CHABOT-LAS POSITAS COMMUNITY COLLEGE DISTRICT

INFORMATION TECHNOLOGY MASTER PLAN

ITS DETAILED SPECIFICATIONS

Updated 2006

This document presents the updated state of the Information Technology Infrastructure at all three CLPCCD sites: the District Office, Chabot College and Las Positas College. This document has been assembled from the collective inputs of District ITS staff and College Computer Services departments. The information herein includes detailed descriptions of servers, desktops, network cabling, wireless, network switches and routers, as updated from the original configurations documented in the 2005 ITMP.

Given the level of detail that is presented, this information, if used improperly, could place CLPCCD in a vulnerable position with respect to viruses and other threats that could debilitate the IT infrastructure. As such, this document will be circulated to a limited set of District IT and College Computer Services staff, and is considered "For ITS Limited Distribution only" to those individuals who have a need to know this information in performance of their daily jobs.

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Overview of Current IT Environment

Over the past year, the District ITS and Computer Services departments have accomplished many significant upgrade projects. Most, but not all, of these projects were funded by the Measure B Bond. ITS and CCS have aggressively pursued the rollout of new desktops, servers, network equipment and software. The Banner upgrade to version 7.0 has introduced advanced features and a web interface. The net result is a set of solutions and computer environment has provides users with performance and functionality enhancements, well beyond what they had just a year ago.

1.0 District Office

The District Office is located at 5020 Franklin Drive in Pleasanton California.

Servers

The CLPCCD District ITS department continues to manage CLPCCD's administrative servers. These servers provide: distributed file, print, World Wide Web, intranet, extranet, e-mail, collaboration, data archival, virus protection, business and student administrative services for the staff and faculty. The ITS department has stayed with a heterogeneous networking strategy to leverage the strengths of each vendors' Network Operating System (NOS). This allows broad, robust and secure networking services to all of the end users. This strategy also creates a flexible foundation at the network core on which to construct the addition of future networking services.

Functionality and Purpose

The main goal of the servers and the applications that are deployed and managed by CLPCCD ITS department is to provide the administrative support and tools to the staff and faculty that are necessary for the ongoing business efforts of the colleges.

Hardware Configuration

CLPCCD ITS and College CS have now standardized on a server hardware platform. The typical hardware standard that has been recommended for low and high end servers is shown below:

Low-End Server (for specialized/standalone application)

- rack mount
- dual power supply
- hardware raid 1
- hot swappable serial ATA disk drives
- dual CPU
- 2 GB memory per processor
- 36 GB usable space (2 x 36GB for raid 1) *
- CD/DVD
- adequate backup (whether local or part of a more comprehensive network backup)
- 2 network cards (10/100/1000)
- floppy drive (3.5inch)
- 2 USB ports
- 8am-5pm contract services coverage, next day, M-F

High-End Server

- rack mount
- dual power supply
- hardware raid 5
- hot swappable serial ATA disk drives
- dual CPU
- 4 GB memory per processor
- 72 GB usable space (5 x 72 GB for raid 5) *
- CD/DVD
- adequate backup (whether local or part of a more comprehensive network backup)
- 2 network cards (10/100/1000)
- floppy drive (3.5inch)
- 2 USB ports
- 8am-5pm contract services coverage, next day, M-F

* As the price of disk storage has continued to decrease, it is very cost effective to purchase servers are being purchased with 10,000, rpm 300 GB disk drives. High end servers are configured with five drives in hardware RAID 5, for a total available storage of over a Terabyte.

Since CLPCCD ITS and CCS have standardized on Hewlett-Packard platforms for the new servers, most of the purchases have been for DL380 configurations.

Operating Systems and Service Packs

CLPCCD District ITS staff continues to leverage the inherent values of specific operating systems to exploit their strengths for delivered functionality, ease of management and integration, security, and cost effectiveness in their environment. This requires running a network based upon open-standards to ensure maximum integration and operability between the systems. CLPCCD District ITS servers run a mix of Novell Netware, IBM AIX, Microsoft Windows2003 Server, and Red Hat Linux to deliver all of the core network services and applications that are required and in use on the network today.

Novell servers are being upgraded to 6.5, and legacy Netware 4 and 5 servers will soon be removed from the network. Windows servers are being migrated to Windows2003, although an Active Directory configuration and domain is not in place. NDS is used for directory services.

Applications Supported

A. Administrative Applications

The core administrative applications is the SunGard SCT Banner Enterprise System, which supports Student Services, Academic Services, Financial Aid, Finance, Human Resources, and Payroll functions within the district. The major Banner 7.0 upgrade project in April of 2006 has significantly expanded the capabilities of this system. These upgrades have allowed: (1) the migration to a totally web-based Banner using Internet Native Banner (INB), and (2) Crystal Enterprise for queries and reporting (still in progress).

Third party software products that provide supplemental services to the Banner System continue to be supported in partnership between the colleges and ITS. These include: (1) Sars-Trak and Stars which are products that track visits to Student Services as well as student contact hours for courses such as labs, learning resources, and tutoring to take

attendance in these instructional areas, (2) Sars-Grid that tracks counseling and student scheduling contact hours, (3) Image Source software, which scans transcripts and stores the data for retrieval or updates, and (4) GoPrint, a pay-for-print management system that has been installed at both colleges, primarily in the computer labs, libraries and resource centers and allows users to prepay for printed documents and provides management reporting of activity.

The following servers provide administrative services to all the district sites shown below:

Not published for security purposes.

Server	Location	Make	OS	Banner Related Functionality

Servers shown in italics are new servers built on the new HP DL380 server platform.

Business Application Servers

A new Netware 6.5 server is scheduled for deployment at LPC to replace LPC_411.

B. E-Mail/Collaboration

CLPCCD uses Novell GroupWise 6.5 as the e-mail and collaboration system. Users include the ITS department, faculty and administration at both Chabot and Las Positas campuses as well as the District staff. This e-mail system does not serve the student population, as the District has decided currently not to provide e-mail for students.

Various modules are implemented in the current setup including: Web-Access, Document Management (GWDMS), Instant Messaging (GWIM) and POP3 mail services. The ITS department is responsible for all systems maintenance, which includes but is not limited to: user mailbox management, message queue management, and enforcing the 90 day mail purge procedure which must be manually run and monitored. This latter process assures that adequate disk space is available on the mail servers for the next quarter's incoming and stored mail. With the procurement of new servers that have greater disk capacities, the issue of limited storage space has been addressed.
Not published for security purposes.

Post Office	Server	IP Address	Port

GroupWise Post Offices

GWGuardian has replaced the Guinevere solution to provide both anti-virus and anti-spam filtering that integrates better with the existing GroupWise system.

C. WWW / Intranet

CLPCCD web servers have not changed. The District ITS staff has standardized on the Apache web-server, based upon its cross-platform availability. The following table summarized servers providing web/intranet information or application delivery:

Not published for security purposes.

