Central Carolina Community College
Technology Plan
2008-2010

Central Carolina Community College
1105 Kelly Drive
Sanford NC, 27330

Network Plan Documentation

CCCC IT-Dept
October 1, 2008
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Technology Vision and Direction

Central Carolina Community College is a teaching and learning organization that is committed to continuous self-evaluation and improvement. To facilitate this commitment, the college will incorporate proven technology in the delivery of institution and service we provide to prepare our customers to meet the challenging demands of current industry needs and our own administrative functions.

First and foremost is the critical need for students to be able to access information, manipulate data, synthesize concepts, and creatively express ideas to others using video, text, and audio media. Secondly, technology is an administrative tool that can bring efficiency to the managerial, instructional, and assessment realms of education.

The College recognizes that faculty and staff are its most valuable resources, and well-educated students are its most important outcome. Technology is a tool that is valuable only if the faculty and staff are empowered to use it. An ongoing professional development program to support faculty and staff is essential for the successful integration of technology into the College’s environment. With these guidelines in place, CCCC has set the following Vision Statement as the guide for the 2008-2010 Technology Plan:

**CCCCC Vision Statement**

Technology at CCCC enables the College’s mission as a teaching and learning institution. The college will continuously develop and support the interactive voice, video and data systems necessary for a comprehensive program linking student, faculty and staff access.

The CCCC Technology Plan is not static but constantly evolving with the ultimate goal of using technology to promote excellence in programs, processes, and outcomes. While technology alone cannot improve ineffective processes, the effective use of technology can enhance the college’s ability to deliver quality services and programs.

**CCCCC Planning Assumptions**

To ensure that the College stays focused on developing an action plan that will foster the College’s goal to create a technology environment that will enhance teaching and learning, the following assumptions have been established as the guideposts.

1. Increased use of technology by our customers will require that CCCC improve delivery systems.

2. CCCC must increase their use of technology to enable effective partnerships with those businesses and agencies that have not been sufficiently served in the past.

3. The increasing demand for people with technology expertise in supporting current equipment requires that CCCC provide technology training in up-to-date technologies.
4. The increasing demand for connectivity requires that CCCC develop the communications infrastructure to support distance learning and remote access to resources in a 24/7 environment.

5. The funding model for technology and technical staff at CCCC must be examined and redefined to support demand for and reliance on technology for instructional and administrative functions.

6. CCCC must increase use of technology to reach underserved customers

7. CCCC must work to reduce administrative barriers to the effective use of technology at CCCC.

**CCCC Planning Goals**

1. Make a comprehensive information technology management structure and set of decision-making processes.
   
   A) Develop a management team approach that further integrates and leads campus information technology decision making.
   
   B) Develop a system to establish IT priorities.
   
   C) Develop a plan for informing the campus community about IT priorities.
   
   D) Develop project resource needs assessment for completion of priorities.
   
   E) Establish a troubleshooting process.

2. Enhance Faculty, Staff, and Student access to information, resources and Services.

3. Promote and support research and use of innovative network/communications technologies.

4. Provide an operating infrastructure that is reliable, flexible, and scaleable to the needs of the college.

5. Develop more effective means of communicating campus information technology activities to both an external and internal audience.

6. Improve, enhance, and maintain computer applications used to support all administrative functions in all divisions.

7. Enhance campus instructional technology capabilities to keep CCCC on the forefront of this technology.

8. Increase opportunities for staff development and training to enhance technology skills and effectiveness.
Part I: Network/Technology Infrastructure

A. LAN/WAN Architecture/Equipment

Current Status

LAN Architecture

Central Carolina Community College current network architecture consists of a 3Com 7700 core High-Availability Gigabit Switch. This switch has advanced layer 2 and layer 3 functionality such as multicast filtering, enhanced QOS/Cos services, virtual LANs, and multilayer traffic classification. This switch also provides network-wide traffic control. The 7700 has modular chassis configuration. It is ideal for campus and building-level switching in the core, and for workgroup aggregation. The Switch 7700 Family scales to 292 Gigabit Ethernet or 288 Fast Ethernet ports, with available 10-Gigabit modules for high-capacity inter-switch connections. With multilayer IP switching and Power over Ethernet available features, it is ideal as a small campus core switch. The LAN core connection for each building is done over fiber optic multimode cable. In each building users are connected with 3com 4400 switches or 3com 5500 switches. Each give users a 10/100 private Ethernet connection. The 3com switches have a gigabit Ethernet backbone that link them to the core 3com 7700. There is an Internal Firewall that uses Checkpoint firewall-1 which prevents unauthorized access to the administrative systems. The use of VLANs successfully segments our network and makes it more manageable and secure.

WAN Architecture

Central Carolina Community College wide area network architecture consists of the same 3com 7700 core switch as the LAN. The remote sites have 3com 5012 WAN routers. Internet access is done by using one 10 Mb line and one T1 line. The T1 is provided through ITS (Information Technology Services). The 10 Mb line is purchased from Windstream Communications. This is known as a multi-homed connection. The T1 and 10 Mb lines can be load balanced by a 3com x506. Therefore, if the Windstream 10 Mb line fails, there is still an active Internet connection through the ITS T1. The outside perimeter is guarded by Checkpoint Firewall. WAN technologies are being implemented at 8 sites that connect to the Lee County Campus through a private 10Mb fiber network purchased through Charter Communications. These sites are LAEC, ESTC, Siler City, NCST, Dental Center, Harnett County Campus, Chatham County Campus, and Jonesboro Campus.

