

College of Communication  
Technology Vision Plan  
Academic Year 2007-08

SUMMARY OF REQUESTS

Student Lobby Proctors	\$50,000
Classroom Equipment Upgrades	\$100,000
Network Video Delivery	\$50,000
Network Storage	\$66,000
Checkout Equipment	\$86,000
Videoconferencing Equipment	\$35,000
High Definition Video Recording	\$90,000
HDV Playback and Editing	\$281,000
Virtualized Distributed Datacenter	\$75,000
Prototype (see Joint Proposal submitted by College of Engineering)	
Total	\$833,000

OVERVIEW OF CURRENT IT PROGRAMS AND INFRASTRUCTURE

The mission of the College of Communication, according to Dean Roderick Hart, is four-fold:

As the most comprehensive academic unit of its kind in the United States, the College of Communication is too large and too complicated to have but one mission. Instead, its mission is four-fold:

An intellectual mission: (1) to ensure that the traditional arts and sciences remain central to the study of human communication, (2) to collaborate with faculty members in the arts, humanities, and social sciences across campus to address the most pressing issues of the day, and (3) to make communication training central to the educations of all University of Texas undergraduates regardless of major.

An entrepreneurial mission: The world is being made smaller by the Communication Revolution and the College must work to understand what that means by (1) building close ties to the communication professions, (2) vigorously pursuing interdisciplinary activities, (3) staying current with new interactive and aesthetic technologies, and (4) pursuing an increasingly international agenda.

A pedagogical mission: Here is our future: We live in an era of media convergence where once-separate industries - radio, television, advertising, newspapers - are being folded into vast media conglomerates. The College must prepare its students in multiple ways as a result, helping them reach across the various communication disciplines for new insights, new skills, new forms of expression, and new kinds of employment.

A social mission: The mass media are implicated in all that happens today. Political campaigns are heavily determined by media perquisites; enlightened health care depends on savvy information campaigns; the nation's youth are being inundated with popular culture; the world has become unknowable without a discerning press. This collection of facts makes communication training both a practical matter and a moral one as well.

The University of Texas is devoted to generating intellectual excitement in its students, transforming their lives, and turning them into leaders. That is the College of Communication's business as well.

### IT Programs

The Dean's Office operates Business and Technology Services (BATS). The Technology Services group represents the bulk of technology support available in the College. We support every department, research unit and program in the College. Our web site is <http://communication.utexas.edu/technology/>. Along with other Dean's Office units, we receive administrative support from Business Services. Currently, Technology Services consists of twenty-one full-time employees and typically around half that many part-time student workers. Skills and duties revolve around three primary areas: Customer Support, Engineering and Instructional Design/Web Development. We also have a dedicated datacenter and network administrator.

Customer Support provides direct patron support. Our Help Desk solves technology problems for College owned computers, audiovisual systems in classrooms, and provides limited support for personally owned student or faculty systems (liability limits the extent to which we can help). Media Services manages the Media Center and related facilities to provide checkout equipment, media duplication, a media library and playback facilities. Finally, Lab Operations maintains College and departmental computer labs and provides assistance for faculty, staff and students using our labs.

The Instructional Design and Web Group helps faculty and staff to develop and implement instructional technologies, and supports the development of both our academic and administrative web presence.

The Engineering team is responsible for long-term projects, large-scale "roll-outs" of technology equipment, providing purchasing specifications, and maintaining our inventory of computers for rapid deployment. Engineering's primary focus is to free up time-consuming and complex logistical tasks from the other units, so that they may provide more efficient and effective service to our patrons.

### Technology Infrastructure

We maintain technology equipment in six buildings (CMA, CMB, LAC, UA9, WWH and UTFI on 5<sup>th</sup> Street). We have over 900 College-owned computer systems, 300 printers and over 40 servers. All of these are connected by one of the more advanced networks on campus. We employ multiple Gigabit and 10-Gigabit connections to the campus network, and now provide Gigabit connections to our computer lab desktops.

