University Information Technology Services (UI TS), with offices on the IUB and IUPUI campuses, is responsible for the continued development of a modern information technology environment throughout the university in support of IU’s vision for excellence in research, teaching, outreach, and lifelong learning. The information technology environment that UITS provides comprises tools and services that support the academic and administrative work of the university. Computing tools include a variety of timesharing computers, hundreds of public-access, Internet-connected workstations, all equipped with current software; and a number of supercomputers. Interconnecting these resources is a high-speed network that links computers of many types and sizes in a complex, interactive web. Under the leadership of the Office of the Vice President for Information Technology, UITS is centrally responsible for implementation of the IU Information Technology Strategic Plan, available at http://www.indiana.edu/-ovpit/strategic/. Activities reported here reflect the goals, objectives, and implementation activities of this plan for the 2004-05 fiscal year.

Goals and Objectives

Access to Network Resources
(Recommendation 2, IU Information Technology Strategic Plan)

Access to computing and network services, on the campus and off

Campus Planning Theme: Teaching and Learning
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

With the long-standing problem of inadequate modem access on the IUPUI campus solved, personnel are ensuring that service is continuously monitored for quality so that busy signals are encountered rarely and modem access is, as a normal operating condition, rapid. The two modem pools, 278-5620 (up to four-hour connections) and 278-5621 (up to one-hour connections), together support 805 simultaneous users. The number of new, on-campus networks continues to grow. At IUPUI, some 2,000 new network connections were activated in 2004, bringing the total to 21,250. With IUPUI now converted to Gigabit Ethernet, 44 buildings are now connected. During the past year, the 1-Light network, Indiana regional optical fiber network, enabled greater independence in telecommunications through decreased dependence on telecommunication providers. With multiple strands of optical fiber, 1-Light increased networking capacity by many orders of magnitude. In 2004, major strides were made toward a goal of complete wireless access in a VPN-secured environment. Virtually 100% of academic and most administrative areas have wireless capability.

Evidence of Progress for 2004-2005:

In 2004-2005, UITS dial-up modem pool, comprising 805 one- and four-hour dialup lines, received 3,051,929 calls, with 91.3% of IUPUI users reporting satisfaction with UITS remote connectivity services. As a measure of the impact of 1-Light, in August 2002, IU achieved a near four-fold increase in capacity for normal Internet traffic at no increase in cost through use of 1-Light and its capabilities and interconnection with the regional Internet infrastructure in Indiana and the

[1 of 20]
Activities planned for 2005-2006:

Commercial offerings and new communication technologies such as digital subscriber line (DSL) service and cable modems continue to enable UITS to move away from a position of providing user dialup services toward facilitating agreements between users and commercial vendors. The one-hour modem pool will be retired in FY05-6 due to low usage. UITS will continue to leverage the power of IU's 100,000-member community to secure the market's best rates and services. The Trustees resolution, aimed at avoiding future security breaches, calls for OVPIT to develop policies that lessen the likelihood of unauthorized access to the university's IT environment and to assume leadership and responsibility for responses to such accesses. The VP and CIO delegated the authority to implement these directives to the Information Technology Policy and Security Offices. New measures include: retirement of insecure protocols in FY05-06; continued availability of security software and increased vulnerability scanning services; heightened communication about security threats; and increased communications to the campuses on steps IU is taking to increase security.

Community Engagement

Informatics and Communications Technology Complex

Campus Planning Theme: Civic Engagement

Secondary Goals:

Sub Unit:

Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

In 2004, a technology-rich building at IUPUI was opened to provide a major boost to information technology (IT) in the state of Indiana, just as IT becomes even more critical to advances in research, teaching, and learning. The Informatics and Communications Technology Complex (ICTC) houses the Indiana University Schools of Informatics, Journalism and Music; the Pervasive Technology Labs of Indiana University, and University Information Technology Services (UITS). This facility and its programs and services will help facilitate growth of academic programs and civic engagement. The ICTC's resources provide essential tools for scientific research, technical support, teaching, and learning that will help build a stronger economy in Indiana, by educating the current and future workforce and supporting statewide IT initiatives.

To support collaborative research among scientists here and abroad, technology professionals within this technology building manage several high-speed education networks in the US and Asia-Pacific. They also support I-Light, the optical fiber infrastructure that links IUPUI, IUB, and Purdue University to each other and to the Internet. Furthermore, by making supercomputing technology, advanced visualization technologies and technical support available to roughly 1,000 research scientists on all eight IU campuses, this integrated technology environment enables scientists to analyze vast amounts of information visually and literally, while enabling technology transfer and commercialization of innovations. Combined, these technology activities enhance the university's ability to share its expertise and resources to the higher education community far and wide.
Evidence of Progress for 2004-2005:

Since the Informatics and Communications Technology Complex has been built, UITS has welcomed thousands of visitors and hosted several constituencies from Indiana, including leading business leaders, technology professionals, state legislators, and the media. Every month, the ICTC hosts the Tech Tuesdays, a meeting of members of Techpoint, a statewide technology trade group representing 400 members, including publicly-traded companies, private businesses, colleges, research universities, and local economic development organizations, of which the university is a member.

Through participation in Techpoint, Pervasive Technology Labs at Indiana University, which is co-located at IUPUI and IU Bloomington, was honored as a finalist for the 2005 Techpoint Mira Awards. The Techpoint Mira Awards are Indiana’s largest and most prestigious technology awards program, recognizing the state’s best and brightest innovators, educators, and service providers in technology-related industries.

Indiana University has also partnered with several universities and institutions to create community source software solutions for higher education. IU was one of four partners involved in the Sakai Project, a grant-funded initiative to build a community source online collaboration and learning environment for use at colleges and universities. Since the Sakai Project began, a broader community of Sakai adopters formed the Sakai Educational Partners Program and the Sakai Foundation was established to continue support for Sakai when funding ends. IU is also involved in two other major community source initiatives. The Open Source Portfolio Initiative (OSPI) is a grant-funded community source project to build electronic portfolio software. A similar partnership of colleges and universities is working to develop a community source financial system called Kuali for use at higher education institutions.

