

# INFORMATION TECHNOLOGY SERVICES

## Introduction

In fiscal year 2004, the Information Technology Services department successfully transitioned to new management, improved PeopleSoft support and upgrade skills, and was challenged to handle the onslaught of computer viruses and worms from the Internet. The department finished the year in an improved position to offer high-quality, appropriate technology systems and services to our faculty, students, and staff in support of their work here at the College.

The number of concurrent IT projects exceeded all prior years, which presents technical and managerial challenges as our technology environment continues to grow in complexity and interconnectedness. Rigorous attention to change control management has allowed us to move forward with minimal interruptions to our customers.

Highlights of fiscal year 2004 accomplishments include:

- The transition to new management was smooth, building upon existing relationships of ITS staff across the College. The department maintained a high level of service and moved forward on all committed projects.
- The ITS department stayed under budget in all categories for the year.
- PeopleSoft support and upgrade skills significantly improved in FY04, through hands-on experience and classroom training.
- The Training department, including the PeopleSoft Help Desk staff moved into the ITS department in the Spring. We are already seeing the benefits of having this resource more closely integrated in the department.
- Forty projects were active during the year. Twenty-seven are complete or near completion. Thirteen are multi-year projects continuing into FY05.
- A new Library Information System went live at the semester break. The project was successful from start to finish, coming in on time and on budget.
- The PeopleSoft Finance upgrade completed in April 2004. This project took longer than anticipated. However, much was learned that will help the subsequent upgrades to Student Administration and Human Resource systems.
- The College is now on Internet 2, funded by a 2 year NSF grant. Exploration has begun to how beneficial connectivity to this member-only research network will be to the College.
- Services and support remained at a very high level in FY04. The onslaught of new Internet worms and virus particularly challenged the support staff, as it did at all higher education institutions. We fared comparatively well, with credit to the skills of the staff and the highly secure architecture in place at the College.

## About Information Technology Services

The Information Technology Services department is a service organization, reporting to the President of the College. The department is charged with balancing resources and

projects across three areas: user services, applications support, and network infrastructure. ITS is committed *to supporting advanced technology in a distinct academic computing environment*. The department strives to maintain a robust set of network services for our students, faculty, and staff, while leading the College in the implementation of new technologies that further the College's mission.

The operating principles of the ITS service organization are:

Customer Focus. ITS serves the entire College community. Service levels remained high in FY04, though a computer virus outbreak at the start of the school year caused significant service disruptions. This year, changes in department leadership allowed for a renewed focus on customer service. ITS staff are passionate about customer service. As Rev. Anthony Kuzniewski, S.J., Rector of the Jesuit Community, noted recently, "the last word in ITS is 'service.' They take it seriously, and they succeed."

Commitment to Quality. With the rapid pace of technological change, quality control is as critical as it is difficult. The "dot com bubble" years posed particular challenges, as vendors, given market pressures to release new versions of products, failed to deliver quality software. Maintaining staff skills is a challenge.

Change Management. Because of the emphasis in recent years on adherence to architectural standards and rigorous change control practices, we have been able to improve quality levels while remaining responsive to demands for new services.

Effective Communications. ITS communicates regularly with the community on network changes, service level problems, and project status. ITS managers meet with department heads regularly, to not only get a sense on where service levels are at presently, but gain insights on where technology may move in the next few years to the benefit of the College. Several IT policies were revised and communicated.

Valued Partnerships. The College's key technology vendors include EMC<sup>2</sup>, Blackboard, Cisco, Computer Associates, Dell, Novell, Oracle, PeopleSoft, Sun Microsystems, and SunGard. IntelliSpace, Inc. is our new Internet Service Provider and Innovative Interfaces, Inc. is now our Library Information System partner.

### Support of Mission

The Information Technology Services department values its place within the College of the Holy Cross. While technologists are often tempted to view technology as an end unto itself, we try to appreciate that technology is a tool—hopefully one that "supports the intellectual growth of all its members." We have explored this year how our membership on Internet 2, for example, might offer faculty and students opportunities to participate in more global dialogues. With today's prevalence of online communications across the community, we still have a way to go before "respect for the views of others" and "civility" are manifested equally online as with face-to-face. Lastly, as a service department, it is hoped that we can reflect the Jesuit principle of service to others.

The ITS operating budget represents a significant percentage of the College budget. It is important that this resource is aligned with the mission of the College.

