



MOORPARK COLLEGE

## **Information Technology Operations Plan**

**2018-2019**

## **Introduction**

Technology support is a consolidated service through District Information Technology. Moorpark College maintains a full- time on-site Information Technology Services (ITS) department comprised of one Director and five technology support specialists. The College technicians support a collaborative framework, allowing the IT department to leverage skill sets between campuses. The District Administration Center (DAC) supports administrative computing, core fiscal and operational systems, and administers networked services district-wide.

## **OVERVIEW**

Through an active collaboration with District IT, Moorpark College has developed a Strategic Technology Plan that encompasses all aspects of technology. The plan is aligned with the Educational Master Plan and the Facilities Master Plan. The Strategic Technology Plan lays out the strategic goals and objectives for technology at Moorpark College and will be updated again during the 2018-2019 academic year.

This Technology Operational Plan will guide the development of tactical business plans, aligning with the District's and College's vision, mission, strategic initiatives, and prioritization criteria.

Resource prioritization and allocation are facilitated by College Facilities and Technology Committee on Accreditation and Planning (F/T CAP) committee and driven through the College's program review process. Currently, there is one technology committee and one workgroup at Moorpark College:

- The Facilities and Technology Committee on Accreditation and Planning (F/T CAP) which plans, monitors, and evaluates institutional technology including hardware and training needed to support student learning; the Technology Master Plan and Technology Inventory; funding for technology based on an allocation of at least 30% of instructional equipment funding dedicated each year to technology equipment, and hardware needs identified in the Technology Plan and annual program plans.
- A work group of F/T CAP is the Technology Resource Allocation Work Group (TRAWG). This group has been tasked with prioritizing purchase requests for new and replacement computers and related equipment and also working with other committees that need to have information relating to the College's use of technology. A standards and criteria document has been established to formalize the ranking of needs.

## **Mission**

The mission of the Moorpark College Information Technology department is to serve the technology needs of the institution. The following objectives must be met to satisfy the growing technology and service support needs of the College:

## **Objectives**

The following are guidelines to meet the growing technology support needs of the College:

- Maintain a high level of support services
- Use resources efficiently to better serve College
- Use a work order system to measure service levels and outcomes
- Enhance and maintain open communication with all users
- Facilitate innovation and planning in order to meet technology needs

## **Support Standards**

## Service Levels

The College ITS department will continue to maintain effective service levels through proper use of College committees, as well as collaborative relationships with other College groups and/or departments.

Service Level Agreements (SLA) are internal contracts that define the prioritization and timeframe for delivery of services. The agreements set expectation levels for support services. The following table briefly describes priority levels assigned to work orders and initial response time expectations.

Level	Description	Initial Response	First Contact	Escalation
1	Critical/Urgent	15 Minutes	Call xt.4660	1. Campus IT Director 2. Vice President of Business Services 3. Associate Vice Chancellor of Information Technology
2	Urgent/High	1 Hour	Call xt.4660	
3	Normal	4 Hours	mcheldesk@vcccd.edu	
4	Low/Scheduled	1 Day	mcheldesk@vcccd.edu	
5	Project Based	Scheduled	mcheldesk@vcccd.edu	

## Priority Level Detail Examples

### Priority 1 – 15-minute response

Defined: Immediate impact upon instruction

- Classroom technology failure, preventing the class from proceeding
- Critical service failure for one or more divisions/business groups

### Priority 2 – 1-hour response

Defined: Urgent, or high priority, issues directly impacting instruction, or business operations

- Classroom technology failure that must be addressed before the next class meeting
- Staff inability to access core services
- Faculty or staff computer is non-functional and preventing them from working
- Virus infection

### Priority 3 – 4-hour response

Defined: Day-to-day support issues of a non-urgent nature

- One or more applications will not function, but an alternative exists
- Classroom technology problems that do not prevent the class from proceeding
- Issues of an inconvenient nature, but not impacting day-to-day business operations

### Priority 4 – 1-day response

Defined: Low priority or scheduled requests

- The user has requested A/V for a class in the future
- A time is setup/appointment made for new or replacement equipment to be set up
- Computer OS or Software updates
- Equipment/phone moves and setup

