

# District Technology Standards

*All of these standards are based on California State guidelines on TCO (Total Cost of Ownership)*

*They also reflect Accreditation recommendations to adhere to the TCO model*

PC & MAC Desktop Standards (minimum)	Recommended
Multi-Core Processor 8 GB RAM + DVD-RW 500GB Disk Sata 1 Gb NIC 5 year warranty/Next Business Day on Site 20" LCD Monitor (Glass Cover Option for labs) Optional Computrace Complete 5 year Replacement Cycle (Target) DisplayPort + VGA Power Supply Efficiency 80% + Management API/Hardware Enterprise/Business Class machine	Core i7, i5, A8 Pro + n/a n/a 500GB Disk SSHD (solid state hybrid drive) n/a 5 year warranty/Next Business Day on Site 22" LCD Monitor (Glass Cover Option for labs) Computrace Complete (Highly recommend Option) n/a Dual Monitor optional Power Supply Efficiency 90% +
Laptop (minimum)	Recommended
Multi-Core Processor 8 GB RAM no optical drive required 250 GB Disk 3 year warranty/Next Business Day on Site 11" LCD Monitor 5 year Replacement Cycle (Target) Computrace Complete 802.11N Business Class machine	Core i7, i5, A8 Pro + n/a DVD-RW 5 year warranty/Next Business Day on Site n/a n/a n/a 802.11N/AC n/a
Virtual Desktop Infrastructure	Recommended
2 GB RAM 25 GB-60 GB 10 IOPS 5 Per Core (Academic) 7 Per Core (Admin) Final Based on Testing/Work Load Evaluation	4 gb ram 20 IOPS
HDI/Blade PC	
8 gig ram 60 GB Disk Multi-Core Processor (Core i7, i5, A8 Pro +) 5 year Replacement Cycle (Target) 3 year warranty/Next Business Day on Site	
Thin Client (Desktop)	
4 GB RAM 16 GB Flash Dual Video Output (VGA/DVI/DisplayPort) 20" LCD Monitor (Glass Cover Option for labs) 3 year warranty/Next Business Day on Site	
Thin Client (Mobile)	
4 GB RAM 16 GB Flash 3 year warranty/Next Business Day on Site 5 year Replacement Cycle Optical Drive Optional Computrace Complete 14" LCD Monitor 802.11N	
Tablet (Ipads, Androids, etc)	Recommended
4 Gb Ram Minimum Available, change based on need. External video output Location Tracking software	64 Gb Storage Absolute Mobile

# District Technology Standards

Enterprise MDM Managable	
<b>District VPN Tunnel</b>	
IPSEC Tunnel CISCO/Palo Alto 2 Factor Authentication required Require Certificates Maintenance contract Required Gigabit Link	
<b>Firewall</b>	
Application/Layer 7 aware Next Gen + Palo Alto Networks 40 Gb throughput content filtering zones (virtual firewalls) High Availability Rate limiting/throttling/QOS	
<b>Core Switch*</b>	
Modular/10-40Gig/Layer 3/QOS/802.1q/Copper/Fiber Fault Tolerant (w/redundancy) Two management modules two+ power supplies 100 Gig Blade Line Rate Ambient Sensor (temp, humidity) for Data Center and MPOE Layer 2/3 Fault Tolerance (i.e. VRRP, HSRP, IRF) Maintenance Contracts 10G Uplink (Between Building-Distribution), SFP+ Preferred Alternate Backup Power/ATS/No disruption of Service/PowerConditioning/N+1 MultiChassis Trunking (IRF,VSS,etc) *If the deployment in pair must be identical dual core.	
<b>Distribution Switches</b>	
Limited Lifetime warranty QOS (COS & DSCP) 802.1q 802.1x Remote Management Maintenance 10G Uplink Capability Dual Link to Core Wirespeed on all ports POE+ 802.3at + Layer 3 UPS Connected Redundant power supplies	<b>Recommended</b>
<b>Access Switches</b>	
Limited Lifetime warranty QOS (COS & DSCP) 802.1q 802.1x Remote Management wirespeed preferred 10 gig uplinks 1Gig to the Desktop Redundant power supplies POE+ 802.3at +	
<b>Wireless</b>	
802.11g 802.1x 802.11n 802.11AC POE 802.1q Guest VLAN (Delegation Attributes) Centralized Control (Wireless Service Modules/Appliance) Authenticated (Must provide Credentials) Rate Limiting WPA2 Enterprise 802.11i	<b>Device type</b>
	AP AP AP AP AP Controller AP, Controller Controller Controller Controller Controller

# District Technology Standards

<b>Servers</b>	
Remotely Managable Error Correcting Memory Fault Tolerant Storage Fault Tolerant Power	
<b>OS for Servers</b>	
Apple OSX Server Linux Windows 2012 R2	
<b>Printers</b>	
Laser Duplex Networkable 3 year warranty	
<b>MFD Printer/Copier/Scan/Fax</b>	
Laser Duplex Networkable Service Contract	
<b>Projectors</b>	
Close Captioning IP Management Theft Deterent 1280x720 (720P) WXGA 16:9 Compatible with Management System (Crestron, Extron,etc) Utelogy Compatible 3000+ Lumen HDMI/VGA/Composite/RS232/HDBaseT	
<b>Mobile Projector</b>	
2400 Lumens XGA + Sub 4 lbs. VGA/DVI/HDMI	
<b>Ultra Mobile LED / Projector</b>	
800 Lumens XGA+ Sub 4 blds. VGA/DVI/HDMI	
<b>A/V Infrastructure</b>	
Server based Management System (i.e. Roomview, Utelogy)	
<b>VOIP Standards</b>	
SIP	
<b>VIRTUALIZATION</b>	
Virtualization Software (Servers)_ VMWare, Citrix, Microsoft	
Virtualization Software (Desktops)_ Quest, VMWare, Citrix, Microsoft	
<b>Mobile Smart Phones</b>	
Remote Wipe capable Active Sync MDM Capable	
<b>Desktop Operating Systems</b>	
Win 7 Enterprise 64bit MAC - Yosemite 10.10	

# District Technology Standards

<b>Internet Browsers</b>	
FireFox Chrome IE 10 Safari	
<b>Data Security</b>	
Removable Media (Flash/USB Drives/External Drives ) with personal data must be secured with the following: Password Protection Encryption	