Center for Information Technology Services

TECHNOLOGY PLAN 2013-2017

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Technology Mission Statement
The Alcorn State University Center for Information Technology Services seeks to maintain the infrastructure and cohesive network environment to support the academic, research, and administrative goals of the university, including fast, reliable access, security, advanced functionality, and system/network compatibility. The Center for Information Technology Services will evaluate new and emerging technologies for incorporation into our existing technology structure, and provide sound recommendations for cost effective, enterprise solutions to keep pace with global technological advancements in higher education. In addition, the Center for Information Technology Services will provide or facilitate a limited amount of training and training resources to ensure the user community at large is proficient in the use of available technologies.

Technology Vision Statement
Alcorn State University envisions a communiversity in which the seamless integration of modern technologies throughout the instructional, research, service and administrative facets of the institution furthers the mission and vision of the University.

Technology will be an essential tool for:

- preparing students to effectively compete in a technology intensive workplace
- enhancing the teaching and research capabilities of the faculty
- developing 21st century management skills among staff
- enhancing the technical capabilities of the surrounding community

AN OVERVIEW OF CURRENT TECHNOLOGY

Alcorn State University provides a variety of computer resources and services which support administrative, management, research, and educational needs. The Center for Information Technology Services is located in room 101 of the Walter Washington Administration/Classroom Building. This facility houses the campus network’s main distribution center, a cluster of over 70 servers consisting of Dell Power Edge, IBM RS/6000, 2 Cx4-120 SANS, 4 Dell NASs an IBM P650 System and peripherals, and the university’s main Alcatel –Lucent OmniPBX telephone system. Clean power is provided to the Center through a centrally managed Symetra UPS system and is connected to a generator that serves as a backup power source.

NETWORK INFRASTRUCTURE

In the Fall of 1999, Alcorn State University completed a massive infrastructure project which included a Fiber Optics and copper Outside Cabling System, a Voice and Data Inside Cabling System, a PBX System and an Electronics Installation Project. Every building on both the Natchez campus and the Main campus was connected with 12 strands of multimode fiber and 6 strands of single mode fiber.
through an underground conduit system. A copper cabling system for telephone service was also installed. The inside cabling system included installing voice and data jacks in every office, classroom, and every dormitory room on both campuses. This culminated in a data network comprised of both single mode and multimode fiber optics cabling, Cat5-level 7 systemax copper cabling, Optic Carrier 3 (OC-3) and Optic Carrier 12 (OC-12) ATM switches, and 10/100-Base-T Ethernet switches. The two campuses are connected via a T-1 line providing for a seamless integration of the two campuses. Dial-up service is also available through a modem pool.

The university has continued to upgrade and expand this network. Since its inception it has expanded to a branch campus at Vicksburg, MS as well as to five buildings on the main campus and one additional building on the Natchez Campus. Along with this upgrade, the university implemented several other significant upgrades to the campus network technology. Redundant firewall was installed between the campus network and the Internet and provides increased security from outside attacks on campus computer resources. A Network Address Translator (NAT) was implemented along with the firewall. This device allows the university to use a private network addressing scheme, eliminating the dependence on increasingly scarce TCP/IP addresses provided by the Internet. All internal campus network traffic uses private addressing.

Wireless access points have been installed in selected campus locations providing wireless access to about 25 percent of the campus. For example, wireless access is available on all floors of the library stack area and much of the office area as well. Students and faculty with wireless-capable laptops are able to access the campus network. Future plans include an entire wireless campus.

In 2005 the university has initiated a major network infrastructure upgrade. The objective was to dismantle the ATM backbone and install a Gigabit Ethernet backbone. This network will provide gigabit speed access between all university buildings and 100 megabit switched access from workstations, servers and printers to the building switched network electronics.

MAJOR ADMINISTRATIVE SYSTEMS

SUNGARD BANNER ENTERPRISE RESOURCE PLANNING SYSTEM

The Administrative Computer System is an IBM P650 running AIX UNIX Ver 5.x. This system houses The SunGard SCT Banner system including the following Internet-native subsystems: Students (SIS), Finance (FS), Financial Aid (FAS), Human Resources (HRS), and Alumni Advancement (AS). Additionally, the Banner Self Service product for Students, Self-Service for Faculty and Self-Service for Employees are running.

Other systems integrated with the Banner System include TouchNet Payment Gateway/Credit Card Payment, enabling real-time electronic credit card (as well as debit card) payment processing, and TouchNet Payment Gateway (TPG)/webCheck, an innovative solution for accepting online, electronic
check payments for tuition, fees, and other campus purchases. A local system supporting Campus Police to process parking decals, temporary decals, traffic warnings, and trespass warnings interfaces with the Banner system.

