

DORAL ACADEMY INC.



Technology Plan

“Dedicated to providing equitable, high quality education”
www.doralacademyschools.org



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Doral Academy Technology Plan

Summary

The Doral Academy Strategic Technology Plan 2014-2019 describes the current state of technology and also identifies short and long term goals for the organization. Due to the ever changing nature of technology and the continuous need for change, this document should be viewed as a living document that should be revisited and updated on a yearly basis, or as needed in the face of significant technological advancement.

Introduction

Doral Academy is a system of high quality K-12 public charter schools serving families throughout Florida and Nevada for over 15 years. Doral Academy promotes a culture that maximizes student achievement and fosters the development of accountable, 21st century learners in a safe and enriching environment. To meet its purpose, Doral Academy equips its schools with modern, 21st Century classrooms, the best of enterprise applications and efficient and helpful technical support mechanisms. It also develops and assesses the need for training and professional development. It does so in a manner that is fiscally responsible while striving to obtain maximum return on investment. The following discusses the current implementation of technological platforms, hardware, software, technical support, training and budgetary information.

Doral Academy, Inc. promotes a culture that maximizes student achievement and fosters the development of accountable, 21st century learners in a safe and enriching environment.

Technology Initiatives

- Provide every school with adequate bandwidth needed to sustain educational objectives.
- Provide every school with reliable connectivity and infrastructure.
- Provide a safe and secure computing experience.
- Outfit every classroom with interactive digital learning equipment.
- Provide equitable device access to support educational objectives.

Infrastructure

Doral Academy schools utilize several applications that are hosted and managed centrally, known as enterprise applications. Doral Academy currently uses Microsoft Exchange Server 2010, with Outlook anywhere and Outlook Web Access support for its e-mail, calendaring, and contact management features. The system is comprised of two redundant sets of three servers each, distributing the roles of edge transport, authentication and mailbox storage in a fault tolerant configuration. All Doral Academy employees are given access to this system that encompasses over 400 users in Florida and Nevada. A short term goal is to complete the analysis needed to explore an upgrade to the current version of Microsoft Exchange 2013. A long term goal for this platform would be to move it to a disaster tolerant colocation site, and to add a geographically diverse mirror to increase uptime metrics.

Another enterprise application is the Moodle Platform. This CMS platform can be used by teachers and administrators, as well as by Doral board members and administrators to create online courses, disseminate information and complete online surveys. A short term goal in regards to the platform is to upgrade it to the recently released Moodle2 package. A long term goal would be to perform an analysis to determine potential expansion of this platform to increase its adoption rate among sites.

Most Doral servers, security appliances and managed switches report uptime, as well as other important benchmarks to a centralized network management system and utilize the OpenNMS architecture. The NMS is then able to proactively notify key Tier 1 and Tier 2 Staff about any potential outages faster than they would otherwise be reported by users. The system greatly reduces impact on operations as any issues that may occur after hours and would normally go unreported until the beginning of the following school day can be resolved before then. This will eliminate any impact on instruction and operations. A short term goal for this platform would be to expand this platform to all compatible devices. A long term goal would be to establish an always open network operations center model where these issues could be analyzed 24/7/365 with the capabilities to dispatch personnel within the immediate notification of an issue.

The backbone of the enterprise infrastructure is Doral's active directory forest. Microsoft Active directory services such as LDAP for authentication and DNS for resource location are at the heart of the network infrastructure. With over 10,000 objects, most other enterprise and school level applications utilize the directory services provided by active directory. A short term goal is to upgrade the Active directory forest to Windows server 2013 R2, while a long term goal is to add a geographically diverse mirror to increase uptime and availability.

Each Doral Academy school resides in a unique facility, and as such the schools physical infrastructure varies markedly between schools, however, the schools' infrastructure are typically quite uniform from an equipment and logical functionality perspective. All Doral schools use an open source, software based, security appliance to perform content filtering, VPN trunking, routing and external access, and IPS\IDS functions. These devices serve as the endpoints connecting all of the Doral schools to each other in a mesh configuration, and allowing for failover and disaster recovery. Every site has a physical host server on site, on which multiple virtual servers run. Those virtual servers are usually assigned the role of local active directory domain controller, resource server or other specialized role needed to deploy software as needed by a specific site. The short term goal is to upgrade the operating system on all Windows-based servers to Windows 2013 R2. It is a long term goal to consolidate these servers to a single data center or virtualized cloud environment.

