Office of Information Technology

Annual Report 2003-2004

Princeton University
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Letter from the Vice President

Three and a half years ago I joined the Princeton University community. Since that time I have had a chance to work with, and among, a unique community of people. I have been given the rare opportunity to oversee an organization as it is changing and evolving to meet the needs of the greater community it serves, while striving to create a work environment that supports the strengths of its individual members. This annual report for FY04, OIT’s third full year, summarizes and celebrates our continuing efforts to support the University’s information technology needs. Among the various achievements of this past year I would like to highlight a few of those that can be found within the pages of this report.

At the beginning of the academic year, OIT opened the OIT Solutions Center in a repurposed OIT space on the main floor of the Frist Campus Center. With the goal of moving customer support closer to our customers, the Solutions Center provides general computing support, hardware repair, account management, telephony services, software sales, and support for the Blackboard course management system. During its first year, more than 8,000 customers were helped in the software clinic and customers purchased more than 700 software packages.

In the area of academic services, we renewed our license for the Blackboard Course Management System (CMS). The new license includes a “content system” which meets a long-standing need in the area of content distribution and re-use. The content system facilitates the uploading of large numbers of documents into course web sites and provides space for sharing documents among faculty and students.

In the area of administrative services, this fall, for the first time, the entire undergraduate admission application is available via the web. In addition, during FY05, PeopleSoft Student Administration for undergraduate students will replace the existing legacy-based Student Records system. The completion of this implementation in summer 2005 will create a unified data and computing environment for the primary administrative system functions across the campus including, human resources, financial systems and undergraduate and graduate student records management.

In the area of infrastructure services, this past year, OIT began implementing an Intrusion Prevention system that will serve as a “first line of defense” for attacks against campus desktop and server computers. At the same time, OIT is expanding support for departmental firewalls to provide secondary protection that will coordinate with core University firewalls. Swift action by OIT staff this fall also held off a tremendous volume of incoming “SoBig” viruses, which threatened to overwhelm the University’s e-mail systems. Following this event, OIT implemented tools to combat viruses that check for updates on an hourly basis. During FY04, the antivirus system used to protect e-mail messages from viruses and worms removed more than 2,330,000 virus/worm-laden messages.

In the area of OIT administration and planning, important strides have been made this year to improve OIT’s organizational effectiveness. A set of core values was identified for the organization in order to help staff work more effectively with OIT colleagues and with our customers. Our expanded use of the Princeton Project Management Methodology (PPMM) has proved to be a tremendous success, and our post-project...
reviews have helped us to learn from our successes and challenges. An OIT “Doing More with Less” task force has identified opportunities to save money, to increase revenue streams for new and/or premium services, and to streamline processes.

In these pages, we have tried to capture the breadth and diversity of our IT initiatives, and to highlight both our accomplishments and future efforts. I remain grateful to OIT’s staff, a group of technically proficient individuals who are dedicated to providing the best possible support for information technology at Princeton.

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.
FY04 OIT Timeline

**July 2003**

As part of a multi-year campus network wiring upgrade project, OIT upgrades the network wiring and electronics within the Engineering Quad, Dickinson Hall, and McCormick Hall, and 100 new data cables are added in the Lewis-Sigler Institute. OIT also extends the network to the residences at the Butler and the new Lawrence Apartments.

In the COFHE survey of Princeton seniors, information technology once again rates highly, placing second among all University services.

A new online purchasing site for the Student Computing Initiative expands options for students and eases the ordering procedures.

Apple donates fifteen Macintosh computers for use in the Frist Student Center as information kiosks.

OIT acquires a 32-node Beowulf computing cluster in June 2003, providing high-performance computing cycles for teaching, prototyping, and research.

OIT installs a new version of the PeopleSoft Human Resources Management and Student Administration Systems. The change offers significant new functionality for users of the Human Resources Management System, the Course Information System (CIS), Graduate Admission, and Graduate Student Records.

OIT deploys an online business card ordering application on the new Printing and Mailing website. The new system simplifies the ordering process for the standardized card designed by the Office of Communications.

Hardware Support establishes wireless computing zones in the Center for Jewish Life, Bowen Hall, 5 Ivy Lane, Colonial Club, Wu and Wilcox Halls, Forbes College, 1879 Hall, Marx Hall, Firestone Library, and Prospect House.

**August 2003**

In the most significant increase of central campus computing support in the past decade, OIT opens the OIT Solutions Center in a repurposed space on the main floor of the Frist Campus Center. The Solutions Center provides general computing support, hardware repair, account management, telephony services, software sales, and support for the Blackboard course management system. During its first year, more than 8,000 customers are helped in the software clinic and customers purchase approximately 700 packages of software.

In preparation for the start of the 2003-2004 school year, OIT upgrades 66 PCs, 21 iMacs, and 9 printers in computer cluster locations.

OIT successfully upgrades the Blackboard course management system and assists faculty in creating more than 500 course web sites for the fall semester.

With the approval of the Treasurer’s Office, the DeSC program adds a special fee to the price of administrative computers and uses the additional revenue to purchase software that can be shared by all DeSC computers through a central “key server.”

ETC releases Game Theory, a new course module that reflects Professor Avenash Dixit’s popular textbook, *Games of Strategy*. Drawing upon video interviews with Princeton faculty, including John Nash ’50, the online course offers observations on real-world applications and on Princeton’s role in the discipline.

OIT adds technical forums to its expanding Blackboard site.

OIT begins a migration from Netscape to Internet Explorer, a web browser that is more reliable and more compatible with existing applications.

An all-OIT presentation focuses on organizational strengths, results of an OIT Manager survey, a realignment of the organization, and the goals for FY2004.

**September 2003**

To help protect the University computing environment, the OIT Help Desk creates a CD that patches infected Windows computers. OIT distributes more than 4,000 of these CD’s at all undergraduate and graduate registration events, at special outposts in the Residential Colleges, and at the OIT Solutions Center.

Thirty-two students begin work as Residential Computing Consultants (RCC’s) to provide network and computing support for students in the dormitories. The RCC’s assist OIT activities at the Frist Campus Center during the start-up of the academic year and provide help sessions at every residential college during the first week of classes.

The first issue of OIT’s newsletter *it matters* for the academic year focuses on Research Computing, the New Media Center, and tips for faculty.

The Lunch ’n Learn series begins with the presentation *Personal Computer Security*.

Following a serious Labor Day power outage, the University acquires additional UPS capacity. New procedures notify staff promptly during outages and automate the orderly shutdown of the more than 300 units in the machine room.

OIT adds two new Cross Functional Teams: Video Coordination and IT Policy and Security.

OIT adds technical forums to its expanding Blackboard site.

The Student Computer Initiative program sells a total of 1,493 machines: 1067 Dell PCs and 221 Apple computers.
OIT opens a new Language Resource Center in the Andlinger Humanities Center (basement of East Pyne). This state-of-the-art facility will help sustain the University’s preeminence in foreign language instruction. The facility includes a language laboratory, two video viewing rooms, and an electronic classroom.

In partnership with the Research Computing Advisory Group (RCAG) and Computing in Academic & Research Computing (CARD), OIT introduces the Princeton Software Repository. This new online facility makes available third-party software packages that have been built and configured to work in the University’s Solaris 9 and Red Hat Linux computing environments.

The first meeting of the Humanities Computing Advisory Group considers plans for academic technology strategic planning.

The Lunch ’n Learn series continues with: Teaching with the Internet, Blogging; and Text, Audio, and Video Reserves.

OIT Telecommunications upgrades the Private Branch Exchange (PBX) equipment telephony server, in order to enhance reliability and introduce new telephone capabilities.

OIT expands the CONDOR pool of computing cycles used for research projects with the addition of 250 Windows workstations. Condor is a public computing service that uses a computing pool made up of a number of OIT computers by making use of idle processor time to perform computations.

OIT installs a major new release of the Resource/Schedule25 event and course scheduling software, and upgrades the SEVIS system, which maintains contact and address information required by government agencies for the 2,128 foreign students and faculty who reside at Princeton.

OIT begins to provide training for the users of the new PeopleSoft Graduate Admissions system.

To safeguard University computers from a growing number of computer viruses, OIT implements Microsoft’s Software Update Service. Software updates from Microsoft are now automatically sent to a University server which in turn distributes them throughout the campus. The service safeguards all DeSC machines, as well as those in departments that subscribe.

ETC announces a new courseware offering, Unwilling Moderns: The Nazarene Artists. Emeritus Professor Lionel Gossman of the Department of Romance Languages and Literatures explores the goals, motivations, and achievements of the so-called “Nazarene” artists of the early nineteenth century and offers his thoughts on how they came to be sidelined in the narrative of the history of art.

To improve and secure the University’s backup and restore service, OIT streamlines the registration process and encrypts all communication with the server.

Following a careful review, OIT recommends that the University obtain a three-year license renewal of the Blackboard course management system. SAGIT reviews and approves the recommendation. As a result, the University is licensed to use the Blackboard product through FY2007.

The latest OIT Help Desk video, “Research Reloaded,” prepared as a joint project between the Library and OIT, highlights research resources available for students at Firestone Library.

OIT increases the default Unix quota to 40MB for all faculty, staff, and students. Requests for increases up to 100MB will also be accepted.
January 2004

The Lunch ’n Learn seminars feature Project Management and Technology Tools for Academic Writers

A Web Content Management selection team begins work on the evaluation of products that will help organize and structure the development and maintenance of University web pages and web content.

New procedures allow OIT to improve its ability to block internet viruses. During the year, the antivirus system used to protect e-mail messages from viruses and worms removes more than 2,330,000 messages containing viruses/worms.

OIT announces a significant improvement to the Faculty Computer Program. The change formalizes the eligibility of instructors and senior lecturers and changes the eligibility of non-tenured faculty from one computer during the tenure cycle to a regular four-year cycle.

A new brochure, “Distributed Linux Support” outlines supplemental support for Linux. A queue within the Help Desk’s problem resolution system will assist volunteers from both OIT and the campus Linux community system in tracking and resolving Linux questions.

OIT stabilizes the Labor Accounting system on a single version that meets the needs of all campus users. The consolidation simplifies maintenance and support of the system and offers significant new functionality and a major improvement in reliability.

OIT completes two new initiatives for Human Resources. The HR Solution Center helps to manage and track all support requests and simplifies a large set of functions within the department. eProfile, a self-service facility, permits faculty and staff to view and update demographic data stored in the PeopleSoft system.

February 2004

Lunch ’n Learn seminars include: Copyright and Copywrong: Fair Use for Educators and Researchers and The New Media Center: Providing Digital Answers to the Analog World.

An upgrade to the Stripes Alumni Development system involves an upgrade to the software, a change in the development language, and a database platform change from Sybase to Oracle. Following the upgrade, 51,842 gifts, 4,438 pledges, 2,952 matching gifts, 19,460 new solicitation plans, and 77,018 new or modified addresses are entered into the system.

OIT Academic Services announces the availability of a new database of academic IT web resources for faculty who engage in online teaching and learning activities. The database has links to more than 80 web sites offering information and tools in most academic disciplines.

The February issue of it matters provides tips on dealing with viruses and help in accessing network resources from off-campus.

OIT improves the reliability of the Exchange e-mail infrastructure by installing an additional server with special software to facilitate data replication. By the end of the year, more than 950 customers are using the Exchange service.

The OnBase Document Imaging System allows departments to store documents electronically. Working in partnership with the Treasurer’s Office, OIT upgrades the OnBase application to a more robust platform. All OnBase applications are migrated to the new environment and enhanced backup/restore procedures are implemented.

OIT enhances the BlackBoard Course Management System by adding a new search feature and a tool that allows students to add content more easily.

March 2004

To align OIT staff and services with customer needs, OIT creates three new OIT groups: Desktop Application Services, Education and Outreach Services, and OIT Communications Services.

OIT doubles the available Internet2 bandwidth in response to the increasing number of researchers for whom high performance computing is critical.

OIT purchases Microsoft’s Premier Support for its core software products and Symantec’s Platinum support for anti-virus products. These services provide increased access to technical resources and faster on-site assistance.

New functionality to the online tool Resource and Schedule 25 allows members of the campus community to search for and reserve appropriate classroom and teaching areas.

Lunch ’n Learn topics are: The Data Warehouse, Searching the Web effectively with Google and PDAs and other small devices.

New custom processes for Graduate Readmission “go live.” 1,971 graduate students use this self-service system to submit their readmission applications.

As part of a disaster recovery plan, OIT installs high-speed AT&T connectivity to New South, moves redundant critical servers to that location, and completes the creation of a campus ring network.

OIT launches a project to create a comprehensive Princeton Data Warehouse to replace the current series of Data Stores in the Data Mall. The Princeton Data Warehouse will serve as the University’s primary reporting environment for administrative information.
April 2004

The University successfully renegotiates its Oracle database license. Starting July 1, 2004, University departments will be able to use the Oracle database engine campus-wide with any application for any number of users, without limitation. The new agreement also supports off-campus users who want to use the University’s Oracle-based applications via the Web.

A “Virus Summit” results in two additional steps to combat viruses: scanning for machines that are not fully password protected and verifying that all machines have Norton AntiVirus properly installed.

OIT creates a peer-nominated OIT Achievement Award that carries with it a $1,000 cash bonus. Awards will be given to OIT staff whose efforts have contributed significantly to the success of their departments and OIT.

Thirty-six OIT children attend Take Your Children to Work Day.

Lunch ’n Learn talks are Fubswrjudskb Ghfubswhg, or, Cryptography Decrypted; WebMedia: Streaming Multimedia to Princeton and Beyond; and Wireless Computing at Princeton.

it matters focuses upon accessing library resources and new ways to search for books.

OIT Training classes include PeopleSoft Financials, WebMedia, Dreamweaver, Access, and Outlook E-mail.

OIT continues to resolve copyright infringement complaints filed with the University, receiving more this month (212) than in all last year (187).

May 2004

The University selects Cognos as the standard Enterprise Reporting Tool for the University’s administrative applications. This flexible and powerful web-based report development and presentation tool will replace up to eight reporting tools and will be the standard for the DataMall, all of the University’s custom administrative applications, and PeopleSoft.

OIT pushes critical software patches to undergraduates who log into the Princeton network. The USG strongly supports the initiative. Within first 24 hours, 2,000 computers are patched.

Following an extensive selection process, a University-wide team unanimously selects the Roxen Content Management System. The University will use Roxen to redesign its core web site with a targeted “go live” date of fall 2004.

The Lunch ’n Learn series spotlights Geographical Information Systems.

The University hosts the Administrative Information Services groups from the Ivy+ universities. AIS representatives from Brown, Columbia, Cornell, Dartmouth, Duke, Harvard, MIT, Stanford, the University of Chicago, the University of Pennsylvania, and Yale convened on campus for three days of discussions and presentations.

The OIT Software Coordination Team completes the PC migration from Netscape to Outlook.

OIT upgrades PeopleSoft Financials from client/server version 7.5 to web-based version 8.4. The web-based architecture of the new release provides far more flexibility, enhanced functionality, and a much improved user interface.

June 2004

OIT and Princeton host ResNet 2004, an international symposium for professionals who provide computing and information technology support for students in higher education. Professor Ed Felten gives the opening address, “The Future of File Sharing.” More than 300 computing professionals from 152 colleges and universities around the world participate in 48 presentations.

OIT forms a task force to identify opportunities to reduce OIT operating expenses for FY06 and beyond. The “Doing More with Less” Task Force reaches out to each OIT department for cost-saving and revenue-generating ideas, as well as opportunities to streamline processes. The group will consolidate the suggestions and submit a report in early FY05.

OIT initiates a Core Values development process, facilitated by the University Ombuds Office.

A new account management page supports “one stop shopping” for all personal data updates. The web page links to appropriate systems for updating (e.g., SCORE, eProfile) and will improve the accuracy of the Campus Community system, which generates both the University Directory and Register.

The University’s popular TSM Backup and Restore Service backs up nearly 100 Terabytes of data during the academic year.
## OIT by the Numbers, FY04

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unlimited Concurrent users permitted</td>
<td>100,000,000,000,000</td>
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<tr>
<td>Bytes of data on the 8,000 machines</td>
<td>backed up by the University’s TSM service</td>
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<tr>
<td>Hits from 450,000 unique IP addresses</td>
<td>to the OIT Knowledge Base</td>
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<tr>
<td>Total telephone calls with a system</td>
<td>20,350,125</td>
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<td>reliability of 99.9998%</td>
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<td>Pages printed in the public computer</td>
<td>6,563,648</td>
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<tr>
<td>clusters</td>
<td></td>
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<tr>
<td>Viruses and worms removed from</td>
<td>2,330,000</td>
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<tr>
<td>University e-mail</td>
<td></td>
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<td>Logins to 370 computers available to</td>
<td>712,724</td>
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<tr>
<td>students in campus computer clusters</td>
<td></td>
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<tr>
<td>E-mail messages processed on average</td>
<td>500,000</td>
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<tr>
<td>every day</td>
<td></td>
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<tr>
<td>CPU hours utilized in the new</td>
<td>400,000</td>
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<td>Beowulf high-performance computing</td>
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<tr>
<td>cluster</td>
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<td>Impressions per month through</td>
<td>225,000</td>
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<td>Printing’s all-digital, on-demand</td>
<td></td>
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<tr>
<td>network</td>
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<td>Payroll checks processed</td>
<td>153,722</td>
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<td>Phone inquiries and 24,902 e-mail</td>
<td>52,994</td>
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<td>inquiries to the OIT Help Desk</td>
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<td>Gifts to the University processed</td>
<td>51,842</td>
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<td>in the Stripes Alumni Development</td>
<td></td>
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<tr>
<td>system</td>
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<tr>
<td>Campus network connections</td>
<td>22,577</td>
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<tr>
<td>ID Cards with proximity chips and</td>
<td>15,000</td>
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<tr>
<td>magnetic strips created and</td>
<td></td>
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<tr>
<td>distributed</td>
<td></td>
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<tr>
<td>Voice mailboxes set up for</td>
<td>13,000</td>
</tr>
<tr>
<td>individuals</td>
<td></td>
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<td>W2s forms processed by the</td>
<td>11,590</td>
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<td>new version of the PeopleSoft HR</td>
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<td>system</td>
<td></td>
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<td>Mobile IP addresses (including</td>
<td>9,574</td>
</tr>
<tr>
<td>wireless access)</td>
<td></td>
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<td>Academic and administrative phone</td>
<td>8,248</td>
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<tr>
<td>lines managed</td>
<td></td>
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<td>Visits to the new OIT Solutions</td>
<td>7,952</td>
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<tr>
<td>Center</td>
<td></td>
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<td>Visits during the spring semester to</td>
<td>7,246</td>
</tr>
<tr>
<td>the new Language Resource Center</td>
<td></td>
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<tr>
<td>CDs distributed to patch infected</td>
<td>4,000</td>
</tr>
<tr>
<td>Windows computers</td>
<td></td>
</tr>
<tr>
<td>Customers using OIT’s Spam filtering</td>
<td>3,698</td>
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<tr>
<td>service</td>
<td></td>
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<td>AV jobs undertaken by Media Services</td>
<td>2,964</td>
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<tr>
<td>Videos in the University’s video</td>
<td>2,750</td>
</tr>
<tr>
<td>collection</td>
<td></td>
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<tr>
<td>Participants in 256 Training courses</td>
<td>2,453</td>
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<td>Visits to the New Media Center</td>
<td>2,391</td>
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<tr>
<td>(up from 1,047 last year)</td>
<td></td>
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<tr>
<td>Work orders processed for telephone</td>
<td>2,149</td>
</tr>
<tr>
<td>work and voice mailboxes</td>
<td></td>
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<td>Graduates students using the</td>
<td>1,971</td>
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<tr>
<td>new Graduate Readmission self-service</td>
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<tr>
<td>system</td>
<td></td>
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<tr>
<td>Computers sold to students through</td>
<td>1,493</td>
</tr>
<tr>
<td>the Student Computer Initiative</td>
<td></td>
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<tr>
<td>Videos placed on reserve by faculty</td>
<td>1,390</td>
</tr>
<tr>
<td>Requests for assistance handled by</td>
<td>1,388</td>
</tr>
<tr>
<td>32 Residential Computing Consultants</td>
<td></td>
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<tr>
<td>Dormnet video connections installed</td>
<td>1,211</td>
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<tr>
<td>Registered network-attached printers</td>
<td>1,121</td>
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<tr>
<td>Subscribers to the Exchange 2000</td>
<td>950</td>
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<tr>
<td>integrated e-mail and calendaring</td>
<td></td>
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<tr>
<td>service</td>
<td></td>
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<tr>
<td>Job streams scheduled weekly by the</td>
<td>860</td>
</tr>
<tr>
<td>Tivoli Workload Scheduler</td>
<td></td>
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<tr>
<td>Servers maintained in the OIT Machine</td>
<td>300</td>
</tr>
<tr>
<td>Room</td>
<td></td>
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<tr>
<td>Unix machines monitored by the</td>
<td>174</td>
</tr>
<tr>
<td>Tivoli system monitoring software</td>
<td></td>
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<td>Classes using the OIT Video server</td>
<td>136</td>
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<tr>
<td>Database applications administrated</td>
<td>130</td>
</tr>
<tr>
<td>by OIT</td>
<td></td>
</tr>
<tr>
<td>Employee recognition awards</td>
<td>128</td>
</tr>
<tr>
<td>distributed</td>
<td></td>
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<tr>
<td>OIT projects using Princeton project</td>
<td>46</td>
</tr>
<tr>
<td>methodology to manage activities</td>
<td></td>
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<td>Children participating in OIT’s first</td>
<td>46</td>
</tr>
<tr>
<td>“Take your Children to Work Day”</td>
<td></td>
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<td>OIT employees certified in CPR/First</td>
<td>22</td>
</tr>
<tr>
<td>Aid</td>
<td></td>
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<tr>
<td>iMACs donated by Apple for use as</td>
<td>16</td>
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<tr>
<td>Kiosks in the Frist Campus Center</td>
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<tr>
<td>Peer recognition awards presented</td>
<td>6</td>
</tr>
<tr>
<td>OIT CIO Awards to honor outstanding</td>
<td>2</td>
</tr>
<tr>
<td>service to OIT and Princeton</td>
<td></td>
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<tr>
<td>Special editions of <em>it matters</em> on</td>
<td>2</td>
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<tr>
<td>passwords and common campus desktop</td>
<td></td>
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<tr>
<td>applications</td>
<td></td>
</tr>
<tr>
<td>Telephone number to call (258-HELP)</td>
<td>1</td>
</tr>
<tr>
<td>for OIT support</td>
<td></td>
</tr>
</tbody>
</table>
Office of Information Technology

Betty Leydon
Vice President for Information Technology & CIO

Andy Rosenau
Assistant to the Vice President for Special Projects

Leah Targon
Executive Assistant

Serge Goldstein
Director, Academic Services

Colin Currie
Director, Administrative Information Services

Nancy Costa
Associate CIO & Director, Finance, Admin. & Planning

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Director, Enterprise Infrastructure Services

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Associate CIO & Director, Support Services

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Director, Enterprise Infrastructure Services

Steven Sather
Associate CIO & Director, Support Services

David Harrington
Desktop Application Services

Janet Temos
Educational Technologies Center

Marianne Crusius
Language Resource Center

Don Albury
Media Services

David Hopkins
New Media Center

Curt Hillegas
Research & Academic Applications Support

Rafael Alvarado
Humanities Computing Research Support

Lorene Lavora
Education & Outreach Services

Russell Wells
Packaged Software Solutions

Patty Gertz
Custom Software Solutions

Ted Bross
Data Warehousing and Integration

Kim Hoeritz
Student Systems

Andy Roseau
Human Resources & Administration

Jon Edwards
Communications Specialist

Hetty Baiz
Project Office

Laura Strickler
Process Improvement

Janice Guarnieri
Training

Shane Farrell
Budget & Finance

Donna Tatro
Collaboration & Systems Services

Lee Varian
IT Architecture

Chuck Augustine
Systems & Data Mgmt. Services

Janet Temos
Educational Technologies Center

Marianne Crusius
Language Resource Center

Don Albury
Media Services

David Hopkins
New Media Center

Curt Hillegas
Research & Academic Applications Support

Rafael Alvarado
Humanities Computing Research Support

Lorene Lavora
Education & Outreach Services

David Harrington
Desktop Application Services

Janet Temos
Educational Technologies Center

Marianne Crusius
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Education & Outreach Services

Russell Wells
Packaged Software Solutions

Patty Gertz
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Revised 10/7/2004
IT Governance Model

- Provost
- Senior Advisory Group on IT (SAGIT)
- Administrative Systems Planning Group (ASPG)
- Project Managers Team (PMT)
- Committee on Academic Technology (CAT)
- DeSc
- Academic Managers Group (AMG)
- Administrative Departments
- Faculty Committee on the Library & Computing (FCLC)
- Research Computing Advisory Group (RCAG)
Senior Advisory Group on IT

The Senior Advisory Group on IT (SAGIT), advises the Provost on administrative systems projects that have been endorsed by the Administrative Systems Planning Group (ASPG). SAGIT’s specific charge is to:

• Evaluate administrative systems project proposals that require one-time funding and recommend appropriate funding;
• Assess steady-state costs of maintaining current administrative systems;
• Identify administrative systems opportunities that should be evaluated;
• Advise the Provost at any given time regarding projects that are worth funding.