Server	Location	OS	WebServer	Web/Intranet Functionality
e				
D				
i				
r				
e				
c				
t				
o				
r				
y				
v				
8				
.				
6				
2				
I				
\				

WEB Servers

D. Directory Services

Novell's eDirectory v8.7.3 is used for administrative authentication. This provides heightened security for all administrative network users as well as a platform for future systems integration. This system currently supports only secure authentication to Netware services. However, eDirectory was developed with the LDAP protocol and more closely parallels an industry standard LDAP implementation that other prevalent directory service implementations. The District ITS department would like to move users towards a "Single Sign-On" authentication solution. Novell's authentication services can be implemented on or integrated with any of the other platforms that support LDAP and help move CLPCCD towards the single sign-on environment.

Currently Chabot, Las Positas, & the District Office are configured as Organizational Units (OU) within a single tree. The tree has both geographical and functional organizations at the root. The college OU's are broken down into functional OU's at the next level of the tree. District ITS performs directory service upgrades as needed for added functionality.

The servers that are running Netware currently vary from version 4.11 through version 6.5. The single Netware 4.11 server cannot run IP natively and this is the only reason that the District and Chabot College networks continue to route the IPX protocol. The Netware 4.11 server currently runs Computer Associates Arcserve 6.6 backup software. The Arcserve software is targeted for replacement with Veritas Backup Exec version 9.1. An open-file backup issue with the new Veritas software implementation is currently being investigated for resolution before full deployment.

Netware has a configured Single Reference timeserver on Chabot_411. All other Novell servers act as "secondaries" and receive their time updates from this server. This is the default Novell configuration, and should function adequately with the current number of servers in this environment. When the 4.11 (IPX) server is decommissioned, it will be possible to change the time synchronization service to use the Network Time Protocol (NTP) instead. The implementation of this protocol would be compatible with the other platforms and devices on the network.

ITS reports that there have been no major issues with eDirectory or the tree health since they have completed the Directory Service (DS) upgrade to version 8.7.3. A health check is performed at least twice a month to ensure the DS information is replicating properly throughout the tree. The following table represents the partitioning and replica placement on the Novell servers: **Not published for security purposes.**

Server	OU	Partition	Replica Placement

Novell Partitioning

E. Core Network Services

DDNS/DHCP - The IBM Enterprise server provides Domain Naming Resolution Services (DNS) of internal administrative servers and Dynamic Host Configuration Protocol (DHCP) services to the administrative PCs at Chabot campus. DHCP configurations are periodically copied to the server named Backup DHCP to keep it current. This server is kept in "stand-by" mode in case of a failure by the IBM server. If such a failure should occur, DHCP services would be manually started on the Backup DHCP server.

At Chabot the DNS is provided by the ChabotDCA and ChabotDCB servers. DHCP is provided by ChabotDCA. ChabotDCB is configured with DHCP and can be brought

online manually if ChabotDCA fails. All desktops on the Instructional and Faculty networks point to these servers.

The Davis server provides secondary DNS for the Chabot instructional networks. Davis is queried if DNS entries are not found in the Chabot Instructional Windows ADS Domain Controllers.

At LPC, the DNS is configured on multiple servers on the Instructional network. DNS and DHCP is served by Alice (primary) and Taz (Secondary). All desktops on the Instructional, Faculty and Administrative networks point to these servers.

Iserver/Porter provides external DNS services. As CLPCCD's authoritative DNS server, this system updates the DNS servers at the ISP as to the District's externally advertised systems. It is currently running BIND 9.2 which is a secure version of DNS patched against well-known DNS vulnerabilities.

NTP – Other than the NetWare server described above, there are currently no Network Time Protocol (NTP) configured time sources on the network. Occasionally the AIX servers are synchronized manually to an outside source. There are several key network routers and servers which do use NTP from an off campus source.

SYSLOG – The IBM server runs the syslog service to track system events for the AIX and Linux servers. These logs can be referenced for additional troubleshooting information in the event of systems issues. The EnVision network server receives syslogs from the PIX firewalls and key router/switches at both the LPC and Chabot campuses. The EnVision network server is used to and creates graphical reports from the syslog data, which is particularly helpful in virus/worm and other network performance troubleshooting.

File Sharing - The Novell servers handle the file sharing for the administrative desktops. Servers are located at all three sites to handle the local users home directories, as well as provide disk space for shared folders. The table below details the typical drive mapping for file sharing: **Not published for security purposes.**

Drive Mapping	Folder Location

Standard Mapped Drives

Some users map to servers at other sites. A typical application is the use of SPMMS for work order submittal. This application is used by M&O and end-users access it to place their requests.

F. Help Desk

CLPCCD District ITS continues to use the Tech Center module from the Web Center software application as the district-wide help desk application. This runs on a server called Track-IT. Support calls from the Chabot and District sites route to the District ITS Help Desk (x6966) at the Chabot campus. Support calls from LPC route to the LPC Help Desk (x1236). The hours of operation are:

Chabot and District: 8am to 7pm, Monday through Friday

LPC: 7am to 10pm Monday through Friday, 8am to 5pm Saturday

The Tech Center software is shared among the three IT support groups at each location. The software runs on a older server hardware platform and should be replaced in the near term. At the time that new server hardware is deployed, an upgrade to WebCenter 5.0 will also be performed.

Storage / Backup

With the move to new servers using 300 GB drives, ample disk space can be made available for the users. Backup processes have been improved. CLPCCD District ITS has moved to Symantec Backup Exec for backup software on the servers. A multi-level backup strategy has been developed. This includes:

- Disk-to-secondary disk backup of the production data
- Secondary disk-to-tape backup to high capacity tape drives
- Tape drive rotation and offsite storage

The preferred tape backup software is Symantec (Veritas) Backup Exec. This has been deployed for Netware server backup, replacing Computer Associate's ArcServe. The preferred tape backup hardware is H-P's Ultrium LTO tape backup units. At present, an LTO-1 standalone drive is used for the daily backups.

Server Locations

All critical servers are located within the existing Data Center on the Chabot Campus (Room #312). All of the other servers are kept in the adjacent office room with the system administrators or in the rack with the data equipment. The District Office servers are kept in the District Data Room. At the LPC campus, administrative servers are located in the Building 1900 MPOE/MDF building. All servers are located in climate controlled rooms.

New generators and UPS systems will be scoped and implemented as part of the coming year's bond projects.

Desktops

The administrative desktop systems are managed on a site-by-site basis. District ITS maintains the administrative desktops at the District Office. The administrative desktops at the colleges are supported by the respective College Computer Support staff. District ITS and the college teams

work together to resolve more complex end user desktop issues, particularly where networking is concerned.

