

Year In Review 2005-06

INFORMATION TECHNOLOGY STATUS REPORT

JACK BRINN

INTERIM CHIEF INFORMATION OFFICER

JOE NORRIS

ASSOCIATE CHIEF INFORMATION OFFICER

PREFACE

Our annual Year-in-Review continues to evolve as dictated by events and conditions. Most prior reports were lists of accomplishments and projects. The 2004-05 report reflected the major management changes in the department as well as project summaries. While a list of projects and accomplishments is included at the end of the report, this year's Year In Review highlights the major financial, growth and governance challenges faced by ITCS in its provision of computing services at ECU. Our goal is to bring the news and issues of ITCS to the reader in relevant and understandable terms. We welcome your comments on whether we have achieved that goal (brinnj@ecu.edu).

EXECUTIVE SUMMARY

ECU has a significant investment in its information technology infrastructure, an investment that has brought high levels of functionality, reliability and support expertise to the campus. In the corporate world, IT is viewed as being integral to the business process whereas the educational environment tends to view IT as a service, often characterized by a siloed evolution, redundant functionality and misspent resources. As a result IT departments are often viewed as cost centers, and, conversely, there is a lack of emphasis on the value and institutional differentiation that IT brings to all aspects of the parent organization. One purpose of this document is to address these gaps and help to establish the framework for a shared ownership and management of ECU's IT resources.

As a first step, this summary will provide a synopsis of the major issues faced jointly by Information Technology and Computing Services (ITCS) and ECU and which are covered in greater detail in subsequent pages. Those issues are:

1. Market-competitive salaries for staff, especially as more advanced technologies are needed to develop the needed infrastructure;
2. A growth in the need for services and backend support staff without a funding plan for that growth;
3. A management/planning/investment process that ensures stakeholder buy-in and alignment of issues 1 and 2 with the University's strategic directions.

Finally, we will comment on some value-added directions that build on ECU's IT investments.

STAFFING:

The recent career-banding exercise has shown serious discrepancies between salaries paid to ITCS staff and comparable positions in the North Carolina market place (~\$1 million at 100% of market rate) as well as differences between ITCS staff and decentralized IT positions at ECU. Additional staffing challenges are being posed by more sophisticated technologies, e.g. Banner and Blackboard databases and operating systems that will require new skill sets and advanced training. The director-level positions are inadequately funded and therefore vulnerable to external recruitment.

SERVICE AND INFRASTRUCTURE CHALLENGES:

A detailed listing of ITCS projects/services is provided in **Appendix A**; however, these services can be inclusively summarized as follows: ITCS manages the technologies that enable the University to conduct business operations, provide instruction and perform research. We do so in a culture of service and with high levels of expertise, efficiency and significant cost avoidances.

The delivery of these services requires major investments in salaries, training, hardware and software, including licensing and maintenance costs. With budgeted expenditures, including salaries and funds spent for other units, ITCS is roughly a \$16 million per year operation.

Infrastructure support issues lie mainly in the absence of a funding plan and process that will ensure timely and appropriate equipment replacements and upgrades. All of the University's IT equipment has a defined service life because of wear, new developments and phasing out of

vendor support on old equipment. Servers, of which there are approximately 300, and networking equipment all have defined lengths of service and must be replaced on a cyclical basis. We anticipate continuing price rises in service contracts, licensing fees, Internet gateway fees and connectivity to high speed research networks. Refreshing the electronic components of the data network is an on-going process.

In addition to the normal end-of-life issues for equipment there is a need for growth of the infrastructure, driven by additional needs and requirements of students and faculty, new programs, research growth and the need to be competitive in the educational market place. For example, smart classrooms have resulted in a redefinition of audiovisual services as well as requiring significant support resources. We anticipate that some new technologies will also impact us, e.g., wireless communication devices and Intel-powered Macintoshes.

Data storage is a significant growth “hot spot.” ITCS currently stores nearly 29 terabytes of digital data with an anticipated need for an estimated 45 terabytes to accommodate Banner, Blackboard, email, etc. within 18 months. The current storage infrastructure was built largely with reallocation monies and specially designated Banner/ Blackboard project funds. Furthermore, larger data stores will eventually require a new type of professional data management staff persons.

All of these technical strategies and needs pose challenges for the data center itself. The need for redesigning the electrical power supply can no longer be ignored as evidenced by the two power failures that occurred on June 20 and 22 and which stopped all network-based computer activity on the campus. Service and infrastructure growth will, in turn, pose growth challenges in our existing physical space for staff and hardware.

CHALLENGES AND MANAGING IN THE FUTURE:

The central challenge is a common across the industry, namely, bringing a realization of the *value* rendered by IT. While difficult to quantify, the issue might be framed by a few questions:

1. How much more effectively does ECU operate with a data network that has >98% up-time?
2. Do collaborative tools better enable ECU to work more effectively, e.g., Outlook, Sharepoint, etc?
3. Is there convenience in being able to securely store your files on Pirate Drive?
4. Is it easier to create grant proposals, analyze data, write and submit publications with technology?

From a near-future perspective:

5. Would the Executive Council’s work be facilitated by simple, desktop reporting tools for monitoring admissions, position management, Advancement donations, and account overviews?
6. Would oversight and management of the strategic plan be facilitated if it were in a virtual workspace with tools for status reports?

As an added value we also function as facilitators by negotiating with vendors for best prices and consulting with our clients on new solutions and improved processes. There are many other frames from which to assess value; however, maintaining and improving that value requires infrastructure. Given the scope of the service and, hopefully, value already provided by ITCS

and the need to support and refresh the underlying technologies, we must ask “How should ECU govern and manage its IT resources?” The question involves more than simply assigning the CIO to manage the infrastructure. First, ITCS cannot and should not drive critical IT decisions without stakeholder buy-in. IT investments must be aligned with key business decisions that include the strategic directions in teaching, research, health care, and administrative functions. In other words, IT management must regularly engage with the other key management levels as well as end users at the University to help translate their operational needs into appropriate IT decisions. The mechanisms by which that should happen are not yet defined, although many of the key pieces of the puzzle may already be in place but are not yet linked or of sufficient maturity.

Out of that engagement process should come an appropriate funding process for IT that maintains the present infrastructure as well as implementing any new infrastructure as determined by the integrated planning process. Be assured that defining that process is an industry-wide enigma. It is widely recognized that the fixed-percentage-of-operating budget model no longer works well, and it is apparent that the variable of reallocation funding will no longer work at ECU. Whether we can arrive at a service value paradigm or a mix of models remains to be determined, but maintenance of expected service levels as well as meeting the challenges of a growing university will require some new or strengthened levels of engagement between ITCS and our stakeholders in order that East Carolina University meet the challenges of the future.

INTRODUCTION

Institutional and corporate information technology (IT) departments have evolved far beyond the concept of data processing in the era of mainframe computers. Data processing services were easily managed and essential for business operations, and costs were easily-defined. On the other hand, distributed computing in the form of networks, ever-more powerful personal computer and server hardware and software, the incursion of technology into the realm of pedagogy, and the constant appearance of new technologies etc. have all altered the management of IT and rendered the prioritization and funding of those resources increasingly difficult for senior management. The difficulty is no doubt complicated in no small part by the failure of IT professionals to communicate well and the absence of appropriate communications channels between management and IT.

In order that East Carolina University teach, discover, heal, communicate, purchase and pay, it must have the enabling technologies and services provided by ITCS. ITCS is perhaps the premier central IT department in the UNC system. To illustrate:

1. ECU has implemented the most comprehensive Banner Finance system in the UNC system, including SciQuest, a purchasing add-on that will enable ECU to be the first UNC school to participate in a state-mandated e-procurement process;
2. Banner came on-line with no software or technical (hardware/communications) glitches and continues to function in a stable manner;
3. ITCS assembled the infrastructure for the largest Blackboard deployment in the UNC system;
4. We have the largest deployment of VoIP telephones in the UNC system;
5. We have implemented operational and procurement standards for desktop computers, servers, smart classrooms, software, etc. that provide cost avoidances as well as functional uniformity across the campus;
6. By external standards, ITCS ranked in the top-tier of the UNC system for data security and is leading in PCI compliance.

ECU has arrived at this point on the vision and efforts of a few individuals rather than a strategic plan that is fully aligned and integrated with that of the University. At this point we feel that our efforts and those of the University are congruent; however if the University is to maintain its current level of IT services and improve its competitive edge, there is a need for widespread recognition of the value that technology brings to the campus and for an appropriate funding paradigm that ensures alignment of IT initiatives with ECU's strategic academic, research and administrative needs. East Carolina University's new integrated strategic planning process offers a strong opportunity to resolve this issue and to bring IT management, as a University function, to maturity.