Wired switching occurs at the site by way of medium rack dense 48 port layer 2 smart switches, typically Netgear GS748T or GS752TP. Smart switches provide many of the features needed in this environment without the additional cost associated with a fully managed switch. Switches are generally configured to use SNMP, STP and QoS as necessary for each application. It is a short-term goal to eliminate, or greatly reduce the number of unmanaged or "mini-switches" in use, as they can cause crippling switch loops due to their lack of support of spanning tree protocol. In order to achieve

this, most cabling would be routed back to the closest IDF and serviced directly from that location. It is a long term goal to explore upgrading all backbone links to 10GbaseT or 10GbaseFX connectivity that allows 10 times the current speeds available.

Wireless networking has become increasingly popular in the past few years and due to the density of devices that can be created in an educational environment, especially one with a 1:1 computing initiative. In order to reliably support this method of connectivity, Doral has begun to use a standardized managed wireless platform, manufactured by Rukus Technology and another manufactured by Arubanetwork Technology. All new Doral schools are outfitted with this technology, and those with large wireless deployments have, or should be upgraded to this technology in the short term. A long term goal would be to explore use of the recently ratified 802.11AC standard of wireless connectivity, which is poised to offer higher throughput and has begun making its way to many new hardware devices.

Network cabling at each Doral facility is typically Category 5e, and is usually installed using the EIA/TIA 568B Standard. Physical network cabling is designed in the star or extended star topology to maximize throughput and provide for faster troubleshooting. As a best practice, computers used for high stakes standardized testing are hard wired, rather than wireless to reduce the number of variables that may lead to a failure. It is a short term goal that all computers utilized for testing are connected using wired infrastructure. It is a long term goal to begin phasing out Category 5e now that Category 6a has emerged as its likely replacement and to replace all backbone cabling with 50 micron multi-mode or single mode fiber to support 10 Gigabit links.

Doral Academy schools generally outfit the school's administrative and non-instructional staff with an individual desktop computer and laser printer. In addition, select administrative and clerical staff members require a multifunction device capable of scanning and or faxing capabilities in addition to printing. Doral also typically purchases or leases 1-3 large copy machines capable of copying in excess of 45 PPM and typically have printing, faxing and document scanning capabilities built in. These devices are typically networked to allow all office users to communicate to the device using their computers. Most administrator and data entry personnel also have dual monitor capability which facilitates the multitasking. Administrators also typically have a notebook computer that they can use to work beyond the physical limits of their offices. Most administrative machines require the use of a VPN client to access secure information located on their district's intranet. It is a continuing goal that administrative computers are to be no older than three years old and are to be transferred to student use and replaced at the end of that three year period.

The Doral Academy interactive classroom consists of multiple components that together provide instructional staff with the tools to provide an immersive and engaging learning experience. The centerpiece of the interactive classroom is the Interactive whiteboard and LCD projector. The overwhelming majority of Doral's classrooms have been outfitted with the ActivBoard series

interactive whiteboards from Promethean Learning. Some Doral schools have piloted competing products from other manufacturers, with different degrees of success. SmartBoards continue to be the preferred standard choice of interactive whiteboard due to the ease of use and depth of its bundled software packages.

The interactive whiteboards are used in tandem with LCD projectors that are either ceiling mounted or wall mounted as part of a mounting system. If the model of the interactive board that is in use does not also have audio capabilities, ceiling mounted speakers may also be installed. Another piece of the interactive classroom is the Document Image Camera. This device bridges the gap between legacy content that may be in paper medium, and converts it to a digital image in real time, allowing the teacher to display traditional content digitally, and allow user interaction through the whiteboard. The third standard piece of the interactive classroom is a desktop, which usually resides on the teacher's desk and is used to interface with the rest of the digital equipment; additionally, the desktop also typically includes an individual laser printer.

The interactive classroom may also contain a set of student response devices that enable a teacher to poll students and check for understanding and evaluate the results with appropriate, immediate feedback. Another component that may be found in the interactive classroom is the digital slate, which allows the teacher or student to interact with the content on the board from virtually anywhere in the room. The typical Doral interactive classroom may also have student stations that may either be stationary desktops, mobile notebooks or netbooks or tablets. These allow students to utilize technology independently and are used to access many of the online applications that are used to supplement instruction.