In 2005, Pervasive Technology Labs at Indiana University, co-located at IUPUI and IUB, partnered with the Indiana State Museum and the Indianapolis Museum of Art to create interactive exhibits for visitors to enjoy. This ideal marriage of discovery, innovation, and creativity, which is essential in driving the state’s high-tech economy, is also vital in supporting our communities and improving the quality of life throughout all of Indiana. In Fall 2005, Pervasive Technology Labs plans to unveil its interactive learning tool, Make A Meal, that will help teach school age children about nutrition. Make A Meal will be housed at the Ruth Lilly Health Education Center, where more than 10,000 children are expected to visit each year.

Activities planned for 2005-2006:

The Informatics and Communications Technology Complex will continue to be a site for engaging the wider community of IT professionals, for example by hosting events sponsored by TechPoint and the IUPUI Solution Center. Tour information and presentations are being updated, and new content will be developed for the plasma screens in the Data Center and Global Network Operations Center, improving the accessibility of those facilities to visitors.

- Digital Libraries and the Scholarly Record
  (Recommendation 9 of the IU Information Technology Strategic Plan)

- Convenient and reliable access to a comprehensive and coordinated collection of electronic information resources

  **Campus Planning Theme:** Best Practices
  **Secondary Goals:**
  **Sub Unit:** None
  **Time Frame:** July 1, 2004 - June 30, 2005
Actions taken for 2004-2005:

The IU Digital Library Program is a collaborative effort of the Indiana University Libraries, the OVPIT, and the university research faculty with leadership from the School of Library and Information Science. The IUPUI University Libraries Community Project, funded by a National Leadership Grant from the Institute of Museum and Library Services (IMLS), and with the partnership of The Indianapolis Museum of Art, offers public libraries and K-12 educational institutions access to digital image databases. Other museum supporters of the Community Project are The Eiteljorg Museum of American Indians and Western Art, The Indiana State Museum, The Childrens Museum, and The Indiana Historical Society. (See www.ulib.iupui.edu/mls/home.html) The Electronic Atlas of Central Indiana is a Web-based repository of maps and GIS (Geographic Information Systems) data covering Central Indiana. Partners include the IUPUI Center for Earth and Environmental Science, The Polis Center, the United Way of Central Indiana, and the Natural Resource Conservation Service, and funding comes from Indianapolis Foundation grants. Digitized historical aerial photographs of six of the nine counties of Central Indiana have been incorporated into the Atlas. Funded in part by the Ayres Foundation, the Historical Maps section of the Atlas will include a selection of maps from Indianapolis and the Central Indiana region. The team has consulted with the Indiana State Library, the Indiana State Museum, and the IU Geography and Map Library on the project. (See atlas.ulib.iupui.edu/) The Philanthropic Studies Index (PSI) is an online reference tool to literature on voluntarism, nonprofit organizations, fundraising, and charitable giving, for the years 1940 to 1999. Migrated into an Oracle database structure in 2000, the resource now has a Web interface for citation editing and data loading. Future enhancements will include advanced searching, new data entry screens, and gathering and delivery of detailed search statistics. (See http://cheever.ulib.iupui.edu/psipublicsearch/) Work continued on the Cultural Digital Library Indexing Our Heritage (CLIOH) project, which is supported in part by an award from the Institute for Museum and Library Services. CLIOH is a multi-disciplinary initiative to digitally preserve endangered archaeological sites, compiling vast amounts of data from still photos to virtual-reality tours that can be accessed through the Internet. For more information, see www.cs.iupui.edu/~clioh.

Evidence of Progress for 2004-2005:

The number, variety, and extent of digital library projects proposed and funded will be an important measure of progress and effectiveness.

Activities planned for 2005-2006:

The Digital Libraries Project will continue to leverage IT Strategic Plan resources as matching contributions for future digital library research funding proposals. Additional implementation details for this strategic area are available in the Research and Academic Computing Strategic Plan, http://www.indiana.edu/~rac/stratplan/stplan.html.

Institutional Commitment: Faculty and Staff Engagement
(Recommendation 3, IU Information Technology Strategic Plan)

Faculty incentive programs (SBC Fellows Program)

Campus Planning Theme: Teaching and Learning
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

IU established the SBC Fellows Program in the fall of 1999, through a grant from SBC. Since 1999
IU established the SBC Fellows Program in the fall of 1999, through a generous $1 million gift from SBC. Since 1999, 57 faculty projects have been awarded to support the innovation of teaching and learning technology. The award program is administered by the University Information Technology Services.

The SBC Fellows Program promotes innovation in teaching and learning as facilitated through the use of information technology. The program provides support for faculty projects in the effective integration of information technology for campus and distance education. The program calls upon innovators to serve as faculty mentors to others in their disciplines through offering workshops or departmental consultations in coordination with the teaching and learning centers on IU campuses. The program also collects the fellows findings and draws upon their expertise for the benefit of colleagues throughout IU and beyond. SBC Fellows are asked to mentor other faculty in the use of their innovations, contribute to the IU good practices database, make campus presentations and participate in the annual IU SBC Fellows Summer Leadership Forum. For more about the program, see http://sbcf.iu.edu/

Evidence of Progress for 2004-2005:

Between July 2004 and June 2005, IU SBC Fellows projects included transitioning capstone projects to Oncourse CL and ePortfolio; virtual environmental field trips; and preparing for innovation in technical communications. During the year, $7,500 was awarded to IU faculty system wide, including Professor Wanda Worley at IUPUI, as part of Round 6, Preparing for Innovation. During the next phases of the program in 2005-2006, the grant dollars and numbers of projects awarded will increase.