To assist senior management in their understanding of the current status of information technology and to provide a basis for the development of a strategic IT partnership with administrative and academic arenas of the University, the following pages will highlight our current status as well as some future needs in the areas of infrastructure and staffing. We will then touch on IT governance. The purpose of the document is to raise awareness, not an alarm.

MISSION STATEMENT:

ITCS is committed to providing excellent information technology infrastructure and service for students, faculty, staff, and alumni. ITCS partners with our campus clients, other universities, and industry to make strategic investments in information technology infrastructure that will maintain ECU in a state-of-the-market posture with respect to administrative applications, faculty research, student learning and training and outreach to the state and nation.

KEY ISSUES FACED BY ITCS:

The following discussion will focus on three areas:

- Staffing – the most important and valuable IT resource
- Core Services Growth – current services and predictions
- Planning, Budgeting and Management – funding and governance

ISSUE I: STAFFING

ITCS employs approximately 200 persons working in five locations; Cotanche, Austin, Brody, Joyner Library and the Thomas Professional Building. Those employees are organized under seven Direct Reports (DRs) who report to the Chief Information Officer (Appendix B). Each DR is responsible for specific functional areas. This collective team constitutes a highly effective, service-oriented organization that provides a wide variety of IT services to ECU clients ranging from prospective students to the Board of Trustees. The business and technical acumen of this team also enables us to form strategic partnerships with vendors, resulting in cost avoidances of hundreds of thousands of dollars in hardware and software purchases per year.

The summary of ITCS' projects/services in **Appendix A** illustrates (1) the wide range of services provided by ITCS and (2) the level of expertise and the associated staff training required to execute those functions. Supporting that expertise requires around \$175,000 per year in training costs with a likely increase being needed in order to address Banner and Blackboard related needs. Exclusive of physicians, our staff requires more in-service training than any other profession on the campus.

Salary support for ITCS totals approximately \$9,300,000. Seventy-five percent of those funds are from the East Campus and 25% are derived from Medical Faculty Practice Plan and West Campus State funds.

The recent career banding exercise has shown salary differences between the current ITCS staff and comparable staff in the information technology market place (Table 1). Realization of these discrepancies presents two issues, potential losses and morale. We have already seen critical staff leave ECU for significant salary increases. The problem is exacerbated by the requirement to fund any vacant position within 10% of the market rate for that position, thus creating more inequity between new and existing staff.

Table 1. Comparison of ITCS salaries with market rates (Data from ECU HR).

% of Market Rate	Dollar Variance from Market Rate / ITCS Team				Total Variance
	Software Development	IT Support Services	Network Support	IT Security	
100%	\$439,413	\$434,156	\$134,857	\$58,924	\$1,067,350
90%	\$189,341	\$160,324	\$44,445	\$22,269	\$416,379
85%	\$105,531	\$77,627	\$13,829	\$11,437	\$208,424

In addition to ITCS, ECU spends another \$4,103,000 on 110 **decentralized IT (non-ITCS) support staff** that will require an additional \$93,845 to bring them to 100% of the market rates. IT Support Services in Table 1 has about 15 fewer employees than the total decentralized support staff, and bringing their salaries to 100% of the market rate would require over \$434,000, meaning that **decentralized IT staff are salaried at higher rates than ECU’s core IT support staff.**

Management salaries are also misaligned. The two Associate CIOs have had offers for significant salary increases, and the Director of Network Services is not competitively paid. The entire technical infrastructure of the University is managed by these three people. The currently vacant Directorship of IT Security also may not be adequately funded.

ISSUE II: CORE SERVICES AND GROWTH

As noted earlier, ITCS is focused on delivering and supporting IT services that are appropriate to the academic and administrative requirements of the University. In that context, it is important that we:

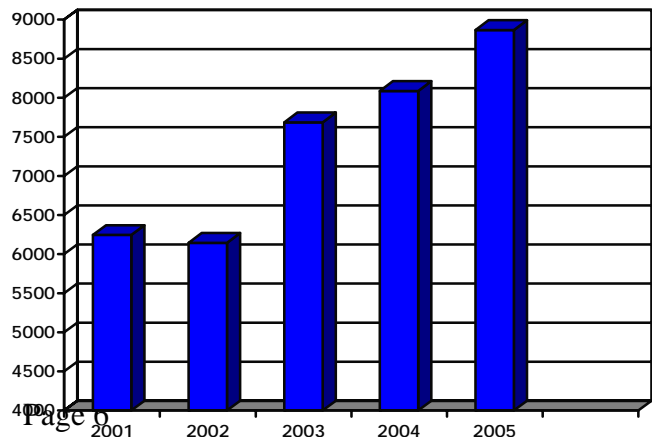
- Align IT services with the strategic plan of the University while remaining attuned to the on-going, changing needs of our clients
- Work to continually improve the quality of IT services
- Effectively manage services for minimal cost impact.
- Continually monitor emerging technological solutions that enable greater efficiencies.
- Work to develop new efficiencies with technology, e.g., business intelligence.

SERVICE GROWTH AND CHALLENGES:

Again, a more comprehensive list of ITCS services is in Appendix A; however, the following data will serve as key indicators of ITCS service growth.

Figure 1. Desktop computers supported by ITCS.

Desktop computers reflect the growth in the numbers of faculty and staff as well as a growing dependence on the tools inherent in a desktop computer in all sectors of the University. This support includes not only the persons who go to offices to “touch” the machines, but also the networking



infrastructure, remote service provision (Symantic antivirus software), Help Desk, software licensing and backend storage (Pirate Drive). Remote desktop management has proven to be an effective tool for offsetting the need for support staff to match the growth in the number of desktop machines. East Campus desktop systems are updated on a cyclical schedule with budgeted funds.

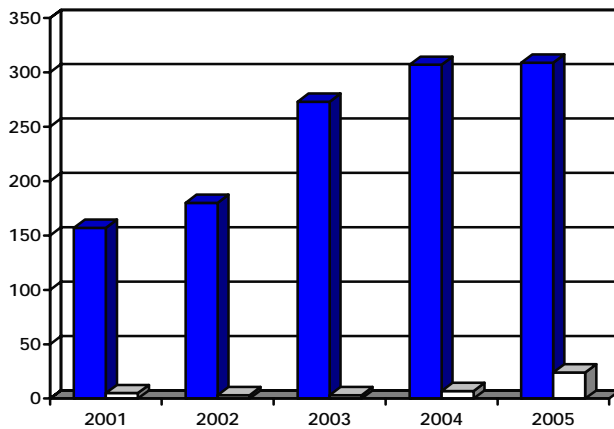


Figure 2. Servers managed by ITCS. Blue - Windows, White - Unix.

Servers range from the IBM mainframe and the Banner- and Blackboard-hosting computers to departmental data storage machines. Servers also rely on networking technology as well as highly trained operating system technicians (systems programmers) and, depending on the server, database analysts or Internet-enabling programmers. Like desktop machines, all of these computers have a life cycle of three to five years.

Data Storage:

Storage is a “backend” service that end users are rarely aware of, but the expense in terms of support staff, sophisticated hardware and disaster preparedness is significant in the operation of a data center. Our total hard drive space allocated to data storage is now approximately 29 terabytes (one terabyte equals 12.5 eighty gigabyte PC hard drives). That includes:

1. 7 terabytes for email (5 terabytes in reserve)
2. 5.5 terabytes for Banner/Blackboard (800 gigabytes in reserve)
3. 5.5 terabytes for Pirate Drive (500 gigabytes in reserve)
4. 5.2 terabytes of Windows-based storage
5. 5.5 terabytes for Joyner Digitization Program

This storage space includes production databases as well as backups for disaster recovery or incremental data retrieval. Excepting Banner and Blackboard storage, most of our storage capacity has been purchased by reallocation monies, and like any other digital equipment, it has a predictable end of life.

ECU’s data storage needs are projected to exceed 45 terabytes within 18 months, and there may be unanticipated regulatory requirements placed on email archiving, for example.

Key facts regarding storage include:

- The industry standard for data storage growth is for it to double every 18 months. Fully implemented with imaging capability, Banner may shorten this cycle.
- The current investment of 3 million dollars over the last three years should be doubled in the next 5 years.
- Data management has become a more sophisticated endeavor and more critical than the actual computing cycles because of its enormity and its residence in multiple databases

on multiple operating systems. These issues add to the complexity of disaster recovery efforts.

