NETGEAR®

Support
Connect
Monitor

IT networking for education

Parvin Ahmadi
Superintendent, Pleasanton, CA
Unified School District

Welcome

Technology plays a critical role in supporting leadership, improving teaching and learning, and raising standards across the curriculum. This role is becoming more vital than ever with IT trends with the use of tablets and other mobile devices, as well as the adoption of 'Bring Your Own Device' policies by an increasing number of education establishments and workplaces.

"Our students today function very differently than five or ten years ago; they are comfortable with technology and they regularly collaborate online. In response, we as a school district must ensure that we provide the type of learning environment that allows them to maximize that experience. When today's students reach adulthood, many of them may work in an organization where the workgroup is spread across multiple locations. We must prepare our students for that kind of atmosphere, which relies on technology for cross-site collaboration. We have to prepare our students for a future where Smarter Balanced assessments are completely technology based. Additionally, we must ensure that the infrastructure will give students the experience that they need to succeed in an increasingly technology-driven world. Rather than hiding their devices, we want our students to take out their smartphones and use them productively in the classroom; we want the computers in the classroom to be used as a teaching tool, rather than just storing data; and we want teachers to use computing devices without limiting their classroom mobility. That means the network infrastructure must be reliable, secure, and scalable."

Happy teaching!

Parvin Ahmadi
Superintendent, Pleasanton Unified School District

ProSafe M5300-28G-POE+

One step at a time

A key question to ask: Can your network handle the wireless and BYOD demands that are placed on educational premises today? To do so, your existing network may need to be expanded. The key is to work through the components of your IT infrastructure one step at a time to ensure all your needs are met

FOLLOW NETGEAR'S TOP TIPS TO GET IT RIGHT

DELIVERING A SEAMLESS, SECURE, WIRELESS NETWORK & EMBRACING MOBILE DEVICES

- Investing in the latest mainstream laptop or mobile device will help your network reach its full potential.

- Avoid wireless interference: numerous devices on the same frequency can degrade performance.

- Make sure your switches can support the performance requirements of a modern wireless system.

- Be sure your network can support the increased network demands from mobility and 'bring your own device' policies.

- Put 24/7 networking monitoring into place prior to allowing users to connect to your network using any device, from any place, at any time .

SUPPORTING GROWING NETWORK DEMANDS

- Just as broadband can differ in available speeds, so can switching products. Increased network traffic demands may require 10GbE switches to eliminate bottlenecks and improve performance.

- If you have virtual servers,10Gigabit will be more important to have on your consideration list.

STORING, MANAGING & PROTECTING DATA

- Market indications point to data doubling every two years. As paper-free classes increase the need to easily store, manage and retrieve data, proper security privileges and access rights must be developed and enforced.

- Backup capabilities must be a primary consideration for any network infrastructure.

TABLETS VS THE LIBRARY AS PART OF THE DEBATE

- Consider that 1,000 Kindle books only require about 1GB of space

- e-textbooks cost considerably less than their paper equivalents

- In addition to their lower initial expense, tablets can be reused with less wear and tear

- Using less paper reduces the world's CO_2 footprint

- Curriculum can easily be adapted for digital lessons and assignments

- Unlike text books, tablets can be interactive

- e-textbooks can be instantly updated

- Tablets can provide one-to-one customized learning and content

- Content can be shared collaboratively across multiple devices via the cloud

- Two or three Android tablets can be purchased for the same price as a single PC

Harvest Park Middle School Case Study

The Harvest Park Middle School embraces the BYOD learning experience and offers an enhanced learning experience.

CHALLENGE

Requirement for Consistent, Reliable, Secure Wireless Access throughout the campus.
The growth of the laptop immersion program and the advent of 'Bring Your Own Device' have put a significant strain on the school's ability to provide reliable, secure wireless Internet access across its 21-acre campus. In addition to its 120 faculty and staff, the school needs to provide wireless access to students, 400 of whom bring their own laptops to school; plus many additional students bring their own WiFi-enabled devices. That presents challenges to the school's ability to provide consistent levels of secure access to myriad devices and platforms, particularly since the school only has one part-time IT resource and a dwindling budget for the level and amount of network equipment required to support the devices.

SOLUTION

NETGEAR® ProSAFE® provided the ideal solution. Using the NETGEAR ProSAFE WC7520 Wireless Controller, 24 Dual Band Wireless-N Access Points (WNDAP360 and WNDAP350) and four GS510TP PoE Smart Switches, Harvest Park Middle School was able to obtain the wireless coverage they needed.