In May, IUPUI hosted the IU SBC Fellows Summer Leadership Forum at the Informatics and Communications Technology Complex. The event provided more than a dozen faculty university-wide an opportunity to present their projects and discuss lessons learned during project development and implementation. Projects represented by IUPUI faculty included a virtual microscope to teach histology to dentistry students; a game tool for teaching energy efficiency strategies to commercial construction students; an interactive hospital game that allows medical students to complete tasks and interact with one another while their skills are being assessed; a music theory placement test; and an interactive web- and CD-ROM-based project.

Since 1999, 21 IUPUI faculty members have been named IU SBC Fellows.

Activities planned for 2005-2006:

Two more sets of SBC Fellows awards, in the categories of Examining Innovation ($5,000 grant level) and Implementing Innovation ($15,000 grant level), will be awarded in during the 2005-2006 academic year. Deadlines for submissions are Sept. 19, 2005 and Jan. 9, 2006, respectively.

Staff and faculty support (Actions 4, 8, 10, 16, and 23 of the IU Information Strategic Plan)

Campus Planning Theme: Teaching and Learning
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

In 2004, IU was able to extend its agreement with NETg under a revised contractual arrangement, and this enabled faculty, staff, and students from all IU campuses to be able to access online training courses for a very low cost. More...
than 1,200 courses are now offered in three different bundles: Desktop (which includes courses on commonly used desktop applications and consumer technologies); IT (which includes advanced courses on topics like programming, operating systems, networking, and server administration); and Business and Professional Development (which includes soft skills courses on topics such as leadership, time management, and communications). A year's subscription to one of these bundles costs between $25 and $100, even though in the commercial marketplace equivalent access can cost hundreds or even thousands of dollars. In addition, IU made Microsoft self-study courses on Office applications available to the IU community for free in 2004-2005, giving users several options for learning IT skills on their own.

Evidence of Progress for 2004-2005:

In 2004-2005, 6,720 NETg courses were launched by more than 250 users, and IU students, faculty and staff downloaded 36,304 free Microsoft e-learning courses. Nearly 95% of the users of these online training services reported high levels of satisfaction. Local Support Providers (LSP) certified as Microsoft Professional staff teach Microsoft Official Curriculum to other LSPs and technical support staff from Indiana University Bloomington, IUPUI, and other regional campuses. In 2004, LSP Services taught 24 Ed/Cert classes to an audience of 322 LSPs and technical staff. Other educational initiatives hosted by LSP Services in 2004 included 25 information sharing sessions at Indiana University Bloomington and IUPUI presented to 1,000 participants. (See www.indiana.edu/~edcert and https://lspservices.iupui.edu/edcert.asp) UITS IT Training and Education delivered IT training to more than 3,830 participants in 290 class sessions at IUPUI, at satisfaction levels of 96.8%. Additional IUPUI usage data for 2004-2005 will be available through the UITS Finance Office, Cost and Quality of Services Report, and http://uits.iu.edu/scripts/ose.cgi?apjw.ose.help#cost.

Activities planned for 2005-2006:

Actions 8, 10, 16, and 23 of the IU Information Technology Strategic Plan call for the continued training and certification of technical support and consulting staff to support technology use in departments. This can be done through professional certification programs, locally developed workshops, and self-paced learning opportunities. See TLIT Implementation Program for more information on these actions: http://www.indiana.edu/~uits/tlit/sub/stplan.html?Toc=490534907.

Research: Computation, Communications, Collaboration
(Recommendation 5 of the IU Information Technology Strategic Plan)

Advanced data storage and management services for research

Campus Planning Theme: Research, Scholarship and Creative Activity
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

The AVIDDD (Analysis and Visualization of Instrument-Driven Data) systems were designed to meet a need to handle the full life-cycle of data, from generation to processing to visualization and archival storage. A quintet of geographically distributed Linux clusters, three of which are housed in the Data Center on the IUPUI campus, AVIDDD was funded by a $1.8 million NSF Major Research Instrumentation grant plus an additional $1.2 million of funding from UITS. The AVIDDD clusters offer multiple terabytes of high-performance file systems implemented with IBMs General Parallel file systems software using Myrinet high-speed interconnect and directly attached high-speed disk. In addition, networked storage provides one terabyte of additional storage for user data files. The Research Database Complex, installed in June 2003, provides IU researchers storage for permanent data to access up to 1 terabyte within an Oracle database.
Evidence of Progress for 2004-2005:

The UITS User Survey for IUPUI reveals high levels of satisfaction with research and academic computing services, including 100% satisfaction with bioinformatics support, 100% satisfaction for massive data storage, and 95.8% satisfaction with services for high performance computing.

Activities planned for 2005-2006:

IU was awarded a $1.72 million NSF Major Research Instrumentation grant for the Data Capacitor in October 2005. The Data Capacitor will provide a total of 250 terabytes of short-term online and near-line high-speed disk storage over a large aggregate bandwidth to multiple IUPUI departments and research labs. Installation of the first 100 terabytes is scheduled to occur in the at IUPUI in January 2006.

☑ Collaboration technologies and advanced technologies

Campus Planning Theme: Research, Scholarship and Creative Activity
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

The IBM Research SP is a geographically distributed supercomputer system which includes components housed in the Data Center at IUPUI. The Research SP system has been heavily utilized by IUPUI researchers. Faculty and graduate students in mechanical engineering alone accounted for about 50% of the total cycles consumed in FY2004/2005, with researchers in the School of Medicine also making significant use of this resource.

Evidence of Progress for 2004-2005:

The UITS User Survey for IUPUI reveals high levels of satisfaction with research and academic computing services, including 100% satisfaction with bioinformatics support, 100% satisfaction for massive data storage, and 95.8% satisfaction with services for high performance computing.

Activities planned for 2005-2006:

The Research SP will be retired in September, 2005. It will be replaced by two systems to be housed in the Data Center: Libra, a cluster of IBM AIX servers which will offer a computing environment very similar to that of the Research SP, and AVIDD-O, an extension of the AVIDD Linux Clusters, and comprised of IBM Opteron nodes.