- High speed data storage for databases such as Banner and Blackboard involves sophisticated
 - Storage Area Network (SAN) infrastructure (communications)
 - Storage management software tools
 - Staff expertise

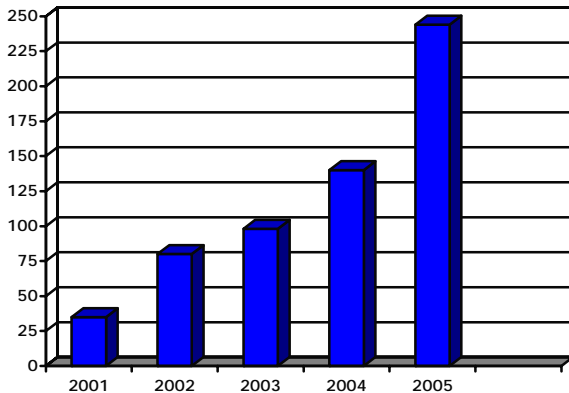


Figure 3. Technology-enhanced room (smart classroom) growth.

With the new Allied Health/Nursing facility coming on-line, the number of smart classrooms will expand to nearly 300. Approximately \$10 million has been spent thus far in this area. Smart classrooms are technology-enhanced rooms equipped with devices ranging from a simple digital projector/screen combination to programmable hardware and video-conferencing-capable capabilities. They require network connectivity, sophisticated

staff support and a much larger maintenance budget than the traditional classroom. The present smart classroom numbers can be supported on available funds; however, any expansion of the program must be given careful consideration for on-going support cost, life cycle upgrades, periodic staff training, etc. These costs should be weighed against proper assessments of learning outcomes.

Banner/Blackboard:

ECU has implemented the most complete Banner Finance Module of any UNC school, which brings with it the backend support and storage needs. The Student, HR and Advancement modules are slated for implementation by the summer of '07. Blackboard, which we will be running locally in the Fall of '06, runs on a similar hardware/operating system platform as Banner.

- The Banner hardware configuration involves a complex environment of servers with related networking and backup infrastructure rather than a single mainframe (**Appendix C**). Additional issues -
 - Disaster planning is more complex and expensive in such a multi-tiered system.
 - Network communication and data interfaces among these various servers and with the existing legacy systems, including the mainframe, physicians' billing and scheduling (IDX), One Stop, etc., present daily challenges to the staff.
 - The level of staff expertise needed to support the Banner system is more sophisticated than with past applications.
 - To support the Solaris (Sun's version of Unix) operating system we rely on one local Unix-trained staff member recruited from Computer Science and external consultants. We are training another person. Our present salary structure precludes us from hiring Unix support staff from outside the region.

- Enterprise databases, particularly the Oracle engine in Banner, Blackboard and the electronic medical record, necessitate a team of database administrators with a different expertise than required by the mainframe. We lack appropriate depth in this area.
- Banner necessitates that nearly every ITCS staff member must learn new development and systems tools as a part of their jobs.
- Storage Area Networking is a sophisticated storage technology for Banner, Blackboard and other applications. We have one qualified support person.

Research Computing:

The office of the CIO has been working with Dr. Paul Gemperline, Associate VC for Research and Graduate Studies, and others over the last two years to develop a strategic direction for research computing. Those efforts have produced a campus-wide survey of research IT needs and, most recently, a planning process for establishing research directions, priorities and recommendations, especially for high performance computing. This is a major step forward for the University and ITCS. Strategic research computing decisions will now be made by the appropriate management and client base and ITCS will support those decisions.

Research computing at ECU will gain further momentum with the development of a RENCI satellite center on the campus in collaboration with Dr. Dan Reed at UNC-CH.

Security Issues:

- Security is a constant challenge and a growing effort. ECU's network faces incessant intrusion efforts by outside entities probing for available ports.
- ITCS manages an effective multi-layered combination of hardware and software to protect clients and data from malware and data theft.
- The technology must be upgraded and the staff must be continually trained as the "intruders" hone their skills.
- The security staff members are assuming an increasing responsibility in the University's complex security and compliance policies for HIPAA, PCI, etc.

Near-Horizon Technology Changes:

- Microsoft is bringing its 64-bit operating system to the market later this year accompanied by a new Exchange email system. This changeover will require
 - Approximately 30 64-bit capable servers for many applications, including email.
 - Additional training for the support staff.
 - Changes in the end-users' desktop configuration and additional support.
- Identity management – as ECU's DE and research collaborations develop, we need the ability to authenticate a spectrum of users on Sharepoint and other collaborative technologies.
- Intel-based Macintoshes, especially those capable of using both Apple and Microsoft operating systems, will grow in popularity and alter our support profile.
- Increased usage of wireless hand-held communication devices, e.g., Blackberrys, will probably necessitate ITCS support, including local servers for message storage.
- Given PCMH's plan to build a regional electronic medical record on its new Epic implementation, what is the future of the School of Medicine's electronic medical record and practice management applications? What applications will the dental school bring?

Capital Needs:

The most critical data center issue is the outdated configuration of the electrical power supply and the air conditioning system in the server rooms. No modern data center should be without redundant power supplies, but ECU is in that single point-of-failure mode of operation. Two totally crippling power failures on June 20 and June 22 bore that vulnerability out.

Staffing and hardware needs will in turn place strains on the existing data center.

Table 2. Data center (computer rooms) environmental issues.

Parameter	Capacity	Utilization	% Capacity Remaining
Square footage	1,040	1,040	0 (without modification)
Cooling (BTUs)	473,600	357,724	24
Electrical (Uninterruptable Power Supply) Amperes	400	320	20
Available rack space (units)	2,394	1,784	25

We have no space into which to grow; however modifications of the existing data center space and more modern server configurations with additional power and air conditioning capabilities can allow a greater density of computers/servers. A nearby site in which to relocate staff such as the Help Desk would enable us to renovate existing space in Cotanche to house more computing hardware at some savings over creating new computer space.

ISSUE III: PLANNING, BUDGETING AND MANAGEMENT

While ITCS manages and spends large sums of money, most of it is directed and inflexible spending. The following table shows the budgets that we manage.

Table 3. Budgets managed by ITCS.

<i>Budget Source</i>	<i>Comment</i>	<i>East Campus</i>	<i>MFPP</i>	<i>BSOM State</i>	<i>Totals</i>
Administrative Computer Program	Money provided to ITCS to purchase administrative desktops	\$150,000			
Faculty Computer Program	Funds provided to ITCS to refresh faculty desktops	\$535,404			
Distance Education	DE funds to cover operational costs	\$33,289			
SCTF	Student fees to pay for computer labs, specialty software for courses. <u>The lowest such fee in the UNC system.</u>	\$1,428,926			
GA Funds	Network, Web support, TLT.	\$343,732			
Long Distance Resell	Charge backs on LD calls	\$211,028			
Support Services, Networking, Security, Software Development, VoIP, Administrative, Communications, Smart Classrooms	Self explanatory	\$1,389,582			
Fixed Costs	Service contracts, software licenses, etc.	\$1,672,198	\$827,040	\$32,296	\$2,524,738
Other Recurring Costs (Phones, Pagers, Gas, Advertising, Mail Services, Automotive Expenses, etc.)	Operational costs for ITCS	\$525,260	\$68,500	\$27,845	\$621,605
Total of Budget Sources		\$6,238,133	\$895,540	\$53,345	\$7,238,304

The multi-year Banner Project budget of \$18.7 million is not included in this list. The first seven items are fixed and directed to specific needs with no flexibility to direct those funds elsewhere. The only area in which we have leftover funds is in Fixed Costs wherein we had approximately \$200,000 this year. However, this is the area from which we absorb inflationary increases in contractual and licensing costs and in the absence of reallocation monies, purchase server and other critical hardware upgrades such as upgrading Pirate Drive and the robotic backup device and purchasing storage analysis tools. To put this in a longitudinal perspective,

the Banner hardware cost about \$1.7 million and is slated for replacement in three to four years. Storage hardware, software and professional services will cost approximately \$750,000 for the projected growth to 45 terabytes, including disaster recovery redundancy. In the absence of reallocation monies, the fixed cost budget is our only planning and “cushion” resource.” Occasionally, there will be unspent funds in the “operating costs for ITCS” and directors and managers will replace staff computers and printers with those funds.

It should be noted that one GIS supplement was provided this year: \$100,000 that will be used to hire an additional database administrator for Banner, Blackboard and Centricity (electronic medical record) and for salary increases promised to our STEP graduates.¹

The other source of funds has been reallocation dollars.

Table 4. Reallocation dollars provided to ITCS.

Fiscal Year 2004	\$1,048,847
Fiscal Year 2005	\$4,260,178
Fiscal Year 2006	\$248,000

This budget source has been erratic. Furthermore, the 2005 allocation was an anomaly in the distribution process but included \$1.3 million that was spent on outdated, risk-prone desktop computers and network equipment in the Brody School of Medicine as well as a HIPAA-related firewall. Another \$367,000 reallocation came to ITCS in '05-'06 via Academic Affairs to facilitate the Blackboard transition.