### Priority 5 – Project-based requests

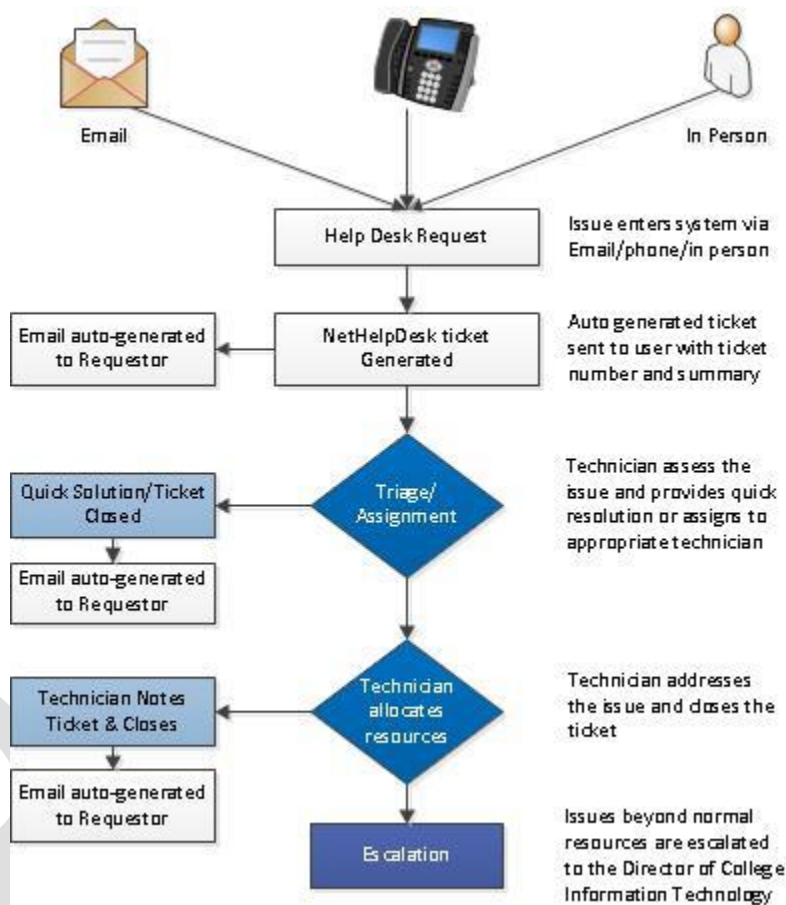
Defined: These requests are considered informational, or project-oriented, and will be addressed as part of larger projects or ongoing maintenance issues.

- Any request for non-essential help without time constraints
- Technology initiatives or projects
- Non-urgent software or equipment purchase consultation

## Work Order Tracking

Technology related work order requests are tracked via the NetHelpdesk work order system which is hosted by the ITS department. The NetHelpdesk system was implemented to capture work order requests and provide a mechanism for measuring efficiency and determining staffing level adjustments. Functionality includes call management and tracking, knowledge management, problem resolution, and self-help capabilities.

The Help Desk is currently maintained by a combination of student workers and ITS staff Monday through Friday and offers an alternate method for communicating service requests. The day-to-day supervision of the Help Desk falls under the Director of College Information Technology Services.



The College utilizes the NetHelpdesk application to manage work order requests in union with the District's TrackIT help desk system. The ITS department is committed to working closely with the District in this endeavor, as the NetHelpdesk application becomes crucial for ITS support tracking. Built-in reporting quantifies department activities in the validation of service level expectations.

## Resource Sharing

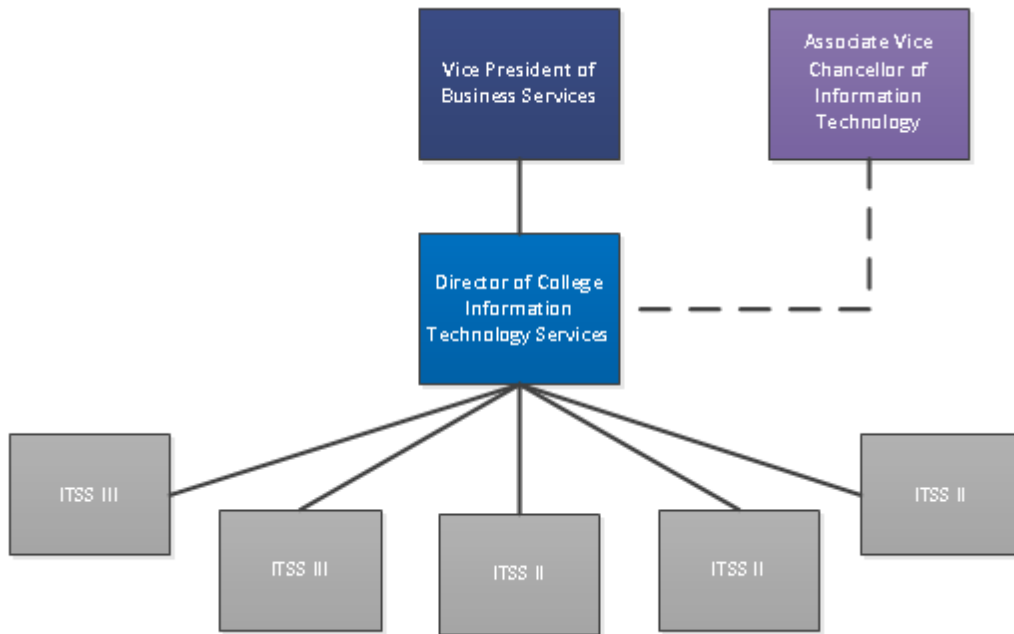
Resources for technology support (parts, vendors, tools) are centrally shared by College ITS staff. The College also depends on District IT for certain levels of repairs and support issues. This alliance creates an environment of shared resources and provides for greater efficiency.