Configuration Standards

Through joint development by District ITS and College CS specialists, CLPCCD was able to define a standard for new desktop and laptop standards. The configuration standards are:

Desktop

Operating System: Windows XP Professional (SP2)
Processor: Intel Pentium 4 Processor 640, 3.2 GHz, 800MHz FSB, 2MB L2cache, 945G processor with DDR2 support.
Monitor: High-end 17" displays capable of support 1024x768 resolution.
Network Card: all NIC cards supporting 10/100/1000 Mbps over copper.
Disk Drive: 80 GB, serial ATA II/300, 7200 RPM or better w/8Mb cache.
Headphones/Speaker/Microphone outlets: Front-mounted connections.
Speakers: Admin computers only.
Headphones: Provided as needed in labs, or by students.
USB ports: 2 front and 2 rear (plus additional ports if USB mouse/keyboard is provided).
CD-RW/DVD: read-writable CD capability.
Floppy Drive: 3.5" 1.44 MB.
RAM: 512 MB.DDR2
Keyboard: regular 101/104 keyboard. (If vendor provides USB keyboard, then additional USB ports are needed.)
Mouse: Optical mouse. (If vendor provides USB mouse, then additional USB ports are needed).
Mini-tower: with enough slots to accommodate above media peripherals and also an optional ZIP drive.
Power Supply: minimum 300 watts, higher power if required by hardware.
Support: 4 year hardware warranty on parts.

Laptop

Processor: 1.66 GHz Intel Core Duo Processor or 3.0 GHz Pentium 4.
Memory: 512 Mb memory DDR2
Disk: 60 GByte 5400 rpm serial ATA disk.
Media: floppy drive, as slot plug-in or separate unit.
Media: DVD/CD RW, as slot plug-in or separate unit.
Network: 10/100/100 RJ-45 Ethernet adapter.
Wireless: 802.11 a/b/g wireless access card, integrated.
Expansion slot: One Type II PC Card slot
USB ports: four USB 2.0
External Video: DB-15 video connection, S-Video.
Mouse: pad, with optional pointer.
Operating System: Windows XP Professional, SP2.
Display: 15" display, XGA TFT Active Matrix.
Battery: supplemental battery pack.
Carrying case: durable, drop-resistant, shoulder strap.
Support: 4 years accidental damage warranty.

Tablet

Operating System: Microsoft® Windows® XP Tablet PC Edition.
Processor: Intel® Pentium® M Processor 715 (minimum 1.1GHz).
Memory: 256MB DDR SDRAM.
Hard Drive: 40GB 4200rpm Ultra ATA hard drive, expandable.
Screen: XGA TFT Active Matrix with 1024x768 resolution.
Digitizer Pens: included.
Speakers: Integrated speakers, headphone/speaker jack, and mic jacks.
Wireless Networking Adapter: Integrated 802.11b/g wireless networking card
Expansion Slots: (1) Type II PC card slot.
External Ports: (2) USB 2.0, RJ-45 (network), RJ-11 (modem), VGA.
Keyboard: Detachable Keyboard.
External Media: CD-RW and DVD combo, floppy drive.
Battery: Lithium ion battery with AC pack.
Warranty: 4 year part/labor/no on-site/4 year technical support.
Case: Carrying Case.

These standards were bid in a public bid process in June of 2005 and the successful bidder was Gateway. At the District office approximately 45 desktops were upgraded in the past year. There are a few desktops that still need to be upgraded.

Storage / Archival

The ITS procedure for critical data archival continues to be having the user save this data to a network drive. Therefore, the restoration of a failed desktop is based on reGhosting the machine. The restore process should be adequate to install the operating system, the required applications, and leave enough free space on the drive for swap space, and some file management. The local drives/files are not backed up by ITS.

IFolder is a technology that ITS has in prototype development. IFolder seamlessly integrates with the OS to make sure critical files are replicated to the network drives, and thus be backed up in accordance with the data archival procedures.

2.0 Chabot College Campus

The Chabot College Campus is located at 25555 Hesperian Way in Hayward.

Servers

The Chabot Computer Services department continues to manage the Chabot College instructional and faculty servers. These servers provide: distributed file, print, World Wide Web, intranet, library and data archival services to the faculty and the student body. CCS has chosen a homogeneous networking strategy based on Microsoft Windows 2003 operating systems and tools to leverage the strengths of the out-of-the-box interoperability and manageability that a single platform has to offer. In the past year, critical file servers have been upgraded to Windows 2003, service pack 2.

Functionality & Purpose

The main goal of the servers and the applications that are deployed and managed by CCS continues to be providing the support and tools to the faculty and students that are necessary for instruction and the administrative functions that are directly related to instruction. Besides minor interaction with the District servers for some core networking services and shared data with the Banner and the Groupwise systems, the CCS servers are autonomous from the District ITS servers. The servers are maintained by a staff of three specialists.

Hardware Configuration

Despite the move to a standardized hardware platform, there is still a mix of Dell and HP/Compaq servers in use at Chabot. The most critical servers were upgraded in the past year. Plans for upgrades for remaining servers have been submitted for approval.

Operating System and Service Packs

Most servers have been upgraded to Windows 2003, SP2. The remaining Windows 2000 servers have all been patched to Service Pack 4.

The sole Linux server (for the Linux classes) runs on Red Hat 8 and is patched using the Hot Updates feature.

Applications Supported

A. Directory Services

CCS has implemented Microsoft's Windows 2003 Active Directory Service (ADS) as their directory service using the CHABOTCOLLEGE ADS domain. When the servers were migrated to Windows 2003, the critical domain controllers, ChabotDC1 and Chabot DC2, were renamed ChabotDCA and ChabotDCB, respectively.

The Windows 2003 ADS continues to be organized into OU's based upon the majors that are offered at the college. This method was chosen due to frequent departmental changes, and was considered the most static logical grouping of users.

B. Core Network Services

DDNS/DHCP - ChabotDCA and ChabotDCB handle DNS requests for the instructional and faculty systems. Dynamic DNS is configured for the workstations. ChabotDCA handles the DHCP requests. ChabotDCB is configured for DHCP but left disabled, and it would have to be manually activated in case of failure.

File Sharing – A new file server called FileServe, has been deployed on the domain. This server handles all of the file services for the Faculty. A new Mac Server, called MacServe, has been deployed to handle the filesharing needs of Macintosh client PCs. Additional files for the CNC program are stored on the CNC File-Server.

C. WWW/Intranet

The Chabot College Internet site can be found at http://www.chabotcollege.com. This site is hosted on the ChabotCollegeWeb server. The college also has its own internal web site that is hosted on the Intranet server. This site taps into GWExtranet, a service provided by ITS for web enabled Groupwise calendaring. This site is available while on the CLPCCD LAN at the url: /calendar.

Library services via the Proxy server are also available via the browser from both college sites.

These services are hosted on the Microsoft IIS platform for seamless compatibility with the FrontPage web-design platform. The following table illustrates which servers provide www/intranet or web delivered applications: **Not published for security purposes.**

Server	Location	OS	WebServer	Web/Intranet Functionality

Chabot Web Servers

D. Instructional Servers

These servers host the application or provide services for the curriculum for specific classes offered at Chabot. The following table shows which servers these are, where they are used, and who maintains them: **Not published for security purposes.**

Server	Location	OS	Functionality	Support

Chabot Instructional Servers

E. Administrative Servers

The following servers perform administrative functions in support of student instruction. These servers are supported by Chabot CS. **Not published for security purposes.**

GoPrint	Chabot	Xeon	W2K3	GoPrint Server for Chabot

Chabot Administrative Servers

F. SMS

The System Management Server (SMS) desktop-management package for CCS also provides key features for managing and controlling computers in the infrastructure. It is used primarily for automated patch distribution to the new desktops.