## Benchmarks

Each year, the College responds to three data surveys on IT spending and staffing in higher education. Perhaps the most useful survey is the Costs Project, which is now in its 8<sup>th</sup> year (<http://www.costsproject.org/>). This survey collects spending and staffing data from more than 200 institutions and provides key benchmarks and ratios. Table 1 below shows how Holy Cross compares to the CLAC (Consortium of Liberal Arts Colleges) and AJCU institutions for academic year 2003-2004.

	<b>Holy Cross</b>	<b>CLAC 50<sup>th</sup> Percentile</b>	<b>CLAC 75th Percentile</b>	<b>AJCU 50th Percentile</b>	<b>AJCU 75th Percentile</b>
<b>Total IT Budget as a percent of institutional budget</b>	<b>6.9%</b>	5.0%	5.8%	5.9%	6.9%
<i>Total IT Budget/L as percent of institutional budget*</i>	<b>5.5%</b>	4.5%	5.4%	5.1%	5.7%
<b>Total IT budget per student</b>	<b>\$2,734</b>	\$1,896	\$2,440	\$1,070	\$1,432
<i>Total IT Budget/L per student</i>	<b>\$2,163</b>	\$1,802	\$2,118	\$846	\$1,334
<b>Total IT budget per (employee+student)</b>	<b>\$1,972</b>	\$1,404	\$1,693	\$840	\$1,174
Total IT budget/L per (employee + student)	<b>\$1,561</b>	\$1,270	\$1,550	\$717	\$1,096
Total IT budget per faculty member	<b>\$26,417</b>	\$17,174	\$22,756	\$11,899	\$16,242
Total IT budget per institution-owned computer	<b>\$5,028</b>	\$2,842	\$3,475	\$4,233	\$4,870
Total IT budget per (college+student-owned) computer	<b>\$1,830</b>	\$1,208	\$1,446	\$842	\$1,155
Budget for professional development per central IT staff (not students)	<b>\$1,235</b>	\$1,667	\$2,311	\$1,409	\$2,300
Number of students supported per central IT staff member (include students)	<b>56.6</b>	49.3	64.9	118.5	156.9
Number of faculty supported per central IT staff member (include students)	<b>5.9</b>	5.6	6.6	10.9	12.5
Number of (employees+students) per central IT staff member (include students)	<b>78.4</b>	70.4	85.7	144.8	184.5
Number of college-owned pcs supported per central IT staff member (include students)	<b>30.8</b>	35.7	44.0	36.0	40.9

\*Total IT budget/L (not including capital projects or grants)

*Table 1. COSTS Project 2003/2004 Comparative Data*

As can be seen, Holy Cross compares above the 75<sup>th</sup> percentile in spending ratios for both CLAC and AJCU schools. With respect to staffing, where lower numbers indicate more resources devoted, our ratios are significantly in the top half compared to the larger AJCU institutions. However, we are only better than the 50<sup>th</sup> percentile in staffing for 1 of the 4 ratios listed for CLAC schools. Capital spending seems to factor in significantly.

## Spending

The two figures below show the allocation of operating and capital resources for FY04.

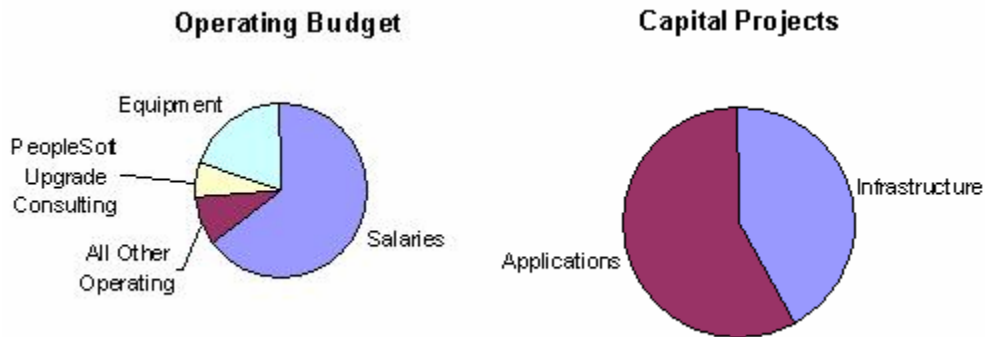


Figure 1. Budget Allocations FY04

### Governance and Advisory Committees

With new management in place in ITS, the existing IT advisory committee structure was modified and re-energized. The ITS Director now sits on all advisory committees. This allows for improved communication among and between the advisory committees and, importantly, the IT Steering Committee. See Figure 2 below.