## Common Methodologies

Common methodologies and processes for implementing and maintaining technology on each campus within the District will be supported and actively cultivated to maximize efficiencies. This will allow for training of staff and will allow flexibility in allocating staffing resources.

## Staffing Levels

The Director of College Information Technology Services directs the day-to-day ITS operations. The department support staff consists of three Information Technology Support Specialist IIIs and two Information Technology Support Specialists IIIs. Each staff member is dedicated to supporting technology needs across the College. Additional staffing is desperately needed, but is dependent on hiring prioritization and funding. As a comparison, Ventura College has 7 full-time ITS staff members and one Director compared to the 5 full-time ITS staff members and one Director at Moorpark College.



## College and District Responsibilities

District IT provides support in a number of key areas:

- Administrative applications, including Banner, GradesFirst, OnBase, and Outlook (email)
- College connectivity to other District facilities and the Internet
- College cabling infrastructure, to the wiring closet level
- College network backbone, including switches, firewalls, and routers
- Server and data storage management

## Major Technology Projects for 2018-2019

### Overview

The College has numerous technology initiatives each year that involve upgrades to existing technology and new technology deployments. There are many major technology projects for the 2018-19 academic year. Some of the projects are district-wide initiatives and others are local projects.

### Windows 10 / MS Office 2016

Now that the Banner ERP system has been certified to work with Windows 10, an increased rollout of systems with the Windows 10 operating system with MS Office 2016 will be deployed for end users. All computer labs, with the exception of the Open Access Lab, will have Windows 10 and MS Office 2016 installed by the beginning of the Fall '18 semester. The rollout of Windows 10 in labs will be performed with the use of disk imaging software.

### Upgrade Voice and Data Circuits

Some of the features of Skype for Business include video conferencing to the desktop, voicemail files to your email inbox, Voice over IP, and work group instant messaging. Calls from internal phones or soft clients externally exit the campus over a Session Initiation Protocol (SIP) circuit provided by Level3. The existing circuit is expensive and has been problematic. The College IT department will be working with District IT to convert the SIP circuit to a circuit provided by a new provider. The new circuit will save the campus money and should provide greater stability.

The District will be working with College IT to setup and install a secondary Internet circuit. The secondary circuit will provide redundancy and will allow for increased business continuity. The secondary circuit will operate at the same speed as the primary circuit.

### Virtualization Desktop Infrastructure (VDI)

Desktop Virtualization is a shift in the mechanisms by which applications and operating systems are delivered for desktop and remote users. The 'desktop' device, usually a thin client, becomes a delivery conduit, and all computing power and applications are hosted and provisioned on a central server on each campus. Academic year 18/19 will see an upgrade of the core software suite, vWorkspace, with a revision of desktop images to take advantage of the enhanced performance of the new version.

When fully deployed and optimized, the benefits of this restructuring of technology delivery should be significant. In the past when a lab had to be re-tasked or re-imaged, all devices in that room had to be touched physically and software installed. In this new paradigm, ITS maintains one image of the system and one image of the applications, and all computers in a lab are targeted to those images, dramatically reducing the upgrade time for a facility.

Additional testing of applications will be an ongoing requirement. A process to provide better communications between ITS and faculty has been developed and implemented. The upgraded systems have demonstrated greatly improved performance and resiliency. Further upgrades to the systems are planned for late Fall '16 and Spring '17. Expansion into other areas on the College may be planned in the future.

## Safety Initiatives

Information Technology continues to work closely with Campus Police to update and deploy technology to improve safety at the College. The technologies include on and off campus mass notification, video surveillance, emergency phones, and radio systems. Also included are systems and storage that has been deployed in a second data center, located at Ventura College, for disaster recovery of District mission critical software applications.

The College and District IT departments will be upgrading the microwave equipment that campus police use for radio communication with dispatch at CSUCI. It is anticipated that the equipment will be installed and operational by the start of the Fall '18 semester. The College IT department may be participating in a project to install speakers in every classroom for mass notification if the project is approved at the District level.

## Information Security

The College is currently working with the District office to complete the Payment Card Industry (PCI) compliance project. This project will help keep credit card information safe during transactions. Many components of the project have already been installed and implemented. The project is expected to be completed in the Fall of 2018.

The College IT department will work with District IT to replace the current firewall with a new high availability (HA) pair. This HA pair will increase reliability and business continuity. This project should be complete by the end of the Fall '18 semester.

The District is evaluating enterprise endpoint protection. Once a solution is finalized, College IT will either upgrade the existing endpoint protection to a new version or install a new endpoint protection application on all administrative computers.

