

## **PART I – Infrastructure and Administrative Systems**

As Jefferson State Community College strategically evolves its technology infrastructure, several key initiatives for systems and services are required to support the long-range goals of the institution.

### **Goal I-1: Upgrade Campus Network Infrastructure.**

In order to maintain current service levels and allow for expansion as service demands increase, an upgrade to the existing network infrastructure and servers is required. By upgrading the existing equipment, the network will provide security, redundancy and reliability with an increase in bandwidth and the optimized delivery of data across our network. The ability to provide consistent, predictable data service delivery to satisfy application requirements is critical to ensure data integrity and a positive user experience. Several characteristics of an optimized network include the capability to minimize delivery delay, reduce delay variations, and provide consistent data throughput capacity.

#### **Objective I-1-1: Replace network switches.**

Replace the main core switch on the Jefferson Campus with redundant switches to provide a more robust and reliable network while simplifying management, and protecting existing technology investments. The upgrade will provide increased bandwidth and speed while reducing the overhead cost for power and air conditioning. The new switches will be installed and functioning within 12 to 18 months. Replace edge switches in Intermediate Distribution Frames (IDF) in all buildings. These switches will provide a faster backplane and 1 GB to the desktop at all locations. This replacement will be on a rotation schedule.

#### **Objective I-1-2: Upgrade email and Internet Security.**

Replace our current firewall with next generation firewall technology. Evolving security threats (viruses, malware) & compliance requirements necessitate a firewall with intrusion prevention system (IPS) functionality. The next-generation firewalls enable unprecedented visibility and granular policy control of applications and content with no performance degradation. The new firewall allows the College to identify and control

applications, scan content, stop threats and prevent data leakage, while significantly reducing total cost of ownership through device consolidation. The firewall will be replaced in 12 to 24 months.

Replace the current email security appliance with a next generation virtualized appliance which will provide greater protection of our network from virus and other malicious email threats with a reduction in cost and management. The appliance will be replaced in 12 to 24 months.

**Objective I-1-3: Upgrade the access points on the Wireless Network on all campuses.**

Wireless LAN access for students, faculty, staff, and guests has become a strategic as well as economic initiative for colleges. The trend of “Bring Your Own Device” (BYOD) and the growth in demand for wireless access is a driving force in the addition and replacement of the access points to provide high density and high capacity wireless access to our network. Applications range from providing Internet access for students and guests, to providing secure records access to students, faculty and staff. The installation and implementation will take 12 to 24 months.

The benefits of Wireless local area networks (wireless LAN's) are:

- Wireless LAN's can be less expensive to install and maintain than networks using fixed cabling.
- Networks can be extended to areas in the workplace where it wouldn't otherwise be cost-effective or practical to do so.
- Employees have greater flexibility moving around the workplace.
- Installing a wireless LAN involves less physical disruption to your workplace than installing a cabled networked.
- Wireless LAN's are easily scalable and portable.

**Objective I-1-4: Replace security servers to support the Wireless Network on all campuses.**

Security servers will be replaced to support the growing demand for wireless access at all campuses. They will be used to authenticate users before they are allowed to access the college's network. The installation and implementation of the servers will take 18 to 24 months.

**Objective I-1-5: Virtualize all College Mission Critical Servers.**

Virtualization offers many benefits to the institution and is a key initiative for the College. The benefits include cost savings, lower operational cost, less downtime and increased reliability. By reducing the number of physical devices, we have fewer capital expenses for hardware, maintenance and licensing. Additionally, the data center footprint and energy costs are reduced. Better management automation through a single user interface and fewer devices reduce operational costs to manage the environment. Reliability, business continuity and disaster recovery are enhanced. The decoupling of software applications, operating systems and hardware platforms facilitate fewer redundant physical devices to serve primary machines and eliminate planned downtime for maintenance. In the virtualized environment, multiple servers can switch to a redundant set of backup servers, allowing a many-to-one primary to backup. In the event of a server failure, systems automatically restart, reducing recovery time. The installation and implementation of the servers will take 18 to 36 months.

**Objective I-1-6: Implement Virtual Desktops Open Computer Labs.**

The implementation of virtual desktops known as Virtual Desktop Infrastructure (VDI) will simplify desktop management and reduce issues with the current lab desktop PC rotation. Desktops can be rolled out quickly by reducing the images needed for all desktop deployments. VDI will transform the desktop lifecycle by reducing deployment time, maintenance and retirement of desktop PC's.

**Objective I-1-7: Replace air conditioner in Main Server Room.**

The current air conditioner provides cooling and dehumidification for the main server room. The air conditioner is over 20 years old, and requires frequent maintenance and repairs. Proper operation and setup is critical in order to prevent hardware malfunction and system failure. If the temperature gets beyond equipment specifications, the life and reliability of servers are compromised causing system crashes, random reboots and overall poor performance. The new generation air conditioner is more efficient and reliable than the older models. The purchase and installation of the air conditioner will be completed by December, 2011.