During FY04, members of SAGIT were:

Amy Gutmann, Provost (Chair)
David Dobkin, Dean of the Faculty
Laurel Harvey for the Senior Vice President for Administration
Betty Leydon, Vice President for Information Technology and CIO
Jed Marsh, Vice Provost for Institutional Research
Chris McCrudden, Treasurer

Highlights

During FY04, to support the IT decision-making process, the Provost broadened the purview of SAGIT and ASPG from a focus upon administrative systems to include academic systems and IT infrastructure initiatives. During the year under review, SAGIT funded seven major projects that were reviewed and endorsed by the ASPG:

• Human Resources initiatives, including the implementation of PeopleSoft eProfile, PeopleSoft Case Management/Knowledgebase, PeopleAdmin Recruiting, new Leave Accrual processing, and the redesign of the HR web site.
• A three-year extension for the Blackboard course management system.
• Re-initiation and implementation of PeopleSoft Student Records.
• Implementation of PeopleSoft Admissions for Undergraduates, including an expansion of the Princeton online application and the addition of the Common Application.
• Implementation of the T2 parking system.
• Implementation of the Cognos suite of business intelligence tools.
• Implementation of a web content management system and the redesign of the Princeton University core web site.
The Administrative Systems Planning Group (ASPG) critically assesses all administrative systems efforts, determines existing needs, and identifies key opportunities to leverage our administrative systems investments. The specific charge of this group is to:

- Evaluate the University’s current administrative systems to identify gaps, needs, and opportunities;
- Recommend the appropriate distribution of resources for new maintenance, upgrades, and development efforts that will enhance the University’s administrative systems;
- Ensure that the University’s administrative systems meet the needs of faculty, staff, and students;
- Endorse project proposals requiring funding and pass them to the Senior Advisory Group on IT (SAGIT) for further review.

During FY04, members of the ASPG were:

- Greg Bressler, Director of Facilities Administrative Services
- Janet Dickerson, Vice President for Campus Life
- Kathleen DiMeglio, representing the Academic Managers Group
- Joe Greenberg, Registrar
- Ben Hammond, Manager for Administrative Services
- Karen Jezierny for Bob Durkee, Vice President and Secretary
- Nancy Malkiel, Dean of the College
- Jed Marsh, Vice Provost for Institutional Research
- Chris McCrudden, Treasurer
- Mike McKay, Vice President for Facilities
- Julie Shadle for Brian McDonald, Vice President for Development
- Sandra Mawhinney for Bill Russel, Dean of the Graduate School
- Kris Miller for David Dobkin, Dean of the Faculty
- Maureen Nash, Vice President for Human Resources
- Dan Scheiner, Director of Benefits, Compensation, and Systems, Human Resources
- Karin Trainer, University Librarian

Ex Officio:
- Nancy Costa, Director, Finance, Administration and Planning, OIT
- Colin Currie, Director, Administrative Information Services, OIT
- Betty Leydon, Vice President for Information Technology and CIO

**Highlights**

In FY04, the ASPG reviewed and endorsed seven major projects that were then passed on to the Senior Advisory Group on IT (SAGIT) for funding. Continuing the annual planning process, the ASPG endorsed a FY05 administrative systems project slate, as well as future projects through FY06.
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). The specific charge of this group is 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;
- Coordinate administrative requirements across offices and departments;
- Facilitate activities that foster the improved use of administrative products and services at the University;
- Achieve the highest level of customer satisfaction in meeting the needs of the University community.

During FY04, members of the PMT were:

Marvin Bielawski, Deputy University Librarian
Maria Bizzarri, Bursar and Director, Loans and Receivables
Ted Bross, Manager, Data Warehousing and Integration, OIT
Michelle Christy, Director, Research and Project Administration
Nancy Costa, Director, Finance, Administration and Planning, OIT
Kristie Covey, Director, Development Information Systems
Colin Currie, Director, Administrative Information Services, OIT
David Etherton, Project Manager, Academic Department Services
Patty Gertz, Manager, Custom Software Solutions, OIT
Kim Hoeritz, Project Manager, Student Systems, OIT
Kris Miller, Senior Systems Manager, Office of the Dean of the Faculty
Craig Richmond, Director, University Financial Systems
Dan Scheiner, Director of Benefits, Compensation, and Systems, Human Resources
Lee Varian, Director, IT Architecture, OIT
Russell Wells, Manager, Packaged Software Solutions, OIT
Mike Williamson, IT Manager, Facilities

Highlights

In collaboration with all administrative offices and academic departments, PMT members assembled a comprehensive list of project proposals. The list summarized all mandatory maintenance, process improvement efforts, opportunities for enhancements, and the deployment of new administrative systems capabilities. Working with the Academic Managers Group, the group identified and addressed key gaps in the Financial, Human Resource, and Student Administration systems through the Standard Business Model (SBM) process.
Committee on Academic Technology

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

- Serve as an information clearinghouse, so that those responsible for technology and the curriculum are well-informed of each other’s initiatives;
- Develop new initiatives that may enhance the curriculum through information technology;
- Help evaluate IT initiatives that affect the curriculum and prioritize the distribution of resources;
- Take leadership to assure that the use of academic technologies in the curriculum receives appropriate assessment, both evaluative and formative.

The committee met five times, in September, October, November, February, and April.

During FY04, members of the CAT were:

Hank Dobin, Dean of the College (Chair)
Jane Bryan, Associate University Librarian
Lin Ferrand, Associate Dean, Office of the Dean of the Faculty
Serge Goldstein, Director, Academic Services, OIT
Linda Hodges, Associate Director, McGraw Center for Teaching and Learning
Clayton Marsh, University Counsel
Jed Marsh, Vice Provost for Institutional Research
David Redman, Associate Dean for Academic Affairs, Graduate School
Janet Temos, Director, Educational Technologies Center, OIT
Highlights

Videotaping class sessions
Beginning in FY04, CAT officially reviewed requests from faculty to videotape entire courses. Faculty members submit proposals outlining the reasons underlying the requests; departments making the request must pay for the taping. During the year, CAT approved the videotaping of a fall chemistry course that featured guest lecturers which resulted in questions regarding intellectual property and privacy. The committee drafted an agreement that clarifies these issues and faculty will be asked to sign the agreement prior to such tapings.

Strategic planning
CAT reviewed OIT’s plan for the Academic Technology Strategic Planning review. The committee reviewed and commented on the proposed faculty IT survey and made a number of recommendations regarding the overall effort.

Graduate Associates in Instructional Technology
The Committee reviewed, critiqued, and approved Academic Services’ plan to create a Graduate Associates in Instructional Technology (GAIT) program. The program will provide IT training to a small group of graduate students who will then serve as IT mentors within their departments. Funded jointly by OIT and the Graduate School, the program will commence in Fall 2004.

Blackboard
CAT reviewed and approved the renewal of the Blackboard license. The Committee also reviewed the policies towards access to University’s Blackboard course web sites. Many faculty members believe that placing materials within such sites protects them from any kind of copyright violation. However, Blackboard sites are publicly accessible and even when such web sites are restricted to enrolled students, faculty must abide by fair-use standards with regard to the materials they make available. The Committee decided that Blackboard courses should be built as follows:
1) Guest access to the course web sites will be turned ON by default.
2) OIT will pre-build a folder within each site intended and marked for materials available only to enrolled students. A separate folder will provide publicly-available materials. Instructions within these folders will inform faculty about the issues involved in making materials available through their course web sites.
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 FY04, members of the RCAG were:

Curt Hillegas, Manager, Academic Applications, OIT (Chair)
Mary Lynn Baeck, Senior Technical Staff Member, Civil and Environmental Engineering
Roberto Car, Professor, Chemistry and Princeton Materials Institute
Kara Dolinski, Senior Technical Staff Member, Lewis-Sigler Institute for Integrative Genomics
Bruce Draine, Professor, Astrophysical Sciences
Bjorn Engquist, Professor, Applied and Computational Mathematics
Hank Farber, Professor, Economics
Sal Fattoross, Infrastructure Operations Analyst, Ecology and Evolutionary Biology
Chris Floudas, Professor, Chemical Engineering
Serge Goldstein, Director, Academic Services, OIT
Daniel Marlow, Professor, Physics
Pino Martin, Assistant Professor, Mechanical and Aerospace Engineering
John Matese, Senior Technical Staff Member, Lewis-Sigler Institute for Integrative Genomics
Josko Plazonic, Infrastructure Operations Analyst, Mathematics
Jim Roberts, Application Delivery Manager, Computer Science
Daniel Trueman, Assistant Professor, Music
Chris Tully, Assistant Professor, Physics
Doug Welsh, Senior Technical Staff Member, Molecular Biology
Bill Wichser, Infrastructure Operations Analyst, Princeton Materials Institute
Highlights

Linux support
During FY04, RCAG guided OIT in efforts to define and implement Linux support. As a result, OIT established a Princeton Linux Users Group and is working collaboratively with the Elders, a University group that provides a Linux update service. OIT has also improved its support of Linux on campus by establishing a Linux support queue in the OIT Help Desk’s problem tracking system.

Princeton Software Repository
Working in collaboration with RCAG, OIT deployed the Princeton Software Repository (PSR), a web set and application that provides easier access to open source software that is built, configured, and packaged for use in the University’s environment.

Internet2 bandwidth
During FY04, RCAG worked with OIT to increase the Internet2 bandwidth available to researchers. The new approach better meets researchers’ needs by sharing costs among departments.
The Provost formed the Desktop Systems Council (DeSC) to standardize the University’s administrative desktop computer environment. By choosing one hardware model and a standard software suite, the University is positioned to negotiate better pricing and maintenance fees, and computing support staff are better able to provide the best possible assistance to DeSC customers. Launched originally as the Princeton Desktop Initiative in 1996, the program was an essential part of the success of the new administrative computing applications then under development. The goals of the council are to:

- Streamline the costs associated with application development, software installation, computing support, system administration, and software licensing;
- Ensure that the standard administrative computing environment is sustained;
- Enhance regularly the delivery of key administrative systems and productivity tools.

During FY04, members of the DeSC were:

Steven Sather, Director, Support Services, OIT (Chair)
Charlayne Beavers, Technology Integration Specialist, OIT (DeSC Coordinator)
Marvin Bielawski, Deputy University Librarian
Nancy Costa, Director, Finance, Administration and Planning, OIT
Dorothy Davis, Department Manager, Program on Science and Global Security, Woodrow Wilson School
Kathy DiMaggio, Program Manager, Visual Arts, Creative Writing, and Theater and Dance
Ellen Kemp, Director, Computing Services, Woodrow Wilson School (DeSC Hardware Leader)
Dave Morreale, Manager, Desktop Computing Support, OIT
Steven Niedzwiecki, Manager, PC Systems, OIT
Jay Plett, Manager, Application Delivery, Electrical Engineering
Vikki Ridge, Senior HR Manager, Human Resources
Leila Shahbender, Manager, Student Computing Services, OIT
Highlights

Upgrades
During FY04, OIT Software Support continued to update and streamline the procedure to replace or upgrade DeSC machines. The conversion of Netscape e-mail users to Outlook for use of either IMAP or Exchange required new procedures and considerable effort. Additional assistance was provided for the synchronization of Personal Digital Assistants (PDAs). Updates to the group’s web site provide proactive monitoring of DeSC machines and machine account reporting information.

New software
With the approval of the Treasurer’s Office, the DeSC program added a special fee to the price of administrative computers and used the additional revenue to purchase software that can be shared by all DeSC computers through a central “key server.”

Software developed, tested, and distributed to all DeSC machines during FY04 included:

- Symantec Antivirus Corporate Edition 8.1
- Windows client installer
- TSM 5.2.2.10
- Internet Explorer
- Windows XP/Office 2003
- SSH 3.29
- DeSC Keyserver
- Acrobat Pro 6
- Adobe Reader 6
OIT initiated the OIT Ambassador Program in January 2003 to improve communication and customer service with the University community. The program’s mission is to:

- Provide an ambassador for every non-OIT department;
- To ensure excellent communication between the ambassador and the department while maintaining a high level of service and satisfaction;
- Increase communication between OIT and non-OIT departments;
- Represent OIT to our customers, notably by disseminating information about OIT services;
- Represent customer needs and issues to OIT by listening and gathering information from customers.

The OIT Ambassador program is open to departments as well as certain undergraduate and graduate student groups. A total number of 67 departments and programs are served by the program and enrollment growth is steady.

**Highlights**

Since the inception of the program, the number of ambassadors available to departments has increased to 36. 17 OIT Ambassadors maintain a relationship with one department, 28 are affiliated with two departments, nine serve three departments, two are meeting with four departments, and one staff member is an ambassador to five departments.

During FY04, the ambassadors worked with their departments and OIT to resolve 294 problems and questions and assisted with many undocumented matters. Most concerns regarded upgrades, training opportunities, and conversion to new software applications.

While most ambassadors initially met with their department once per month, most now meet once every two or three months. The decline in meeting frequency reflects the press of normal business in the departments as well as information over-saturation from the ambassadors. The program has assembled a list of expectations for ambassadors. Ambassadors are required to attend meetings, to have at least quarterly contact with their departments, and to publish their meeting minutes.
Academic Services

Academic Services supports the University’s use of information technology in teaching, learning, and research and 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 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 University courses. 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 faculty and student use. Research and Academic Applications Support provides support for the use of information technology in science and engineering research, including the operation of a Beowulf computing cluster. Humanities Computing Research Support provides support for the use of information technology in humanities and social science research.

Highlights

Improving the organization

Late in the year, two new groups were added to Academic Services. Desktop Application Support will develop, document, and support desktop applications for University departments. Education and Outreach Services will inform the University community about Academic Services initiatives and provide training and instruction in the use of Academic Technology.

Fashioning a strategic planning process for academic technology

In last year’s annual report, we defined the strategic planning process for academic technology as one of our key initiatives for FY04. In describing this initiative, we wrote: “OIT has initiated a planning process to define a shared, coherent vision for academic computing at the University. ...One important goal of the planning process is to build stronger alliances with faculty and key academic decision makers.”

We believe that we have achieved this goal. Through a series of focus group meetings with key academic oversight committees (The Committee on Academic Technology, The Research Computing Advisory Group, The Humanities Computing Advisory group), as well as focus group meetings with the Library staff, undergraduate and graduate students, and individual faculty members, we have achieved a much greater shared understanding of how information technology can serve the University in the years to come. In FY05, OIT will produce a series of focused architecture documents, essentially a framework that reflects this shared understanding and upon which future endeavor will be based.

Moving the Language Resource Center to the Andlinger Humanities Center

In response to growing demand for access to the highest-quality language support materials and services, OIT closed the Language Resource Center in Jones Hall and opened an entirely new Language Resource Center in the Andlinger Humanities Center (basement of East Pyne) in November 2003. This state-of-the-art facility will help sustain the University’s preeminence in foreign language instruction. The
facility includes a language laboratory, two video viewing rooms, and an electronic classroom. The facility has already been a great success, as evidenced by the overwhelmingly positive reviews and the heavy use of the facility during its first few months.

Relocating Blackboard support to the Frist Campus Center
In keeping with the goal of moving technology support closer to our customers, Academic Services relocated its Blackboard customer support team to the newly-opened OIT Solutions Center in the Frist Campus Center. This is a more convenient location for faculty needing assistance to set up and use their Blackboard course web sites.

Establishing a strategic direction for the University’s Course Management System
The license for the University’s Course Management System (CMS) expired on June 30, 2004. In the months preceding this expiration, OIT participated in an examination of the University’s strategic CMS direction undertaken by the Committee on Academic Technology (CAT). After careful review of several options, it was decided to recommend that the University obtain a 3-year renewal of the Blackboard license. A proposal was presented to SAGIT, which was approved and funded. The University is now licensed to use the Blackboard product through FY07.

At the same time as this license renewal was being considered, OIT actively participated in the formation of a multi-University consortium which is developing an open-source CMS. This new system, named SAKAI, is being developed and should be ready for use sometime within the next 2-3 years. This will give the University the option, in 2007, of continuing with Blackboard, or migrating to the SAKAI system. OIT has been successfully lobbying Blackboard to implement SAKAI functionality and interoperability, so that whatever direction Princeton takes in 2007 will be minimally disruptive to our students and faculty.

The newly-licensed Blackboard CMS includes a new component, a Content System (CS), which can be used to help meet long-standing needs in the area of content distribution and re-use. In particular, the CS can facilitate the uploading of large numbers of files into course web sites, and will be useful in providing shared document space to faculty members and students.

The Blackboard CMS also includes a programming API (Application Programming Interface) which will be used to develop an application that assists departments with the long-standing challenge of assigning of students to course precepts and labs in an efficient manner.

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. The LRC runs the central language support laboratory and manages the University’s collections of DVD, CD, and tape as well as the University’s central digitized video server.

Yearly activity
In its first spring in the new location, the LRC received 7,246 visits (compared to 3,128 the previous spring). During the academic year, the LRC was often filled to capacity. On several occasions, more than 100 visitors were recorded; the highest one day attendance was 146.

Video Library
The use of video continues to increase on campus. And the University’s video collection is growing rapidly as more faculty become aware of Firestone Library’s video acquisition policy. During the year, the number of videos in the collection increased by 450 and DVD’s grew by 203 (bringing the totals to 2,750 and 305 respectively). The laserdisc collection remains at 205. Faculty increased the number of videos on reserve from 906 in FY03 to 1,397 in FY04.

Digitized video server
The LRC manages a digital video server that faculty use to show film and other video materials within the classroom and for after-class viewing. Students can access the video server from any University classroom and from all campus computer clusters.

During the fall semester, 61 classes used the video server (up from 31 the previous fall) to access 245 titles (up from 92 titles). During the spring, 75 classes used the server (up from 26 the previous spring) to access 301 titles (up from 104 titles).
New Media Center

The New Media Center, located on the ground floor of 87 Prospect Avenue, offers a walk-in facility where students, faculty and staff can come to work with sophisticated computer and audio-visual equipment. NMC staff members assist customers in the use of this equipment and the associated software. Major activities this year included: creation of multi-media web pages; digitization of text, images and video; production of short video segments; creation of media-rich printed graphics and CD-based resources.

Owing to a concentrated advertising campaign and increased word-of-mouth, visits to the New Media Center jumped from 1,047 last year to 2,391 this year (a 128% increase). Of these, 171 were faculty visits, 603 staff visits, and 1617 student visits. Detailed breakdowns are provided in the chart below.

![NMC Visitor Activities](chart.png)

### Media conversion
New equipment purchased by the NMC facilitated rapid DVD recording and mass duplication of optical media for the academic community. In addition to this walk-in service, NMC staff also took on more sophisticated DVD creation projects. For example, NMC staff converted a series of Betacam broadcast tapes for Professor Theodore Rabb, archiving the collection in DVD format.

### Video streaming
Streaming video has become an increasingly popular outlet for departments wishing to make videos available for online viewing. A new service in 2004, individuals can create streaming content as a walk-in service. NMC Staff worked with the School of Engineering and Applied Science to create streaming videos of the SEAS lecture series, resulting in a collection of 24 online lectures.

### Web development
NMC staff redesigned the Rockefeller College web site, created Dreamweaver templates based on the new design, and trained Rockefeller College staff on how to use and update their site. A significant feature of the new site was a database-driven facebook of students and fellows that completely replaced the print version of their facebook. Staff also created a web site for chemistry professor T. Kyle Vanderlick’s research group. Her new site featured a Flash-based photo gallery and included information about her students, publications, and research.

NMC staff developed templates for the SIGUCCS 2004 conference web site. These templates built upon a graphic identity and logo for SIGUCCS 2004, also designed by NMC staff.

### Video production and photo projects
The NMC continued to serve as one of the prime video production units for the University.

Among several major video projects during the year, staff produced a promotional video for the Trustees on the Language Resource Center and the NMC. NMC Staff shot and edited a promotional video for the Community House robolab program. The video covered the progression of a group of local students from their early efforts through the display of their final robotics projects.

The NMC shot, edited, and streamed training videos to be used in the instruction of new Frist Campus Center staff. The NMC also produced interactive QuickTime VR movies of multiple rooms in Frist for use on their web site.

The NMC also filmed video interviews of students and faculty as part of a DVD testimonial praising the efforts of the Building Services staff. The DVD was presented at the Building Services Appreciation Lunch.

### Education series workshops
NMC full-time staff, undergraduates, and graduate students taught morning and evening workshops that were tailored to the needs of faculty, students, and staff.

Photoshop classes served both beginner and advanced users. Specialized web design classes concentrated on Web Accessibility and Web Standards using Dreamweaver. Other classes involved using Final Cut Pro to capture and edit videos.

The NMC worked closely with Instructors Ben Shedd and Nancy Manter to instruct their Atelier Group in the use of Photoshop and Flash. Students in the group frequented the NMC and prepared their final multimedia projects with the help of NMC staff.
Research and Academic Applications Support

Research and Academic Applications Support (RAAS) assists the University’s research and academic activities by providing services for High Performance Computing, programming, and third-party software. RAAS provides computational hardware and software facilities for use by the research and academic community. The group assists other University departments to install and support their own high performance computing facilities. RAAS also provides programming assistance and training for those developing in-house research and academic applications.

Beowulf cluster

During FY03, RAAS acquired a 32-node Beowulf computing cluster. During FY04, the cluster’s first full year of operation, 47 users from 15 departments registered for access to the cluster. The server ran a total of 3,918 jobs utilizing nearly 400,000 CPU hours or 60% CPU utilization, close to the theoretical maximum.

RAAS added a terabyte of disk storage to meet growing demand, and upgraded the BIOS and ERA firmware. RAAS worked directly with a number of Princeton faculty members, including Yacine Ait-Sahalia of Economics and Prof. Schwartz of Electrical Engineering, to adapt their code to a Beowulf cluster environment.

Princeton Software Repository

In November, in partnership with the Research Computing Advisory Group and Computing in Academic & Research Departments, OIT introduced the Princeton Software Repository (PSR). The new online facility makes available third-party software packages that have been built and configured to work within the University’s Solaris 9 and Red Hat Linux 9 computing environments. PSR also provides standard processes to register, distribute, update and decommission packages. Details can be found at https://psr.princeton.edu.

PSR replaced /usr/princeton with a modern technical architecture. By year’s end, PSR provided the most up-to-date versions of 67 free software packages including Emacs, gcc, Perl, teteX, OpenLDAP, OpenSSL, and OpenSSH. OIT has sponsored these initial core software packages. Individuals or departments may sponsor additional packages. The PSR web site provides a standard process to register, distribute, update, and decommission software.

A PSR Advisory Committee was established with membership from the University’s research community and OIT. The committee reviews policies and approves requests for software package sponsorship.

CONDOR

Developed by the University of Wisconsin, CONDOR permits use of spare machine cycles in support of research activities. During FY03, the Condor pool grew to more than 50 cpu’s through the addition of 25 Sun Solaris systems. During FY04, the Condor pool was expanded through the addition of 250 Windows workstations to the Condor pool. In addition, staff upgraded the underlying Condor software to release 6.5.5.