## UPS (Uninterruptable Power Supply) Replacement and Installation

The College is in need of having UPS units installed in every wiring closet that contains network infrastructure. A UPS will keep infrastructure up and running in the event of a power outage. IT intends to install a UPS in the primary wiring closet of a building first and then secondary and tertiary closets next. This will help ensure that PoE (Power over Ethernet) phones are functional during a power outage. The UPS replacement project will be a long and ongoing process that will need to take place during off hours to prevent downtime for users.

## Infrastructure

The network infrastructure on campus is aging and will be replaced. District and College IT will be replacing the existing 10/100Mbps network switches with switches that provide 1Gbps throughput to each interface. The new network infrastructure equipment has been purchased and is being installed. The project to replace the aging network switches will be completed by the end of Fall '18. Infrastructure upgrades also include installing additional wireless access points. The College IT department will replace these devices during off

hours as to prevent any downtime for users.

## Tech Refresh

The College will be refreshing 57 instructor computers located in classrooms throughout the campus. The College will also refresh a total of 64 faculty and staff computers. The campus will be replacing 22 aging projectors located in classrooms in the COM, FH, LMC, and HSS buildings. The replacement of these computers and projectors will take place throughout the 2018-2019 fiscal year.

## Technology Refresh Plan

### Overview

The College currently has a plan in place for replacing aging computer hardware. As technology continually evolves, there is a need to keep the computer equipment reasonably current. New technologies tend to require additional capacity and computing power compared to older systems.

The plan was created through the cooperation of the Facilities Technology Committee on Accreditation and Planning (F/T CAP). The plan will guide the College technology efforts as it relates to the College's growth and needs.

With the increase in new technology cycles, the baseline for technology requirements has been raised. New technologies in the areas of information search and streaming video have significant processing requirements.

### Existing Refresh Method

The current system for replacing aging equipment is a combination of new equipment and a "trickle-down" process. New equipment has been purchased using various funding sources, including IELM, CTE, Student Success, Equity, and lottery funds. The equipment being replaced can be redeployed based on whether the equipment specifications are adequate. Eventually, older equipment is removed from inventory and cycled out.

### **Five-Year Computer Refresh Program**

Most standards for organizations and white papers recommend a four to five-year refresh period for technology. The College has been very proactive over the last few years, via the Refresh Program. The ability for the Refresh Program to remain proactive will be greatly influenced by future budgets. While the California Community College Technology II Initiative in 2001 set a goal for state campuses to have a three-year program to refresh equipment, the District currently has adopted a five-year program. With current budget constraints, in-place upgrades (hard drives and RAM) of existing systems has now been adopted across the District as a means to extend the life of existing equipment beyond four years.

### **Peripherals**

#### Monitors

LCD flat-panel monitors have a theoretical useful life of over ten years. Any systems purchased that are replacing systems with CRT monitors will include an LCD flat panel. A 19-22 inch LCD will be sufficient for



classes that teach one application at a time. Computers that require use of multiple applications simultaneously will require a 22 inch LCD or larger. These areas include certain administrative offices, the staff resource center, and computers in the LLR open access lab set up for general student use. Other exceptions include systems purchased for use by the visually impaired, and programs that require high-end graphics, such as the AutoCAD and Adobe Creative Cloud suite programs. LCD monitors will be replaced on an as-needed basis.

## Printers

Printers are purchased on an as needed basis, depending upon use, program needs, and changing technology. For purposes of better energy and consumables management, future purchases will prioritize the use of workgroup printers, de-emphasizing the deployment of individual devices.

## **Smart Classrooms & Location Summary**

### Standard Components

#### *Ceiling Mounted LCD Projector*

Unit should have WUXGA or better resolution with high brightness to allow use under classroom lighting conditions; power zoom and lens shift, 2000 hour or better lamp life; dual HDMI and video inputs; case should incorporate cover for cable connection panel; 3-year or better overnight replacement warranty. Current standard: Epson PowerLite 2250U.

#### *Projector Mounting Bracket*

Projector-specific mounting bracket, ceiling mounting bracket/plate. Projector mounts must have seismic bracing to prevent the unit from falling.

#### *DVD/Blu-ray player*

Smart classrooms will contain a DVD or Blu-ray player as needed.

#### *Self-Amplified Powered Speakers*

Ceiling mounted speakers, connected through projector for volume control.

#### *Projector Control System*

Smart panel programmable control system, mounted on instructor's station providing power and volume control, source selection, DVD/VCR transport Controls. Current standard: Crestron Digital MPS system. The College is currently looking at alternatives to the Crestron control system.

#### *DVD/VCR Combo Drive*

VCR/VHS capacity will be phased out, and not replaced, as equipment fails.

#### *Document Camera*

Digital presenters for physical demonstrations will be installed as needed.

#### *Projector Installation and Cables*

Type of projector and cables vary by installation and classroom use.