All access points are centrally managed using a single ProSAFE WC7520 Wireless Controller, which delivers easy configuration, dynamic radio frequency management, client load balancing, and guest access across the entire wireless network. Using the ProSAFE WC7520, the part-time IT resource can easily manage the entire network with full visibility into client usage and connectivity status. It also enables the school to provide a guest portal for parents and guests of the school district to access the network.

RESULT

Harvest Park Middle School deployed its new wireless network using the WPA-PSK key for a superior level of security while delivering effortless access for student and faculty laptops and WiFi enabled phones. In addition, both the WNDAP350 and the WNDAP360 are dual band access points, supporting 2.4 and 5 GHz. Since many new laptops are dual band capable, the WC7520 can intelligently assign each client the access point that will deliver the most efficient connection. The NETGEAR technology team also assisted during the planning and deployment phases of the project to ensure that the placement and configuration of the access points maximized the coverage and efficiency of the wireless system.

> *"The NETGEAR ProSAFE equipment is exactly what we were looking for. We now have far superior coverage and reliability throughout the network, plus it provides the level of security we really require. We got everything we needed, including a low total cost of ownership."*
>
> *Ken Rocha, Principal Harvest Park Middle School*

Tech-Shield Case Study

College delivers enhanced learning environment with ProSAFE Managed Wireless.

CHALLENGE

A complete reliable, affordable, and simple infrastructure to support a bandwidth-intensive educational environment.
"The budget was one of the primary challenges of this project. This is an inner-city school that doesn't have a lot of funding for network and infrastructure technology. We assisted them with the grant process and helped them secure some government funding which would enable us to implement an entirely new network infrastructure," explained Dan Kuhlman, Principal at Tech Shield.

The old network utilized outdated 10/100 Fast Ethernet switches and there was no wireless connectivity in the building. This was insufficient to support the variety of network-connected applications that needed to be implemented in the learning environment.

All of the applications combined on the network are bandwidth-intensive and require a network infrastructure that can deliver a combination of performance, scalability, reliability, and affordability that is also easy to manage. While they often turned to Cisco for its switching solutions, this budget-critical project required a cost-efficient solution.

SOLUTION

An All-NETGEAR wired and wireless infrastructure.
During the process to identify the perfect solution for the project, Tech Shield evaluated products from a variety of different vendors before choosing NETGEAR. "NETGEAR gave us the most bang for the buck," explained Kuhlman. "It wasn't the cheapest solution we could find, but it was definitely the best solution for the money."

RESULT

The network implementation, which includes multiple networks to support access by the public as well as the internal staff, went smoothly and the infrastructure is performing well. "We deployed a network of PoE-enabled wireless access points for nearly 100 percent wireless coverage. We have Gigabit to every drop. We have the switches stacked with 24 GB modules and 10-Gig fiber running between the floors, eliminating any network bottlenecks. The performance is at least 100 percent better than what the school had with the old network. We normally deal with Cisco, but we got a lot more bang from the buck with NETGEAR," explained Kuhlman. "We bought the top of the line NETGEAR switches which are about a third of the cost of the comparable Cisco switches and, from what I can tell, the NETGEAR switches actually perform equal to or better than the Cisco switches. The amount of value we received from the NETGEAR solution was outstanding."

> *"We bought the top of the line NETGEAR switches which are about a third of the cost of the comparable Cisco switches and, from what I can tell, the NETGEAR switches actually perform equal to or better than the Cisco switches. The amount of value that we got from the NETGEAR solution was outstanding. We've never designed and deployed a complete NETGEAR solution from the ground up like this and I think that it went really well."* Dan Kuhlman, Principal at Tech Shield

We champion connectivity so you can do more.

NETGEAR®

WHAT IT NETWORK SOLUTION DOES YOUR SCHOOL NEED?

LET'S START WITH THE FUNDAMENTALS: THE BASIC BUILDING BLOCKS FOR HIGH PERFORMANCE WIRELESS

The NETGEAR **ProSAFE Wireless Controller WC7520** offers a high-performance and fully-featured wireless LAN architecture to meet the growing demands of the education sector. It simplifies wireless deployments and network management to deliver safe and secure wireless connectivity for learners, staff and guests.

By combining the Controller with the latest generation 11n, **ProSAFE WNDAP360 Access Points** deliver superior reach and speeds – up to 15 times faster than legacy 11a and 11g wireless networks. The result is a constant, seamless, high-performance wireless service across multiple classrooms and the wider school campus.

WHAT ELSE SHOULD YOU ALSO CONSIDER AS YOUR SCHOOL GROWS?

The NETGEAR **ProSAFE M5300 Series** of Managed Switches provide a resilient and reliable way to support increasing network traffic. As more devices and users connect to your network, Gigabit connectivity to endpoint devices such as printers, PC's, laptops and access points can be aggregated and connected seamlessly using 10Gigabit speeds to physical or virtualized server and storage environments.