Doral Academy currently utilizes Microsoft Windows 7 and Office Professional 2010 on all of its PCs and Mac OSX 10.8 Mountain lion on all Apple computers, and Apple ios 5.1 on all iPad Tablets. All computers must have a minimum of 2GB of RAM, 4 GB is preferred. Hard drive space must be a minimum of 80 GB, while a minimum of 250 is preferred for new systems.

New teacher computers are to have a 22 inch screen to allow for multitasking while new student desktops will have a 19 inch screen as a minimum. These minimum requirements are reevaluated yearly and are driven by increased resource demands of new software as well as market trends.

Computers for high availability use, such as teacher stations may be a maximum of three years old, where student stations may be a maximum of 7 years old. It is common practice to replace teacher machines and cycle the outgoing teacher stations for student use until their useful life cycle has ended and they are replaced. Doral Academy engages with a registered e-waste recycler to ensure that all equipment that is disposed of is done so without ill effect to the environment.

It is a short term goal to expand the availability of student response devices, be they physical in nature,

or software based in situations where a 1:1 computing environment has been achieved. In the long term, Doral decision makers will stay apprised of new product offerings by way of research and technology conference attendance and will examine new technologies as they enter the market. Doral has already begun to pilot Prometheans next generation ActivBoard and ActivTable system that allows small groups a way to collaborate in a shared space.

Technical Support

Providing a technology rich environment does not just require a significant initial investment, it requires continued technical support by well trained and competent individuals. Doral Academy provides support using a two tiered model.

Tier 1 support is provided by a team known as the school site technicians. This team provides the day to day tech support to the end users. This team is comprised of the following team members:

- Microsystems Technician - An entry level position requiring a minimum of one year of technical support experience or equivalent collegiate level preparation or an approved high school preparation course.
- Computer Specialist - An intermediate position requiring three years of technical support experience or equivalent college level preparation or two years experience as a microsystems tech. within the organization.
- Senior Computer Specialist - An intermediate position requiring five years of technical experience or a four-year degree in information technology and three years experience as a Computer specialist or MST.
- Computer Engineer - The highest level school site technician position requires a Bachelor’s degree in computer engineering, or above and a minimum of five years technical experience. The Computer engineer is also responsible for directing an MST.

Typically, schools with more than 500 students employ one dedicated school computer specialist. Schools with less than 500 students may share a microsystems technician with another campus. Large campuses typically employ one microsystems technician and one computer engineer.

On Site Technicians by Site

<u>School Site</u>	<u>On-Site Technician</u>	<u>Title</u>
Doral Academy Middle	Jorge Gomez	Sr. Computer Specialist
Doral Academy of Tech.	Daniel Calvo	Computer Specialist
Doral Performing Arts	Daniel Calvo	Computer Specialist
Doral Academy High	Jorge Gomez	Sr. Computer Specialist
Doral Academy Elem.	Ramiro Cabezas Ramiro	Computer Specialist

Just Arts and Managemnt. Cabezas
Doral Academy Cactus
Doral Academy Saddle

Computer Specialist

Tier 2 support is typically provided by a consultant. Doral Academy currently uses two different consultants for tier 2 Support: Layer 8 Solutions and Symbits.

Tier 2 Support consists of:

- Escalation assistance
- Enterprise level troubleshooting and support
- Network design and cabling
- 21st Century classroom design and installation
- Server deployment and implementation
- Phone system deployment and support
- School site technician supervision and review
- Procurement assistance
- Product research and analysis
- Food service point of sale software
- Best practices dissemination
- Technical Training
- Large scale deployments
- Remote site support
- New school turn-up

Doral Academy schools typically use an electronic ticketing system to report and track any technical support issues. Periodically reports generated by the system are used to determine if the level of support is adequate and to make recommendations in regards to the staffing level, and technical aptitude of the technician, and to provide feedback regarding failure rates of specific equipment that can be used to assess the need for replacement.

While current support levels are adequate, it is a short term goal of Doral Academy to improve its technical support further by filling any vacant positions and ensuring that all sites have access to an on-site technician as needed. It is a long term goal of Doral Academy to identify and analyze strategies that can be implemented to improve service levels, reduce costs, and identify areas of need. Doral may explore analysis by a third party consultant to conduct such research.

Technology Training

The development and implementation of quality, meaningful training in regards to technology will enable all participants in the Doral Academy schools to utilize technology to the full potential. Providing a well-defined and significant training program for the stakeholders will be a dynamic process that will adjust according to the technology initiatives that are executed.

