, Facilities and Finance, we helped develop a better system for university units to post descriptions of their excess (but still usable) assets—everything from office furnishings, scientific instruments, and computer gear to trucks and other vehicles—so that they can be put to good use by other university units.

Our staff play a key role in many of the university’s administrative systems. Aaron Hamid (top) has been working on Kuali. Frank Libeau (left, 2nd photo from top), Bhanu Kambhampati, Heather Damiani, and Karla Sharpsteen, along with Marie Pollack (left, 3rd photo from top), Pat McCabe, and James Childs, are immersed in the STARS PeopleSoft project. Dan Clark (bottom) helped upgrade PeopleSoft from version 8.0 to 8.9.
CIT is committed to providing classroom technologies, education-related technical services, and an infrastructure that fully supports teaching and learning wherever it occurs. We also provide faculty support and student training so everyone can successfully use technology and new tools for teaching and learning. CIT is a leader among the academic and support units that, together, support teaching and learning with technology.

**Progress**

- Faculty Innovation in Teaching projects
- Polling systems
- Blackboard and Cornell University Library
- Classroom upgrades
- Personal interface grids
- Computer lab upgrades
- National and Northeast LambdaRail

**Supporting faculty innovation**
innovation.cornell.edu

In its fifth cycle, the Faculty Innovation in Teaching program continues to help faculty explore innovative instructional technologies to improve teaching and learning. A sample of this year’s 19 projects:

- Architecture associate professor Bonnie Graham MacDougall is developing an online database of South Asian architecture and landscapes
- Horticulture professor Chris Wien and Stefan Einarson are creating web-based, interactive laboratory exercises to enhance learning in applied plant science
- German studies senior lecturer Ute Maschke won support for the Intercultural Literacy Acquisition project
- Hotel School lecturer Amy Newman is developing an e-mail and instant messaging simulation to examine managerial communication
- Industrial and Labor Relations professor Sarosh Kuruvilla is finding innovative uses of portable videoconferencing
- Veterinary Medicine lecturer Marc Kraus is creating interactive modules for cardiovascular medicine

Project recipients receive assistance with project planning, instructional design, web programming, video production, and other services from our Academic Technology Services and User Support group, in partnership with Cornell University Library and the Center for Learning and Teaching. Nearly 100 projects have been awarded since the program’s start.

Students in several courses have been using polling technologies (or “clickers”) like these to answer questions posed by their professors during class. With the help of a faculty special interest group, we evaluated a variety of these personal response systems—including infrared clickers, radio frequency systems, and the use of wireless PDAs and cell phones—as one step in determining a university-wide polling solution.
Expanding the virtual workplace
www.cit.cornell.edu/services/av

Our evaluation of the best available collaboration technology systems expanded to encompass a “business continuity” scenario of an event that prevents or limits the staff’s ability to work on campus.

After investigating several technologies that would facilitate working from home, we recommended the web conferencing system Breeze. This system could also be used for research collaboration and distance learning purposes. In addition, we evaluated high-quality, easy-to-use desktop videoconferencing systems that are reasonable in cost.

Videoconferencing technology options were demonstrated to administrative assistants who are requested to find these resources for faculty, researchers, and administrators.

We also investigated and tested Internet grid-based collaboration systems used by researchers at major institutions to conduct seminars and work jointly on research projects.

Designing and maintaining effective computer labs
www.cit.cornell.edu/labs

In addition to routine maintenance of more than 420 lab, training, and kiosk computer systems for the Cornell community’s general and instructional use, we did major upgrades in two of our most popular labs, those in Upson Hall and the Robert Purcell Community Center. We also improved the physical security in our labs with enhanced anomaly detection measures.

Major consultation-design-installation projects were done in Dickson and Phillips Halls. Our task in Phillips was to upgrade Electrical and Computer Engineering’s general-purpose laboratory (room 318) to a model of ergonomic and educational efficiency that would overcome two challenges: a difficult workspace and the inattention of multi-tasking students.

Since the conventional configuration for computer labs—a computer projector and one screen in the front of the room—was inappropriate for such a long, narrow room, we instead opted for a video splitter that distributes materials from the instructor’s computer to monitors in each row of student seats.

With this setup, the instructor can roam about the classroom with a wireless microphone and remote control for the instructional computer. Instructors report that their newfound mobility contributes to a more casual and interactive atmosphere in the class, and the well-known student temptation to read e-mail, play games, or engage in other non-curricular activities is discouraged.
Two of the many classroom and special-purpose facilities for which we provided technology integration consulting had very different purposes and required innovative approaches to the design and installation of audiovisual technologies. The Noyes Lodge Language Resource Center wanted its language instructors, particularly those for less-common languages such as Quechua, to be able to teach students located at several universities. The audiovisual conferencing system we designed enables the teaching, language skills practice, and testing of students at several locations to be supervised by a single instructor.