B. Server Architecture

CCCC has a number of physical production and virtual servers. The server environment is mixed (heterogeneous) of UNIX, Linux, Windows server, Novell Netware. There are two servers that are virtual servers. Virtual servers reside on a server that runs a virtual kernel that tells an operating system that it has virtual hardware. Therefore 4-6 Servers can run on one machine.

1. Server Overview
## Central Carolina Community College Physical Production Servers

<table>
<thead>
<tr>
<th>Server Name</th>
<th>Operating System</th>
<th>Hardware</th>
<th>Type of Server</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
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<td>Dell</td>
<td>DNS/DHCP</td>
<td>Lee</td>
</tr>
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<td>Windows 2003</td>
<td>Dell</td>
<td>Camera recording</td>
<td>Lee</td>
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<td>Dell</td>
<td>GroupWise Email</td>
<td>Lee</td>
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<td>GroupWise2</td>
<td>Suse Linux 10</td>
<td>Dell</td>
<td>GroupWise</td>
<td>Lee</td>
</tr>
<tr>
<td>Gwmessage</td>
<td>Suse Linux 10</td>
<td>Dell</td>
<td>GW message</td>
<td>Lee</td>
</tr>
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<td>Novell Netware 6.0</td>
<td>Compaq</td>
<td>File Server</td>
<td>Lee</td>
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<tr>
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<td>Dell</td>
<td>Zenworks 10</td>
<td>Lee</td>
</tr>
<tr>
<td>Track-It</td>
<td>Windows 2003</td>
<td>Compaq</td>
<td>Helpdesk Software</td>
<td>Lee</td>
</tr>
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<td>AIG</td>
<td>Windows 2003</td>
<td>Dell</td>
<td>Aig printing</td>
<td>Lee</td>
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<td>DEvideo</td>
<td>Suse Linux 10</td>
<td>Dell</td>
<td>Video Streaming</td>
<td>Lee</td>
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<td>Firewall 1</td>
<td>Lee</td>
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<tr>
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<td>Firewall 2</td>
<td>Lee (DR)</td>
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<td>Secure platform</td>
<td>Dell</td>
<td>Internal firewall 1</td>
<td>Lee</td>
</tr>
<tr>
<td>cccc-fw02</td>
<td>Secure platform</td>
<td>Dell</td>
<td>Internal Firewall 2</td>
<td>Lee (DR)</td>
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<td>Firewall Management</td>
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<td>Bookstore</td>
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<td>Solaris 2.6</td>
<td>Sun</td>
<td>IIPS</td>
<td>Lee</td>
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<tr>
<td>cccc-sgw03</td>
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<td>Colleague</td>
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<td>Sun</td>
<td>Eprocurement</td>
<td>Lee</td>
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<tr>
<td>Edir</td>
<td>Novell Netware 6.5</td>
<td>Dell</td>
<td>Edir</td>
<td>Lee</td>
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<tr>
<td>CFNC</td>
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<td>File and NDS</td>
<td>Pittsboro</td>
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<td>Dell</td>
<td>DHCP</td>
<td>Pittsboro</td>
</tr>
<tr>
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<td>Windows 2003</td>
<td>Dell</td>
<td>Zenworks</td>
<td>Lee</td>
</tr>
<tr>
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<td>Novell 6</td>
<td>Compaq</td>
<td>File and NDS</td>
<td>Harnett</td>
</tr>
<tr>
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<td>Win2003 server</td>
<td>Dell</td>
<td>DHCP</td>
<td>Harnett</td>
</tr>
</tbody>
</table>

## Central Carolina Community College Virtual Servers

<table>
<thead>
<tr>
<th>Server Name</th>
<th>Operating System</th>
<th>Hardware</th>
<th>Type of Server</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>ExtDNS</td>
<td>Suse 10</td>
<td>VM</td>
<td>Ext DNS</td>
<td>DR</td>
</tr>
<tr>
<td>WWW</td>
<td>Suse 10</td>
<td>VM</td>
<td>WEB</td>
<td>DR</td>
</tr>
</tbody>
</table>

## Services provided by these servers or appliances:

**DHCP or Dynamic Host Configuration Protocol**, a protocol for assigning dynamic IP addresses to devices on a network. With dynamic addressing, a device can have a different IP address every time it connects to the network.

**DNS or Domain Name System** an Internet service that translates domain names into IP addresses.
**GroupWise Email** - Novell® GroupWise® is an enterprise collaboration system that provides secure e-mail, calendaring, scheduling, instant messaging, task management, contact management, document management, and other productivity tools for our Faculty and Staff. Our GroupWise 7.0 System runs on SUSE Linux 10.0.

**GroupWise Messenger** – Novell product that provides instant messaging and group meeting tools to help users communicate faster

**Doc e Serve** – Doc e Serve, an AIG product, handles reports and printing for our CIS Datatel system. Doc e Serve enhances existing host systems and legacy systems with the flexibility of image layout, reporting, sorting, merging multiple files, MICR, positive pay and much more.