Support for research applications

During FY04, RAAS completed two major programming projects. First, staff developed a program for Professor Prentice (Chair of Psychology) that makes it possible for her students and her to conduct Implicit Association Testing (IAT) over the Web. Second, staff adapted the IAT program for Professor (and Nobel Laureate) Kahneman to support his specialized psychological surveys.

Humanities Computing Research Support

Humanities Computing Research Support (HCRS) supports the research interests of faculty in the humanities and interpretive social sciences by means of digital technologies. HCRS helps scholars to build databases that store images, texts, and other media, and the group helps to build collaborative environments that enable teams of scholars to work on a single project.

Electronic text services

Electronic text services comprise the core of humanities computing support. HCRS helps scholars to digitize and edit electronically transcribed versions of primary and secondary sources, according to established standards of encoding. Once encoded, these collections may be hosted in TextGarden, a database designed to help scholars to search, annotate and collaboratively edit electronic text collections.

Support for humanities research

During FY04, HCRS provided support to a number of humanities and social-science research projects.

The Omiti Project centers around a database of ethnographic survey material collected by Prof. Kreike during the 1990s among various farming communities in South Africa. The data is being used to understand the relationship between memory, language, farming and ecology.

The Adolescents and Migrants in Thailand Project is a database of transcripts, spreadsheets and images associated with the Prof. Sara Curran’s fieldwork in Thailand. Built using the Almagest database, the data concerns the mental models that Thai adolescents and migrants have of their “lifelines” and social mobility. A group of scholars located in Princeton, Washington, DC, and Thailand are editing the data.

Other projects include Shahnama (digitization of an ancient Persian epic), Geniza (textual encoding of ancient Arabic/Hebrew documents), Charrette (electronic rendering and markup of a French poem of the medieval
era), and Globalization (support of sociology study on effects of globalization).

To facilitate support of text-oriented research and teaching applications, the group set up development and production servers (celeritas and gravitas), consisting of Apache- and Tomcat-based application development frameworks, as well a trial BLOG server.

Two significant grant projects were initiated this year — the Globalization Knowledge Grid (sponsored by Miguel Centeno [PIIRS] and Sara Curran [Sociology]), and the Karl Uitti Memorial Fund for Digital Philology.

The group also delivered talks and taught classes on subjects ranging from blogging to XML, to support on-campus user-education.

**Media Services**

Media Services provides a full range of audio-visual equipment and technical support for University classes and events. More than just support for conventional media, services include capturing and placing satellite television broadcasts on the University’s cable television system, videotaping, and consulting on the design and installation of data projection systems.

**New multimedia systems**

Media Services staff assisted in the planning and implementation of multimedia audio-video systems in Robertson Hall (Dodds Auditorium), the School of Architecture (Betts Auditorium), Computer Science (Auditorium 104), as well as in 16 classrooms and lecture halls in East Pyne. Staff coordinated the upgrading of control systems in McCosh 60, 62, 64 and 66, the Madison Hall Theater, Frick 120, and Firestone BM1 and BM3. Media Services also assisted in the planning for the opening of the Humanities Center AV systems.

**Preventative maintenance**

During FY04, Media Services instituted quality control procedures for the maintenance and cleaning of campus AV installations. Full time staff oversee student employees who monitor and report malfunctions, provide cleaning, and optimize peripheral equipment in order to reduce in-class incidents.

**Event coverage**

Media Services continued to provide media support for a range of non-course related events including Alumni Day, Opening Exercises, Freshman Parents Day, Reunions, Baccalaureate, Graduate Hooding Ceremonies, and Commencement. Media Services also provided coverage for many public lectures and events, including an October conference “Faith and the Challenges of Secularism;” a November panel discussion “Listening in the Sound Kitchen;” the Martin Luther King Day celebration in January; a “State of the World” conference and the “George F. Kennan Centennial Conference” in February; the “Reynolds Lecture Series” in March; the Princeton Colloquium on Public and International Affairs” and the “James Madison Program in American Ideals and Institutions” in April; and “How does Development Happen: A Conference in tribute to Peter Bauer” in May.

**New on the Web**

Media Services developed a comprehensive tool that members of the campus community can use to search for appropriate classroom and teaching areas. It is now possible to enter into the online database specific search criteria for room size and required technological support. Users receive a set of rooms that match their requirements, and can then easily book the rooms, reserve needed technologies, and download all needed operating instructions.

The following table summarizes Media Services activities during FY04:

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Spring</th>
<th>Total</th>
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<tbody>
<tr>
<td>Total Jobs</td>
<td>1461</td>
<td>1503</td>
<td>2964</td>
</tr>
<tr>
<td>Course-support Jobs</td>
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<td>438</td>
<td>1023</td>
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<tr>
<td>Non-course Jobs</td>
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<td>1065</td>
<td>1941</td>
</tr>
<tr>
<td>Course Jobs Requiring Operator</td>
<td>140</td>
<td>215</td>
<td>355</td>
</tr>
<tr>
<td>Non-course Jobs Requiring Operator</td>
<td>159</td>
<td>175</td>
<td>334</td>
</tr>
<tr>
<td>Videotaping orders</td>
<td>77</td>
<td>74</td>
<td>151</td>
</tr>
</tbody>
</table>

**Non-Billable Tasks**

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Spring</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consulting</td>
<td>20</td>
<td>38</td>
<td>58</td>
</tr>
<tr>
<td>Training</td>
<td>75</td>
<td>91</td>
<td>166</td>
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<tr>
<td>Repairs</td>
<td>53</td>
<td>111</td>
<td>164</td>
</tr>
<tr>
<td>Maintenance</td>
<td>57</td>
<td>20</td>
<td>77</td>
</tr>
<tr>
<td>Networking</td>
<td>10</td>
<td>5</td>
<td>15</td>
</tr>
</tbody>
</table>

**Education Technologies Center**

The Educational Technologies Center (ETC) helps Princeton faculty to build multimedia tools for the classroom. ETC’s designers collaborate with faculty members to share their scholarship with a wider audience of students, alumni, and other members of the University community. ETC also administers the campus Blackboard learning management system and the Almagest multimedia database.

Despite numerous staff changes, ETC enjoyed another very productive year. In the fall, ETC released three new course modules online and in CD format.

When John Nash ’50 received the Nobel Prize in Economics for his work in game theory, interest in the topic and in the “Nash Equilibrium” soared. Princeton has long been at the center of game theory, led in Nash’s study time by his mentor, Professor Harold Kuhn ’50.
Game Theory, a new course module, draws on Professor Avenish Dixit’s popular textbook, Games of Strategy. Drawing upon video interviews with Princeton faculty, including Nash and Kuhn, this course offers observations on real world applications and on Princeton’s role in the discipline. The online version is at www.princeton.edu/almagest/courseware/games

Classics Professor Christian Wildberg examines classical inscriptions on University structures in Princeton Epigraphy: Classical Inscriptions on Campus. In 1938, Professor Shirley Weber published an article in the Princeton Alumni Weekly, An Exercise in Epigraphy that traced the history and meaning of the Latin and Greek inscriptions on the University campus. For this courseware, the campus inscriptions were photographed, translated, and placed within a wider historical context. The online version is at www.princeton.edu/almagest/courseware/public/epig/

In Unwilling Moderns: The Nazarene Artists, Emeritus Professor Lionel Gossman of the Department of Romance Languages and Literatures explores the goals, motivations, and achievements of the so-called “Nazarene” artists of the early nineteenth century and offers his thoughts on how they came to be sidelined in the narrative of the history of art. The online version is at www.princeton.edu/almagest/courseware/nazarenes/

In the spring, ETC completed African Languages taught in the US (web-based teaching tool) and Music from the Land of the Jaguar (a joint project with the Princeton Art Museum). Ongoing projects include two large database projects. The first documents an archaeological dig in Syria directed by Professor Thomas Leisten. The second involves the digitization of the East Asian Collection, part of a plan to digitize the Art Museum’s collection and place it on the Web.

In addition to these major courseware developments, ETC launched a project to convert its image database/display tool, Almagest, into open-source code and make it generally available for educational use. The project involves a significant redesign of the Almagest database and a re-coding of the Almagest lecture-builder.
Administrative Information Services

Administrative Information Systems (AIS) implements, maintains, and supports the University’s administrative systems. The mission of AIS is to provide the best possible technical foundation upon which the University’s automated business processes run. Services also include project planning, design, development, integration, testing, and deployment of administrative applications. Core competencies include PeopleSoft, Java, and PowerBuilder applications, and the Oracle relational database management system.

Administrative Information Services contains three groups, Custom Software Solutions (CSS), Data Warehousing and Integration (DWI), and Packaged Software Solutions (PSS).

Highlights

Delivering IT products and services that meet the needs of the University community
In Q1 2004, OIT upgraded PeopleSoft Human Resources, Payroll, Benefits, and Student Administration to version 8.0. OIT upgraded PeopleSoft Financials to version 8.4 in Q4. The implementation of PeopleSoft Student Administration for the Undergraduate College and Undergraduate Admission was reinitiated during FY04. Both projects are on schedule for a Q1 2006 go-live. A significant new custom system for the University, Labor Accounting, was designed and will be developed through FY05 and into FY06. A replacement for the Loans & Receivables system, also a custom application that will be called “Princeton Receivables,” was designed and will be developed over the course of the next several years.

Renegotiated the University’s Oracle license
During FY04, the University successfully renegotiated its Oracle database license. Starting July 1, 2004, University departments will be able to use the Oracle database engine campus-wide with any application for any number of users without limitation. The prior agreement limited use to 1,000 concurrent users. The agreement contains no restrictions as to who can use the database or the nature of the use. As a result, the new agreement supports off-campus users who want to use the University’s Oracle-based applications via the Web. The up-front costs to establish the agreement will be offset by lower annual maintenance fees. Year five of the agreement will bring to the University a lower overall cost of ownership.

Complementing the Oracle agreement, the University selected Cognos ReportNet as the standard enterprise reporting tool for University administrative applications. Once implemented, this flexible and powerful web-based report development and presentation tool will replace up to eight reporting tools and will be the standard for the DataMall, all of the University’s custom administrative applications, and PeopleSoft. And by standardizing on one tool, OIT will be able to provide better support than for the many disparate tools that are currently in place. Initial training was held during the last week in June, with additional sessions planned throughout the summer and into the fall. New database, application, and web servers have been ordered to support the product. The initial rollout of ReportNet in the Data Warehouse is planned for late fall 2004, and will continue for the next two to three years.

Cooperating and communicating with our peer institutions
The University hosted the Administrative Information Services groups from the Ivy+ universities in early May. AIS representatives from Brown, Columbia, Cornell,
It will also be modified to enable its connection to the Princeton Online Application. The back-office portion will receive from the Common App information whether it is received online, through the Common App, or via paper application. Also throughout FY05, the staff will analyze whether or not to automate the connection from the Common App, and how to provide secured online admission decisions to applicants.

**Time Collection**

During FY05, CSS enhanced Time Collection to accommodate departments that use electronic time clocks to manage bi-weekly employee work schedules. All campus departments may choose to use the system to manage employee time, even when a time clock is not used. The system seamlessly integrates the scheduling of both regular and nonproductive times with the time collection process.

Flexible, inexpensive, and generic in its design, the electronic time clock will replace current mechanic time clocks. To maximize convenience, the system supports two different user interfaces: magnetic card readers and electronic time collection. Through the same interfaces, managers are able to manage lunch break schedules and perform supervisor overrides in the event of clocking errors or logging in employees who forgot their cards.

CSS also enhanced the system module for student longevity pay, replacing the current, arbitrary student-pay assignment practice with a batch process that enforces University rules uniformly. The revamped system includes a very flexible and powerful reporting interface that sorts by any combination of department, team, schedule, employee identification number, name, date, time of day, work area and other special attributes.

**Princeton Receivables**

During FY04, CSS completed a high-level scoping of Princeton Receivables, and designed an overall approach for a new Princeton Receivables system, while keeping the existing Loans and Receivables system running in parallel. The current system contains serious weaknesses, including security vulnerabilities and an underlying architecture that complicates maintenance. The new system, a four year effort, will improve business process flows and permit increased web functionality, impossible within the current architecture. The project will also have long term benefits by adding significantly to the set of reusable modules. For example, all of the modules will use the same logging services, user interface, and security and authorization services.

CSS will deliver the new system in modules, one receivable at a time. New deliverables will “bridge back” to the old system where appropriate. CSS is currently testing the first major deliverables, Client and Application authorization. During FY05, CSS will complete the central office client and short-term computer loans modules.
Financial Aid
CSS enhanced Financial Aid to permit use of different versions of the application. The change facilitates access to information from previous years. CSS also enhanced Sassy, the system that maintains scholarship information and rules, and optimally allocates scholarships to students.

Data Warehousing and Integration
Data Warehousing and Integration (DWI) organizes and manages a significant portion of the data stored in Campus Community, the Data Mall, the Interface Hub and Enterprise Reporting, and the campus’ other administrative systems. The group is also responsible for the Princeton University Data Resource Policy, and data administration. DWI works to enhance University effectiveness by:

- Promoting a culture that values data and business applications as strategic assets;
- Defining, implementing, and applying a consistent use of data designations and values across University systems;
- Making information access and its underlying security more consistent, customer friendly, and easy to manage;
- Ensuring that data captured by existing and future systems is usable by those within the University who need such access;
- Expanding the breadth of information in the Data Warehouse by extending its reach to additional systems, and by further refining the University’s data formatting and presentation capabilities;
- Supporting an enterprise repository for people and organizations through Campus Community.

During FY04, staff played a notable role in framing the University’s database and enterprise reporting tool needs, thereby helping to negotiating favorable deals with Oracle and Cognos. The Cognos selection was the result of an exhaustive vendor selection study that was led by, and involved much of DWI. The study included a broad selection of campus customers, and the tool was selected by consensus.

Campus Community
Following the migration of Campus Community to the 8.0 version of PeopleSoft in August 2003, DWI staff administered all patches posted through the beginning of September, 2003. Patches were tested in development and quality assurance and then applied to production in early November. Staff then made all necessary changes to customized Campus Community objects. Campus Community staff were also involved in testing Human Resources Bundle #3, an essential addition for the go live of the Human Resources’ Help Desk system.

Other important enhancements to Campus Community during the year included the creation of a Campus Community Data Mall store, the design, development and implementation of dormitory codes to improve address processing for students, and the development and testing for both the eProfile and SCORE projects for employee and student self-service.

Data integration
During FY04, DWI staff assisted the conversions of the Student Records and Undergraduate Admissions systems. The staff also developed, managed and implemented a project to enhance the bio/demo functionality on the Account Management page.

Hub interface
Staff created new hub interfaces for Ticketing, Dining Services, and the Telephone Management system. Staff also made significant changes to the LDAP, Loans and Receivables, COEUS, and Housing interfaces. More than 600,000 individual transactions were propagated successfully through the hub. During FY04, the system was available 99.9% of the time.

In addition to hub-specific work, the group monitored the many annual feeds and loads of Campus Community data. For example, staff loaded the freshmen and freshmen parent bio/demo data for the class of 2008 into Campus Community. Both sets of data required substantial modifications owing to the recent PeopleSoft upgrades.

Data Warehouse/Data Mall
In FY04, AIS launched a major project, the creation of a comprehensive Princeton Data Warehouse that will replace the current series of Data Stores in the Data Mall, to serve as the University’s primary reporting environment for administrative applications. In existence since 1997, the Data Mall has provided University offices with the ability to run predefined queries and reports. The Data Warehouse will minimize the redundancy of many of the existing stores while expanding current functionality. The first Data Warehouse collection will be available in late October, with the completion of all collections tentatively scheduled for spring 2005.

In support of the Data Warehouse, the University signed a contract to acquire ReportNet from COGNOS as the University enterprise report writing product. The University has also ordered new database, application, and web servers to support the product. Another acquisition, the Human Resources RDS (Reporting Data Structure) from PeopleSoft will, along with the Student Administration RDS acquired in 2002, become integral parts of the Data Warehouse.

Enhancements to the current Data Mall included the conversion of all the Financials stores to PeopleSoft 8.4; new course counts reports created for the Registrar; summer room draw browses created for Undergraduate Housing; new stores created for Graduate Admissions, SEVIS, Stockrooms Ecommerce and Campus Community; and modifying all Oracle Reports drills to work with Acrobat and a new version of Internet Explorer.
Packaged Software Solutions

Packaged Software Solutions (PSS) is responsible for the maintenance, enhancement, and operational support of vendor supplied, packaged administrative systems. These applications include:

- ClassRoom Scheduling (Resource 25);
- COEUS/Grants Management;
- Dining Services;
- FSA Atlas — SEVIS;
- Housing;
- ID Cards;
- LockBox;
- PeopleSoft Financials (UFINSI);
- PeopleSoft Human Resources Management System (HRMS);
- PeopleSoft Student Administration System;
- Stripes — Alumni Records;
- Telephone Management;
- UG Admissions.

PSS has several subgroups: PeopleSoft HR & Student Administration, PeopleSoft Financials, Alumni Development, Telephone/Resource25/SEVIS, and Grants & Housing Management.

PeopleSoft Human Resources and Student Administration

On July 31, 2003 PeopleSoft HRSA version 7.6 was shut down. Version 8 came up on August 5. The new version has a completely different technical foundation, changing the application from client/server to web-based technology. The new version also provides significant new functionality and a completely new user interface. Since going live HRSA 8.0 was used to process 23,815 job records, 44,190 personal data changes, 1,400 1042s, 11,590 W2s; and to print 153,722 payroll checks and advises totaling $353M.

Two new initiatives for Human Resources, the implementation of PeopleSoft HelpDesk and eProfile, were completed in Q3. The HelpDesk system assists Human Resources’s campus support activities. The system helps to manage and track all support requests and simplifies a large set of functions within the department. eProfile, a self-service facility, permits faculty and staff to view and update demographic data stored in the PeopleSoft system.

During FY05, PSS will be implementing PeopleSoft Student Administration for the Undergraduate College and Undergraduate Admissions, a replacement of the existing legacy-based Student Records system. The completion of this project in summer 2005, will permit the retirement of the old “mini mainframe” and, by placing the Undergraduate College’s records in the same administrative system environment as Human Resources, the Treasurer’s office and the Graduate School will create a unified data and computing environment for the primary administrative system functions across the campus.

Graduate Readmission

New custom processes for Graduate Readmission were brought live during Q3. During FY04, 1,971 graduate students used this self service system to submit their readmission applications.

PeopleSoft Financials

In May, staff upgraded PeopleSoft Financials from client/server version 7.5 to web-based version 8.4. As with HRSA, the web-based architecture of the new release provides far more flexibility, enhanced functionality, and a much improved user interface.

Alumni Development

A major upgrade to the Stripes Alumni Development system during FY04 involved an upgrade to the application, a change in the development language, and a database platform change from Sybase to Oracle. Since that upgrade, 51,842 gifts, 4,438 pledges, 2,952 matching gifts, 19,460 new solicitation plans, and 77,018 new or modified addresses have been entered into the system.

Telephone/Resource25/SEVIS

During Q2, staff installed a major new release of the Resource/Schedule25 event and course scheduling software, and upgraded the SEVIS system, which tracks 2,128 foreign students and faculty who reside at Princeton.

Grants & housing management

During FY04, the University continued to play an important part in the further development and enhancement of the COEUS Grant Management system, notably in rewriting the system in Java. Originally developed by MIT, the COEUS software is an open source system. The University shares its new content with others who use the software, just as their enhancements are shared with us.

PSS also played a role in the further deployment and enhancement of the Diebold housing system by developed a system for web-based room draw.
Enterprise Infrastructure Services

Enterprise Infrastructure Services (EIS) provides support for University servers and middleware services such as databases, e-mail and directory services, backup and restore services, systems management, job scheduling, output management, architecture, and security.

Within EIS, Systems and Data Management Services manages the University’s enterprise systems and provides backup and restore services. IT Architecture Services is responsible for security, research and development. Computing and Support Services provides Unix, Windows, and collaboration services (e-mail, authentication, and directories).

Highlights

Thwarting computer viruses
With the support of the Priorities Committee, OIT added a technical security staff member in FY04. The additional investment was crucial in thwarting an onslaught of computer viruses that hit the campus just before classes began. OIT expanded pre-emptive activities, including scanning for vulnerabilities and providing an automated service for updating desktop and server machines. In addition, EIS security staff and the Help Desk created a CD that patches infected Windows computers. Depending on the number of files on the computer, the CD takes between 20 and 60 minutes to run. OIT distributed the CD at all undergraduate and graduate registration events, at special outposts in the Residential Colleges, and at the OIT Solutions Center. More than 4,000 CDs were distributed.

Security staff are also implementing an Intrusion Prevention System that will serve as a “first line of defense” for attacks against campus desktop and server computers. They are also expanding support for departmental firewalls in order to provide secondary protection that will coordinate with core University firewalls. In conjunction with the Office of the Vice President for Finance and Administration, EIS developed a new IT Security Policy that has helped to guard sensitive University data and information.

Rationalize Backup and Restore Service
The University’s TSM Backup and Restore Service backs up nearly 100 Terabytes of data a year, ten times the amount of data stored in the print collection of the Library of Congress. The implementation of a policy in July to recover costs associated with the backup of non-personal intellectual property will place the TSM service, which nearly became a victim of its own success, on a steady technological and financially self-sustaining footing.

Ensure a highly-reliable desktop computer environment
The Desktop Systems Council (DeSC) provides standard, secure computing platforms for members of the University community. A high level of system management guarantees that software updates and virus definitions are automatically applied and certain “dangerous” software is prohibited from being installed. The new approach helped DeSC systems to remain relatively safe and secure during the past year despite a constant assault by hackers, viruses, and worms.

Minimizing power outages
A power outage over the Labor Day weekend revealed inadequacies in the response to sustained outages at the 87 Prospect Avenue Computer Center. The one-hour
capacity of the uninterruptible power supply was insufficient, resulting in a significant effort to restore data and services once power returned. The University acquired additional UPS capacity and new procedures were implemented to notify staff reliably and to automate the orderly shutdown of the more than 300 units in the machine room. Meetings with the Facilities department resulted in improved communications and a plan to keep OIT equipment “on the grid” as long as possible.

Throughout FY04, the group provided highly reliable and responsive service while assisting several major PeopleSoft upgrades, notably the PeopleSoft Financials upgrade and implementations of the HR Helpdesk and PeopleSoft HR/SA 8. The group also trained OIT’s DBA staff members in PeopleSoft DBA skills. PeopleTools for HR/SA was upgraded and PeopleSoft HR/SA/CC and Advance among other applications were upgraded to Oracle 9.2.

Working in partnership with the Treasurer’s Office, the group introduced the new and improved OnBase Document Management System. Servers were reconfigured to use Unix and Oracle, the OnBase software was upgraded, all OnBase applications were migrated to the new environment, and enhanced backup/restore procedures were implemented. The database component of the OnBase imaging application was transferred from Windows NT to Unix where it can be supported by the DBAs in the same way as all other production databases.

The primary goal for FY05 is to enhance support for the implementation of the PeopleSoft student system by adding an additional term position and to continue the development of PeopleSoft skills for all DBA staff members. Upgrades to several components of the Oracle database software are also a high priority for next year.

**Systems and Data Management Services (SDMS)**

Systems and Data Management Services (SDMS) has responsibility for backup and restore services, database administration, system monitoring, job scheduling, and Unix printing.

**Backup and Restore 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 (except those owned by undergraduates) is eligible for the service.

During FY04, the TSM system backed up approximately 8,000 systems, an increase of about 1,000 over FY03. After stabilizing the service, the primary challenge for the backup and restore service was to develop a financial model that responds to the dramatic growth in usage. By focusing the service on protection of personal data, and instituting fees for services beyond that baseline, OIT expects usage growth to slow substantially and to generate additional revenue that can fund the remaining growth. The new policy was developed and officially implemented on July 1, 2004.

