Annual Report 2002-2003

Princeton University
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Letter from the Vice President

This annual report for FY 2003, OIT’s second full year, reviews the organization’s continuing efforts to support the University’s information technology needs. In July 2002, we consolidated OIT from nine to five departments, eliminating redundancies and clarifying roles and responsibilities. OIT now has a more logical reporting structure that brings together groups performing similar functions and focuses the organization on meeting the needs of the University community.

During the past year, we have taken many additional steps to improve our organizational effectiveness. An OIT-wide focus on project planning and management is improving our ability to successfully deliver projects. Our new Ambassador program is enhancing customer service and communication between OIT and the University community. OIT has also formed eight cross-functional teams to manage cross-organizational efforts in academic technology, communications, disaster recovery, facilities and office management, IT architecture, project management, software management, and training. With a focus on improving customer service, the teams have made significant progress towards documenting current OIT products and services and identifying and implementing improvements. One successful event planned by the communications cross-functional team this past year was the two-day *Information Village Fair* held in the Frist Campus Center.

**A year of significant accomplishments**

Throughout the year, OIT has worked hard to improve existing, and offer new, information technology services. In the area of academic computing, the Blackboard Course Management System again provided a course web site for all courses at Princeton. These course web sites now provide easy access to digitized video materials as well as the Library’s electronic reserve material. And an expanded slate of specialized courseware serve alumni and complement and supplement undergraduate courses.

This past year, the Research Computing Advisory Group (RCAG) facilitated collaboration between faculty and OIT and provided centralized research support. One of the results of this collaboration was the spring opening of a high-performance “Beowulf” cluster comprised of 32 personal computers connected with a high-speed network. OIT also created a new Humanities Computing Research support group to help faculty acquire, develop, and implement humanities-related research applications.

In response to a growing number of requests from customers, OIT expanded the hours of operation of the Help Desk. The Help Desk is now open continuously from Sunday evening through Friday evening. Students, faculty and staff have immediate access to telephone and e-mail help during these expanded hours. Having OIT Help Desk staff on site also means that they are available to provide proactive monitoring and corrective action when the network or other systems falter.

We are sustaining our commitment to a world-class communications infrastructure. The University is now past the midway point of a multi-year, campus-wide upgrade to its data network infrastructure. Significant enhancements during the summer included upgrading the wiring and core electronics in five dormitories and nine other academic and administrative buildings. The upgraded network will permit the University to implement new, and improve existing, services.

Priorities Committee support enabled the hiring of a University IT Security Officer. Already in the first half year, this office has had a tremendous impact in disseminating information about security and in coordinating campus security efforts. A second technical position will soon permit more proactive security measures, including intrusion detection and prevention. In this area, to assist users in updating old
passwords that are vulnerable to attack and simplify the many userID and password combinations that users need to remember. OIT introduced a password synchronization tool, P-synch. OIT also introduced a new “spam” filtering service that has helped more than 1,200 campus users to reduce the growing amount of unwanted e-mail.

In the area of administrative computing, the Administrative Systems Planning Group (ASPG) tracked the progress of projects on the FY03 project slate, especially the PeopleSoft upgrade projects, and reviewed and endorsed ten off-cycle project requests. A new Senior Advisory Group on IT (SAGIT) was formed to advise the Provost on issues of funding related to projects endorsed by the ASPG. The ASPG endorsed a project slate for FY04, as well as key projects for FY05 and FY06. Input to the FY04 planning process included the results of a departmental shadow systems analysis, feedback from departmental focus group sessions, gaps identified during the Financials, Human Resources, and Student Administration standard business model process, and proposals for new functionality submitted by departments.

Continuing to serve

We will continue to look for ways to promote further organizational flexibility, to facilitate meaningful and continuing communication, to improve the delivery of IT services, and to ease customer interactions with our staff. I am especially grateful to the OIT staff, a group of hardworking, extremely knowledgeable individuals who are dedicated to providing the best possible information technology support to our students, faculty, and staff.

Betty Leydon
Vice President for Information Technology
and Chief Information Officer
OIT Mission and Goals

The mission of OIT is to enable the effective use of information technology in support of the University. In pursuit of this mission, OIT’s goals are to

• Deliver information technology products and services that meet the needs of the University community and achieve the highest levels of customer satisfaction;

• Support the use and development of information technology to enable innovation in teaching, learning, research, and scholarship;

• Provide leadership in planning for the effective use of technology;

• Provide a robust, reliable, and secure information technology infrastructure;

• Attract, develop, and retain quality information technology professionals;

• Enable communication and collaboration among information technology professionals and users of information technology at the University.
FY03 OIT Timeline

July, 2002

Beginning in July, OIT upgrades the wiring and core electronics in five dormitories and nine academic and administrative buildings. OIT also extends the data network to the apartments in the Hibben-Magie complex and installs new video transmitting equipment in twelve campus areas to support much higher-quality video transmissions.

OIT and the Office of Communications implement an online calendar that consolidates information about all public events. It is now easier to see the schedule of all University public lectures and events.

The new Departmental Charges System is used for the first time. This new system provides a better way for departments to view their monthly inter-departmental charges through the DataMall. In addition, the new system provides an easy-to-use interface that permits any University department to initiate an inter-departmental charge.

OIT adds server capacity to the TSM backup system. After extensive tuning, load balancing, and optimization, the service regularly backs-up 7,000 machines nightly.

The Administrative Systems Planning Group (ASPG), which prioritizes administrative system needs, finalizes the administrative systems project slate for FY03. The ASPG also initiates a new process for requesting OIT support for administrative systems.

August, 2002

University students gain access to the new Student Course Online Registration Engine web site, SCORE. All current students can now use SCORE to verify and update address, phone, and e-mail information; graduate students are able to complete their annual registration process entirely online.

Early decision and regular applicants to the Class of 2007 can apply online for admission and financial aid via the web for the first time.

University course web sites now provide access to the Library’s electronic reserve material. Blackboard, the infrastructure that supports web sites for all University courses, also now supports the exchange of voice messages between students and instructors.

ETC announces its first “@princeton CoursewareTM,” a single lecture with multimedia support. The lecture is Faustus Anatomized: The Magus in Early Modern Europe, by Professor Anthony Grafton of the History Department.

OIT completes a six month migration to the latest version of “Active Directory.” The major upgrade brings the University’s server infrastructure to the latest version. Departments can now manage users and servers by themselves. The upgrade also improves University security and authentication.

September, 2002

A new CD-ROM course for alumni, The Western Way of War, is shipped in the September 11 issue of the Princeton Alumni Weekly to all 80,000 Princeton alumni.

DEMAND, the web desktop for Princeton University managers, is updated to include new and enhanced “channels” (integrating administrative system access and business content) for serving the University’s management community.

In response to requests from administrative departments, OIT pilots Exchange, an integrated e-mail and calendaring service.

Media Services begins to provide a new portable video conferencing service that can be brought into any classroom or office connected to the campus network.

To help staff update their skills, OIT offers a series of training workshops featuring Microsoft Office, Blackboard, and web development tools.

University students begin to use their University ID Card to pay for goods and services at participating area merchants. The program, Paw Points, is managed jointly by OIT and Dining Services.

Lunch’n Learn sessions include: “Getting started with Blackboard” and “Password security.”

OIT forms cross-functional teams to manage cross-organizational efforts and to improve the delivery of services.
October, 2002

Since “going live” in June, 330 proposals and 75 subcontracts have been entered into Coeus, the University’s Grants Management software system.

OIT launches an improved Webmail system with new features and faster performance.

95% of Financial Aid applications and 50% of Undergraduate Admissions applications are received via the new online web system.

*Gifts to Princeton*, a publication honoring donors contributing $2,500 or more, is generated electronically from the Development Office’s STRIPES system for the first time. The automation saved Development staff many days of hand editing, by producing a mail-ready copy.

The *University Register*, a print publication delivered to all faculty and professional staff, is generated electronically from the University’s Campus Community software system. The publication becomes much easier to assemble and much more accurate and consistent.

The Lunch ’n Learn series features “How I use Blackboard in my teaching,” “Teaching with the Digital Wall,” “New online Library services,” and “Building PDF forms.”

OIT offers Geographic Information System (GIS) training sessions including presentations and hands-on exercises.

November, 2002

Most major lecture series are now being recorded and disseminated on the web. To facilitate the “webcasting” of University events and public lectures, OIT deploys high-speed video networking hardware in ten major University auditoria.

The new IT Security Officer begins a campus-wide effort to address IT Security. Early efforts include campus presentations and the dissemination of information about safe practices.

“Photography Exhibit” (by Miriam Romais) appears on the Frist display wall for Latino Heritage Week.

The completion of the final phase of SCORE permits all students for the first time to enroll in courses using the web.

OIT introduces a “spam” filtering service that reaches 1,250 campus users by the end of the year.

The Lunch ’n Learn series features “Keeping track of events,” “Using digital images in the classroom,” and “Web page design.”

Institutions of higher education are required to track foreign student status and regularly report changes to the INS. fsaAtlas software is successfully installed to achieve compliance.

ETC releases *Tchaikovsky and the West*, an illustrated online lecture about the Russian composer. The lecture can be viewed at the Tigernet Education page: http://tigernet.princeton.edu/education

December, 2002

The Association of Chinese Scholars and Students hosts an Aids Week Photography Exhibit on the Frist Display Wall.

ETC completes an Audio Lecture for alumni: *The Idea of Europe*, by Lionel Gossman.

The Lunch ’n Learn series includes “Managing your dissertation with Word and Endnote,” and “Language Resource Center overview.”

The Language Resource Center adds Hebrew and Chinese to the existing six cable channels.

*it matters* highlights new online learning modules that help faculty learn about new features for adding content to Blackboard course web sites.

For the first time, the Graduate School successfully completes processing for graduation using PeopleSoft Student Records.

Diebold Housing software is upgraded to include room draw functionality. Leveraging this functionality and new online forms, students can now submit housing applications through the web.

Development Advance is successfully upgraded to release 6.1 and PowerBuilder 7.0. Many enhancements deliver efficiencies and new functionality in time for the peak gift processing period.
January, 2003

OIT completes two projects for the Japanese language faculty: 1) *Chunking Exercises* is a set of interactive programs that explore Japanese sentence structures; 2) The Nakama Video Project is a collection of cultural video segments photographed on site last summer in Japan.

The Lunch ’n Learn series features “Geographical Information Systems” and “Basic course web site design.”

*it matters* publishes a special issue on passwords and password management.

OIT launches the first phase of an Ambassador program to improve communications and customer service between OIT and the University community. Under the new program, an OIT representative is assigned to a specific academic or administrative department to provide updates on OIT services and to act as that department’s liaison with OIT.

OIT rolls out an improved version of the Faculty Voting application. A number of successful elections are held including a demonstration election in March at the Information Village Fair.

Princeton Project Office introduces a new “lite version” of the Princeton Project Management Methodology to more effectively manage small to medium-size IT projects. Templates for a project “snapshot” describing key project planning components and a color-coded status report highlighting the status of a project were developed.

February, 2003

The Dante database receives a major update including new images and Professor Robert Hollander’s recent translation of “The Purgatory.”

ETC collaborates with the Princeton University Art Museum for the exhibition, “The Art of Structural Design: A Swiss Legacy,” curated by Professor David Billington. ETC provides graphic design and the design and implementation of the exhibition web site. The exhibition is based on forty-five years of Professor Billington’s research. The exhibition also pays tribute to Professor Billington’s popular undergraduate course, CEE262 “Structures and the Urban Environment,” which he has offered at Princeton since 1974. The exhibition web site can be seen at: http://www.princetonartmuseum.org/Bridges/

OIT creates a new group, Humanities Computing Research Support, to help faculty acquire, develop, and implement humanities software applications.

The Administrative Systems Planning Group approves the new Centralized Ticketing system, using Tickets.com. Initial users will be Athletics, the Concert Office, Frist Campus Center, Richardson Auditorium, Theatre Intime, and Theater and Dance.

Following the successful completion of an Exchange pilot, OIT offers integrated e-mail and calendaring services to departments. By the end of the year, 350 users in six departments are using the service.

The Lunch ’n Learn series features “So many databases, so little time,” and “Finding things on the web.”

March, 2003

ETC offers audio-only versions of its popular computer-based CD-ROM “@princetonCourseware™” for users who want to listen to lectures in their car stereos or on portable audio devices.

More than 1,000 staff, students, and faculty attend an Information Village Fair at the Frist Campus Center. The two-day fair contains more than fifty displays of information technology from OIT, the Library, the Office of the Dean of Faculty, Purchasing, Facilities, and the Undergraduate Student Government.

To identify continuous improvement efforts for administrative systems, OIT completes a series of focus groups with departmental managers in three key administrative areas – managing the academic program, managing people, and managing business and finance. In addition, a targeted effort to identify departmental shadow systems is performed.

After consolidating input from academic departments, OIT develops a set of recommendations to eliminate many of 165 departmental shadow systems by integrating those functions into existing central systems.

To support a new government reporting requirement, a Conflict of Interest subsystem in the Coeus grants management system is implemented.

The Lunch ’n Learn series features “PDAs and other handy things,” “Classroom technologies,” and “OIT support for research computing.”
ETC unveils *A Collegeland Catechism*, an online, interactive, celebratory study of a poem from “Moy Sand and Gravel” for which Professor Paul Muldoon won the 2003 Pulitzer Prize. The software explores the poem’s meaning and structure.

OIT makes available a high-performance computer system for research computing. Built in partnership with Dell Computer Corporation, this “Beowulf cluster” contains 32 off-the-shelf personal computers connected by a high-speed network. The setup offers many benefits of custom-designed scientific supercomputers at a fraction of the cost.

A new, improved ordering process for faculty computers is introduced. Faculty can now order directly from vendors and record-keeping is automated.

Development Advance Web Community for online giving is implemented. Credit card gifts can now be made through the web.

Phase One of EZ Communications is implemented. EZ Communications is an easy-to-use web application to assist department managers with both day-to-day and emergency communications.

The Lunch ’n Learn series features “The OIT Help Desk KnowledgeBase,” “The Wireless Classroom,” and “It’s not your Grandma’s Blackboard.”

ETC completes *Ethical Dimensions of Scientific Progress*, an online lecture by Professor Harold T. Shapiro. The lecture focuses on some of the most pressing ethical and social tensions that have accompanied recent scientific progress.


Lunch ’n Learn presents “DBToolBox,” “Securing your personal computer,” and “The anatomy of a data-driven web application.”

Development Advance is now integrated with Events Management. Front-line fundraisers can now access current prospect participation information for upcoming Princeton events.

The new Intellectual Property system (Inteum) is implemented. The Inteum system, replacing DEALS, provides proactive management of intellectual property and technology licensing.

After months of evaluation and consultation with key University groups, the OIT Software Task Force recommends that Internet Explorer and Outlook XP replace Netscape as the standard University web browser and e-mail client.

OIT runs “Web Studio,” a summer seminar devoted to teaching advanced graduate students innovative uses of technology in research and teaching. Each student prepares an online portfolio, consisting of home page, resume, web site for an undergraduate course, and a set of digital resources in the area of research interest.

DEMAND, the web desktop for Princeton University managers, is upgraded to the uPortal 2.1.2 framework. This new framework provides users the flexibility to personalize the channels most often accessed. In addition, the standard business models for financial, human resource and student administration processes are now available through DEMAND.