☑ High performance computing
Actions taken for 2004-2005:

In October 2003, Indiana University, in collaboration with Purdue University, was named as one of nine resource providers for the National Science Foundations Extensible Terascale Facility, also known as the TeraGrid. The TeraGrid is a grid computing project for building the world’s largest, most comprehensive distributed infrastructure for open scientific research. In exchange for funding to build a TeraGrid network, IU is integrating its world class computational, data storage, networking, visualization, instrumentation, and data collection resources into the TeraGrid's national grid infrastructure.

At Indiana University, the AVIDD-I64 Itanium2 Linux cluster is 100% dedicated to TeraGrid use. By October 1, 2005, 20% of the AVIDD-B and AVIDD-I Pentium IV Linux clusters will be dedicated to TeraGrid use. From these systems, TeraGrid users will be able to access the disk cache and tapes of the Massive Data Storage System (MDSS). In the 2005/2006 academic year, TeraGrid account holders will also be able to access Oracle research databases on the Research Database Complex; the Centralized Life Sciences Database DB2 database on Libra; and the FlyBase and euGenes biological data collections. IU visualization systems, including the BARCO MoVE Lite immersive display and the Linux visualization cluster at IUPUI, will also be accessible by TeraGrid users.

Evidence of Progress for 2004-2005:

IU’s TeraGrid resources automatically report usage to the TeraGrid central accounting database. TeraGrid allocations are awarded as service units; use of resources at each site decrements the balance of service units available to a specific project. TeraGrid users can select to use resources at a particular site, or use a roaming allocation at multiple sites depending upon availability of cycles and software. On AVIDD-I64, 1,300 TeraGrid accounts have been created, with additional accounts created each quarter as new allocations are awarded.

Activities planned for 2005-2006:

TeraGrid accessibility will be expanded to data residing on IUPUI resources by adding eight I/O servers. These file servers will provide high-bandwidth access to data existing within AVIDD-I64 and AVIDD-I parallel file systems. Data will be streamed into and out of the eight servers simultaneously using gridftp services. During 2005/06, AVIDD-I64 and AVIDD-I will also participate in the TeraGrid GPFS-over-WAN initiative, which will merge AVIDDs file systems into a larger common high-speed file system accessible at multiple TeraGrid sites over the TeraGrids backbone 10Gb Ethernet network.

Indiana University was selected as an NSF TeraGrid resource partner in October 2003, with additional five-year funding awarded in March 2005.
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

The Information Technology Policy Office (ITPO) develops and implements policies regarding the appropriate use of information technology, educates the campuses about technology policies, and coordinates investigations of reports of abuse. Four interim policies and one approved policy that were developed between 1998 and 2000 were subjected to the formal policy review process and were edited to update the content appropriately. It is expected that these will complete the approval process during the next fiscal year. The Office enhanced its ability to respond quickly to protect university IT resources by developing an application that automates many of the searches done to identify compromised machines, isolate them from the network, and notify the individual affected. More information on security, privacy and intellectual property can be found in the IU Information Technology Strategic Plan at http://www.indiana.edu/~ovpit/strategic/f_html.

Evidence of Progress for 2004-2005:

The process of reviewing university-wide information technology policies with a large number of stakeholders at IUPUI has brought an increase in awareness of these policies and has improved our ability to enforce policy. Several areas of concern or misunderstanding were resolved and the new draft policies contain clearer and more concise language. Compromised machines are now isolated from the network, typically within 24 hours, and the users are notified concurrent with the block. This is an improvement over previous manual methods that sometimes took days to complete.

Activities planned for 2005-2006:

The Office coordinated the university's participation in planning for National Cyber Security Awareness Month, October 2005. This will be a major educational initiative consisting of posters, postcards, plasma presentations, and electronic newsletter articles to increase user awareness of policies and practices that protect information at IU.

Information Technology Security Office

Campus Planning Theme: Best Practices
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

Over the past fiscal year, two additional security engineers were added to the IT Security Office (ITSO) to enhance efforts to proactively identify vulnerable IT resources and reactively detect compromised machines on the university network. Intrusion detection sensors were deployed on the Bloomington and Indianapolis campuses to aid in this detection effort. Work also continues on the IP Security and Accountability Project. This project will substantially improve the university's security posture by allowing ITSO to quickly and easily identify system administrators responsible for devices that are on the network. Security awareness and education is an important aspect of IT security. As such, the UITS Fall 2004 IT Seminar Series focused on IT security and included discussions on the formation of the ITSO, Network Security at IU, and Identity Management. In addition, the second annual Indiana Higher Education Cyber Security Summit held April 20-21, 2005 focused on the issue of identity management in the digital age.
Cybersecurity Summit was held in April 2005. Several free Microsoft Windows security training sessions were also held during the summer of 2005 to provide system administrators additional information on securing that technology.

Evidence of Progress for 2004-2005:

The elimination of incidents that expose sensitive data is the primary indicator of effectiveness for these measures. Increased vulnerability assessment, education of IT support staff on security issues, and increased awareness among members of the university community are other important measures.

Activities planned for 2005-2006:

Additional intrusion detection sensors will be deployed on the remainder of IU’s campuses to further enhance the ability to detect compromised machines on the university network. Deployment will begin during the first quarter of 2006 and is slated for completion at the end of the second quarter of 2006. Plans are also underway to automate the process of removing compromised machines from the university network during the first quarter of 2006. On an ongoing basis, products and solutions that improve our IT security posture will be evaluated and implemented as feasible. Security awareness and education initiatives will also continue to be priorities. Finally, through a collaboration between the university and the SANS Institute, the ITSO plans to host, “Security 505: Securing Windows” in October 2005 in Indianapolis. SANS is a highly respected provider of IT security training that has worked with IU’s ITSO to host the workshop at more than 70% off the regular cost of attending. In addition to increasing the expertise and knowledge of the technical staff securing systems at the university, the agreement will permit the university to provide a valuable service to the community by extending training access to state and local law enforcement personnel, nonprofit professionals, and K-12 educators at a discounted rate.