Major hardware infrastructural hardware purchases have been made with reallocation monies, e.g. the tape robot, the Storage Area Network (SAN), Pirate Drive, the last Exchange (Outlook) upgrade, most of the recent security devices and software, etc., rather than by planned, allocated spending. In other words, ITCS has built much of its infrastructure on reallocation monies, yet that equipment has a defined life and must be upgraded.

TECHNOLOGY DECISIONS:

ITCS works with key vendors for the benefit of ECU faculty, staff and students. Our technology refresh/upgrade programs for desktops, servers, networking and smart classroom technologies work through a centralized purchasing model that is consistent with the IT Management Flexibility plan and equates to more than \$800,000 cost avoidances annually. We are able to negotiate aggressive pricing with vendors because of a state-of-the-market approach to decision-making and standardization across the enterprise rather than individual departmental purchases of commodity technologies. Students have benefited from this model with a three year contract relationship with IBM/Lenovo to provide low cost laptops at 32% below standard pricing. This same aggressive program also provides on-campus hardware for laboratories and specialty software for advanced courses at no additional cost to the students.

¹ STEP: The Staff Training and Education Program has offered staff applicants an opportunity to further their professional development by means of defined curricula, agreed upon and approved by their managers, and which promised a salary increase upon completion. We have refocused the program to aim it at the needs of the department and to eliminate pay increases.

A general market awareness helps us make key technology purchasing decisions. One market indicator is the “hype cycle” shown below. Notice VOIP, Voice Over Internet Protocol telephony, located on the “Slope of Enlightenment.” ECU anticipated the market maturation of VOIP and has moved forward with its implementation more aggressively and successfully than any campus in the UNC system. Podcasting, on the other hand, resides further back on the curve, which is now a year old, but from our perspective, it is not yet a mature technology.

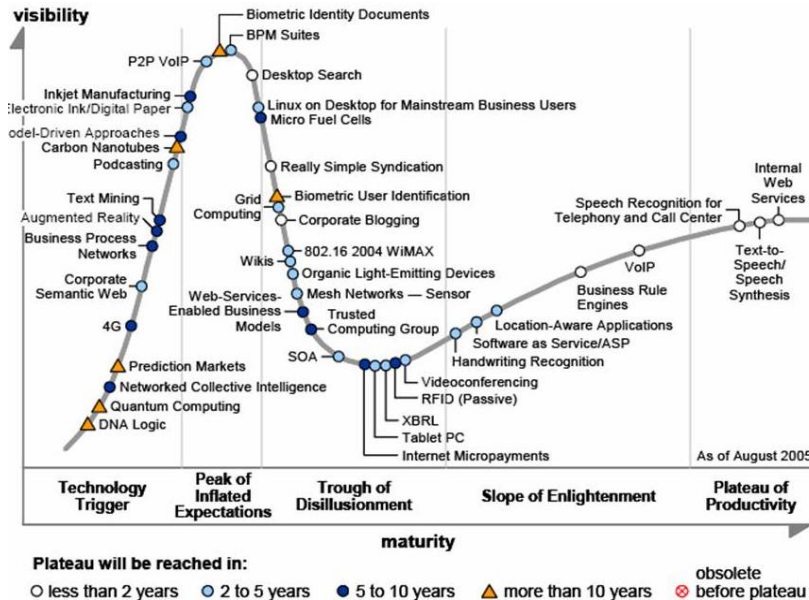


Figure 4. The life cycle of new technologies, the hype cycle (from Gartner Research).

It is important to emphasize that basic infrastructure should be built on state-of-the-market developments and that state-of-the-art technologies, those before the “slope of enlightenment,” must be evaluated critically for institutional value and total cost of ownership at the local (ECU) level before investments are made. Our goal is to make wise investments in stable technologies that ensure optimal efficiencies at minimal long-term cost. We feel that we are succeeding in this effort.

INNOVATION:

In addition to managing an “invisible” and stable infrastructure, any IT organization should also be expected to provide innovative, value-added tools to its customers, especially those tools that can enhance decision making or process change. SharePoint and Outlook are two of those platforms upon which we can build.

1. The software development group in ITCS is developing business intelligence software tools that will enable decision-makers to view up-to-date raw data from a variety of sources as useful, graphical information in the form of pies, charts, cones, dashboards, etc. These presentations, with full drill-down capability, can be provided to the individual user via scheduled emails or to managerial workgroups on SharePoint.
2. We will develop Outlook email encryption this year as an enhancement for doctor-patient or doctor-doctor communications as well as providing additional security for the use of Outlook on the wireless network.

3. We anticipate being able to test an enterprise-level project management tool that will have broad applicability across the campus.

Unrelated to Sharepoint and Outlook, the IT Support Services group will test a secure biometrics-based logon for clinicians accessing the electronic medical record, thus eliminating the present time-consuming, multi-stage logon process. This technology has potential for a wider deployment outside the clinical arena.

HOW DO WE MANAGE FOR THE FUTURE?

The issues discussed thus far are primarily financial ones. While convenient to refer to information technology expenses as the cost of doing business; the institution’s dependence of computer technology makes IT *the fabric of the business*. In order to validate that frame of reference, we must address the broader issue of IT management to ensure that an appropriate awareness of IT is present at all client and management levels at the University. In other words, institutional growth and maturation must bring an increasing IT-awareness on the part of all of our clients, including senior management, in order that the University leverage its IT resources to its advantage. That includes regular, mutual access between the CIO and the collective senior management of the academic, research, clinical and administrative enterprises of the University to ensure alignment of all IT resources and initiatives with a strategic direction.

ECU’s IT management has already undergone significant evolutionary developments, from separate departments on the medical and main campuses to a strong central IT organization. Those changes at ECU as well as in the wider IT industry are reflected in (Table 5).

Table 5. Evolution of IT management.

FROM	TO
Unit and domain views – <i>departmental view of IT management, distributed computing</i>	Unified, virtualized service views – <i>single network domain and name directory, virtual server management.</i>
Hope and pray application and policy development – <i>too little communication and coordination of effort.</i>	Predictive modeling and impact studies – <i>decisions based on meaningful local and market data</i>
Islands of implementation, automation – <i>distributed creativity to include everything from servers to special end-user devices.</i>	Policy-driven orchestrated implementation, automation – <i>as we did strong passphrase management; requires planning and management awareness.</i>
Highest levels of service – <i>mainframe uptime, rule of 5 nines for service</i>	Appropriate levels of service – <i>with adequate notice, can the client tolerate defined down time?</i>

The morphing of “unit and domain views” into more “unified views” is a natural consequence of cost realizations at the unit level versus economies of scale in a centralized paradigm. Furthermore, the transition from hoping to predicting is a result of ITCS having at its disposal the tools and expertise necessary for predictive analyses. The two remaining views require a shared decision-making process. ITCS management is in its second year of working to improve our campus relations through communications efforts and strategic networking in order that we have client buy-in on policies and appropriate service levels.

A major step forward has been taken with the new integrated strategic planning process involving key stakeholders at all levels. The completion and implementation of that plan will require continued open dialogue between ITCS and those stakeholders. We are beginning to realize benefits through the following:

- Clinical Information Systems Committee
- Faculty Information Technology Review Committee
- Information Resources Coordinating Council
- IT Security Council - new
- Research IT Committee
- IRCC Executive Board
- ITCS and the Information Systems management at Pitt County Memorial Hospital.
- SGA budget committee.
- Deans and Directors meeting

The process by which technology initiatives are reviewed and funded is better defined in some respects with the Brody School of Medicine than with the main campus; however, the new budgeting process which promises to include ITCS in the annual evaluation of IT proposals from the various budget units is a vast improvement. We still need to determine a method for making strategic IT decisions. The Research Information Technology Committee is addressing research IT needs by bringing key researchers, Research and Graduate Studies and ITCS together, and a planning process for research computing has now emerged from that group. A mechanism for initiating and distilling new academic computing needs is yet to be developed, although there are several channels, including the Deans and Directors or the Chancellor's Cabinet, or a reconstituted Faculty Information Technology Review Committee.

There are two related issues to be addressed in order to complete this process:

1. There should be a final "clearing house" involving a combination of IT-informed, higher-level administrators and clients, preferably faculty, who discuss and distill IT initiatives for senior management. A workable process is in effect in the BSOM.
2. At what level of University management must the final integrative discussions occur?

The management/client milieu of the main campus is more complex than that of the School of Medicine as are its technology needs, yet we must develop a minimally cumbersome "distillation" process for needs and funding that works similarly. At that point, IT spending will become a strategic investment, understood and championed by all of our stakeholders. ITCS' leadership is dedicated to helping bring these processes to fruition.