The Doral Academy schools will determine how to conduct training by issuing several surveys to the involved parties at the individual school levels and at the level of the entity together. The findings from these surveys will serve to indicate what professional developments are in demand and on what information needs to be disseminated in order to impact the use of technology in a positive manner.

The trainings will be planned with the acknowledgement that there will be diverse levels of support and knowledge concerning technology users. The trainings will take into account how to immerse the varying backgrounds of the participants for the common goal of integrating technology successfully with the education system and to increase student achievement. The trainings will be goal-oriented and will focus on supporting the participants to apply the skills and knowledge into the technological structure for Doral Academy schools. The technology training initiatives will address the individual needs but with the common goals of integrating knowledge on using the schools' technology tools, aligning school and Doral Academy district improvement plans with the infusion of technology, and applying technology effectively in the classrooms in order to prepare students to be productive, "Digital Age" learners in society. The delivery modalities for the trainings will vary but will include different modes, such as professional learning communities, workshops, virtual webinars, and action research groups. The trainings will occur consistently and require the presentation of monitoring activities to provide demonstration of mastery, such as submitting technology products or displaying group research findings. The short term goal is to ensure that surveys are administered in order to plan and develop the quality training sessions, while in the long term the goal is to host training sessions that integrate technology skills, tools, and support systems to meet school and district educational goals for ensuring student achievement.

Data Management

The geographic diversity of Doral Academy sites has a defining effect on the way data is collected, managed and reported. Depending on the jurisdiction in which they are located, schools may be required, or encouraged to utilize administrative software proprietary to those school districts. As such, responsibility for backup, archiving and retention of those electronic records rests upon the corresponding school district, or is provided for by the developer if the system is not directly hosted by a school district. Below is a table that demonstrates student information system and gradebook adoption by school.

Student Information System (S.I.S.) and Gradebook by site:

<u>School Site</u>	<u>S.I.S.</u>	<u>Gradebook</u>
Doral Academy Middle	ISIS (Miami-Dade)	Pinacclle
Doral Academy of Technology	ISIS (Miami-Dade)	Pinacclle
Doral Performing Arts	ISIS (Miami-Dade)	Pinacclle
Doral Academy High	ISIS (Miami-Dade)	Pinacclle
Doral Academy Elementary	ISIS (Miami-Dade)	Pinacclle
Just Arts and Management	ISIS (Miami-Dade)	Pinacclle
Doral Academy of Nevada (Saddle)	Infinite Campus	Infinite Campus
Doral Academy of Nevada (Cactus)	Infinite Campus	Infinite Campus

While it has been a long term goal to adopt a unified platform for student information, it is not currently feasible due to the conflicting requirements schools need to meet as part of their charter agreements with their sponsors. Should these requirements change, Doral Academy will reassess the use of varied student information systems accordingly.

In addition to these systems, all Doral Academy schools utilize a homogenous food service point of sale system, with the exception of those where food service is outsourced and managed directly by the school district. This system allows Doral Academy schools to accurately and efficiently submit claims and other pertinent information as required by the National School Lunch Program. The point of sale system is centrally managed and records are backed up daily and are archived for a minimum of five years in compliance with NSLP Standards.

Website

Doral Academy has entered into a pricing agreement with Educational Networks to provide web hosting, website design and search engine optimization using Educational networks proprietary CMS platform. The platform provides the framework for the site, and allows school staff to publish information quickly and attractively with minimal technical know-how. Having all Doral schools utilizing this platform enables a consistent user experience throughout all webpages, while each school is able to customize it to better meet their individual needs. The utilization of the Educational Networks platform enables a consistent user experience with the schools' web pages, while still allowing the individual schools to customize the web pages to meet their distinct needs.

Most Doral schools have already implemented this service provider, while the remaining schools are in different stages of implementing their services. It is an immediate goal that all Doral schools go live with this platform by the end of the 2014-2015 school year. In the long term, Doral will explore incorporating additional services to its web presence, such as collecting fees electronically for extra-curricular activities, processing of food service payments, and availability of important forms to help

reduce paper and increase efficiency.