Time Collection reporting is now available through the Data Mall including 17 new reports, 11 new queries and helpful data definitions, to assist departmental managers in monitoring their employees’ time.

OIT migrates department file services to a new Windows 2000 server. The consolidation of servers simplifies document sharing among University departments. Departments experience faster file access and greatly improved performance, but no changes in how they access their files.
OIT, FY03 by the Numbers

1,000,000,000,000 Bytes of disk storage maintained to serve University databases
70,000,000 Bits per second capacity over the University’s commodity Internet connection
32,266,247 “Hits” on the OIT Help Desk web site representing 2,924,317 visits
21,862,330 Total telephone calls, more than in many small cities
18,100,000 Copies on University photocopy machines
6,511,370 Pages printed on the printers in the public computer clusters
702,590 Log-ins to the computers in the University public computer clusters
310,000 Dollars in software sales to departments, faculty, students, and staff
256,609 People who used the OIT kiosks at the Frist Campus Center
200,000 E-mail messages delivered daily to individuals and organizations
167,000 Dollars saved by consolidating the University’s PeopleSoft contract
100,000 Spam e-mail messages filtered every day
72,000 Dollars spent through new Paw Points e-commerce program
70,000 E-mail messages sent from Princeton each day
66,222 Requests for assistance addressed by the OIT Help Desk
18,000 IMAP e-mail accounts
14,000 Voice mailboxes in service
9,579 Journal vouchers generated electronically through the new departmental charging system
7,748 Academic and administrative telephone lines
7,300 Requests for assistance from Hardware and Software support
7,000 Campus computers backed up nightly
5,769 Visits to the Language Resource Center
3,000 New electronic lists created
2,325 Videos in the University’s video collection
2,100 Fax jobs handled by the revised FAX Gateway service
1,983 Requests for support addressed by Residential Computing Consultants
1,991 Graduate students using SCORE to register online thereby avoiding long lines at Dillon
1,846 Administrative production jobs monitored by the Tivoli Workload Scheduler
1,250 People using the spam filter since its November introduction
1,235 Computers sold through the University’s Student Computer Initiative
1,200 Attendees at the two-day OIT Information Village Fair held in the Frist Campus Center
1,119 Subscribers to Dormnet video
906 Videos placed on reserve by faculty
500 Members of the University community attending OIT’s Lunch ’n Learn series
400 University courses with Blackboard web sites
350 Users in six departments using OIT’s integrated e-mail and calendaring service, Exchange and Outlook
330 Computers available to undergraduates and graduate students in the computer clusters
200 Unix servers supporting University business and academic applications
175 Hosts (and 30 web sites) proactively monitored by Tivoli system monitoring software
70 Faculty in-office visits from trained graduate students
32 High performance computers in the new Beowulf supercomputer cluster
14 Online surveys developed for University departments
7 Cents per minute for domestic long distance service, the Ivy League’s lowest rate
0.00004 Percent downtime on the University telephone system
0 The cost for attending OIT training courses
Committee on Academic Technology

With the advent of the World Wide Web and the increasing use of digital materials and other information technologies in research, teaching, and learning, there is a growing need to ensure that appropriate technologies are available on campus.

The Committee on Academic Technology (CAT) facilitates the communication and collaboration between IT providers and the offices at the University most directly responsible for the curriculum. The specific charge of the committee is to:

- Serve as an informational clearing house, so that those responsible for technology and those responsible for the curriculum are well-informed of each other’s initiatives;
- Develop new initiatives that may enhance the curriculum through information technology;
- Help in evaluating IT initiatives from community members which affect the curriculum, and prioritizing the distribution of resources;
- Take leadership in assuring that the use of academic technologies in the curriculum receives appropriate assessment, both evaluative and formative.

FY03 was the first full year of CAT’s operation. The committee met four times, in September, December, February, and April.

During FY03, members of the CAT were:

Serge Goldstein, OIT Academic Services
Janet Temos, OIT Educational Technologies Center
Hank Dobin, Dean of the College
Lin Ferrand, Dean of the Faculty
Lorraine Sciarra, General Counsel
David Redman, Graduate School
Jane Bryan, Library
Linda Hodges, McGraw Center for Teaching and Learning
Jed Marsh, Provost’s Office
Highlights

Course Management Systems
CAT reviewed Princeton’s use of Blackboard, its current course management system, and considered options for the future. CAT approved the Blackboard 6 upgrade for the Fall 2003 semester and recommended continuing with Blackboard through FY03 after which further reviews will be undertaken.

Classroom Videotaping
CAT reviewed and approved the videotaping of classroom sessions of MAT 103, and developed a policy governing future recordings.

Bandwidth Management Proposal
CAT reviewed and approved OIT’s proposal to limit Dormnet bandwidth and to manage that bandwidth in a way that supports legitimate use of the campus network.

Bibliographic Software
CAT launched a pilot project to compare various bibliographic software offerings.

Mellon Planning Grant
CAT monitored progress on the Planning Grant from the Andrew W. Mellon Foundation to examine possible uses of video in University classrooms, and helped develop a final report.

Academic IT Strategic Planning
CAT reviewed OIT’s proposal for Academic Technology’s Strategic Planning and made a number of recommendations. CAT agreed to serve as a focus group for the effort in the fall of 2003.
Research Computing Advisory Group

The Research Computing Advisory Group (RCAG) advises and collaborates with OIT on matters related to research computing at the University. The specific charge of this group is to:

- Advise OIT on the research computing needs of academic departments;
- Collaborate with OIT on various projects related to research computing;
- Advise OIT on the software needs for research computing.

During FY03, members of the RCAG were:

Curt Hillegas, OIT Academic Services
Mary Lynn Baecck, Civil and Environmental Engineering staff
Peter Bunge, Geosciences faculty
Roberto Car, Chemistry faculty
Bruce Draine, Astrophysics faculty
Bjorn Enquist, Applied and Computational Mathematics faculty
Hank Farber, Economics faculty
Sal Fattoross, Ecology and Evolutionary Biology staff
Serge Goldstein, OIT, Director of Academic Services
Daniel Marlow, Physics faculty
Pino Martin, Mechanical and Aerospace Engineering faculty
Josko Plazonic, Math staff
Jim Roberts, Computer Science staff
Daniel Trueman, Music faculty
Chris Tully, Physics faculty
Doug Welsh, Molecular Biology staff
Bill Wichser, Princeton Materials Institute staff

Highlights

High-performance computing
OIT’s acquisition and deployment of a 32 node, 64 processor Beowulf cluster and the deployment of a 50 processor Condor pool helps to address the need for high-performance computing.

Linux support
Efforts are underway to establish a Princeton Linux Users Group, to work collaboratively to provide a Linux update service, and to coordinate OIT’s existing web-based Linux documentation.

Princeton Software Repository
A sub-group completed a charter for the Princeton Software Repository, and OIT has now completed a functional design. The core service is scheduled for deployment in September 2003.
The Administrative Systems Planning Group (ASPG) critically assesses administrative systems efforts, determines existing needs, and identifies key opportunities to build on our administrative systems investments. The specific charge of this group is to:

- Evaluate current administrative systems, identify gaps and needs, and determine the steady-state costs of maintaining current administrative systems;
- Assure that the University’s administrative systems meet the needs of faculty, staff, and students;
- Recommend the appropriate distribution of resources for new maintenance, upgrades, and development efforts that will enhance the University’s systems;
- Create a strategic plan to guide administrative activities for the next five years.

During FY03, members of the ASPG were:

Janet Dickerson, Vice President for Campus Life  
Kathleen DiMeglio for the Academic Managers Group  
Robert Durkee, Vice President for Public Affairs  
Joseph Greenberg, Registrar  
Ben Hammond for Charles Kalmbach, Senior Vice President for Administration  
Nancy Malkiel, Dean of the College  
Jed Marsh, Associate Provost  
Christopher McCrudden, Treasurer  
Julie Shadle for Brian McDonald, Vice President for Development  
Greg Bressler for Mike McKay, Acting VP of Facilities  
Sandra Mawhinney for William Russel, Dean of the Graduate School  
Kris Miller for Joseph Taylor, Dean of the Faculty  
Dan Scheiner for Maureen Nash, VP Human Resources  
Karin Trainer, University Librarian  

Ex-officio:  
Hetty Baiz, Project Office Manager, Planning Coordinator  
Nancy Costa, Director, OIT Finance, Administration and Planning  
Betty Leydon, Vice President for Information Technology
Highlights

Project slate

The ASPG monitored the progress of the FY03 administrative systems project slate, with particular focus on the PeopleSoft 8.0 upgrades for Financials, Human Resources and Student Administration.

The ASPG reviewed 10 off-cycle projects during the year as detailed below:

<table>
<thead>
<tr>
<th>Request</th>
<th>Sponsor</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>EZ Communication – Phase I</td>
<td>Chris McCrudden</td>
<td>Completed in FY03</td>
</tr>
<tr>
<td>Distributed Access of GS Student Records</td>
<td>William Russel</td>
<td>Completed in FY03</td>
</tr>
<tr>
<td>GS Readmission</td>
<td>William Russel</td>
<td>To be implemented in FY04</td>
</tr>
<tr>
<td>GS Web Admissions Application</td>
<td>William Russel</td>
<td>To be implemented in FY04</td>
</tr>
<tr>
<td>Encumbrances Reporting on the Data Mall</td>
<td>Chris McCrudden</td>
<td>To be implemented in FY04</td>
</tr>
<tr>
<td>Undergraduate Student Registration</td>
<td>Joe Greenberg</td>
<td>To be implemented in FY04</td>
</tr>
<tr>
<td>NCAA Compliance</td>
<td>Janet Dickerson</td>
<td>To be implemented in FY04</td>
</tr>
<tr>
<td>e-Benefits</td>
<td>Charles Kalmbach</td>
<td>Planned for FY04</td>
</tr>
<tr>
<td>Centralized Ticketing System</td>
<td>Janet Dickerson</td>
<td>To be implemented in FY04</td>
</tr>
<tr>
<td>Content Management System</td>
<td>Robert Durkee</td>
<td>To be implemented in FY04</td>
</tr>
</tbody>
</table>

Planning process

The ASPG approved a project planning process for administrative IT projects. Recognizing the importance of identifying gaps in functionality, opportunities for process improvement, and requirements for new capabilities in all departments, the process included an analysis of academic department shadow systems, an analysis of project proposals, and feedback from department focus group sessions.

Based on the project planning process, the ASPG endorsed an FY04 administrative systems project slate, as well as future projects through FY06. In order to assess funding required, the Provost created the Senior Advisory Group for IT (SAGIT) comprised of the Provost, CIO, Dean of Faculty, Treasurer, and Senior VP for Administration.
Project Managers Team

The Project Managers Team (PMT) provides leadership and guidance on the delivery of administrative products and services and continues to support the application and data management principles established under Partnership 2000. The PMT acts as the “working group” in support of the efforts of the Administrative Systems Planning Group (ASPG).

Specific objectives include:

- To identify, assess, and prioritize mandatory maintenance (regulatory updates, software upgrades, service packs) and enhancements (to fill gaps in current functionality and/or deliver new functionality) to administrative systems;
- To coordinate administrative requirements across offices and departments;
- To facilitate activities that foster the improved use of administrative products and services at the University;
- To achieve the highest level of customer satisfaction in meeting the needs of the University community.

During FY03, PMT members were:

Nancy Costa, OIT Finance, Administration, and Planning
Marvin Bielawski, Library
Maria Bizzarri, Campus Receivables
Greg Bressler, Facilities
Ted Bross, OIT Data Integration Services
Michelle Christy, Sponsored Research
David Etherton, OIT Departmental Systems
Char Ewan, OIT Project Coordination
Patty Gertz, OIT Administrative Systems Integration
Kim Hoeritz, OIT Student Administration
Craig Richmond, University Financials
Vikki Ridge, Human Resources
Julie Shadle, Development and Alumni Council
Lee Varian, OIT IT Architecture
Russell Wells, OIT Administrative Applications Support
Highlights

Throughout the year, the PMT coordinated the deployment of new administrative system capabilities.

Shadow systems
PMT members consolidated input received from the academic departments on their departmental shadow systems and developed a set of preliminary recommendations that would eliminate many of these systems. The team identified 165 shadow systems with the following distribution: 59 related to academic programs, 39 related to finance and grants management, 24 related to facilities and equipment, 22 related to employee information, 15 related to alumni, 6 related to events and meetings.

Focus groups
PMT members conducted a series of focus groups with department managers in three key administrative areas: managing the academic program, managing people, and managing business and finance. All academic managers and key administrative managers were invited to attend these sessions. Each group developed and prioritized, a list of projects: 23 related to managing people, 19 related to business and finance, 13 related to managing the academic program.

Project proposals
In collaboration with all administrative offices and academic departments, PMT members assembled a comprehensive list of project proposals that identify mandatory maintenance required, process improvement (from the shadow systems analysis, focus group sessions and standard business models) and opportunities for enhancements and deploying new administrative systems capabilities.
Academic Services

Academic Services supports the use of information technology in teaching and research at Princeton. Academic Services brings together within a single OIT department those units and staff members who are primarily involved with support of academic computing.

Within Academic Services, the Education Technologies Center (ETC) supports the use of instructional technology to create learning modules and other computer-based teaching resources, including course web pages and learning modules for use in Princeton courses and for Princeton alumni. Media Services supports the use of instructional technology (audio, video, overheads, slides, computer-based presentations) in the classroom. The Language Resource Center supports the use of instructional technology in language courses and manages the University’s video collection and its digitized video server. The New Media Center runs a laboratory that makes sophisticated instructional technology hardware and software available for student and faculty use. Research and Academic Applications Support assists use of information technology in science and engineering research, including the operation of a Beowulf computing cluster. Humanities Computing Research Support assists the use of information technology to further humanities and social science research.

Highlights

Enhanced Support for Research Computing

The creation of the Research Computing Advisory Group (RCAG) has facilitated collaboration between faculty and OIT on research computing needs and has created a solid foundation on which OIT can build centralized research support. This group held monthly meetings during the academic year gaining active participation from faculty and IT staff in the science and engineering departments. OIT also created a new group, Humanities Computing Research Support, to help faculty acquire, develop, and implement humanities applications.

In support of teaching and research, OIT opened a high-performance computer cluster in June, 2003. Built in partnership with Dell Computer Corporation, this “Beowulf cluster” contains 32 off-the-shelf personal computers connected with a high-speed network. The setup offers many benefits of custom-designed scientific supercomputers at a fraction of the cost. The initiative, which grew out of recommendations of the Research Computing Advisory Group, serves those faculty and students who need to run computationally intensive programs, offering high performance computing cycles that may not otherwise be available. The cluster is also used as a teaching tool on which students can develop skills in parallel programming. Researchers considering the purchase of high-performance computing systems can also use the cluster as a prototyping and development tool.