SUMMARY

The purpose of this document is to raise awareness that information technology can provide value through basic and essential working services as well as enabling a strategic differentiation for the University. In order to maximize that capability, we must collectively (1) address the staff salary issues, (2) determine a funding model or plan that allows regular, planned upgrades and additions to the infrastructure, and (3) improve mutual access between the CIO and senior management. While there are some stark challenges for ECU's information technology efforts, most do not constitute a crisis (the data center power supply being the exception), and there are also significant opportunities for IT to help advance the mission of the University through the new integrated planning process. With some slight changes in committees and communications channels that will provide greater technology awareness to our client base, including senior management, as well as programmatic feedback to ITCS, there is indeed an opportunity for ECU to excel in IT governance, management, development and implementation like few other universities have succeeded in doing.

Appendix A: Projects and Services, 2005-06

Software Development Services Projects

Don Sweet, Director

Banner Project:

ECU implemented the most comprehensive Banner Finance Module in the UNC system during this reporting period. The system, including software, hardware and networking infrastructure came up smoothly and flawlessly.

IDX (Physicians' Scheduling and Billing System) Projects:

Enterprise Wide Scheduling (EWS) IDX via the WEB

Enterprise Wide Scheduling via the web was implemented for the Patient Access Services, providing BSOM a robust, web-based appointment management system that allows capabilities to assist with coordinating and scheduling appointment times, providers and locations via automated 'rules' throughout all clinics.

Common Registration (CRT) including the ADT Inbound Interface and the ADT Outbound Interface

Both of these interfaces were required for the BSOM to achieve the Fall 2000 Joint Board Liaison Committee directive of common registration to share patient visit information seamlessly between BSOM and PCMH.

IDX↔Banner Interface

Refunds/Accounts Payable

General Ledger

With the implementation of Banner, two IDX system interfaces were modified to meet Banner specifications in order that these two major financial system exchange data.

Network Services Projects

Rob Hudson, Director

New Buildings & Renovations

Major data network upgrades and installations were done in the arena of renovations and new construction, including Central Receiving Warehouse, Allied Health and Nursing, Pediatrics Clinic, Financial Services, Slay Office Suite, Clark Warehouse with Old Cafeteria, Fletcher Music and the New College Hill Dorm to come online first quarter this fiscal year. These efforts have increased our active network port count by approximately 3600 ports (~17,000 total) with an anticipated 2200 additional new ports in the first quarter of this year.

Network Upgrades

Upgrades supporting the continued roll out of the VOIP technology, were implemented in the Belk and Ward Sports Medicine buildings. Nineteen BSOM communications closets have been upgraded with new switches providing increased performance from 100mb to gigabit uplink speeds at users' desktops.

The first phase of the ECU Core network upgrade is complete, including design, acquisition of equipment and preliminary testing for the upgrade of the four core nodes to provide enhanced network performance and bandwidth up to 10gig.

SAN Infrastructure Expansion

ECU's sophisticated Storage Area Network was expanded this year by three new switches, including an off-site switch for disaster recovery at Brody. The SAN provides a quick interim step for ultimate tape backup thus minimizing backup time for the primary data servers. The SAN also stores some servers' operating systems and enables those servers to boot from the SAN, thus conserving server working space.

Wireless Expansion:

ITCS continued to expand ECU's wireless connectivity to include 112 new access point installations in new construction sites as well as renovation projects, bringing the total to over 425 access points and approaching a saturation total of 75% campus wide.

IP Telephony (VoIP):

The current database of IP assigned numbers has surpassed 2100. Approximately 1600 hand sets have been deployed, and over 1000 those have unified messaging (integration of voice mail with the Outlook email Inbox. Emergency Responder has been installed to route emergency 911 calls from VoIP phone sets to ECU's Public Safety.

Connect2ECU:

Campus Living and ITCS worked together to implement "Connect2ECU," an authentication and enforcement tool which ensures that residence hall users are authorized to use the network resources and their computers meet the University's security requirements before access is granted. As a result there has been a significant reduction of network attacks originating from the residence halls, as well as fewer security problems.

IT Support Services

Joe Norris, Director

Performance Management

Service Calls

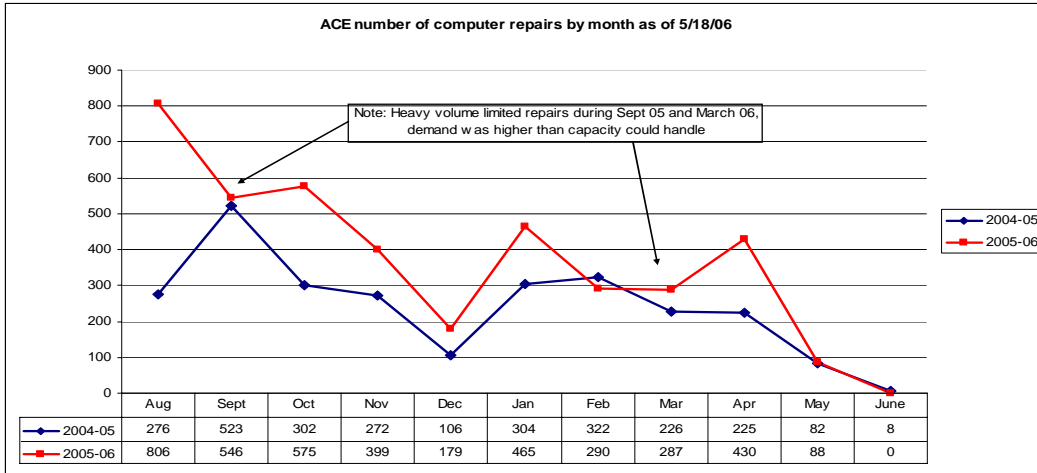
ITSS implemented several proactive measures this year with a goal of reducing overall service call volumes. That goal was achieved through the continued refinement of services and implementation of new infrastructure support systems. As a result, the IT Help Desk experienced a **19% decrease** in incoming service calls for FY06. The beginning of the Fall and Spring semesters continue to be peak demand for IT service requests with more than 16,000+ calls in August while the average service call resolution time was less than one business day for 79% of the service calls processed this fiscal year.

A new help desk telephone system, Cisco IP Contact Center (IPCC), using VOIP technology was installed August 2005 making East Carolina University the first university in the UNC system to utilize this new technology. IPCC enables the Help Desk to segment customers and monitor resource availability, profile customers using contact-related information, and assign the most appropriate resources to meet a customer's needs based on real-time conditions such as agent skills, availability, and queue lengths.

	Faculty and Staff			Students		
	FY05	FY06	Variance	FY05	FY06	Variance
Phone	79787	64386	-19%	6644	9627	45%
Web	5086	5880	16%	425	478	12%

ACE Support Center

Over 4,000 service calls were logged in the ACE Student Support Center, a 50% increase from last year, due largely to the growth in our laptop program. To handle the increase in service calls, the Student Help Desk was merged with the ACE center to create a more informed student worker. Service was extended in the spring semester to include third shift student help desk support. During the day, an area to consult directly with students was created and during projects that directly impact student users such as "Connect2ECU" satellite support areas were established.

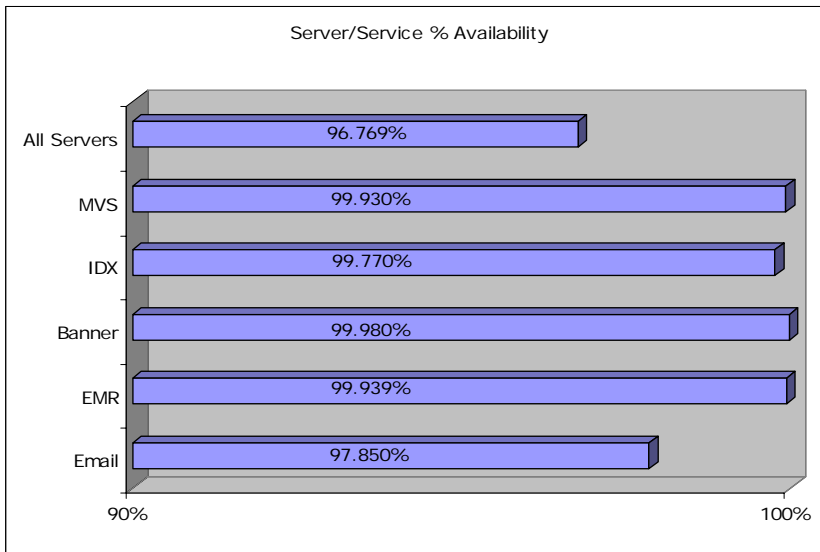


Technology Resource Center

The Technology Resource Center located in Austin 103 scanned almost 400,000 Opscan sheets this year. This service is considered invaluable by faculty because of the amount of time it saves with the examination grading process. Consultants in the resource center also offered assistance with multimedia, web page design, virus resolution, and a testing environment for software and hardware used throughout campus.