Additionally, a sixth advisory committee was formed to oversee the College's upgrade, utilization, and support of the three PeopleSoft systems. This allowed the Administrative Systems Advisory Group to focus on the numerous other projects underway and planned.



Figure 2. IT Advisory Committees

### Staff Resources

The ITS department employs 42 staff in five major areas: User Services, Network Services, Applications Development, Change Management, and Department Administration. With the rapid pace of technology change and the complexity and diversity of technologies on campus, it is crucial to have highly skilled and motivated staff. Some ITS staff highlights include:

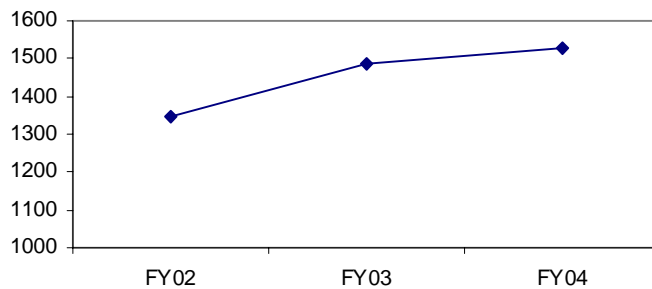
- The average length of professional experience of ITS staff is over 15 years.
- More than two-thirds of the staff hold degrees in technology or related disciplines.

- One quarter of the staff hold professional or technical industry certifications, such as in information security and advanced programming.
- ITS staff are frequent presenters at regional and national conferences, such as the AJCU and Consortium of Liberal Arts Colleges IT conferences, Linux World, and the Northeast Regional Computer Program workshops and conferences.
- Four ITS staff hold board positions with professional organizations (NERComp Board of Directors, Goddard Collaborative Governance Board, Consortium Trainers Committee Chair, and President of New England Unicenter User Group).
- Several ITS staff serve on the College's Community Standards Board.
- In FY04, the department implemented a program of semi-monthly presentations by ITS staff to ITS colleagues on the various projects underway. In FY05, these meetings will aim at cross-training of technical and project management skills.

User Services

The user services team is the department's primary interface with the community. The ITS Director's visits to all department heads this year showed a very high satisfaction level for the customer service this group provides, such as Help Desk assistance and the desktop computer replacement program. Service levels remained high in spite of the enormous challenge presented by new Internet worms and viruses. As can be seen in Figure 4 on the next page, help desk calls increased 50% over FY03 (from 879 to 1,319 per month).

Desktop computers are given to all faculty and staff. Student ownership of PCs is nearing 100%. FY04 was the final year of a multi-year classroom upgrade program. The figure below show the growth in institutionally-owned computers.