Courseware and programming support

In addition to the use of Blackboard in more than 400 University courses, new specialized ETC-developed courseware efforts include The Western Way of War Professor (Miguel A. Centeno), Tchaikovsky and the West (Caryl Emerson), The Idea of Europe (Lionel Gossman), Faustus Anatomized (Anthony Grafton), Ethical Dimensions of Scientific Progress (Harold Shapiro), Game Theory (Avinash Dixit), and A Collegelands Catechism (Paul Muldoon). Alumni are the main audience, but these lectures are also used to complement and supplement undergraduate courses.
Enhancements to the Almagest slide/image software improved the user interface and enhanced media and multi-language font support. Staff implemented a Faculty Voting system. The Language Resource Center (LRC) added two new foreign language program channels (Hebrew and Chinese) to the seven existing foreign language stations – Arabic, French, German, Italian, Japanese, Russian, and Spanish – already broadcast over TigerTV. For the third straight year, the Blackboard Course Management System provided a course web site for all courses at Princeton. Blackboard now supports the exchange of voice messages between students and instructors. The Blackboard course web sites provide access to all such digitized video materials as well as the Library’s electronic reserve material.

Planning Grant from the Andrew W. Mellon Foundation

In February of 2002, the University received a planning grant of $25,500 from The Andrew W. Mellon Foundation to explore ways in which the University might use digitized video and audio to enhance teaching and learning, both at Princeton and beyond. This process culminated with the submission of a final report to the Foundation in April 2003. The planning process identified a number of exciting initiatives, but none that Mellon appears willing to support.

Training Programs

Academic Services continues to train faculty and students in the use of course-related software and help the campus community become more familiar and comfortable with technology. In the faculty office visit program, trained graduate students conduct one-on-one training sessions with faculty. The program continued to be successful with more than 70 office visits during the year. In addition, OIT has developed a set of streaming-video training modules that demonstrate basic, frequently performed tasks, letting viewers learn at their own computer. Faculty can view these training videos in their offices or from home.

Academic Services updated its training workshops for the spring term, dividing them into beginner and advanced levels to reflect better the increased complexity of newer versions of Blackboard, and to account for differences in use: beginner sessions focused on building courses while advanced sessions taught course management features like the gradebook, groups, assessments, and question pools.

OIT has also expanded the number of its other training programs and sessions. The ETC offered new “Teaching with Technology” sessions. Training in the use of the University’s Almagest slide/image software was added to this program. OIT offered new classes on using the Frist Display Wall in teaching and assisted Civil Engineering in the teaching of the first for-credit GIS (Geographic Information System) course.

Lunch ’n Learn brownbag seminars

In the “Lunch ’n Learn” series, more than 500 members of the University community attended 25 technology-related lectures on practical know-how and the basics of common software packages, password security, building PDF forms, managing dissertations with Word and Endnote, searching the web, securing personal computers. Sessions on instructional technology using the web, like the GIS systems and WebStudio, were the most popular.

Feedback submitted to our online feedback form shows that our attendees appreciated practical topics on everyday computer use presented in a straight-forward fashion.

Language Resource Center

The Language Resource Center (LRC) supports the use of audio, video, and multimedia materials for specific assignments and for self-directed foreign language study. LRC runs the central language support laboratory and manages the University’s collection of video materials (DVD, CD, tape) and the University’s central digitized video server.

Yearly activity

During FY02, the LRC recorded 5,769 visits, 2,641 in the fall and 3,128 in the spring. Videos (including DVDs and laser discs) were checked out 1,000 times in the fall and 1,200 times in the spring.

New location

A new location in East Pyne is being readied for the LRC for the fall of 2003. LRC staff have been involved in planning the new facility and met frequently with the architects and AV consultants. The new resource center will include two film-viewing rooms for small groups and an electronic smart classroom.

Language Enrollment

For the last three years, the overall enrollment in introductory level language classes has remained fairly constant at approximately 2,000 students. The enrollments in French and German have decreased by 9% and 22% respectively, but the numbers for Arabic have increased by 66%. The number of students studying Spanish, by far the most popular language for the last decade, rose 5% to 808. 506 students were enrolled in upper-level language courses. The 33 non-language courses using the digitized video server had an enrollment of 1,128 students.

Audio

LRC staff digitized and placed online new audio materials for six textbooks. During FY03, the number of students checking out analog copies decreased by 25% to 45. With the move to the new location in East Pyne in fall 2003, the LRC will discontinue the take home service.
Video Library
The use of video continues to increase and the University’s video collection is growing rapidly as more and more faculty become aware of Firestone Library’s video acquisition policy. During the year, the number of videos in the collection increased by 555 and DVDs by 127 bringing the totals to 2,325 and 162 respectively. The laser disc collection remains at 205.

During FY03, faculty increased the number of videos on reserve by 45% to 906. Owing in part to a more liberal circulation policy in Firestone Library, the number of videos checked out rose by 60% to 1,608. During the summer of 2001, the University merged LRC video listings with the holdings in Firestone Library. As a result, patrons are now able to search the entire collection more efficiently. The LRC now has the Voyager cataloging and circulation software.

Distributed Media Centers (Digitized Video Server)
The Distributed Media Centers are specialized computing clusters that provide high speed access to CD-quality audio and video material stored on a central video server. The availability of such facilities in the Residential Colleges have permitted faculty to accelerate the integration of video materials into the curriculum. The centers will permit students to view very high quality video (DVD) on demand, 24-hours a day, 7 days a week.

In the fall semester, in addition to 16 language classes, 15 non-language courses (748 students enrolled) accessed 92 videos (up from 45 last fall) on the server. During the spring, 8 language courses and 18 non-language courses (380 students enrolled) viewed 104 videos. The server supported more than 3,200 accesses, 1,161 from stations in the LRC and more than 2,000 from remote locations.

New Media Center (NMC)
The New Media Center offers walk-in support for students, faculty, and staff interested in integrating new media capabilities into their University work. Staff members assist customers who are interested in working with sophisticated computer and audio-visual equipment and the associated software. Major activities include the creation of multi-media web pages, the digitization of text, images and video, the production of short video segments, the creation of media-rich printed graphics, and the use of CD-based resources.

In part as a result of extending its hours of operation during the school year until 7:00 pm, the NMC experienced a large increase in visitors from 1,047 last year to 1,819 this year. The following chart illustrates the range of activities at the center.

Media Conversion Projects
NMC staff worked with the Alumni Council on transferring several hours of analog and digital audio tape to CD. NMC staff assisted the Politics department to log 504 hours of network television. The study involved documenting every political commercial and candidate interview. Staff used Virage software to log the time, date, candidate’s name and number of times each commercial appeared.

Video Streaming
Media Services videotaped every class in Math 101 and Math Alive. NMC staff assisted in shooting the review sessions and then encoding the files for streaming. The files were uploaded to the server for students to access via Blackboard. NMC staff streamed a rescheduled class of Psychology Prof. Adam Elga to assist students who otherwise would not have been able to attend.

NMC was part of the first joint effort involving ETC, Media Services, and the NMC. Media Services shot the video of the bridges and interviews. The NMC staff directed, edited, and streamed interviews with Prof. Billington and his students after they had built scaled models of world renowned bridges. The videos were part of a showing in the University Art Museum and the Bridges web site created by ETC.

Staff also edited and streamed President Tilghman’s Class of 2006 and 2007 “Q&A with the President” video.

Video production and photo projects
The NMC staff produced a DVD that will accompany a book written by Prof. Silbergeld on Chinese films. The DVD includes text, video, and still images. Staff also assisted English Prof. Mark Hansen on a video project in support of his teaching.

NMC Staff were involved in numerous administrative video production efforts, including a SHARE-sponsored documentary on Alcohol abuse on the Princeton campus and an MAE promotional video for perspective graduate students. Staff also assisted the HR department in several video projects including: University Picnic, History of Princeton, and Facilities Department Appreciation video.
NMC Staff also prepared photographs and collages for the Office of Human Resources. The photo gallery features University buildings and employees and is now hanging in the HR lobby in 1 New South.

**Administrative application support**

Staff assisted the Graduate College in setting up a DBToolbox application for fellowship application forms. Two related paper forms were also converted to the web and collected automatically in a database.

Staff also assisted the webmaster of the undergraduate senior class in setting up a web form, DBToolbox connections, and a database for Class of 2003 voting. The class completed two rounds of secured voting using the system.

**Education Series Workshops**

NMC staff, and undergraduate, and graduate student instructors, taught workshops tailored to reflect client needs. Dreamweaver workshops were full-blown web design workshops. There were also classes on writing basic HTML, using Flash and Photoshop, using stylesheets, and creating rollovers using ImageReady.

NMC staff worked with Instructor Donna Liu to train her class of 20 students on using Final Cut Pro. All of the students worked in the NMC throughout the semester to produce their final projects. NMC staff also trained the 120 students in Politics 230 to use Dreamweaver.

**Research and Academic Applications Support**

Research and Academic Applications Support assists the use of computational resources for research and teaching in the sciences and engineering as well as supporting an existing array of applications for teaching and research.

**Beowulf**

The new Beowulf cluster, which is available for teaching, prototyping, and research, was put into full production in June of 2003. The largest challenge with this project was re-configuring the software on the system to accommodate the needs of the research community.

**Princeton Software Repository (PSR)**

In planning for more than two years, PSR is a robust, maintainable replacement for /usr/princeton. During FY03, a subcommittee of RCAG helped to develop a design for PSR. RCAG approved a high level design. Using the Princeton Project Office project management methodology, the group now has a full project initiation plan and functional design for the software repository and development is underway.

**Support for research applications**

Staff moved the Psychology Experiment Registration application from a Windows NT office machine to a Windows 2000 server maintained by OIT. Staff are also working with the Psychology Department to develop a web-based application to create and perform Implicit Association Testing experiments.

**CONDOR**

Developed by the University of Wisconsin, CONDOR permits use of spare machine cycles in support of research activities. Staff implemented a condor pool of approximately 25 Sun Solaris systems providing a total of more than 50 cpu’s. The continuous usage of this pool now takes advantage of most of the spare cycles available on the Arizona and Sun Unix cluster systems.

**Faculty Voting**

In November, staff rolled out an improved version of the Faculty Voting application. A number of successful elections were held including a demonstration election at the Information Village Fair.

**Media Services**

Media Services provides equipment, technical support, and information to members of the University community who wish to use audio, video, and computing technologies in their teaching, learning, research, and public outreach.

**Pilot Student Classroom Support Project**

Four students (each providing 20 hours a week) regularly check on media equipment in the increasing number of University media-equipped classrooms. 480 student hours were logged in this non-cost recovery endeavor.

**Event Coverage**

Alumni Services continued to provide media support for numerous non-course related events such as Alumni Day, Freshman Parents Day, Reunions, Baccalaureate, Graduate Hooding Ceremonies, and Commencement. Media Services also provides such services for many public events, including the University public lecture series, the President’s Lecture series, the Louis Clark Vanuxem lecture series, the Stafford Little lecture series, the Scribner series, and the James Madison Program in American Ideals.

**Videotaping**

Media Services provided video recording services for two courses: MAT 103 in the fall term and MAT 199 in spring 2003. Video recordings were also done for classes in EEB 211, McGraw Center’s Master Teaching program, and guest lecturers in ORF 492. Media Services provided in-room operators for 643 course events, and 311 non-course events, and a total of 3,214 event setups, operations, and pickups.
Staff provided Digital DVCAM, BetacamSP, and SVHS mastering of various venues including speeches by John Dilulio, Humanities Council’s Time Seminar Series, George Schultz, David Denby, John Horner, Ziba Mir Hosseini, Vincent Poor, Judge Bork, Steven Forbes, Bernard Williams, Jared Diamond, Charles Falco, OIT’s sponsored Common Solutions Group Workshop, the Princeton Colloquium on Morality and International Affairs, with Keynotes by Ambassador Dennis Ross and J. Bryon Hehir.

35mm Projection
Media Services staff provided on-going support for course related 35MM projection at the Jimmy Stewart Theater and McCormick 101. Media Services provided both 35MM and 16MM projection services for film courses such as REL 222, VIS 342 and 343, ITA 310, WOM 306, and festivals showing multiple films.

Consulting Services
Media Services provided consultation on the design and installation of data projection systems in 22 teaching areas. New multimedia systems were engineered and installed in the Carl Icahn Laboratory. New installations are scheduled for the Humanities Center and Marquand Library.

Satellite TV Services
Satellite television services continue to provide access to foreign language programming on two dedicated channels on the University’s cable television system. In addition, Media Services downlinked 4 special teleconferences and 197 videoconferences in the new Wallace and Friend videoconference seminar rooms.
Administrative Information Services

Administrative Information Systems (AIS) provides effective implementation and support of the University’s administrative systems. Services include project planning, design, development, integration, testing, and deployment of administrative applications. Core competencies include Java, PowerBuilder and PeopleSoft applications, using the Oracle relational database management system.

Administrative Information Services contains three groups, Administrative Applications Support, Application Systems Integration, and Data Integration Services.

Highlights

Deploying new student self-service web-based systems for course enrollment, undergraduate admissions application, and undergraduate financial aid applications
Web course enrollment (SCORE), undergraduate admissions, and undergraduate financial aid applications were implemented during FY03. Half of undergraduate admission applications and 90% of undergraduate financial aid applications were received through the new web-based systems. The University received highly favorable feedback from students (and parents) on these applications. SCORE significantly increased the number of students in all four classes who selected courses by the deadline.

Implementing new web architecture for PeopleSoft Financials, Human Resources, and Student Administration
Detailed project plans were developed to support the PeopleSoft Financials, Human Resources, and Student Administration upgrades to release 8.x, implementing a new web architecture. The upgrades are proceeding according to plan.

Ensuring government compliance with the new Student and Exchange Visitor Information System (SEVIS) regulations
In accordance with “The Patriot Act,” the Immigration and Naturalization Service (INS) launched SEVIS, an automated student tracking system. Beginning in January 2003, the University and other higher-education institutions were required to track foreign student status and regularly report changes to the INS. In collaboration with the University’s General Council, fsaATLAS software was selected and implemented to support SEVIS compliance.

Developing an enterprise-wide reporting strategy to improve data access and availability for departmental users
Over the course of the next several years, we will be transitioning our existing enterprise-wide reporting capabilities from a DataMall structure to a true data warehouse. A DataMall leverages pockets of information to provide a narrow data picture to users, while a data warehouse brings together data from multiple systems and applications for enterprise information delivery. While the distinction may seem subtle, the power of the reporting capabilities of a data warehouse over a DataMall is tremendous.

The first steps of this transition are already underway. We have completed the consolidation of a number of data instances to one physical location where all data may be found. We have also prototyped a new DataMall “store” that displays data from the Student System using existing DataMall viewing
capabilities. The result is an ever-growing number of options for combining, parsing, computing, and reporting disparate information across the University.

The evolution of the way we store and sort data creates new opportunities for improving how this data is viewed. We are currently assessing a new generation of web front-end reporting tools that will permit us to write far more complex, yet, far more intuitive reports for our users. We will also be able to better gear reports to our various types of users so we will no longer be limited to a one-size-fits-all approach to report creation. Finally, the new reporting tools will allow the power user much greater flexibility in accessing and working with the data they need. We hope to complete the selection of this tool by fall 2003.

Administrative Applications Support

Administrative Applications Support is responsible for the maintenance, enhancement, and operation support for all of the University’s production administrative systems and the transition of systems from development to full production.

University Financials

to aid the tracking of expenditures for new campus construction and major maintenance projects, the group installed the programs, panels, and schedules to extract data from PeopleSoft General Ledger for Capital Projects reporting. A new budget system was implemented in PeopleSoft Financials. As a result, senior management now has summary budget reports that will aid the management and analysis of budget data.