During FY04, SDMS implemented user registration on a Unix server. User registration was the last component still on the University’s mainframe. SDMS also developed and deployed a new self-service account management web page.

Goals for FY05 include the implementation of a new service and charging model to make operation of the service more routine. The group also hopes to hire an additional staff member and to address remaining performance bottlenecks through hardware upgrades.

**Database Administration**

The Database Administration (DBA) group sustains a robust, secure and reliable development and production database environment. The group supports more than 40 different applications, more than 130 databases (a 10% increase from FY03), two different database management systems (Oracle and Sybase), and the BEA Tuxedo application server software. These database systems run on more than 40 Sun servers (a doubling since FY03) and encompass more than a terabyte of University disk space.

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**Systems monitoring and management**

The Enterprise Systems Management (ESM) group is responsible for providing proactive management of University systems. The IBM/Tivoli system monitoring software is the core of the University’s system monitoring strategy. During FY04, the group began to use Tivoli for system management. Tivoli currently monitors 174 Unix hosts, 30 Web sites and 22 e-mail related services. These numbers appear similar to last year’s, but they do not include 82 Windows hosts that are now being monitored by specialized software from Argent.

The first half of this year was devoted to hardware upgrades. All of the Tivoli servers were replaced by newer, faster systems that will increase staff productivity. Staff installed version 5.1.1 of IBM Tivoli Monitoring into production, and a plan was developed for reorganizing Tivoli monitoring to meet more satisfactorily the needs of the Unix system administrators.

During FY04, the ESM staff also used the Tivoli infrastructure to support a mass-update facility created by OIT’s Unix Systems. System administration tasks are now automated across all Unix hosts. ESM also extended its web site monitoring service to watch several e-mail related services.

The primary goal for next year is to complete the reconfiguration of the Tivoli monitoring software serving the needs of the Unix systems group, and to interface Tivoli monitoring with a new alert notification system.
Job scheduling
The Tivoli Workload Scheduler software automatically schedules all administrative production jobs on 35 Unix and Windows servers. The software runs an average of 860 job streams per week, some of which contain multiple individual jobs. The goal for next year is to maintain the current level of service and to upgrade software to the latest releases.

Output management
EIS operates output services that deliver print servers and Fax Gateway services to the campus. During FY04, EIS staff moved the server for the Fax Gateway and Unix printing from Solaris to Linux, a lower cost platform that is easier to administer and requires less expensive hardware. Staff also upgraded the hardware, implemented version 5.1.1 of Tivoli monitoring, and provided a Tivoli-based infrastructure on which the Unix systems group has developed automated system administration tools to improve their productivity. Since July 2003, the print server system processed an average of 1,600 fax jobs per month, a decrease of about 25% since last year, and 5,725 print jobs per month, an increase of nearly 90%.

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 FY04, the group took numerous actions in response to the growing threat from computer hackers. All institutions of higher education have been experiencing attacks from viruses and other practices that attempt to exploit system vulnerabilities and poor user practices. Lack of user compliance with standards for “strong” (not easily guessable) passwords and communications programs (e.g., those that encrypt or scramble passwords in transit over the network), as well as numerous groups of machines on campus that do not take advantage of required patching and virus update software, remain the biggest challenges. In FY04, the group focused on three areas: improving password controls, addressing system vulnerabilities, and preventing malicious traffic from the Internet.

First, the group undertook an effort to identify individuals whose computer accounts have easy-to-guess passwords and to request that they select passwords that meet the University’s minimum strength standards. The group has begun to eliminate password systems that are susceptible to hacker attack and programs that transmit passwords across the network in a readable form. During FY04, the group installed McAfee’s IntraShield intrusion prevention device. By comparing network traffic against both known attack patterns and messages that do not comply with domestic and international standards, the device has been assisting the University to detect and block malicious traffic originating on the Internet.

Second, the group made significant progress in its investigation of WebISO, a developing technology that would permit users of web applications to log in once over a defined time period for all participating applications rather than having to log in every time they access an application.

Third, to address system vulnerabilities, the group managed the implementation of Microsoft’s Software Update Service, a product that permits the University to distribute system software updates expeditiously to all participating University computers.

While great strides have been made in improving campus IT security, increasingly sophisticated viruses and worms, broader computer attacks, and increasing volume of legitimate as well as non-legitimate network traffic to the campus make this a continued focus of attention. In FY05, OIT will continue to assist departments in all levels of protection, including better means to keep systems patched and updated with virus definitions and management of distributed departmental and personal firewalls to central intrusion detection and prevention systems.

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.

To improve OIT’s response to growing campus demand for web-related services, OIT reorganized the Web Services group in the spring of FY04, leaving the infrastructure responsibility within Enterprise Infrastructure Services, and distributing support functions across Academic Services, Support Services, and the Office of Communications.

In its final year within EIS, the group nonetheless had many accomplishments. Web Services urged the University to acquire a Web Content Management system to help organize and structure the development and maintenance of University web pages and web content. Early in the year, staff members were involved in the installation, testing, evaluation, and eventual rejection of a web content management system. While there was disappointment that the vendor’s product did not meet the needs as promised, the evaluation process proved very useful in the eventual selection of a replacement vendor.

Use of the web to present, access, and display information continues to grow. In addition to static web pages, many University departments want to store and retrieve information from databases, and to create sites using newer dynamic scripting technologies that simplify the transfer of data to and from databases. In the spring, OIT installed a new scripting server that now supports many more development environments, and a shared
departmental scripting server, with more restricted access, for use by departments who have developed their own dynamic sites. In order to satisfy the growing demand, OIT is working with a consultant to evaluate alternative solutions.

DBToolBox remains a valuable campus tool, but its older architecture would have necessitated a re-write. There is a strong desire to move to a platform and/or product with broader support.

Collaboration and Systems Services

Unix Systems Group
The Unix Systems Group provides systems administration for the more than 200 Unix-based servers on which many University business and academic applications operate.

During FY04, the Unix Systems Group worked closely with the Windows Systems Group to complete the installation, testing, and quality assurance for a new file services infrastructure. Based on a “network attached storage” (NAS) device, or large special purpose file server, this simplifies the maintenance, supports access from Unix, Windows, Linux, or Macintosh OS X workstations, and provides more cost-effective file storage space for faculty, students, staff, and departmental files.

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.

During FY04, in addition to systems administration work and the NAS project (see Unix Systems Group, above), there were numerous worm and virus attacks, especially on Windows-based computers. The OIT Windows Systems administrators, working with the IT Security Group, established a campus service for distributing Windows system patches and security fixes. Known as “SUS” (for “System Update Service” from Microsoft), the new service provided departments and students with an effective means to keep their Windows workstations and servers up-to-date with security patches.

A significant amount of work for testing and quality assurance was completed to prepare the Windows-based infrastructure for a software upgrade to Windows Active Directory 2003 and to install Exchange system redundancy.

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

Processing e-mail
During FY04, the OIT e-mail infrastructure known as the “Postoffice” processed a half a million e-mail messages a day, an increase from last year’s average of 270,000 messages a day. These were messages coming to users at princeton.EDU as well as outgoing University mail. Overall, the servers that process e-mail performed well. Figure 1 illustrates the upward trend in volume throughout the year.

The patterns of e-mail system usage by students, faculty, and staff mirrored the patterns observed over the past two years. Figures 2 and 3 below illustrate the typical highs and lows of connections to the University’s main e-mail servers.

In addition to the daily operations in support of these critical services, the group responded to a significant increase in the volume of incoming viruses, worms, and unsolicited junk e-mail (spam).

Swift action held off the overwhelming volume of incoming “SoBig” viruses, which threatened to overwhelm the University’s e-mail systems. The current tools to combat viruses check for updates on an hourly basis. During FY04, the antivirus system used to protect e-mail messages from viruses and worms removed more than 2,330,000 virus/worm laden messages. Figure 4 illustrates the amount of spam received throughout the year.

Spam filtering service
Staff members continue to evaluate new technologies that may assist the University’s anti-spam efforts. The unsolicited junk e-mail remained at 44% of all incoming
mail. By year’s end, 3,698 customers were using the spam filtering service, up from 1,259 at the end of FY03.

Figure 4: Likely Spam Messages (blue line) per Minute, July 03 – June 04, on one of the “Postoffice” servers

Exchange 2000 services

During FY03, in response to requests from several departments, OIT began to offer an integrated e-mail and calendaring service, Exchange 2000. OIT offered a production service in March 2003 that attracted more than 500 customers.

During FY04, OIT improved the reliability of the Exchange e-mail infrastructure. Following two major unplanned outages caused by multiple hardware failures, OIT installed a spare server with special software to facilitate data replication. By the end of FY04, more than 950 customers were using the Exchange service.

Goals for FY05 include the development of an account maintenance system to replace the system that currently resides on the University’s soon-to-be-retired mainframe.
Finance, Administration and Planning

Finance, Administration and Planning (FAP) is a “catalyst” for OIT organizational change, enabling and facilitating organizational effectiveness. FAP coordinates staff assessment, development, and recognition; project planning and project management practices; process improvement opportunities; and financial analysis and budgeting for OIT. In addition, FAP provides a comprehensive IT training curriculum and cost effective printing and mailing services to the University community.

The Finance, Administration and Planning group includes IT Training, OIT Budget and Finance, OIT Human Resources and Administration, OIT Process Improvement, OIT Public Relations, the Princeton Project Office, and the Office of Printing and Mailing.

Highlights

Improving organizational effectiveness
During FY04, OIT pursued a range of initiatives to improve organizational effectiveness.

As a result of the OIT Cabinet retreat to improve teamwork and customer service, OIT initiated an OIT Core Values process, facilitated by the University Ombuds Office.

A review of OIT titles across the organization aimed to ensure that position titles were consistent across the organization. As a result of this process, some titles were adjusted to reflect more accurately the individual’s role in the organization.

During FY04, OIT continued the use of cross-functional teams to coordinate key efforts across OIT departments. Two new cross-functional teams were created - the IT Policy and Security team and the Video Coordination team – joining the Communications team, Disaster Recovery team, Facilities and Office Management team, IT Architecture team, Software Coordination team and the Training team. Team charters and quarterly status reports kept OIT current with team activities.

In addition, an OIT task force was formed to identify opportunities “to do more with less” with the goal of reducing OIT operating expenses for FY06 and beyond. The task force of OIT volunteers reached out to each OIT department for cost-saving and revenue generating ideas as well as opportunities to streamline processes. The group consolidated the suggestions and performed high level analysis of the projected effort, the ease of implementation, and the return on investment for each idea. The group will submit a report in early FY05.

Attracting and retaining quality information technology professionals
In FY04, OIT continued to make progress towards a comprehensive performance enhancement program. Efforts included the OIT staff progress report, the OIT-wide goal setting process, piloting a staff development process, and establishing a reward and recognition program. OIT also established a new reward and recognition team that defined a fair and open rewards policy. Six peer recognition awards were presented during FY04. OIT also established an
employee recognition program. 128 employee recognition awards were distributed during FY04.

In addition, OIT sponsored “Take your Children to Work Day.” 46 children of OIT employees participated in the program. OIT also initiated CPR/First Aid training for OIT staff. With minimal investment, twenty-two OIT employees across all OIT work locations were certified in CPR/First Aid.

Enabling communication and collaboration
Regular editions of it matters continued to familiarize the University community with key technology initiatives. Two special editions of it matters were also published to highlight particular topics of interest: explaining the use of IT passwords and reviewing on-campus choices for e-mail, web browsers, and calendaring.

During the year, we established and maintained a comprehensive OIT BlackBoard web site that assists OIT staff to share information. The web site contains comprehensive information on OIT goals, projects, cross-functional team activities, presentations, policies, professional resources, and OIT Cabinet meeting minutes. A new OIT face book was also added to the site.

During FY04, FAP took the lead in forming the first Ivy+ Group for Finance, Administration, and Planning. The first meeting of the group took place at Princeton in April. The meeting gave us an opportunity to share best practices, to discuss common issues, and to provide opportunities for collaboration and benchmarking.

Improving the management of web-based content
Working closely with the Communications Office, OIT coordinated the evaluation and selection of a new Web Content Management System to be used initially for the University’s core web site. More than 100 proprietary and open source solutions were assessed. Fifteen vendors were invited to respond to a Request for Proposal (RFP) that contained more than 200 questions regarding functional and technical requirements and vendor viability. As a result of the RFP responses, five vendors were selected to come to campus to present detailed product demonstrations. Following the five demonstrations, a University-wide team unanimously selected the Roxen Content Management System. Software licensing, services and support agreements were negotiated and signed. A plan to implement Roxen for the University’s core web site was developed and is currently underway with a targeted “go live” date of fall 2004.

IT Training
OIT continues to provide free courses on a wide range of IT topics for members of the University community. IT training offerings support the effective use of the University’s administrative systems and desktop productivity tools. Services include Blackboard In-office Visits, Help Desk Technology Learning Initiatives, and Lunch ’n Learn Seminars.

Participation in training courses continued to grow in FY04. New classes were developed to support the migration to Outlook e-mail and the PeopleSoft Financials upgrade. In addition, the Training group developed new classes in Labor Accounting and Windows XP/Office 2003. The number of classes offered in FY04 increased by 15% over FY03.

<table>
<thead>
<tr>
<th>Type of Training</th>
<th># of Classes</th>
<th># of Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop Productivity Tools</td>
<td>65</td>
<td>1032</td>
</tr>
<tr>
<td>Outlook e-mail Migration</td>
<td>45</td>
<td>398</td>
</tr>
<tr>
<td>Administrative Systems</td>
<td>114</td>
<td>651</td>
</tr>
<tr>
<td>PeopleSoft Financials Upgrade</td>
<td>32</td>
<td>372</td>
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<tr>
<td><strong>Totals</strong></td>
<td><strong>256</strong></td>
<td><strong>2453</strong></td>
</tr>
</tbody>
</table>

During FY04, staff expanded the IT training web site to include a comprehensive view of all IT training opportunities and to integrate a much improved registration process. The new online system provided a wider range of metrics and eased the administration of the training programs.

Innovations in FY04 included “no boundary” registration, opening all classes to all faculty, staff, and students; an online attendance tracking feature to identify attendees, no-shows, and cancellations; an online waiting list that permits those on the list to receive priority enrollment in new classes; a new online class evaluation form; easier access through the IT training web site to online versions of user documentation; and one-step email communication with OIT training groups.

Princeton Project Office
The Princeton Project Office (PPO) enables a project management culture so that projects are delivered on time, within budget, and with expected results. In support of this mission, the PPO partners with the project managers and teams to provide project management support and mentoring; facilitates project reviews; continually improves the Princeton Project Management Methodology; shares project management best practices; coordinates OIT project requests; and manages the OIT Interdepartmental Project Portfolio. During the year, OIT continued to expand the use of the Princeton Project Management Methodology (PPMM) by creating knowledge transfer and effectively matching the project management processes to the size of the project. A Princeton Project Office Advisory Group was formed to share project management experiences and practices and provide feedback to the Princeton Project Office. In FY04, a total of 46 OIT projects used some part of the PPMM to manage their project activities, an increase of 50% over FY03.
A January Lunch ’n Learn seminar shared the PPMM with others throughout the University. As a result of the positive response, the Princeton Project Office designed an innovative project management class combining MS Project and the PPMM. The new class will become part of the IT training curriculum in the fall.

**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.

In FY04, OIT continued to make progress toward steady state IT staffing by identifying several approaches to reduce the organization’s reliance on central funding. Working with the Office of Human Resources and Legal Counsel, OIT developed a Voluntary Transition Program (VTP). Eligible staff were offered a one-time opportunity to transition to retirement or new careers.

The group also assisted in the preparation of several comprehensive cost/benefit analyses to ensure value for the investment. In addition, a “scenarios” template was developed to identify various investment alternatives and the corresponding financial impact.

**Printing and Mailing Services**

The Office of Printing and Mailing 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 four areas of service are as follows:

- **Graphics and Prepress**: Design, illustration, typesetting, scanning, negative and film positive output up to 2540 dpi, Toshiba composite color output for 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, letterheads, business cards, flyers, note cards, books, pamphlets, manuals, pocket folders, and posters. Bindery capability for perfect bound, saddle-stitched, and spiral bound books; and support for cutting, collating, punching, perforating, folding, scoring, and laminating up to 12x18 inches.

- **Digital Networked Printing Center**: Both black and white and color networked printing. The center’s equipment, the Xerox DocuTech 6180 and the Xerox iGen3, provides capability for scanning, xeroxing, and color printing of a wide variety of printed work including personalized laser letters and postcards.

- **Mailing Production**: Ink jet addressing, automatic inserting, sorting for first class, third class, and international mail, mass emailing, mailing list standardization, metering, wafer sealing, live stamp affixing, bulk mailing, packaging, and shipping. Printing and Mailing is also responsible for mass-e-mail notices to the campus.

Printing and Mailing continued to promote its all-digital, on-demand network operation. In December 2003, the Xerox iGen was installed, replacing the Xerox Docucolor 6060. The iGen supports printing from letter size (8.5x11) up to a sheet size (14.3x20.5) and has been averaging 225,000 impressions per month. There has been significantly more interaction between the Office of Communications and Printing and Mailing, especially since the installation of the iGen. Designers in both offices have a close working relationship.

During FY04, the Printing and Mailing web site assumed the look and feel of other OIT sites. New information was added about the Printing and Mailing services and instructions on how to transfer files for further processing. Owing to the efforts of the OIT Communications Cross-Functional Team, the web site also began to support a new service, on-line ordering of University business cards.

OIT installed a web version of the PACE job tracking management system on workstations throughout the office. The new system reports that Printing and Mailing processed on average 750 job requests per month during FY04.
Support Services

Support Services provides direct customer support for the University’s information technology infrastructure. Support Services is comprised of five main groups. Network Services sustains the data infrastructure. Customer Support provides in person, telephone, e-mail, print, and web-based IT support for the University. Student Computing Services provides direct support for students and sustains their access to workstations and shared printers in public University spaces. Desktop Support, which includes both the Hardware and Software Support groups, maintains and enhances the University’s desktop computing infrastructure. Telecommunications Services supports the University’s telephone and voice mail systems.

Support Services also subsumes a range of smaller support programs and services, including the SCAD and DCS Programs, the OIT Ambassador Program, Policy Office, Software Sales, Software Licenses, Software and Service Contracts, Software Deployment, Faculty Computer Program, ID Card support, and the University Copy Centers.

Highlights

Enhancing customer service
At the beginning of the academic year, in the most significant increase of central campus computing support in the past decade, OIT opened the OIT Solutions Center in a repurposed space on the main floor of the Frist Campus Center. With the goal of moving customer support closer to our customers, the Solutions Center provides general computing support, hardware repair, account management, telephony services, software sales, and support for the Blackboard course management systems. During its first year, more than 8,000 customers were helped in the software clinic and customers purchased more than 3,500 software packages.

Enhancing the telecommunications infrastructure
The University continues to upgrade the campus network infrastructure as part of a seven-year, $13M endeavor. When complete, the more robust infrastructure will serve anticipated needs for the next 15 years.

During FY04, work continued on upgrading the network wiring within campus buildings and converting the remaining shared network access to a switched environment. OIT extended the Dormnet network to living spaces at the Butler and the new Lawrence Apartments. In addition, OIT installed 100Mb desktop connections with a limited number of gigabit server connections in several academic buildings. Links between these buildings and the core were also upgraded to gigabit service.

OIT’s Hardware Support group worked with the Facilities Planning Office during the construction and renovation of campus buildings. New higher capacity cabling replaced old wiring. Technical renovations involved removing and later reinstalling network equipment and PC clusters in more than 20 buildings.

Sustaining reliable telephone and messaging services
Nortel rated the reliability of the University’s telephone system in FY04 at 99.9998% uptime. And OIT’s Telecommunications Services achieved a 97% success rate in meeting customer expectations for requests of new or changed services. During the year, more than 900 work orders were issued for telephone work that involved 4,650
Hosting an international conference
In June, OIT and Princeton hosted ResNet 2004, an international symposium for professionals who provide computing and information technology support for students in higher education. The conference was a great success. Professor Ed Felten gave the opening address, “The Future of File Sharing.” More than 300 computing professionals from 152 colleges and universities around the world participated in 48 presentations in five themes: IT Management; Living, Learning and Technology; Support, Training and Staff Development; Technology and Security; and Emerging Frontiers.

In addition to the presentations, there were seven “Birds of a Feather” sessions, opportunities for participants to consult with fellow attendees on specific topics of mutual interest. University Catering and Conference Services provided meals and housing. The conference’s closing dinner was held aboard the Spirit of New York touring New York City harbor.

Networking infrastructure
During FY04, the Networking group reconfigured the network core to provide the University with additional flexibility in the configuration of the campus network. The group relocated the microwave equipment connecting PPPL to the main campus and added a fiber optic infrastructure that improves connectivity on the Forrestal campus.

Staff added a hardware traffic manager, Packeteer, to the campus network to control the bandwidth used by computers connected to Dormnet and to monitor peer-to-peer activity on campus. To improve security, staff changed user authentication from NIS-based passwords to LDAP. To secure departmental host database information, the Network group converted dial-in remote access authentication and hostmaster authentication to LDAP.

As part of the disaster recovery effort, the group installed high speed AT&T connectivity to New South, moved redundant critical servers to that location, and created a campus ring network.

During FY04, the group also incorporated the Card Access System, the central Events Ticketing System, Food Services Blackboard System, and Facilities Department electrical power monitoring into the University’s parallel private/secure data network.

Telecommunications Services
Telecommunications Services provides the University with reliable and cost-effective telephone and voice processing message services. With FY04 revenues of slightly more than $3,500,000, Telecommunications Services is OIT’s largest cost recovery unit.

Highlights
Networking

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Highlights
**Work orders**

During FY04, more than 900 work orders were issued for work that involved 4,650 changes to telephone service or equipment. In addition, the group processed 1,249 work orders for voice mailboxes. The group achieved a 97% success rate in meeting requests for new or changed services.

**Rates**

To accommodate the replacement of obsolete equipment and an upgrade of the PBX core that will enhance reliability and bring new technical capabilities to the University, the monthly service rate was increased by $0.50 per month during FY04 with the same increase targeted for FY05.

The domestic long distance rate of $0.07/minute and the international rates of $0.10/minute to Canada and the United Kingdom continue to keep the University competitive in the marketplace. A drop in long distance usage (and revenue) during FY04 was attributable to increased cell phone usage (mostly by the student community). During the year, approximately 70% of students had their own cell phones.

**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.

**Highlights**

**Support for computer clusters**

During FY04, SCS maintained computing and printing facilities in 30 buildings. The University’s computer clusters contained a total of 266 Windows machines, 44 Macintoshes, 18 UNIX workstations, 35 printers, and seven scanners. There were 712,724 logins to OIT cluster machines, an increase of approximately 10,000 from FY03.

**Cluster upgrades**

In preparation for the start of the 2003-2004 academic year, SCS upgraded 66 PCs, 21 iMacs, and nine new printers in cluster locations. SCS partnered with the Rockefeller and Mathey Residential Colleges to install a new printer in a newly renovated dorm. The Residential Colleges funded the purchase while SCS managed the printer, paid for the network charges, and provided the consumables.

During FY04, SCS updated the cluster image and installed the software suite on cluster machines in order to provide an up-to-date variety of academic and general purpose software to the University community. In addition to the OIT computer cluster facilities, 189 departmental student cluster machines in 10 departments relied 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 FY04, paper use remained virtually unchanged from FY03 with a total of 6,563,648 pages printed on cluster printers.

**Frist information kiosks**

At the start of FY04, Apple Computer donated 16 iMacs for use as informational kiosks in the Frist Campus Center. Staff rewrote the kiosk management tool using a customized web browser.

**Residential Computing Consultants**

During FY04, 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. The RCCs assisted OIT activities at the Frist Campus Center during the beginning of the academic year and provided help sessions at every Residential College during the first week of classes. In addition to their outreach efforts, the RCCs responded to 1,388 tickets in OIT’s job tracking system.

**Student Computer Initiative**

Open to all University students, the Student Computer Initiative offered aggressively priced, highly capable computers customized for academic work at Princeton. During FY04, the SCI program sold a total of 1,493 machines (a 20% increase over FY03): 1067 Dell PCs (85%) and 221 Apple computers (15%).