Major Services Availability

ITSS strives to ensure that all computing resources are available to users to the greatest extent possible. The below chart signifies the availability of our major systems/services:



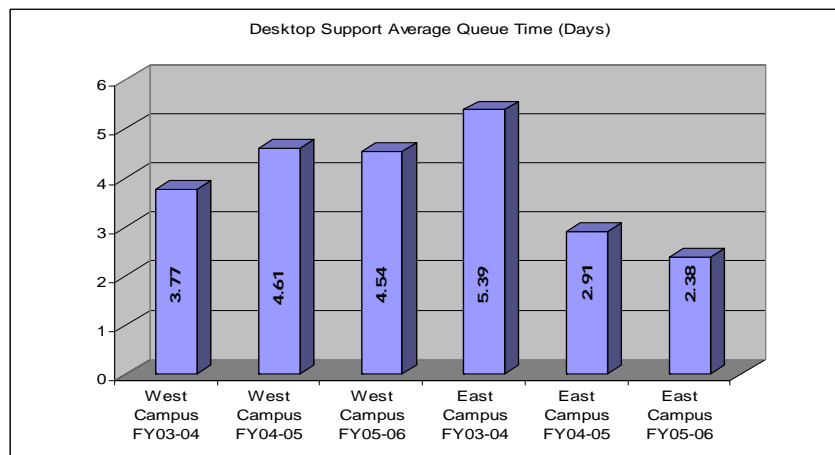
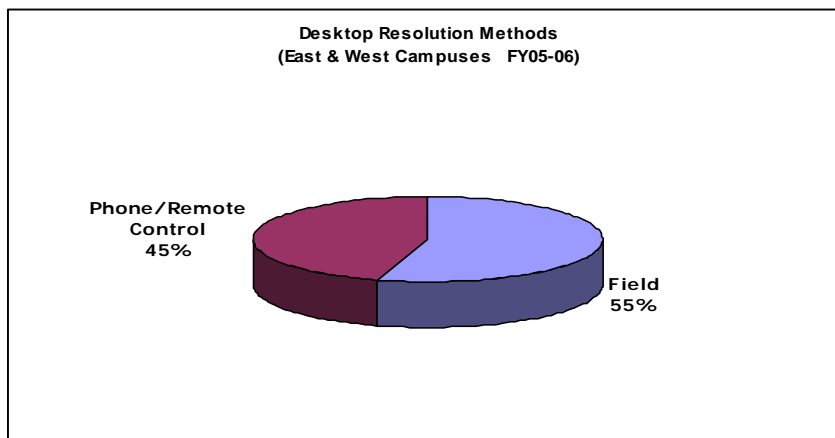
Notes:

EMR – Electronic Medical Record System(Centricity, formerly Logician)

All Servers – This category includes all systems including departmental servers that reside in the ITCS Cotanche Facility

Desktop Support Service Call Volume

After years of frequent double-digit growth in requests for user desktop support, ITCS experienced a welcome call volume decrease for these requests in FY05-06. East campus and West campus both experienced a decline of 15% and 8% respectively in these types of service requests. The decreases can be attributed to proactive measures that ITCS implemented to help minimize user requests, as well as a renewed vigor in investment in new desktop computers chiefly at BSOM. The central management of Windows desktop Operating System updates, initiated three years ago, continues to pay huge dividends in reducing support requests. This initiative gave ITCS staff a larger role in ensuring that critical operating systems updates are deployed and installed on campus workstations. An initiative launched in Fall 05 enabled the central management of virus definitions on faculty and staff Windows computers. Additional capabilities were implemented in Spring 06 that enabled the management of Windows anti-virus programs on these machines and involved upgrading approx 7400 systems to the latest version of anti-virus software. Another highly successful measure started in FY04-05 and expanded in FY05-06 involved 'locking down' desktop computers in the BSOM clinics thus resulting in few support issues on these systems. In addition to these measures, various ITCS user education strategies and tools gave users a heightened awareness regarding self-sufficiency and the importance of workstation security.



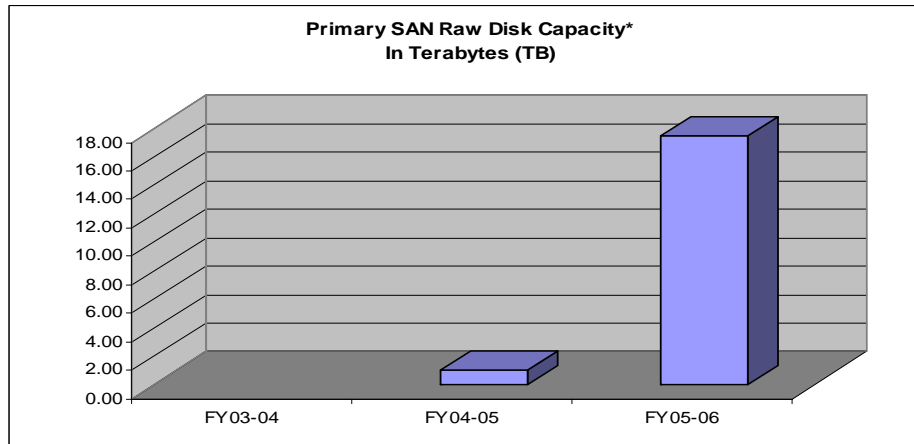
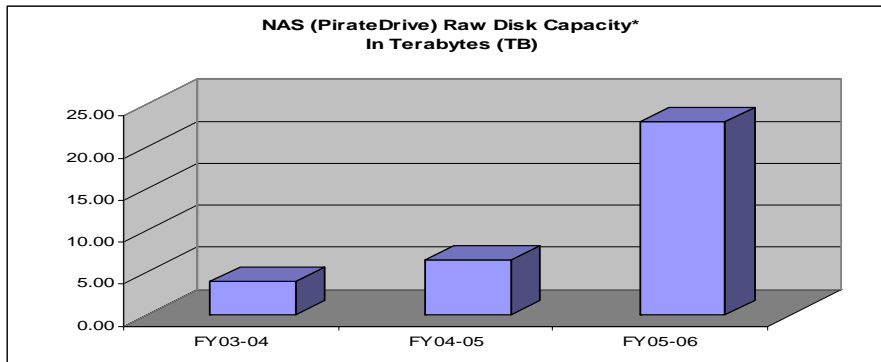
Infrastructure & Security Updates

Campus Email Upgrade

Completion of the upgrade to the campus Exchange email system brought about new features and capabilities for the campus community. The email system consists of 23 core servers and over 50,000 mailboxes enabling vital communication capabilities for ECU faculty, staff, enrolled and prospective students. Servers were upgraded to the latest version of Microsoft's server software, Windows 2003 Enterprise as well as upgrading the core mail platform to the latest version of Microsoft Exchange (Exchange 2003). As a result of the upgrade, users email addresses changed slightly by dropping "mail" in @mail.ecu.edu" and replaced with "@ecu.edu" thus allowing for a more identifiable branding of ECU email addresses.

Mass Storage Growth

ITCS experienced phenomenal growth in their three main mass storage data systems. These systems utilize Storage Area Networks (SAN) and Network Attached Storage (NAS) disk storage as well as tape backup technologies. Utilization of personal/departmental storage, data archival needs and HIPPA-driven secure data storage requirements, fueled the demand and utilization of NAS technology – PIRATEDRIVE. During FY05-06, PIRATEDRIVE raw storage capacity increased 254%. SAN technology growth was spurred by ITCS server consolidation efforts, backup-to-disk implementations and the Banner implementation. SAN raw storage capacity grew by 1650% during FY05-06. As these capacities grow, so do the associated backup capacities, which went from approx. 2TB per night to over 3.75TB currently.



**Raw Disk Capacity represents total managed space including system overhead.*

Student Computing & Technology Fee

The Student Computing and Technology Fee provided upgrades for twenty-two student computer laboratories with 410 new computers and printers (\$723,000). Software upgrades were provided to academic departments for their labs totaling more than \$437,000. Twenty previously created labs that were not supported have been added to our technology fee refresh program to ensure consistency across campus. Wireless access points were added or upgraded in student areas to enhance coverage (\$136,000) for student laptop use.

Technology Enhanced Classrooms

Technology-enhanced classrooms are increasing at a rapid rate. There are currently 155 technology-enhanced rooms throughout campus with more than 76 new rooms coming online with the completion of the Allied Health and Nursing(AH&N) building. In order to save costs, much of the programming and installation of new technology-enhanced rooms is completed using existing campus personnel. As a result, we can troubleshoot our own problems and regulate the user interfaces to be similar in nature, making it easier for faculty to teach in multiple classrooms.