**Objective I-1-8: Purchase and install an uninterruptible power supply (UPS) for all Intermediate Distribution Frames (IDF) in all edge network closets.**

To provide a true business continuity plan, uninterruptible power supplies need to be installed in all edge closets to maintain power to the IDF's during short power outages and brown outs. This will provide power needed for phone and data service during the outage. The purchase and installation of the UPS's will be on a continuous rotation.

**Objective I-1-9: Purchase and install a new backup solution.**

Emerging disk technology will be utilized to replace the tape back-up device. The data transfer rate of the disk storage device is significantly faster than that of tapes and allowed the backup of all mission-critical data to occur within our processing time window. The restoration of data is faster and more accurate with the use of disk storage. The system will be located at Shelby to provide remote site storage for business continuity, compliance and disaster recovery.

## **Goal I-2 Upgrade the existing administrative software systems.**

Due to the continuous changes in higher education, the college will be required to manage its finances, payroll and student information systems more effectively. As this transition continues, the college will upgrade and implement systems to perform these essential operations and processes.

The college's implementations will aid in the institution's continued recognition as a leader of two-year institutions; provide the opportunity to improve institutional effectiveness and efficiency through Business Process Analysis, and improve services to the community through implementation of self-service technologies.

### **Objective I-2-1: Virtualize the existing physical Banner database and application servers.**

The virtualization of the Banner servers will provide reliability, business continuity and disaster recovery for our mission critical applications. The virtualization will reduce the investment in physical servers needed to support our future growth. The implementation should be completed by 2014.

### **Objective I-2-2: Upgrade Banner's Oracle relational database to Oracle 12C**

The implementation of Oracle 12C is necessary for the continued support of the Banner software systems. The implementation will be completed by 2015.

### **Objective I-2-3: Implement Degree Works.**

Degree Works is an online academic advising and degree audit tool. This implementation will contribute to the success of the student by providing the ability to monitor their academic progress by comparing academic courses to major requirements as listed in the Catalog and Student Handbook. It can be used to review the requirements satisfied, and plan the courses needed to complete the remaining degree requirements.

Implementation of Degree Works will require the planning and the conversion of our course catalog into the application. Degree Works is scheduled to go live by the end of 2013.

**Objective I-2-4: Implement the next generation of our existing administrative systems software, Banner XE.**

The implementation of Banner XE will provide a new technology platform that will evolve the solutions to support the College's future needs. The new platform will provide a new user interface with feature rich functionality and features. The implementation should be completed by 2015.

**Objective I-2-5: Implement mobile solutions.**

Mobile platforms, such as iPhones, iPads, and Android tablets have become an essential and standard tool in today's college environment. They allow for more productivity, satisfaction, and flexibility.

Our mobile goal will be to deliver content and establish a broad mobile presence. The goal will provide interactive engagement with users with easy to use mobile technology and tools. The mobile solution will have the ability to easily support multiple device platforms with the ability to provide personalized and increased access to campus services.

**Goal I-3: Upgrade Campus Portal.**

In the effort to remain a digital campus, the college must upgrade our existing portal to provide solid foundation of infrastructure, enterprise applications, and portal features required to support the institution. This solution will allow the college to deliver highly personalized information, Web services and community interaction to every campus constituent, including faculty, students and administrators. Luminis combines our administrative solution with portal, integration, information access, and academic solutions.

Luminis includes enterprise applications adapted specifically for higher education and integrated at both the data and application level. Luminis includes a suite of enterprise

applications that streamline communications, simplify e-learning and create customized forums that enable campus groups to interact and collaborate online.

The upgrade will leverage our existing portal investment and extend the usage to other areas such as mobile and recruiting and retention. The new platform will simplify usability and reduce system complexity while providing increased availability. Some of the new features will include increased mobile support, new community functionality and collaboration tools.

**Objective I-3-1: Virtualize the physical portal servers.**

The virtualization of the Luminis servers will provide reliability, business continuity and disaster recovery for our mission critical applications. The virtualization will reduce the investment in physical servers needed to support our future growth. The implementation should be completed by 2015.

**Objective I-3-2: Implementation of Luminis 5.**

The implementation of Luminis will require the installation of the new release and extensive migration planning. The current email services provided by the existing portal will no longer be provided. This will require the need to select, design and implement a new email solution for the College. The integration to Banner and Blackboard will need to be analyzed and tested. This objective will be achieved by 2015.

**Goal I-4: Enhance telecommunications through installation of voice-over-IP (VoIP).**

VoIP provides a comprehensive solution to a wide array of business problems. Some important features are capacity on demand, reduced calling costs, more powerful traditional features, impressive advanced features, reduced support costs, integration with other protocols, and the ability to link with instant messaging and email.