**Customer Service**

OIT Customer Service provides OIT’s first line of assistance for the University Community. The new OIT Solutions Center in Frist gives the organization for the first time a centralized location for IT assistance. The OIT Help Desk continues to provide comprehensive e-mail, phone, and web assistance. The Documentation Group assembles printed and web documentation to assist faculty, staff, and students to make better use of existing resources.
Highlights

OIT Solutions Center
In its inaugural year, the OIT Solutions Center received 7,952 visits from customers requesting assistance with their computers; 68% of the customers in the Solutions Center Clinic were undergraduates.

The Help Desk
The Help Desk continued to serve as the single point of contact for all campus computing inquiries 24 hours/day, five days/week while staff members provided emergency coverage on the weekends. After opening the OIT Solutions Center, OIT streamlined its Help Desk services into quality and timely telephone, e-mail, and web-based computing support for the University. During FY04, the Help Desk staff responded to 52,994 individual customer phone inquiries and 24,902 e-mail inquiries. Help Desk staff continued to provide support and training for all new SCAD/DCS members and maintained and supported the University’s LISTSERV e-mail list service and OnTime Calendar accounts. The Help Desk also supported the University’s admissions web site, financial aid application, the Student Course Online Registration Engine (SCORE), and all University Business Applications and computer purchase programs.

OIT KnowledgeBase
The Help Desk provided assistance to the University community by maintaining a searchable KnowledgeBase of answers at a dedicated help web site: kb.princeton.edu. During the year, the OIT Help Desk web site received more than 35 million hits from more than 450,000 unique IP addresses.

Documentation
The Documentation Group continued to work closely with central University business offices, including the Office of the Registrar, the Office of the Treasurer, and the Graduate School to complete documentation for the University’s core PeopleSoft applications. This effort supported multiple PeopleSoft upgrades during the fiscal year. In addition, the group updated the documentation for the Office of Research and Planning Administration’s COEUS system.

Communications Services
To better address customer needs, OIT established the Communications Services group in April. Communications Services assumed responsibility for the OIT web site, the Help Desk web site, and the OIT KnowledgeBase. The new group also coordinated the production of informative pamphlets and the editing of mass e-mail communications to OIT customers. Towards the end of the year, the group began preliminary work toward implementing the web content management for the OIT web site.

Desktop Computing Support

Composed of two groups, Hardware Support and Software Support, Desktop Computing Support (DCS) 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.

Hardware Support

OIT Hardware Support provides a range of services, including renovation support, warranty and non-warranty equipment repair, hardware installation, and maintenance of the University’s wireless and Tiger TV infrastructure.

Highlights

Building renovation support
During FY04, Hardware Support helped the Facilities Planning Office during the renovation of campus buildings. The effort involved removing and later replacing or upgrading data wiring, network equipment, and computer clusters. In most cases, Hardware Support installed new OIT wiring in newly renovated areas including New South, Green Hall, McCormick Hall, East Pyne, 1937 Hall, 1938 Hall, 1939 Hall, Dodge Osbourne Hall, Gauss Hall, Foulke Hall, and Spelman Hall.

Network upgrades
During FY04, work continued on the project to upgrade and rewire the network infrastructure in buildings that are not scheduled for renovation. In these areas, to avoid disruption to customers, Hardware Support installed parallel cabling systems next to old data wiring. Once the new infrastructure was in place, technicians went room-by-room, switching to the new cabling while eliminating the old wiring. During FY04, the Engineering Quadrangle, Dickinson Hall, and McCormick Hall were rewired. Hardware Support also added 100 new data cables in the Lewis-Sigler Institute. Staff performed wiring repairs in Witherspoon Hall, Butler Tract, 1901 Laughlin Hall, Pyne Hall, Henry Hall, 1903 Hall, Holder Hall, and 48 University Place.
Special projects
During FY04, Hardware Support’s Repair Group completed 4,000 repair calls. Staff installed 383 Limited Basic, 679 Basic, and 149 Total Dormvideo connections and completed more than 200 video repairs. In support of Dormnet, staff replaced missing hub components during the summer of 2003 and completed 150 repairs during the academic year.

Wireless computing
During FY04, Hardware Support established wireless computing zones in the Center for Jewish Life, Bowen Hall, 5 Ivy Lane, Colonial Club, Wu and Wilcox Halls, Forbes College, 1879 Hall, Marx Hall, Firestone Library, and Prospect House.

OIT Software Support
OIT Software Support provides proactive support for the University’s 2,500 DeSC machines as well as TSM backup and restore assistance for Windows and Macintosh platforms. Staff are involved in the creation of the software image for University machines in DeSC, the campus computer clusters, and Faculty Computer Program. Software Support also maintains the computers in the Armory and 120 Alexander Training rooms as well as the computers in the “cluster in a box” program.

Highlights
Customer contacts
During FY04, Software Support processed a total of 5,584 OPM incidents. The top six Departments serviced were OIT (1017 tickets, 18.21%), Woodrow Wilson School (258 tickets, 4.62%), Mechanical and Aerospace Engineering (239 tickets, 4.28%), Athletics (218 tickets, 3.90%), Residential Colleges (150 tickets, 2.69%), and Research and Project Administration (129 tickets, 2.31%).

Special projects
During the year, Software Support worked on a new charging policy for the University’s TSM backup service. Staff continued to assist Public Safety with the upgrade of their fire alarm system. Additional Netopia VPN routers were placed in several locations to improve connectivity from off-campus University offices. Staff also assisted the installation and testing of new administrative software, including the Diebold “room-draw” software and the Resource 25 scheduling software.

Software Support assisted many other OIT groups with key projects. Software Support assisted with the testing of software images for DeSC, FCP, and other non-DeSC machines and with the many support issues related to the creation of the images. Software Support worked with Enterprise Services to set up a Keyserver for sharing applications over the University network. Staff also assisted with the development and testing of the Kiosk XP image that was deployed in several campus locations at the request of Human Resources. Staff also worked on network re-subnet projects at Moffet and Schultz labs as well as McCormick 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 FY04, the OIT Policy Officer resolved nearly 300 copyright infringement complaints filed with the University. The office collaborated with the Office of General Counsel to increase awareness of Princeton’s policies regarding copyright and technology. The Officer cooperated with the Department of Public Safety regarding incidents involving criminal use of technology, theft of computers, and locating missing students. The Officer provided assistance to disciplinary authorities and distributed computing support personnel with interpretation of University IT policy to particular cases. In addition, the Officer provided assistance to victims of threatening or harassing e-mail, and to those who perceived spam as originating within the princeton.edu domain.

Service Sales
OIT Software Sales is now located in the Tech Depot at the OIT Solutions Center in Frist. During FY04, OIT Software Sales sold nearly $350K of software: $275K to departments, $52K to students, and $23K to faculty/staff. The total represents a 13% increase over FY03 sales.

During FY04, Software Sales initiated the Princeton Software Repository, (PSR II), a web-based system that will permit customers to order software online. Payment will be automated via credit card, project grant, or
student account. When applicable, customers will be able to download software rather than secure a disk or CD. PSR II will rollout this fall.

**Software licenses and contract management**

Software Sales has converted all eligible Microsoft SQL licenses from stand-alone to processor licenses.

During FY04, OIT made major upgrades in software support. Notably, OIT purchased Premier Support for Microsoft software products and Platinum support for Symantec antivirus products.

Successful licensing negotiations included the renewal of the Blackboard Learning System, the acquisition of the Blackboard Content Management System, the upgrade of Oracle to a campus wide license, the acquisition of Internet Application and Internet Developer products, the acquisition of the Roxen content management software, the upgrade of ghosting software (DeployCenter Library), and the upgrade of the University’s internet services.

IT established a new mechanism for collecting software fees from all DeSC computer purchases. OIT also purchased a Keyserver license that will permit DeSC users to access a greater variety of software products at reasonable rates. In the future, funds from the new DeSC account will be used to purchase software that can be keyserved to all DeSC computers.

OIT also added 50 licenses to our concurrent MATLAB license in response to student demand. OIT will explore with Engineering, the WWS, and other academic departments the feasibility of acquiring a Mathworks site license.

**ID Cards**

On July 1, 2004, the ID Card Office left OIT to become part of a larger operation, the TigerCard Office. The new office will bring together the various functions for which ID cards are used. In addition to assuming responsibility for the production and distribution of University ID cards, the TigerCard Office will assume systems administration responsibility for the Dining Control system and for the University’s building access (prox) control system, C-Cure.

**Copiers**

During FY04, University central copiers made 16.5 million copies, down from 18.1 million last year. The copy rate will remain at 6 cents in FY05.

**Support for Computing in Academic Departments and Distributed Computing Support**

**Support for Computing in Academic Departments (SCAD) and Distributed Computing**

Support (DCS) are programs that complement OIT’s central support by providing University departments a higher level of individualized advocacy and attention. Members gain priority access to the OIT Help Desk, special opportunities for training, and OPM tracking system.

During FY04, departmental consultants participated in monthly meetings that addressed common concerns and issues related to campus computing. Both programs continued to grow at a modest rate. During FY04, six departments joined the SCAD program and nine departments joined DCS. By the end of FY04, there were 42 members in the SCAD program and 52 participating departments. DCS has a total of 40 departments with 32 members.

**Training**

Training continues to be a cornerstone of the SCAD and DCS programs. During FY04, training topics included MacOSX Panther, DBToolBox Intro, DBToolBox Intermediate, VB Training Intro, VB Training Intermediate, Perl Intro, Advanced Perl, Intro to PHP, Advanced MSQL, Outlook IMAP migration, Outlook Exchange migration, Advanced Linux, Intro to XML & HTML, Advanced XML & HTML, and MCSE & Security Certification.

**Security Committee**

The SCAD-DCS-SECOM Committee is comprised of 20 volunteer SCAD/DCS personnel and others within OIT who meet monthly to discuss matters related to campus IT security. The committee conveys departmental security questions, concerns, and needs to OIT. Committee members also report back to the full SCAD/DCS membership with a consensus on best practices and recommendations for deploying and sustaining a secure IT infrastructure within departments.
Participating Departments in SCAD Program

Applied & Computational Mathematics
Art & Archaeology
Astrophysics
Atmospheric and Oceanic Studies
Bendheim Center of Finance
Center for the Studies 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
European Cultural Studies *
French and Italian Languages
Genomics
Geosciences
German *
Hellenic Studies
History
Industrial Relations *
Jewish Studies
Latin American Studies
Mathematics
Molecular Biology
Music
Near Eastern Studies
Office of Population Research
Operation Research Financial Engineering
Philosophy
Physics
Politics
Princeton Institute for International and Regional Studies *
Program in the Ancient World *
Program in American Studies
Psychology
Princeton Environmental Institute
Princeton Material Institute
Religion
School of Architecture
Society of Fellows in the Liberal Arts *
Spanish & Portuguese Languages
Study of Woman and Gender Sociology
Theater & Dance
Visual Arts
Woodrow Wilson School

* Departments that joined the SCAD program during the last year
OIT opens Solutions Center

Evelyn Rudi
Princeton Staff Writer

In an effort to consolidate technical support on campus, the Office of Information Technology opened the OIT Solutions Center on Wednesday.

The service located on the 100 level of Frist Campus Center, combines four areas of support that used to be spread out across campus.

At a location, students, faculty and staff can now bring in malfunctioning laptops for repair, purchase hardware and software and sign up for phone services and Tiger TV. The Solutions Center will also house a faculty courseware area to provide assistance with Blackboard and other software.

Though the Solutions Center will not offer new forms of assistance, according to the Director of Support Services, Steven Sather, it is an important improvement.

"It really streamlines preexisting services that OIT offered," Sather said.

Combining the offices will also help make OIT more approachable and accessible to the campus, said Timon Lorenzo '06. After bringing in his laptop for repair, Lorenzo noticed the convenience and efficiency of the center.

"The service is quick and they know what they're doing," he said. "I would use it much more now."

Lorenzo wasn't the only student ready to take advantage of the new center. Despite its infancy, the office was filled with students on its opening day who were eager to rid their computers of the SoBig virus that has infected millions of computers worldwide since early August.

The Solutions Center took less than a year to set up. Initial discussions about consolidating offices began early this year, Sather said. After finalizing their plans in the spring, OIT took advantage of the summer to implement the changes.

"The major challenge was making sure that it was up and running by the beginning of the [academic] year," Sather said.
OIT opens one-stop shop in Frist

Participating in the ribbon-cutting ceremony were, from left, Jen Whiting, Help Desk manager in OIT; Steven Suther, director of support services in OIT; Betty Leydon, vice president for information technology and chief information officer; Provost Amy Gutmann; Paul Breiman, director of University Services; and Jim Watson, Solutions Center specialist in OIT.

The Office of Information Technology has opened a new "Solutions Center" on the 100 level of the Frist Campus Center. A ribbon-cutting ceremony took place Aug. 27.

The facility, which will operate from 9 a.m. to 5 p.m. weekdays, is intended to be a one-stop shopping center for IT services. It brings together activities that formerly were located in separate areas on campus.

"Students, faculty and staff will be able to bring broken computers to the center to be repaired (hard disks restored, viruses removed), purchase answers to IT questions, sign up for phone services and Tiger TV," said Betty Leydon, vice president for information technology and chief information officer. "There will also be a faculty courseware center where faculty can get help with Blackboard and other technology tools."
connect to and infect.

"The virus takes data from every computer on the network, as well as any programs that don't exist," Obst explained. "It slows down the network."

Microsoft wrote a patch to correct an existing problem in their software that allows worms to infect Windows systems, but those who have not installed the update are still at risk.

Over the summer, the rate of worms spread to thousands of administrative, departmental, and personal computers on the University network, requiring OIT staff to manually disconnect or patch each machine. At one point, the University's dial-up service was nearly unusable because of the traffic.

Concerned about the massive influx of computers - not all of them patched - that would occur when students arrived on campus, OIT convened a "war council" several weeks ago to discuss how to stop the worm from spreading.

The group decided that writing a standard CD for all students to run before hooking their computers to the network would minimize infection. The CD, which OIT has shared with other universities, removes the worm and applies the security patch.

OIT also monitored network activity and blocked infected computers, informing students via email that their access would be restored after the worm's removal.

Since the blocked students could not log on to check their email, however, some did not realize what had happened and simply assumed that the network connections in their room were not working properly.

The problem was compounded by the fact that the worms sometimes appear harmless, leaving infected computers fully functional while spreading to other computers.

Anna Thomas '95 said she had run the CD twice but was still blocked from the network. "My computer's working fine," she said. "I don't think I have a virus."

But copies of the worm were more aggressive. Terry V. Zisk brought his laptop into the OIT Solutions Center at first for assistance because he could not run basic applications such as Microsoft Word.

"I'm thoroughly disappointed by the long wait," said V. Zisk, who had been sitting near the door the entire two hours. "It's a beautiful day, and I don't want to be sitting here."

He added, however, that the Solutions Center, which opened this year, was "much more convenient than having to visit the OIT building on Prospect Avenue.

OIT expected the number of students blocked from the network to tail off shortly, as RCCS and OIT staff visited rooms last night to offer help to those who were still experiencing problems.

"We were prepared to have a lot of staff at solving the problems, and even that the network might be unavailable for some period," Obst said. "He credited the relatively minimal damage to "a lot of planning ahead of time and having a lot of coordinators to deal with it."

Over the summer, the University was also hit by the Sobig.F virus, which spread as an email attachment. The email appeared to be from a number of sources, including within the Princeton community, and enticed recipients to open the attachment with subjects like "Re: Details" and "Re: Wicked Secret." To download the virus, users were tricked into clicking on a file.

Once downloaded, the virus infected software capable of spreading information on infected computers, coming across to modification. Sobig.F replicated itself by hijacking address books, generating large quantities of emails that fed on the University's network.

A campus-wide email was immediately sent to warn against opening any attachments. OIT then warned the virus over email and updated the email system to automatically delete messages with the attachment.

The Sobig.F virus was completely shut down within two days, according to an OIT report.

In other news:

- Reitlland Theatre opens for grand occasion at McCurra
- Cnna waakly to deter first 1 year after visa denial
- Movie industry files 250 lawsuits in battle against piracy

\[End\]
OIT blocks flaw in Frist e-mail kiosk

By Josh Brodie
Princetonian Staff Writer

Students who used the new kiosk computers in the Frist Campus Center before yesterday afternoon may have left their e-mail accounts vulnerable to prying eyes.

Users who did not correctly log out of the kiosk computers remained fully connected to the e-mail system, enabling others to read or send messages from the logged-in account.

OIT officials were unaware of the problem until The Daily Princetonian contacted them yesterday morning. By 1 p.m., they had put in place a temporary solution — simply a freeze on the "back" button at the top of the screen.

Now OIT "will be working with the kiosk software vendor, wKiosk, to see if there is another solution to the problem," said Steven Sather, support services manager.

Sather said that despite the security problem, the majority of students did log out correctly, keeping their accounts private.

To protect themselves, users should always click the "Logout" button within Webmail, he said.

The Frist kiosk machines are the most frequently used public access machines on campus.

One senior who had not logged out properly expressed concern after learning about the glitch.

"I think it's unfortunate others would be able to access my e-mail, but I'm glad they're taking measures to remedy the situation," Marcos Gonzalez '04 said.

The newly updated kiosk, which has been up and running for a week, includes two more computers than in the past.

Rachel Miller '05 checks e-mail at a computer in the Frist kiosk. OIT temporarily corrected a glitch that made e-mail insecure.
OIT considers new anti-worm plans

By Melissa Gao
Princetonian Staff Writer

After a summer plagued by the spread of numerous computer viruses across the University network, OIT is looking into taking new measures to protect campus machines, which may include the automated installation of security patches to each of the thousands of computers on the network.

The plan would eliminate the need for individual users to visit Microsoft’s website to download new patches as security flaws in the Windows operating system are discovered.

As of yesterday afternoon — a day after Wednesday’s e-mail from OIT asking the University community to install the latest Windows patch — roughly half of students had updated their computers. The Daily Princetonian determined.

The request came as the University was still recovering from the Stealth, Blaster and Welchia worms. OIT continually removed infected computers from the network as the worms spread, disconnecting hundreds of students until they called OIT to verify they patched their computers.

Within hours of learning of the latest vulnerability, OIT personnel had tested Microsoft’s patch on a variety of machines and deemed it safe and effective, notified the University community to download it.

Typically a lag time of about a week separates the discovery of a “hole” and the spread of a worm through it, said University IT security officer Anthony Scaturro, but this flaw is particularly worrisome because it is so similar to the one exploited by the recent worms.

“Since there was potentially as much of an opening as the first one,” Scaturro said, “and since they’d just be variations of prior worms, we think the turnaround time would be a lot quicker.”

Concerned about how worms will affect the University in the future, OIT is considering a plan that would require all networked Windows computers to automatically update themselves as patches are made available.

“Let’s face it, an automated approach to patching that’s effective will go a long way,” Scaturro said.

Though the program, known as Microsoft Software Update Service, is still in its trial phase, early signs are promising, and Scaturro expects it will be implemented in the next two weeks.

Scaturro was not sure whether users would have a choice in accepting new patches. He said that though he would like to allow for as much individual freedom as possible, the updates would likely be mandatory unless a virus did not place other computers on the network at risk.

“My role is to ensure that no one pays for someone else’s risky behavior,” Scaturro said.

Though the system would be automated, OIT would test the patches before they end up on campus computers.

“Sometimes patches have a negative effect and are called back,” Scaturro explained. “If we have it, we can try it on selected systems and check them off as being acceptable.”

As a second line of defense, OIT is looking into placing a computer on the perimeter — or “front door” — of the University’s network to screen incoming traffic. The computer would be trained to scan for specific worm behavior or “signatures,” and could block or quarantine suspicious activity.

The procedure, known as intrusion prevention, requires some level of understanding of the worm’s function, however, making it impossible to activate immediately.

Scaturro emphasized that, as with the battle against the earlier trio of worms, protecting against future computer problems requires diligence on the part of every user on campus.

“This is really a team effort across the University,” he said. “I believe that the key to having a secure campus is based more upon community awareness, knowledge and cooperation than technical tools and dictates.”

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Brownbag lectures coming this fall:
9/17  Personal Computer Security
10/1  Search the Web Effectively with Google
10/22 Images at the Library
10/29 Build PDF forms with Adobe Acrobat 6
11/5  Teaching with the Internet
11/12 The Blogging Phenomenon
11/19 Text, Audio, and Video Reserves
1/14  Project Management
1/21  Endnote and Refworks

Lectures begin at 12 noon and take place in
Multipurpose Room B, Frist Campus Center,
except 11/5 in the McGraw Center for Teaching
and Learning Conference Room.

Cookies and beverages will be provided.

For more information
call (609) 258-7331
or e-mail aseducate@princeton.edu
www.princeton.edu/as/lunchnlearn

Presented by OIT
In a pickle with your PC?

Students and staff at OIT help desk come to the rescue

When people get very frustrated they rush. A stress-out person clicks everything as fast as they can, and the more you click, the slower your computer is going to go, so I'll ask, What kind of dog is that barking in the background? or What music are you listening to? That way I become a person, not just a voice.

Jon Whitling, the friendly, no-nonsense manager of the help desk, looks for employees with humility and a willingness to know everything. We need people who are willing to learn constantly. It has to be OK with you to be corrected. If you take it, you're going to give it out a wrong answer.

A total of 45 students each week at least seven hours a week at the help desk. They are hired in the spring of their freshman year, just through three days of intensive training and deemed ready to don the headset at the beginning of their sophomore year. Full-time staff members, of which there are six, are always on hand as well. Whitling's goal is to have nine out of 10 calls picked up in less than a minute and a half.

Help desk

Continued from page 1

that her computer was afflicted with a contaminant that behaves like a virus, using a pop-up window to change the computer's home page and prevent the user from using its features. Malware slowly walked the caller through several steps. Five minutes later, the computer was back to normal. "She thought her computer was going to self-destruct," Malveaux said.

"My computer is tipping on its own!"

Some of the most skilled help desk workers are equal parts computer whiz and psychologist. Paul Maurer, the second shift manager, often wears both hats. "I have told people to get up and take a break from their computer," said Maurer, who spent four years in the Army doing computing and military intelligence work. "One woman said and said she had been working on her computer since noon." She was writing a book, and I asked her how long she had been working, and she said eight or nine hours. I said, Why don't you take a break! Get some coffee!" She called back later and said her computer was fine.

Help desk manager Jan Whitling, left, works with sophomore Ellinor Daway to answer a question. She says a team approach helps the staff handle the many and diverse inquiries.

Senior Khalil Sullivan, an English major, uses his knowledge of computers and a calm demeanor to help callers resolve their problems.

Some of the most skilled help desk workers are equal parts computer whiz and psychologist.

Eighty percent of the calls received by the help desk are resolved by employees in the technical support center. The other 20 percent are referred to other computer-savvy helpers on campus. The Office of Information Technology is always ready to help.
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information technology seminars

Presented by OIT

Customizing Your Blackboard Menu and Creating a Discipline-Specific Blackboard Template

Wednesday, October 15, 12 noon to 1:30
Multipurpose Room B, Frist Campus Center
Cookies and beverages will be provided

With the latest version of Blackboard, it is possible to tailor your site's menu to the specific needs of your course or organization. You can create links in your menu to specific content areas, to specific items within content areas, to specific tools that you make frequent use of, and to external sites. As the links are text-based, you can choose what to name them, and even use special characters and diacritical markings. Using some simple HTML tags gives you greater options for colors and font effects.

Academic departments now have the opportunity to design a discipline-specific course site template that can be used when Academic Services creates their courses. The template can include not only a customized course menu, but also content, information and layouts appropriate to or useful for all courses in the discipline.

Speaker: Dennis Hood

For more information
call (609) 258 7331
or e-mail aseducat@princeton.edu
www.princeton.edu/aa/lunchnlearn
In a pickle with your PC? OIT help desk comes to the rescue

by Jennifer Greenstein Almeida

"OIT help desk, how can I help you?"