Monitored Environmental Controls and Systems

ECU's data centers are now being monitored on a constant basis with newly added power management devices. These devices provide detailed reporting of electrical loads, monitor the environmental infrastructure and provide early-warning notifications. Monitoring the mechanical, the electrical, and other critical systems ensures high availability and timely response to events. Early detection of controls such as temperature and humidity further enhances our delivery. Highly sensitive smoke and heat detectors, along with automated moisture detectors, constantly monitor equipment areas, alerting Operations to changes beyond tolerances.

Security

The following initiatives were implemented this year in order to better protect critical ECU computing assets from various security threats such as viruses and hacking attempts:

- Intrusion Prevention software installed on four core infrastructure servers and three critical management stations blocked over 100 million unauthorized access attempts for the year. This software is being expanded to cover an additional ten management stations.
- Core Electronic Medical Records servers were moved behind the "HIPPA" firewall to protect critical sensitive medical information.
- Critical infrastructure servers providing fail-safe system redundancy were moved behind the "HIPPA" firewall. In the event of a network emergency, these HIPPA compliant servers can be segmented from the general campus network.
- Implemented Symantec Anti-Virus Managed Server to 'manage' approx 7400 campus computers. Virus definition updates are automatically downloaded from this centrally managed server minimizing security risks for ECU servers, desktops and laptops. This initiative increased threat awareness through monitoring of viruses and malware found on workstations.
- ITCS Client Server staff conducted 13 "in-depth technical system security assessments" for various university departments: Athletics, Continuing Education, Family Medicine, ITCS, Joyner Library, Pathology, and the Physicians Assistants Program. A majority of

these security assessments (10) were proactive measures initiated by the responsible departmental server administrator. The remaining systems were in response to potential system compromises or traffic anomalies.

- Identified and quarantined over 92 million emails out of over 150 million containing identifiable triggers that represented potentially malicious content such as Spam, Viruses or other industry identified mechanisms.

Collaboration

Desktop Procurement/Refresh*

ITSS, Academic Affairs, BSOM, Materials Management, Dell, Apple and a large number of campus departments worked collaboratively to provide ECU faculty, staff, clinics and student labs with a standardized state-of-the-art desktop workstation. Through this collaboration, approx 1,586 desktop systems were acquired, installed, and configured for use at an overall cost savings of **\$591,500** to the University.

	<i>East Campus Faculty</i>	<i>East Campus Administration</i>	<i>BSOM Faculty & Staff</i>	<i>BSOM Clinics</i>	<i>Student Labs</i>
Desktops (Dell/Apple)	252	188	191	181	648
Laptops (Dell/Apple)	90	11	25	-	-
Total	342	199	216	181	648

**Quantities/Savings reflect bulk purchases only and do not take in to account computers ordered individually by departments.*

Clinical Upgrades

The Brody SOM Clinical operation was improved by the collaborative efforts of ITSS, SDS IDX, and HIS teams through project management and coordination of several key initiatives. Desktop services replaced 181 aging clinical workstations encompassing exam rooms, nurse’s stations and patient access services to the latest in space saving computer systems.

P2P Music Subscription Service

Campus Living, SGA (Student Government Association), and ITSS worked together to evaluate music subscription services for campus living. Ruckus was chosen for a Spring Campus Living pilot project. Student feedback was positive overall; the basic service of unlimited music downloads to an individual machine for play was offered as a free service to students. Additional options including downloading the music to play on a portable device or movies required an additional subscription from the students and a fee. Internal peer-to-peer traffic was reduced during this time. The pilot project was evaluated and deemed successful. Currently, a contract for the fall semester is in the works. Campus-wide use of the service will provide on-campus students with the basic service for free. Off-campus students, faculty, and staff will be able to subscribe to the service at a reduced cost.

iTunes University

Several colleges, in collaboration with Instructional Technologists and ITSS submitted an iTunes University application to Apple, Inc., which was accepted. iTunesU is a method for distributing multimedia content, including podcasts, to students, faculty, and potentially the

public. The iTunesU interface has the ability to password protect access to audio and video streams and offers an easier method for creating podcasts and RSS feeds. The iTunesU pilot will begin Fall 2006 semester.

New Faculty Orientation Program

Representatives from ITCS, Academic Affairs, Center for Faculty Development, College of Arts and Sciences, and others launched a New Faculty Orientation Program that takes advantage of Blackboard as an asynchronous communications tool through which information about campus divisions, university administrators, essential teaching and learning resources and facilities, and research and service support is shared. This creative approach allows faculty to review orientation material at their convenience while providing those unfamiliar with course management systems (CMS) an opportunity to learn the ins and outs of CMS features. Faculty also attend networking luncheons and are equipped with a “getting started” CD that includes welcome letters from the Chancellor and Provost, along with a memory stick to hold their Personnel Action Dossier. Faculty can include completion of the program as part of their annual Professional Development report.

ACE Program

The ACE initiative, which is the coordination of departments with computer requirements and the support of student technology, shared information with over 1,600 parents this past year. Slightly over 1100 computers were purchased through the Dowdy Student Stores. More academic majors chose to participate in the initiative this year, increasing the number of programs requiring or recommending a computer to 30 programs. Over 4,000 students are in these programs, with 2,700 in required areas and 1,300 in strongly recommended areas.

CommonSpot Expansion

CommonSpot, the web management tool, offers departments an easy-to-use interface to develop and maintain university web pages. To date, over 564 users have been trained to use CommonSpot. This year alone, approximately 24 training sessions were offered by ITSS and users received over 500 hours of one-on-one consulting and training. The CommonSpot development team is continuing to create tools that make web maintenance easier to use, while offering a university wide “look” and “feel” to the web site. New servers were also deployed to reconfigure the Common Spot software for more efficient operation.

Blackboard Migration to ECU

ITSS and Academic Outreach requested and received funding for the relocation of the Blackboard DE service from the outsourced arrangement back to ECU. The transition of the service from Blackboard ASP to ECU is considered a strategic and technical direction that was needed to meet the demands of ECU’s growing DE programs. Over the past two years the Distance Education programs have seen an explosive growth which has directly impacted our dependence and utilization of Blackboard. Blackboard Corporation was unable to react to the increased demand which has negatively impacted course delivery for students and faculty. The result was that ITSS has purchased and engineered a solution to meet these demands while reducing overall costs in providing this critical service. The new system will be available starting July 2006

Innovation

Support Software Procurement

Through an aggressive arrangement with Symantec Corp., ECU procured remote assistance software (Symantec PCAnywhere) as well as asset management software (Symantec Discover) at nearly a 60% savings over state contract pricing, saving nearly \$144,000. PCAnywhere enhances end-user support capabilities by allowing IT support personnel to remotely control the user's computer thus negating the need for a field visit by a computing consultant. This in turn minimizes the number of IT support staff that the user interfaces with during the problem resolution cycle. The asset management software will allow ECU to make better informed decisions regarding computer system aging/replacement and assist in the management of software licenses.

Server Consolidation Efforts

In an effort to maximize the available space in our data center a continuing initiative to consolidate systems was implemented. Nearly 40% of the server inventory in ITCS's two server rooms has been physically downsized by utilizing 'virtualization' or 'blade' technologies. To manage growth proactively we will continue to transition to the appropriate technology as funding becomes available.

	<u>Total</u>	
Blade Technology	24	9%
Virtual Technology	74	29%
Traditional Server	162	62%

Expansion of SharePoint Services

Microsoft SharePoint services were more widely implemented this year. SharePoint is used to share documents and engage and track discussions, creating a unique collaborative workspace. We migrated to a new portal service interface that was branded with an ECU "look". Over 90 new collaborative sites were added to SharePoint; a new process was implemented that enabled the service to be extended to researchers and other ECU external users. The extension of services was extremely useful to faculty and staff working on research projects internal and external to the university.

IT Security

Margaret Streeter, Interim Director

We realize that improvements in technology and processes are not enough to ensure the protection of ECU's enterprise data resources. In fact, the majority of data security breaches are attributed to the data users. We have therefore implemented an aggressive information security awareness campaign to address this critical vulnerability. In addition, ITCS will continue to implement new technology and processes to provide additional layers of security for University data as we address the awareness issue. This report reflects technological, procedural and awareness security initiatives implemented in fiscal year 2005-2006.

Technology Initiatives (some in conjunction with IT Networking or IT Support Services)

1. External security assessment (SEC)

A contracted external vendor conducted assessments of physical, network, application and server security, system documentation, and policies/procedures. The assessment revealed no major vulnerabilities and several notable practices that enhanced the security posture of the University.