Solid Foundation of IT Infrastructure and Sound Fiscal Planning
(Recommendation 1, IU Information Technology Strategic Plan)

A solid foundation of IT infrastructure and sound fiscal planning

Campus Planning Theme: Best Practices
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

In 1999, Indiana University set the very ambitious goal of implementing a fully funded life cycle replacement model for information technology. That goal is met and IU is in the position of being the first large public higher education institution in the nation to successfully achieve that goal. Because of that accomplishment, the university has been able to leverage buying power and negotiate excellent pricing for hardware and software which has also extended to IU faculty, students, and staff for personal purchase. Since deployment of the lifecycle finding model, estimates indicate the university has saved more than $20 million above the standard educational pricing from these negotiated hardware prices. IU entered a Preferred Partnership with Dell Marketing that offers the university community the opportunity to purchase workstations, laptops, and multimedia machines at more than $500 below standard educational pricing, and discounts up to 13% below educational rates on the full catalog of Dell computers, printers, and handhelds. Additional detail is provided in the UITS Accomplishments Report for FY 2004-2005, linked at http://www.indiana.edu/~uits/cpo/accomp/AR05_finaldraft.pdf
Evidence of Progress for 2004-2005:

Very substantial savings for the university continue to be realized through leveraging mass purchasing power to realize the lowest workstation and notebook prices in meeting lifecycle funding objectives. Negotiations such as the Dell Preferred Partnership have resulted by university schools and departments, realizing savings of more than $20.3M over standard educational pricing.

The remarkable success of IU's Microsoft Enterprise License Agreement (MSELAg) has continued. Signed originally in 1998 and renewed for an additional year, the agreement enabled the distribution of more than 683,913 copies of MS software, valued at more than $111,006,382 educational pricing. Along with agreements with other software vendors, including Macromedia, Symantec, Oracle, SPSS, and others, these agreements result in savings of more than $62M. In addition, the common base of software and hardware allow for improved service to users. Along with gaining the university national attention, the successful implementation of lifecycle funding should greatly enhance the ability of the whole university community to make full instructional, administrative, and research use of IT.

Activities planned for 2005-2006:

Lifecycle funding of essential technology will continue on an ongoing basis.

☑️ University information systems

**Campus Planning Theme:** Best Practices
**Secondary Goals:**
**Sub Unit:** None
**Time Frame:** July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

Since the inception of the IT Strategic Plan, the following information systems have been completed and put into production:

- **Financial Information Systems (FIS),** an enterprise-wide computing application designed to manage the majority of IU's finances, comprises the central functions of transaction processing and decision support.
- **The Electronic Research Administration (ERA) system,** which provides IU researchers with an electronic system for developing and submitting research proposals.
- **The OneStart Web-based application portal** offers a common front door to online services at Indiana University campuses.
- **Oncourse,** an IU-developed online course management application, allows faculty and students to create, integrate, use, and maintain Web-based teaching and learning resources.
- **IU-IE,** the Indiana University Information Environment, provides a Web-based, enterprise-wide reporting environment.
- A new, Web-based Purchasing/Accounts Payable system interfaces with the FIS and other applications.
- **IU's e-commerce initiative** facilitates transactions for goods and services online. IU Press and the IU Bookstore are among the merchants using its B2C (Business to Consumer) project.
- **The comprehensive Maintenance Management System** application tracks much of the university's maintenance functions, supporting the universities physical plant operations.
- The Library Information System provides access to a wide array of online resources.
- The **Human Resource Management System** provides services for human resources information including personnel records, benefits, and payroll for all of IU's more than 35,000 faculty, staff, student workers, and retirees.
- The **Student Information System (SIS),** used for admission, registration, billing, and advising.
The Student Information System (SIS) provides services for all students interested in, or applying to, any campus of Indiana University and enables IUs 100,000 students to move easily through the admissions, enrollment, financial aid, and student financials.

Evidence of Progress for 2004-2005:

In preparation for fall semester 2005, UITS improved the performance of the Central Authentication Service (CAS) through additional resources and tuning. Computing capacity was added to the PeopleSoft application servers to ensure adequate performance, and UITS slowed the number of changes introduced during this busy period. Additional data for 2004-2005 will be available through the UITS Finance Office, Cost and Quality Services Report, http://uitsiu.edu/scripts/ose.cgi?apjw.ose.help#cost.

Activities planned for 2005-2006:

By fall 2006, UITS expects to complete the migration from original Oncourse to Oncourse CL. The retirement of the Common File System (CFS) service will also be completed, and Oncourse Resources will be promoted for file storage. A new identity management program will be completed, featuring self-service password reset functionality.

Support for Student Computing
(Recommendation 8 of the IU Information Technology Strategic Plan)

A model for student technology support

**Campus Planning Theme:** Teaching and Learning

**Secondary Goals:**

- Sub Unit: None
- **Time Frame:** July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

Front-line phone support services at IUPUI were extended in 2003, and are now available 24x7x365, with the same services offered to the regional campuses. These extended hours make support services available virtually around the clock. In 2004-2005, the Support Center fielded thousands of inquiries and help requests from the university community, including management for all areas of technology support, including help desk inquiries, service requests, network and change management, telecommunications services, and requests for instructional technology resources. With information technology integral to most aspects of university life and work, unconstrained access to support for using IT is critical. In 2002, UITS began the design of a new Online Support Environment that will provide a modern, intuitive means of accessing help. The new environment went live in Fall 2004 and has undergone constant improvement to provide online services and support. This web service, found at [http://uitsiu.edu](http://uitsiu.edu), builds on the best of the current support structure, including the Knowledge Base. It also builds on a strong human presence, to offer help and information, 24 hours a day, year-round, that will empower users to make the best use of the university's IT environment. Online chat is now available, to help users, and new IT notification services bring information about service status to the users' desktops. This site is the recipient of two recent awards from ACUTA, a premier association of telecommunications professionals in higher education, and SIGGUCS, the Special Interest Group for university and College Computing Services.