Every few minutes someone sitting in room G25 in the basement of 87 Prospect Ave. utters that greeting, followed by questions that often go like this:

"You received an error message that says what exactly?"

"Then what did you click?"

"Now what does the screen say?"

With patience, persistence and often a dollop of humor, the dedicated students and staff members who inhabit this room at all hours of the day and night are taking calls from the frazzled and the frustrated, those having trouble networking computers using Windows 2000/XP and those who can't figure out how to send an e-mail.

"Sometimes you tell the person, 'OK, go to the start button,' and they say, 'There's no start button on my computer,'" said Kristina Maleta, a member of the class of 2005, recalling one type of caller who dialed 258-HELP regularly.

The employees of the technical support center at the Office of Information Technology's help desk are available to answer questions from anyone on campus, as well as alumni and parents of incoming students, 24 hours a day, except for weekends. (One person is on call during weekends for emergencies.) More than 1,000 calls and 200 e-mails can come in on a hectic day, three times the typical load. Between four and seven people, a mix of students and staff members are on hand to answer calls and e-mail queries.
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**Information Technology Seminars**

Presented by OIT

**Image Databases:**

Finding, making, and organizing digital images for your research and presentations

Wednesday, October 22, 12 noon to 1:00 pm  
Multipurpose Room A, First Campus Center  
Cookies and beverages will be provided

Do you need the right image to enhance your lecture? Do your publications and papers need high quality illustrations? Learn how to find fine art and wire-service images on the Internet using online subscription-based databases, as well as public sites on the Web. Learn how to organize and keep track of your digital images using commonly available software and Princeton-based multimedia management tools.

Speakers: Trudy Jacoby and Janet Temos

For more information  
call (609) 258-7331  
or e-mail aseducat@princeton.edu  
www.princeton.edu/es/lunchnlearn

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**Teaching with the Internet**

Wednesday, November 5, from noon to 1:00 pm  
First Campus Center, Room 329 (McGraw Center for Teaching and Learning Conference Room)  
Cookies and beverages will be provided

Speakers John Pinto, Professor of Art and Archaeology, and Janet Temos from OIT's Educational Technologies Center will share their views and experiences.

For more information  
call (609) 258-7331  
or e-mail aseducat@princeton.edu  
www.princeton.edu/es/lunchnlearn
OIT monitors hits on Google feature

By Zack Surak
Princetonian Senior Writer

The University’s Office of Information Technology is not Big Brother, but it has been watching you.

Every institution that registers with the Google search engine can view daily results called “traffic reports” that pool the day’s most popular search keywords, and the University has been using these reports while redesigning Princeton’s webpage.

“It’s simple,” Dwight Bashore, University web specialist with the Office of Information Technology, said. “Basically, we sign up and use part of [Google’s] service.”

Though traffic reports might have many practical applications, Bashore said the University does not use them regularly to monitor webpage hits.

He did say, however, that OIT is currently using Google’s daily reports to help create a new University homepage.

“Right now, we’re actively using it because we’re redesigning the Princeton home page,” he said.

“Mainly, though, we use it for stats just to understand what people are searching for.”

When creating the traffic reports, Google saves the search text in a daily log and tabulates the results. Only the registered host institution, though, can view the results of the tabulation.

This may be an important feature to the University and other schools that use Google. Tabulated results can allow webpage designers to incorporate links to popularly viewed pages on homepages and other frequently viewed webpages.

“In the past, we actually added a link to Webmail on our main site,” Bashore said. “That was a direct result from knowing that people searched it a lot on Google.”

However, Bashore added, not all popular Google search items receive such attention from the University’s webpage designers. While athletics is also one of the most popular search items on Princeton’s search engine, the University decided not to include a link to Princeton’s athletic webpages on its home page.

The traffic reports also exhibit anomalies in routine inquiries that can be the result of external events, Bashore said, and unrepresentative of the most popular search phrases over a longer period of time.

“On the day of a snow storm, for example, a word like ‘snow’ or [a phrase like] ‘snow emergency’ might be the most popular search items,” Bashore said.

According to the University webpage, Princeton’s Google indexes more than 100,000 documents within the princeton.edu domain. And any website accessible through princeton.edu can add be easily added to Google’s search indices.
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The Blogging Phenomenon

Wednesday, November 12, from noon to 1:00 pm
Multipurpose Room B, Frist Campus Center
Cookies and beverages will be provided.

Blogs (short for "web logs") are web sites that are built on the metaphor of the journal — in the sense of both personal diary and public newspaper — which may be authored by an individual or by a community. They reflect the unique literary potentials opened up by the medium of the web, where the distinctions between public and private are blurred, publication cycles are measured in minutes and audiences are by default worldwide. This talk will provide a brief survey of some of the more interesting blogs that can be found on the web, what functions they perform for the user communities they precipitate, and then describe how you can get started building and using your own blog for teaching or research.

Speaker: Rafael Alvarado.

For more information call (609) 258-7331
or e-mail asseduc@princeton.edu
www.princeton.edu/as/lunchnlearn
Library looks to offer music online

By Josh Brodie
Princetonian Staff Writer

The University Library is considering making music available through its website in an effort to legally distribute recordings to community members.

In what would be an extension of the e-reserve system, the University Library may subscribe to a service which would provide streaming audio to users, said Assistant Music Librarian Daniel Boomhower. Streaming is a process which sends music to a user across a network without giving the user a permanent copy.

"There is definite interest on the part of the music library and the University Library to subscribe to online audio services," Boomhower said. Though there are currently no services available that meet the University's needs, some are in production, he said.

HNH International Limited, Classical International, Inc. and Smithsonian Global Sound are the three online music subscription services under consideration, he said.

Princeton is not the only institution aiming to solve the problem of legal music distribution. Students at the Massachusetts Institute of Technology and Penn State University's administration have also both moved toward solutions of their own.

At MIT, two students created the Library Access to Music Project. The service was supposed to work by allowing students to act as DJ's for a campus-wide music service which would be broadcast across existing cable TV lines.

However, after only a week of activity, the service was shut down when the Universal Music Group claimed LAMP operators had not obtained the necessary licenses to distribute music on the campus.

Penn State recently reached a deal with Napster which would give students free access to a new version of the once-popular program which now charges a fee for downloads. Students would be able to freely download any song from the Napster library and burn CD's for 99 cents each. This spring, 18,000 students will have access to the service on their campus.

Some students feel that spending educational funds to finance recreational music is not the University's job.

"Pop music isn't necessarily part of a college experience," said Nathan Domingue '06, who has composed several original rap songs with Brian Root-Bernstein '06. Domingue said he wouldn't expect the University to provide music any more than he would "expect the school to buy me a TV or refrigerator."

While these systems are running their courses at other institutions, the newest version of Apple's iTunes is already having an effect on Princeton's campus.

In addition to letting students pay for music as they download it, the new version also enables both Macintosh and Microsoft Windows users to share songs across the University network. The program lets users listen to files off each other's computers without copying the files.

This sharing feature has Domingue and Root-Bernstein excited. The duo has recorded three original rap songs and is encouraging the community to listen to them through iTunes.

"I think sharing is really good for someone like me who is trying to get heard and not necessarily make money," Domingue said.

But this easy distribution is a double-edged sword:

"I think programs like iTunes and even Kazaa are wonderful for up-and-coming musicians who have no chance of being signed to a major record label," said Root-Bernstein.

"But for those artists that depend on record sales for a living, they are certainly the opposite."

Music library looks to net

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Text, audio and video reserves

Wednesday, November 19, noon to 1:00 pm
Multipurpose Room B, Frist Campus Center
Cookies and beverages will be provided.

The whole concept of Library Reserves has changed in the electronic age. Students can access print and music materials from computers in the Library or in their dorms, and videos from OIT computing clusters. This panel of experts will discuss how these enhanced Library reserves services work from the point of view of the faculty and the Library, and demonstrate how they are used by students.

Speakers: Lorie Cerbone, Marianne Crusius, and Paula Matthews.

For more information
call (609) 258 7331
or e-mail aseducat@princeton.edu
www.princeton.edu/as/lunchnlearn
USG proposes change to dorm furnishings

Resolution passed to improve lighting, furniture, computer clusters in dorms

By Meghan McCormick
Princetonian Staff Writer

The USG passed a resolution last night recommending priority requests for major maintenance on campus. Its purpose is to make University housing more equitable, reducing the now large disparity in the quality of lighting, furniture and other basic facilities among different dorms, according to the Housing Improvement Resolution.

The measure is an attempt to "ensure basic needs are being met across the University" and to "slow the development of a two-tier housing system," according to the document.

The resolution advocates improving lighting, providing more furniture in older dorms and adding computer clusters in upper-class dorms. Also, additions to facilities will include laundry rooms in Cayler and Brown halls as well as improvements and renovations to existing kitchens and "snack" kitchens, the resolution says.

"I hope this resolution will help ensure that student opinion is always considered when deciding the University's renovation and major maintenance budget in the future," said William Robinson '04, chair of the Undergraduate Life Committee of the USG, the major proponents of the resolution. The council members, however, hope that the resolution will not be discounted by the administration.

Continued from Page 1

The proposed changes will guarantee a "basic minimum standard of living for all students," said a recent resolution's author, Sarah Dennis '05.

"I am excited that the USG is going to have something to grip onto," she said. "We need a resolution to accomplish this in the right way."
Sarah Kiernan '05 composes her thoughts about Ernest Hemingway's The Snows of Kilimanjaro and shares them with the other students in her English precept.

"I find Hemingway's super-crafted prose to be a stumbling block in getting through his work," she observes. "How many vignettes can you string together without losing your audience?"

Though Kiernan's experience may sound familiar to generations of Princeton students, it would be foreign to anyone who graduated more than a few years ago. For one thing, Kiernan is not in a classroom, but in her dorm room, typing her thoughts on a computer keyboard. For another thing, it is 2:23 A.M. Her precept does not meet until later that day, but Kiernan is posting her observations about the week's reading on an online discussion board. Her classmates will have access to it instantly and can respond at hours when most of the University is asleep.
Online reserve readings, downloadable problem sets and midterms, lectures whenever you want them, and virtual discussion groups buzzing 24/7 – there’s no doubt about how far Princeton education has jumped into the 21st century.

In classrooms and dorm rooms, the lecture age is shaping the way a Princeton education is delivered. To get a glimpse of how far Princeton has advanced, consider the following:

Students preparing for their midterms or final examinations in Art 101. Introduction to the History of Art, no longer must spend hours in McCosh Hall poring over reproductions of hundreds of paintings and other works of art they have never seen in lecture. Instead, they simply can log on to the Art 101 Web page and download copies of those images to their desktops. By choosing the “Quick Set” option, the images can even view these images with the identification titles left blank, and by clicking another button, they can check their answers.

It is quieter, too, in the Woodrow Wilson Center, since students in Music of the Classical Period and other courses no longer need to dash headphones in the library to listen to snippets of music, although they are still available online. Click on the course’s Web page and listen to Beethoven responses in MP3 format. Students taking introductory Russian also can listen to audio snippets of their latest assignments at home.

Students in Math 103, an introductory calculus course, can download their latest problem set and answers to previous problems online. They can also take sample quizzes or review examinations, with answer keys, from previous years.

Anyone who shops late for Professor Lee Mitchell’s lecture in American Literature: 1930-1940 (the class for which Sarah Kazemi was preparing her thoughts on Hemingway) need not fret. When Mitchell offers the course two days later in the course, all of the lectures were videotaped and can be viewed at any time on the course’s Web site.

The reserve reading desk on the A Floor of Firestone Library, once crowded with students waiting to borrow the course’s weekly reserve reading, also is becoming obsolete. A government course instructor simply posts their reserve reading online, enabling students to access it from anywhere on campus or, for that matter, anywhere in the world.

Online reserve readings, downloadable problem sets and midterms, lectures whenever you want them, and virtual discussion groups buzzing 24/7 – there’s no doubt about how far Princeton education has jumped into the 21st century. And with such advances, it is no longer surprising, even to do much of their learning in cyberspace, does one even need to be in Princeton to get its education?

Certainly, changes have taken place very quickly. According to Serge Goldstein, the director of academic services for the University’s Office of Information Technology (OIT), as recently as four years ago only about 50 courses had their own Web pages, and much of the content on those pages was rudimentary. In 1999, OIT began making course management software available to all members of the faculty and started building individual Web sites for each of the more than 1,000 academic courses offered at Princeton each year (www.blackboard.princeton.edu). Each professor, whether he or she wanted it or not, was now on the Web. (The computer science department, however, prefers to use its own software.)

The course-management software used by most of Princeton, called Blackboard, is produced by Blackboard, Inc., the largest developer of such technology in the country.

According to the company’s Web site, it provides software to more than 1,000 school districts in 42 states, as well as some local and public governments and several dozen colleges and universities including Cornell, Dartmouth, the University of Chicago, and Harvard Law School. (Harvard and Yale have each developed their own course-management software for undergraduates.

The software is also adaptable for use outside the classroom. Rutgers College, for example, recently became the first residential college to create its own Blackboard site, where students can enroll in a virtual Facebook or MySpace-type site with the latest announcements. Other campus organizations with Blackboard Web pages include the Princeton University Graduate Women in Science and Engineering, and the Class of 2006. Students can choose their course sites and consult an online version of the student course guide.

But the classroom is where the software is most actively used. Although Princeton, unlike some colleges, does not require students to own a computer, the overwhelming majority does – aided by assignments. Princeton has worked with several large computer manufacturers that enable students to purchase a desktop or laptop at a discounted price, with Princeton’s software preinstalled. The University also provides hardware and software support for these computers, meaning that a student who has had problems can walk over to the OIT support desk at the First Campus Center or call the computer consultant at any of the residential colleges, rather than wait in a phone queue to speak to a technician.

For all the bells and whistles, course-management software, for now at least, is designed to do just two things: manage course content and replace them. Students still attend lectures and live presentations. Professors still create high-quality work and use it to deliver assignments.

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Infocopia: Utopia?

In the library, a daunting display of electronic riches... "By Edward Tencer" 65

A contributor to national publications in the late 1970s and 1980s, I learned that the electronic database market had not yet matured. Libraries were still using centralized, mainframe-based systems, and the high cost of these systems made it difficult for smaller libraries to adopt them. However, the revolution in computer technology that took place in the late 1980s and early 1990s has made it possible for smaller libraries to adopt electronic databases, and the result has been a dramatic increase in the amount of information available to library patrons.

Today, Princeton students have access to a wide range of electronic resources. The library currently subscribes to over 100,000 electronic journals and databases, and provides access to over 100,000 electronic books. The library also provides access to a variety of electronic reference tools, including online encyclopedias, dictionaries, and thesauri.

The library's electronic resources are available to students through the library's Web site, which provides links to all of the library's electronic databases and resources. Students can also access the library's electronic resources through their computer terminals, which are located in the library's computer lab.

The library's electronic resources are an important tool for students, who use them to conduct research, write papers, and prepare for exams. The library's electronic resources are also an important tool for faculty, who use them to conduct research and prepare course materials.

In addition to providing access to electronic resources, the library also provides training and support to students and faculty. The library offers a variety of workshops and training sessions on how to use electronic resources, and provides support to students and faculty who encounter problems with their electronic resources.

Overall, the library's electronic resources are an important part of the library's mission to provide access to information and support the teaching and learning activities of the university.

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"The problem with the old system was that you had to get two hours a week in lecture where students just looked at a talking head, and then one hour in precept to discuss the subject. ... What discussion board does is extend that hour.

"In lectures, you talk to a student a lot," the professor of English, Lee Mitchell, said. "Princeton students are writing to a real community, which is to say, deindustrialized. And that's what makes writing better.

As each of her courses went on, Mitchell says, student postings grew longer, more detailed, and more interesting, "because the students got to know each other. By the end of the term, students had written the equivalent of a term paper without knowing it. Mitchell says board discussions frequently carried over into precepts, and that her students revised their work in real-time, including asking questions of her that were never asked in the classroom. As a result, the students created personal homepages in which they shared photographs, biographical information, and stories of how they had decided to take the course.

"In lectures, you talk to a student a lot," Mitchell said. "Princeton students can also be an opportunity for students to remain passive. The problem with the old system was that you got two hours a week in lecture where students just sat and took notes. And then there were hours in precept to discuss the subject. That's not enough to discuss Linnaeus or Al Quincy. But the discussion board that's extended that hour."

Students, parents, and students themselves, the board attracted a growing number of students who posted their own observations. Students, who used the board extensively in their own courses, described it as a "virtual precept but without the professor."" Ideally, students learn from each other, and according to their own schedules.

Unlike discussion boards on the Internet, students sign their own names rather than posting anonymously or using pseudonyms, though access to the board is restricted to those enrolled in the class. Like email, though, discussion-board postings tend to be informal and conversational. Capitalization is important, and the voice can be casual or ironic. Although instructors can monitor the board, or select postings to read aloud in class, they tend not to participate in the discussions posted by students. The board has also been a popular place for students to share information about upcoming events, such as concerts or lectures.

Overall, the discussion board has been a valuable tool for students to engage with their coursework, and has helped to create a more interactive and dynamic learning environment.
Project management

Wednesday, January 14, from noon to 1:00 pm
Multipurpose Room B, Frist Campus Center
Cookies and beverages will be provided.

What can you do to improve the likelihood that your project will be done on time, within budget and with expected results? Learn more about the processes, templates and tools that are being used to manage projects at Princeton and that are part of the Princeton Project Management Methodology. From planning simple events to complex initiatives, this methodology offers both a 'lite' and full blown version to fit your particular needs.

Speaker: Hetty Baiz.

For more information call (609) 258-7331
or e-mail aseducat@princeton.edu
www.princeton.edu/as/lunchnlearn
By the numbers

According to statistics compiled by the Office of Information Technology between July 1, 2002, and June 30, 2003:

• 1 trillion bytes of disk storage space were maintained to serve University databases.

• 21,862,380 telephone calls were handled — more than in many small cities.

• 18,100,000 copies were made on University photocopy machines.

• 256,609 people used the OIT kiosks at the Frist Campus Center.

• 200,000 e-mail messages were delivered daily to individuals and organizations.

• 100,000 spam e-mail messages were filtered every day.

• 70,000 e-mail messages were sent from Princeton each day.

Source: Office of Information Technology Annual Report 2002-03
lunch 'n learn
information technology seminars

Presented by OIT

Tech tools for academic writers

Wednesday, January 21, from noon to 1:00 pm
Multipurpose Room B, Frist Campus Center
Cookies and beverages will be provided.

Does your work involve academic writing for courses or publication? Does assembling and managing your bibliographies take hours that you could better spend improving your papers (or with family and friends)? Are you using note-cards to organize your writing or struggling to organize research using only your word processor? The last twelve months have seen major advances in software tools that can help with these and other tasks, and in the process boost your academic productivity—whether you’re a physicist or a philologist.

This session introduces four such tools: two bibliographic reference managers (RefWorks and EndNote); a note-taking, coursework, and research organizer (OneNote); and visualization software for the conceptual analysis of scientific and academic literatures (RefViz). The focus of the session will be on showing how each tool fits into the overall goal of highly productive academic research and writing.

Speakers: Audrey Betsy Wright & Christopher J. Mackie.

For more information call (609) 258-7331
or e-mail ase@princeton.edu
www.princeton.edu/ase/lunchnlearn
Course Management: Colleges Push for an Open Approach

Open standards. Open source. Those phrases, which are becoming the mantra of college technology administrators, are likely to change the landscape of course-management software.

Open standards are technical specifications that are publicly available to any college or company to use in writing software. Open source means the software itself can be freely copied and modified to fit any college's particular needs.

Blackboard, a company that is a dominant player on college campuses, says it will work with colleges to make open standards a feature of its future course-management products. And some colleges say they will take openness a step beyond by using only open-source software for their online courses and online portions of traditional courses.

Blackboard never used to let colleges extend the capabilities of its course-management system. But now the company has relaxed its restrictions so that colleges can create their own instructional software programs (Blackboard calls them course cartridges). Professors use Blackboard and other course-management systems to put instructional materials—videos, computer simulations, quizzes—online for students. The systems typically have e-mail, class-discussion, and grade-book software that professors find essential when teaching courses over the Internet.

Princeton University took advantage of Blackboard's new openness to create a "face book" for each course that its professors teach using Blackboard. "It sounds like nothing at all," says Serge J. Goldstein, director of academic information-technology services at Princeton. But he says the face books, which include photographs of every student in a class, are extremely useful in helping professors remember their student Now Princeton and other colleges say they need course-management companies like Blackboard to take openness even further in the next 10 years, and the companies have promised to do that. If companies relied less on their own technical specifications and more on nonproprietary standards to develop software, any instructional software that faculty members created—such courses and online portions of traditional courses—could be shared with anyone at any other institution, says Joseph B. Hardin, director of the Collaborative Technologies Lab at the University of Michigan at Ann Arbor.

Sharing will be crucial, Mr. Hardin says. "We want innovation in learning to be something that moves easily across institutional boundaries," he says, whether a college uses Blackboard or another company's software. But that won't be possible, he says, "until everyone agrees on standard ways of making educational software tools work together." Blackboard officials say that they will work closely with standards groups in the future, but that the company will continue to use its own specifications for developing core portions of its system.

For higher education, open standards and open-source software are of such importance for the future, Mr. Hardin says, that four universities are now working together to build a course-management system using only open-source software and nonproprietary, publicly available standards for developing the software. The institutions—Indiana University, the Massachusetts Institute of Technology, Michigan, and Stanford University—are each contributing roughly five full-time staff members to the effort.

The participants call the project Sakai, after the charismatic chef on the cooking show Iron Chef. The open standards that will guide their efforts have been developed by two university-led consortia: the Open Knowledge Initiative, or OKI, and the Java Architectures Special Interest Group. Both groups promote the use of open standards and open-source software.

The universities expect to have a complete course-management system that they can begin using on a trial basis this year. They plan to have tens of thousands of students using it on all of their campuses in 2005. Other colleges will be free to download and use the software and contribute to it.

Princeton will continue using Blackboard because professors are used to it, Mr. Goldstein says. And yet he hopes that the Sakai project will put pressure on companies like Blackboard to adopt the OKI standard for openness. Blackboard and WebCT, the two dominant course-management companies, have said they will support the OKI standard.

Mr. Goldstein, however, thinks it is too early to tell how software companies will ultimately respond to the open-standards and open-source challenge from higher education. "The vendors have a vested interest in keeping schools tied to their particular product," he says. "But they also have a vested interest in keeping their customers happy."
Attention Linux Users

Please join us for
the inaugural meeting of the

Princeton Linux Users Group
(PLUG)

Monday, February 9, 2004
At 5:00 PM
Room 107, 67 Prospect Avenue

Refreshments will be served.

Please register by sending email to
plug@Princeton.EDU
Thwarting worms, battling viruses

Unsung (super)heroes keep the kinks out of computer systems

Matthew Perry had just pulled his sailboat into the dock near Barneget Bay on a busy Labor Day weekend when his cell phone rang from work. Princeton’s Office of Information Technology’s Peter Obenauf, manager of networking services, reported that the university’s power had gone out and core computers that serve the whole campus were shutting down.

Perry, the technician who manages the main computer room, gathered his family, packed up the car, and headed to Princeton. At Perry’s door, nearly a dozen other IT staff members were taking their places in the main computer room, replacing damaged and bringing vital systems back online.

“Everything that could go wrong did go wrong,” said Perry, even though power came back, the backup power system had failed. During the computer systems’ recovery, Perry said, “When most faculty and staff returned to campus, they had no idea anything happened.”

This is the goal of the people who work in the enterprise infrastructure services section of the Office of Information Technology. When power outages or computer viruses attack, systems become unexpectedly overwhelmed; these IT staff members drop what they are doing and work to keep disruptions to a minimum.

Most of the time, however, the group prevents problems from occurring at the first place. People like Darrin Kain, who regularly comes to work at 4 a.m. to perform routine maintenance, and Charles Augustin, who develops automated systems for monitoring the health of computer systems, are part of the team that keeps the electronic backbone of the University running smoothly.

“If we’re doing our job, nobody notices us,” said Darrin Olenski, who directs the infrastructure services group.