#### *Instructor's Multimedia Workstation*

Teaching station with locking cabinets for audio-visual equipment and internally mounted computer and monitor. Projector control system panel mounted on top surface. Cabling provisions for connecting a laptop

to the projector can include VGA, HDMI, and Display port depending on the room capabilities.

***PC Workstation with minimum 22" LCD display***

Standard Dell CPU mounted in instructor's workstation.

<b>Project</b>	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	May	Jun
Windows 10/Office 2016	Ongoing Process											
Upgrade Voice and Data Circuits	Complete by end of Aug											
Virtual Desktop	Ongoing Process											
Safety – Microwave equipment	Complete by end of Aug											
Safety – Speaker System	Dependent on Funding Approval											
Security – PCI Compliance	Ongoing Process											
Security – Firewall replacement	Complete by end of Sept											
Security – Endpoint Protection	Ongoing Process											
UPS	Implementation Period											
Infrastructure - switches	Implementation Period											
Infrastructure – Wireless Access Points	Implementation Period											
Tech Refresh - Computers	Ongoing Process											
Tech Refresh - Projectors	Implementation Period											

Moorpark College		
Smart Classroom Location Summary <sup>1</sup>		
Building	Rooms	Total
AA	109, 124, 136, 143, Forum	5
AC	101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310	33
FH	112, 117, 118, 119, 120, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220	15
HSC	101A, 101B, 102A, 102B, 103, 104, 105, 109, 202, 203, 204, 207, 208	13
HSS	100, 101, 104, 111, 121, 129, 140, 202, 203, 204, 205, 206, 222, 223, 230, 238, 239	17
LLR	121, 122, 124, 126, 305, 322	6
LMC	121, 122, 123, 124, 125, 126, 137, 138, 139, 216, 217, 218, 219, 220, 227, 228	16
M	106, 109, 114, 138	4
PA	100, 107, 119, 128, 149, 154	6
PS	102, 103, 104, 107, 110, 115, 134, 135, 202, 203, 204, 205, 207, 208, 209, 222, 224	17
Tech	105, 108, 109, 114, 118, 120, 205, 210, 211, 212, 215, 216, 217	13

## Current Standards

To maximize purchasing and support resources, the District has established a standard for desktop and laptop systems. The configuration matrix outlined below describes the minimum specification for four configurations. Alternate platforms can be identified and implemented based upon business or instructional need. The 2018-2019 standards:<sup>2</sup>

	Enterprise Laptop	Ultralight Laptop	Desktop	All in One	Thin Client
Processor	Intel Core i5	Intel Core i5	Intel Core i5	Intel Core i5	Intel Atom N280
Display	15" 1366x768 or better	12-13" 1366x768 or better	22" 1600x900 or better	22" 1600x900 or better	N/A
Video Card	Intel Integrated GMA	Intel Integrated GMA	Discreet Graphics Accelerator, 256MB RAM or better, dual head capable	Discreet Graphics Accelerator, 256MB RAM or better, dual head capable	Intel GL40
RAM	8.0GB	8.0GB	8.0GB	8.0GB	2.0GB
Primary Storage	256 GB SSD	256GB SSD	256GB SSD	128GB SSD	4GB Flash RAM
Optical	DVD+/-RW	None or external	DVD+/-RW	DVD+/-RW	N/A
Battery	Standard run time	Standard run time	N/A	N/A	N/A
Ethernet	1000Mbps or better	1000Mbps or better	1000Mbps or better	1000Mbps or better	1000Mbps or better
Wireless LAN	integrated AC	integrated AC	N/A	N/A	N/A
Mobile Broadband	none	none	N/A	N/A	N/A

<sup>1</sup> Detailed break out of room equipment available in Appendix C

<sup>2</sup> Standard Spec is shown. Vendor proposals are currently under review to establish manufacture standard for purchase for FY 18.

## Technology Infrastructure and Network

### Overview

The network infrastructure at Moorpark College enables data and voice communications connecting all facilities on the College, plus connections to the other District locations and the Internet.

The District Information Technology Department has primary responsibility over network design, implementation, maintenance, and troubleshooting. The local IT group is responsible for local connections of desktop or server devices, and works with District IT on resolving network problems.

### Cabling Infrastructure

The District has adopted cabling standards that conform to industry standards, including TIA/EIA, ANSI, IEEE, and BICSI. All new facilities conform to these standards. Existing facilities have been retrofitted to the standards, as budget has permitted.

Cabling inside buildings conforms to TIA/EIA standards.

### Local Area Network Topology and Infrastructure

The local area network (LAN) is comprised of a mix of manufacturer switching equipment, both at the core and the edge. The current network core provides high scalability, performance, and redundancy for greater uptime.

The edge network devices located in each building mix of manufacturer switching equipment. The District and College IT will continue to replace aging edge switches with devices that have greater speeds and functionality on an as-needed basis.

The network has multiple segments segregated by virtual local area networks (VLANs). Instructional and administrative network traffic is separated on different network segments, providing greater security for information systems on the administrative network.