2. Symantec Anti-Virus Managed Servers – see pages 23, 24

3. HIPAA Servers Behind Firewall - see pages 23, 24

4. Replaced Microsoft System Management Servers (SMS) – see pages 23, 24

5. Intrusion Prevention Software (IPS) – see pages 22, 24

Information Security Awareness

No technology-based security system can provide total data protection in today's highly networked environment; the user element must also understand their security roles and responsibilities. Closing that loop requires that data users are adequately trained in security responsibilities and procedures. In an effort to accomplish this, ITCS has expanded and intensified its Security Awareness Training Program. The actions below are the first phase of a multi-phase effort, including:

1. Departmental Security Awareness Training
2. Internal (ITCS) Departmental Security Awareness
3. Departmental IT Support Staff Awareness Training
Quarterly IT Security Awareness Training
4. HIPAA Security Awareness Training
5. Enhanced IT Security Web Page
6. Reduction of the Use of Social Security Numbers(SSN)

ITCS is requesting that all SSN data sent across the network or stored on local drives be encrypted with WinZip until an enterprise encryption solution is adopted. If locally-stored data is not encrypted, it should be stored on Pirate Drive.

Consulting

To assist the campus in implementing technology in a secure environment, IT Security consults with departments on security best practices; clients include ECU Physicians, Physician Assistant Program, and Health Sciences Library. These efforts inform the departments of procedures and technology that improve their security posture.

ITCS Disaster Recovery Plan (DRP)

Among our procedural improvements this year:

- Development of DRP process for Banner
- Assessment of DRP equipment needs, especially with Banner expansion
- Investigation and recommendation of Alternate DRP recovery site
- Departmental DRP retreat for all ITCS members to ensure everyone understood and could execute their roles in a disaster.
- Development of a DR Planning website at <http://www.ecu.edu/cs-itcs/itsecurity/itdrp/>
- Coordination of needed updates for the offsite storage contents
- DRP annual recovery testing and successful completion

Banner Financial System

- Worked with the Banner programming team on the design on the workflow request used to request, authorize, modify and grant access to Banner financial applications prior to, during and post startup.
- Provided consulting services to ITCS and the financial modules on procedures for granting access to non-ECU users and elevated privilege users, as well as operational procedures.
- Assumed the responsibility of creating more than 1300 startup user accounts for Banner financial applications.
- Developed procedures to perform yearly, monthly, and weekly review of user accounts to ensure that inactive accounts are purged, account access is revoked in a timely manner, changes in employment are reflected in their system access rights, and that original user account forms match the actual system access.
- Led the implementation of the AppWorx application for the Banner project. AppWorx is benefiting the University through:
 - More effective processing through coordination and control of multiple applications
 - Advanced scheduling beyond simple dates, times and calendars
 - More efficient use of (human) resources through automation of manual processes
 - More reliable processing leading to fewer errors and failures

Policy, Regulations and Compliance

1. Information Security Council

The new Information Security Council (ISC) was charged with the responsibility of providing direction on the use and protection of University information. This high-level group will ensure that issues related to the protection of University information are addressed campus-wide, regardless of who is in control of the information. The ISC has a dual reporting responsibility to the Chancellor's Cabinet and the Information Resources Coordinating Council for administrative and faculty-level approval and feedback.

2. Payment Card Industry (PCI) Compliance

Credit card companies have mandated new security requirements (PCI Data Security standards) for all merchants in order to protect their customers' data. Campus merchants were not equipped to determine nor achieve compliance to this new mandate. If a merchant is non-compliant, their ability to take credit card payments can be terminated

as well being subjected to penalties starting at \$100,000 for the inappropriate disclosure of personal data.

IT Security assisted the ECU Cashier's Office and campus merchants in assessing their PCI compliance. More than 500 efforts hours of IT Security, ITCS, and campus merchants were expended in assessing and implementing processes and procedures to meet the PCI security requirements. More than 40 systems were assessed and required changes were implemented. We have met all standards that could be met without a significant financial expenditure.

ITCS along with the other UNC campuses have submitted recommendations for infrastructure and support changes required to bring the campuses into compliance. These recommendations will require capital expenditures as well as ownership of the compliance process by the financial services module.

3. North Carolina Identity Theft Act

The N.C. General Assembly established the Identify Theft Protect Act of 2005, which provided for the "protection of personal and credit information that might lead to identity theft" (N.C. General Assembly, 2005). The Act addressed the protection of Social Security numbers and other identifying information, security freezes on consumer credit reports, secure methods of disposal for personal information, notification of information disclosures, and other measures.

Our compliance efforts in the past months have been focused on the protection of identifying information, the reduction in use of Social Security numbers and an annual evaluation of protection measures. Future efforts will involve developing guidelines for the collecting, segregating, disclosing and protection of SSN. IT Security will work with Legal to publish such guidelines and educate the campus.

4. HIPAA Compliance

HIPAA security compliance is an ongoing process that requires continuous efforts to ensure that the systems which house our electronic protected health information (EPHI) are secure.

- **Critical and Core Status:** The 2006 Annual Risk Assessment has been completed for the Critical and Core HIPAA systems. We assessed of ten departments and eleven systems. Changes for this years' assessment process included involving the awareness and approval of system's Risk Assessment by upper management for each HIPAA Contact. This directive was the recommendation of the HIPAA Workgroup and Steering Committee as a means to ensure that **management** is aware of the threats and associated risks.
- **Departmental Status:** A departmental compliance plan was developed to bring the identified departmental systems into compliance. We reduced the number of departmental HIPAA systems from thirteen to three. We are working with those three systems to bring them into compliance. We have also worked with the departmental contacts to eliminate unnecessary patient databases or introduce the use

of the University's PirateDrive to securely house the department's database rather than using local storage devices.

- **HIPPA Portable Device Security:** A task force was created to investigate this use and make recommendations on portable storage devices, including 1) supported devices 2) encryption 3) protection of devices and data and 4) appropriate use of such devices. The recommendations from the task force will be presented to the HIPAA Steering Committee for review and approval.

ITCS Leadership Program

ITCS launched its inaugural Leadership Program in the spring of 2006. This program is unique in that it is open to all members of the department. The Leadership Team of ITCS believes that leadership skills can be learned and that leaders exist at every level of the organization. The objective of the program is to enhance those leadership capabilities for all participants to better leverage technology in meeting the strategic goals and objectives of the University. The program is offered once per semester and can accommodate 20 participants per session. We were honored to have Dr. Richard Eakin as the instructor of our spring session.

Finance and Planning Patsy Mills, Director

In the second year of our reorganized financial system, we continue to refine, including making alterations for the new Banner Finance Module.

- Improvement in month-end reports to Direct Reports
- Implemented processes to reconcile QuickBooks to Banner
- Staff member completed the ECU Supervision Institute, the ITCS Leadership Program
- Processed and verified approximately 2500 purchase orders and standing orders
- Implemented the "savings" quote for the Cisco contract so that materials management can track savings campus wide.
- Managed and monitored all purchasing activities and financial accounting for a multi-million dollar budget.
- Managed and oversaw all contractual agreements for computer hardware, software, non-computer equipment and service contracts for ITCS
- Assisted the University in training of Banner/PORT across campus

Administrative Support Services Projects Marlene Anderson, Director

Our efforts have focused on internal process improvements, data security and team development:

- Identified several security issues (social security numbers, password safety, etc.) within Administrative Support Services and established procedures to correct all issues.
- Provided direction and assistance in the planning, reservations, reimbursements and payment of travel to various conferences, training and seminars for ITCS.

- Successfully converted and maintained check deposits, etc. to the new Banner system.
- Restructured the entire cell phone, pager and calling card billing process and request system for the University.
- Created new employee recognition program for the Administrative Support Staff to enhance the importance of employee morale.
- Shared in the development and maintenance of the ITCS Development Program which consist of a Leadership Program designed to develop the abilities of employees and enhance and expand training opportunities for ITCS staff.
- Enhanced the Fixed Assets and Equipment Insurance Tracking system to alleviate missing equipment and to simplify the tracking process.
- Provided service and support for online registration for the 2006 UNC CAUSE Conference that will be held in New Bern, NC in November, 2006.

IT Infrastructure Projects

Woodrow Bolton, Director

We were involved in the design and/or construction of forty (40) campus planned construction projects during this past year. Most notable of these projects were the new School of Allied Health, School of Nursing, and Health Sciences Library Building, and West Campus utilities upgrade.

There were several projects that were designed and managed by ITCS outside of the construction projects but were funded by the construction projects. These projects were the result of new building footprints on the university network infrastructure, building renovations that affected a major network node or properties acquired by the university that were remote to the campus network infrastructure. The most notable of these was the re-design and construction of a new primary fiber feed between the main campus and the west campus to include a new primary node telecommunications/network closet to feed all of the existing west campus plus the Learning Village/Allied Health, Nursing and Health Sciences Library buildings as well as new future growth.

Appendix B:

ITCS functional/organizational chart.