Indeed, the OIT staff has made the University’s computer systems remarkably reliable, said Betty Levitin, vice president for information technology. “The rapid growth of computer systems and continuous changes in technology make it very challenging to avoid and diagnose problems,” she said.

“I consider these folks among the real heroes,” said Levitin. “There is so much that has to go on behind the scenes in order to make things run smoothly.”

In fact, it does not always run smoothly. And, in fact, it does not run smoothly.

The core of computing resources at Princeton, from a physical standpoint, is a room in the basement of the OIT building on Prospect Avenue. A secure steel door leads to a common-use office filled with rows and rows of workstations and cabinets. Each cabinet is crowded with thousands of wires and hundreds of cables, some of them tightly coiled, others draped across the floor.

“Every time you send an e-mail or write a purchase order, it’s running on a computer in this room,” said Christopher Bentsch, one of the administrators responsible for computers that run the University’s operating system. At any given time, Bentsch points to a black cable that runs up a column into the ceiling. It is one of the University’s many Internet connections, a cable through which nearly every Web page and e-mail is (continued on next page)

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Heroes

continued from page 1

flows in and out of the campus. For a week or so without Peter," said Weiss, "the network would have been in a crisis."

In 1996, the University had 25 servers, the machines that process activity on the computer network. The number has grown to 200, increasing nearly 900-fold. The Office of Information Technology manages and maintains these servers, which are housed in five main locations across campus.

The people who make these physical resources work are the network engineers, who are responsible for managing the network and ensuring that it is available 24/7. They work closely with the various departments on campus to ensure that the network is running smoothly.

Other support services, such as the Libraries, Student Life, and Athletics, rely on the network to function. In addition to providing access to information and resources, the network also supports administrative functions, such as student registration and faculty research.

The network is constantly evolving, with new technologies and platforms being added regularly. The network engineers must stay ahead of the curve to ensure that the network remains reliable and efficient.

The network is also an important tool for collaboration and communication. Students, faculty, and staff use the network to exchange information and ideas, either within or across departments.

The network is a vital component of the University's mission to support learning, research, and teaching. It is a powerful tool that is essential to the success of the University and its community.

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Stripping software is Rx for viruses

by Steven Schultz

The recent onslaught of e-mail viruses has been nothing but a headache for many computer users, who are constantly receiving virus-infected e-mail messages that can cause damage to their system. The problem is most acute for those who use e-mail as their primary means of communication.

The problem is made worse by the fact that many virus-infected e-mail messages are undetectable by traditional anti-virus software. As a result, many users are left unprotected, leaving their systems vulnerable to attack.

It is important for users to be aware of the signs of a virus infection and to take action to protect their systems. The following steps can help prevent a virus infection:

1. Keep your anti-virus software up-to-date. Make sure your anti-virus software is regularly updated to include the latest virus definitions.
2. Be cautious when opening e-mail attachments. Avoid opening attachments from unknown senders or attachments that have strange file extensions.
3. Be aware of e-mail scams. Be wary of e-mail messages that claim to contain important information, such as bank account or password information.
4. Use a firewall. A firewall can help prevent unauthorized access to your system.

By following these simple steps, you can help protect your system from virus infections.

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Unique systems group members (front left) Victor Bear, Chris Dietrich, Diane Keizer and Charles Kruger are part of the Office of Information Technology's "behind-the-scenes" teams that keep the University's central computer systems running smoothly. They work in a cavernous room in the basement of the OIT building on Prospect Avenue that is not open to the public or resources at Princeton.

The OIT systems group members are responsible for the University's computer systems, including the student information system, campus networks, and the University's online resources. They work to ensure that the University's computer systems are available and reliable, and that they meet the needs of the University's community.

The OIT systems group members work closely with the University's IT department to ensure that the University's computer systems are running smoothly. They work to prevent and respond to computer system failures and to ensure that the University's computer systems are secure.

The OIT systems group members are also responsible for the University's computer system infrastructure, including the University's computer network, server farms, and data centers.

The OIT systems group members are a vital part of the University's IT department, and their work is essential to the University's success.

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(continued from previous page)
lunch 'n learn
information technology seminars

Presented by OIT

Copyright and copywrong: fair use for educators and researchers

Wednesday, February 11, from noon to 1:00 pm
Multipurpose Room B, Frist Campus Center
Cookies and beverages will be provided.
Everyone is welcome!

Curious to know whether you can copy and distribute film, music, course-packs and other materials without violating federal copyright law? Clayton Marsh (University Counsel) will review the expanding scope of copyright protection and the legal limits of the "fair use" exception as they apply to educators and researchers. Particular consideration will be given to the electronic distribution of course materials under the Digital Millennium Copyright Act ("DMCA") and the technology, Education and Copyright Harmonization ("TEACH") Act.

Speaker: Clayton K. Marsh.

Upcoming lectures:

2/18 The New Media Center: providing digital answers to the analog world (David Hopkins)
3/3 Search the Web effectively (Howard Strause)
3/24 The Data Warehouse (Ted Brooks)
4/7 How modern cryptography works (Professor Brian Kernighan)
4/14 WebMedia: streaming multimedia Princeton and beyond (Dwight Beshore)
4/21 Wireless computing at Princeton (Peter Olenick)
5/5 DBToolbox and what it can do for you (George Fleming)
5/12 GIS: putting information in its place (Bill Guthe and Wangyi Shaw)

For more information call (609) 258-7331
or e-mail aseducat@princeton.edu
www.princeton.edu/ae/lunchnlearn

For other training opportunities from OIT, please visit our training web site at http://www.princeton.edu/training.
OIT creates proposal to protect confidentiality

New policy aims to prevent student, faculty identity theft

BY NEIL ESHEL
PRINCETOWN STAFF WRITER

Taylor Beck '07 went to the registrar's office to change his course for the semester. Beck, who always relies on his driver's license to remember his social security number, had forgotten to bring it with him, and thus could not complete his course-change form. Embarrassed, he asked the officer if she could look up the number up-to-date. She never showed him any identification, and provided only his birthday, but he quickly found his social security number and gave it to her. Beck was who he said he was. Someone less honest, however, could have followed the same simple steps and discovered Beck's social security number, leaving the door wide open for identity theft.

As part of growing efforts nationwide to combat identity theft, an incident at New York University last year, the University's Office of Information Technology recently introduced a proposal to protect confidential information about faculty, staff and students. The proposal codifies the proper use of personal information, such as social security numbers, birth dates and driver's license numbers.

"Up to this point, people have generally done the right thing," said Anthony Scaturo, the University's OIT security officer and author of the proposal. "We just want to build on what we have done and create a central program to bring consistency, so that one weak link doesn't undo all the good everyone else is doing."

The proposal will designate individuals who must be consulted before such information is shared or published. For instance, Dean of Undergraduate Students Kathleen DeGnan would monitor the use of undergraduates' confidential information, while Dean of the Faculty David Dodkin would supervise the use of faculty information.

"Almost everything that's personally identifiable -- like a social security number or a credit card number -- or your mother's maiden name -- cannot be used without appropriate permission," Scaturo said. "We can't have all the individuals with access to this information making the decisions about how to use it, because coordinating just one person to share it would be all it takes."

The proposal covers information in many different forms. In addition to techniques for protecting information on computers, one of the proposal's sections covers the proper disposal of paper, microfilm and diskettes. "It doesn't matter if the information is overhead in a public space or written on a computer," Scaturo said. "Our goal is to make sure information is not exposed whenever it might be." Scaturo noted that the administration is aware of the need to protect information, OIT is also working on protecting computer systems from outside attack. As of now, any University website in which students enter personal information is protected by state-of-the-art 128-bit encryption, Scaturo said. But he added that a more comprehensive data-protection system will be recommended to the University on Feb. 12.

"We're making sure passwords can't be guessed, and that the system is secured so that it isn't exposed to viruses and viruses," he said. "But it's all a matter of how much risk I can tolerate at a cost that isn't too high. There has to be a balance." Outside of OIT, the University's Office of the general counsel also helps ensure the confidentiality of University members' personal information. "As a general matter, the Office of the General Counsel is available to consult with members of the University community as questions regarding the handling of confidential information arise, " University Counsel Clayton Marsh '83 wrote in an e-mail.

March said that the Office must ensure compliance with the federal privacy laws: the Family Educational Rights and Privacy Act, which deals with student educational records; the Gramm-Leach-Bliley Act, which applies to financial information, and the Health Insurance Portability and Accountability Act, which aims to better health information.

"The issue of information security and identity theft at colleges and universities came to national attention last fall, when an incident at NYU. The social security numbers and names of several NYU students were published online, leading computer technician Brian Ristock to copy the information and post it elsewhere on the Internet."

"Ristock claims he posted the information to force NYU to remove its website and notify the affected students, according to the New York Times. Listing social security numbers, however, could enable criminals to impersonate the NYU students in loan or other applications."

"The incident showed the dangers of using social security numbers as personal identifiers. Princeton moved away from using these numbers a few years ago, and now primarily employs PUID numbers. Scaturo said. The PUID numbers are randomly generated by computer, regardless of the student's social security numbers. Data Management Support Officer Kathy Betts said. The use of social security numbers also came into question in 2002, when University admissions officers used these numbers to determine whether students accepted to Princeton had also been accepted to Yale. Consequently Yale changed its Internet admissions notification system so that names and social security numbers were not included in the data, Betts said.

"At the University, Dean of Admissions Janet Rangel wrote in an email that the admissions office uses ID numbers separate from social security numbers to identify applicants. "We ask for social security numbers for our applicants because we have many students applying with the same name, sometimes from the same family or town," she wrote. "When students apply, we issue an ID number immediately which we then use throughout the process, not the social security number. Currently, the staff has had training about street confidentiality."

"Rapelje wrote that in 2005, the University will have the capability to notify applicants online of their acceptance to the university. "At that point, we will consider when to have online notification because we are open to the idea," she wrote. "Security will be our highest priority."

In response to incidents such as those at NYU and Princeton and the growing prevalence of identity theft nationwide, the Office of the Inspector General at the U.S. Department of Education created an internet resource last December alerting students to be protective of their personal identifying information. The site, www.ed.gov/privacy, provides advice such as memorizing your social security number and shredding pre-approved credit applications and other financial documents before disposing of them.

"Too many students don't know the basics of protecting their identity," a Dec. 11 Department of Education press release stated. "Fortunately with the proper safeguards, students can secure their personal information and prevent criminals from stealing their good names and records."
The New Media Center:
Providing digital answers to the analog world

Wednesday, February 18, from noon to 1:00 pm
Multipurpose Room B, Frist Campus Center
Cookies and beverages will be provided.
Everyone is welcome!

This just in: Kodak and Sony have discontinued the production of slide projectors and analog Betacam decks, respectively. What do you do? Call the NMC. We can help you digitize slides and capture video to a DVD. The New Media Center (NMC) provides a multimedia laboratory for the Princeton academic community to access cutting edge digital media technologies and receive instruction in their use. Learn about some of the new and improved services and equipment that are available at the NMC. Please come with some analog questions so he can provide some digital answers.

Speaker: David Hopkins.

Upcoming lectures:

  3/3  Search the Web effectively (Howard Strauss)
  3/17 PDAs and other small devices: not just for appointments anymore
       (Serge Goldstein, David Hopkins and Dan Oberst)
  3/24 The Data Warehouse (Ted Bross)
  4/7  How modern cryptography works (Professor Brian Kernighan)
  4/14 WebMedia: streaming multimedia Princeton and beyond (Dwight Bashore)
  4/21 Wireless computing at Princeton (Peter Olmick)
  5/3  DB Toolbox and what it can do for you (George Fleming)
  5/12 GIS: putting information in its place (Bill Guth and Wengyai Shawa)

For more information call (609) 258-7331
or e-mail aaducat@princeton.edu
www.princeton.edu/oa/lunchnlearn

Presented by OIT. For other training opportunities, please visit
www.princeton.edu/training
ARE YOU GOOD WITH COMPUTERS???

Would you like to be paid for helping your classmates with theirs?

OIT’s Student Computing Services is currently hiring Residential Computer Consultants (RCC’s) for the 2004-2005 academic year. Class of ‘07 ONLY!!!

Interested? Just show up to one of the interview sessions listed below, with no appointment necessary. Bring a resume....

BUTLER – Sunday, Feb 22nd at 7pm (Wu Lounge)
FORBES – Monday, Feb 23rd at 7pm (Private Dining Room)
MATHEY – Tuesday, Feb 24th at 7pm (Private Dining Room)
ROCKY – Wednesday, Feb 25th at 7pm (1917 Room)
WILSON – Thursday, Feb 26th at 7pm (B204 Wilcox)

For more information, email: rcc@princeton.edu

OIT Student Computing Services
lunch 'n learn
information technology seminars

Searching the Web effectively
with Google and more

Wednesday, March 3, from noon to 1:00 pm
Multipurpose Room B, Frist Campus Center
Cookies and beverages will be provided.
Everyone is welcome!

The web has over 12 billion pages, but not everything is on the web. How do you
find just the information you need for your presentation, report, or research
paper? Getting 10 million hits with a web search isn’t very useful. Learn to zero in
on pictures of a rabbit tiger, find caviar on web sites from Ukraine, translate
Italian to English, convert cups to liters and much more. Many simple search
techniques will be shown including the easiest: guessing.

Speaker: Howard Strauss.

Upcoming lectures:

3/17 PDAs and other small devices: not just for appointments anymore
(Serge Goldstein, David Hopkins and Dan Oberst)
3/24 The Data Warehouse (Ted Brosa)
4/7 How modern cryptography works (Professor Brian Kernighan)
4/14 WebMedia: streaming multimedia Princeton and beyond (Dwight Bashore)
4/21 Wireless computing at Princeton (Peter Olenick)
5/5 DBToolbox and what it can do for you (George Fleming)
5/12 GIS: putting information in its place (Bill Guthe and Wangyu Shawa)

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New e-mail virus hits campus

By ALYSON ZUREICK
PRINCETONIAN SENIOR WRITER

A new virus hit campus Tuesday afternoon, rapidly spreading through a series of randomly generated e-mails. The virus is part of a virus strain known alternately as the beagle or the bagel strain, which surfaced this weekend, said Dan Oberst, director of enterprise infrastructure services in OIT.

"We started with A, B and C strains this weekend, and now we are up to J, which is the one that is causing problems now," he said.

As of Tuesday night, OIT had not received the necessary antivirus software but expected to have it today.

In the meantime, Oberst said OIT decided to block the type of zip file that carries the virus in order to cut down on its ability to spread.

Oberst added that though the virus propagates itself through e-mail, it does not appear to damage files.

OIT is usually able to put protections in place before a virus significantly spreads, but instances of this virus seem to have multiplied more quickly than anticipated. This is most likely because of measures that make the e-mails appear to be from OIT, Oberst added.

"The lesson here is if the e-mail looks suspicious, don't open it," he said.
OIT fights e-mail virus outbreak

By LAURA BOYCE
PRINCETONIAN STAFF WRITER

University OIT services have largely contained the computer virus that broke out earlier this week. The bug, commonly known as the Bagle virus, was particularly deceptive because of its ability to reside in attachments to e-mails from users' own acquaintances.

The virus, which hit campus Tuesday afternoon, spread quickly via mass e-mails to students that appeared to be sent from University officials.

The OIT Help Desk received about 200 phone calls and 100 e-mail queries related to the virus between Tuesday night and Wednesday afternoon, Director of OIT's Enterprise Infrastructure Services Dan Oberst said. During that same interval, OIT removed over 11,000 zip — or compressed — file attachments that were possible virus carriers.

In addition to large-scale e-mails to people in the user's address book, the Bagle virus causes a remote central site to send commands to the user's computer until March 25th. "This implies that the damage is unpredictable," said OIT Security Officer Anthony Scaturro.

OIT now has the anti-virus software and is deleting infected attachments. An attachment entitled DELETE-DO.txt indicates that an infected attachment has been removed from an e-mail.

Some contaminated e-mails appeared to have been sent from the e-mail account of Lisa DePaul, the assistant director of housing. However, she explained Wednesday in an e-mail to undergraduates that she did not, in fact, send the e-mails.

Scaturro said new virus writers are now able to forge senders' names so that the apparent sender is not the author of the e-mail with the virus.

OIT personnel cautioned that hackers' increasing sophistication may continue to cause problems.

"The virus writers are getting very, very good at social engineering," Scaturro said, referring to techniques used by hackers to trick recipients into downloading viruses.

Most viruses are downloaded by computer users who think they have received a harmless e-mail with an attachment from an acquaintance.

The particular virus afflicting the University is carried through zip attachments. But other viruses can be carried through different kinds of attachments, Scaturro said.

"Just looking at the e-mail will not launch the virus," Oberst said. "The main danger is when you click on the attachment."

OIT receives its anti-virus software from the Symantec Corporation. Scaturro said, and Symantec is constantly updating its software to destroy new viruses. The dangerous window of time starts with the appearance of the virus and ends when the new anti-virus program is downloaded.

"People have to be careful even when opening attachments from best friends," Scaturro said. He added that virus-laden e-mails are usually generic and can sometimes appear very official and authentic.

"The best defense for us is only to open an attachment if you know the sender and you know why you're getting the attachment," Scaturro said.

DePaul expressed concern that the virus might interfere with room draw procedures.

"It's just unfortunate that this happened at this time of year because I want students to take e-mails from me about room draw seriously, but at the same time they have to be wary of e-mails that might contain viruses," she said. However, she emphasized that she "would never send out anything with a zip file."

Users who have gotten the Bagle virus can download a program to remove it from their computers at www.symantec.com.

Computer virus infects e-mail (continued from page 1)
Princeton wireless Internet coverage expands but still limited

In today's technology-driven world, being "wired" no longer necessarily means being physically plugged into the Internet. Many universities are rolling out wireless Internet, allowing students to work from their laptops without needing to plug in. At Princeton University, wireless is especially useful for students in residence halls, where having network access in the rooms allows them to use email and other Internet services without having to plug in. The University's Wi-Fi network is available in all dorm rooms and in most areas outside the dorms. However, the University's wireless network does not cover all areas on campus, and efforts are underway to expand coverage. The Office of Information Technology (OIT) has received several requests for wireless coverage in various buildings, and is currently working on expanding the network to include more areas of the campus. The OIT plans to add wireless connections on campus in the future, but coverage may be limited for some time. The University's wireless network is currently available in most classrooms, labs, libraries, and办公 areas. Future plans include expanding the network to include more areas of the campus.
OIT reports increase in DMCA complaints

BY RAJ HATHIRAMANI
PRINCETONIAN STAFF WRITER

As of March 1, 180 Digital Millennium Copyright Act (DMCA) infringement complaints had been filed with the University this school year. The number is almost equal to the 187 complaints filed for the entire 2002-03 school year and more than double the 82 complaints filed as of the same date last year.

Though public attention focuses on the Recording Industry Association of America (RIAA) and illegal sharing of music files, the DMCA complaints come from other industries as well.

Rita Saltz, director of information services at OIT, said of all complaints filed, the RIAA complaints comprise roughly 35 percent, the complaints from film and television studios and the Motion Picture Association of America (MPAA) are roughly 56 percent and those from software and game firms are about 9 percent.

Computers owned by undergraduate students are involved in 81 percent of the complaints this year.

"The increase in complaints could reflect an increase in illegal file-sharing or increased aggressive pursuit of infringers by the industry, or both," Saltz said.

Arunakshay Blum ’07 does not believe the RIAA’s increased activity will significantly affect peer-to-peer (P2P) sharing among students. Atreyasaid P2P systems provide users with a way to discover new music; that is difficult to replace with other venues such as listening to mixtapes in music stores.

"Many people who would be scared by the subpoenas have already jumped ship, and those that are left have figured out ways to protect themselves from the RIAA," Atreyasaid.

Breaches of copyright by electronic means or other methods has been a violation of University policy for many years and certainly long before the passage of the DMCA.

"University policy has not changed in that regard since I came to Princeton in 1985," Saltz said.

This academic year, however, the University introduced a new disciplinary system to safeguard a stronger message and inflict harsher punishments regarding illegal file-sharing, said Associate Dean of Undergraduate Students Hillary Hendel.

Under the system, a first offense constitutes a Dean’s warning; a second offense carries a penalty of six months of probation and a third violation results in nine months to one year of probation and loss of network privileges for the student.

"I definitely downloaded much more music and movies as a freshman, but I think that is more a function of the University policies than the RIAA," Jason Chu ’04 said.

For Chu, the University problem has closer to home than the RIAA action. "I have heard of friends that have been placed on University probation for downloading-related infractions," he said.

Because many students do not have clear ideas as to what represents a University infraction with respect to the downloading and sharing of music, movies and other media, Saltz and Clayton Marsh ’85, a lawyer in the University general counsel’s office, have been holding information sessions and discussions in the residential colleges with support from each college’s director of studies.

Saltz said in many instances, students who own CDs or DVDs have copied the files to their computers without realizing that the file-sharing software they use makes those files available to others on the Internet, thereby violating copyright laws.

"Some students don’t even seem to understand that their computers can continue to be active on the Internet without anyone sitting at the keyboard," Saltz said.

Additionally, many students buy into what Saltz calls "internet file-sharing mythology." Unless the studio that produced a film or a DVD on an episode of a television program offers a customer a copy from their own site, any copy from the Internet is being offered illegally.

"Thus, even if a student owns a movie or TV-series DVD, downloading an Internet copy is illegal.

"Many students use peer-to-peer file-sharing applications without understanding how it works, but think it’s OK to do so because Kazaa is taking care of them," Saltz said. "That above puts them at risk."
The Data Warehouse

Wednesday, March 24, from noon to 1:00 pm
Multipurpose Room B, Frist Campus Center
Cookies and beverages will be provided.
Everyone is welcome!

The Princeton University Data Warehouse is the result of a new project that will be replacing the Data Mall. It will provide the Princeton community with greater access to university data and will become the official repository for enterprise reporting needs. The Warehouse will be rolled out to the campus in a phased approach, with the first offerings being available late in the summer of 2004. To support the Warehouse effort, a new set of reporting tools will be available, as well as training and documentation necessary to allow users to take full advantage of the rich sources of information. This one-hour session will provide an overview of the architecture of the Warehouse and some hands-on demonstrations of both the existing and future reporting capabilities.

Speaker: Ted Brose.

Upcoming lectures:

4/7  Pubswrjudekb Gthubewhg, or, Cryptography Decrypted (Professor Brian Kernighan)
4/14 WebMedia: streaming multimedia Princeton and beyond (Dwight Bashore)
4/21 Wireless computing at Princeton (Peter Olcick)
5/5  DBToolbox and what it can do for you (George Fleming)
5/12 GIS: putting information in its place (Bill Guith and Wangyal Shawa)

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New ID cards part of effort to improve security and upgrade technology

Ruth Stevens

A major overhaul of the University’s identification card system is scheduled for this spring and summer. The goal is to create a more secure environment on campus and to take advantage of new technology.

Staff members from several departments on campus have been working for a year on plans to launch the improved system. Perhaps the most visible change will be the replacement of some 16,000 ID cards held by students, faculty, staff, spouses, dependents, domestic partners, trustees, retirees and affiliates.

The need for the change began with the decision to replace the 500 proximity readers currently installed on six campus buildings, according to Becky Goodman, manager of software services in the Office of Information Technology. She has been working as project manager with other staff members from OIT, facilities, dining services and public safety, among others.

The readers provide secure access to dormitories and to some academic and administrative buildings for those holding ID cards with programmable prox chips.

The current prox chips don’t always work correctly, and the technology is proprietary and available through only one vendor. While all students have ID cards with prox chips, only certain faculty and staff do.

With plans to expand prox readers to most perimeter building doors on campus, University officials decided to issue cards with a programmable chip to all faculty, staff and students and to replace the current readers with more reliable state-of-the-art technology.

The new technology will be industry standard and available through several vendors. In addition, officials determined that it would be a prime time to change the encoding map on the magnetic stripe of the card. The stripe includes encoding that allows users to have dining access, charges and declining balance accounts (Dining Points and PAW Points). Until now, the stripe was encoded with the holder’s Social Security number as the identifier.

