



ALBUQUERQUE SCHOOLS IMPROVE PERFORMANCE, RELIABILITY AND SECURITY WITH 3COM ENTERPRISE NETWORKING SOLUTIONS

Overview

Albuquerque Public Schools (APS) in New Mexico, one of the largest school districts in the nation, provides services to approximately 90,000 students and 15,000 faculty and staff throughout the city. Tony Perry, the senior design engineer, aided by only a three-person IT staff, manages APS's entire 142-school network infrastructure. Using 3Com® switches, wireless controllers, and access points, he has been implementing a district-wide expansion of the APS network since 2005 with the help of three Albuquerque-area networking contractors Sound and Signal Systems, Integrated Technologies Corporation, and DRB Electric, Inc.

"I don't think we could have been as successful with our network without 3Com," said Perry. "They have been right there with us the whole time. Their pricing is exceptional and their availability, training and support are always there when needed. 3Com has great products and great solutions, and we look forward to continuing this relationship throughout the chronology of our network."

The Challenge

APS needed a robust, high-performance network infrastructure and expanded wireless connectivity to keep up with growing numbers of students and staff. It required interoperability with existing network gear, increased bandwidth, expert training and responsive support. And since APS depends on tax dollars, choosing the best, most cost-effective solution was crucial.

"APS has more than 1,000 buildings across 142 sites, with approximately 55,000 devices on the network, and 80,000 active network drops," said Perry. "The large number of physically distinct sites demands a secure, reliable and robust network solution at the right price-performance point."

The 3Com Solution

EXCEPTIONAL VALUE AND SERVICE

According to Perry, the main reasons for choosing 3Com were price/performance value, exceptional technical support and market-leading product warranties. "We can accomplish twice as much per dollar with 3Com than with any other comparable manufacturer. 3Com has incomparable technical support. They come in and train our staff, and, if we need them, 3Com systems engineers will fly in the next day and immediately resolve any major issues that might arise."

HIGH-PERFORMANCE GIGABIT SWITCHING

APS sought to bring a minimum of 100MB of network bandwidth to every desktop and gigabit switching to all backbones in the school system to

CUSTOMER NAME/LOCATION

Albuquerque Public Schools,
Albuquerque, NM, USA

SITES/USERS

142 schools
More than 1,000 buildings
90,000 students
15,000 faculty and staff

INDUSTRY

K-12 Education

APPLICATIONS

Gigabit Ethernet and Managed
Wireless Networking

3COM SOLUTION COMPONENTS

3Com® Switch 5500G premium
stackable Gigabit Ethernet
switches

3Com Switch 4400 and 4500G
stackable Gigabit Ethernet
switches

3Com WX1200, WX2200 and
WX4400 wireless LAN controllers

3Com AP2750 wireless LAN
managed access points

3Com TippingPoint® Security
Management System

3Com Wireless Switch Manager

address demands from the growing number of students and teachers for higher speed. The current expansion involves upgrading all 5,000 of APS's 3Com Switch 4400 edge switches to the 4500G model. To deliver intelligent connectivity for all applications, the 4500G switches provide Layer 2 switching and dynamic Layer 3 IPv4/IPv6 routing, as well as robust security, Quality of Service (QoS) and management features. The network backbone is powered by 3Com Switch 5500G edge switches. Every site has a 5500G switch at each main distribution frame (MDF) of its local area network; the 4400 and the 4500 switches are deployed at each site's inter-mediate distribution frame.

EASILY DEPLOYED WIRELESS CONNECTIVITY

In its move to provide campus-wide wireless service, APS uses a combination of 3Com WXM 1200 wireless LAN switches and WXM 2200 and 4400 wireless LAN controllers. The district has increased the number of wireless LAN controllers from 62 to 89. More than 1,800 3Com 2750 wireless LAN managed access points are linked directly or indirectly—even across Layer 3 boundaries—to a 3Com wireless LAN switch or controller through existing wired networks. These access points use Power over Ethernet (PoE), either directly from a wireless LAN switch or from any 802.11af-compliant PoE device.

SECURITY AND NETWORK CONTROL

For maximum network security, APS has deployed the 3Com TippingPoint® Security Management System to administer, configure, monitor and provide reports on multiple TippingPoint Intrusion Prevention Systems (IPS). APS also employs 3Com Wireless Switch Manager (WXM) software to fully manage, secure and track—on a per-user or on a per-group basis—all services on the wireless network. The WXM solution enables simple and accurate operation of the entire wireless LAN, helping Perry detect and locate rogue access points, ad-hoc networks or other RF interference.

Key Benefits

PRICE

"By deploying 3Com solutions, APS saved half of what we would have spent on other solutions from major manufacturers, including Cisco," Perry explained. "We are able to deploy eight network connections per classroom and full campus-wide

wireless networking by utilizing 3Com solutions. If we had gone with other name brand solutions, we would have been able to deploy only four network connections per classroom and a limited wireless solution."

PERFORMANCE

"By bringing gigabit switching to the backbone of every site in the school system," said Perry, "we are setting the standards for public education in the state of New Mexico. We have specific bandwidth standards that will eventually get gigabit switching to every desktop, and now some of the other major school districts in New Mexico are piggybacking off of our contract."

RELIABILITY

With more than 55,000 devices on the network, reliability is essential. "We have been closely monitoring our failure rate since 2003, when it was discovered that we had a problem," said Perry. "Since then, our failure rate has dropped below two percent on 3Com's equipment, which is a huge improvement over where we were five years ago."

SUPPORT

With only a small full-time IT staff managing the network, support was a key factor in choosing 3Com solutions. "Overall, 3Com has such great technical support. They come in and train our IT support staff, and if we are having any problems, we just pick up the phone and call them, and if necessary, they send a system engineer in the next day."

Looking Ahead

Leveraging its expansion momentum, APS will be rolling out wireless connectivity to all remaining sites and transitioning to 802.11n access points for increased bandwidth and link speed. The district also anticipates upgrading its edge switches to the 4500G solutions, and deploying 10GB bandwidth on the backbone by replacing all 5500G switches with the 3Com Switch 7900 series of modular switches.

"Ten years ago we had one of the worst networks in the state," said Perry. "Then some key individuals in the IT administrative staff acquired the necessary funding for network upgrades, and now we are on the leading edge of technology. APS now has one of the largest metropolitan-area networks in the state."

For more information about 3Com solutions, visit www.3com.com.

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