Lights on for Northeast LambdaRail
www.nlr.net
www.nelr.net

We accomplished the 2005 “lighting” of a dedicated fiber optic line between Ithaca and Syracuse, bringing Cornell computers and computer users much “closer” to those at Weill Cornell Medical College—and to every other institution on National LambdaRail (NLR), a coast-to-coast set of fiber optic networks that supports data-intensive research in science, engineering, health care, and education. Cornell continues to serve as the NLR sponsor for New York and New England and also leads the Northeast LambdaRail consortium.
Goal

Through selected communications, technology-supported learning programs, and policy initiatives, CIT supports Cornell’s land grant mission and extends its reach throughout New York State and beyond.

Progress

• Educational Television Center
• CyberTower
• Institute for Computer Policy and Law
• Video services

Showing Cornell at its best
evt.cornell.edu

Rave reviews (“Infectious enthusiasm,” “Sheer zest,” “An inspiration,” and “Delightful presentation”) greeted the DVD release of “Knowing the Score,” featuring the Department of Music’s renowned pianist and faculty member of 37 years Malcolm Bilson.

Issued as part of the yearlong celebration of his 70th birthday, Bilson’s DVD on how to read, interpret, and evoke passionate performance from the notation of 18th-century music was created by our Educational Television Center crew. Included are a 90-minute lecture before a live audience, performances by Bilson on early pianos, and a discography of previous Bilson works and subtitles in several languages.

Sharing credit for the DVD’s acclaim, Bilson said of ETV’s late director, Dan Booth, “We were lucky to stumble on this guy. He knew exactly which movements to highlight, and he even did all of the subtitles, in French and German.”

We also produced or began working on videos for several other Cornell programs, among them the Faculty-in-Residence Program, Chemical and Biomolecular Engineering, Student and Academic Services, the University Policy Office, and FarmNet.

In partnership with Communication and Media Relations, we covered Martin Luther King III’s convocation address and the commencement ceremonies in May 2006; did live news interviews with Cornell faculty throughout the year; produced podcasts for the Cornell Chronicle; gathered campus stock footage for archival use; and helped plan and capture the inauguration of Cornell president David Skorton in Sept. 2006.
Building a Taller CyberTower
cybertower.cornell.edu

We continue to help Cornell’s Adult University (CAU) produce CyberTower, which provides free, online, multimedia learning opportunities for Cornell alumni, prospective students, and the community. An additional 4,033 subscribers joined CyberTower in the past 12 months, for a total of 24,300 subscribers.

In June 2006, we added podcasting to CyberTower and enhanced the search capability to make it easier to find content now that CyberTower has 38 study rooms, 22 forums, and 34 views and reviews. A look at what CyberTower covered this year:

Study Rooms
In-depth lectures and resources for self-study
- “International Food Aid After 50 Years”
- “Conflict Resolution”
- “The Casablanca Connection to Cornell”
- “Where Did Rhythm-and-Blues Come From?”
- “What Is Islamic Law?”
- “From Whiteville to Ithaca: A. R. Ammons’s Scenic Route”
- “Coral Reefs and Climate Change”

Forums
Moderated faculty discussions on current topics
- Aug. 2005: “A Conversation with Cornell Interim President Hunter Rawlings”
- Jan. 2006: “China Rising”
- Apr. 2006: “Reforming the Court: Term Limits for Supreme Court Justices”
- May 2006: “Islamic Law”

Views and Reviews
Faculty thoughts on books, films, arts, news, and more
- Aug. 2005: “The South Hill Connection”
- Oct. 2005: “Writing about the Lehman Legacy”
- Nov. 2005: “Student Trustee Viewpoint: Areas of Board Focus”
- Dec. 2005: “Athletes and Scholars”
- Jan. 2006: “Such Diversity in One University?”
- Mar. 2006: “President-elect David Skorton”
Providing leadership in developing IT policies
www.educause.edu/icpl

Again last year, Cornell hosted the EDUCAUSE/Cornell Institute for Computer Policy and Law four-day seminar, bringing together IT and higher-education professionals to discuss institutional and national policy and law regarding information technologies.