Storage/Backup

As stated earlier, the increased storage volumes on the new servers have relieved the issues of inadequate storage volumes for users. Progress towards a standardized backup is needed. Currently, Symantec (Veritas) Backup Exec version 10, has replaced Novastore as the preferred choice for Backup software. The ChabotWeb, ChabotDCA, ChabotDCB and FileServe servers are backed up to a DDS4 tape drive. The ImageSource server is backed up to a 250 GByte DLT tape drive. The MacServe server is backed up to an Exabyte DDS4 tape drive with a 10 slot carousel, using Macintosh utilities.

Server Locations

CCS houses all of the critical servers in the work center on the Chabot Campus (Room #310A). The three instructional servers that are maintained by the faculty are distributed around the campus.

Desktops

The Computer Services team manages the desktop systems at Chabot College. They not only support any instructional or faculty desktop systems, but also they support the administrative systems that are on site as well. District ITS and the college teams will work together to resolve more complex end user desktop issues, particularly where networking is concerned.

In addition to the desktop standards listed above, Chabot College has deployed a number of Macintosh desktop systems. The standard Macintosh configurations are:

IMAC 1.6 GHz POWERPC G5

17-INCH WIDESCREEN LCD
512K L2 CACHE
533 MHZ FRONT SIDE BUS
512MB DDR400 SDRAM
NVIDIA GEFORCE FX 5200 ULTRA
64MB DDR VIDEO MEMORY
80 GB SERIAL ATA HARD DRIVE
USB2 EXTERNAL FLOPPY DRIVE
SLOT-LOAD COMBO DRIVE
APPLE KEYBOARD & MOUSE
MAC OS
3-YEAR APPLE CARE PROTECTION WARRANTY ON PARTS AND LABOR (INCLUDE IN HARDWARE PRICE)

IMAC 1.8 GHz POWERPC G5

17-INCH WIDESCREEN LCD
512K L2 CACHE
600 MHZ FRONT SIDE BUS
256 MB DDR400 SDRAM
NVIDIA GEFORCE FX 5200 ULTRA
64MB DDR VIDEO MEMORY
80 GB SERIAL ATA HARD DRIVE
SLOT-LOAD SUPER DRIVE
APPLE KEYBOARD & MOUSE
USB2 EXTERNAL FLOPPY DRIVE
MAC OS
3-YEAR APPLE CARE PROTECTION WARRANTY ON PARTS AND LABOR (INCLUDE IN HARDWARE PRICE)

IMAC 1.8 GHz POWERPC G5

17-INCH WIDESCREEN LCD
512K L2 CACHE
600 MHZ FRONT SIDE BUS
1 GB DDR400 SDRAM
NVIDIA GEFORCE FX 5200 ULTRA
64MB DDR VIDEO MEMORY
80 GB SERIAL ATA HARD DRIVE
SLOT-LOAD SUPER DRIVE
APPLE KEYBOARD & MOUSE
MAC OS
3-YEAR APPLE CARE PROTECTION WARRANTY ON PARTS AND LABOR (INCLUDE IN HARDWARE PRICE)

IMAC 1.8 GHz POWERPC G5

20-INCH WIDESCREEN LCD
512K L2 CACHE
600 MHZ FRONT SIDE BUS
1 GB MB DDR400 SDRAM
NVIDIA GEFORCE FX 5200 ULTRA
64MB DDR VIDEO MEMORY
160 GB SERIAL ATA HARD DRIVE
SLOT-LOAD SUPER DRIVE
APPLE KEYBOARD & MOUSE
MAC OS
3-YEAR APPLE CARE PROTECTION WARRANTY ON PARTS AND LABOR
(INCLUDE IN HARDWARE PRICE)

DUAL 1.8 GHZ G5

512 MB
PC 2300 MEMORY
80 GB SERIAL ATA 7200 RPM HARD DRIVE
NVIDIA GEFORCE FX 5200 VIDEO CARD
20-INCH APPLE CINEMA DISPLAY (FLAT PANEL DISPLAY)
CD-RW/DVD-ROM COMBO DRIVE
APPLE KEYBOARD & MOUSE
MAC OS X CLIENT ALL DOCUMENTATION
3-YEAR APPLE CARE PROTECTION WARRANTY ON PARTS AND LABOR
(INCLUDE IN HARDWARE PRICE)

PowerBook LAPTOP

15.2-INCH TFT DISPLAY 1280 X 854 RESOLUTION
1.67 GHZ POWERPC G4
512MB DDR333 SDRAM
SUPER DRIVE
ATI MOBILITY RADEON
9700 (64 MB DDR)
BACKLIT KEYBOARD
GIGABIT ETHERNET
FIREWIRE 400 & 800
ANALOG AUDIO IN/OUT
DVI & S-VIDEO OUT
3-YEAR APPLE CARE PROTECTION WARRANTY ON PARTS AND LABOR
(INCLUDE IN HARDWARE PRICE)

In the past year, Chabot CS has deployed a total of 800 Windows XP desktop computers and 120 Macintosh desktops. This was an aggressive rollout designed to replace all computers with CPUs less than 900 MHZ.

Applications Supported

CLPCCD has a current standard suite of application software on the administrative desktops. Standard system builds are staged using Symantec's Ghost Software. There is currently no method for auditing software licenses on the systems, although ZenWorks can maintain a desktop inventory.

Standard Intel Platform (Administrative)

a. Operating System – Windows XP Pro
b. Microsoft Office Pro 2003 (Excel, Access, PowerPoint, Word, Publisher, FrontPage)
c. Acrobat Reader
d. GroupWise
e. Novell
f. Banner
g. Norton Antivirus
h. Shockwave and Flash Plug-ins

Storage / Archival

CCS procedure for critical data storage is to have the user save this data to a network folder. Therefore, data storage on the desktop is trivial. It should be adequate to install the operating system, the required applications, and leave enough free space on the drive for swap space, and some file management. CCS does not back up these local drives/files.

Students are responsible for their own data, which can be backed up by floppy, burned to CDROM, or preferably copied to USB drives.

Workstation Locations

The physical security for the workstations is handled on a room-by-room basis. The locations of these systems are tracked for the Chabot campus in the Chabot College PC Inventory database.

3.0 Las Positas Campus

The Las Positas Campus is located at 3033 Collier Canyon Road in Livermore.

Servers

In addition to servers described previously, the Las Positas Computer Services department manages the LPC instructional servers. These servers provide distributed file, print, curriculum support, World Wide Web, intranet and data archival services to the faculty and the students.