For hard-to-wire areas, especially older and listed school buildings, **ProSAFE GS728TP** Power over Ethernet (PoE) switches allow you to physically connect compatible wireless access points using the switching network. A single GS728TP switch can be used to connect a wide range of network components, including access points, VoIP phones, and surveillance cameras – making deployment simple, cost effective and fast.

www.netgear.com

DON'T FORGET!

NETGEAR offers a **FREE wireless site survey**

*for your educational establishment.
Email: sitesurvey@netgear.com or
call 866-480-2112 option 1
for more details*
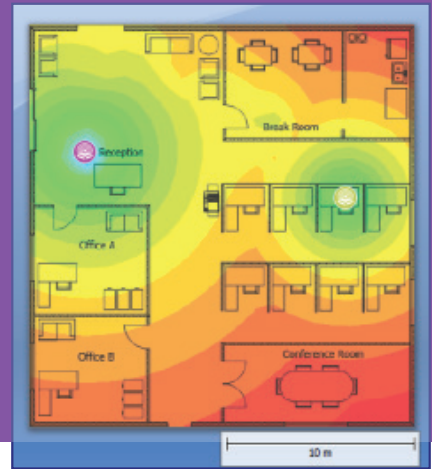
WHAT ABOUT KEEPING THE NETWORK SECURE?

As social media and mobile device ownership grows, your school community needs to be protected from malicious online sites and content. Ideal for diverse educational services, the **ProSECURE® UTM25S** is a modular all-in-one next generation application firewall. Age restrictions can be used for popular social media sites, to regulate access. In addition, even when access has been granted to applications such as social media sites, micro-applications such as online games within the application can be disabled to prevent inappropriate use and control the consumption of critical network bandwidth.

NETGEAR UTM solutions integrate security features from leading providers including Sophos™, Commtouch™, and Mailshell™ to deliver industry leading anti-malware/anti-virus scanning, URL filtering, anti-spam, HTTP/HTTPS inspection, and VPNs for secure user access.

STORING, MANAGING AND PROTECTING YOUR SCHOOL'S DATA

Affordable, reliable and easy to use, NETGEAR's new ReadyNAS® devices (**ReadyNAS 312, 314, 316, 516, 2120**) redefine the concept of storage for education. Student work and examination grades can be stored without the risk of data loss, and new cloud options enable them to securely access their work from school or at home.

ReadyNAS protects your school with built-in features. Unlimited Snapshots enables multiple versions of valuable data to be captured and restored. Another feature of ReadyNAS is the X-RAID2®, which provides continuous protection from drive failures. Cloud-based replication on ReadyNAS makes it easy to move data off-site for a complete protection solution and the ReadyNAS Real-Time Anti-Virus stops risks in schools before they start.

We champion connectivity so you can do more.

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Education Use Cases

BRING YOUR OWN DEVICE

Interest in supporting 'Bring Your Own Device' in schools is on the rise, driven by growing support from students, parents and teachers. According to a US survey conducted by Project Tomorrow, over 60 percent of middle and high school students prefer to use their own devices for learning, rather than. school-supplied laptops or Netbooks. 62 percent of parents of these K-12 students say that they would likely purchase a device for their child if the school allowed them to be used for education purposes.
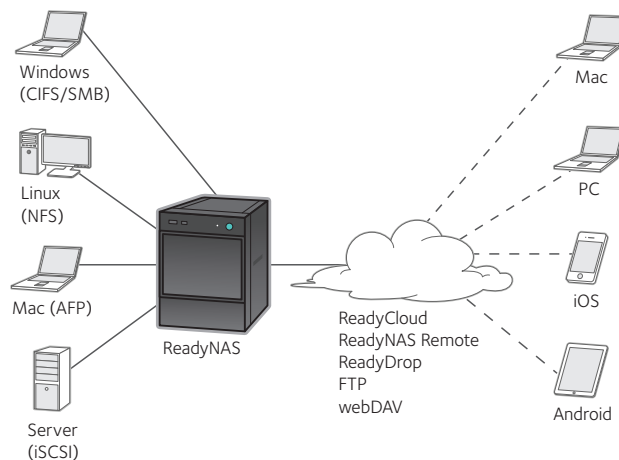
The most important aspect of supporting a reliable BYOD deployment model is to ensure that the school has a reliable and easy-to-manage wireless infrastructure. Check with your NETGEAR representative for solutions provided by NETGEAR.