The 2006 keynote speaker was John Palfrey, Harvard Law School’s executive director of the Berkman Center for Internet Law and Society, who spoke about the Online Globalization Protection Act and international Internet filtering. Other topics included:

- Internet governance and Internet service provider liability
- Universities’ responsibility under CALEA, the federal Communications Assistance for Law Enforcement Act
- The laws and politics of digital copyright

Making distance irrelevant to education
www.cit.cornell.edu/services/av

Cornell’s grand tradition of amalgamating disciplines (“nanobiotechnology” started here) calls for adaptive technologies to bridge geographic distances, particularly between the Ithaca and Weill Cornell Medical College campuses, where academic and research collaboration has intensified in recent years.

For example, in biomedical engineering, a College of Engineering program, students at the two campuses participate in a course via videoconferencing. Psychology professor James Maas’s perennially popular PSYCH 101 course is another example of distance learning.

With colleagues at the Weill Cornell Medical Center, we are supporting webcasting systems that allow premed students at the Weill-Qatar campus to be as much a part of PSYCH 101 as the hundreds of undergrads who fill Bailey Hall three times a week. We have also proposed a plan to improve video-based collaborations between the campuses.

Switching to the realm of the infinitesimal, we also produce weekly nanobiotechnology videoconferences, where graduate students and researchers at Cornell and seven other sites show off the smallest “next big thing” in their fast-moving field.

Printing “green”
www.cit.cornell.edu/net-print

Through economies of scale we reduced—to nine cents per page—the price for using Net-Print, CIT’s laser printing service for public and other computer labs. We also reduced Net-Print’s environmental footprint by continuing to stock our printers with recycled paper and by installing duplex (two-sided) printers in all of our labs and in many of our partner labs. Nearly 9 million pages were printed last year on 145 printers.

Every summer since 1996, Cornell has hosted the EDUCAUSE/Cornell Institute for Computer Policy and Law, an intensive four-day seminar for IT and higher-education professionals.
General Campus Computing

Goal
CIT supports the campus at large by delivering and supporting a collection of services and by maintaining a widespread IT infrastructure. Cornell’s IT infrastructure consists of the communication networks that form our data and telephone systems; the servers and storage devices that process and store data; and applications that integrate a variety of systems, devices, and processes.

Progress
Core Services
- CUinfo
- Controlling spam e-mail
- Thunderbird e-mail
- EZ-Backup
- E-mail lists (Lyris)
- CUTV
- Extension-to-cellular (EC500)
- OnSite Solutions
- Storage Farm
- Web hosting
- Web production

Support Services
- Training and documentation
- Account management

Campus IT Infrastructure Services
- Webcasting
- Identity management
- SSL service
- EzraNet
- RedRover-Secure
- Remedy

Core Services
In collaboration with the Office of Web Communications, we redesigned CUinfo to match the style of the Cornell home pages and to make it easier to find links. A new feature, “The Buzz on Campus,” draws attention to current happenings and concerns, and the most popular topic in Ithaca, the weather, now has top billing.
**Slamming spam**

www.cit.cornell.edu/email

We continued to automatically reject all messages with a 90 percent or better probability of being spam. From Dec. 2005 through Feb. 2006, for example, we kept over 25 million spam messages a month from reaching the mailboxes of Cornell’s faculty, staff, and students, or slowing down the delivery of the e-mail that people do want. We also blocked over 3.3 million virus-laden messages during that period, protecting the campus from damage to or unauthorized use of their computers.

**Moving to Thunderbird**

www.cit.cornell.edu/computer/email/thunderbird

In consultation with the IT Managers Council and other IT advisory groups on campus, we added Thunderbird to our suite of e-mail options, and began positioning it as an eventual replacement for Eudora. This open-source desktop client is used by many other universities and has certain advantages over Eudora, such as support for Unicode and Linux, and better support for IMAP.

**Easing backups**

www.ezbackup.cornell.edu

We reduced our rates for EZ-Backup, our fee-based, automated, remote backup/archive/storage service for departmental workstation and server files. EZ-Backup handled 113.5 terabytes of compressed backup and archive data from 3,150 servers and computers last year.

**Making managing e-mail lists easier**

www.cit.cornell.edu/computer/elist

We have migrated nearly all of Cornell’s e-mail lists from the outdated and unsupported ListProc to Lyris ListManager. Lyris offers e-list owners the choice of continuing to manage their e-lists by sending commands via e-mail, as they did with ListProc, or through a web interface. Lyris is also expected to improve the speed and functionality of e-mailing very large groups, such as all students, all faculty, or all Cornell alumni.
We worked with Campus Life to launch CUTV in fall 2005. This subscription-based television service delivers Time Warner cable and other television programming via the university’s data network. The service, with 53 channels of news and entertainment, is available to students in the residence halls and to departments on the Ithaca campus.