WINDOWS DOMAINS

The University is operating a Windows 2008r2 domain (alcorn.edu). The Windows domain uses Active Directory to compile, store, and maintain all of the information contained within the domain. Active Directory allows certain selected users to create or modify other users and devices easily with a minimum of confusion and time. Features such as the management of users, groups, and computers, the ability to implement policies and permissions locally and globally throughout the infrastructure, remote management of local system resources, better file and printer sharing management, and a stable infrastructure with less possibility of down time are just some of the many features that a Windows 2008 environment offers the university. While this structure has served us well, however, it will soon give way to a Windows 2012 domain for improved security, improved management as well as other improvements.

E-MAIL SYSTEMS

Microsoft Exchange 2010 is the university’s primary e-mail system. This system resides on a cluster of two Dell PowerEdge systems running Windows 2008 server participating in the ALCORN.EDU domain. This system maintains approximately 1,500 mailboxes for 99% of the university’s faculty and staff. Client software accessing the Exchange server includes Outlook 2007 and 2010.

WEB SYSTEMS

The university’s primary web server system is currently installed on two Dell servers running Windows 2012r2 server participating in the ALCORN.EDU domain using load balancing. This cluster supports the official Alcorn web pages as well as departmental, faculty, and staff web pages. The system houses static HTML code as well as dynamic information, database driven web pages, interactive maps, secured, encrypted and/or validated web pages and other high-level web page applications. In addition to the official university server, there are web servers located in various places around campus maintained by the School/departments that sponsor them. Separate web servers are located in the School of Business and the University Library. The use of the campus web systems continually grows as more areas of the university discover the advantages of moving some of their tasks to an online environment as well as project Alcorn’s image to the world.

The University also maintains an intranet to serve the local communications needs of the university. For example, most university forms can be downloaded or used interactively. This access is not granted from outside the ASU network.
TELECOMMUNICATIONS SYSTEMS

In March 2008, Alcorn State University introduced its new and improved Telecommunications department. Since then, Alcorn’s telecommunications services have proven to be of the highest quality. The Alcatel OmniPBX is a hybrid VoIP, digital and analog system capable on serving all three campuses from the Lorman Datacenter. This was a complete over-hall including all PBX infrastructure and new phone for all faculty and staff.

Added features include voice-mail, campus wide caller identification, and a number of improved station features. Along with these added features, the telecommunications system has a new call accounting system, which functions as a monitoring device. To provide for maximum un-interrupted services, this new system is connected to a UPS which is connected to a power generator. The new telecommunications system has proven to be a major contribution to our growing era of technology.

VOICE MAIL SYSTEM

The university implemented a voice mail system in August 1999. Since then a number of enhancements have been made. The voice mail was upgraded to a new platform with the PBX upgrade. The new system is an AVST, 48 port, CallXpress system running Windows Server. This system is 100 percent redundant with capability for 128 ports and is Unified Messaging ready. The system is capable of storing 1,500 hours of voice mail messages with an unlimited number of mail-boxes.

MAJOR ACADEMIC SYSTEMS

DEPARTMENTS AND LABS

Computing resources in the form of microcomputer laboratories are located in almost all academic departments for faculty and student use. Some are open labs for general use while others are specialized for unique departmental use.

Alcorn State University has slightly over 2000 microcomputers of which approximately 650 are located in 38 computer laboratories. The rest are in faculty and staff offices and other science or research laboratories or facilities. Of these microcomputers, approximately 50 are Macintosh and the rest IBM compatible.

Located in the academic departments are LCD panel projectors, LCD projectors, video projectors, scanners, digital cameras, LaserJet printers, DeskJet printers and dot-matrix printers. In addition, there are computer monitors of various sizes, laser disk players, plotters, rewriteable CDs, and desktop cameras. In a number of locations, there are computers connected to specialized research or other equipment (science teaching labs, research labs, radio station, etc.).
Alcorn State University utilizes the Mississippi Center for Supercomputer Research for its major supercomputer needs.

J. D. BOYD LIBRARY SYSTEM

The library is powered by the “Voyager” library information management system by Voyager. Voyager sets the standard for excellence and is the system of choice for today’s libraries. It provides flexibility and functionality. Voyager is an integrated information management system for academic and research libraries operating on a UNIX server platform, incorporating client/server architecture, and a graphical user interface (GUI) operating under Microsoft Windows. Modules currently operable on the new Voyager system include circulation, the online public access catalog, cataloging, acquisitions, serials, reserves, media booking, and system administration.

Improving library services for the students, faculty, and staff of the Alcorn State University is of utmost concern and the number one priority for the university library. Therefore, the library also engages in cooperative relationships with other libraries and agencies in order to increase the proficiency of library resources and services, to support distance learning, and to better serve the entire surrounding university community.