Telephone Systems

While electronic communication is increasingly becoming the preferred median for people to communicate with schools, telephone communication still remains a vital and viable mechanism for communication. Doral Academy is modernizing its telephone infrastructure to harness advances in technology and to leverage the most value for its investment. Doral Academy facilities that opened prior to the 2014-2015 school year utilized traditional PBX telephone systems that were viewed as the industry standard at the time. Beginning with facilities opening in 2014-2015, all new systems use VOIP (Voice over Internet Protocol) technology. This shift not only reduces the initial cost of implementation, but also reduces the cost of adds, moves and changes, and allows integration with other emergent technologies in the future. It is an immediate goal that all new Doral facilities will be furnished with this type of modern system, and that all schools using the PBX telephony system transition to the modern telephone system. It is a long term goal to build on this investment and deploy, Doral wide, a unified communications platform which integrates the new VOIP systems with e-mail and SMS functionality.

Mobility

Mobile Telecommunications have become ubiquitous in our society, and as a result, Doral Academy provides its administrators and key personnel with mobile smartphones as a way to extend their accessibility beyond the limits of their offices. The devices not only allow two way voice communications, but also enable the administrators to reach stakeholders at various times of the day in different settings not restricted to their offices. Doral Academy is able to fund the service for these devices in large part to subsidies provided by the federal e-rate program. It is a goal to continue to provide these devices to all administrators and key personnel and a long term goal to identify others who will benefit from utilizing these devices.

Fax

All Doral schools currently have fax support, and while this technology is being largely phased out, it is still a necessary tool to communicate with both parents as well as other agencies that still rely on this technology as their primary way to send and receive documents. It is a short term goal to sustain these capabilities, but is a long term goal, to identify, implement and support an “e-fax” technology to continue to allow functionality with legacy fax systems, but increase the efficiency and reducing operating cost of the existing implementation by reducing printing cost and labor cost.

Emergency Notification

Many Doral Academy schools utilize an emergency notification system, with automated phone dialer and SMS or email support that alerts parents en masse of upcoming events, school closures, and can issue emergency alerts in the unfortunate event of a catastrophe. Such a system is selected depending on the school district, in which they are sponsored, as some districts provide access to this system with integration with the corresponding districts Student Information System. It is a short term goal to provide this service in all Doral schools where SIS integration is possible and a long term goal to utilize this service at all campuses.

Internet Bandwidth

Doral Academy schools utilize a myriad of web based applications and resources, in order to support the high demand of today's multimedia rich bandwidth intensive applications, Doral Academy has made substantial improvement in the amount of bandwidth available at each location over the last three years. This has been made possible largely due to subsidies provided by the federal e-rate program, administered by USAC. All Doral schools utilize either a guaranteed SLA fiber optic connection or two redundant services from diverse providers to ensure uptime and continuity. In the short term Doral will continue to outfit all existing facilities and any new campuses with robust internet connections capable of delivering the educational and administrative content needed to fulfill its objectives. In the long term Doral will continue to evaluate the amount of bandwidth required to meet its objectives, and where needed increase its connection speeds accordingly.

School Site	2011 UP	2011 Down	2014 UP	2014 Down
Doral Academy Middle School	100	200	200	200
Doral Academy of Technology	100	200	200	200
Doral Academy High School	100	200	200	200
Doral Performing Arts	100	200	200	200
Doral Academy Elementary	100	200	200	200
Just Arts and Management	n/a	n/a	200	200
Doral Academy Saddle	n/a	n/a	200	200

Timeline

TOPIC	SHORT TERM GOALS (0-18 Months)	LONG TERM GOALS (24-60 Months)
E-mail platform	complete the analysis need to explore an upgrade to the current version Microsoft Exchange 2013	move the platform to a disaster tolerant colocation site and add a geographically diverse mirror to increase uptime metrics
Content management system	upgrade it to the recently released Moodle2 package	perform an analysis to determine potential expansion of this platform to increase adoption rate among sites
Network monitoring system	expand this platform to all compatible devices	perform an analysis to determine potential expansion of this platform to increase its adoption rate among sites
Active directory	upgrade the Active directory forest to Windows server 2013 R2	Add a geographically diverse mirror to increase uptime and availability
Servers	upgrade the operating system on all Windows-based servers to Windows 2013 R2	Consolidate these servers to a single data center or virtualized cloud environment
Wired network infrastructure	eliminate, or greatly reduce the number of unmanaged or “mini-switches” in use, as they can cause crippling switch loops due to their lack of support of spanning tree protocol	explore upgrading all backbone links to 10GbaseT or 10GbaseFX connectivity that allows 10 times the current speeds available
Network cabling	ensure computers are connected using wired infrastructure	phase out Category 5e now that Category 6a has emerged as its likely replacement and to replace all backbone cabling with 50 micron multi-mode or single-mode fiber to support 10 Gigabit links
Interactive classroom technology	Expand the availability of student response devices or software based in situations where a 1:1 computing environment has been achieved	stay apprised of new product offerings and evaluate new technologies as they enter the market
Technical Support	Improve technical support further by filling any vacant positions and ensuring that all sites have access to an on-site technician as needed	identify and analyze strategies that can be implemented to improve service levels, reduce costs, and identify areas of need
Technology training	ensure that surveys are administered in order to plan and develop the quality	host training sessions that integrate technology skills, tools, and support