Kevin Feeney (bottom) oversees CUTV. With the help of CIT project manager Sasja Huijts (top, right) and others in CIT, Campus Life, and the vendors, CUTV was launched in just five months.

Making desk phones virtually wireless
www.cit.cornell.edu/services/phones/ec500

We introduced extension-to-cellular (EC500), a service that lets individuals link (and unlink, at will) their university desk phone to their cell phone. When EC500 is on and the desk phone rings, the cell phone also rings. When EC500 is off, only the desk phone rings. This service is available to faculty and staff who have local cell phone service.

Expanding OnSite Solutions
www.cit.cornell.edu/services/onsite

Created with Cornell in mind, our OnSite Solutions service provides on-campus departments an alternative resource for IT support. Starting the fiscal year with only 1 supported service (desktop support) and 8 customers, we finished with 34 customers and 5 service offerings (adding audiovisual support, FileMaker development, system security reviews, and PDA support). For the upcoming fiscal year, we will continue our efforts to serve the university by providing efficient, reliable support and adding more services.
**Storing terabytes**

We began a new service called Storage Farm, which uses a SAN (storage area network) approach to distribute data storage among the servers in our machine rooms, allocating space as needed. This year, Storage Farm provided a total of 38 terabytes of allocated space via 298 SAN connections.

**Expanding web hosting options**

commonsocornell.edu

To meet the growing campus demand for internal web hosting options, we strengthened our hosting service by incorporating the CommonSpot service and other hosting previously managed by our Integrated Web Services (IWS) group. Our central web hosting service now offers ColdFusion, CommonSpot, and Oracle hosting, as well as hosting for static sites.

As part of that consolidation, we are migrating eight major sites previously hosted by IWS to our central hosting service. Cornell’s main site (www.cornell.edu) was among the first to be migrated; it went live in July 2006.

In fiscal year 2007, we will be developing and testing models for the hosting service that include 24x7 support, redundancy, failover, and 99.9 percent uptime.

Our other major effort this year was CommonSpot (commonsocornell.edu). Since implementing CommonSpot in 2005, we and others at Cornell have come to be seen as experts by the vendor, improving the functionality and usability of the product. We are active in Cornell’s CommonSpot special interest group, which creates best practices and solutions, such as integrating Kerberos as a secure way to access CommonSpot, and helps people decide whether CommonSpot is right for their sites.

This year, we hosted 9 CommonSpot sites, and another 5 were hosted elsewhere at Cornell. By the end of fiscal year 2007, that total is expected to reach 30.

Slow performance of CommonSpot was a primary concern this year. We continue to work closely with the vendor and the CommonSpot community at Cornell to investigate and resolve the issues by adding hardware and resources as recommended.

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Cornell University’s CommonSpot Sites

<table>
<thead>
<tr>
<th>Service</th>
<th>URL</th>
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<tbody>
<tr>
<td>Agriculture and Life Sciences</td>
<td><a href="http://www.cals.cornell.edu">www.cals.cornell.edu</a></td>
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<tr>
<td>Biomedical Engineering</td>
<td><a href="http://www.bme.cornell.edu">www.bme.cornell.edu</a></td>
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<tr>
<td>Chemical and Biomolecular Engineering</td>
<td><a href="http://www.cheme.cornell.edu">www.cheme.cornell.edu</a></td>
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<tr>
<td>CIT Advanced Technologies and Architectures</td>
<td>ata.cit.cornell.edu</td>
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<tr>
<td>Class of 46</td>
<td>classof46.alumni.cornell.edu</td>
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<tr>
<td>CommonSpot</td>
<td><a href="http://www.commonsocornell.edu">www.commonsocornell.edu</a></td>
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<tr>
<td>Human Ecology</td>
<td><a href="http://www.human.cornell.edu">www.human.cornell.edu</a></td>
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<tr>
<td>Industrial and Labor Relations</td>
<td><a href="http://www.ilr.cornell.edu">www.ilr.cornell.edu</a></td>
</tr>
<tr>
<td>IT Managers Council</td>
<td><a href="http://www.itmc.cornell.edu">www.itmc.cornell.edu</a></td>
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<tr>
<td>Cornell Library Public Services Administration</td>
<td>publicservices.library.cornell.edu</td>
</tr>
<tr>
<td>Cornell Library Transition to Fatherhood</td>
<td>fatherhood.library.cornell.edu</td>
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<tr>
<td>Cornell Library Institute for Community College Development</td>
<td><a href="http://www.iccd.cornell.edu">www.iccd.cornell.edu</a></td>
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<tr>
<td>Mann Library</td>
<td>mann.library.cornell.edu</td>
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<tr>
<td>Operations Research and Industrial Engineering</td>
<td><a href="http://www.orie.cornell.edu">www.orie.cornell.edu</a></td>
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Developing elegant and intuitive web sites
www.wpg.cornell.edu