Benefits

In support of the Benefits Open Enrollment process, the group wrote two new interfaces to a Long Term Care provider (CNA) and to a new Dental Plan (Aetna). The group also modified reports and interfaces to reflect recent policy changes.

Grants Management

During the year, staff upgraded the Coeus grants management system to version 7 of Powerbuilder. The new functionality will enable departments to enter proposals more accurately and efficiently. In particular, several calculations required for proposal budgets and several new sponsor forms were automated. The group also implemented an online help system to assist customer support. During the year, seven additional departments were trained to use the system for proposal development.

Alumni Development

On December 6, 2002, staff installed into production the Development Advance system release 6.1 and PowerBuilder 7.0. The new vendor release is fully integrated in the University’s administrative computing environment. Benefits to the Alumni/Development communities include a range of needed new utilities.

Housing

Room Draw functionality was added to the Diebold housing software.

Graduate School

In November, the Graduate School successfully completed processing for graduation for the first time using PeopleSoft Student Records. A total of 122 Ph.D. students and 161 Master’s students were awarded degrees on November 9, 2002.

Application Systems Integration

Application Systems Integration is responsible for bringing together the multiple computing environments that support the University’s administrative applications into a single comprehensive computing environment. The group leads the Java development of new administrative systems.

Departmental Charges

Dormnet charges were incorporated into the Departmental Charges system and are now processed all the way through to the Campus Receivables system. Staff also added a web announcement banner line to the system in order to pass on important information to subscribers.

Campus Receivables

Staff addressed several long-standing problems with the Student Loan Prepayment Agreements and corrected the generation of coupons in the Student Loan system.

Ticketing

The ASPG endorsed the centralized ticketing project proposal and the Provost provided necessary funding. Initial user group meetings (Athletics, Concert Office, Frist Campus Center, Richardson Auditorium, Theatre Intime, and Theater and Dance) were held. The transition to a new Centralized Ticketing system, Tickets.com, is underway.

Advance Web Community

Advance Web Community version 2.1 for online giving was successfully implemented. Several new custom reports were completed to support online credit card donations and any associated address changes from alumni.

Data Integration Services

Data Integration Services is responsible for all work related to administrative data, including Campus Community, Data Administration, and the DataMall.

Resource 25

The Resource 25 event and course scheduling software application was upgraded to release 3.0. The latest release improves the user interface and adds new features that streamline event scheduling for current users in the Frist Campus Center, Woodrow Wilson School, and the Office of the Registrar.
DataMall
Staff completed several new DataMall stores for the Office of the Registrar, Visa Credit Ecommerce and Edward Don Ecommerce. The project initiation plan for the Time Collection data store was developed.

Several new reports are also available, including Time Collection, Capital Projects by Area, and the Dining unit. The Housing Office reports that new dining reports save more than two hours per month because Dining can now run the report themselves from the DataMall rather than having to compile the monthly data manually.

Campus Receivables
Staff completed the new Student Account federal IRS tax reporting system. New processes will enable us to respond more quickly to future program changes.

Payroll
The Payroll team wrote an interface from Payroll to the University Financials system to create Journal Vouchers automatically. Prior to the enhancement, reports were printed after every payroll and a Treasurer’s office staff member manually typed the Journal Vouchers.

The group also completed the disaster recovery process phase II for Payroll. In the event of a disaster, payroll checks will be created outside of the Payroll system. Phase II makes possible the restoration of the system following use of the outside Payroll system.

Accounts Payable
Modifications to the “hub interface environment” now tie the Accounts Payables system with Campus Community and with Health Services. Nightly processing now feeds ADVANCE, LDAP, Loans and Receivables and legacy Student Records.

STRIpes
During FY03, Development Advance was integrated with Events Management. The daily biographic feed from STRIPES to Events Management is undergoing acceptance testing. The interface should be production-ready by mid-spring.

DEmand
DEMAND, the web desktop for University managers, was updated to include new channels for serving the University management community. For example, staff expanded the EZ Communication application to permit department managers to make department-wide emergency announcements and to manage contact information for people in their departments. A new Coeus system launcher facilitates department proposal development and grant administration.
Enterprise Infrastructure Services

Enterprise Infrastructure Services (EIS) provides support for University servers and middleware services such as databases, email and directory services, backup and restoration, systems management, job scheduling, output management, architecture, security, and technical outreach services.

Systems and Data Management Services manages the University’s enterprise systems and provides backup and restoration services. IT Architecture Services is responsible for security, research and development, and outreach. Web Services works to sustain the University’s World Wide Web infrastructure. Computing and Support Services provides Unix services, Windows server services, and collaboration services (email, authentication, and directories).

Highlights

Protecting the University’s information technology resources against deliberate or accidental damage
Priorities Committee support enabled the hiring of an Information Security Officer. Already in the first half year, this office has had a tremendous impact in disseminating information about security and in coordinating the campus’ security efforts. A second technical position will soon permit more proactive security measures, including intrusion, detection, and prevention.

To help users update old passwords that are vulnerable to attack, and to reduce the many userID and password combinations that users need to remember, OIT introduced a password synchronization tool, P-synch. Using a single web form, users can change their passwords on all the major University systems.

Enhancing the reliability of electronic mail services
The entire campus understands the need for reliable electronic mail. On average, more than 200,000 messages are delivered daily to University individuals and organizations, a doubling since last year.

More than 1,250 campus users have turned on a “spam” filtering service that OIT introduced in November. Early experience with the software shows that, at “average” settings, the filter identifies approximately 40% of incoming e-mail messages as spam, a number that is on par with findings in industry and at other universities. A simple web page permits users to turn on, and select the sensitivity of, the filter.

In response to requests from several departments, OIT implemented an integrated e-mail and calendaring service and instituted a charging mechanism to cover the cost of additional support staff (the service is approximately five times more costly to administer than the current IMAP mail service). More than 350 users across six departments are currently using the service.

Improving campus communications via the web
OIT and the Office of Communications implemented an online, web-based calendar (see http://calendar.princeton.edu) that consolidates information about all public campus events. Launched on May 15, 2002, the Campus Events Calendar has grown in use. Departments and student organizations maintain the information. Users can view and search brief or detailed displays of events.
Systems and Data Management Services

Systems and Data Management Services (SDMS) has a diverse set of responsibilities including backup and restoration services, database administration, system monitoring, job scheduling, and Unix printing.

Backup and Restoration Services
SDMS maintains the Tivoli Storage Manager (TSM) backup system for the University. By automatically backing up files, the popular TSM service provides an important safety net, especially for desktop users. Any computer on the University network is eligible for the service, and TSM currently backs up about 7,000 systems nightly.

Last summer, growth in the use of the service and a bug in the system software resulted in degraded performance and unreliable backups. During FY03, OIT added server capacity. After the installation of additional hardware and software upgrades, and following extensive tuning, load balancing, and optimization, the service is again operating on a regular basis.

FY04 goals include the establishment of an adequate funding model for the service. Growth in the TSM service, as well as huge demands by a small number of users, will require a funding model that rationalizes system use. It is anticipated that the current service will continue to be funded through network charges, but it may be necessary to recover additional marginal expenses from large volume users.

Database Administration
The Database Administration (DBA) group sustains a robust, secure, and reliable development and production database environment. The group supports more than 35 different applications, more than 120 databases, 2 database management systems (Oracle, Sybase), and BEA Tuxedo database related software. These database systems run on more than 20 Sun servers and encompass more than a terabyte of University disk space.

During FY03, the group supported several major PeopleSoft 8 upgrades that required the design and implementation of an entirely new and complex architecture. During FY03, the number of supported databases increased 20%, owing in part to the need to maintain extra databases during the PeopleSoft 8 upgrade. The DBAs worked with Unix and application groups to devise a secure and robust PeopleSoft Internet architecture for the PeopleSoft 8 upgrade. The collaboration helped satisfy security concerns and assured high availability for the new self-service applications.

The group also undertook infrastructure improvements which included moving databases to allow for Solaris upgrades to 2.8 and Oracle standardization on 8.1.7.4, monitoring improvements, and completing customer service enhancements especially in the area of shorter refresh times.

The group’s services are now available to projects outside of AIS, such as Blackboard, OnBase, and FileNet. Non-AIS applications often require a higher level of initial analysis and support owing to basic requirements that differ from administrative applications.

Next year, the group expects to support the successful implementation of the PeopleSoft 8 upgrades, to complete the Application Database Specialist pilot, and to continue to improve DBA productivity in response to the continuing growth in demand for services.

System Monitoring
The IBM/Tivoli system monitoring software is the core of the University’s system monitoring strategy. Tivoli currently monitors 175 hosts and 30 web sites. Included in the web site monitoring are new monitors for SCORE, Undergraduate Admissions/Financial Aid, Departmental Charges, the Events Calendar, and Student Accounts/Parent Access.

During FY03, staff upgraded the monitoring infrastructure to a new version of the Solaris operating system. Tivoli monitoring uses its own Oracle database, so that monitoring no longer depends on external Oracle servers. The basic Tivoli framework and event handling software were also upgraded, a pre-requisite for upgrading various monitoring components.

During FY04, two new Tivoli products will be installed: Tivoli Monitoring for Web Transactions and the Tivoli Data Warehouse. The Tivoli product will then replace the locally developed web site monitoring software. The Tivoli Data Warehouse will be a central point for collection and reporting on monitoring data both from Tivoli and non-Tivoli sources.

Job Scheduling
The Tivoli Workload Scheduler software schedules all administrative production jobs on both Windows and Unix servers. During FY03, staff upgraded the software to version 8.1 and continued reorganization of the security structure to make it easier to grant users access to multiple application systems. Tivoli Workload Scheduler now supports 34 hosts and runs an average of 1,846 jobs per week.

Output Management
EIS operates output services that deliver print servers and Fax Gateway services to the campus. In July, 2002, staff moved the Fax Gateway service to a new print server and decommissioned the old print server. During the year, the print server system processed an average of 2,100 Fax jobs and 3,000 print jobs per month. The move of this service from Solaris to Linux during FY04 will make it easier to administer and will require less expensive hardware.
IT Architecture

The IT Architecture group develops, disseminates, and promotes policies, standards, and procedural guidelines to ensure that the University’s information technology solutions are implemented and maintained in a consistent, practical, and secure manner.

During FY03, the group implemented several new systems, including a test Blackberry Enterprise Service, a local Gartner web site, and a new, more secure method of assigning initial passwords to students, faculty, and staff. To help eliminate insecure passwords, the group initiated a project to eliminate the transmission of clear text passwords across our networks.

During FY03, IT Architecture was involved in an ongoing evaluation of a metadirectory and single sign-on product. The group is also evaluating products that will be able to detect and react to attempts by external entities to compromise University computers.

In the area of technology outreach, the group provided consulting services in information security, programming languages, web publishing, and other technology-related topics.

Web Services

Web Services provides consulting, technical support, and leadership in the creation of web-based materials and in the implementation of web-based technologies. The group supports the software infrastructure that underlies the University’s main web site, as well as many administrative and academic web sites. The group continues to offer broad web design and implementation assistance to departments, programs, and special events, as well as special purpose web and database programming assistance.

New Web Sites
Staff worked with the Office of Communications on the design of a new Princeton University home page. Web Services designed new web sites for French and Italian Studies, the Ombuds Office, and the Women’s Center. Staff also developed a web site for Support Services’ successful bid to host next year’s ResNET conference. Staff worked with Facilities to design the templates for their new site. Staff also developed new screens for the Information Kiosks in Frist.

Web Services worked with the Office of Communications and the OIT Help Desk to improve customer communication on the University web site. A new Web Feedback Form was developed and implemented and procedures for handling comments were established. Staff revised main University pages to include links to the new Web Feedback Form.

Web Services remains active in web applications development. Staff were involved in the substantial upgrades to the Faculty Computing Program and Student Computer Initiative web sites. Staff developed a new DormTV billing tool. Staff used the Princeton tool, DBToolbox, to create numerous applications for the Princeton Writing Center, OIT Training Online Registration, Graduate College Commencement and Hooding Ceremony Registration System, PACE Center for Community Service, Athletics Physical Education Online Class Registration, and School of Architecture Online Laser Cutter Scheduling System. Staff also developed 14 surveys for organizations such as the AAMG, Dining Services, the Woodrow Wilson School, Athletics, and Chemical Engineering.

Maintenance and upgrades to servers represents the balance of the group’s work. During FY03, Web Services upgraded OIT’s secure web server, Sweb (on which Leaves and My Academic Record reside), web (the NT server being used by most departments), Campus CGI (the scripting environment), and the statistics server NetGenesis. Web Services also upgraded four servers that support various formats of streaming media. Other enhancements to existing media technologies helped to further automate and improve the quality of streaming on campus. Staff also installed a Google appliance for customized indexing of Princeton’s web sites.

Computing and Support Services

Unix Systems Group

The Unix Systems group provides systems administration for the more than 200 Unix-based servers. University business and academic applications operate on these OIT-managed servers.

During FY03, the group improved the monitoring and performance measures that are used to monitor system stability and help make informed decisions about capacity planning.

The group reduced the response time for standard requests. The group also launched new Unix server hosting services.

Windows Systems Group

The Windows Systems group provides systems administration for more than 100 Windows-based servers. Many University business and academic applications run on these OIT-managed servers.

Microsoft Windows 2000 Server

The Windows 2000 Active Directory is part of the Windows 2000 architecture that establishes repositories containing information about network resources, such as files, applications, printers, and users. Directory services provide a standard way to manage information about information technology users and resources.
The six-month migration to Active Directory was completed in July, 2002. Staff established and administered a test lab for Active Directory and Exchange testing and development. Staff also deployed a suite of tools to departmental SCAD/DCS personnel that have enabled departmental administrators to access Active Directory.

Other highlights
During FY03, the group improved the monitoring of systems using Dell Open Manage tools. Staff provided SMS support for the DeSC program. The group reorganized and improved security for server rooms at both 87 Prospect and New South. And, in June 2003, the group migrated Novell file services to Windows 2000 file services.

Collaboration Services Group
The Collaboration Services Group (CSG) is responsible for campus e-mail, directory, and authentication services. CSG operates the University’s e-mail services for receiving and sending mail, and maintains the servers that provide electronic lists and directories.

The volume of e-mail delivered to individuals and campus organizations doubled from FY02. The average number of messages delivered daily is 200,000. The average number of messages sent out daily from Princeton is 70,000. The average time for the delivery of a message from one on-campus computer to another is two seconds. More than 99% of outgoing messages are delivered to external mail systems in under two minutes.

Figures 1 and 2 depict the FY03 patterns of e-mail connections on the IMAP servers. In the graphs, the green area shows the number of simultaneous connections to the server. Note the different usage patterns for undergraduate students (Figure 1) compared with that of faculty, staff, and graduate students (Figure 2).

E-mail Servers for Increased Reliability
Staff worked to enhance the reliability of the e-mail infrastructure by adding backup or redundant servers for “IMAP e-mail,” “WebMail,” and the servers that handle the University’s incoming mail. If one server now becomes unavailable, campus customers are automatically redirected to a second server. The new architecture permits technical staff to perform system maintenance and proactive tuning without causing system downtime.