Our Help Desk maintains the standard security practices on campus, ranging from the deployment of anti-virus and firewall software provided by University site license, to advanced software deployment and desktop management systems (see Best Practices below). Our staffing levels have increased over the past decade as demand for Help Desk

services have increased. Consequently, while we used to provide only email or voicemail methods of contact, we now have a direct phone line and physical help desk location in close proximity to our patrons and facilities.

Today, thirty classrooms (College, departmental and General Purpose) and conference rooms are outfitted with instructional media systems. These consist of a digital projector, an audio system, audio and video sources (VCRs, DVDs, etc.) and laptop connections. Many of these rooms include built-in computers and high quality document cameras. These rooms largely conform to the standard classroom control system deployed throughout the campus, through a cooperative effort with many colleges. We have deployed over sixty wireless access points throughout our buildings to provide Internet access for our increasingly mobile computer population.

Individual departments within the College also maintain technology support infrastructures. Communication Sciences and Disorders and Journalism each employ technical support staff to maintain their clinical and broadcast television equipment, respectively. Radio-TV-Film staff work closely with students during the various production and postproduction phases, and are called upon to match hardware and software capabilities to aesthetic vision. Advertising and Communication Studies employ Graduate Assistants to support their labs. Departments are primarily responsible for determining the nature and scope of activities within their facilities. Technology Services works with the departmental staff to help facilitate their needs.

Because many Communication courses are not taught within the Jesse H. Jones Communication Complex, our faculty cannot always depend upon their classes being scheduled in University classrooms that meet their technological requirements. It is critical that the colleges continue to improve the University's classroom technology capabilities, through the combined efforts of the Tech Deans & Directors Group and Technology Classrooms Committee.

### Technology Funding

For FY2005-06, the College of Communication received \$430,969 from the University-wide Information Technology Advisory Committee fee. We also generate approximately \$1 million from the College's Information Technology Fee (ITF). Other instruction-related projects, many of which involve a great deal of IT resources, are funded through a \$1 million Communication Learning Equipment Fee (CLEF).

A portion of the ITAC Fee allocation was spent to operate the Communication Computer Center (<http://www.utexas.edu/computer/labs/ccc/>), a joint-use facility open to Communication majors during traditional business hours, and to all registered University students after hours. Management and upkeep of the facility is provided by Instructional Technology Services, at an annual cost of \$145,500. The College will decommission this facility in December 2006, in order to make room for a new space to facilitate student collaboration, study and interaction. The space will support individuals and groups, providing power and data circuits for laptop computers. However, technical

infrastructure is not the main focus. This mirrors a trend as in the Fine Arts Library and Flawn Academic Center.

The principal use of the ITF is to support professional and temporary staff, as outlined above. Additional projects are funded to support Technology Services initiatives, as described in the next section.

CLEF provides for much of our instructional equipment, software and services. The process of allocating these funds represents department-specific needs and is distributed based on project proposals submitted after discussions with department chairs. Technology Services uses these proposals to anticipate and plan infrastructure upgrades. Note that only a portion of this fee represents IT expenditures, as many other learning needs are served by this funding source.

Other sources of funds for technology equipment include a Special Equipment Fund, an allocation to each department of approximately \$25,000 per year, and various state and federal grants. Some of this goes to support research activities, or are used to support other maintenance needs, such as "refreshing" computers for non-faculty appointments (instructors, clinical staff, etc.). Finally, Computer Life Cycle and Faculty Computing Initiative funds provide for initial or refresh computing purchases for faculty, augmented with funds from endowed professorships, chairs and the like. In each case, Technology Services provides purchasing support in the form of quote generation and specification.

### Best Practices

The College has invested heavily in support of College technology. Investments include help request tracking software, desktop and security management systems, server and storage virtualization infrastructure, resource management and scheduling software and advanced video recording and playback systems. We also maintain classroom media control systems common with much of the campus. We are leveraging the University's purchase of the Web Content Management system to improve our overall web capabilities. At every opportunity, we seek a balance between innovation and the benefits obtained through standardized solutions and practices.