We continue to provide expertise in developing web sites and integrated web-based solutions. Our focus on needs analysis helps ensure that the sites we design achieve their intended purposes.

This year, we transferred our web hosting services to CIT’s primary hosting service, taking advantage of economies of scale and enabling us to specialize in development. The complexity of our projects has continued to increase, reflecting the direction the web as a whole is taking in creating tightly integrated web sites that offer information in diverse, dynamic ways.

Sites we worked on this year include the College of Human Ecology; the Cornell Law School; the IT Managers Council; the School of Operations and Industrial Engineering; the Department of Biomedical Engineering; the School of Chemical and Biomolecular Engineering; CUinfo; and Cornell’s main web site (www.cornell.edu).

Teaching new skills
www.cit.cornell.edu/training

We continued to seek the most-effective ways to help the Cornell community get the most out of the IT tools and resources commonly used here. New classroom training sessions, web-based tutorials, and easy-to-understand publications were some of our strategies.

Our “Getting Connected to ResNet, ResPhone, and CUTV” and “Photoshop: Getting Started with Photoshop CS at Cornell University” guides, for example, were named as overall winners in their categories and as benchmark publications in the nationwide 2006 ACM SIGUCCS* Communications Awards competition.

For those who prefer to learn from an instructor, we worked to make it easier to find and register for our training classes. We list our events in the Office Support Services.

*Association for Computing Machinery Special Interest Group on University and College Computing Services

While others slept, we installed a second 300-kVA uninterruptible power supply overnight in Sept. 2005 to protect systems and services provided by the Network Operations Center and computer rooms on the sixth and seventh floors of Rhodes Hall—more than 540 servers requiring 305 kW of filtered power. Our systems are now protected with 540 kW of emergency power, an increase from a barely adequate 260 kW the year before, with room to keep growing.

Contact Center (HelpDesk) Requests for Help (Fiscal Year 2006) 33,855 requests

<table>
<thead>
<tr>
<th>NetIDs &amp; Access</th>
<th>E-lists</th>
<th>Security &amp; Virus</th>
<th>ResNet</th>
<th>E-mail (misc.)</th>
<th>Eudora (e-mail)</th>
<th>Bear Access/uPortal.Cornell</th>
<th>WebMail</th>
<th>EZ-Remote</th>
<th>Other</th>
<th>Course technologies</th>
<th>Mainframe access</th>
<th>RedRover</th>
<th>Oracle Calendar</th>
<th>Net-Print</th>
<th>COLTS</th>
<th>CUTV</th>
<th>Just the Facts</th>
<th>NUBB</th>
<th>GuestIDs</th>
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Number of Requests
of Human Resources newsletters and in the Cornell Chronicle, and we launched a simpler online registration system.

More than 2,290 Cornell community members took advantage of our training classes, either at our facilities at 120 Maple Avenue site or the Computing and Communications Center, or in on-campus spaces temporarily set up with our mobile labs.

**Strengthening our Knowledge of campus needs**

We continue to develop and expand our account management service, which provides a “liaison” of sorts between CIT and all of the colleges and schools, as well as several administrative units. The intent is to better understand and address the technology concerns and interests of individual units. This sought-after service has grown from 4 clients to 14, with more in the works.

This year, we began investigating how best to further develop account management. Research with our current clients confirmed that the service is highly valued. We will be reassessing when and how account management should engage new clients, as well as finding ways to leverage our current staff.

Our Contact Center (HelpDesk) helps faculty, staff, and students resolve IT problems. Staffed with highly trained students as well as full-time staff, the Contact Center is open 57 hours a week when classes are in session (and 45 hours when they’re not).
Webcasting goes mobile
www.cit.cornell.edu/services/av

We tested, selected, and deployed mobile webcasting systems that can be set up in any room already wired for distance learning. Our Classroom Technologies specialists facilitate distance-learning programs for units across campus, including Hotel Administration and Operations Research and Industrial Engineering.