Evidence of Progress for 2004-2005:
In 2004-2005, there were 6,600 walk-in contacts; 34,748 email contacts; and 54,627 phone contacts, with 94.3% satisfaction. The Knowledge Base logged nearly 8,829,700 hits during the year, across the university, with user satisfaction rates of 93.5%. New online services and support received 13.2 million hits across the university. Additional data for 2004-2005 will be available through the UITS Finance Office, Cost and Quality Services Report, http://uits.indiana.edu/scripts/ose.cgi?apjw.ose.help#cost

Activities planned for 2005-2006:

Indiana University recently won a first place award from the Special Interest Group for University and College Computing Services (SIGUCCS) of the Association for Computing Machinery (ACM), an international technology organization of colleges and universities. IU’s University Information Technology Services (UITS) group created the video to inform new students about services such as email, software and hardware deals, computer security, and technology support. Incoming students at IU’s eight campuses watch the video during orientation sessions.

Teaching and Learning: Content, Access, Distributed Education
(Recommendation 4, IU Strategic Plan for Information Technology)

☑ Cost and quality analysis for classroom technology

Campus Planning Theme: Teaching and Learning
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

This objective focuses on analyzing costs and quality for providing and supporting instructional technology at IUPUI. To date, a complete analysis of costs by classroom building at IUPUI has been prepared and projected through 2010.

Evidence of Progress for 2004-2005:

To date, multiple mobile PC carts have been assigned to school-based technology support providers for deployment to departmental classrooms. This has reduced the need for mobile delivery of those items in those areas.

Activities planned for 2005-2006:

A pilot launch of a redesigned model for supporting instructional technology at IUPUI was begun in 2004. The goal is to reduce or at least contain costs related to providing mobile technology support in classrooms while maintaining the highest levels of service. This new model will create a more holistic response to classroom technology support. It will permit the ongoing lifecycle replacement of classroom technology, and with the implementation of the campus wireless network, informal learning spaces will be addressed.

☑ Digital media and web development (Actions 13, 14 and 20)

Campus Planning Theme: Teaching and Learning
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005
Actions taken for 2004-2005:

UIT Digital Media Services (DMS) is now in its third year of operation. DMS produces premiere-quality multimedia using the most advanced tools and techniques.

Evidence of Progress for 2004-2005:

In 2004-2005, the unit accepted 66 projects including streaming media, CD and DVD duplication, 3D animation and video production, and projects utilizing high-definition video. Eleven of the projects were web-based, including the conversion of full-length university courses to the web and administrative applications using the web. In 2004-2005, the unit provided a wide variety of production resources for the first IUPUI Course Transformation Project. DMS also supported seven production-level servers including the Math WeBWorK service, which benefits math departments throughout Indiana University.

Activities planned for 2005-2006:

DMS will continue to provide the university community with an in-house production service specifically attuned to the requirements, logistics and policies for presentation of multimedia in the IU Information Technology environment.

Evaluation and assessment (Actions 24, 25, and 26)

Campus Planning Theme: Teaching and Learning
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

In 2002, the university adopted a strategy that supports assessment through the development and implementation of an electronic portfolio (ePortfolio) application. As part of the IU learning environment strategy, IU joined the Open Source Portfolio Initiative (OSPI) to develop the ePortfolio in open source code. The ePortfolio toolset utilizes the Sakai framework as a means to implement the project allowing the application to be used independently or implemented as a rich toolset in the Oncourse Collaboration and Learning environment. The ePortfolio tool set will appear in the next release of the Oncourse CL system software, version 2.1, scheduled for December 2005.

IUs ePortfolio is an assessment-based design that provides users a mechanism for cataloging and assessing authentic or artifact-based evidence of their learning. It enables individual and large-scale institution assessment, and provides a means for users to build web shareable portfolios (web pages) of their work.

Evidence of Progress for 2004-2005:

An increase in faculty efforts to assess and document the role and effectiveness of technology in teaching and learning will be among the primary indicators of success.
Activities planned for 2005-2006:

In 2005, IU introduced ePortfolio to a focused set of faculty at IUPUI and to a limited number of faculty at other campuses.

☑ Excellence in classroom instructional technology (Actions 21 and 22)

Campus Planning Theme: Teaching and Learning
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

University Information Technology Services (UITS) Classroom Services upgraded 30 additional enhanced technology classrooms with computers and large screen projection during 2004-2005. There are now 112 out of 150 (75%) general purpose classrooms at IUPUI with permanently installed instructional technology equipment. All classroom buildings have access to wireless network connectivity.

Evidence of Progress for 2004-2005:

Classrooms with permanently installed presentation technology supported 3,388 class sessions at IUPUI during the 2004-2005 fiscal year. Mobile technology supported 4,228 sections. Results from the annual UITS User Satisfaction Survey suggest that 86% of the users of all classroom technology are satisfied with the quality of service.

Activities planned for 2005-2006:

IUPUI has continued to engage the support and input of schools, faculty, and the campus Learning Environments Committee in planning and installing instructional technology upgrades in classrooms. Project planning is coordinated with the Office of the Registrar and Campus Facility Services. Additionally, progress continues in launching a new service model that reflects the significant reduction in mobile equipment delivery and the increase of higher end technical support for installed technology classrooms. As part of our next generation learning environment, all academic spaces which support informal learning have wireless connectivity.

☑ Faculty support for teaching and learning with technology (Action 11)

Campus Planning Theme: Teaching and Learning
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

The Center for Teaching and Learning (CTL) has created an online faculty development module series called Teaching in Support of Student Success. The series includes modules on learning theory, course design, classroom management, active learning, inclusive teaching, assessment strategies, plus the new Teaching Online module, which was designed to introduce faculty to concepts, ideas, and strategies for developing and teaching an online course. The Teaching in
Evidence of Progress for 2004-2005:

The CTL continues to improve services for faculty and academic units on teaching and learning issues, multimedia, Web applications, and instructional design. In FY 2004-2005, CTL conducted 2,380 consultations. However, as a result of the larger Jump Start and course transformation projects, smaller workshops have been reduced, resulting in 34 workshops this year.