*Figure 3. College-owned Desktop Computers*

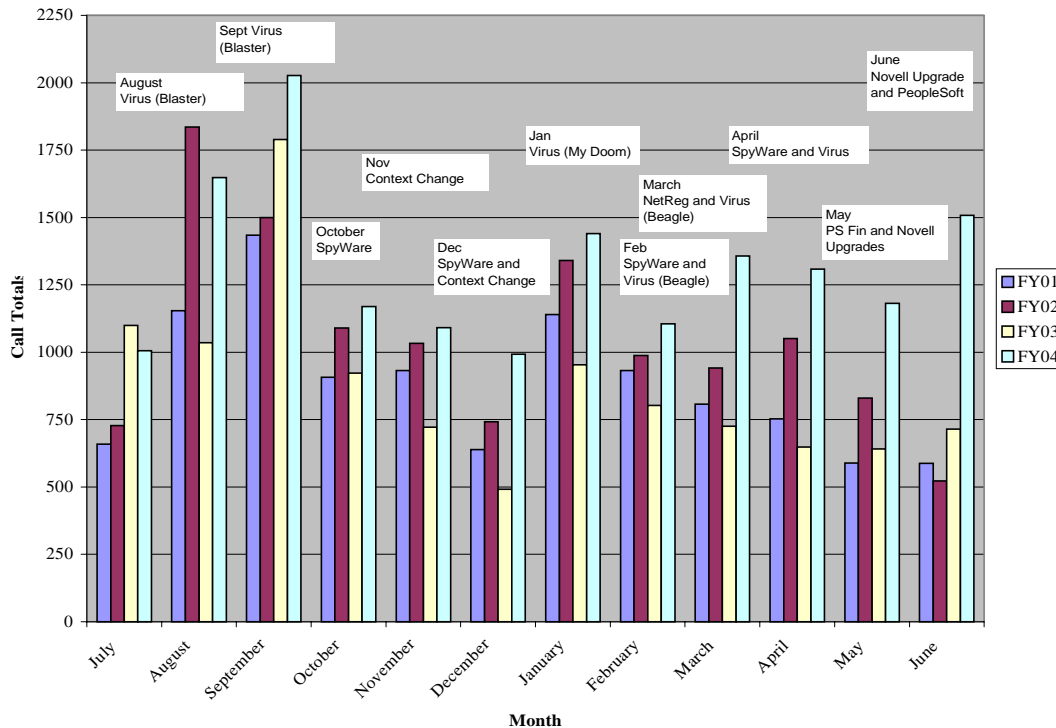


Figure 4. Help Desk Calls by Month – FY04

#### User Services Goals and Accomplishments in FY04

- Kept service levels high in spite of the 50% increase in help desk calls due mostly from the frequent Internet worm and virus attacks.
- Transitioned the PeopleSoft Help Desk into the team.
- Hired a second shift help desk person who assists in the evenings.
- Worked with the Network Services group in upgrading the core Novell NetWare file and print services.
- Expanded the use of the Blackboard system beyond classroom support, such as the Gateway orientation information and Mexico meal auction event.

#### A Look to FY05

- End users will be able to place service requests and check their status online. More automated tracking and reporting will be possible.
- A campus-wide education effort will attempt to minimize the impact from Internet worms and viruses. “Spyware” is an invasive threat prevalent on student and staff machines, causing excessive network traffic and slow functioning. This information will help users manage their home computers as well.
- In FY05, the exploration already underway into ePortfolios for students will complete, with a recommendation on software products.
- A new classroom plan will be co-developed with Audio-Visual Services.

## Software Training

This past spring, the Training Department staff, which includes the PeopleSoft Help Desk, were transitioned into the ITS department. We expect that this will allow us to better anticipate and accommodate the educational needs of our end users when software systems are added or upgraded. As can be seen from the figures below, PeopleSoft training represented a large percentage of the training this year, due to the upgrade of the PeopleSoft Financials system.

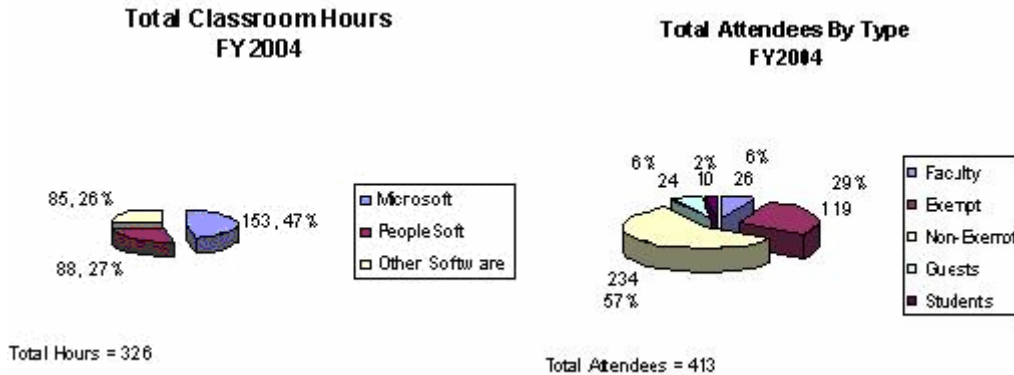


Figure 5. Software Training FY04

## Network Services

The College of the Holy Cross has invested heavily in the past decade in implementing a high-performance, highly secure network infrastructure. At this time, all offices, classrooms, labs, residence hall rooms, and many other locations are wired to a campus-wide network—a total of more than 4500 drops. Approximately 1,500 college-owned workstations, 2400 student-owned workstations, 150 networked printers, 60 servers (100 including virtual servers) and other devices communicate on the campus and beyond onto the Internet.