Managing NetIDs
www.cit.cornell.edu/services/identity

We made changes in how we issue NetIDs so that new students could receive their NetIDs about two weeks earlier this year, in mid-May 2006. These students were able to complete administrative tasks sooner and have a sense of being part of the Cornell community before arriving on campus in August.

In June 2006, we implemented an automated system for issuing NetIDs to faculty and staff, replacing an insecure and error-prone manual method of setting passwords. Our new system also permits human-resources staff to send NetID and activation information to new employees before their first day of work, so they, too, can complete administrative tasks ahead of time.

We also completed an investigation of what it would take to issue Cornell NetIDs to all living alumni who don’t yet have one. We will begin this project in fiscal year 2007.

Revamping central authentication
www.cit.cornell.edu/services/identity

We extended our central NetID-based authentication service to support RedRover-Secure, which provides a more-secure wireless option. We also completed plans for a new central authentication service that will provide better tools for managing access to IT resources and data. Work on developing and implementing the service will continue through fiscal year 2007.

Once the central authentication system is in place, we will be able to move forward on our much-desired GuestID service. Since we implemented GuestID access in Blackboard in 2005, use has grown to over 3,780 active GuestIDs. The next phase of the project will provide campus units with the ability to create IDs and assign temporary access privileges.

Securing data through SSL
www.cit.cornell.edu/services/identity

In Jan. 2006, we rolled out the Cornell University SSL (secure sockets layer encryption and authentication) Certificate Service. The service provides application developers with easy access to software for encrypting sensitive data as it travels over networks.

Growing EzraNet
www.cit.cornell.edu/ezranet

In the fourth year of the 14-year, multi-million-dollar EzraNet program, we completed the Biotechnology Building, Comstock Hall, Olin Hall, and Upson and Grumman Halls, and began work in the Bard/Kimball/Thurston complex, Clark Hall, Rhodes Hall, Veterinary Medical Center, Veterinary Research Tower, and Willard Straight Hall.

EzraNet is a university program to upgrade data and phone wiring and their distribution infrastructure in approximately 60 Ithaca-campus buildings.
Securing RedRover
www.cit.cornell.edu/redrover

We completed our planned service improvements to RedRover, the campus wireless service, by launching RedRover-Secure. Our third “flavor” of wireless provides a much greater degree of privacy to community members who have a NetID by encrypting the wireless portions of their data transmissions.

Migrating to a new issue-tracking system

Vantive, one of CIT’s primary ways to track issues and requests for help, is well past its prime and no longer supported by the vendor. In consultation with the IT Managers Council, we determined that the Remedy service-desk management software was the best system to replace it. In fiscal year 2007, we will begin using Remedy within CIT, and also help other interested Cornell units implement Remedy in their organizations.

Dave Barr (left) works with CIT project manager Jolene Simmons to bring RedRover to more locations around campus and provide new services, such as the new secure version of wireless.
Development of Cornell Information Technologies and the Cornell IT community

Goal
CIT is committed to contributing to the professional development of the IT community campus wide. CIT also pursues long-term internal development goals to meet customer needs, provide IT leadership, improve organizational and individual performance, and manage projects and finances.

Progress
- Finance and administration
- IT Disaster Recovery Task Force
- Quality of work life progress
- Customer satisfaction Survey

Streamlining processes and doing planning
Within CIT, we are continuing to streamline and integrate our processes and business models. This year, some of the work we did included:
- Business plans for 14 designated services and a two-year rate model for several
- Campus administrative computing cost models
- EzraNet analysis for the Board of Trustees
- Progress on a multi-year plan to integrate CIT’s billing systems into a single system
- RFPs (requests for proposals) and PARS for capital projects and new initiatives including trouble management, SourceForge, network hardening, 10G network upgrade, EzraNet, uninterrupted power supply, and Syracuse fiber link
- Sarbanes-Oxley sub-certification requirements
- Options for a new CIT building

Learning from Katrina
Business (almost) as usual is the goal of the IT Disaster Recovery Task Force, an effort we and other Cornell units are leading to ensure the university is prepared for a severe, “Katrina”-like disruption.

We completed the first version of the CIT Emergency Preparedness and Business Systems Recovery Plan, which was developed using the LBL Technology partner’s business continuity planning methodology.

We also participated, together with other units of the university, in an effort to determine readiness in the event of an influenza pandemic by identifying essential services and verifying that services can be managed remotely, and that both primary and backup technical contact information is identified.