Functionality & Purpose

The main goal of the servers and the applications that are deployed and managed by LPC CS is to provide the support and tools to the faculty and students that are necessary for instruction and the related administrative functions. Besides some minor interaction with the District servers for some core networking services, the LPC CS servers are autonomous from the District ITS servers.

Hardware Configuration

With the established District-wide standard for server hardware, LPC has selected HP DL380 server platforms for new server upgrades.

Operating System and Service Packs

Service Packs and patches are applied on a regular basis to ensure the systems maintain high security, integrity, and operability. The Windows 2000 servers have all been patched to Service Pack 4.

LPC is in the process of moving servers to Windows 2003. All new servers will be installed as Windows 2003.

Applications Supported

A. Directory Services

LPC CS has implemented Microsoft's Active Directory as their directory service. The Windows servers are all members of the LPC ADS domain. Daffy is the Primary ADS Domain Controller. Cooper, Marvin and SMS act as Secondary domain controllers. The SMS server will be decommissioned when a new desktop management solution is deployed.

B. Core Network Services

DDNS/DHCP - Alice, Taz, Marvin, Daffy, Cooper, and Stars-Server servers are all configured to handle DNS requests for the instructional and faculty systems. Alice and Taz are the only servers who reply to DNS responses on the network as limited by the ip helper commands on the routers. Alice also handles DHCP for distributing network information to

the instructional, faculty and admin desktops on the LPC network. Taz serves as the backup DHCP server. If Alice should fail, the DHCP service would have to be started manually on Taz.

File Sharing - File sharing duties are provided for the full-time faculty and are shared among the network servers. VCOM holds files for sharing in the visual communications lab. Daffy is the primary file server for faculty. There are plans to implement DFS when Windows 2003 Rev 2 is installed.

C. WWW/Intranet

The Las Positas College Internet site can be found at http://www.laspositascollege.edu. This site is hosted on the District ITS's LPC1 server. LPC has plans to rehost the LPC1 server on a new server at the LPC campus. This will provide better performance to the internal users at LPC.

The following table illustrates the web based services that are currently running from Las Positas servers: **Not published for security purposes.**

Server	Location	OS	WebServer	Web/Intranet Functionality

Las Positas Web Servers

D. Instructional Servers

There are a number of servers which host the applications or provide services for the curriculum in specific classes offered at Las Positas. The following table shows the server details: **Not published for security purposes.**

Server	OS	Functionality	Support

Las Positas Instructional Servers

E. Administrative Servers

The following servers perform administrative functions in support of student instruction. These servers are supported by Las Positas College CS. **Not published for security purposes.**

Las Positas Administrative Servers

Near-term upgrades are planned for the following five servers: Daffy, Marvin, LPC1, ImageServer and Cooper.

Storage/Backup

When upgraded, the critical servers of Daffy, Marvin, LPC1, ImageServer and Cooper will be installed with hardware RAID 5.

Data from all of the domain controllers is copied to the Cooper Server daily. Cooper uses Symantec (Veritas) BackUp Exec 10, to run incremental backups on a daily basis, which is followed by a full backup on Friday. The data is saved to a USB2 Firewire hard drive that is switched weekly.

The new LPC1 server will be backed up to an H-P SDLT tape drive.

The Image Server, containing SARS and ATI, is backed up using an external USB hard drive. These incremental backups are also performed daily, with a full backup scheduled for Saturday. This drive is not rotated. The SQL components of this server are backed up to Cooper.

As with Chabot servers, it will be valuable to standardize on a consistent tape backup hardware platform that can provide adequate storage volume and technology growth.

Server Locations

Due to the lack of adequate space in the CS department, servers are currently distributed all over the campus. The Alice and Taz servers are located in Building 1900. Stars and Dragon are in

2202. VCom is in Building 300. The ImageServer is in Building 700. Cooper, Daffy and Marvin are in room 803. Servers are in secure and environmentally regulated areas, but they are harder to manage when distributed all over campus.

LPC CS would like to see all of the servers combined into a dedicated computer room in either the new Multi-Disciplinary or Information Technology Buildings.

Desktops

The desktop systems at Las Positas College are managed by the LPC CS team. They not only support any instructional or faculty desktop systems, but they support the administrative desktops that are on site as well. The LPC CS team provides second-level technical support to an in-house training program called Laptechs. If Laptechs cannot resolve the support call, it is then forwarded to LPC CS. District ITS and the college teams work together to resolve the more complex end user desktop issues, particularly where networking is concerned.

As at Chabot campus the LPC CS staff has been engaged in an aggressive rollout of the new standardized desktops.

Storage / Archival

The LPC CS procedure for critical data storage is to have the user save this data to a network folder. LPC CS does not back up local drives/files. Students are responsible for their own data, which can be backed up by floppy or zip drive, burned to CDROM, or copied to USB drive.

4.0 CLPCCD Information Technology Building at Las Positas Campus

CLPCCD will be building a new Information Technology Building at the Las Positas campus. This building will house the CLPCCD Data Center, which supplies the data and information resources for the Colleges and the District. The Data Center is comprised of the following components:

District Administrative Computer room
Network Equipment room
District Training Room
Print Production room
District Help Desk
Test Lab rooms
Storage Vault
Fire Suppression System
Shipping/Receiving and Storage Cage

All of the District ITS staff currently located at Chabot will be relocated to offices in the Information Technology Building. The building will have a footprint of approximately 10,000 square feet with 8,500 being usable. The new Information Technology Building will be located between Building 1900 and parking lot A.

All of the District Data Center computing resources currently located at Chabot will be relocated to the new Information Technology Building. As management and space deems appropriate, the LPC Computer Support department and LPC Instructional Server resources will be housed in this new building. The Instructional Server resources for Chabot will remain at Chabot within Building 300.

Early requirements discussions have begun, to define the room purposes and relations in the new IT Building. Meetings with the architect and engineering teams will commence in the summertime of 2006, with an expected building construction window of 9 months after contractor selection. The expected move-in will be in 2008. Following the move, renovation of Building 300 and 100 at Chabot campus may commence.

5.0 Network Infrastructure

During the 2005 calendar year, CLPCCD District ITS was able to move forward with a number of network equipment upgrade projects. The successful procurement and deployment of this new equipment has replaced the nearly all of the network equipment at the campuses and provided the following connectivity and service upgrades:

- Desktop network connectivity at 100 Mbps, switched.
- Server connectivity at 1 Gbps, switched.
- VLAN routing speed improvements.
- Security/access enhancements.
- Internet Performance improvements.

These upgrades have provided immediate, perceptible performance enhancements to the students, staff and faculty, as well as position the network with a state-of-the-art technology basis that can service future speeds, topology changes and functionality improvements. Details of the current topology are provided below:

Firewall Upgrades

Provided through the Measure B Bond Quickstart process, the PIX firewalls at each campus were upgraded. Installed at each campus are a pair of PIX 515E firewalls, equipped with unlimited licenses, multiple Ethernet interfaces and VPN accelerator cards. The PIXes are running in master-slave failover mode, so that if the master PIX fails the slave PIX converts to the master and takes over network transactions transparently.

