

NEEDS AGENDA TECHNOLOGY ACQUISITION PLAN

FOR THE IMPROVEMENT AND EXPANSION
OF TECHNOLOGY SERVICES FOR THE 21ST CENTURY

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Executive Summary

The rapidly changing world of technology is mind boggling. Technology is on a 6 to 18 month cycle. A new processor is released about every 6 months. At the same time, new software releases come out about every 6 months. Communications seems to be the slow mover in technology; it changes on about an 18 month cycle.

This rapid change in technology presents the institution with a challenge to overcome. How can we keep up? Fortunately, this technology dilemma can be managed through planned equipment acquisition cycles and ongoing software maintenance.

Computers generally have a useful life of 3-5 years. So we should plan to upgrade or replace every computer on a 3-5 year cycle. We should plan to upgrade or replace the minicomputers, PCs and associated peripherals at least every five years.

At the same time that we are managing our computer investments, we must endeavor to expand the number of PCs available for student use in order to accommodate student's use of technology for all courses. We currently have 368 PCs available for student use college wide. The availability of most of these machines is very limited because courses are taught in the computer labs. We must have computer labs on each campus that are open all day to students. We could make more effective use of our labs by having them open more hours. We could have the labs open later each night and could open them on weekends. In order to accomplish this we would need additional personnel available for labs. Additionally, by setting up wireless computer access on campus we could allow students to use their own PCs.

While we are trying to keep our computers current, we will need to continue to implement new uses of technology on campus. The Media-Technology Committee has established a list of priorities to address over the next 5 years.

**Priorities for the Implementation
of Technology
for the Next Five Years**
(As set by the Media-Technology Committee)

Ongoing Projects

Virus Protection
Microsoft Campus Agreement
Document Imaging

Priorities

1. Student Lab Replacement Cycle
2. Infrastructure Improvement
3. Telephone System
4. PC's for Faculty and Staff
5. Wireless Network Access
6. Technology Training
7. Interactive Classroom
8. Computer in ICR Connected to Graphics Imager
9. Expand Number of PC's in Student Labs
10. Video Gateway
11. Model Classrooms
12. Human Resource System
13. In House Cellular
14. Theater Projection System
15. Event Scheduling Software
16. Satellite Downlink Upgrade

Detailed descriptions of each of these priorities are contained on pages 4 - 10.

The Status of Technology

The campus networks continue to be improved. Each campus has a CISCO 3524 Ethernet switch as a backbone with other switches placed in strategic locations throughout the campus. The institution currently has about 600 PCs college-wide. Each PC is connected to a switch via twisted pair category 5 cabling. The college also owns 2 minicomputers. An AlphaServer 4100 with 2gb memory and 84gb disk space runs the institutions database, and an AlphaServer DS20 with 1gb memory and 16gb of disk space which serves as the webserver, the email server, and an application server for web-based student self-service. The AlphaServer DS20 will also serve as the application server for Internet Native Banner in the very near future. We have replaced two of the minicomputers previously owned by the institution with Intel based servers running Microsoft Windows Server.

Additionally, there are several student computer labs on campus. They use switches to connect to the campus network. These labs currently run Novell 5.1.

The Administrative building is connected to the campus by a CISCO 2948G switch using single-mode fiber-optic cable to communicate at 2gb. The internal wiring is category 5 connecting the PCs and network printers directly to the 2948G switch.

We also have nine video sites. Some of these sites can originate or receive video, while others are receive only. There is an originate/receive classroom at each of Southern's four campuses. At these sites an instructor can originate courses or the site can function as a receive site for a course being originated elsewhere on the system. Logan and Williamson Campuses each have an additional receive only classroom, which is primarily used for Southern Mountain Center activities.

In addition to these video facilities Southern also operates three receive-only classroom sites. Two are located in Lincoln County, one at the Charles Yeager Career Center in Hamlin and the other at Harts High School. The third is located at Big Creek High School in McDowell County.

The following is a description of each of the top institutional computing priorities as set by the Media-Technology Committee for the next 5 years.

Ongoing Priorities

Virus Protection

In order to provide consistent and up-to-date protection against computer viruses we will continue to retain a site license for Norton Anti-virus product suite. Free updates are available for download from the internet for two years from the purchase of the licensing.