The use of electronic lists has grown significantly over the past year. During 2002-2003, more than 3,000 new lists were created. Many of the lists are based on data feeds from the University’s new Campus Community data source. Others are built automatically from data feeds from the Blackboard system.

Spam filtering service
More than 1,250 campus users have turned on a “spam” filtering service that OIT introduced in November. Early experience with the software shows that, at “average” settings, the filter identifies approximately 40% of incoming e-mail messages as spam, a number that is on par with findings in industry and at other universities. A simple web page permits users to turn on, and select the sensitivity of, the filter.

The blue line in Figure 3 represents the amount of spam filtered during a four-week period in June, 2002. The green line represents the amount of regular, non-spam e-mail.

The graph illustrates that the University’s e-mail system is inundated with an almost constant flow of such messages. The messages constitute 45% of incoming mail during a typical month.

Exchange 2000 Services
In response to requests from several departments, OIT offered an integrated e-mail and calendaring service, Exchange 2000. OIT instituted a charging mechanism to support the extra support staff (the service is approximately five times more costly to administer than the current IMAP mail service). In July 2002, OIT undertook a pilot study to evaluate, test, and plan the Exchange 2000 service. A production quality service was launched in March 2003. In the first few months of operation, more than 500 customers have switched to Exchange 2000 services.
Finance, Administration and Planning

Finance, Administration and Planning provides leadership in planning for the effective use of technology through meaningful and continual communication, staff assessment, development and recognition, project planning and project management practices, and financial analysis and budgeting.

The Finance, Administration and Planning group includes OIT Budget and Finance, the Office of Printing and Mailing, OIT Building Management, OIT Communications, OIT Human Resources, OIT Inventory, and the Princeton Project Office.

Highlights

Improving the Princeton Project Management Methodology (PPMM) and its application to University projects

The Princeton Project Office coordinated numerous project management training sessions for OIT staff and their customers. They provided a special briefing, “Project Management and Organization Success,” to the Administrative Systems Planning Group (ASPG). OIT formed a team to identify improvements to the PPMM. As a result, there is a “lite” version of the methodology for small to medium-sized projects, and a Blackboard collaboration web site to share PPMM templates and project management best practices.

Progressing towards a comprehensive OIT performance enhancement program

Using a phased approach, and in collaboration with the Office of Human Resources, OIT is deploying a comprehensive performance enhancement program. Through the use of OIT focus groups, OIT developed a new performance appraisal form – the OIT Annual Staff Progress Report. OIT management and staff attended goal setting sessions and prepared FY04 goals using a goal-setting worksheet to identify quality standards, metrics, and resources, and to link all departmental goals to the OIT organizational goals. Finally, a staff development plan and an employee reward and recognition plan have been drafted and will be piloted in FY04.

Developing e-Commerce guidelines for the University

In collaboration with the Treasurer’s Office, and employing best practices from other institutions, e-Commerce guidelines were developed. As part of this effort, guidelines governing the privacy of personal information were developed with input from the University’s Legal Counsel and the University IT Security Officer. A new e-Commerce initiative, Paw Points and Student Advantage, was implemented, extending the Princeton University ID card as a cashless method of paying for local goods and services. To date, more than $72,000 has been spent using Paw Points.

Improving communication with our administrative customers through project planning and status meetings, review sessions, and regular project reports

By applying the Princeton Project Management Methodology (PPMM) to all key administrative computing projects this past year, OIT ensured the involvement of project sponsors and stakeholders throughout the project planning and implementation process. The Administrative Systems Planning Group (ASPG) tracked the progress of projects on the FY03 project slate, especially the PeopleSoft upgrade projects and reviewed/endorsed ten off-cycle project requests. Regular project status meetings were conducted and monthly project status reports were also prepared. And, to keep the ASPG and all of our customers current on the status
of the FY03 project slate, OIT published quarterly reports that highlighted project accomplishments and statistics on resource utilization. The ASPG endorsed a project slate for FY04, as well as key projects for FY05 and FY06. Input to the FY04 planning process included the results of the departmental shadow systems analysis, feedback from departmental focus group sessions, gaps identified during the Financials, Human Resources, Student Administration standard business model (SBM) process, and collecting project proposals to implement new functionality. At the request of the ASPG, a Senior Advisory Group on IT, chaired by the Provost, was formed to address issues of funding for projects endorsed by the ASPG.

**Initiating OIT cross-functional teams to manage cross-organizational efforts and improve delivery of service**
During FY03, OIT formed eight cross-functional teams to manage cross-organizational efforts in academic technology, communications, disaster recovery, facilities and office management, IT architecture, project management, software management, and training. Each team is sponsored by an OIT Director. This past year, members attended team-building sessions and created team charters. With a focus on improving customer service, the teams have made significant progress towards documenting current OIT products and services and identifying and implementing improvements. One successful event planned by the communications cross-functional team this past year was the two-day Information Village Fair held in the Frist Campus Center. The Building and Facilities Management Team coordinated the physical re-location/co-location of OIT staff to support the new OIT organization.

**Budget and Finance**

Budget and Finance assists OIT operating units with all financial issues. The group provides accounting expertise, controls the capital assets, recommends rates for OIT services, and ensures compliance with University rules and procedures. During FY03, Budget and Finance improved OIT billings by transitioning to the Departmental Charging system and encouraging customers to use the DataMall for all billing. An OIT billing survey of the academic departments was conducted and suggestions for improvement were implemented. An OIT Billing “quick reference” was developed and published. As a result of moving billing off the mainframe, the Budget and Finance group also began processing student billings (previously administered by the Platform Services Group) and assumed oversight of much of the departmental billing process.

In FY03, the Treasurer’s Office made available “Works,” a new method of accounting for credit cards. The Budget and Finance group adopted this time-saving procedure and led the OIT staff through the change.

Apple’s Global Access web site is now used to more easily research parts, warranty status and invoices. New inventory shelving increased physical storage capacity by 5%. During FY03, shipments of 17,112 parts were processed, costing more than $2.5 million.

A new OIT monthly financial report assists the OIT Cabinet to track the financial performance of each department. The new report, in Excel format, uses a Crystal Report that downloads the information from the DataMall.

**Printing and Mailing Services**

The Printing and Mailing office provides a broad base of cost-effective, cost-recovery services to the University community with special consideration given to the support of Annual Giving, Development, Alumni Council and the Office of Communications. The office is structured to provide four services to departments of the University:

- **Graphics:** Design and layout, film output to 2590 dpi resolution, Toshiba color proofing and copying, Epson large format printing up to 44 inches in width by 20 feet in length.
- **Offset Printing Production:** The manufacturing of a wide variety of printed work, from single color to process color, envelope and stationery, brochures and flyers, with bindery capability for perfect bound and saddle stitched books.
- **Digital Networked Printing Center:** Both black and white and color networked printing. The center’s equipment includes the Xerox 6180 and the Xerox 6060.
- **Mailing Production:** Addressing, inserting and sorting for first class, third class mail, and international mail. Mailing also coordinates and sends data files for variable data printing to the Xerox 6180 and Xerox 6060 for on-demand printing and addressing. Mailing is also responsible for mass e-mail notices to the campus.

Printing and Mailing continued its transition into an all-digital, on-demand, color networked operation. New equipment and processes, notably the installation of a Xerox igen3 digital production press, were implemented throughout the year in support of this ongoing transformation. Short run color printing continues to grow and presently reflects a strong, growing trend. The new Xerox 6060, which replaced the Xerox 2060 in December, averaged 125,000 impressions per month and accounted for a large share of the printing office income. The department continues to operate in a cost effective manner, exemplified by achieving a net margin of $279,825 for FY03.
Support Services

Support Services provides direct customer support for the University’s information technology infrastructure. Support Services is comprised of five main groups.

Networking supports the data telecommunications infrastructure. The Help Desk provides telephone, appointment, e-mail, and web-based computing support for the University. Student Computing Services sustains access to workstations and shared printers in public University spaces. Desktop Support, which includes both the Hardware and Software Support groups, sustains the campus’s desktop computing infrastructure. Telecommunications Services maintains the University’s telephone and voice mail systems.

Support Services also includes a range of smaller support programs and services, including the SCAD and DCS Programs, OIT’s Ambassador Program, End User Training, Policy Office, Software Sales, Software Licenses, Software and Service Contracts, Software Deployment, Software Database, Faculty Computer Program, ID Cards, and Copiers.

Highlights

Continuing to build a higher-speed, more robust data and telecommunications infrastructure

The University is past the mid-way point in a multi-year, campus-wide upgrade to its data network infrastructure. Significant enhancements during the summer included upgrading the wiring (and core electronics) in five dormitories and nine other academic and administrative buildings. OIT extended the data network to the apartments in the Hibben-Magie complex. The upgraded network makes possible much faster network speeds. Unimproved areas are limited to a 10Mb speed. The new 100Mb network standard will permit the University to implement new services, including simultaneous broadcasts from multiple areas and other services requiring higher-speed connections.

Extending Help Desk and Support services

During FY03, the OIT Help Desk expanded the hours of operation of telephone and e-mail consulting from Sunday evening through Friday evening. Students and researchers have immediate access to help during these hours. As important, OIT staff are on-site to provide proactive monitoring and corrective action when the network or other systems falter.

Working with our University partners to improve communications and support

The Support for Computing in Academic Departments (SCAD) / Distributed Computing Support (DCS) programs provide a link between departmental computing support and OIT. During FY03, OIT conducted a review of the program. The review concluded that SCAD/DCS is a tremendous success and that the University has developed a “community” of computing support staff rather than a customary centralized IT group and independent local support personnel groups.

OIT has begun an “Ambassador” program that aims to improve customer service and communication between OIT and the University community. The OIT Ambassadors represent OIT to its customers and represent customer needs and issues to OIT.
Maintaining a high standard for administrative desktop computer systems
Established in 1996, the DeSC [Desktop Systems Council] program defines, maintains, and enhances the desktop computer environment for administrative users. The University continues to benefit from the standardization of computers, operating systems, and application software for administrative users (DeSC) and for students (through SCI, the Student Computer Initiative). In particular, it is easier to develop applications for a standard desktop, and the absence of many platforms and software versions has eased training and support.

Networking Group
The Networking Group works to sustain a cost effective data network in support of the University’s academic and administrative needs. Towards this goal, the group insures the correct and efficient operation of the campus network, maintains the University’s access to the Internet and other external networks, manages the various remote access facilities, and evaluates new network technologies for deployment on the campus.

In addition, the Networking Group works closely with other OIT groups as well as academic and administrative departments to assess network-related needs and to apply network technologies to address those needs.

Networking Infrastructure
Two commodity Internet service providers, AT&T (at 45Mbs) and Fastnet (at 25Mbs) continue to share the campus Internet load and provide automatic fall-over in case of failure.

The University expanded the campus’s wireless network infrastructure to include the Engineering Quadrangle, Nassau Hall, and Robertson Hall.

A new campus-wide video network now permits Media Services to transmit programming over the CATV network and to the web-casting servers.

A significant amount of planning and preparation culminated in the conversion of a private network in Electrical Engineering to the standard University wiring and services.

While there are many legitimate uses of Peer-to-Peer (P2P) for research and teaching collaboration, most current uses involve illegal sharing of music and video files. Several OIT groups worked together to develop the needed “traffic shaping” policies and technical solutions to control P2P traffic. OIT also made efforts to educate the student community about the impact of P2P programs on the University’s network infrastructure.

During FY03, OIT expanded Visioperator, which provides the ability for non-registered machines to access the Internet and public campus resources, to Palmer House. And, for the second year, OIT permitted unregistered personal computers to access the University network access during reunions.

Security and Disaster recovery
OIT initiated a cross-functional team, Disaster Recovery, to expand upon the work needed to create an affordable disaster recovery plan to serve the administrative and academic communities. During FY03, as a step towards implementation of a disaster recovery plan, the University created an alternate machine room location at New South. Redundant services, such as DSN (Domain Name Service), were moved to the New South machine room.

The Network Group was involved in the detection of compromised campus hosts. Hackers often attempt to compromise hosts at institutions with high speed Internet connectivity in order to redistribute large amounts of unauthorized data to other Internet clients. The Network Group continues to develop tools and procedures to impede such efforts.

Telecommunications Services
Telecommunications Services provides the University with reliable and cost-effective telephone and voice processing messaging services. With 2003 revenues of slightly more than $3,500,000, Telecommunications Services is the largest cost recovery unit within the Office of Information Technology.

Infrastructure
2,955 student telephone lines, 7,748 academic and administrative telephone lines, and more than 14,000 voice mailboxes are in service. Every telephone line on campus has Caller ID enabled and Caller Originated Trace (for threatening or harassment calls). Console attendants respond on average to more than 400 inquiries a day. The call volume for FY03 was 21,862,330 total telephone calls (7.25 million inbound calls; 6.2 million outbound calls; 8.2 million intra university calls). System reliability reached new highs in FY03 with a rated level by Nortel of 99.99996% uptime.

Work orders
During FY03, more than 800 work orders were issued for telephone work that involved some 5,026 changes to telephone service or equipment. In addition, 1,317 work orders for voice mailboxes were processed. The group achieved a 98% success rate in meeting requests for new or changed services.

Rates
There were no increases in the monthly service rate during FY03. The domestic long distance rate of $0.07/minute and the international rates of $0.10/minute to Canada and the United Kingdom keep the University competitive in the marketplace. A drop in long distance usage (and revenue) during FY03 is attributable to increased cell phone usage.
Telephone Conference Bridge
During FY03, use of the Conference Bridge increased from 15 to 21 departments. The largest user-realized savings of more than $60,000 during FY03. Overall, the conference bridge has saved the University more than $150,000.

New services
The department implemented an international cell phone loaner service for faculty and researchers going abroad for short trips. A second remote PBX supports users who move off campus.

For the first time, the department offered full featured service to University departments that are located off campus. The direct connections save the university approximately 50% on each line.

More than 30 units are installed in a VoIP (voice over IP) trial. Technical issues remain, but Telecommunications Services hopes to offer such service, including a wireless version, within two to three years.

Student Computing Services
Student Computing Services (SCS) sustains access to public workstations and printers, manages the Residential Computing Consulting program that provides in-room IT assistance for students, and coordinates the Student Computer Initiative (SCI) that sells computers to students.

Support for Computer Clusters
SCS maintains computing and printing facilities in 27 buildings. At the end of FY03, the University’s computer clusters contained a total of 266 Windows machines, 45 Macintoshes, 18 UNIX workstations, 35 printers, and 7 scanners. During FY03, there were 702,590 logins to OIT cluster machines.

Cluster upgrades
In preparation for the start of the 2002-2003 school year, SCS upgraded 73 PCs, 22 iMacs and 11 new printers in many cluster locations. Five printers were installed in new dormitory locations; three in upper-class dorms, one in a graduate student dorm, and one in a Residential College dormitory. SCS reopened the Jadwin Hall Unix cluster with eight workstations. Ten iMacs replaced the Sun workstations in the Friend Center cluster.

SCS updated the cluster image (the software suite installed on cluster machines) twice during the year, once for the start of school and again for the beginning of second semester. Dreamweaver and Flash were added to the image. The X client Exceed replaced MI/X. In addition to the OIT cluster facilities, 164 departmental student cluster machines in ten departments rely upon the cluster image.