Activities planned for 2005-2006:

Action 11 calls for a standard level of baseline support for teaching and learning technology for all IU faculty, increasing the opportunities to explore new applications of information technology. The promotion or introduction of technology in courses and disciplines, previously without access to relevant applications or support, is also an important component of the IT Strategic Plan. The overall objective of supporting faculty in their use of technology is further enhanced by second-tier, professional course development services provided through Actions 7, 13, and 20. Additional implementation details are available at http://www.indiana.edu/~uits/dit/sub/stplan.html#Toc49053490

Web-based course services and infrastructure (Actions 12, 18, and 19)

Campus Planning Theme: Teaching and Learning
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

One of the university’s most-used information systems, Oncourse allows faculty and students to use current web-based teaching and learning resources and multimedia content in a single, consistent web interface. IU announced its membership in the Sakai Partnership in 2003, and spent two years working with three other partner universities to create a community source collaboration and learning environment to support course work, research, and collaboration. IU introduced its own implementation of Sakai, called Oncourse Collaboration and Learning (CL), as a pilot in spring 2005. All fall 2005 courses were loaded in Oncourse CL. The original Oncourse system remained available for instructors who chose to opt out of using the new environment.

An Oncourse CL Support and Implementation team was formed in 2004 to guide the implementation and adoption of Oncourse CL at IU through communication, training, technical, and pedagogical support. The team consists of developers, training, and support providers from UITS and representatives from teaching and learning centers.

An Oncourse Priorities Committee was formed in May 2005 to set current and future priorities for Oncourse CL development. This committee is led by faculty and intended to provide guidance to the development organization around new Oncourse CL features and enhancements.
Evidence of Progress for 2004-2005:

Based on usage trends, an estimated 20% of faculty, 11% of students, and 10% of courses used Oncourse CL in September 2005; while 52% of faculty, 89% of students, and 66% of courses used original Oncourse. The 2005 UITS User Satisfaction Survey logged a 90.4% satisfaction rate for Oncourse at IUB and a 93.3% satisfaction rate at IUPUI.

Activities planned for 2005-2006:

The next version of Oncourse CL, version 2.1, will be put into production in December 2005 and will be available for use in the spring 2006 semester. The 2.1 version will feature enhanced communication functionality, the ability to create groups, and enhancements to the test and grade book tools. The original Oncourse is slated for retirement beginning summer 2006. Course content will be available to transfer to the new environment for two academic years following the retirement.

Telecommunications: Applications, Infrastructure, Convergence
(Recommendation 7 of the IU Information Technology Strategic Plan)

Advanced network applications

Campus Planning Theme: Research, Scholarship and Creative Activity
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

IU has maintained its position as a leader in advanced networking through a variety of endeavors. These advanced networks separate advanced research activities from those of the commodity production Internet, providing IU researchers with separate high-speed links to other researchers across the nation and around the world. Highlights of progress on various initiatives follow. In 2004, Indiana University and Purdue University co-hosted an I-Light Symposium at IUPUI, highlighting the collaborative work enabled by I-Lights advanced capabilities. The Internet2 Abilene network, managed at IUPUI, continues to provide high performance network services for advanced applications and to serve as a testbed for advanced network capabilities, such as Quality of Service (QoS) standards, multicasting, and more. Abilene provides native next-generation Internet Protocol (IPv6) service, which increases the number of available addresses and paves the way for a large range of new applications. Abilene provides a 10-gigabit-per-second (Gbps) optical connection to StarLight, a Chicago-based advanced optical infrastructure and proving ground for international network services. This link enables institutions participating in Abilene to leverage high performance research and education networks around the world that also connect to StarLight. In 2003, IU NOC staff completed an upgrade of Abilene to leading-edge optical transport capability (OC-192c) to increase the Abilene backbone capacity to 10 Gigabits per second (Gbps). This made the network one of the worlds most advanced and far-reaching educational research networks, with enough capacity to send 9.7 million, five-paragraph e-mail messages in one second. The international TransPAC network, also managed in the U.S. by the Global Network Operations Center (Global NOC) at IUPUI, was extended for another five years by the National Science Foundation into the TransPAC2 project, which will enable the expansion of collaborations between researchers in the U.S. and Asia-Pacific notably in astronomy, molecular biology, high-energy physics, medicine, meteorology, visualization, and computational science. The Global NOC itself continues to play a key role in ensuring the reliable and constant provision of the advanced networking infrastructure that supports the work of researchers at IUPUI and collaborators around the world. Along with operations for TransPAC2, the Global NOC also provides engineering and operations services for leading high performance research and education
Evidence of Progress for 2004-2005:

Measures of progress and effectiveness can be found in the growth in application and use by faculty of the university's advanced networking capability and also in the growth of collaborative activity among researchers in the state. Proceedings for the I-Light Symposia can be found at: http://www.i-light.iupui.edu/. Data for 2004-2005 will be available through the UITS Finance Office, Cost and Quality of Services Report, http://uits.iu.edu/scripts/ose.cgi?apiw_ose.help#cost

Activities planned for 2005-2006:

The I-Light optical fiber network connecting the IUPUI, IU, and Purdue campuses supports research applications, at the same time as it supports voice communications, e-mail, and videoconferencing among the IUPUI, IU, and Purdue campuses. With multiple strands of optical fiber, I-Light increased networking capacity by providing more than enough capacity to meet demand over the next 10 to 20 years. In its second year of operation in 2002, IU achieved a near fourfold increase in capacity for normal Internet traffic at no increase in cost by leveraging I-Light and its connectivity and co-location with the national Internet infrastructure at IUPUI. This increased capacity, which is in addition to existing Internet2 connectivity, is allocated equally between the Halls of Residence at IU, the IU campus, and the IUPUI campus and its connections to the six regional campuses. A potential second phase of expansion will seek to connect I-Light into the developing national high-performance fiber optic network infrastructures. The result will be an optical fiber network fabric that will allow IUPUI researchers to engage in computing grids and share resources, and will further improve their position in competing for federal research grants and other opportunities. Subsequent initiatives could further leverage I-Light downstream within the State, providing a means for improving connectivity within the higher education community, and offering some economic development impact within the telecommunications infrastructure of many State communities.