We use the Web Help Desk (<http://www.webhelpdesk.com/>) request tracking system to keep track of patron requests for support, and to provide a two-way communication link to keep all parties abreast of any activity related to their request. Similarly, we use an online system (<http://www.onshored.com/>) to keep track of equipment checkout and media library requests. Over the last two years, we have relocated our Help Desk to the CMA building, improving our patrons' access to support tremendously. These practices improve efficiency and improve patron experiences.

We deploy a suite of software solutions to help protect University computing resources. Among these are antivirus suites, firewall management systems and Virtual Private Network (VPN) solutions provided through University site licenses (<http://www.utexas.edu/its/sds/products/antivirus.html>). We also utilize systems to improve the deployment of new, repaired or repurposed computers (Ghost, NetRestore,

etc.). We have also led the charge to deploy the LANDesk desktop management solution (<http://landesk.com/Products/LDMS/>), which provides us with the ability to remotely deploy complete operating systems, individual software packages and security patches. It also provides excellent asset reporting capabilities, so we can determine just exactly what is out there and target the oldest or least capable systems for replacement. Finally, it provides remote control capabilities that let us provide over-the-phone support for our users, saving valuable time and effort. As an example, we can now deploy a lab of twenty computers in under fifteen minutes, down from 3 hours using the previous method.

We continue our deployment of always-ready video recording and streaming systems in classrooms. We have eight rooms with a video camera trained on the instructor or student presenter, microphones covering the entire room and audio and video connections to the media presentation system in the room. With this, we can record both the interactions of presenters and audiences and whatever they are presenting via the projector and audio system in the room. This is meant to facilitate both the regular and ad hoc capture of classroom activities, from lectures to guest presentations to student presentations. An innovative extension of this project is the increasing use of digital video capturing for the Speech and Hearing Clinic. Hundreds of hours of clinical sessions are recorded, while new ideas for using the system in our research labs are being explored.

We use the University's Web Content Management System (<https://webcms.utexas.edu/cms/index.html>). This system allows us to implement modern web design and development practices, but keep content providers in control of their content. The WebCMS allows those who care most about what is found on our web sites to contribute, edit and update content, without the need for technical staff involvement. This vastly improves the time-to-publish, which results in more timely and professional updates to web content.

We have incorporated touch-screen control systems in every College and General Purpose classroom, as well as a number of departmental and College conference rooms (<http://communication.utexas.edu/technology/facilities/classrooms/consoles/>). This brings them into very close alignment with the standard classroom consoles found throughout the campus, as they were co-developed with the College of Liberal Arts staff and their contract designers. Several rooms also have furniture with built-in network and power connections, to further improve the mobile computing experience.

This year, we began a collaborative effort with the College of Fine Arts (COFA) to share information system infrastructure. Over the last two years, we have deployed a VMware server virtualization and storage system in order to rationalize our increasing server deployments. While we used to maintain over thirty physical servers, we now maintain fewer than ten, but these provide many dozen distinct "virtual" servers, deployed to meet the various needs of the College. COFA needed to build a similar subset of capabilities, but rather than building their own solution, they partnered with us to increase the combined capacity. Our system administrator provides support for the infrastructure,

while COFA staff manage their own virtual resources. By collaborating, we save the considerable initial expense of deploying multiple base infrastructures. COFA's needs are met by merely adding to the existing system, at a much reduced capital and maintenance cost.

This virtual server and storage solution supports classroom activities primarily. However, this system allows us to use excess capacity to provide secure, highly available storage to College instructors, researchers and administrators. This is largely an effort to meet the increasing demands to secure data and meet the University's and System's information security policies (<http://www.utexas.edu/its/policies/>). We encourage patrons to store sensitive data on our system, rather than on their own desktop or laptop computers. This allows us to keep a closer watch on such data, as well as provide data replication capability for disaster recovery purposes. We collaborated with the College of Engineering by sharing space within our respective datacenters in order to locate redundant storage and server systems. Data is therefore redundant across facilities. In this way, any loss of utility within either facility can be recovered quickly and reliably.