At the Chabot campus, the PIX 515E pair provides connectivity to the CENIC Internet DS-3 link, the internal networks and the administrative and instructional server DMZ networks. These PIXes replace the older PIX 520 that was purchased in the 1990s. Running a newer level of operating system, these PIXes provide faster processing and some important bug fixes that eliminate operational issues Chabot was experiencing with videoconferences from the College to external sites.

At the LPC campus, the PIX 515E pair provides connectivity to the CENIC Internet DS-3 link, the internal networks and the instructional server DMZ networks. LPC PIXes were upgraded with additional licensing and connectivity to be able to support the same functionality as the new Chabot PIXes.

Basic Firewall architecture has not bee changed from that documented in the 2005 ITMP. Further topology enhancements are planned as follows:

1) splitting of the wireless, instructional and administrative networks at each campus to separate legs of the firewall. This will provide a greater level of granularity for monitoring, control and diagnostics of the network traffic.
2) LPC-to-Chabot tunneled connectivity to allow faster access to administrative server applications. This would be become the primary connectivity path, with failover to the

existing T1 infrastructure. This tunnel would provide in the range of 10 times the response time as compared to the T1 connections, and is an important element in preserving response times for server consolidation, and when the Data Center is relocated to LPC.

3) VPN prototyping. As remote support access requirements increase in importance, CLPCCD District ITS will need to evaluate access methods and their support and security implications. The PIXes are "VPN ready" to allow for limited testing and analysis.

Web Caching

Internet connectivity and access to external web sites by students and faculty has risen to critical importance in the instructional classroom and labs. Optimizing performance to guarantee rapid responses times ensures that students and teachers do not get frustrated "waiting" for screen updates. Since much of the access is repetitive, i.e. a whole classroom of students going to the same web site and web pages for a specific classroom activity, the traffic can be optimized through caching pages on a local server that are repetitively accessed.

Chabot College was equipped with a Cacheflow caching system that was purchased in the 1990s. Performance was inadequate for the increased demands of the network traffic from instructional computers. Again, through a separate Measure B Bond Quickstart, this system was replaced with a current generation Stratacache Metroliner caching system that can easily sustain current and increased future levels of network traffic. A second caching system was provided for the LPC network. Current performances levels indicate that the new caching systems deliver up to 60% of the repetitive web requests, thereby providing faster response times, while optimizing the Internet utilization at both campuses. Speed increases have been noticed at both campuses.

Envision Network Monitoring

Managing network connectivity has increased in complexity because of the myriad of viruses and failures that can be introduced. The Measure B Quickstart to upgrade the Envision appliance to the state-of-the-art EX-2 system provided immediate benefits to both Chabot and LPC campuses. Because of increased capacity and more sophisticated reporting, CLPCCD District ITS was able to respond more quickly and comprehensively to network performance anomalies. Working with College CS resources, this meant faster response to virus outbreaks, quicker restoration to normal performance and a proactive view of potential network issues that can be resolved before negative impact on the network users.

Network Switch Upgrades

The CLPCCD ITS network standardized on Cisco routing and switching products across the WAN and LAN network. This offers best-in-class capability and exceptional manufacturer's support. The standardization of command access for configuration and maintenance allows for consistency of operation. These factors are of critical importance to CLPCCD District ITS because the network support is performed by one CLPCCD District ITS network specialist, in conjunction with limited support assistance from the Computer Services staff at the Colleges. Network downtime for unscheduled outages averages at less than 1%.

The CLPCCD network switching infrastructure has undergone a total equipment reconfiguration and upgrade in the past year. CLPCCD District ITS worked with networking consultants to establish a new network architecture design focusing on:

- **Security:** A primary design goal of the upgraded CLPCCD Enterprise Network is to ensure that the network is segmented into multiple security zones to isolate user communities from each other and to protect key areas of the network from worms and viruses.

- **High Availability:** A second high-priority goal of the upgraded CLPCCD Enterprise Network is to incorporate as much redundancy and diversity into the design that is cost effective in order to ensure maximum uptime and permit software and hardware maintenance to be performed without downtime.

- **Upgraded Fiber Backbone Building Connectivity:** An upgrade of the fiber backbones to allow for high bandwidth, diverse connectivity is a basis for the building connectivity design.

- **Redundant Server Connectivity:** Wherever possible, redundant, high-performance connections to mission-critical servers are recommended to limit downtime caused by NIC card failures.

- **Transparent Internet Rerouting:** The success of the instructional environment is dependent on access to Internet resources. In the event of failures, fast and transparent traffic rerouting is required.

- **Extensive support of advanced switching features:** Advanced features such as Quality of Service (QoS) and security parameters are important design requirements of the upgraded network at Chabot and Las Positas Colleges in order to support high-quality video conferencing, responsive administrative and educational application access, and reduce the impact of worms and viruses.

- **Manageability:** The new architecture is built upon consistent hardware platforms and software configurations. Migration of IPX/AppleTalk network protocols used by older desktop equipment to native IP is planned. This enables CLPCCD technical staff to leverage their IP and switching knowledge across the entire network environment.

- **Phased implementation:** A multi-phased implementation plan for installing the new network equipment is planned so as to allow the existing staff to implement the new equipment at a confident pace.

Although the fundamental VLAN infrastructure had not changed in the network, these new design elements established the baseline for a state-of-the-art network infrastructure. These design requirements were incorporated into comprehensive bid for core and edge switches at both campuses. Following a bid process that resulted in the selection of state-of-the-art equipment at an attractive price, CLPCCD District ITS staff was able to fully deploy switches to all Telecom Closets within six months of equipment receipt. The following infrastructure is installed:

Chabot College Campus **Not published for security purposes.**

Equipment	Location
Cisco 6509 switches with Gigabit fiber uplinks, 10/100/1000 switch ports, Supervisor 720 engine	
Cisco 4506 switches with Gigabit fiber uplinks, 10/100 switch ports, Supervisor 2+ engine	
Cisco 3560 switches with Gigabit fiber uplinks, 10/100 switch ports	

At the Chabot Campus, the switches are connected using the existing multimode fiber with 1000Base-LX connectivity over mode-conditioning cables. Limited 1000Base-SX connections have been implemented in buildings that are equipped with multiple Telecommunications Closets, and for buildings with short-length fiber backbones, close to the Building 300 core. This equipment upgrade eliminated the 100BaseFX and 10BaseF/FOIRL connections that were used with media converters to connect buildings all over campus.

Las Positas College Campus **Not published for security purposes.**

Equipment	Location
Cisco 6509 switches with Gigabit fiber uplinks, 10/100/1000 switch ports, Supervisor 720 engine	
Cisco 4506 switches with Gigabit fiber uplinks, 10/100 switch ports, Supervisor 2+ engine	
Cisco 3560 switches with Gigabit fiber uplinks, 10/100 switch ports	

At the Las Positas Campus, the switches are connected using the existing single fiber with 1000Base-LX connectivity. Many of the fiber runs from Building 1900 to the buildings on campus exceed the distance allowed for 1000Base-SX connectivity. For simplicity of operation, the buildings were connected uniformly with single mode connections. This equipment upgrade virtually eliminated all the 100BaseFX connections that were used with media converters to connect buildings all over campus.