The Library Instruction and Computer Lab, is an instructional and general purpose lab, containing 30 workstations and two additional networked printers. All computers in the Instruction and Computer Lab are running Windows 7 Professional and Office Professional 2010.

Wireless access is available on all floors of the library stack area and much of the office area as well. Students and faculty with wireless-capable laptops are able to access the campus network.

ON-LINE AND VIDEO CONFERENCING COURSE SYSTEMS

Blackboard Enterprise Edition is the current course management and delivery system. It is used to offer both online accredited and web-enhanced courses over the Internet through the university’s network. The university has significantly expanded the number of online courses and programs available to its students. The University also offers courses through its two video conferencing centers located on the main campus and the Natchez campus respectively.

PROFESSIONAL DEVELOPMENT SUITE

A Professional Development suite has been established in room 121 of the J. D. Boyd Library. The suite is being used by faculty teaching online courses and other technologies and is available to all faculty for multimedia development, both with lab use and with professional development. The suite enables faculty and staff to develop their knowledge and understanding of current instructional technology.
Limited distance education staff, student assistants and a select few faculty mentors help train and provide the means to incorporate technology into teaching and learning as well as the use of information. Some of the facility’s activities include training sessions in online course development, development support in the use of an authoring system and limited assistance in other software such as FrontPage, Dreamweaver html editors, Adobe’s Acrobat Writer, and limited assistance in means of incorporating multimedia experiences, as well as other types of similar technology-based instructional experiences, into instruction. The facility is populated with nine personal computers, three DPL projectors, digital still and video equipment, and a network printer.

A VISION OF FUTURE TECHNOLOGY AND ACTION PLAN

It is critically important that a course of action is charted for information technology in higher education, and particularly Alcorn State University. Information technology plays an all important role in innovation and creativity, and Alcorn State will be relied upon to meet and solve the difficult challenges of today. However, today’s challenges can be tomorrow’s opportunities. As Thomas Friedman points out in his compelling book The World is Flat, in a global economy, competitors are not simply adjacent states but are countries more than half a world away. Through technology, our intellectual capital, and our commitment to research we are uniquely poised to help make the most of both challenges and opportunities ahead.

This Information Technology plan is not only a strategic direction of the campus but a seamless part of the learning environment. Its implementation will benefit all University stakeholders: students, faculty, staff and administrators. Some of the benefits in general are:

- Enhanced teaching and learning and research environments;
- Common set of productivity tools through an improved Campus Area Network;
- Improved information management;
- Improved access to the web and increased web functionality;
- Improved support for hardware and software;
- Improved access to training and professional development;
- More cohesive institutional environment through internal connectivity;
- Enhanced access to information through global connectivity;
- Effective use of Information Technology on campus as a result of the Information Technology strategic plan; and
- New opportunities

To this end five technology goals have been identified as strategic for Alcorn State University.

- The center for Information Technology Services will continually investigate, evaluate and deploy the latest technological advances appropriate to high-performing learning and living environments
The Center for Information Technology Services will expand its faculty services catalog to provide tools and training that equip faculty to utilize instructional, collaboration and publishing technologies.

The center for Information Technology Services will employ technologies that enable effective communication and collaborative improvement across all campus communities.

The center for Information Technology Services will continue to support and expand the University’s technology infrastructure; ensuring sufficient capability exists to achieve the University’s vision and mission.

The Center for Information Technology Services will leverage its staff’s expertise and the University's technology investments to enhance the quality of life of the members of the greater community and improve the delivery of outreach and engagement efforts sponsored here at the University.

In pursuit of the goals, CITS must achieve the following benchmarks:

- Prioritize strategic planning and enterprise communication
- Restructure Datacenter Operations
- Modernize and Extend the Networking Infrastructure
- Enhance Security Infrastructure and Account Services
- Formalize Disaster Recovery Plan/Solution for Mission Critical Applications
- Expand Communication Capability and Enable Real-time Collaboration
- Establish Help Desk
- Establish Service Management
Strategy

Technology at Alcorn State University has gone through several directional shifts in the last five years. Changes in campus administration, technology leadership, personnel as well as technological advances in equipment, architecture and education software have left CITS in a state of “maintaining” and not “innovating”. In today’s highly digital business and educational environment, stagnation negatively impacts the University’s competitiveness. As personnel stabilized in the spring of 2011, the technology leadership began working to organize, standardize and modernize.

CITS recognizes the need to transform its focus from tactical to strategic. The difference is clear. Tactical management of IT concentrates the focus of senior IT staff to day-to-day operations. Handling individual customer requests at such a senior level leaves little time to research, confer with their education counter parts and develop innovative technological solutions to the University’s strategic initiatives. Strategically focused leadership in IT can spend that time looking at the big picture to improve overall business effectiveness, becoming an enabler of the University’s mission. Unfortunately, CITS cannot become a "strategy-enabler" until after the tactical management of daily operations is more reliable, more secure and more autonomous. The initial phase in getting from the “As-Is” to the “To-Be” is identifying where the “As-Is” actually is.