**Aruba Wireless** – Aruba has integrated all of the elements required to deliver enterprise mobility - security, application, network and radio frequency (RF) management services - into a unified solution. The components of this solution include an award-winning portfolio of wireless LAN, security, diagnostic, network management, and integration products backed by a worldwide support and training organization.

**Bradford Networks / Campus Manager** - Bradford Campus Manager™ is a user-centric, network-based solution with integrated identity management, endpoint compliance and usage policy enforcement capabilities. The solution actively monitors and controls network users and devices to provide enhanced security within the network. Through the enforcement of network usage policies, the solution ensures the network is safe and secure.

Bradford Campus Manager will help solve important network issues such as:

- Controlling unwanted users
- Enforcing anti-virus and anti-spyware version control
- Enforcing network policies
- Controlling network access
- User and device management

Campus Manager collects information from the user, device and network, correlates that information with established policies, and effectively allows network administrators to take action.

**Zenworks for Desktops** – Installed on Novell 6, Zenworks is now updated to version 6.0. Zenworks is a service for Novell that allows desktop management and remote control. It is mainly used for its imaging capabilities. These imaging capabilities allow us to make copies called images on a Server and then we can copy these images to other PC’s that are alike. Thus we can image labs quicker than ever before.

**VMware** - VMware ESX Server is virtual infrastructure software for partitioning, consolidating and managing systems in mission-critical environments. ESX Server and VMware Virtual Infrastructure Nodes provide a highly scalable virtual machine platform with advanced resource management capabilities. Many Virtual Machines can exist on one machine.

**Checkpoint Firewall 1** – A system designed by Checkpoint to prevent unauthorized access to or from our network. It is a rule based firewall that prevents attacks and allows monitoring and management of the internet gateway.

**Administrative Database** – Housed on the Sun 450, this database is used for historical references.
**Veritas NetBackup** – VERITAS NetBackup DataCenter 5.X is the industry’s leading enterprise data protection solution that provides centralized control from a single management interface. The multi-tier architecture of VERITAS NetBackup DataCenter provides CCCC with a fast, reliable, data center strength backup and recovery solution that can protect environments that span terabytes to petabytes in size. The NetBackup DataCenter “master” server uses other NetBackup DataCenter “media” servers as workhorses to accomplish backup and recovery tasks in a highly centralized fashion. Key features in VERITAS NetBackup include the industry's most advanced media management, disaster recovery support, and intuitive Java and Windows NT/Windows 2000 administrative interfaces. In addition to protecting data in a mixed UNIX, Windows NT/Windows 2000 and Novell NetWare environment, VERITAS NetBackup provides advanced, “application aware” solutions for all leading applications including Oracle, Informix, Sybase, DB2, SAP R/3, NCR Teradata, Microsoft SQL Server, Microsoft Exchange and Lotus Notes. VERITAS NetBackup provides high performance backup, archiving, and recovery services for UNIX, Windows NT/Windows 2000, and PC client systems in client/server networks. It can be economically scaled to serve any size operation ranging from a standalone system to an entire enterprise.

Storage devices can be disk, tape, or optical. The Media Manager component of VERITAS NetBackup manages the tape and optical storage and is designed so that secondary storage devices can also be shared by other VERITAS storage products, such as VERITAS Storage Migrator. NetBackup provides extensive and automated support for most tape libraries, which means human intervention is rarely required.

Administrators can set up periodic schedules for automatic, unattended backup operations for clients across the network. These backup operations may be full or incremental. A full backup processes all files, while an incremental backup only processes those files changed since the last full or incremental backup. By carefully scheduling automatic backups, an administrator can achieve systematic and complete backups over a period of time, and optimize network traffic during off-peak hours.

In addition to scheduled backups, administrators can perform manual backups of client data using the same criteria as specified for automatic backups. Manual backup operations are useful in special circumstances, such as backing up a client that missed a previously scheduled backup or preserving a system configuration prior to installing new software.

Client users, too, are able to initiate backup, archive, and restore operations for data on their client systems – without operator or administrator intervention. User-directed backups allow users to protect their files immediately on demand. If files are damaged or accidentally deleted, users can quickly and easily recover any backed up or archived files by restoring them back to their primary disk space.

The NetBackup Master Server maintains a database (called the catalog) which records information about all backup and restore operations. A separate backup procedure is provided to protect the NetBackup catalog to facilitate recovery in case of a disk failure.

**CIS**- or **College Information System** is the finance and business system database that holds information for the administrative functions of the college.

**Easyspooler**- ROC EasySpooler solves key output management problems in cross-platform environments: printing to multiple printers in UNIX, print spooling for Windows, and sharing printers across UNIX, Linux, and Windows systems.

**IPStor® Enterprise Edition** - IPStor Enterprise Edition software provides a comprehensive set of storage services for your enterprise applications to ensure nonstop data availability and recoverability, simplify storage management, and maximize performance. IPStor creates an intelligent, open SAN/NAS infrastructure across multiple protocols (Fibre Channel, IP, iSCSI) using heterogeneous storage.
**E-Procurement** - E-Procurement combines the use of Internet technology with procurement best practices to streamline the purchasing process and reduce costs. North Carolina’s State agencies, local governments, public institutions, businesses and citizens will all benefit from E-Procurement. Through reduced monetary and administrative costs for organizations using the system, increased business opportunities for suppliers and more efficient use of tax dollars, E-Procurement is good for North Carolina.