Making CIT a better place to work
Every spring, all of our staff, including those in management, are anonymously surveyed on how they feel about working at CIT. The survey reports on views of the general work climate; relations between staff and supervisors; opportunities for growth; job value and satisfaction; compensation; and perceptions of trust and fairness of management. About 82 percent of our staff completed the 2006 survey.

Overall, 85 percent said that working at CIT was a good deal for them, 73 percent are satisfied with their job, and 71 percent would highly recommend CIT to a friend seeking employment.

Compared with the 2005 survey results, the top improvements were in the percent agreeing with these statements:
- My director has a clear view about where the organization is going and how to get there (increased from 56% to 74%)
- My director is approachable, easy to talk with (increased from 67% to 81%)
- People treat each other with respect at CIT (increased from 57% to 70%)
- I am comfortable with the amount of time I spend on work (increased from 69% to 81%)
- The workload in my group is fairly distributed (increased from 52% to 64%)

We will continue to look for ways to create a positive quality of work life for our staff, continuing to focus particularly on career development initiatives and integration of our values into our day-to-day lives.

Louann Smith (top), Tara Bennett, and their colleagues in our business service center process myriad requests from throughout CIT for reimbursements, purchase orders, cell phones, pagers, student employment, and more.
2006 Customer Satisfaction Survey Results

Once a year, we do a customer survey among faculty, staff, and students on the Ithaca campus. With the help of Cornell's Publications and Marketing group, we distributed a 10-question postcard in March 2006. We offered everyone who returned the survey by the deadline a chance to win one of five $75 gift certificates to the local restaurant of the winner's choice.

Of 18,688 surveys sent out, 1,712 were returned. This has been our typical response rate since our first survey in 2001. Of the respondents, 84% report using a PC (Windows or DOS) system, 14% Macintosh, and 2% Linux/UNIX. As in years past, the community’s overall rating of the quality of our services and facilities correlates most highly with their satisfaction with the speed and convenience of our services, as well as the variety of services we provide.

1. I feel well informed about CIT services and facilities.
   **Other responses:** 23.7% neither disagreed or agreed (was 23.3% in 2005); 23% disagreed or strongly disagreed (was 24.3% in 2005)

2. I can usually find the campus technology information I’m looking for in CIT printed and web resources.
   **Other responses:** 19.6% neither disagreed or agreed (was 19.3% in 2005); 7.8% disagreed or strongly disagreed (was 11.8% in 2005)

3. When I need to contact someone at CIT, it's easy to get in touch with the appropriate person or group.
   **Other responses:** 23.9% neither disagreed or agreed (was 23.1% in 2005); 12.3% disagreed or strongly disagreed (was 15.9% in 2005)

4. CIT staff members are usually responsive and customer-oriented.
   **Other responses:** 18.8% neither disagreed or agreed (was 17.1% in 2005); 5.7% disagreed or strongly disagreed (was 6.8% in 2005)

5. CIT staff members seem technically competent.
   **Other responses:** 15.4% neither disagreed or agreed (was 15.4% in 2005); 5.1% disagreed or strongly disagreed (was 4.6% in 2005)

6. I am satisfied with the speed and convenience of CIT services.
   **Other responses:** 22.6% neither disagreed or agreed (was 25.1% in 2005); 12.6% disagreed or strongly disagreed (was 12.9% in 2005)

7. When there is a fee for services, CIT provides fair value for the price.
   **Other responses:** 50.7% neither disagreed or agreed (was 49.4% in 2005); 16.5% disagreed or strongly disagreed (was 17.5% in 2005)

8. CIT is an innovative university technology organization.
   **Other responses:** 40.2% neither disagreed or agreed (was 39.9% in 2005); 7.9% disagreed or strongly disagreed (was 8.9% in 2005)

9. Overall, I am satisfied with the variety of services and facilities CIT provides.
   **Other responses:** 22.5% neither disagreed or agreed (was 26.2% in 2005); 7% disagreed or strongly disagreed (was 7.2% in 2005)

10. Overall, I am satisfied with the quality of services and facilities CIT provides.
    **Other responses:** 18.3% neither disagreed or agreed (was 20.5% in 2005); 6.3% disagreed or strongly disagreed (was 9.4% in 2005)
Measuring What CIT Does