During the 2011/2012 academic year, CITS partnered with the Dell ITSA Team to benchmark its IT management and service delivery. This was an exhaustive 3 month process that evaluated how the University leverages technology investments, manages applications and supports the end users. CITS scored slightly lower than industry standard in every category except price point. The results indicated that those scores can rise to “optimized”, or best practice, by implementing modern IT management principles and strategic investment in deficient areas. The assessment concluded with 10 recommended initiatives:

1. Develop IT governance with formalized strategic planning and communication
2. Enhance the Network Infrastructure
3. Enhance Service Desk Environment and Implement Services Management
4. Continue Server Virtualization
5. Implement Centralized Storage using a Storage Area Network (SAN)
6. Enhance the security environment by mitigating risks
7. Upgrade Messaging Environment
8. Implement employee professional learning plans aligned with job descriptions
9. Become performance driven and process oriented
10. Implement a Project Management Office (PMO)

These results informed the planning going forward.

CITS is organizing its operations into 4 discrete functional domains: Management, Infrastructure, Applications and User Support.
Notice this system is not aligned with the organizational chart. Instead, its aim is to break down silos and integrate IT professionals across disciplines; promoting a unified structure for monitoring, communication, evaluating, forecasting and acting throughout the enterprise.

**Management**
- Taking a strategic approach to planning and monitoring technology assets and assessing the Quality of Service
- Quantify – Assess - Plan – Implement – Repeat
- Improving Service Quality: Beyond Load and Bandwidth to Enhancing the User Experience

*Prioritize strategic planning and enterprise communication*
- Develop IT governance
- Align all IT strategic planning to university strategic plan
- Develop organizational policies and procedures to expedite standardized processes
- Establish a comprehensive plan for dissemination of technology information

**Infrastructure**
- Manages the underlying systems that support IT functionality
Ensures sufficient capability exists to achieve the University’s vision and mission.

**Restructure Datacenter Operations**
- Develop Datacenter and System Administration working groups
- Publish operational plan and policies
- Publish Operational plans for all systems
- Continue optimization towards Virtualization
- Develop Private Cloud Infrastructure
- Deploy storage system optimization
- Classify the System Administrator role
- Peruse Datacenter Tier Recognition and Regulatory Compliance

**Modernize and Extend the Networking Infrastructure**
- Perform system wide network assessment
- Upgrade network switches
- Increase Internet bandwidth
- Extend fiber optic plant to new and existing areas
- Implement updated security protocols and polices
- Expand wireless network

**Applications**
- Employ technologies that enable effective communication and collaborative improvement across all campus communities
- Managed Business Perception - Availability, Capacity, Security, and Data Integrity
- Balanced Security v/s Availability

**Enhance Security Infrastructure and Account Services**
- Conduct security risk assessment
- Implement central application log-in system and SSO
- Expand account provisioning and servicing automation
- Develop security working group
- Evaluate and deploy an Intrusion Prevention System (IPS)

**Expand Communication Capability and Enable Real-time Collaboration**
- Expand teleconferencing capability
- Deploy Myteamwork application
- Increase video conferencing capability
- Automate management of collaboration platforms
- Deploy HD video transmission across campus
- Provide alternative to tradition fax machines
- Explore features of Google Apps for Education
- Upgrade email systems and integrate with collaboration systems (UM)
Formalize Disaster Recovery Plan/Solution for Mission Critical Applications
- Establish recover datacenters in Natchez and Vicksburg
- Expand off-site back capability
- Secure physical Back-up/recovery equipment
- Document and Publish Disaster Recovery Plan
- Integrate D/R Plan into ASU's Business Continuity Plan

Enhance the business user experience by increasing automation, integration and effective utilization of available technology resources
- Deploy mobile application supplement to ERP, LMS and SIS systems
- Implement effective change management process
- Implement tiered support structure for enterprise application
- Provide necessary training to functional users; empower ownership of applications

User Support
- Managed, measurable user experience
- Defined metrics for Impacted User Minutes (IUM) for support and incident management
- Minimum IT proficiency standards for Faculty and Staff and personalized training based upon employee roles

Establish Help Desk
- Appoint Help desk manager
- Develop skills based routing system
- Deploy knowledge base
- Develop system of categorizing known issues and solutions
- Refine and publish SLAs for each operational domain
- Provide professional development for help desk operations

Establish Service Management
- Employ ITIL service management principles
- Appoint ITIL coordinator and obtain certifications
- Develop/Implement Change Management process
- Develop service metrics and system of evaluation
- Develop incident management and reporting system