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**a.) Server Redundancy and Protection**

**RAID 5 - Redundant Array of Independent (or Inexpensive) Disks** – A category of disk drives that employ two or more drives in combination for fault tolerance and performance **RAID 5** provides data striping at the byte level and also stripe error correction information. This results in excellent performance and good fault tolerance. All servers on the Lee Campus storing critical data as identified by administration have **RAID 5** fault tolerance.

**SAN Environment** – Storage Area Network (SAN) is a high-speed sub-network of shared storage devices. A storage device is a machine that contains nothing but a disk or disks for storing data. A SAN's architecture works in a way that makes all storage devices available to all servers on a LAN or WAN. As more storage devices are added to a SAN, they too will be accessible from any server in the larger network. In this case, the server merely acts as a pathway between the end user and the stored data. Because stored data does not reside directly on any of a network's servers, server power is utilized for business applications, and network capacity is released to the end user. We are currently using Falcon Store software for our SAN software.
Checkpoint Firewall-1 – A firewall is a network security device positioned between two different networks, usually between the organization’s internal trusted network and the Internet. A firewall ensures that all communications attempting to cross from one network to the other meet the organization’s security policy. Firewalls track and control communications, deciding whether to allow, reject, or encrypt communications. In addition to protecting trusted networks from the Internet, firewalls are increasingly being deployed to protect sensitive portions of local area networks and individual PCs. Firewalls can be implemented in both hardware and software or a combination of both. Checkpoint Firewall-1 software runs on Sun’s UNIX Solaris 8. All messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria. Checkpoint software checks all packets by a set of user-defined rules to see if it can pass through the firewall, or else be dropped. Our Firewall cluster contains two Firewalls for redundancy and one management server to control the other two. We also have an internal firewall to protect administrative systems.

X506- 3com product that includes Content filtering, VPN, Load balancing and firewall utilities

Power Redundancy – Most of the CCCC servers have redundant power supplies. If one power supply fails then the other will take over. Our CIS, GroupWise, Zenworks, VMware and servers all have hot swappable power boxes. For servers in the main server room, with redundant power supplies, each power supply is connected to a different UPS. This ensures that even if one of the UPS Backups fails, the majority of the servers will continue to operate on the other UPS.

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**UPS Backup (Uninterruptible Power Supply)** – CCCC has multiple UPS units. A UPS is a power supply that includes a battery to maintain power in the event of a power outage. If the power goes off we have the servers set to automatically turn themselves off after 5 minutes of power loss. Because the servers automatically shut down, the risk of data loss is reduced. In conjunction with Power Chute software and network connectivity, servers are able to monitor the status of the UPS systems at all times.

**Data/System Backup** – Tape backups are done nightly and retained for seven days. Tapes are rotated off-site on Thursday and Mondays. The Thursday or mid-week backups are retained for five weeks, while the Mondays tapes or weekend off-site are also retained for five weeks. Additional, bi-annual backups of the administrative systems are perform at calendar year-end and fiscal year-end (June 30th) with a retention period of infinity. To do tape backups we use a Sun StorEdge L100. It has the ability to backup multiple streams of data from multiple systems at one time and hold over 80 LTO2 tapes, *(Linear Tape-Open)*. LTO Gen 2 tape drive stores up to 200 gigabytes of native data on a single cartridge. These high capacity drives work in tandem with available Fibre Channel interfaces to help manage rapid data growth in a cost-effective manner. To manage the backups we use Veritas NetBackup, it is a network backup software. There is a Backup Server, CCCC-SQW03 that runs the Veritas Software on a Sun Solaris 9 platform. This Sun box manages the StorEdge Library.

**Disaster Recovery Room**

There is a separate server room in Bell Hall that houses redundant servers and switches. These redundant systems will serve production needs in the case of an emergency that would prohibit the main server room from providing these services.

**IIPS**

The IIPS system (Institutional Information Processing System) contains legacy student records and information. It runs on a Solaris platform. The student and employee records have been converted and moved over to the CIS system. This system is still in operation for record verification and legacy data.

**CIS**

The College Information System (CIS) is a new information system that has been implemented at CCCC and other community colleges throughout North Carolina. It houses all of the student and employee records for CCCC. It runs on a Solaris Platform on a UNIDATA database. The web portion when it is completed will be called WebAdvisor.

**GroupWise**

Novell® GroupWise® is an enterprise collaboration system that provides secure e-mail, calendaring, scheduling, and instant messaging. GroupWise also includes task management, contact management, document management, and other productivity tools. GroupWise can be used on your desktop on Linux®, Windows®, or Macintosh®; in a Web browser anywhere you have an Internet connection; and even on wireless devices. Central Carolina Community College is currently running GroupWise 7.0 on a SUSE Linux 10.0 platform.