The disadvantages of the college's current telecommunications network are:

- Limited line capacity
- Incremental line capacity is costly, especially in existing structures
- No integration with other protocols

- No linkage with email or instant messaging
- Difficult to accommodate portability of phones and phone numbers
- Absence of time driven routing capabilities
- Absence of call priority routing capabilities
- Highly manual and expensive support costs

VoIP would be run completely over the college's existing data network. The voice capacity of such a system would be nearly limitless. This would allow everyone to use their own private line at any time, as long as they connect their phone to an available network connection. The phone number follows the phone. The number is assigned to the phone when it is connected to the network. This accommodates the portability of telephone numbers and eliminates the manual effort required to modify the current system and/or notifying colleagues of changes. These improvements yield lower support cost.

VoIP provides many advanced features that improve the way that calls are made and received. For example, the system would have the ability to create routing or call controls that allow incoming calls to be routed, setup of timing rules and call priorities.

**Objective I-4-1: Replace existing telecommunications systems with a centralized, unified solution.**

Replace existing system at the Jefferson Campus and upgrade the systems at the other 3 sites to centralize and unify the telecommunications at all locations. This will provide unified communications with a focus on an integration and collaboration strategy. The benefits of the centralization of our mission critical voice infrastructure are cost reduction, asset utilization and rapid deployment of new services. Some other added benefits are the increase in security, resiliency and control. The purchase and installation of the new telecommunications systems will be completed in 12 to 15 months.

**Objective I-4-2: Expand usage of feature rich Voice-over-IP (VoIP) functionality.**

The purchase and installation of additional hardware and licensing from Avaya is required for our existing system to provide the VoIP capabilities. The hardware and software will be installed and licensed within 12 to 15 months.



**Objective I-4-3: Enhance and expand the usage of Electronic Fax capabilities.**

Electronic faxing provides several advantages over traditional faxing. The quality of the documents is superior in addition to the ability to store the documents electronically. The infrastructure used for electronic faxing is less expensive to install and maintain.

The purchase and installation of additional licensing from Avaya is required for our existing system to provide the additional electronic fax capabilities. The software will be installed and licensed within 12 to 15 months.

**Goal I-5: Improve Internet Connectivity.**

With the increased usage of the Internet our existing link has become congested. To provide the bandwidth needed for the continued growth of our Distance Learning initiatives, additional bandwidth is needed.

**Objective I-5-1: Upgrade the existing Internet link.**

The upgrade of the existing link will improve Internet connectivity by providing the increased bandwidth needed to expand our distance learning and videoconferencing initiatives. The upgrade will be installed and functioning by December, 2011.

**Goal I-6: Improve campus security through advances in technology.**

Jefferson State Community College has grown from one location to having two campuses and two sites, each located in a different county. Considering the distance between the counties, the growth of the student population, and budget restrictions, the Security Department must use advances in technology to make its' operation more efficient and effective.

**Objective I-6-1: Purchase upgrades for the emergency notification system.**

The college currently uses the E-2 Campus Emergency Notification System to provide emergency information to the campus community. The system sends text messages to cellular phones and emails to participants signed into the system. The college utilizes a phone tree to send emergency notifications to members of the campus

community that may not subscribe to the E-2 Campus System. To make the system more effective, displays should be mounted in the hallways of each building to display the emergency notifications. Additionally, upgrades to the E-2 Campus Notification System can be purchased to allow the messages to be displayed on every computer connected to the colleges' internet system.

**Objective I-6-2:      Increase security by deployment of a video surveillance system deployed at all campuses and sites.**

Currently, the college has video surveillance in only two buildings. In order to make the department more effective, systems need to be installed in every building at all campuses and sites.

**Objective I-6-3:      Increase efficiency of officers by deploying a paperless reporting system and records management system.**

All law enforcement related reports are currently completed by hand. Effective 2011, the Alabama Criminal Justice Information System will require all agencies to submit incident offense reports electronically. The department does not have the software to accomplish this task. Additionally, the department files all reports by hand. All search functions and queries must be performed manually for crime mapping and strategic planning. An automated records management system will make critical information and statistics readily available to management.

**Objective I-6-4:      Increase efficiency of officers by deploying portable computers with wireless internet access.**

With the 2011 requirement for electronic submission of law enforcement related incident offense reports to the Alabama Criminal Justice Information System, officers will have to return to the office to complete all reports. Portable computers will allow the officers to complete reports in the field. Further, internet access will allow officers to access surveillance cameras to make their patrols more effective.

**Objective I-6-5:      Increase efficiency of officers by providing officers with access to law enforcement intelligence databases.**

The Campus Police Department currently has to call Tarrant Police Department to access information from the National Crime Information System. This system provides information on warrants, drivers' license information, vehicle registration information, and stolen property information. Dispatch having access to this information, or officers having access to this information in the field via portable computers will make the department more efficient and effective.

**Objective I-6-6: Increase security by providing campus community with emergency telephones at the Shelby Campus.**

The Shelby Campus community needs the ability to summon emergency assistance from remote parking areas and along the walking track by the lake.