Microsoft Campus Agreement

In order to provide all employees and students with a standard set of software, we will enter into the Microsoft Campus Agreement. This agreement permits Southern to use various software from Microsoft on all college owned PCs for an annual fee. This fee covers products such as

Microsoft Office, FrontPage, Backoffice client, and the Visual Programming languages. Any upgrades that are released during the year are available at no additional charge.

Document Imaging

The overload of paper has caused us to use more and more space for the storage of paper records. One solution to this problem is the use of document imaging to store paper documents in electronic form. This method will allow immediate access to all records from any employee desktop. This project will be implemented in the Student Services, Human Resources, Finance, and Academics over a three year period.

Priorities

Priority 1

Student Lab PC Replacement Cycle

In order to keep up with technology and be equipped to teach the latest software products available to our customers we need to replace all PCs at the institution over a 3-5 year period. We currently have 368 PCs available for student use. By replacing 100 PCs each year we can keep labs equipped for teaching the software needed for the success of our students. Additionally, employee PCs also need to be upgraded to allow the institution to be able to run software needed to maintain a competitive edge in the operations of the institution. Since there are currently about 600 PCs owned by the college, the previously mentioned replacement cycle would replace all PCs on a 5 year schedule. The newest PCs will be used for students and the machines replaced will be used to give employees better equipment with which to work.

Priority 2

Infrastructure Improvement

Further improvement in our network is necessary to meet the increasing demands created by newer software and faster PCs. The switches currently used for our backbone allow connections at 200mb between switches, and servers. In order to meet the increased demand the backbone will have to support Gigabit Ethernet, 2gb between these same devices.

Additionally, we will migrate our Wide Area Network from ATM (Asynchronous Transfer Mode) to Frame/Relay to save money. Since Frame Relay circuits are significantly cheaper, this will also allow us to add additional bandwidth in the future without incurring additional costs. Additionally, the K12 network runs Frame/Relay so communications with them for video will be much more efficient.

We currently have Panasonic hybrid PBXs in Logan, Williamson, Boone, and the District Office. Wyoming has a Siemens pbx. There are no tie lines between campuses for voice at this time. By utilizing the Frame/Relay network, we plan to trunk the campus phone systems together to enable the use of four digit dialing to any extension at any campus, a common voice mail system, and realize savings on intercampus long distance calls. It is also hoped that this will perpetuate the president's "one-campus" concept among students and the general public.

Priority 3

Telephone System

It is desirable to replace the current telephone system. The current system has been plagued with problems. We have been exploring options with several vendors to provide a new phone system that will use our Frame/Relay circuits to link our campuses. By doing this we will be able to better serve our customers and reduce the number of trunk lines required to make phone calls. All campus phones would be accessible with a 4 digit number without the need to dial-out to complete the call. This would also allow us to transfer calls from outside to anyone at any campus instead of giving them a different phone number and telling them to call back.

Priority 4

PC's for Faculty and Staff

Employee PCs need to be upgraded to allow the institution to be able to run software needed to maintain a competitive edge in the operations of the institution. Since there are currently about 600 PCs owned by the college, the previously mentioned replacement cycle would replace all PCs on a 5 year schedule. The newest PCs will be used for students and the machines replaced will be used to give employees better equipment with which to work. It would be desirable if the institution could afford to replace 50 employee PCs each year in addition to the 100 PCs replaced for students.

Priority 5

Wireless Network Access

In order to provide students with more flexible access to network resources via a wireless network, much work would have to be done to provide this access in a secure manner. One alternative to give students access to most of the resources at Southern, maintain a secure environment, and conserve network bandwidth is to provide a separate Internet connection to the students using a connection from a local cable company.

Priority 6

Technology Training

Human Resources in conjunction with the Professional Development Committee plans to offer training on the different applications software used at Southern. This includes, but is not limited to, WordPerfect, Lotus Spreadsheet, Microsoft Word, Excel, Access, BANNER, Eudora, and Web-Based Email

Priority 7

Interactive Classrooms

The replacement of the MCU brought advanced scheduling and limited “continuous presence” capabilities called for in the technology plan. Continuous presence allows all participants in a conference see each other simultaneously in a “Hollywood Squares” like configuration on their screens.