**Student Email**

Student email is hosted by Google’s Gmail. Gmail’s simple to use interface make it a popular tool for student use.
Part II: Academic Computing

Academic Computing Vision Statement

Central Carolina Community College is committed to empowering students to increase their performance capabilities through self-discovery, education and training programs. These programs will facilitate the personal, social, economic growth of individuals and produce measurable benefits to the students and to their employers and to their communities. In the academic arena, Central Carolina Community College is committed to the following:

- The necessity to prepare students to enter the workforce with the technological skills needed for the job.
- Increased opportunities to use technology in teaching, whether in the traditional classroom/lab or through distance education.
- The need for individuals to use technology in creating new basic competencies.
- Increasing fiscal and human resources demands for institutions of higher education as a result of technology.
- New models of communication as a result of technology.

Academic Computer Lab Availability and Maintenance

Academic computing labs are located on many sites within Harnett, Lee and Chatham County. As shown in the following Chart, the College makes available 1105 computers for academic study:

<table>
<thead>
<tr>
<th>Lab</th>
<th>Anderson Creek Community Church</th>
<th>Arts Incubator</th>
<th>Coats Community Church</th>
<th>Dental Center</th>
<th>Dunn Cosmetology</th>
<th>ESTC - Emergency Services Training Center</th>
<th>Harnett Correctional Institution</th>
<th>HPE - Harnett Production Enterprises</th>
<th>Jonesboro Center</th>
<th>Lee Campus</th>
<th>Lee County Handicap Adult Center</th>
<th>Lee County Industries</th>
<th>LAEC - Lillington Adult Education Center</th>
<th>NCST - NC School Of Telecommunications</th>
<th>Northwood High School</th>
<th>Pittsboro Campus</th>
<th>Siler City</th>
<th>Triton High School</th>
<th>TSEC - Triangle South</th>
<th>West Harnett</th>
<th>Total</th>
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<tbody>
<tr>
<td>Lab</td>
<td>1</td>
<td>2</td>
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</tbody>
</table>

A Department Chairperson is in charge of some of the labs. All hardware and software are installed and maintained by the Information Technology Division (IT Department) of the College.

Software/Hardware Procurement and Use

Each department who uses the computer labs is responsible for determining the software applications to be used in those labs. The CCCC IT Department is responsible for loading all software upon receiving a budget-approved request.

To ensure that all computers are used as intended, CCCC has adopted the following Computer Resource Policy:
CENTRAL CAROLINA COMMUNITY COLLEGE
COMPUTER RESOURCES USAGE POLICY

Central Carolina Community College licenses the use of its computer software and operating systems from a variety of outside companies. Central Carolina Community College does not own this software or its related documentation, unless authorized by the software developer, and CCCC does not have the right to change or reproduce it.

According to the U.S. Copyright Law, illegal reproduction of software can be subject to civil and criminal penalties including fines and imprisonment.

Any employee of Central Carolina Community College caught making, acquiring, or using unauthorized copies of computer software on any of the college's computers or computer equipment will be disciplined appropriately.

Central Carolina Community College’s computing and network resources are intended to support the school’s mission and are to be used in a manner that is consistent with the goal to provide quality education to our students. Use of Central Carolina Community College’s computing and network resources are limited to employees and registered students, and community library patrons who hold a valid library card. All users are expected to act responsibly to maintain the integrity of Central Carolina Community College’s computer and network resources. Any use of the college’s computer or network resources that is inconsistent with these purposes is considered inappropriate use and may jeopardize further authorization for use or result in termination of access.

Acceptable Use:

Users are provided with desktop computers to enhance their productivity. These computers are to be used for work-related tasks only.

Respect the legal protection provided by copyright licensing of programs, data, and other sources of information.

Respect the need for information and network security. Resources should only be used by an authorized user, using their assigned account.

Computers in labs and the Learning Resource Center are to be used only by current Central Carolina Community College students, library patrons, and employees.

Campus computers are to be used specifically for class assignments and educational purposes. Computers in the Learning Resource Center are available to the public with an approved Central Carolina Community College library card.

The use of the Internet is a privilege and must support education, research, life-long learning and be consistent with the educational purpose and goals of Central Carolina Community College.
Unacceptable Use:

Do not use Central Carolina Community College computers or networking resources to engage in any behavior that violates any Central Carolina Community College policy.

Do not use Central Carolina Community College computers or networking resources to engage in any behavior that violates any federal, state, or local law or regulation.

Do not use Central Carolina Community College computers or networking resources for personal use so as to promote commercial activity or any other unsanctioned CCCC activities.

Do not use Central Carolina Community College or network resources to distribute or make copies of any software.

Do not install any hardware or software without assistance or approval from the Information Systems Department.

Do not install or allow to be installed any software that was not directly procured by Central Carolina Community College.

Do not modify any hardware or software settings in any way that will require Information Technology Department technical maintenance.

Do not allow anyone from outside sources to reconfigure or load software without direct assistance or approval from the Information Technology Department.

Do not allow children to use any of the computers in the curriculum computer labs.

Food and drink are not allowed in any of the computer labs.

Computer users shall not intentionally interfere with the normal operation of computer networks.

Do not share passwords with anyone for any reason.

I, ________________________________, verify that I have read and fully understood this Computer Resources Usage Policy.

___________________________________________
Employee’s signature

___________________________________________
Date
Library

Central Carolina Community College Libraries have 47 public access computers in libraries at the Sanford, Lillington, and Pittsboro campuses. These computers are connected to the CCCC campus computer network and provide the full range of access to electronic resources required for modern library research.