### Wide Area Network

The primary wide-area network (WAN) connectivity to the other District sites is via a high speed 10 Gbps WAN circuit between Moorpark College and the other District sites. Secondary and tertiary circuits running at OC-3 speeds (155 Mbps) run through a district-owned RF microwave network. The connection from Moorpark College to the microwave WAN is connected via South Mountain in Santa Paula. The County of Ventura owns the South Mountain facility and the District rents space there.

AT&T is the provider of telecommunications circuits, T1 voice circuits, and Internet circuits (via CENIC). Level 3 provides the SIP (Session Initiation Protocol) circuit used for the College VoIP (Voice over Internet Protocol) unified communication system. The circuits are all provided on the state CalNet 2 contract at substantial discounts over commercial rates. The District also participates in the California Teleconnect Fund, which reduces some circuit costs by up to 50 percent.

## Internet Connectivity

Internet connectivity is provided by the Corporation for Education Network Initiatives in California (CENIC). From their website, “CENIC designs, implements, and operates CalREN, the California Research and Education Network, a high-bandwidth, high-capacity Internet network specially designed to meet the unique requirements of these communities, and to which the vast majority of the state's K-20 educational institutions are connected”. The College currently has a 1 Gbps Internet connection.

## Wireless

The District uses equipment from the same vendor as a standard wireless network for all locations. The solution is easy to manage, is secure, and very scalable. Enhancements and expansion of the wireless network is part of IT's operational standard. The College currently has over 110 access points installed across the College with plans to install more to provide greater coverage.

Access to the student wireless networks currently requires a generic id and password for authentication. Authentication for access to the staff wireless went active in the Summer of 2010. Separate networks are configured for mobile labs.

## Voice Communications

District IT maintains the voice network infrastructure. A Nortel Option 61C PBX is installed with a capacity of up to 1,500 phones. This system supports analog, digital, and IP phones on the College. Currently, the Nortel Option 61C is only hosting the remaining analog devices on campus. The majority of the College's users are on the Microsoft Skype for Business platform. Skype for Business uses special VoIP (Voice over Internet Protocol) based telephones and soft client software on computers.

There is currently connectivity to the other campuses with the District and the DAC via a dedicated AT&T 10Gbps circuit for voice traffic with secondary and tertiary circuits running through a district-owned RF microwave network. The local and long distance service is provided by Level 3 via a SIP circuit with failover to Ventura College. AT&T provides local outgoing analog voice circuits used for tertiary outgoing calls.

## Information Security

### **Overview**

The District makes every effort to comply with all federal, state, and local security rules and regulations, including the Family Educational Rights and Privacy Act (FERPA), Health Insurance Portability and Accountability Act (HIPAA), and Payment Card Industry Data Security Standard (PCI DSS). Best industry practices are used to secure the information assets at all facilities.

### Firewall

District IT provides firewall protection for the administrative and instructional networks. The District utilizes state-of-the-art next generation firewalls from multiple vendors to protect the network from external and internal threats. Additional firewalls are being evaluated to protect the administrative segments on the College.

### Antivirus

District IT maintains an anti-virus site license. The District's uses an enterprise antivirus program for end user protection. The software provides a more comprehensive and easier to manage system, at a lower cost.

The District also uses an enterprise antimalware solution to combat the latest threats, including malware and phishing. Deployment of these newer defenses is ongoing.

### Updates and Patching

The College IT department consistently updates all campus servers with security patches. End user systems have security patches automatically installed in a controlled manner. These security patches help protect the servers and client stations from vulnerabilities.

Applications are updated to take advantage of new features and security measures. The updates are made as licensing permits. Updates are performed on a test set of systems and verified before larger scale implementation is performed.

### Funding

Funding for network infrastructure projects will be funded from general funds, College and District Technology Refresh budgets, as well as other sources. The District will fund IT expenditures for District infrastructure projects including the WAN, core, and datacenter infrastructure needed to provide connectivity to the campus and District services.

## Appendix C. Smart Classroom Status Detail

Key:

CPU means computer at the instructor workstation.

Doc Cam means document camera which projects opaque materials.

Transparency Projector means an overhead projector.

Interface refers to the software and user panel which allows the instructor to control multiple pieces of equipment. These are indicated by company name such as “Crestron” and “Pixie”, or in the case of projectors controlled by a remote control the word “remote”.