“We are aware of the sensitivity to using that number,” Goodman said. “The new cards will have the Princeton University ID number as the identifier.”

The new encoding will meet American Banking Association standards, so that eventually the IDs could even be used as ATM cards. The ID cards will continue to be used for all of the previous purposes.

(ID cards continued from page 3)

The new University ID card has been redesigned so that it will be easy to distinguish from the old card, according to Goodman. The former white background is being replaced by an orange background with tiger stripes. The new cards will identify faculty, staff and student holders by their constituency group. The student cards will also have a letter and year to designate their college and class.

The card again will feature a photo of its holder. In 1998, the ID card office began taking digital photos instead of the old Polaroid pictures. Several thousand of the digital photos are on file and will be used on the new cards. Those with photos on file will not be contacted.

Those who did not have digital photos taken will be scheduled for new pictures. Faculty and staff members are being notified by mail if a new picture is needed. Spouses, domestic partners, dependents and retirees also are being notified and are being encouraged to attend photo sessions.

The next one is scheduled for 10 a.m. to 4 p.m. Saturday, April 10, in the ID card office on the first floor of New South. Affiliates will be contacted by the ID card office or departmental representatives regarding photos.

The new ID cards for faculty and staff will be distributed in June. Distribution tables will be set up from 11 a.m. to 4:30 p.m. Tuesday and Wednesday, June 28 and 29, on the north lawn of the Firestone Campus Center (inside if the weather is bad). Additional tables will be set up in the University Boathouse and the Zimmermann Multipurpose Building starting in early July.

The ID cards, which are scheduled for June 10, will be valid starting on June 1. Those who have not yet picked up the new cards will be able to use them starting on June 1.

Student ID cards will be distributed in September. Students who are on campus during the summer and who have received authorization may receive their cards in June.

The new ID cards will be reprogrammed to read the new cards on June 10. Affiliates who are on campus during the summer and who have received authorization may receive their cards in June.

A number of faculty and staff members will need to carry their old and new ID cards during the summer. It will take from June through August to replace all of the prox readers. In the old cards will be needed for access to buildings until the new readers are in place.

On June 10, library cognizant readers will be able to use only the new ID cards. However, they also will be able to read the old prox cards available in the library, so patrons do not have to be concerned about using up the value on those before the summer.

The departmental cards used for charging at dining facilities will be reissued in June. The new cards, which will have a new look, will be distributed as replacements according to records in the ID card office. Those with questions about departmental ID cards should contact Kathleen Boorock in the ID card office at x5906 or at kboorock@princeton.edu.

For more information on the new ID cards, visit the project’s Web site at www.princeton.edu/idcards.
lunch 'n learn
information technology seminars

Fubswrjudekb Ghfubswmg, or, Cryptography Decrypted

Wednesday, April 7, from noon to 1:00 pm
Multipurpose Room B, Frick Campus Center
Cookies and beverages will be provided.
Everyone is welcome!

Cryptography has come a long way since Julius Caesar encoded messages by shifting the alphabet over a few places, and even since the British decoded Enigma traffic during World War 2. Today, cryptography is at the heart of security for our computers at home and at work, it lets us buy and sell securely over the Internet, and it's relied on by both good guys and bad guys to keep their secrets safe. Professor Kernighan will talk about how modern cryptography works and where it’s used, some of the places where it hasn’t worked well, and a bit of crypto politics. This is definitely a talk for non-experts; only an easy non-technical overview will be given.

Speaker: Professor Brian Kernighan

Upcoming lectures:

4/14 WebMedia: streaming multimedia Princeton and beyond (Dwight Bashore)
4/21 Wireless computing at Princeton (Peter Odenick)
5/5 DBToolbox and what it can do for you (George Fleming)
5/12 GIS: putting information in its place (Bill Guthe and Wangyal Shaws)

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Focus group rethinks website

CONTINUED FROM PAGE 1

Even with many student group events occurring daily, the organization could benefit greatly from a homepage modification that provides more advertising space, Jaitly said, adding that groups could alternate announcements on the page to allow for more equal publicity.

The group, which began meeting toward the end of last semester, will provide recommendations to OIT "concerning the new website's content, navigability and appearance," Raj Hathiramani '07, another member of the student focus group and a "Prince" staff writer, said.

"Overall the goal is to keep the webpage as technologically up-to-date as possible and to meet the changing needs of the student body and University community at large," Lessing said.

The homepage does change "once in a while" and the format for the homepage changed last year too, Lessing added.

Describing the current effort to transform the website, Lessing said, "Change came about because of OIT interest, but mainly through the legwork of Rishi Jaitly and Raj Hathiramani."

Jaitly said he also hopes the group's efforts make the homepage "more personable." For example, there may be links for each class year to allow for quicker, easier access to the class websites, Jaitly said.

Reed Meister, recently-named director of web communications and strategic projects for OIT, is the "point person in charge of taking our suggestions and, when practical and feasible, incorporating them into the homepage design," Lessing said.

Among potential new features, the University is considering a search engine combining the Princeton and the standard Google search engines.

A feature picture will also most likely remain a part of the homepage.

Hathiramani said a webmail link that takes a user directly to the login page is another idea.

An additional project has been formed to select a content management system (CMS) that would meet the more complete set of website needs for the webpage builders, Hathiramani said.

The University recently submitted a request-for-proposal to select a CMS vendor. Several responses have already been received, Meister confirmed.

A CMS system will allow webpage builders to manage and modify websites and content more easily.

The new homepage — originally slated to debut this spring — has been delayed due to the search for a CMS system.

Lessing said the most difficult aspect of changing the webpage is organization.

"I feel that at Princeton sometimes we are so overwhelmed with information . . . that we occasionally overlook the incredible resources that we are given here," Lessing said.

Though the homepage will certainly change, one feature will remain the same.

"I am not sure what hue [of] orange will be on the homepage, but I can almost guarantee you there will be some sort of orange," Lessing said. "It's the Princeton way."
lunch 'n learn

information technology seminars

WebMedia: streaming multimedia to Princeton and beyond

Wednesday, April 14, from noon to 1:00 pm
Multipurpose Room B, Frist Campus Center
Cookies and beverages will be provided

If a picture is worth a thousand words, a video can tell the whole story? Learn about Princeton’s infrastructure supporting the streaming of audio and video over computer networks. See examples of how departments use this technology to deliver lectures, academic instruction, sporting events, conferences, and special events to computers on campus and anywhere on earth that an Internet connection can be established.

Speaker: Dwight Bashore

Upcoming lectures:

4/21 Wireless computing at Princeton (Peter Olenick)
5/5 DBToolbox and what it can do for you (George Fleming)
5/12 GIS: putting information in its place (Bill Guthe and Wangyal Shawa)

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Face it

*New website creates important link among buddies*

Thefacebook.com could quite possibly be the biggest word-of-mouth trend to hit campus since St. Ives' Medicated Apricot Scrub found its way into the women's bathrooms. Nearly a quarter of the student body has already signed up for this service, which has been adopted on campuses from Berkeley to Harvard and couples the usual functions of a facebook with those of, well, a dating service.

Now, type in the name of a friend, classmate, teammate, random acquaintance or object of stalking and now not only will you be provided with a photo — although, since there is no facebook agency to act as a watchdog, there's no guarantee that the photo will actually be of said person — but also a list of interests, favorite books, favorite movies, relationship status and an "Interested In" criterion with options ranging from "A Relationship" to "Random Play" to "Whatever I Can Get."

But the most prominent feature of thefacebook is the friends list — a set of links to other students' facebook entries. Already it shows signs of the usual Princetonian competitiveness — who can amass the longest or best-looking friends list? That guy who was in your econ lecture last year? Yeah, he's a close friend. Why not?

But the real moral of the story is that it's a small world after all. Just when you thought you were all alone, Thefacebook.com proves you can be connected to any other member of the University community by no more than three degrees of separation. Not only will this innovative technology inform you that the guy who spilled beer on you at Tower last week is named Ian, but you will also learn that he's "friends" with the girl who sits next to you in MOL 214 and the freshman down the hall who's always playing Halo alone in his room. Oh, and he likes "The Big Lebowski," too, and he's shown an interest in "Whatever I Can Get."
CAMPUS LIFE

Website presents ‘after dark’ events

By MARIS JENSEN
PRINCETONIAN STAFF WRITER

The students asked for it, and on April 17, the Office of the Dean of Undergraduate Students, the Office of Communications and the Social Opportunities Committee gave it to them. That day, the trial version of Princeton After Dark, a nighttime events calendar for students, went online.

The site will “inform Princeton students about the array of social, cultural, and entertainment events” on campus on Thursday, Friday, Saturday and Sunday nights, according to an e-mail sent to the student body by Assistant Dean of Undergraduate Students Tom Dunne this past weekend.

The version of the website released Saturday is a draft, to be modified according to student input. The official site will be launched this September.

PAD was created because “there was an interest in helping promote social alternatives on campus,” Dunne said. “Some people went to parties on Prospect [Ave.] by default because they knew something would be going on there.”

By providing information about alternative nighttime activities, Dunne said he hopes to avoid “what students see as a monolithic social culture.”

William Robinson ’04, who suggested the initial idea for the project along with other students in the Social Opportunities Committee, said there was a demand for PAD because “students simply do not use the University calendar to post events or to look for things to do at

SEE AFTER, PAGE 6

After Dark website launched

CONTINUED FROM PAGE 1

night — it is not student-friendly.”

Moreover, Robinson said, students are often not aware of campus events because they routinely delete campus-wide e-mails.

PAD, however, is a more viable form of advertising for student groups, the athletics department and “anyone else putting on an event open to the entire student body,” Robinson said, because “it centralizes advertising. By hopefully inspiring a larger audience to attend these community-building events, the site should benefit the student body tremendously. [PAD] should be an easy tool for students to help figure out their weekend plans.”

The site is not intended as a replacement for the Princeton Portal Project site — find.princeton.edu — which was taken over by the USG earlier this year from Matt Stack ’04, who created the site last year.

Robinson also suggested that a student-friendly homepage like the portal project site is still necessary.

In his message, Dunne asked that students e-mail suggestions for improvements or additions to the site to Robinson.

“During this initial two week period, what we’re interested in is getting feedback from students,” Dunne said. “Then, we’ll refine it... eventually it will be searchable off the University homepage and linked from a lot of different sites.”

Dunne is also excited about the possibilities that the site’s technology provides. Slated for the fall, for example, is the ability for students to receive text messages on wireless devices about certain events.

“It is really encouraging that we can have some calendar resources available to students that are cutting-edge, that students will embrace and really be impressed with. Some of the aspects we plan to add on in the future are things the average student hasn’t expected. It will be a more dynamic way for students to engage in alternative social activities,” Dunne said.

The site, in addition to listing campus events, offers links to the athletic events calendar, McCarter Theater, Richardson Auditorium, Performing Arts, UPO, NJ Transit, Pollstar and local restaurants, as well as a listing of movies in the area.
TECHNOLOGY

University homepage to be more accessible to all patrons

By ALEXANDER MAUGERI
PRINCETONIAN STAFF WRITER

When students and staff return to campus this fall, they will find a new look to the University's homepage — a site many community members visit dozens of times a day, yet one which has remained essentially unchanged since 1994. The site will be completely redesigned, and is slated to be up and running by next semester.

Along with changing the site's appearance, the Office of Communication and Office of Information Technology are collaborating to make the homepage more accessible to all the departments on campus.

They plan to pre-launch a content management system, or CMS, by June, with full implementation scheduled for the fall. The new system will allow individuals without technical expertise to upload information onto University websites.

"Right now you need to know HTML coding to change anything, but with the content management system someone like a department chair could upload or alter his or her department's site," Director of Communications Lauren Robinson-Brown said.

She explained that the new system would be able to transform a faculty member's Microsoft Word file into an attractive, web-ready form with the click of a button.

The planned changes would also benefit those working in the communications office by making it easier to upload campus news and events to the homepage.

When Robinson-Brown was named director of communications in 2000, she said one of her "immediate issues was analyzing the University's Web presence."

The CMS system will be sold to the University by an outside vendor. Currently OIT has narrowed its choice of providers from 16 to five companies and a final decision is expected by early May.

"We are looking for some technology [that can meet both the University's short- and long-term needs]," Robinson-Brown said.

Another major ongoing project undertaken by OIT and the Office of Communications has been remodeling the University homepage.

"One of the key goals of the redesign is to provide the greatest degree of accessibility to information, both for current users and new-comers," explained Director of Web Communications and Special Projects Reed Meister.

The major structural change to the site will be the addition of so-called audience pages. These pages will be linked directly to the University homepage and designed with specific audiences such as alumni, current students and parents in mind.

Their proposal will be pre-launched in June, in time to solicit public feedback before the website is officially launched next semester.

While the current homepage has lasted 10 years, OIT estimates the new design will only be used for two to three years. Brown said this is in line with the general lifespan of most major webpages today.

"Thus far we have gotten nothing but positive feedback from those who have seen [a draft of the website]. Everyone seems pretty confident in it," Robinson-Brown said.

SEE HOMEPAGE, PAGE 7

Homepage to get face lift over summer

CONTINUED FROM PAGE 1

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TigerNet challenges hackers

CONTINUED FROM PAGE 1

OG safeguards online databases

2003-2004 Annual Report Page 95

April 21, 2004, The Daily Princetonian

TigerNet contains the encrypted form of recognized words. Passwords with a combination of letters, symbols and numbers are the least vulnerable.

"To our knowledge, there have been no recent instances of anyone inappropriately accessing and using data from protected University databases," Lauren Robinson-Brown '85, director of communications, said in an e-mail.

An attack from the outside

Recent security breaches have not targeted University databases or specific information, but just "created trouble," Scaturro said.

Like the worm that infiltrated University systems this summer, most viruses indiscriminately attack vulnerable systems.

The hacking attacks do not seem to be targeted," OIT staff member Mary Ng said. People usually hack to send out spam e-mail, to simply prove that they can take down systems or to attack perceived evils, like the government or Microsoft.

An inside job

Yet when a series of inappropriate letters were recently mailed to the Class of 1994, questions arose about how someone could have accessed alumni information.

The mailings consisted of two letters: the first contained images of members of the Class of 1994 pasted on to figures in pornographic poses; the second was a forged letter on letterhead from the University's Alumni Council office. These letters were sent to many members of the Class of 1994, although the extent of the mailing has not yet been fully determined.

Robinson-Brown suggested that the person responsible for the illicit mailings may not have used TigerNet, the online community of the Alumni Association, to obtain the addresses of members of the Class of 1994.

Though TigerNet features an online directory where alumni can post their home and work contact information, TigerNet imposes a limit of 50 searches per 24 hours for each username, making "the creation of lists of alumni more difficult for unauthorized use," according to the TigerNet website.

It is possible that the author of the letters obtained the alumni addresses from another source, Robinson-Brown said in an e-mail.

"There is no easy way to extract data from TigerNet and doing so would be a painstaking process," she said. "The same information is available in printed alumni directories and other sources, such as yearbooks and reunions books."

Though TigerNet was created to "generate a sense of community" and is open to alumni as well as current students and faculty, the website has adopted policies to curtail abuse of the system.

"For example, information from TigerNet cannot be used for political or commercial solicitations," Robinson-Brown said in an e-mail. "We have never had to take legal action against a TigerNet user."
Princeton parents take their kids to work

Youngsters explore ancient art at Take Our Daughters and Sons To Work Day

by Jennifer Greenstein Altmann

Six-year-old Aisling Flaherty dashed through a room at the Princeton University Art Museum, hunting for a knight. "There!" she said, showing her father a massive reclining stone figure clutching a sword. "I just turned around and saw it." Next she needed to find a dragon. "This is so hard," she said, carefully examining the other statues in the medieval gallery with an eye out for the sharp claws of a dragon.

Aisling and her father, Martin Flaherty, who is a fellow in the Program in Law and Public Affairs at the Woodrow Wilson School of Public and International Affairs, were participants in the University's Take Our Daughters and Sons To Work Day. The national program, which is run by the Ms. Foundation, is designed to enrich the connection between the workplace and the classroom.

"I wanted my daughter to see Princeton," said Flaherty, who is a member of the class of 1981. "I had my doubts that 5- and 6-year-olds would be into a museum tour, but they really are. This is the first real art museum she's been to."

About 40 youngsters whose parents or relatives work at the Wilson School took a mid-morning tour of the museum in several groups arranged according to the children's ages. The tour for 5- and 6-year-olds, led by docent Katherine Sartarelli, included an Egyptian sarcophagus, a Japanese hand scroll from the 13th or 16th century and a medieval sword made of steel from about 1350.

The youngsters also ran their fingers along a mosaic from ancient Rome depicting Daphne and Apollo, which is installed on the museum floor. After lunch, the children chose to visit either the library or the athletic fields, and then watched a chemistry demonstration. Elsewhere on campus, about 40

http://www.princeton.edu/pr/home/hmcap.html

youngsters whose relatives work in the Office of Information Technology visited 87 Prospect Ave. to see the University's computer hub and took a walking tour of campus.

Janet Thompson, an administrative assistant at the Wilson School, took in the art museum with her granddaughter, Rebecca, who is 5.

"I thought it would be a nice thing for her to do and a nice chance for her to see where I work, which she hasn't been able to do before," Thompson said.
LAW SUIT

U. receives RIAA suit subpoena

BY JOSH BRIDGER
PRINCETON SENIOR WRITER

The University received a subpoena Wednesday ordering it to disclose the names of three community members being sued by the recording industry for copyright infringement. The suit only identified them by a network-assigned number known as an Internet Protocol (IP) address.

A copy of the lawsuit and information obtained through Internet tools indicate that the students being sued are seniors Jackie Klempner, Blair Labott and Chase Miller.

Members of the Recording Industry Association of America (RIAA) filed the suit last week, alleging that three University network users were infringing copyrighted works and were not paying for them.

The suits were part of an ongoing campaign by the RIAA to thwart file-sharing of copyrighted material. But not all of the 2,000 actions taken by the RIAA against individual network users has led to a court case, with most ending in settlements of about $3,000. RIAA spokesman Jonathan Lamy said. He declined to say how the disclosure of the names would affect the case.

The University contacted the users involved on Tuesday, before receiving the subpoena that after receiving the recording companies a copy of the lawsuit including the IP addresses and information about the subpoena would be coming.

"Once we had the complaint in hand, and the IP addresses were available to us, we were able to access the [identities of the] individuals who are associated and contact them," said Clayton March '03, a lawyer in the Office of the General Counsel.

The Daily Princetonian obtained the names behind the IP addresses through ordinary Internet tools.

A tool, known as "reverse DNS look-up," allows Internet users to find out the network name of a computer identified by an IP address.

CIT's Peter Olenick, manager of networking services, said the University permanently assigns IP addresses to student computers in dormitories.

For student IP addresses, Olenick said a reverse DNS look-up returns a computer name containing students' network identifiers, often in the form of their first initials and last names.

Reverse DNS look-ups performed on the IP addresses used in the RIAA case showed RIAA, wpa.15

RIAA subpoenas U. to give names

CONTINUED FROM PAGE 1

in the complaint centered the network identifiers of the three students named above. But this process gives information about the computers' registered owner, not about the person using the computer at the time of the alleged illegal activities.

In the suit, the recording companies are seeking to recover statutory damages for copyright infringement, as well as court costs and attorneys' fees.

Statutory damages can be assessed in amounts ranging from as little as $100 per work infringed — when defendants are completely unaware that their actions are illegal — all the way up to $150,000 per work infringed.

RIAA spokesman Lamy said that the targets of this latest round of suits, some 477 people in all, were sharing 800 songs on a network.

The goal, he said, was to make clear the RIAA was going to aggressively fight online piracy.

"Our objective isn't to win a lawsuit, but to send a message of deterrence and hopefully convince people to turn to a legal online music service if that is how they want their music," Lamy said.

On Tuesday afternoon, the recording industry provided University lawyers with a copy of the lawsuit as well as a judge's order to expedite the issuance of subpoenas.

At that point, University lawyers told the University that they would soon serve the subpoenas, which orders the University to identify the users associated with the given IP addresses.

At this point, the University contacted the affected students.

Earlier on Tuesday, before receiving the materials from the recording industry, March said his office did not plan on actively seeking the cost of the students involved.

"It is not generally the University's practice to undertake additional diligence, in terms of obtaining complaints that have been filed in connection with subpoenas. [not yet] served on the University," he said.

However, the expedited pace of the suit led to the contact of the students, he said.

The University has until May 56 to reply to the subpoenas.

EXCERPTS FROM RIAA LAWSUIT

One suit in the lawsuit calls for the deletion of songs involved in the case. Another lists the names of the songs being shared for one user.

20. The conduct of each Defendant in storing and sending copyrighted and unregistered material, and in making that material available to others, constitutes copyright infringement under § 106 of the Copyright Act of 1976, 17 U.S.C. §§ 106 and 501. Plaintiffs are entitled to injunctive relief prohibiting each Defendant from further infringing or contributing to the infringing of Plaintiffs' copyrighted sound recordings.

May 7, 2004, The Daily Princetonian
New University home page to debut this summer

Patricia Allen

A new University home page and core Web site will be previewed this summer in preparation for a formal launch by the fall semester. The joint effort of the Office of Communications and Office of Information Technology is intended to convey a better sense of Princeton through the Web and to make it easier to navigate, provide and update Web content.

For a look at the current draft of the new home page, see page 6.

“...the home page is a vital source of news and information, and we’re delighted by the improvements under way,” said Vice President and Secretary Robert Duree, co-chair with Betsy Leydon, vice president for information technology and chief information officer, of the Web Strategy Task Force, which called for this action. “The new core site will be rich in visual images and text to reflect Princeton’s vibrant culture, people and tradition.”

The culmination of years of research and other work, the site has been guided by input from the campus community through an online survey, focus groups, individual discussions and vendor briefings.

The new design, using shades of Princeton’s black and orange colors, brightens attention to photos and incorporates new audience buttons. Created by communications office staff members, the redesign has been planned to be supported by a content management system that would make it easier for campus offices to update content, use templates, organize information and create efficient approval processes for Web material, according to Lauren Robinson-Brown, director of communications. The content management proposal is under review by senior administrative committees and also may be implemented by the fall.

“This is a major undertaking,” Robinson-Brown said. “We’ve been asking anyone in the early planning stages of redesigns to hold off in order to benefit from the work we’ve already done.”

Robinson-Brown said it is a testament to the original design of the current core site, created in 1998, that it has been able to last so long. The current average life for a Web design is less than three years. She noted that OIT has contributed improvements over the years that have helped the current site remain viable.

Leydon agreed: “When I arrived on campus in 2001, many people told me that they could not find information easily on Princeton’s Web site. We tried to address that problem by clarifying the categories on the main home page and by adding a Google search engine specifically for the Princeton site. Now, we’ve undertaken a comprehensive redesign process that has proved both exciting and rewarding.”

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Home page

Continued from page 1

During the preview phase this summer, the University community will be able to test the revamped Web site and provide feedback before the formal launch in the fall. Information will be posted on the home page.

One of the most noticeable changes to the core site will be the addition of audience pages for key constituencies: current students, faculty, parents and family, prospective students, alumni and staff. Each page will have links with content of interest to the targeted audience, making it easier to find relevant information. Other features will include fly-out and drop-down or cascading menus, which will improve site navigation.

“One of the key goals of the redesign is to provide the greatest degree of accessibility to information, both for current users and newcomers,” said Reed Meister, director of Web communications and strategic projects in the communications office, who is managing the project. Most of the current core site pages will still exist with the new design. However, navigation to sub-pages will be streamlined to make it easier to access them, he said.

The proposed system will provide a set of tools that will allow technical and non-technical users to effectively manage, maintain and change Web site design and content, Meister added.

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This two-color version of the four-color home page shows the new design, which plays up photos and includes buttons that link to audience pages for key constituencies.
Name: Irwin Tillman.


Quote: "There's something new here nearly every day — some change in the technology or some new service we've been asked to offer. I like those challenges."

Other interests: Playing the cymbals in the Alumni Parade with the Princeton University Band, which he has done for the last 20 years since he was a Princeton undergraduate.