Holy Cross has for years put significant attention to network security, including aspects of confidentiality, integrity, and availability. Upgrades to infrastructure, software technologies, and staff skills have resulted in a security-conscious environment that is nearly unparalleled in institutions like Holy Cross. In FY04, our security infrastructure and program were particularly stressed due to the outbreaks of worms and viruses.

### *Goals and Accomplishments in FY04*

- This was another good year for system uptime and availability. One exception was the virus outbreaks at the start of the school year and after Easter break. Also, upgrades to the file and print services this summer necessitated downtime. This upgrade resulted in much less customer impact than a similar upgrade in 1999.
- The College transitioned to a new Internet Service Provider, doubled the bandwidth to the Internet, joined Internet 2, and positioned itself to do offsite backups through a high-speed fiber connection to a downtown Worcester facility—all for the same cost we had been paying to our former ISP.
- Wireless zones were added in the Hart Center basketball court, Dinand library, Fenwick 4<sup>th</sup> floor, and the Math department.

- We continued our server consolidation using virtual technologies and worked with the budget office on a more refined buy vs. lease server funding model.
- Supported the implementation of 27 projects into production.

#### *A Look to FY05*

- Implement remote storage in the 474 Main Street facility. We have been waiting for product release from our storage vendor, which is now due out in FY05.
- Activate wireless throughout Wheeler Hall. Evaluate support impact and make recommendations about further wireless capabilities in the residence halls. Further, add wireless to all libraries on campus (Music, Science, and Rehm) and remote Jesuit housing on City View Street.
- Upgrade the core firewall and network switch to accommodate new needs for performance and security.
- Continue to work with Telecommunications and other departments on converging and emerging technologies, such as Web-enabled cell phones.

#### Applications Support

Applications Support can be loosely divided into three areas: PeopleSoft systems, Web Applications, and “all others.” Ten of the 16 applications development staff support PeopleSoft systems; three FTEs support web development and applications; and three FTEs support all of the other systems, such as the Library, Alumni/ Development, and OneCard systems. Each of these groups works closely with the Change Control, Training, Help Desk, and Network Services groups to ensure quality support and smooth upgrades.

The Administrative Systems Advisory Group (ASAG) provides governance support, along with the IT Steering Committee, on new applications or major upgrades. All such projects must go through ASAG review and signoff.

#### *Goals and Accomplishments in FY04*

- A new, top-tier Library Information System from Innovative Interfaces, Inc. (III), went live in January. Their Millennium system is the predominant library system at the AJCU institutions. The project was on time and on budget.
- The PeopleSoft Finance system was upgraded from version 7.0 to 8.4. This was a large version jump that challenged the department. The project took longer than expected, but stayed under budget.
- A PeopleSoft Student Administration upgrade was planned, budgeted, and initiated in FY04, with a go-live the week of November 22, 2004.

#### *A Look to FY05*

- A document management project is nearing the end of analysis, with implementation in FY05. Focus will be on Student Records, with interest in other areas of the College that process large volumes of paper.
- A facilities management system will be implemented in FY05. This project, centered in the Physical Plant department, has been planned for years. A thorough

analysis recently completed, with ASAG review. The go-live is targeted for semester break for the Physical Plant staff, with online request capabilities delivered to the community some time after.

- The College fell behind in offering online Bookstore purchasing while waiting for our vendor to deliver a quality system. In FY04 other options were explored. We will implement a third-party, externally hosted online Bookstore system this summer.
- PeopleSoft Student Administration (SA) version 8 will go live in November 2004.
- A struggling electronic faculty file system (EFFS) will be rewritten as part of the PeopleSoft SA system, with release coinciding with the SA go-live in November.
- An endowment unitization project will commence and complete.

### Web Services

The College strives for excellence in technology in support of teaching, learning, and administration. Web services provide a distinct opportunity to give timely, secured data access to students, faculty, staff, alumni, prospective students, and other constituents of the College. These technologies move us closer to “anytime, anywhere” access.

A rigorous methodology for web applications development was used and enhanced this year. The department supports consistent look and feel (College policy), security (through encryption and authentication); high performance and reliability (through failover and load testing); open standards (J2EE); reporting and monitoring (WebTrends); and accessibility (with Public Affairs in the lead).