Print Accounting
In FY01, SCS implemented UnipriNT, a print accounting system. The system continues to require that students select their print jobs at the printer. During FY03, paper use increased 9.6% to a total of 6,511,370 pages printed on cluster printers.

Frist Information Kiosks
During FY03, 256,609 people used the OIT kiosks at the Frist Campus Center. The number of logons includes 196,099 undergraduates, 33,046 graduate students, 13,046 visitors, 7,104 staff, 3,861 faculty, and 3,453 alumni.

Residential Computing Consultants
During FY03, 32 students worked as Residential Computing Consultants (RCCs). The RCCs provided network and computing support for their peers in the dormitories, including the Graduate College, Lawrence Apartments, and the Graduate Annexes. At the beginning of the academic year, the RCCs assisted OIT’s activities at the Frist Campus Center and they provided help sessions at every Residential College during the first week of classes. In addition to their outreach efforts, the RCCs responded to 1,983 tickets in OIT’s job tracking system.

Student Computer Initiative
Open to all University students, the Student Computer Initiative offers for sale aggressively priced, highly capable computers in support of academic work. During FY03, the SCI program sold a total of 1,235 machines: 1067 Dell (86%) and 168 Apple (14%).

During FY03, two special hardware replacement programs were offered to past SCI purchasers. Owing to chronic hardware failures with the IBM ThinkPad i1400 sold to students through the SCI program during FY01, IBM offered an opportunity to upgrade to a current high-end model at extremely aggressive pricing. 181 students took advantage of the opportunity. During an upgrade weekend, students exchanged their old machines for a new one and received help transferring their data. In a second program, 238 students with the IBM ThinkPad T22s purchased during FY02 were able to exchange new hard drives for units that had experienced a high failure rate.

Request for Proposals were submitted to Dell and IBM for the FY04 SCI year. Following negotiations in the spring, Dell was selected.

Help Desk and Documentation
The OIT Help Desk provides quality and timely telephone, hands-on, e-mail and web-based computing support for the University and serves as the single point of contact for all campus computing inquiries.

Customer Contacts
During FY03, Help Desk staff responded to 66,222 individual customer requests. By shifting existing resources, the Help Desk enhanced in-person
consultation, permitting more customers to be serviced with a minimal wait time.

**KnowledgeBase**
The Help Desk also provides assistance by maintaining a searchable KnowledgeBase of answers at kb.Princeton.edu. During the year, the OIT Help Desk web site received 32,266,247 hits from more than 400,000 unique IP addresses, representing 2,924,317 visits. Visits are quantified as a series of hits separated by no more than five minutes from non-Help Desk machines.

**Support for Services**
Help Desk staff continue to provide support and training for all new SCAD/DCDS members. Staff also continue to maintain and support the University’s LISTSERV e-mail list service and OnTime Calendar accounts. Finally, the Help Desk implemented a new web-based facility that permits members of the University community to request services such as e-mail lists, OnTime calendars, and additional space for their web and e-mail accounts.

**Documentation**
The group improved training materials by rewriting all training materials for student consultants and incorporating all training materials into a web site (www.princeton.edu/tli).

The group completed the conversion of all user guides from Word to FrameMaker. In addition the group created, modified, updated, and/or facilitated the creation of more than forty documents.

**Training**
OIT continues to provide free courses on a wide range of IT topics for members of the University community. During FY03, Support Services conducted more than 100 training sessions covering 30 different topic areas. Titles included Introductory, Intermediate, and Advanced level instruction in Microsoft Word, Excel, PowerPoint, Access, as well as Photoshop, Dreamweaver, FrontPage, and Outlook. Support Services provided special custom classes on the e-mail conversion to Microsoft Exchange.

Support Services also continues to provide training classes on administrative applications. Sixteen different courses were scheduled on a rotating basis throughout the year.

**Desktop Computing Support**
Desktop Computing Support provides quality and timely walk-in and in-office hardware and software computing support as well as cable television services to the campus community. Related services include in-depth computing needs analysis and guidance on strategic planning. In addition, the group provides analysis and advice on new technologies and determines the best methods for providing ongoing support.

During FY03, Desktop Computing Support responded to more than 7,300 total work “tickets” that track progress and resource commitments. Most requests for service called for assistance setting up, upgrading, and repairing microcomputers and printers, installing and debugging software, and activating network and cable television services in offices, classrooms, and dormitories.

In addition to these core services, the group made important contributions towards various special projects:

- The continuing upgrade of the campus-wide network infrastructure;
- The expansion of network services to the Hibben-Magie graduate student/faculty housing;
- Further deployment of the wireless network infrastructure.

**Software Support**
**Customer contacts**
During the year, Software Support (SWS) responded to a total of 2,262 support issues and projects that involved contact by staff members 11,780 times.

**DeSC support**
During the year, the group updated and streamlined the procedure to replace or upgrade DeSC machines. A new web site improves proactive monitoring of DeSC machines. The group also assisted the testing of DeSC images and related support issues. SWS worked with TSM backup service to migrate 527 DeSC machines to TSM4 backup system software. 357 additional DeSC machines were moved to TSM5 for the purposes of load balancing.

**Support for network applications**
Staff assembled new procedures for converting Netscape e-mail users to Outlook mail. Extensive documentation now explains how to migrate Netscape email/browser/OnTime users to Microsoft Exchange environment.

Staff developed and tested the Symantec Antivirus Corporate Edition 8.0 Windows client installer for campus distribution.

**Support for departments**
SWS continued to assist Public Safety in upgrading their Fire Alarm system. The group assisted the testing of Diebold “room-draw” software. SWS helped Public Safety, the Alarm Shop, and OIT with the support and configuration of the new card access system.

**Hardware Support**
**Building renovation support**
During the year, the group helped the Facilities Department in the planning of University renovations. The effort usually involved removing and later replacing
or upgrading data wiring, network equipment, and computer clusters. The list of renovated areas included New South, Robertson Hall, Green Hall, McCormick Hall, 350 Alexander, Hibben-Magie, East Pyne, 1915 Hall, Spelman Hall, Brown Hall, Genomics, Witherspoon Hall, Butler Graduate Apartments, Wyman House, 1937 Hall, 1938 Hall, 1939 Hall, Gauss Hall, Dodge-Osbourne, and Foulke Hall.

**Network upgrades**

Work also continued during FY03 to upgrade and rewire the network infrastructure in buildings that are not currently or imminently scheduled for renovation. In those areas, parallel cabling systems are installed next to the old wiring systems. Once the new infrastructure is in place, technicians go room-by-room, switching to the new wiring while eliminating the old wiring, all without causing disruption to customers. Buildings with upgraded wiring include the Engineering Quad, 1879/Marx, McCormick Hall, 1942 Hall, Lourie-Love Hall, 1901/Laughlin Hall, Forbes Annex, Stanhope Hall, 262 Alexander, Von Neumann, and all University eating clubs.

Hardware Support continued to add data connections to all Registrar-controlled classrooms.

**Preventive maintenance**

As part of its proactive approach to sustaining the University’s infrastructure, the group performs regular preventive maintenance on key systems. Staff regularly checked the performance of the telecommunications infrastructure. The group tested and cleaned all computer cluster machines during the summer of 2002 and tested the alarm systems on all OIT clusters during both the fall and spring semesters. Staff tested all broadband power supplies once a month. Twice a year staff proactively checked and repaired the cable television system.

**Dormnet and Dorm video**

During FY03, the group installed 322 Limited Basic, 630 Basic and 167 Total video television connections. More than 300 video repairs were completed during the year.

The group also replaced missing hub components in dormitory rooms in August 2002 and completed more than 150 repairs during the year.

**Wireless Computing**

During FY03, the group established wireless computing zones in Corwin Hall, Cloister Club, the Engineering Quad, Fisher/Bendheim, and Nassau Hall. Outdoor coverage was extended to include Scudder Plaza. Coverage was also extended to all Robertson Hall except the basement and all but the second floor of Wallace Hall.

**Policy Officer**

The OIT Policy Officer strives to enforce University policies related to copyright and technology use. The Policy Officer serves as corresponding secretary to OIT’s computer and network emergency response team, acknowledging reports of network probes and abuses apparently originating at Princeton, and forwarding reports to appropriate personnel in other departments for investigation and resolution. The Policy Officer also participates as a member of the University Institutional Review Panel for Human Subjects.

During FY03, the OIT Policy Officer resolved more than 200 copyright infringement complaints filed with the University. The office collaborated with Office of General Counsel to increase awareness of Princeton’s policies regarding copyright and the technology. The officer cooperated with Department of Public Safety regarding incidents involving criminal use of technology, theft of computers, and locating missing students. In addition, the officer participated in multiple University Sexual Harassment Review panels and provided assistance to victims of threatening or harassing e-mail, and to those who perceived spam as originating within the princeton.edu domain.

**Software Services**

Software Services consolidates efforts to license, deploy, and distribute software products to the University community.

**Software Sales**

During FY03, OIT Software Sales sold nearly $310,000 of software: $223K to departments, $74K to students, and $13K to staff. The total represents a 24% increase in sales over FY02.

**Software Licenses**

A new Microsoft Campus Agreement requires that the University account for every machine running SQL, a significant change from the existing agreement that permitted users to run SQL on multiple machines.

The Microsoft Student Select agreement permits students to purchase licenses and media for SCI machines. The agreement includes Office X for the Macintosh. However, the original agreement would have prohibited the inclusion of Microsoft software on the University’s distribution CD to students because Microsoft requires each student to have a unique software identity. Following discussions, Microsoft agreed to the use of a single key on the distribution image.

Other software licensing agreements included the acquisition of CAChe, molecular modeling software, Deploy Center, which dramatically reduces the time and effort required to introduce or upgrade software, and Wise Solutions, a tool that assists the installation of software. The University has planned a phase out of Quick View Plus that will result in its removal from all University computers.
Software Service Contracts
New software service contracts signed during FY03 included Filenet web content management software, Psynch from M-Tech Information Technology, Matlab from MathWorks, and fsaATLAS Enterprise Edition Software from Newfront Software. The University restructured its software maintenance programs with Sun Microsystems and with Silicon Graphics. And, by consolidating its Peoplesoft contract, the University saved $167K over 3 years.

Software database
OIT’s Software Cross-Functional Team created a Software Request Form that will be used as the “front door” for all OIT involvement in end-user software. The form channels requests consistently and will permit OIT to track all software service requests.

Faculty Computer Program
A new, improved ordering process for faculty computers was rolled out in April. The new program offers far more flexibility and orders are easier to track. Faculty are now able to order additional items not in the standard kit and orders are forwarded directly to vendors. The response to the revised program has been very favorable.

ID Cards
During FY03, the ID Card Office assisted in the planning to replace all prox readers on campus and to issue a new ID card with a prox chip to all cardholders by June 2004. The new ID card includes a different encoding scheme on the magnetic stripe based on the University ID rather than social security number.

During the year, special ID cards were created and distributed to the members of the Emergency Management Response Team. The special cards provide campus access to these individuals in emergency situations.

Copiers
During FY03, University central copiers made 18.1 million copies, down slightly from 18.3 million last year. The copy rate will remain at 6 cents in FY04. Four networked digital printer copiers were installed near the end of the fiscal year. Usage will be tracked in order to adjust charging.

Support for Computing in Academic Departments (SCAD)/Distributed Computing Support (DCS) Programs
SCAD and DCS continued to be very successful and both programs had modest growth. A major review was completed for the SCAD/DCS programs. The programs, with a 97% satisfaction rate, continue to do an excellent job building and fostering the campus-wide IT support community.

This year Genomics, Slavic Languages and Literatures, and Study of Women and Gender joined the SCAD program, bringing the total number of departments to 49 with 39 participating members. This year Nassau Hall, Princeton-Blairstown Center, Princeton University Press, Registrar’s Office, and Religious Life joined the DCS program bringing the total number of departments to 27 with 38 participating members.

Training continues to be a cornerstone of the SCAD and DCS programs. During FY03, 16 different topics involved more than 5,000 person-hours of instructor lead training for SCAD, DCS, and OIT IT staff. Topics included: Intro to Mac OS X, Advanced Mac OS X, Advance Linux, DBToolBox, Perl, Windows 2000 Networking, Advance Access, Dreamweaver, Implementing and Administering Microsoft, Windows 2000 Directory, and Windows 2000 Server. The highlight of the training was the successful completion of MCSA certification for 30 staff.

Departments participating in the SCAD Program
American Studies Program
Applied & Computational Mathematics
Architecture
Art & Archaeology
Astrophysics
Atmospheric and Oceanic Studies
Bendheim Center of Finance
Center for the Study of Religion
Chemical Engineering
Chemistry
Civil Engineering
Classics
Comparative Literature
Computer Science
Council of Humanities
Creative Writing
East Asian Studies
Ecology and Evolutionary Biology
Economics
Electrical Engineering
English
The OIT Ambassador Program

The OIT Ambassador Program began this year. The program currently has 31 ambassadors serving 47 academic and 18 administrative departments. Most ambassadors are ambassadors to more than one department, but no ambassador has more than four departments. The Ambassador program is a volunteer-based program.

Ambassadors meet with their departments on a monthly basis unless the departments chooses to meet more or less often. In a typical meeting, Ambassadors review the contents of the most recent issues of *it matters* and other relevant concerns within the departments. Ambassadors meet with the chairs, department managers, and SCAD/DCS staff. Ambassadors gather information on issues, experiences with OIT, current needs, future needs, and concerns.

All ambassadors attend a monthly meeting. Issues and concerns raised by the departments are discussed. The meetings also serve to keep the ambassadors up-to-date on new services and enhancements in order to relay this information to their departments.

An OIT Ambassador Executive Committee compiles, discusses and prioritizes issues that arise from Ambassador Team meetings and individual ambassador/department meetings. The Executive Committee then escalates issues when needed to the OIT Cabinet.
University issues file-sharing warning

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"We want to alert you to the fact that many of you are risking complete loss of access to the USC computer system and both disciplinary and legal action," wrote USC chief information officer Jerry Campbell and vice president Michael Jackson in an e-mail to students. Princeton’s new policy was decided this summer, Saltz said, because file uploading was slowing the University network. "It was happening with such profusion that it was having a really serious dampening impact for anybody else on the Internet," she said.

File-sharing programs have evolved so much that they now allow multiple users to concurrently download single files from the campus network, thereby slowing the entire system, she said.

The University Rights, Rules, Responsibilities guidebook reflects this new policy, but copyright infractions do not seem to be the main concern.

However, Saltz said students who download media files they do not own should be ready to face the legal and disciplinary consequences.

"Illegal or fraudulent use of the University’s information technology resources is a serious violation of University regulations," she said.

But in the history of file sharing, few students have been prosecuted. "Academic freedom" compels the University to let students and faculty use file-sharing services, she said.

Edward Felten, a University computer science professor who has been embroiled in a legal battle with the music industry, said while sharing copyrighted material is illegal, it is not clear how much moral and legal responsibility universities bear for what their users do.

Most universities, including Princeton, "take the position that they don’t pry into what their users do," he said. "[It’s] a danger if outsiders can dictate policy to a university with what it can do."

OIT to pursue limit on video, music uploads

By Zachary A. Goldfarb
PRINCETONIAN STAFF WRITER

You can take, but you should not give.
That is the message students got this week about sharing music and video files online.