Finally, we maintain a regular system for maintaining the state of IT infrastructure within the College. This includes the funding model described above, as well as a disciplined approach to targeting those areas in greatest need of refresh. For example, we license standard software packages that support activities across our departments at a cost substantially less than if the departments were to purchase them separately. Working with the departments, we are able to appropriately fund IT while maintaining a largely static budget.

#### USE OF PREVIOUS ACADEMIC YEAR ALLOCATIONS

ITAC allocations for FY2005-06 were \$132,695 for infrastructure, much of which was used to supplement \$78,274 received to maintain the Communication Computer Center, and \$220,000 as a one-time project allocation.

Among the projects funded this year include a much-needed relocation of our datacenter systems to the CMB building. It was necessary to build a small server room with dedicated power and cooling systems due to the increasingly common outages experienced in CMA. The building's HVAC system in particular has failed on numerous occasions, according to campus maintenance personnel, as a result of age and an inherent lack of capacity, as our building was designed for far fewer occupants and a much lower heat load, exacerbated by the number of computers throughout. We should be able to move the facility in Summer 2007.

ITAC funds were spent to facilitate the disaster recovery capabilities between the College of Engineering in ECJ and our own datacenter in CMA, mentioned previously. Additionally, our network closet in CMA is being extended into another room below, as wireless and wired port demands (including the new student lobby facility) have stressed our existing capacity to the limits.

Laptop computers available for checkout to our faculty, staff and students have increased in demand, while our existing inventories have aged. We purchased sixty new systems in order to replace this pool. This represents a reduction in the number of deployed units because we deploy a "dual boot" solution that provides both Macintosh and Windows environments with every unit. In addition to these cost savings, we are redeploying the older but still functional systems to departmental uses, particularly for Teaching Assistants and adjunct instructors.

Our auditorium (CMA 2.320), a General Purpose Classroom, is being outfitted with a High Definition (HD) projection system. This will allow the students and faculty to showcase student and academically significant films much closer to theatrical quality than currently possible.

Finally, our Associate Dean for Academic Affairs is commissioning a student survey to assess the use of technology within their academic disciplines. This will likely be contracted with ITS Research Consulting, as it is similar to the surveys they conduct of the entire University student body, but narrowed in focus for College needs.

#### NEEDS AND PROPOSED USE OF FUNDS

##### Student Lobby Proctors (\$50,000)

The Communication Computer Center is no more, yet we intend to maintain a desk in the space. It will be manned by student workers 80 hours per week. These students will act as primary help for students with technology issues, directing them to our Help Desk and other support personnel as necessary. They will also manage the checkout of laptops within the space, which were purchased this year. We seek funding to hire, train and supply these students.

##### Classroom Equipment Upgrades (\$100,000)

While we have dedicated numerous resources towards outfitting our thirty-plus classrooms, teaching labs and conference rooms with state of the art presentation systems, our faculty has expressed the desire for additional resources. Primarily, we are asked to add document cameras and multi-channel audio reproduction to every room (we currently only have these in larger rooms). We seek funding to add this capability.

##### Network Video Delivery (\$50,000)

Our faculty has become increasingly dependent on our Media Center's maintenance of our media collection. We are continually asked to add to this collection (primarily through "off the air" recording), putting strain on limited physical storage space. In addition, this dependence on a physical object puts limitations on an instructor's access to the media. While we spend considerable effort producing DVD-based "video clip playlists," a more automated solution for producing network-delivered content would greatly improve access to this media. We seek funds to further develop our media

digitization solutions and to hire the work study and student worker pool necessary to facilitate this digitization. We will leverage existing video delivery and storage solutions, and we are creating a faculty Media Advisory Team to aid in determining our priorities for such media management and digitization activities.