Internet upgrade at LPC

At Las Positas campus, the Internet connectivity was upgraded from a 3 Mbps bandwidth using 2 T1s from SBCI to a 45 Mbps DS-3 connection to CENIC. An immediate speed increase was noticed in the computer labs after this upgrade. This upgrade has relieved a tremendous bottleneck on campus, and coupled with the additional caching and firewall solutions described above, this puts LPC's network on parity with the speeds and security that have been available at the Chabot campus. A secondary impact is that the Internet bandwidth usage at Chabot campus

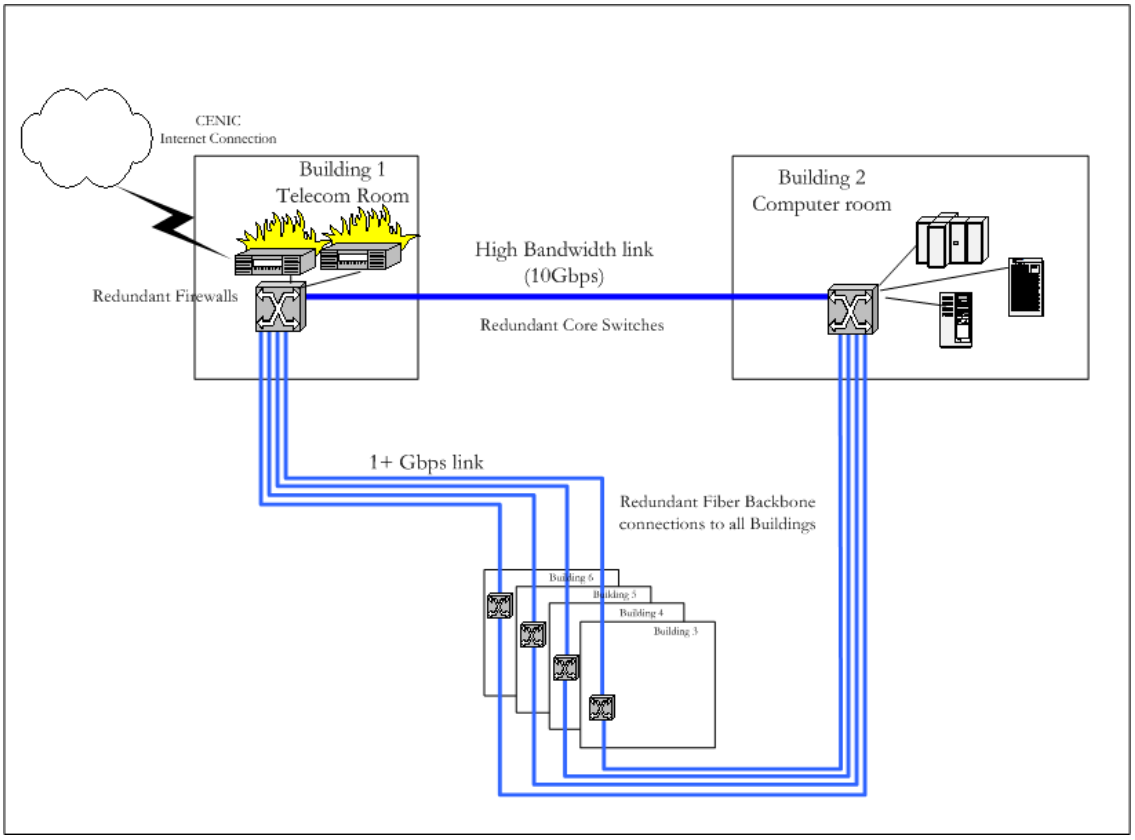
has been somewhat reduced since LPC web access from admin users now routes through the higher bandwidth and more efficient LPC CENIC connection instead of Chabot. The CENIC connection has proved to be very reliable and with its increased performance, the legacy Internet connections through the SBC Internet T1s can be disconnected.

Network Cabling Infrastructure Upgrades

During the spring of 2005, CLPCCD ITS contracted with GeoTech Utility Locating to proof and document the Telecommunications conduit infrastructure at the Chabot and Las Positas Campuses. The information provided by this study identified a number of upgrade requirements. CLPCCD ITS also drafted its first cabling infrastructure standards document, which clearly details the cabling design, materials, spaces and workmanship required during the design and installation of new and renovated buildings.

Chabot College

Because of the age of the fiber cabling at Chabot campus, a near-term project will be to install new laser-optimized multimode and zero-water-peak single mode fiber in a redundant route. This will allow for diverse connections and greater survivability if a fiber cut or equipment failure should occur. The following topology is planned.



The proofing results indicated that the outside plant conduits at Chabot are saturated and cannot accommodate additional backbone cables. It is not feasible to try to remove abandoned or cut cables because 1) they would not free up enough space and 2) in removing the old cables, the conduits may collapse and not be useable. It is necessary that the main loop around campus be upgraded with 6 or more additional 4'" conduits, and that an alternate path be determined for the routing to buildings 800, 900, 1000, 1100, 1200, 1300 and 3800. The latter requirement is due to the construction of new buildings that will overlay onto the existing conduit paths and it effects both the data fiber and voice copper connectivity.

Upgrading the Chabot Telecommunications conduit infrastructure is reliant on an analysis of the other building services (electrical, gas, water, etc.) and the need for expansion or redesign of the conduit infrastructure required by those utilities. As such, scheduling is not defined for this CLPCCD ITS upgrade project pertaining to the fiber and copper backbone upgrades.

Las Positas College

At Las Positas College, the campus is equipped with a much newer and more serviceable conduit infrastructure. The single mode cabling that was installed in 1998 is still very functional, and will be for the foreseeable generations of switch connectivity.

However, the LPC campus expansion has indicated new buildings to be built on top of the existing conduit infrastructure. Most critical is the path underneath the current soccer field which services 90% of the campus connectivity. This path is co-located with the planned location of the new Theatre. Construction efforts for the new Theatre would likely crush or sever the conduit path, leaving most of the LPC campus without voice or data service.

New fiber/copper cabling which uses a different route to connect to the campus buildings must be installed. This will be explored in more detail in the coming months, along with a design for path diversity that would maintain connectivity if a fiber cut or equipment failure should occur.

Like the Chabot project, the design of the new conduit path, and cabling infrastructure is dependent on other building construction projects, and scheduling is indeterminate. There is an urgency associated with this project, because of the construction schedule of the new Theatre. To avoid conflict with that project, the new conduits and backbone cabling would best be completed by the end of 2006 or early months of 2007.