The current MCU configuration does not implement lecture mode for continuous presence. This would allow the instructor to get the screen with all the sites on it, but students would see the instructor and all materials full screen. There is a chance that this feature will become available in subsequent MCU software upgrades. If not, the institution will need to upgrade the MCU to get the lecture mode feature.

Additionally, through funds received through the USDA’s Rural Utilities Service grant funds, we will place 10 video classrooms in high schools throughout our service district including Logan, Lincoln, Wyoming, Raleigh, and McDowell County Schools. We will also link with Mingo County schools as part of this project.

Priority 8

Computer in ICR Connected to Graphics Imager

The new ICR codecs have a “built-in” VGA interface. It is no longer necessary to purchase a separate interface device. It will only be necessary to buy the computer. This will allow instructors to utilize Power Point presentations for their ICR classes.

The new codecs also make it possible to present a VGA quality image to each of the ICRs. It would be necessary to purchase a software upgrade for the codec and purchase projectors and screens for each ICR.

Priority 9

Student Lab Expansion and Enhancements

It will be necessary to expand existing student labs due to the demand for current labs for instruction, as well as, future needs as more and more students and faculty begin using the lab for classes other than those in the Computer Information Systems program. Using a ratio of one personal computer for each 10 students, we should have about 250 PC's available to students. We currently have 368 PC's available for student use. Unfortunately, this doesn't appear to be enough with the large demand for student labs created by the Transitional Studies courses.

Priority 10

Video Gateway

The current ICR upgrades allow for "switched" calls to virtually anywhere. The instate calls that terminate on the state's network, are of good quality. The quality is constantly improving due to upgrades to the state network.

Instate calls that terminate outside the state's network or out of state calls have no quality of service guarantees. The only way to guarantee quality of service on these calls is to use a circuit switched technology such as ISDN. Our current ICR configuration does not allow for ISDN capability. We can however connect to an ISDN site through a network gateway at Marshall University or WVNET. In order to bring that connectivity to Southern's system we would need to invest in an ISDN gateway. This would allow the institution to connect to any site in the world with adequate quality of service guarantees for the audio and video.

Priority 11

Model Classrooms

It would be desirable to have at least one classroom per campus equipped with equipment for projection of PC, VCR, and a copy stand camera for the instructors, as well as, connections throughout the room for the connection of laptop computers.

Priority 12

Human Resources System

We currently do not have a Human Resources System. We currently use an in-house written application that tracks current personnel. We need a system that will track and facilitate the hiring process, keep historical data on employees, and provide a robust reporting system. Additionally, we need a product that is user friendly and adaptable to our institutional processes.

Priority 13

In House Cellular

This is a system that would integrate with our current phone system. It would give employees the ability to take their phone with them anywhere in the building, even to other campuses if planned phone system upgrades are funded. Certain workers such as technology services,

building and grounds, and night bell supervisors would greatly benefit from this wireless phone flexibility. The same infrastructure to provide the wireless phone connectivity could be used for wireless data as well.

Priority 14

Theater Projection System

In order to provide a better way to present multimedia presentation, we intend to install a projection system in the Logan Campus Theater. This would allow better facilitation for meetings and provide a way for the students to watch movies or do class presentations.

Priority 15

Event Scheduling Software

A software product that would allow everyone to enter their schedules into a central repository would be highly desirable. The scheduling of meetings would be much easier since the system would provide the availability of all employees. A person wishing to schedule a meeting could give the software a list of who needs to be scheduled for the meeting and ask the system when everyone is available. The meeting could then be automatically added to the schedules for the individuals or the system could ask each person for confirmation of the scheduled meeting.

Priority 16

Satellite Downlink Upgrade

A satellite uplink earth station includes equipment that would allow one-way video and audio transmission to almost any site in the U.S. that is equipped with a C-band satellite receiver system and TV/monitor. A typical uplink system includes an approximately 24-foot diameter tunable parabolic broadcast antenna, redundant (2) modulators, redundant upconverters and high power amplifiers. The system also would include a C-band receive section and antenna controlling hardware. The antenna would need a specially designated site in order to “see” and tune to the needed satellites that are in the C-band.

- Typical Configuration