### *Goals and Accomplishments in FY04*

- In its first full year of use, our Donors made 1,891 gifts online, totaling \$397,861. The average gift was \$210.40; the largest gift was \$10,250. Of the online donors, 27% were first time or lapsed donors (24% if you exclude the class of 2003).
- An online directory was released.
- An online Career Advisors Network was developed. Students can now access this resource from anywhere (such as abroad or at a Washington internship).
- The Web team worked with a new vendor, MediaSurface, on implementation of a content management system for all institutional web content. Go-live is slated for late summer 2004.
- A web-based reporting tool, Brio from Hyperion, Inc., was purchased and implemented. The Alumni Development office is now using it, though software instabilities slowed the implementation.
- A movie rental service was launched this year, with online search capabilities.
- As already mentioned, many new applications are now Web-based, such as the Library system and PeopleSoft finance.

## *A Look to FY05*

- Finish the rollout of the web content management system.
- Implement an online event registration system, with particular emphasis on Alumni events.
- Explore online survey tools.
- Offer online ticketing to Athletic events.
- Participate in the analysis of Alumni Education opportunities through the Web.
- Follow the developments in Open Source software. In high-profile projects like the open source course management system, SAKAI, colleges are exploring ways to address the cost and support concerns with commercial software products.

### Change Management

The College's information technology environment is large, complex, and interconnected. The pace of software releases and onslaught of external security threats make it all the more critical to be diligent in security and change management. A change control program has been in place since 1999, with a single manager responsible for oversight. Any changes to a production system go through formal change control review and signoff. Attention is given to user impact, impact on other systems, operational documentation, and help desk support. Holy Cross is a leader in higher education in this area. In FY04, change control was integrated into the PeopleSoft systems support.

A security review process was also adopted in 1999. No new system moves into production without security review and signoff by the security officer. Security reviews are held among technical staff and functional liaisons. Risks and exposures are identified in an initial review, held early in the development process. Security review signoff occurs when all steps to mitigate risks are taken and the remaining exposures are accepted by the data owners (it is not possible to eliminate all risk).

Both change control and security reviews have become well-understood and accepted procedures. There is increased awareness of the importance of securing the College's information assets among the community. Confidentiality, integrity, and availability of information systems and data are taken very seriously at the College.

### Educational Technology

Given our mission, special attention should be paid to the department's support of Educational Technology. Use of various technology tools, such as the Blackboard course management system (CMS); Internet-connected computers and audio-visual equipment in the classrooms; numerous technology labs; PowerPoint, Word, and Excel; and other specialized software help our faculty and students reach their educational goals more quickly or more effectively. Use is pervasive, but not generally on the cutting edge. Wireless technologies, Web-enabled phones, and technology-savvy students present opportunities for new thinking about educational technology.

In FY04, we joined the high-speed research network, Internet 2, funded through a two-year NSF grant. Several events, hosted by the Information Technology Services

department, allowed the exploration to begin into what benefits the College can gain from Internet 2 access. At this point, most of the interest is in videoconferencing, where outside speakers can be brought in remotely to our classrooms.

Oversight for educational technology comes from several sources. A team of educational technology staff, who work for the Vice President for Academic Affairs, collaborate with the Assistant Director for Instructional Computing and User Support in ITS. The Educational Technology Advisory Group (ETAG), with membership from the Dean's office, the faculty, the library, and ITS, meets regularly throughout the year. This year, topics of wireless and digital imaging were discussed, among others. ITS managers meet regularly with the Dean and with the Director of Physical Plant to discuss facilities.

### Strategic Planning

Complementing the College-level strategic planning efforts already underway under the leadership of the Senior Vice President, a strategic planning effort focusing on information technology will be conducted in FY05. The ITS Director will lead this effort, which will include input from across the College. Focus groups, small meetings, benchmarking of other institutions, and considerable research will be parts of the process.

### Conclusion

In closing, fiscal year 2004 was a very successful year for the Information Technology Services department. It is our goal to lead the College in the effective use of technology in support of our mission. Clearly, information technology is having an impact on every dimension of college life and we continue to do our best to add value to the education and research processes of our faculty and students. While it is not possible to predict exactly where technology will advance in the coming years, it is important that Information Technology Services provide guidance to the College about high-level trends in the industry. As we move forward into FY05, ITS must be diligent in its support of existing technology on campus, and ever-attentive to staying abreast of emerging trends.