Cabling Standards

CLPCCD ITS drafted its first Network Cabling Infrastructure Standards document. This document was published to detail the state-of-the-art cable and Information Technology Space requirements defined by CLPCCD ITS. Distributed to Architect and Engineering teams assigned to the Measure B projects, this document would ensure that new and modernized buildings would be equipped with cabling that would meet the present and future Information Technology connectivity needs. The standards would:

- Provide Architects with the space requirements for Telecommunication and Server rooms
- Provide Electrical Engineers with grounding and electrical requirements.

- Provide Mechanical Engineers with HVAC requirements.
- Provide Civil and Structural Engineers with requirements for cable pathway, suspension and mounting.
- Provide Low-Voltage Designers with details and specifications for cable type, jacks, terminations, labeling, testing and drawing standards.
- Provide cabling contractors with workmanship details.

This information, applied to all construction projects would ensure that the cabling infrastructure installed at CLPCCD sites would:

- Provide sufficient data bandwidth and connectivity as needed by the particular building and room.
- Allow the incorporation of other TCP/IP-based signaling and monitoring systems.
- Incorporate the addition of new IP technologies such as VOIP and video.
- Ensure a consistent design and functionality.
- Enable efficient support through standardized appearance, testing and acceptance criteria.

In the coming months CLPCCD ITS has the challenge of working with many architect and engineering teams to ensure that the Network Cabling Standards are fully incorporated into the construction projects.

6.0 Security

The security responsibility for the network and servers has not changed since the 2005 ITMP. The District ITS department is responsible for maintaining security and access to administrative servers at all sites, including the Banner application access. College Computer Services are responsible for security to servers they support. Security includes network accessibility and physical security.

Physical Security

At the District office, the servers are located in a locked room only accessible to District ITS staff. Further, the entire District Office is secured with keypad access to the office and meeting areas.

At Chabot campus, the Enterprise, network and Novell servers are located in locked areas. The operations staff monitors access to the computer room. The area is protected with a Sonitrol alarm system after hours. Servers maintained by Chabot CS reside in a server rack in room 310A. Room 310A is kept locked and only accessed by staff who have been issued keys and appropriate door codes.

Servers maintained by LPC CS are distributed across campus. Many of them are kept in locked cabinets where the network equipment resides. Security will be improved when the LPC CS has a dedicated server room where they can consolidate servers in a secure environment.

Administrative Passwords

District ITS department maintains three separate user accounts – This includes Novell Directory Services (eDirectory) accounts/Groupwise e-mail, Banner System, and IBM AIX user accounts. IBM-AIX passwords are case sensitive and users are required to change them periodically. Users are not forced to change their Novell and email passwords on a regular basis.

Instructional/Faculty Passwords

At Chabot, Instructional Domain Authentication passwords are managed by the Chabot CS department, which includes faculty passwords in Microsoft Active Directory environment and Windows Local Accounts. There are no individual student user accounts currently in use at Chabot, instead generic student accounts, with limited access, are used by the students to access the Instructional Network resources.

Like Chabot, at LPC, Instructional Domain authentication passwords are managed by LPC CS department, which includes faculty passwords in Microsoft Active Directory environment and Windows Local Accounts. There are no individual student user accounts currently in use at Las Positas, instead generic student accounts, with limited access, are used by the students to access the Instructional Network resources.

Anti-Virus

Virus and worm attack is pervasive on the network, particularly on the Instructional network. CLPCCD uses anti-virus protection on each desktop to limit the possibility of virus attack.

Symantec's Norton Anti-Virus Corporate Edition version 10 is used on the XP workstations. The virus definitions are updated to the ITS-2K Windows server, and the administrative workstations automatically update from the current signature file directly from the server or some directly from Symantec.

At Chabot College, Symantec's Norton Anti-Virus Corporate Edition 10.0.2 is located on the APPSRV server. The virus definitions are updated from the Symantec web site and user desktops download the definition files from the local server.

At LPC, Symantec's Norton Anti-Virus Corporate Edition is used on Marvin and Cooper. The virus definitions are updated from the Symantec web site.

Network Device Security

Overall network security is the responsibility of the District ITS department. Like the servers the core network equipment is installed in locked areas with restricted access. Some of the edge equipment is more vulnerable because it is located in classrooms and more open areas. Since renovations have not begun, the network equipment will remain in its current locations until building modernization. The CLPCCD ITS Network Cabling Standards have clearly documented the requirements for separate, secure Information Technology and Telecomm rooms. The Security Master Plan issued in the Fall of 2005 has identified Information Technology and Telecomm rooms as secure locations that require separate card-key access.

Network device passwords, such as Routers and Switches are also maintained by the District ITS department and changed as needed to secure access. Passwords are formatted with special characters to provide an additional level of security. Switches have a user level logon to allow Chabot and LPC CS technicians to modify VLAN assignments as needed at each campus. Telnet access is used for switch/router remote access, although the network staff has plans to switch to ssh access.

Access Control Lists

Access Control Lists are still in use at CLPCCD. They have been migrated to the new 6509 core switches. The ACLs are used principally to limit access to the administrative networks from the instructional and faculty networks.

During the summer of 2006, CLPCCD District ITS Network staff will begin a project to separate the instructional, administrative and wireless networks to separate legs of the firewalls. This will allow for more detailed monitoring and control of network traffic from each of these firewall legs. Once this is accomplished, the use of ACLs on the routers will be diminished.

Network Monitoring and Intrusion Detection

As part of the Measure B Bond QuickStart purchases, the next generation network monitoring Envision appliance was purchased. This tool became immediately useful in tracking down the source of viruses and unauthorized network activity during the past year.

CLPCCD District ITS plans version 7.x operating system upgrades to the PIX firewalls, that will allow network staff to take advantage of additional security features and services. These include more specific VPN control and security contexts.

7.0 Disaster Recovery/Business Continuity

CLPCCD District ITS disaster recovery methods are reliant on power continuity through UPS protection and data restoration from backup media. These provide a basic operating environment in the event of failures, but there is room for enhancement, particularly when the District Data Center is built.

Power Continuity

The IBM Enterprise servers and servers in the Chabot Room 312 computer room are connected to a large UPS system. The UPS will power the computer room for approximately one hour. The UPS is network attached and has the ability to send messages to the servers in the computer room that initiate shutdown scripts. This was implemented for the IBM and Novell servers, but does not function reliable for the Novell environment, and has been disabled.

In the Chabot Building 200 MPOE room, the SBC fiber terminal on which the CENIC DS3 is provisioned is powered by its own battery supply. The MUX components are plugged into the UPS for the Telephone system. The 7206 could be plugged into the UPS for the telephone, but is currently plugged into an unprotected outlet.

A UPS is installed at the District Office to power the telephone and data networks and the Novell server equipment. It is not clear what the maximum uptime is that the UPS will run to power the equipment. This equipment was left by the previous tenant and has been tested to power the equipment for at least 30 minutes.

The Bond projects include the replacement of UPSes and provision of generators at the key servers and data equipment locations. These are scheduled for initiation in the 2006/7 year, but are dependent on the building renovations and the construction of the new IT Building at LPC.