#### Network Storage (\$66,000)

Our virtualized storage system continues to see increasing demands, spurred in large part by our efforts to move essential business documents onto our network storage system, and by increasing use of network video delivery systems in our clinical and instructional spaces. Our system was designed for expansion, and we seek funding to add additional storage capacity to meet expected demands. Storage includes primary storage in our CMA datacenter, as well as equivalent storage in our disaster recovery site in ECJ.

#### Checkout Equipment (\$86,000)

We have seen an explosion in the use still, video and audio recording. The two dozen still and video cameras available for faculty, student and staff checkout are under near constant use by a wide assortment of users throughout the College. We seek funding to double the number of units available, as well as replacing aging analog systems (primarily microcassette audio recorders). This will bring us to an all-digital checkout environment, which allows easier integration of recorded material into online and electronic media.

#### Videoconferencing Equipment (\$35,000)

While our faculty does not participate much in the traditional “distance learning” use of video teleconferencing, they increasingly use the technology to bring guest lecturers into the classroom and to collaborate with colleagues across the world in committee and research group activities. We currently utilize portable videoconferencing systems and seek funding to add additional units to serve this purpose. Additionally, we will invest in a highly portable solution that can be delivered to guest lecturers in order to include them in our classroom activities as long as they can find a suitable broadband or wireless connection.

#### High Definition Video Recording (\$90,000)

Our departments are moving towards the production of High Definition (HD) video. This will likely supplant the existing film-based infrastructure, as direct HD acquisition increasingly replaces film in the professional landscape. Our Radio-TV-Film (RTF) department is leading the investigation into cost effective HD recording and production workflows. As mentioned, the CMA Auditorium is being upgraded to support the reproduction of these HD media. We seek funding to purchase additional HD camera kits, outfitted for checkout by RTF, Broadcast Journalism and Photojournalism students, faculty and staff. Experience gained with this new breed of technology will pave the way

for HD recording in more conventional areas, such as Print and Online Journalism, Advertising Portfolio and Corporate Communications.

HDV Playback and Editing (\$281,000)

As we look towards supporting HD recording, we are already faced with the presence of compressed HD video in the form of the “HDV” videotape standard. This represents an evolution of the “DV” format used throughout our College and elsewhere on campus. We seek funds to replace our many dozen standard definition “DV” tape decks with “HDV” units. A plus for the new format is that it is backwards-compatible with the standard definition DV format, so our current workflows will remain unimpeded.

## ADDENDUM - EMERGING TRENDS AND INNOVATIONS

While ITAC did not request this section, I feel it important to describe IT trends as discussed with our department leaders. These trends reflect longer-term vision and often cannot be acted upon until new resources become available, such as a new Communication building.

We have also seen a shift towards small group activities, as opposed to class or individual work. This requires either redesigning larger spaces to accommodate “break out” sessions for groups, or locating group support technology (laptop plugs, kiosks, shared displays, etc.) in “recovered” spaces. As examples, the CMA building lobby is being redesigned this year to incorporate such spaces, and Communication Sciences and Disorders clinic rooms are being used by student pairs to work on assignments after normal patient hours. While IT is not the focus of these spaces, access to “always available” IT resources is essential for modern communication and academic work, so we must continue to provide excellent access in these spaces throughout the campus.

Our departments have recognized the need for new facilities that facilitate the study and practice of group interaction within a focus group, organizational simulation or gaming scenario. Advertising and Communication Studies both seek the development of facilities to study both individual and group responses to various media. The facility could also support the scoring, review and analysis of one-to-one, offsite demographic interviews. Naturally, a wide variety of IT systems and online databases and tools would be available in this facility. This “idea room” concept could be shared with the above activities and open up the opportunity for interdepartmental collaboration.