In an e-mail Monday, OIT warned students against letting file-sharing programs on their computers upload more than one file at a time, though it never said students should not download files.

The message said students who do not comply would be put on a slower part of the network because uploading takes up too much bandwidth.

It did not cite security or copyright concerns as reasons for the new policy. It also did not address the reappearance of file-sharing sites internal to the campus network, such as gank.princeton.edu and sleep.princeton.edu.

Students often use the University's fast Internet connection and programs like Kazaa and Morpheus to get copyrighted music and movies from systems outside the campus network. These media files are usually large and require significant amounts of bandwidth to transfer.

Many students do not realize that file-sharing programs turn their computers into file servers, allowing innumerable Internet users to download media from them, said Rita Saltz, an OIT official. The e-mail message contained a link to instructions on how to disable uploading.

Other universities, such as the University of Southern California, have taken a much stronger approach. Last week, USC told students they could lose access to the computer network for a year if USC finds out they are trading copyrighted music or videos online.
New webmail server offers more personalized features

The University announced yesterday its new, revamped webmail service that will formally replace the existing system at the end of the year.

The new service, currently located at newwebmail.princeton.edu, is functional, but OIT continues to test the software.

The webmail page offers users the option of trying the new system or continuing with the old one.

The new program is part of the iPlanet Messaging Server suite that runs all of the University's e-mail services. To upgrade to the new version, OIT had to also upgrade the University's e-mail servers.

The new system allows users to copy messages sent from webmail to a sent folder.

The color graphic interface also incorporates a personal address book, allows users to spellcheck their e-mails and lets users personalize the visual look of the page.

The new system is better able to handle file attachments than the old system.

OIT said the new system allows maintenance to the webmail program without "downtime" because it allows multiple webmail servers to be running simultaneously.

Since the end of July, OIT has been testing the program and has also asked USG to help out.

"We send a big thanks to the students who did try out the new webmail," said Dan Oberst, an OIT official. "We were very pleased to hear their positive feedback and encouragement to go live as soon as possible."

Oberst said his office had not detected any slowdown in the server thus far.

OIT will formally turn off the existing system in December.

— SILLA BRUSH
New Webmail system launched

A new, improved Webmail program has been launched and is ready for use. The new program has additional features and is much faster than the current system.

Webmail allows anyone with a University e-mail account to read and respond to messages through a Web browser. This access works from remote locations as well as on campus.

The old Webmail is scheduled to be replaced by the new system on Jan. 1, 2003. The Office of Information Technology is encouraging members of the University community to begin trying the new Webmail system now, so that it isn't a sudden change for everyone.

During this interim period, the Webmail link on the main Web site will go to an intermediate page that provides access to both the current and new programs, and offers brief information about the new program.

The new version of Webmail is a result of OIT's upgrading its mail server to the latest version of iPlanet Messaging Server on July 27. The new program includes options for customizing the appearance of the list of messages in the "inbox" as well as the ability to handle attachments more easily and to save outgoing messages in the "sent" folder.
Technology security office Scaturro hired

By Zachary A. Goldfarb

PRINCETONIAN STAFF WRITER

Fulfilling its pledge to put someone in charge of securing private campus data, the University announced yesterday the appointment of Anthony Scaturro as information technology security officer.

The appointment, effective Nov. 1, represents an effort by the University to prevent unauthorized users from accessing private files. The position is new and reflects a growing concern among universities, highlighted this summer's admission scandal, that private information may be vulnerable.

Scaturro is charged with finding solutions that balance security and convenience, finding the best products and making security cost-effective, said Betty Leydon, vice president for information technology.

In recent years, Congress has enacted many new laws tightening privacy regulations, such as the Health Insurance Portability and Accountability Act of 1996, which restricts access to medical records. "If information is held on computers, and it's information that shouldn't be disclosed, then we have to make sure that there aren't backdoors," Scaturro said, noting that he will ensure that University systems comply with new laws.

Scaturro said he will spend the first two months assessing how well University systems secure data — from academic records to faculty research.

"You can't just walk in with this magic pill and say, 'If you buy this magic pill, it's going to solve all your security needs,'" he said.

Working with students, faculty and administrators, Scaturro said he hopes to "bring a collaborative security approach" to campus.

He will show University organizations the vulnerabilities in their systems and what it may cost to fix them, he said.

Scaturro said he will then make recommendations.

He also noted that "security is not all technology" and that a comprehensive security plan also protects against human error.

The University also recently hired lawyer Clayton Marsh '85 to examine privacy issues, though Marsh is not an expert in the field.

President Tighman announced in August the creation of the position of information technology security officer after the admission scandal, in which Princeton admission officials used social security numbers to gain access to private data at Yale University.

Princeton has already moved away from using social security numbers as default passwords on campus systems.

The search for an officer had been underway before the scandal, however. In the spring, the Priorities Committee, the University's budgeting arm, suggested $110,000 for an officer in the 2002-2003 budget.

Scaturro currently holds a similar position at nearby RCN Corp. and helped pioneer the idea of a security officer at several investment firms during the past 20 years.

Scaturro named security officer

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Princeton
Flat panels replace conventional screens in upgrade

By Lindsay McGregor

Students returned to campus in September to find brand new flat-panel monitors replacing some of the older monitors in their computer clusters and libraries.

As part of its plan to replace a third of the monitors in its annual monitor report, the University's switch to flat-panel displays is part of a national trend. The research firm DisplaySearch that revenue from sales of the flat-panel models will surpass sales of their counterparts this year. Researchers also reported that price is not the primary factor in their decisions. Rather, they said they consider student needs. Stadler said a four-year-old computer cannot perform adequately and specifications are constantly updated.

An important aspect of the replacement is the potential for energy savings. CRT monitors use up to 110 watts for a display, which accounts for 80 percent of the electricity a computer uses. LCDs consume 20 to 40 watts per monitor. The money saved on electricity bills can help pay for the difference in cost of the monitors, she said.

Stadler, who is in charge of studying and implementing new technology applications, said, "What we can do quickly enough to satisfy student needs is the key." Older computers are reassigned to other areas of the campus. Students have access to all the same applications. The money saved on electricity bills can pay for the cost of the monitors, she said.

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Princeton University

Announcements

- OIT launching "ambassador" program
  <Posted 12/17/2002 18:00>

  The Office of Information Technology is launching the first phase of an "ambassador" program in January to improve communication and customer service between the office and the University community.

  Under the new program, an OIT representative will be assigned to a specific academic or administrative department to provide updates on OIT services and act as that department's liaison with the office.

  OIT plans to notify about 40 departments of their ambassadors via e-mail early next month. The office hopes to appoint ambassadors to every academic and administrative department by the end of 2003.

  For more information, email Evelyn Roach, distributed computing support coordinator, or call her at (609) 258-3936.
Wireless tech expansion

Continued from Page 1

sion of the service, departments can choose to have wireless installed in or around their buildings, said David Morreale, the manager of OIT’s desktop computing support.

The installation fee for each department depends on the size and number of access points. Currently, the monthly fee per access point is $41, a price that has fallen over the past few years, Morreale said.

“There is an increasing number of departments that have asked my department to install wireless networks over the last six months or so,” he said.

Other campuses

Some other universities have widely developed wireless networks. Columbia University has wireless access over a large part of the campus, covering much of the open spaces between buildings and classrooms, according to its website. The Massachusetts Institute of Technology also has wireless access in a majority of its buildings, according to its website.

Wireless access is not available in University student dormitories.

“At the highest levels, the Office of the Vice President of Information Technology, they are talking about us integrating the installation of wireless systems... when we have the opportunity, such as when we build new buildings,” Morreale said.

OIT allows students to register their own wireless access points, according to the OIT website. Students are expected to configure their WAPs in a way that will not interfere with OIT’s own wireless and wired networks.

Student WAPs also cannot interfere with any other radio frequency services in the University, including cell phones or another WAP.

“OIT does not support students who use access points in the dormitory. They’re on their own. If they want to do it, they can do it,” Morreale said.

One student, who wishes to remain unidentified, expressed frustration with OIT’s lack of support. He installed a network access translator, a type of WAP, in his dorm room, which operated for a month and a half before OIT requested that he shut it off, he said.

The student denied that there was any security breach with his NAT.

“Someone who could crack 128 bit encryption could potentially get in, but that’s far outside the scope of anything a college student could obtain. It would have to be a professional hacker within the range of my wireless broadcast,” he said.

His NAT provides wireless access to a restricted number of students, mostly those who live on his floor and the floors below and above him.

“The vulnerability of this kind of system is extremely low,” he said. The student also believed that OIT’s wireless network is too limited.

“These wireless cards are included in the SCI computers, but are practically useless 99 percent of the time because I don’t always do my work in Frist,” he said.

OIT information security officer Anthony Scaturo was not available for comment.

Many of the eating clubs have wireless access, and all are given incentive to install wireless by the Princeton Prospect Foundation, a non-profit organization that promotes educational endeavors in the clubs by providing project grants.

According to the foundation’s website, the Campus, Cloister, Terrace and Tower Clubs have wireless access throughout their buildings. Charter and Colonial Clubs have connections in selected sections of their buildings, and Cap and Gown, Quadrangle and Ivy plan to provide wireless service soon, the PPF website said.

While wireless networking is available at select locations on the University campus, some complain that the quality and reach of wireless service here does not match that of other universities, where networking is widely available.

OIT Wireless Networking Service currently allows students and faculty to connect to the Internet via a wireless interface in certain areas of campus, including the E-quad, Robertson Hall, Firestone Library and all of the Frist Campus Center.

Though there are no set plans for further expansion, OIT staff members are looking at ways to improve the service and offer more access points.

Kathy Li

Princetonian Senior Writer

See WIRELESS, Page 4
OIT officials report success at restructuring technology services

Josh Brodie  
Princetonian Staff Writer

Nineteen months after the Office of Computing and Information Technology was renamed the Office of Information Technology, and eight months after the complete restructuring of campus information technology services, administrators said they are pleased with the results of these changes.

The Office of Computing and Information Technology was formed in 1986 under the leadership of Chief Information Officer Ira Fuchs as an attempt to unify technological services on campus.

In September 2001, with new CIO Betty Leydon in charge, CIT was reborn as the Office of Information Technology, and in July 2002 OIT was significantly restructured to provide better services to the University.

"The focus during CIT was to provide great technology to campus. The focus was building [the campus] network," said Steven Sather, Director of OIT Support Services.

"Now that network is in place, so the focus [of OIT] is providing the best possible services using that network," he said.

According to Serge Goldstein, OIT Director of Academic Services, the restructuring lets OIT be more receptive to campus needs. For example, one of the committees formed comprises several information technology experts and several faculty members to provide more effective computing resources for research.

The transition from CIT to OIT did not involve any layoffs, but many of the department's staff of 300 were shuffled from one team to another as the reporting structure was streamlined.

Several groups, which had independently been performing similar functions, were unified under OIT.

"There has been a consolidation of information technology groups into OIT," Goldstein said. OIT is "a larger and more cohesive body than CIT was," he added.

According to Leydon, Goldstein and Sather, this past weekend's laptop trade-in offer was a perfect example of what the new OIT can accomplish.

In two days, OIT staff helped 150 students transfer all of their data from old, defective computers to new, more powerful units.

News Notes

Copyright complaints rise against universities

Although universities across the nation received an unusually high number of copyright infringement complaints last week, the University has not noticed a similar rise in the volume of complaints. OIT Policy and Security Advisor Rita Saltz said in an e-mail.

Universal Studios sent out a large number of complaints last week alleging misuse of copyrighted material, mainly by students on college campuses who were sharing movie files.

The complaints went to schools including Northwestern University, the University of Maryland and the University of Wisconsin.

The University of Pennsylvania received 100 complaints last week, compared to an average of five to 10 complaints per week, The Daily Pennsylvanian reported.

The lack of a corresponding surge in complaints at Princeton may be due to several differences in the nature of its network.

"Perhaps that is because we are a much smaller university, or perhaps the procedure Princeton uses to resolve such complaints is more effective," Saltz said.

— WEILI SHAW
OIT to provide high-performance computer cluster

The Office of Information Technology has announced plans to build a high-performance computer system that will be available this spring to members of all departments for teaching and research.

The computer system, a type known as a Beowulf cluster, will consist of 32 off-the-shelf PCs connected with a high-speed network. This setup offers many benefits of custom-designed scientific supercomputers at a fraction of the cost, said Curt Hillegas, OIT’s manager of research and academic applications support. OIT is building the system in partnership with the Dell Computer Corp., which is providing and installing the computers at a reduced cost.

The computer system could help scientists simulate anything from the early history of the universe to complex chemical reactions to demographic trends.

The initiative grew out of recommendations of the Research Computing Advisory Group, a committee of faculty members, OIT personnel and departmental computer support staff, said Hillegas. “We are trying to respond with services that the faculty said would really support their research."

The new computer system is expected to serve three main purposes:
- To provide an easily accessible resource to the increasing number of researchers who require high-performance computing, but who do not use it enough to justify buying their own machines;
- To facilitate better graduate and undergraduate training in computational techniques and theory; and
- To provide a testing ground for OIT and academic departments to experiment with ideas for other computer systems before committing major resources.

In the last few years, at least 11 research groups on campus, in such departments as geosciences, astrophysics and mechanical and aerospace engineering, have built their own computing clusters of computers, most of which use commonly available PCs.

"This is a way of spreading the technology to a broader range of departments," said Bjorn Engquist, the Michael Henry Strater University Professor of Mathematics. Engquist directs the Princeton Institute for Computational Science and Engineering, which researches and supports science involving high-performance computing and which worked closely with OIT in designing the Beowulf system.

Increasingly, said Engquist, scientists in all disciplines rely on simulating real-world phenomena on computers and testing their understanding of the subject by manipulating the computer program. "Computational science is an increasingly important paradigm, often connecting theory and experiment," he said. Understanding the properties of a large system, such as the Earth’s atmosphere, often requires calculating the interactions of billions of components, which creates an enormous demand for computing power.

In the past, scientists needing powerful scientific computing turned to expensive supercomputers. Beowulf clusters, which were invented by NASA engineers in 1994, take advantage of the dramatic improvements in computing power per dollar in the PC industry, said Engquist. The Princeton Institute for Computational Science and Engineering, which began functioning last fall, provides its own general-use computing cluster, which is smaller than the Beowulf cluster.

The Beowulf initiative also complements the work of the Program in Integrated Computer and Application Sciences (PICASSO), a graduate training and research program focused on integrating techniques of computer science with other disciplines that are becoming more reliant

Continued on page 3

(continued on next page)
Cluster

Continued from page 2

on computation. Beowulf clusters are emerging as a common form of high-performance computing, said J.P. Singh, associate professor of computer science and director of PICASSO. “So this tool will allow students to get hands-on experience writing, debugging and optimizing parallel code for a very real and important platform,” said Singh.

“This initiative represents one step in our ongoing effort to listen to the needs of faculty members, students and administrators and respond with services that benefit as many areas of teaching and research as possible,” said Betty Leydon, vice president for information technology. “We are grateful for the strong support from faculty members in developing the Beowulf cluster and look forward to working with many more people in putting it to use.”