	training sessions	systems to meet school and district educational goals that ensure student achievement
Web sites	go live with Educational Networks as the provider in all schools	incorporate additional services to its web presence, such electronic forms and online payment systems
Telephone system	furnish a modern IP system, and that all schools using the PBX telephone system transition to the modern system	build on the modern telephone investment and deploy a unified communications platform which integrates the new VOIP system with e-mail and SMS functionality
Mobility	provide access to these devices to all administrators and key personnel	identify others who will benefit from utilizing these devices
Fax	sustain fax support capabilities	identify, implement and support an “e-fax” technology to continue to allow functionality with legacy fax systems
Emergency notification	service in all Doral schools where SIS integration is possible	integrate the system for all campuses
Internet bandwidth	continue to outfit all existing facilities and any new campuses with robust internet connections capable of delivering the educational and administrative content needed to fulfill its objectives	evaluate the amount of bandwidth required to meet its objectives, and where needed increase its connection speeds accordingly

Budget

Sample hardware budget for average sized school of 1000 Students

Administrative Systems

Description	Qty.	Price	Total	Manufacturer
ACER VL4620G 15-3330S 500/4GB W7-DUP	12	\$588.00	\$7,056.00	Acer America
ACER 22IN WS LED V226WL BD 1680X-DUP	24	\$124.79	\$2,994.96	Acer America
ACER TravelMate P453-M-6696	4	\$636.99	\$2,547.96	Acer America
Brother DCP 7065DN-multi printer	12	\$176.39	\$2,116.68	Brother Int.
HP LaserJet Pro 400 color M451dn	2	\$489.02	\$ 978.04	Hewlett Packard
3Yr Repair Plan w/ADH for Laptops / \$350-699.99	4	\$150.00	\$ 600.00	Service Net
Brother MFC 7860DW MFP B/W	2	\$293.99	\$ 587.98	Brother Int.

ACER ERGOSTAND FOR VERITON L480G-DUP	12	\$46.00	\$ 552.00	Acer America
Intuit QuickBooks Pro 2013	2	\$172.75	\$ 345.50	Intuit
C2G DisplayPort to VGA Adapter Cable	12	\$21.85	\$ 262.20	C2G
Tripp Lite Surge Protector 6 Outlet 6ft Cord	12	\$8.39	\$ 100.68	Tripp Lite
CDW 10' CAT5e or CAT5 RJ45 Patch Cable Gray	12	\$1.94	\$ 23.28	Belkin Cables
			\$18,165.28	

Lunch POS System

Description Manufacturer	Qty.	Price	Total	
HP Point of Sale System rp5800 - Core i3 2120 Packard		3\$961.90	\$2,885.70	Hewlett
FASTrack School Meal Program at 1 school	2	\$1,295.00	\$2,590.00	PCS-RCS
NKP06 Keypad Fred w/Scanner	3	\$545.00	\$1,635.00	PCS-RCS
HP Compaq L5009tm 15" Touch Display Packard	3	\$483.58	\$1,450.74	Hewlett
HP LaserJet Enterprise M601n Packard	2	\$683.30	\$1,366.60	Hewlett
3D-POS Terminal Software at 2 Serving Lines	3	\$295.00	\$ 885.00	PCS-RCS
Cash Drawer USB-Electronic	3	\$195.00	\$ 585.00	PCS-RCS
FASTrack Support	2	\$325.00	\$ 650.00	PCS-RCS
HP USB POS Keyboard	3	\$148.42	\$ 445.26	Hewlett Packard
APC Back-UPS ES 550 - "Green" 550VA UPS	3	\$63.04	\$ 189.12	APC
HP USB Flash Drive v125w - USB flash drive - 8 GB Packard	3	\$ 7.00	\$ 21.00	Hewlett
StarTech.com Fully Rated USB Cable A-B, 10' StarTech	3	\$3.38	\$ 10.14	
			\$11,561.91	