Thirty-four of these computers are located at the Sanford campus. Eleven are located in the open area of the library, and 23 are located in a computer lab. This lab, used for library instruction, staff development, and class use at CCCC, is equipped with a LINK system. The LINK system is a daisy-chain configuration that allows monitors in the lab to display information from the instructor’s workstation.

The Lillington campus library currently has six public access computers and a laser printer. Seven public access computers and a laser printer are available at Pittsboro.

Through library public access computers, students have access to the library catalog, online databases, Microsoft Office, the Internet, and some software requested for student use by curriculum departments. CCCC uses the SIRSI library automation software and is a member of a consortium of 46 SIRSI community colleges called CCLINC (Community College Libraries in North Carolina). Through a shared catalog, students or members of the community who have library cards can place requests for books from other community colleges and receive them at no charge at their own campus library. Requests are usually filled within one week. In fiscal year 2007-8, 1429 books were borrowed from CCLINC libraries and 747 were loaned to other community college libraries. Students have access to this catalog from home and at other CCCC labs and teaching locations. Additional access to materials owned by other libraries is available through the OCLC interlibrary loan system. In 2007-8, 72 items were borrowed and 178 items were loaned to other U.S. libraries.

Our students also have access to the NC LIVE collection of electronic databases. NC LIVE offers the citizens of North Carolina online access to a diverse collection of electronic resources including complete articles from over 16,000 newspapers, journals, magazines, and encyclopedias, indexing for over 25,000 periodical titles, and access to over 25,000 online print and audio books. Since the NC LIVE databases are also available at public libraries and four-year colleges and universities, students who receive instruction in using these databases are able to transfer that knowledge to other North Carolina libraries. The library provided class instruction to 1534 students and countless individuals during 2007-8. The CCCC libraries also subscribe to the Opposing Viewpoints Resource Center, Westlaw Paralegal, the Literature Resource Center, JSTOR, Wilson OmniFile and the Oxford English Dictionary databases. All of these databases except JSTOR and Westlaw are also available to students off campus with the use of a password. During the 2007-8 fiscal year, 21,804 separate database sessions were counted.

Access to reference assistance is available on site, by telephone, through e-mail, or through NCknows, a statewide virtual reference chat service. Central Carolina Community College Libraries provide staff to answer questions at least four hours per week for this service. NCknows, however, is available to our students 24 hours a day, seven days a week.

The goal of the library staff is to help each student become knowledgeable, comfortable, and independent in accessing information through contemporary technology and basic library resources, no matter where or how they are enrolled at CCCC.
AUDIOVISUAL EQUIPMENT

Audio-visual equipment items that are used by the CCCC college community number over 1480 on record—917 at the Lee county facilities, 187 at the Chatham county facilities, and 384 at the Harnett county facilities. Examples of available equipment include overhead projectors, televisions, projection screens, and data/lcd projectors, among many other types. Of these items, the majority are assigned permanently to college buildings for teacher and student classroom use, and the remaining 307 are available for checkout from the 3 campus libraries.

The data/lcd projectors assigned to the libraries are in constant use for Power Point presentations by instructors because they are popular learning tools for CCCC students. Over 115 of these projectors are available in the departments and classrooms for faculty use. In the past four years, at least 11 new projectors have been purchased for the college per year.

Unit Mission:

The mission of the CCCC Libraries is to provide library, electronic media, audiovisual resources, and a variety of services necessary to support the educational programs and mission of the College, and to provide information resources and services that will meet the diverse needs, interests, cultural backgrounds, and aptitudes of Library/Learning Resources patrons. Such patrons include CCCC students, faculty, staff, small businesses, industries, and residents of the CCCC services area.

Expanded Mission

Programs, Services, and Support – The libraries will acquire, maintain, organize, catalog, and circulate library collections of books, periodicals, and audiovisual materials, and provide state-of-the-art information resources and equipment needed to support instructional programs. Participation in cooperative relationships with other libraries and educational institutions will provide additional resources. The staff of the libraries will instruct learners in the effective use of resources and provide services to distance education learners that are equivalent to those offered to on-campus learners.

Values - The libraries strive to recognize our part in the global learning community and to reflect that in the materials and services we provide. The staff will maintain open lines of communication with the CCCC learning community to determine if their needs are being met.

RECOMMENDATIONS

Based on the Current Status, the following recommendations are presented:

1. To install wireless Internet access for the Library.
2. To update/replace all Library lab/public access computers as needed.
3. To add to the number of computers in the Library as college population increases.
4. To update/replace college AV equipment as needed.
5. To add AV equipment as technology changes.
Academic Assistance Center – (AAC)

Academic Assistance Centers are available on the Lee County, Chatham County, and Harnett County campuses. Each Academic Assistance Center provides an open computer lab that is available to all students during many day and evening hours. The specifics of each of these labs are listed below:

**Lee Campus**

<table>
<thead>
<tr>
<th>#Computers</th>
<th>Hours</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>36 – Open Computer Lab</td>
<td>M-Th 8:00 a.m. – 8:00p.m.</td>
<td>Free Tutorial Services</td>
</tr>
<tr>
<td>9 – Certified Testing Center</td>
<td>F 8:00 a.m. – 3:30p.m.</td>
<td>Computer Apps Assistance</td>
</tr>
<tr>
<td>5 – Listening-Language Lab</td>
<td>F 8:00 a.m. – 3:00p.m.</td>
<td>Computer Apps Assistance</td>
</tr>
</tbody>
</table>