The OIT Beowulf cluster will be powered by 32 Dell PCs, each containing two 2.4-gigahertz Intel processors. The computers will run the RedHat Linux operating system. The University recently received a shipment of the PCs and expects the cluster, which will be located in the OIT building at 87 Prospect Ave., to be built and running this spring. More information is available at <www.Princeton.EDU/~raas/beowulf>. Researchers who want to use the system should contact Hillegas at <curt@princeton.edu> or 258-6033.

It takes a village to showcase technology at fair in Frist March 25-26

The multipurpose rooms on the B level of the Frist Campus Center will be transformed into a high-tech town Tuesday and Wednesday, March 25-26, for an Information Village Fair.

Sponsored by the Office of Information Technology and its partners, the event will run from 9 a.m. to 7:30 p.m. Tuesday and from 9 a.m. to 4 p.m. Wednesday. It is open to Princeton students, faculty and staff.

There will be more than 50 displays of information technology from OIT, the library, the Office of the Dean of the Faculty, purchasing, facilities, the Undergraduate Student Government and more. A total of 21 half-hour presentations will cover practical things people can do with information technology today.

Participants can enjoy free popcorn, register for door prizes and put their suggestions for making information technology more effective at Princeton into a wishing well.

Upstairs on the 100 level, the digital display wall will showcase new technology and the amazing things that can only be done using its enormous screen. The TV will show the best of Princeton’s lectures and special events as well as films made by OIT’s Help Desk.

For a complete schedule of events, check the Information Village Fair Web site at <www.princeton.edu/ivfair>.
OIT and its partners present the

**INFORMATION VILLAGE FAIR**

at Frist Campus Center Levels B and 100.

Research Computing
Faculty Voting
Personal Security
E-Books
E-Commerce

PeopleSoft
Courseware
Web Design
Photoshop
USG

Put your suggestions in our wishing well.

**Tuesday, March 25 – 9:00am–7:30pm**

**Wednesday, March 26 – 9:00am–4:00pm**

Faculty, Staff, and Students welcome. Over 100 demos and presentations.
See [www.princeton.edu/ivfair](http://www.princeton.edu/ivfair) for a complete schedule.
Honor code and affirmative action discussed

Continued from Page 1

Farmer suggested that instead of the investigators taking these positions, a representative of the Dean of Undergraduate Students would serve as the accused student’s adviser. Also, Farmer recommended the investigators still be allowed to make a closing statement, but the student would be able to respond to their speeches.

“The change to have the procedural advisor position changed from the investigator is an important change. It eliminates what I think is a real conflict of interest, certainly the appearance of bias to the student,” said President Tilghman. Currently, Tilghman imposes penalties and hears appeals. Instead, Farmer suggested the Dean of Undergraduate Students impose the penalty and the Dean of the College hear all appeals.

“I think it’s important that the justice that is meted out here is consistent, the only way to achieve that is to have a single person review the appeals of the discipline committee and honor committee,” Tilghman said.

“I think that both of them are good changes,” she added.

The USG will vote on the two changes on Sunday night.

Affirmative action

A third issue on the agenda was the upcoming affirmative action cases involving the University of Michigan. Tilghman explained that the University took a stand on the case because it was directly relevant to its academic mission.

The University does not take a public position on an issue such as the war in Iraq because its role is to provide a public forum for discussion on the issue, Tilghman said.

“Michigan will affect the way in which universities which accept federal funds, and we are certainly one of those universities, mostly for research, conduct their admissions policy,” Tilghman said.

Though the University does not have a points-based admission policy like the University of Michigan, it does take race into consideration.

“As one considers all the things about each individual, their gender, their race, their extracurricular activities, their geographic location, all these are taken into account,” Tilghman said, “We believe that these are all important.”

“A diverse class brings to the university experiences for the student body, points of view for the student body, that they will meet in the real world,” Tilghman said.

The friend of the court brief the University filed along with several other schools asked the Supreme Court to support the Bakke precedent to consider race as one of many factors in admissions and could to academic institutions the ability to make decisions on academic issues, she said.

CPUC describes dangers of piracy

Kathy Li
Princetonian Staff Writer

The University must address copyright infringement concerns immediately after receiving an official complaint against a user of the campus network, said Rita Saltz, OIT security expert, yesterday afternoon at a meeting of the Council of the Princeton University Community.

Colleges and universities are hotbeds of piracy, said Clayton Marsh '85, a University lawyer, and the entertainment industry has begun to take more aggressive measures against individual violators of copyright law.

According to the 1998 Digital Millennium Copyright Act, the University is a service provider and not liable for violations of the law. The University is under no obliga-
tion to monitor its services for illicit action.

However, the University is obliged to act immediately when a complaint is brought against a member of the University community. These “take-down letters” or “infringement complaints” can be from individuals or major entertainment industry corporations, said Saltz and Marsh.

This academic year, the University has received several infringement letters. On Jan. 28, two complaints were filed, one against a student who had downloaded 1,022 files onto his computer, Saltz said.

Each week, the University receives one or two infringement letters, although there are sometimes as many as five or six, she added. Punishment for copyright infringement can range from criminal prosecution to statutory penalties, for which the offender can pay up to $150,000 per file, Marsh said.

Infringement can range from deliberate to inadvertent file sharing, usually through peer-to-peer technology like Kaza. Marsh said many students believe they will not be prosecuted for illegal file sharing because it is so prevalent.

Honor Code

Another issue at the CPUC meeting was a modification of the Honor Code. Due to concerns about fairness, Catherine Farmer '03, chair of the Honor Committee, suggested two changes.

When a charge is brought before the committee, two investigators are assigned to determine whether the case should be heard. Once the case proceeds to hearings, one investiga-
tor becomes the procedural advisor for the accused student and the other becomes the clerk of the hearing.

Many students have complained that having these two investigators take on roles during the hearing is unfair, Farmer said. They do not feel comfortable asking the investigators and asking for advice.

See HONOR CODE, Page 4
display information technology in a fun and appealing way. Popcorn and door prizes are only the beginning of OIT's planned carnival atmosphere — the fair is organized into an imaginary village whose informational booths are organized by the places they represent, like the "school," where one can learn about the new version of Blackboard, or the "television station," where University media services sits.

"Normal people"

"We wanted to make information technology available to normal people," Strauss said.

OIT is sponsoring the event, along with University branches, such as media services, that have booths at the fair.

Strauss and other OIT representatives have been planning the event since December, working to present information technology in a thorough way without being boring, Strauss said.

"We could have done it in a dull way," he said. "But we're trying to stay with the 'village' theme."

Strauss stressed that though the atmosphere is fun, the material is serious.

"We're softening it without taking the information out of it — we're delivering the real depth of the material," he said.

For example, as visitors vote for a "mayor of the village" from a list of randomly selected faculty, they use the computer system faculty actually employ when choosing their committee heads, Strauss said.

Demonstrations

The fair also includes 45-minute "bow-to" presentations, in which an expert gives an introduction to some piece of information technology, such as web design or personal computer security.

In addition, the fair features demonstrations on the digital display wall on the second level of Frist.

Though the event has been held in the past, it did not have the 'village' theme and was not open to students and faculty. It was usually held during Spring Break, Strauss said, and targeted administrators.

The information technology fair will continue until 4 p.m. today.

Don DeFranco of the Maintenance Department demonstrates wireless networking yesterday at the OIT Information Village.

OIT makes technology fun at Information Village Fair

Molly Galland
Princetonian Managing Editor

At the end of the first day of the Office of Information Technology's Information Village Fair, the event's success could be measured in popcorn — 600 boxes of it. So many people attended the fair yesterday that OIT handed out twice as much popcorn as it had expected, said Howard Strauss, manager of technical strategy and outreach for OIT.

"We had zillions of students," Strauss said.

The two-day event at Frist Campus Center, which began yesterday morning and will continue through today, is OIT's effort to

See 'ZILLIONS', Page 5
New computing powerhouse to speed up research

Miriam Bocarsly
Princetonian Staff Writer

By the end of the month, OIT will open its new high-performance computer cluster, known as the Boeawulf cluster, which will support research in several departments.

The cluster will serve faculty and students who run computationally intensive programs by offering processing time on its high-performance computers.

The cluster will also allow OIT to provide departments that already have Beowulf clusters with trouble shooting and other support services, Curt Hillegas, OIT’s manager of research and academic applications support, said.

The new cluster will be composed of many PC’s linked by an extremely fast network and will mimic a supercomputer, Hillegas explained.

“The Beowulf cluster takes standard, mass-produced parts and forms, in essence, a supercomputer,” he said.

Though it does not look like a typical desktop computer, it works the same way, he said.

The Beowulf cluster, funded by OIT, is a minimal cost project, Hillegas noted, saying that supercomputers usually cost millions of dollars.

“We are operating at a list price of only $180,000, and the University paid even less,” he said.

The Beowulf was formed out of a partnership between OIT and Dell.

Spocs of the new OIT Beowulf cluster
32 Nodes: 2x 2.4 GHz Xeon CPUs
2GB DDR/200 MHz RAM
18 GB SCSI hard drive
RedHat Linux 7.3

Mass Storage Node: 14x 73 GB SCSI hard drive

From the OIT website.

Computer Corporation, who will begin installing the hardware and software Monday.

The new cluster will allow OIT to better support the more than six Beowulf clusters already in place in various departments, Hillegas said.

Chemistry Professor Kevin Lehmann said OIT will be able to ensure that all components of Beowulf clusters across campus are working.

“Maintenance of these computers is a significant problem,” Lehmann said.

“With the amount of computing time available to students and faculty,” Lehmann said.

“Computers are not being used on campus,” Lehmann said.

The computer cluster will also be used as a teaching tool.

“It will allow students to have access to real research environment,” Hillegas said.

“I will also be used for running jobs, aiding research and writing papers,” Hillegas said.

“It can be used for testing networking, filing and interpreting research.”

“Computers these days are powerful, but imagine what mobility you would have if you could link many computers together,” Lehmann said.

He said he is planning on using the new cluster to aid his research.

“We are doing runs using the computer, but we need calculations to compare the results,” he said.

“We are trying to calculate properties of new substances by assuming positions, and then randomly changing them,” he explained.

Ave., will be open to all students and faculty.

“Computers will be open to everyone, including undergraduates, but will require a registration,” Hillegas said, noting that there would be no fee associated with registration.

“At first there will be a maximum of one business day between registration and permission to use the computer,” Hillegas said.

“However, assuming things are working smoothly, the process might be automated, providing near instant access,” he said.

While all the details have not been finalized, Hillegas said each registered user will be allotted roughly 100 megabytes on the cluster.

“They will sign-in to the master node and submit jobs and compile programs,” Hillegas said.

So far, the astrophysics, geosciences, chemical engineering, mechanical engineering, chemistry and physics departments have all expressed interest in using the new cluster, said Hillegas.

Hillegas said even researchers in the Wilson School expressed interest.

In the 1990’s, when Beowulf technology was developed, the method was named after a science fiction novel — not the old-English epic — Hillegas said.

In the book there was a planet called Grendel where the novel’s hero, Boeawulf, lived,” Hillegas summarized.

“The science fiction novel obviously has its roots in classic literature,” he said.

“The idea is that, like the hero in the novel, this piece of equipment will attack scientific problems and conquer them.”

— Curt Hillegas

"It might not be as noble as a super-computer," he said of the Beowulf clusters, "but it is capable of solving problems just as well, if not better than a super-computer."

In the planning and developing of the Beowulf cluster, OIT has worked closely with the Princeton Institute for Computational Science and Engineering “to complement each other,” Hillegas said.

"OIT is responding to the needs of the community and is getting involved and providing a requested support," Hillegas said.

The power that the cluster will provide will take research to a level that not long ago existed only in science fiction.
High-tech town takes over Frist

About 1,000 students, faculty and staff attended the March 25-26 Information Village Fair in the Frist Campus Center. Sponsored by the Office of Information Technology and its partners, the event included more than 50 displays of information technology from OIT, the library, the Office of the Dean of the Faculty, purchasing, facilities, the Undergraduate Student Government and more. A total of 21 half-hour presentations covered practical things people can do with information technology today.
Technology center and Muldoon create online poetry initiative

An adventure in word and image

Cynthia Yoder

What's the connection between a high-wire walker and an award-winning Princeton poet? Members of the Princeton community can find out in a new online adventure that brings readers and poetry together in an entirely new way.

An Educational Technologies Center team led by Arca Niculin has collaborated with Paul Muldoon in creating an online exploration of one of the Princeton professor’s poems, “A Collegelands Catechism.” The project, an interactive, celebratory study of the poem’s meaning and structure, was unveiled in April, National Poetry Month. The coursework is available online and on CD without charge to alumni and members of the campus community (see caption).

The poem is from ‘Moy Sand and Gravel,” for which Muldoon won the 2003 Pulitzer Prize. He chose the poem for its inquiring nature: It presents a series of unanswerable questions related to the poet’s life.

“The catechism is a series of questions and answers, but this particular one has no answers, at least none that are given directly,” said Muldoon, who is the Howard Clark ’21 University Professor in the Humanities.

Instead of answers, viewers who visit the Web site will find linkages between the poem and its hidden meanings and connections. The interactive exploration includes a reading of the poem in Muldoon’s conversational style, a chance to see a video of Muldoon discussing the work, information about the formal elements of the poem, and lots of places to click in order to delve into the elements that bring vibrancy to the work.

In the online video with the poet, viewers can hear Muldoon discuss how the poem represents for him “a great deal about his life as he now lives it.” The poem is emblematic of the divide, he says, between his boyhood in Ireland and his life now as a Princeton professor.

The interactive exploration of “A Collegelands Catechism” relies on this ancient experience of poetry and combines it with graphics and interactive opportunities only available through multimedia.

A chance to linger

Niculin said she chose Muldoon’s work because the author’s poems are rich in references and, therefore, benefit from explanations. “He also was open to having his words reach the audience in ways other than on paper,” she said.

Muldoon said he was “delighted” by Niculin’s treatment and noted that the project collapses the distance between a read poem and a heard poem.

“One of the things about reading poetry and hearing poetry is that the two are often unconnected,” Muldoon explained. “This is an opportunity for connecting them in a way that is plenty more leisurely than the conventional way in which that happens, which of course is a poetry reading.”

Readers have the opportunity to linger over a word or a phrase that they might not have understood the first time around, with the full text of the poem displayed at all times. The exploration also is driven by the site users, so that they have the opportunity to hear the poem just how they wish to hear it. If so desired, a user could even hear the poem read line-by-line in reverse.

“In that way, someone could have a DaDa experience,” mused Niculin, referring to the early 20th-century art form that sought to demolish current aesthetic standards.

New tool for teaching

Both Muldoon and Niculin hope that the interactive exploration of “A Collegelands Catechism” will catch on as a teaching tool. Creating such tools is at the heart of what ETC does, offering consultation and development services for faculty wishing to explore the use of new technologies for their teaching and/or research.

Niculin pointed to the ability of new media to present material in a completely new way. “We used the ability of the media to layer, to juxtapose, to branch,” she commented on ETC’s work on Muldoon’s poem.

“We created an adventure in which around every corner, something new happens.”

The project development team also included Jill Moraca, the graphic designer and artist responsible for all ETC artwork, and Douglas Blair, who collected and edited the explanations. Michael Pettit, a poet and 1972 alumnus, provided notes and commentary on the poem.