Servers

Description Manufacturer	Qty.	Price	Total	
PowerEdge R720xd	3	\$4,291.59	\$12,874.77	Dell
PowerEdge R210II	6	\$ 927.00	\$ 5,562.00	Dell
			\$18,436.77	

Student Desktops

Description Manufacturer	Qty.	Price	Total	
Acer Veriton N2620G-UC887X - C 887 1.5 GHz Acer America	500	\$ 351.26	\$175,630.00	Acer
Acer V196WL bm - LED monitor - 19"	500	\$ 96.00	\$ 48,000.00	Acer America
Tripp Lite Surge Protector Strip Lite	100	\$ 57.01	\$ 5,710.00	Tripp
Cyber Acoustics ACM 70B - headphones Acoustics	500	\$ 4.48	\$ 2,240.00	Cyber
			\$231,580.00	

Interactive Classroom

Description Manufacturer	Qty.	Price	Total	
Promethean ActivBoard 578 Pro - whiteboard PROMETHEAN	30	\$1,895.00	\$56,850.00	
ACER VL4620G I5-3330S 500/4GB W7-DUP	30	\$588.00	\$17,640.00	Acer America
NEC NP-M271X LCD projector Solutions	30	\$530.00	\$15,900.00	NEC
AVer AVerVision 300af+ Document Camera	30	\$491.00	\$14,730.00	Aver USA
C2G RapidRun Runner Cable	30	\$205.66	\$6,169.80	C2G
HP LaserJet Pro P1102W Packard	30	\$126.42	\$3,792.60	Hewlett
ACER 22IN WS LED V226WL BD 1680X-DUP	30	\$124.79	\$3,743.70	Acer America
Premier Mounts Universal Projector Mount Mounts	30	\$112.03	\$3,360.90	Premier
ACER ERGOSTAND FOR VERITON L480G-DUP	30	\$46.00	\$1,380.00	Acer America
C2G RapidRun Wall Plate	30	\$42.93	\$1,287.90	C2G
C2G 1.5ft RapidRun Flying Lead	30	\$26.18	\$785.40	C2G
C2G DisplayPort to VGA Adapter Cable	30	\$21.85	\$655.50	C2G
Tripp Lite Surge Protector 6 Outlet 6f Lite	30	\$8.39	\$251.70	Tripp
CDW 10' CAT5e or CAT5 RJ45 Patch Cable Gray	30	\$1.94	\$58.20	Belkin Cables
			\$126,605.70	

Wired Infrastructure

Description Manufacturer	Qty.	Price	Total	
NETGEAR GS748T 48-port Gigabit Smart Switch	8	\$456.94	\$3,655.52	NETGEAR
NETGEAR Prosafe GS748TPS	2	\$1,562.69	\$3,125.38	NETGEAR
Tripp Lite 1500VA 900W UPS	10	\$193.67	\$1,936.70	Tripp Lite
CDW 1' CAT5e or CAT5 RJ45 Patch Cable Gray Cables	400	\$1.01	\$404.00	Belkin
CDW 3' CAT5e or CAT5 RJ45 Patch Cable Gray Cables	100	\$1.10	\$110.00	Belkin
CDW 10' CAT5e or CAT5 RJ45 Patch Cable Gray	25	\$1.94	\$48.50	Belkin Cables
			\$9,280.10	

Wireless Infrastructure

Description Manufacturer	Qty.	Price	Total	
Ruckus ZoneFlex 7982 - wireless access point Wireless	50	\$500.00	\$25,000.00	Ruckus
RUCKUS WATCHDOG SUP F/ZONEDIRECTOR 3	\$5,060	\$15,180.00		Ruckus Wireless
Ruckus ZoneDirector 3050 -management device Wireless	6	\$1,985.00	\$11,910.00	Ruckus
Ruckus ZoneDirector 3050 -management device Wireless	2	\$1,985.00	\$3,970.00	Ruckus
			\$52,090.00	

Totals

Description	Total
Administrative Systems	\$ 18,165.28
Lunch POS System	\$ 11,561.91
Servers	\$ 18,436.77
Student Desktops	\$231,580.00
Interactive Classroom	\$126,605.70
Wired Infrastructure	\$ 9,280.10
Wireless Infrastructure	\$ 52,090.00
	\$467,719.76