**Pittsboro Campus**

<table>
<thead>
<tr>
<th>#Computers</th>
<th>Hours</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 – Open Computer Lab</td>
<td>M-Th 8:00a.m. – 6:00p.m.</td>
<td>Free Tutorial Services</td>
</tr>
<tr>
<td>F 8:00a.m. – 3:30p.m.</td>
<td>Computer Apps Assistance</td>
<td>Make-up Testing</td>
</tr>
</tbody>
</table>

**Harnett Campus**

<table>
<thead>
<tr>
<th>#Computers</th>
<th>Hours</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 – Open Computer Lab</td>
<td>M-Th 8:00a.m. – 8:00p.m.</td>
<td>Free Tutorial Services</td>
</tr>
<tr>
<td>F 8:00a.m. – 3:00p.m.</td>
<td>Computer Apps Assistance</td>
<td>Make-up Testing</td>
</tr>
</tbody>
</table>

The Coordinator of Academic Assistance, based on the Lee County Campus, manages all sites with assistance from the Academic Assistance Facilitators located at both the Chatham County and Harnett County campuses. Software and Hardware requirements for all coursework are determined by each Curriculum Department. The CCCC Information Technology Division is responsible for all software and hardware installations.

The Lee Campus Academic Assistance Center, housed in the Science Building, is an approved Pearson Vue Testing Center. The Coordinator for Academic Assistance is a Certified Testing Administrator. The CCCC Information Technology Division is responsible for working with the Coordinator for Academic Assistance to ensure the Testing Center meets the specifications established by Pearson Vue.

**RECOMMENDATIONS**

Based on the Current Status, the following recommendations are presented:

1. To conduct a survey of all CCCC faculty/staff to assess the status and needs associated with administrative computing.
Part III: Administrative Computing

Administrative Technology Vision

Technology in the form of electronic transfer and storage of information is a driving force in the every aspect of modern day living. Government, industry, business, science, education, and other institutions are affected by the computer and other pieces of information technology.

Central Carolina Community College’s vision for administrative information technology is to utilize electronic technology to the fullest extent, giving faculty and staff the tools that they need to serve students in the best possible manner.

Appropriate Technology Applications

Central Carolina Community College supports many software applications for administrative use. This includes multiple versions of the Windows Operating System, including Windows 2000 and Windows XP. We also support Linux/Unix, Microsoft Office 2003 and 2007, GroupWise 7.0, Internet Explorer and Mozilla Foxfire.

Other Administrative applications are supported at the specific request of the initiating department.

IIPS Software

The North Carolina Community College System has provided administrative software that all colleges have used to satisfy operational needs. This software, called IIPS (Institutional Information Processing Service) is supported, but has being phased out.

The IIPS system has being phased out and replaced by the CIS system.

CIS System

The North Carolina Community College System has selected Datatel’s Colleague information system and has customized the base Colleague product to meet NC criteria. The system provides a fully integrated administrative system which will support management decisions, accountability to external constituencies, and business operations for all community colleges via a flexible, seamless electronic network that is accessible to all.

WebAdvisor

Web Advisor is an additional CIS component that allows students to access grades, register, pay for classes, and request transcripts from anywhere in the world. A committee has been formed and currently planning the implementation schedule for WebAdvisor.

Telephone System

(NBX) Network Based Exchange
Central Carolina Community College installed the 3Com NBX V5000 in 2004. The NBX V5000 helps reduce costs and increase efficiencies by converging data and voice communications on a single network, simplifying third-party applications integration, and offering extensive multisite IP connectivity options. Intuitive management tools with simple, web-based administration and user
programming further reduces costs and increases productivity. This system is designed for up to 10 sites, 40 to 400 users, and up to 1,500 devices. Highlights of the NBX are listed below:

- Eliminates the cost and administrative overhead required for separate voice and data networks
- Ensures high system availability with a real-time operating system, resilient 10/100 Mbps. Ethernet uplink ports with failover, optional redundant power supplies, and disk mirroring
- Affordably improves communications with powerful built-in call-processing features, including voice mail, automated attendant, hunt/call groups, call detail reporting, computer telephony integration (CTI), PC-based visual voicemail/e-mail clients (IMAP4), and with optional software that delivers versatile unified messaging capabilities
- Offers a wide range of business-quality high-fidelity worktop options that include business phones and attendant console with practical and versatile capabilities such as easy access to a company's internal user directory, speed dials, and even personal call logs
- Software-based 3Com NBX Media Driver Application Ports make adding capacity for applications such as call centers easy and cost-effective—additional hardware isn't necessary
- Offers an extensive range of multisite connectivity options—3Com NBX IP Virtual Tie Lines, NBX ConneXtions Gateway H.323 Software, and T1/E1 PRI/Q.SIG
- Supports telecommuters and remote access users with optional 3Com NBX IP licenses
- Software for managing a phone from a PC screen included for all users, letting them view recent calls, make calls, access the system directory, even drag and drop telephone numbers from other PC applications or web pages

**Direct Dialing from Lee Campus**
Currently, Central Carolina Community College has 4 Digit Extension Dialing between Lee Campus and Harnett Campus Users. Once the WAN is in place, we will have 4 Digit Extension Dialing between all sites listed below with the exception of West Harnett Center.