Rm	Projector	Install Base and Existing Equipment -- AA					Interface
		CPU	DVD	VCR	Doc Cam	Transparency Projector	
AA-109	None	None	None	None	None	N/A	None
AA-115	√	√	√	√	None	None	Pixie
AA-124	√	√	√	None	√	None	Crestron
Forum	√	√	√	√		N/A	Crestron
AA-132	√	√	√	None	None	None	
AA-136	√	√	√	None	None	N/A	Remote
AA-143	√	None	√	√	None	N/A	Crestron

Rm	Projector	Install Base and Existing Equipment -- AC					Interface
		CPU	DVD	VCR	Doc Cam	Transparency Projector	
AC-101	√	√	√	√	√	N/A	Crestron
AC-102	√	√	√	√	√	N/A	Crestron
AC-103	√	√	√	√	√	N/A	Crestron
AC-104	√	√	√	√	√	N/A	Crestron
AC-105	√	√	√	√	√	N/A	Crestron
AC-106	√	√	√	√	√	N/A	Crestron
AC-107	√	√	√	√	√	N/A	Crestron
AC-108	√	√	√	√	√	N/A	Crestron
AC-109	√	√	√	√	√	N/A	Crestron
AC-110	√	√	√	√	√	N/A	Crestron
AC-111	√	√	√	√	√	N/A	Crestron
AC-112	√	√	√	√	√	N/A	Crestron
AC-113	√	√	√	√	√	N/A	Crestron
AC-201	√	√	√	√	√	N/A	Crestron
AC-202	√	√	√	√	√	N/A	Crestron
AC-203	√	√	√	√	√	N/A	Crestron

AC-204	√	√	√	√	√	N/A	Crestron
AC-205	√	√	√	√	√	N/A	Crestron
AC-206	√	√	√	√	√	N/A	Crestron
AC-207	√	√	√	√	√	N/A	Crestron
AC-208	√	√	√	√	√	N/A	Crestron
AC-209	√	√	√	√	√	N/A	Crestron
AC-210	√	√	√	√	√	N/A	Crestron
AC-301	√	√	√	√	√	N/A	Crestron
AC-302	√	√	√	√	√	√	Crestron
AC-303	√	√	√	√	√	N/A	Crestron
AC-304	√	√	√	√	√	√	Crestron
AC-305	√	√	√	√	√	√	Crestron
AC-306	√	√	√	√	√	N/A	Crestron
AC-307	√	√	√	√	√	√	Crestron
AC-308	√	√	√	√	√	N/A	Crestron
AC-309	√	√	√	√	√	√	Crestron
AC-310	√	√	√	√	√	N/A	Crestron

Rm	Projector	Install Base and Existing Equipment -- EATM					Tr
		CPU	DVD	VCR	Doc Cam	Interface	
EATM 101	√	√	√	√			
EATM 102	√	√	√	√			
EATM 103	√	√	√	√			
EATM 208	√	√	√	√			

Rm	Projector	Install Base and Existing Equipment -- FH					Interface
		CPU	DVD	VCR	Doc Cam	Transparency Projector	
FH-112	√	√	√	√	√	N/A	Pixie
FH-117	√	√	√	√	√	N/A	Pixie
FH-211	√	√	√	√	√	N/A	Pixie
FH-212	√	√	√	√	√	N/A	Pixie
FH-213	√	√	√	√	√	N/A	Pixie
FH-214	√	√	√	√	√	N/A	Pixie
FH-215	√	√	√	√	√	N/A	Pixie
FH-216	√	√	√	√	√	N/A	Pixie
FH-217	√	√	√	√	√	N/A	Pixie
FH-218	√	√	√	√	√	N/A	Pixie
FH-219	√	√	√	√	√	N/A	Pixie
FH-220	√	√	√	√	√	N/A	Pixie



Rm	Projector	Install Base and Existing Equipment -- HSC					Interface
		CPU	DVD	VCR	Doc Cam	Transparency Projector	
HSC-101A	√	√	√	√	√	√	Crestron
HSC-101B	√	√	√	√	√	√	Crestron
HSC-102A	√	√	√	√	√	√	Crestron
HSC-102B	√	√	√	√	√	√	Crestron
HSC-103	√	√	√	√	√	√	Crestron
HSC-104	√	√	√	√	√	√	Crestron
HSC-105	√	√	√	√	√	√	Crestron
HSC-109	√	√	√	√	√	√	Crestron
HSC-201	√	√	√	√	√	√	Crestron
HSC-202	√	√	√	√	√	√	Crestron
HSC-203	√	√	√	√	√	√	Crestron
HSC-204	√	√	√	√	√	√	Crestron
HSC-205	√	None	None	None	None	None	Remote
HSC-208	√	√	√	√	√	√	Crestron

Rm	Projector	Install Base and Existing Equipment -- HSS					Interface
		CPU	DVD	VCR	Doc Cam	Transparency Projector	
HSS-100	√	√	√	√	√	√	Remote
HSS-101	√	√	√	√	√	None	Crestron
HSS-104	√	√	√	√	√	√	Remote
HSS-111	√	√	√	√	√	√	Remote
HSS-121	√	√	√	√	√	√	Crestron
HSS-129	√	√	√	√	√	None	Remote
HSS-140	√	√	√	√	√	√	Remote