Laptops are likely to become a requirement for students in a number of programs over the next few years. Advertising and Journalism have expressed an interest in beginning this in their respective graduate programs. As increasing populations of students are required to bring laptop computers, it will be necessary to review our IT infrastructure to support them. We have maintained a very large wireless network and offer laptop power and data plugs in several rooms, but there remain a number of rooms that lack such accommodations. Additionally, it will be necessary to pursue affordable solutions for student software and hardware purchases through institutional licensing and purchasing arrangements. Capital expenditures for more generalized computer labs will likely be shifted towards providing in house support for these now mobile users.

Finally, we must tailor ubiquitous campus services such as Blackboard to meet specific needs. An example includes our development of a Blackboard Building Block that modifies the Assignments Manager so that it accommodates various media formats (audio, video, animation, still images, etc.) and provides for student and outside reviewer commentary, rating and interactivity. Additionally, such tools will be modified to solve traditionally cumbersome workflow needs, such as exporting the “best of breed” student work to an external, publicly available “gallery” web site or podcast. We look to central campus IT providers to provide solid, extendable frameworks upon which we can build the unique and innovative applications of tomorrow.

## ADDENDUM - CHALLENGES

We have recognized a few challenges to continued success with our IT programs. One of these challenges is the need for departments to carry the message of information security that has received increasing attention at the University, System, state and federal levels. It is necessary for every level of the campus administration to maintain an open dialogue on this topic with all members of the community. We anticipate increasing requirements to report to various agencies and organizations on our information system practices and associated risk. We will not be successful without a clear mandate from the University administration, as well as willing cooperation from the faculty, staff and students.

A second challenge is a consequence of our increased use of online systems and largely ubiquitous network access. The faculty expects strategic systems such as Blackboard, WebSpace and our own file and application servers to remain available day and night. While occasional "downtime" is necessary, it is expected that these be relegated to nights and weekends, when classes are not being taught. This naturally pushes up the costs of providing such services. We look towards strategic technologies and practices to mitigate these costs.

Technical challenges exist with regard to audio and video formats in development. It is currently too early to commit towards particular High Definition video disk formats (HD-DVD or BluRay Disc). As such, the College is taking a "wait and see" approach. Until such time as a particular format becomes dominant in the market, we will not commit to large scale deployments of either. In fact, any new format may become entirely irrelevant as other means of transferring and acquiring HD digital content over networks may supplant the current model of plastic media distribution.

Advances in technology march on, while our student, faculty and staff progress at a different pace. This causes a "knowledge gap" that can only be overcome through very rapid, highly specialized training. Such training is almost never planned around. Rather, it is only sought when the need arrives. Support for "just in time" (JIT) training is necessary to bring to our constituents a level of comfort and proficiency that will maximize their use of IT.

Traditional software licensing continues, yet is challenged by the services subscription model. This services oriented architecture approach is difficult to plan for in an academic environment. For example, courses in online gaming become difficult to manage, as individual users are often required to sign up for subscriptions in order to use the online service (Worlds of Warcraft is an example). The University could seek "site licenses" or partnership arrangements for useful subscription services (e.g. WebEx, Google Scholar, Learning Times), as we do for academic journals, periodicals and books.

A final challenge is not really an IT problem, but it affects IT planning. Currently, different academic activities compete for limited space in College computer labs, classrooms and studios. Expensive computer systems sit idle while traditional lectures

are given in the space. High-end video editing workstations sit idle while students review clips from movies. At the same time, ad hoc and unscheduled activities are shut out of these facilities. It is our position that facilities be designed and managed such that they are limited to focused activities, rather than simply managed on a departmental basis. Lectures take place in traditional classrooms. Computer labs are limited to computing-intensive activities, and such labs are outfitted to accommodate specific tasks, such as photographic imagery, video and audio editing or animation and drafting. Studios are used exclusively for studio activities. All the while, every space is outfitted to accommodate laptop computers and a teaching console. Naturally, this challenge requires a tremendous change in departmental culture, but discussions with the departments have been largely positive around this concept. The reality is that space constraints preclude much movement on this, and until we are relieved somewhat by the construction of a new building, we can only make adjustments.