**Lee & Harnett Campus NBX Users**
All NBX Users are able to scroll through their phone for a visual display of all CCCC sites & employee directory.

**Telephone Systems for all CCCC Sites**

Lee Campus .......................................................... 3Com NBX V5000  
ESTC - Emergency Services Training Center .................. 3Com NBX V3000  
NCST – North Carolina School of Telecommunications ............. 3Com NBX V5000  
Jonesboro Center........................................ Projected Install by Nov. 2008 - 3Com NBX V3000  
Central Carolina Dental Center........................................... 3Com NBX V3000  
Pittsboro Campus........................................ Projected Install by July 2009 - 3Com NBX V3000  
Siler City Campus........................................ Projected Install by Dec. 2009 - 3Com NBX V3000  
Harnett Campus .................................................. 3Com NBX V3000  
LAEC – Lillington Adult Education Center .. Projected Install by Nov. 2008 - 3Com NBX V3000  
West Harnett Campus.................................................. 3Com NBX V3000  

*All other sites are using an analog line from their nearest telephone company.

**Telephone Line & Equipment Repair**
All B1 line repairs for Central Carolina Community College are handled by Embarq or Windstream. All repairs for data lines, telephone systems and desk phones are handled by CCCC IT Staff.

**Business Office Software**

Central Carolina Community College Technology Plan 2008 - 2010
The North Carolina Community College provides administrative Software that all colleges may use to satisfy operational needs. The Business office uses the new CIS system for this functionality. This software is supported on a continuous basis.

**Student Development Services**

The North Carolina Community College System supports administrative Software that all colleges may use to satisfy operational needs. The software project is called CIS. Some of the areas within the CIS system are as follows:

- Human Resources
- Accounts Payable
- Purchasing
- Employee Benefits
- Accounts Receivable/Cash Receipts
- Curriculum Management
- Faculty Information
- Admissions Management
- Academic Records
- Registration
- Financial Aid
- Core Demographics Conversion
- Common Course Library Curriculum Standards
- Program Design and Approval
- Program Auditing
- Research and Institutional Effectiveness
- Development Education Reporting
- Literacy Education
- Human Resources Development
- Fire Certification
- Regional Calendaring
- Small Business Center
- New and Expanding Industry Training
Help Desk

Central Carolina Community College currently supports over 1000 academic computers in 13 different locations in Lee, Harnett, and Chatham Counties. These computers with an additional 360 administrative computers are supported on a daily basis. The Information Technology Department supports the following: updates and software upgrades each semester, hardware repair, system configuration, fielding new computers, and fielding new software products & student email accounts.

The Information Technology Department provides a central point of contact for employees experiencing problems with college owned computer hardware, computer software, or telephones.

Helpdesk Procedures

When technical assistance is needed, the user may dial the helpdesk at extension 7397 or email the helpdesk at helpdesk@cccc.edu.

Helpdesk Hours:
Monday – Thursday    7:45 a.m. – 5:00 p.m.
Fridays            7:30 a.m. – 3:30 p.m.

RECOMMENDATIONS

Based on the Current Status, the following recommendations are presented:

1. We intend to implement the following student services.
   - On-line Application process via CFNC
   - A web based virtual orientation
   - Secure Payment Options for the CCCC bookstore.
   - A web based advising for Distance Learning Students
   - A web based tuition payment process
   - A web based financial application process
   - A web based academic assistance program, i.e., tutorial services

2. To install a NBX Phone System at all newly built sites.
3. To install a NBX Phone System at the Pittsboro Campus before their two new buildings are completed. Projected date of NBX install: July 2009.
4. To conduct a survey of all CCCC faculty/staff to assess the status and needs associated with administrative computing.
5. Wireless connectivity for faculty, staff and students at various locations throughout the three main campuses.
Part IV: Technology Training

CCCC Training

The roles and responsibilities of all CCCC faculty and staff have and will continue to evolve. All individuals must continually upgrade their skills to remain current in their profession. CCCC must be committed to developing systematic training programs that will not only address basic computer competencies but also advanced and upgraded skills as needed. The College must also be committed to making sure that the financial support for this training is provided and included in the normal planning process.

Central Carolina Community College is committed to technology training of both faculty and staff. The College demonstrates this commitment to training by assigning a fulltime director and administrative assistant to planning and providing professional development options for all employees. The entire Tier A budget is designed for staff development with more than the required one-third being used for specific technology training. In addition to allocation of both financial and human resources to technology training, CCCC has also designated a room specifically designed for training.

RECOMMENDATIONS

1. To conduct a survey of all CCCC faculty/staff to assess the status and training needs associated with administrative computing.
2. In response to the survey results, develop a professional development plan that will meet the needs identified.
3. To develop on-line training modules for all faculty/staff.
4. To develop an incentive plan for faculty/staff to encourage and reward advanced technology training.
5. To develop an incentive plan for faculty/staff willing to participate in train-the-trainer sessions and in peer tutoring/teaching.