Converged telecommunications infrastructure

Campus Planning Theme: Best Practices
Secondary Goals:
Sub Unit: None
Time Frame: July 1, 2004 - June 30, 2005

Actions taken for 2004-2005:

The Advanced Network Management Lab develops technology to help manage the convergence of data, video, and voice over the Internet. With an annual budget of $1M, the Lab develops technologies in the form of hardware and software to manage advanced Internet services research and development that will be of interest to corporate partners. The Internet2 Abilene Network Operations Center on the IUPUI campus is the perfect environment in which to test the Labs technologies. This could include software that can visualize the distribution of multi-cast content, which, like broadcast television, is an efficient way to send data or video to multiple recipients over the Internet. For more information see http://www.anml.iu.edu. The REN-ISAC supports higher education and the research community by providing advanced security services to national supporting networks, and supports efforts to protect the national cyberinfrastructure by participating in the formal sector ISAC infrastructure. Supported by Indiana University and through relationship with EDUCAUSE and Internet2, the REN-ISAC is an integral part of higher education strategy to
improve network security through information collection, analysis and dissemination, early warning, and response specifically designed to support the unique environment and needs of organizations connected to several higher education and research networks; and supports efforts to protect the national cyber infrastructure by participating in the formal US ISAC structure. For more information, see: http://www.ren-isac.net/

Evidence of Progress for 2004-2005:

Data for 2004-2005 will be available through the UITS Finance Office, Cost and Quality of Services Report, http://support.uits.indiana.edu/scripts/ose/cgi?apjw.ose.help#cost.

Activities planned for 2005-2006:

The implementation of additional enhancements of the University’s telecommunications infrastructure will proceed in accordance with the implementation plan detailed at http://www.indiana.edu/~uits/telecom/stplan.html.

☑ Implementation of University-wide wireless networks

**Campus Planning Theme:** Teaching and Learning  
**Secondary Goals:**  
**Sub Unit:** None  
**Time Frame:** July 1, 2004 - June 30, 2005

**Actions taken for 2004-2005:**

UIITS has achieved coverage of IUPUI administrative and academic buildings and is providing wireless as appropriate throughout the remainder of the campus footprints.

Evidence of Progress for 2004-2005:

Data for 2004-05 will be available through the UITS Finance Office, Cost and Quality of Services Report, http://uits.indiana.edu/scripts/ose/cgi?apjw.ose.help#cost.

Activities planned for 2005-2006:

Wireless continues to increase in importance in University telecommunications. Future plans include establishing mutual wireless connectivity across the IUB, IUPUI and Purdue University campuses to visitors from these respective campuses. Establishing mutual wireless will make it easier for faculty, students and researchers to work at the multiple campuses of IU Bloomington, IUPUI and Purdue West Lafayette. For IUPUI faculty members who collaborate extensively with colleagues at Purdue, the boundaries of the campus’s IT infrastructure has shifted further north in the state. They will soon be able to access their familiar campus environment while working offsite with colleagues. Testing for the mutual wireless capability has already begun, and plans are to make it available to IU and Purdue students, faculty and staff by the beginning of 2006.

Fiscal Health
Reallocation Plan

Not applicable

Other Question(s)

Doubling goals. In what ways has and will your responsibility center contribute to the Chancellor’s doubling goals for enrollment (retention and graduation rates and degree conferrals), research and scholarship (grants and contracts), and civic engagement (service learning, internships, community collaborations)?

UITs has developed and maintains an infrastructure that will support the Chancellors doubling goals in all these key areas. UITS has and will continue to support students, faculty, and staff at IUPUI using technology to advance teaching and learning, through initiatives such as Oncourse CL and ePortfolio; excellent support provided through the Online Support Environment (OSE) and UITS Support Center; coordination and partnership with the IUPUI Center for Teaching and Learning; training for technology users in classroom settings and online; re-engineered information systems; and support for next generation learning environments with pervasive wireless access. Indiana University’s cyberinfrastructure for research and scholarly activity includes high performance computers, massive data storage, advanced networks, and visualization technologies. These resources support researchers, scientists, artists, clinicians, and students; foster collaborations; and aid innovations that advance information technology at IU and in the state of Indiana. Collaborations between researchers and scholars at IUPUI and those at other institutions in the state and elsewhere can expand as the I-Light network continues to extend across Indiana. These combined resources further advance IUPUI as one of the nation’s best urban universities and will continue to increase opportunities partnership and civic engagement particularly to advance the state’s economic development.

Diversity. What actions have you taken and what results have you achieved in diversifying your student body (particularly in improving the success rates of minority students) and your faculty and staff?

The UITS Gerald L. Bepko Student Internship Program is designed to place students in internships to work on exciting, strategic IT projects at IUB and IUPUI. Students from populations traditionally under-represented in information technology professions are especially encouraged to apply. During the 2004-05 academic year, we placed nine students in Bepko internships. The program continues for the 2005-06 academic year (http://www.indiana.edu/%7Euits/humres/Intern.html). Additionally during the past year, UITS hired two minority staff for full-time appointed positions at IUPUI.

Campus coordination and cooperation. Are you willing to work with an adjudicative group in resolving conflicts in course and program offerings in the spirit of reducing campus duplication and overlap? If so, what forum or format would be most helpful to you? Please cite examples of your cooperation with other units in resolving such conflicts.

UITs serves as a campus partner to most academic and administrative units at IUPUI. We will continue to seek ways to coordinate with others to leverage the university’s resources optimally while maintaining an up-to-date infrastructure for teaching, learning, research, and creative endeavors.

4) What actions have you taken to promote the retention of all students, and in particular, individuals who would diversify the student body, e.g., ethnic, racial, and gender minorities?

5) What uses are you making of the student technology fee?