MULTIMEDIA CONTENT DELIVERY

Running a classroom with students accessing multimedia content from the Internet often depends on successful file sharing— application data, virtual images, multimedia content, email, and digital files. ReadyNAS delivers an advanced and easy-to-use solution for centralizing, securing, and sharing these critical multimedia assets.

Faster processors enable more simultaneous students to access unified storage—across PC and Mac environments while conserving Internet bandwidth for other applications. Check with your NETGEAR representative to learn about how ReadyNAS can help maximize classroom efficiency .

Windows
(CIFS/SMB)

Linux
(NFS)

Mac (AFP)

Server
(iSCSI)

ReadyNAS

ReadyCloud
ReadyNAS Remote
ReadyDrop
FTP
webDAV

Mac

PC

iOS

Android

www.netgear.com

Education Use Cases

IP VIDEO SURVEILLANCE

IP video surveillance and proactive monitoring has become reasonable and affordable for institutions of all sizes to protect against internal and external threats. With most schools already possessing the required IP network infrastructure for surveillance video transmissions, deploying a robust video surveillance solution is easier and more cost-effective than ever before.
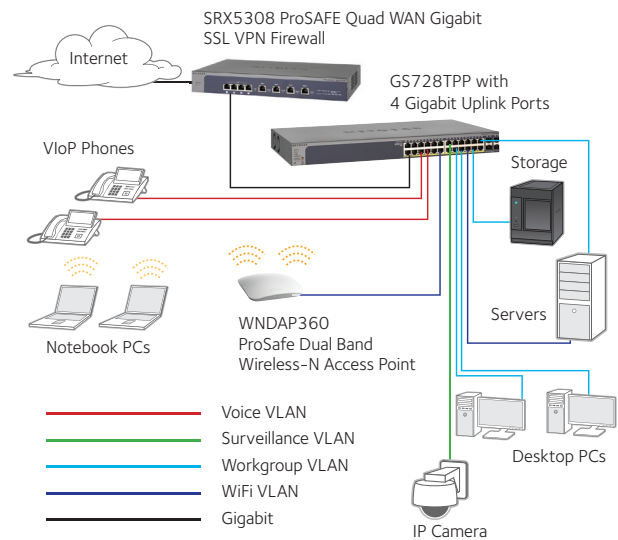
The prices for IP video cameras and storage devices have fallen dramatically. As a result, IP surveillance is a a viable choice for primary and secondary schools of any size.
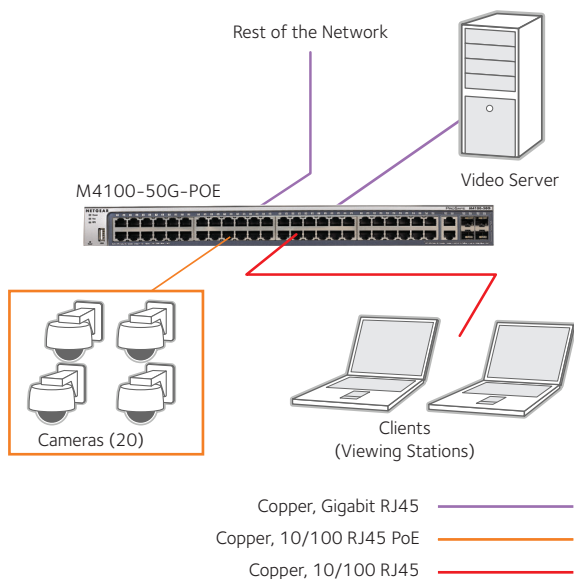
SMART SWITCH

Smart Switches are specifically designed for the needs of school networks of various sizes and requirements. Delivering high performance and ease of management, Smart Switches support Voice over IP (VoIP), streaming media, multicasting, security, and many other bandwidth-intensive applications.

NETGEAR offers a wide range of power-over-Ethernet (PoE) switches for deployments of all sizes, with network management capabilities that provides constant policy and monitoring across the network. The PoE Timer feature allows users to remotely enable and disable the power output to ensure that the infrastructure is being used only during class hours.

Rest of the Network

M4100-50G-POE

Video Server

Cameras (20)

Clients
(Viewing Stations)

Copper, Gigabit RJ45
Copper, 10/100 RJ45 PoE
Copper, 10/100 RJ45

SRX5308 ProSAFE Quad WAN Gigabit SSL VPN Firewall

Internet

GS728TPP with
4 Gigabit Uplink Ports

VIoP Phones

Storage

Notebook PCs

WNDAP360
ProSafe Dual Band
Wireless-N Access Point

Servers

Desktop PCs

IP Camera

Voice VLAN
Surveillance VLAN
Workgroup VLAN
WiFi VLAN
Gigabit

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NETGEAR®

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