**Academic support**
Class sessions hosted in CIT’s instructional computer labs: 1,185 (3,473.5 hours of instruction)
Computer labs—computers supported by CIT’s lab group: 420
Courses with active CIT-supported web sites: 3,204 … number of those using Blackboard: 2,195
Individuals accessing Blackboard course sites: 4,058
Courses using audiovisual streaming services: 223
Faculty Innovation in Teaching program: 23 projects, tied to 28 courses (3,386 students)
Academic Technology Center requests for help: 8,859 by e-mail; 381 by walk-in consultation (165 individuals)
Lynx Student Technology Assistant appointments: 97 (118.5 hours) … projects: 23 for 51 faculty members (334.5 hours)
Faculty instructional technology workshops: 22 (283 participants)
Faculty instructional technology consultations: 107 faculty (703 consulting hours)
CyberTower (cybertower.cornell.edu) visits per month: 4,030

**General campus services**
CIT/Rhodes Hall high-speed laser printing—jobs printed: 61,589 … pages printed: 7 million (average 114 pages per job)
Contact Center (HelpDesk)—requests for help (phone, e-mail, walk-in): 86,570
Contact Center (HelpDesk)—requests for help by constituency: 11.5% faculty; 28.5% staff; 41.1% students; 5.1% retirees; 7.9% alumni; 5.9% other
Contact Center (HelpDesk)—callers who hung up after being put on hold: 6.9%
CU Hosting—number of sites: 19 … data: 4.5 GB … average hits per month: 5.7 million
CU People (free web hosting for personal pages)—accounts: 6,459 (8.2% faculty; 13.9% staff; 68.5% students; 14.8% other) … average hits per month: 5.3 million
CU Search—hits per month: 47,435
CUinfo—average hits in a year: 4.57 million
CUWebLogin—authentications in a year: 23.99 million
Electronic directory—searches per day: 2.99 million
E-mail—mailing lists: 3,816 (370,000 subscribers, 192,650 unique addresses, 68,610 Cornell addresses)
E-mail—messages routed in a year: 952.89 million
E-mail—special mailboxes (e-mail accounts set up for a business purpose): 348
Employee Essentials—average visits per month: 3,031 (2,068 unique visitors)
EZ-Backup: 113.5 terabytes of data backed up on 3,149 systems
NetIDs created: 11,134
Net-Print (CIT’s lab-based laser printing service)—pages printed in CIT labs: 2.25 million pages … pages printed in non-CIT labs: 6.56 million pages
Network—active data ports: 26,300
Network—unique devices connected: 71,333
Network and voice infrastructure—linear miles of fiber: 202 … linear miles of cable: 101 … linear miles of interior cable installed this year: 78
Network and voice trouble tickets—average completion time: 1.0 day
Network and voice work orders (moves, adds, changes, disconnects, swaps): 13,428 … average completion time: 4.4 days
Network Operations Center—complaints made about alleged computer policy violations, electronic copyright violations, and other types of computer-related abuse: 7,082
Network Operations Center—manual DNS entries: 1,444
Network Operations Center—network or computer security incidents handled via e-mail: 14,135
Network Operations Center—phone calls: 17,088
Network Operations Center—problem reports: 9,575
Oracle Calendar (university-wide personal calendar and meeting scheduling service) users: 10,566
Permits for application authorization: 1,047
Phones—assigned phone jacks: 19,000
Phones—AUDIX messages in a week: 103,968
Phones—calls made in a week: 55,407 local; 34,907 long distance; 1,324 international; 30,065 toll free

**Administrative system support**
Actuate Human Resources/Payroll reports delivered each month: 1,728 (225,459 pages)
Human Resources/Payroll datasets delivered each month: 3,096 (262 megabytes)
Phones—reliability of phone system: 100%

Security—Edge ACL service: 426 department subnets and all 100 ResNet subnets

Servers: 542

Service IDs (srvtabs) issued: 124

Software licensing—savings compared to educational retail pricing: $2.1 million (excluding enterprise agreements for Hyperion, Oracle, Symantec, and Eudora)

CIT staff and business measures

Staff hired: 51 (22 new to Cornell)

Average years of service by our staff: 12 (9 with CIT)

Staff with 10 years of service: 176 … with 20: 73

Total number of staff: 383

Number of CIT procurement, travel, capital assets, and payroll transactions processed: 30,869

Software licensing—software titles and packages: 27 (including major contracts with Hyperion, Oracle, Microsoft, Adobe, FileMaker, and SAS)

SSL certificates issued: 178

USENET News service (NetNews)—articles read: 9.4 million … articles posted: 24,500 … number of users: over 6,000

Training workshops: 296 (more than 3,000 participants)
This annual report covers the July 1, 2005, to June 30, 2006, period. All staff listings reflect staff employed during that period.

Many thanks to
Leslie Intemann for handling photography and assisting with production.
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Everyone we photographed to help show the diverse community in which we work.