HSS-202	√	√	√	√	√	√	Pixie
HSS-203	√	√	√	√	√	√	Pixie
HSS-204	√	√	√	√	√	√	Crestron
HSS-205	√	√	√	√	√	None	Crestron
HSS-206	√	√	√	√	√	√	Crestron
HSS-222	√	√	√	√	√	None	Crestron
HSS-223	√	√	√	√	√	√	Crestron
HSS-230	√	√	√	√	√	√	Crestron
HSS-238	√	√	√	√	√	√	Remote
HSS-239	√	√	√	√	√	√	Remote

Install Base and Existing Equipment -- LLR							
Rm	Projector	CPU	DVD	VCR	Doc Cam	Transparency Projector	Interface
LLR-121	√	√	None	None	None	N/A	Pixie
LLR-122	None	√	None	None	√	N/A	Pixie
LLR-124	√	√	√	√	√	N/A	Pixie
LLR-126	√	√	√	√	√	N/A	Pixie
LLR-210	√	√	√	√	√	N/A	Pixie
LLR-305	√	√	√	√	√	N/A	Pixie
LLR-322	√	√	None	None	None	N/A	Pixie
LLR-ILA	√	√	√		None	N/A	

Install Base and Existing Equipment -- LMC							
Rm	Projector	CPU	DVD	VCR	Doc Cam	Transparency Projector	Interface
LMC-121	√	√	None	None	None	None	Remote
LMC-122	√	√	√	√	√	None	Crestron
LMC-123	√	√	√	√	√	None	Crestron

LMC-124	√	√	√	√	√	None	Crestron
LMC-125	√	√	None	None	√	None	Remote
LMC-126	None	None	None	None	None	None	Remote
LMC-137	None	None	None	None	None	None	Remote
LMC-138	√	√	None	None	None	None	Remote
LMC-139	√	√	None	None	None	None	Remote
LMC-216	√	√	√	√	√	√	Remote
LMC-217	√	√	√	√	√	√	Remote
LMC-218	√	√	√	√	√	√	Remote
LMC-219	√	√	√	√	√	√	Remote
LMC-220	√	√	√	√	√	√	Remote
LMC-227	√	√	√	√	√	√	Remote
LMC-228	√	√	√	√	√	√	Remote

Install Base and Existing Equipment -- M							
Rm	Projector	CPU	DVD	VCR	Doc Cam	Transparency Projector	Interface
M-106	√	None	None	None	None	√	Crestron
M-105	√	None	None	None	None	N/A	None
M-109	√	√	√	√	√	N/A	Pixie
M-114	√	√	√	√	√	N/A	Pixie
M-138	None	None	None	None	None	N/A	None

Install Base and Existing Equipment -- PA							
Rm	Projector	CPU	DVD	VCR	Doc Cam	Transparency Projector	Interface
PA-100	√	√	None	None	None	N/A	Crestron
PA-107	√	√	√	None	None	N/A	Crestron
PA-119	√	√	√	√	None	N/A	Crestron
PA-128	√	√	√	None	√	N/A	Crestron
PA-149	√	√	√	None	None	N/A	None
PA-154	None	None	None	None	None	N/A	None

Install Base and Existing Equipment -- PS							
Rm	Projector	CPU	DVD	VCR	Doc Cam	Transparency Projector	Interface
PS-102	√	√	√	None	√	None	Crestron
PS-103	√	√	√	None	√	None	Crestron
PS-104	√	√	√	None	√	None	Crestron
PS-107	√	√	√	None	√	None	Crestron
PS-110	√	√	√	√	√	√	Remote
PS-115	√	√	√	√	√	√	Crestron
PS-134	√	None	None	None	√	√	Remote
PS-135	√	None	√	√	√	√	Crestron
PS-202	√	None	√	√	√	√	Remote
PS-203	√	None	√	√	√	√	Crestron
PS-204	√	None	√	√	√	√	Remote
PS-205	√	None	√	√	√	√	Remote
PS-207	√	None	√	√	√	√	Crestron
PS-208	√	√	√	None	√	√	None
PS-209	√	√	√	None	√	None	None
PS-222	√	√	None	None	√	√	Remote
PS-224	√	√	√	None	√	√	Crestron

Install Base and Existing Equipment -- TECH							
Rm	Projector	CPU	DVD	VCR	Doc Cam	Transparency Projector	Interface
T-105	√	√	√	None	None	None	Crestron
T-108	√	√	√	√	√	None	Crestron
T-109	√	√	√	√	√	None	Crestron
T-114	√	√	√	None	√	None	Crestron
T-118	√	√	√	√	None	None	Remote
T-119	√	√	√	√	√	None	Crestron
T-120	√	√	√	None	√	None	Crestron
T-205	√	√	√	None	None	None	Remote
T-210	√	√	√	None	√	None	Crestron
T-211	√	√	√	None	None	None	Remote
T-212	√	√	None	None	None	None	Remote
T-215	√	√	√	√	None	None	Remote
T-216	√	None	None	None	√	√	Pixie
T-217	√	√	√	√	None	None	Crestron