

# Aurora School District Takes Advantage of New Back-to-School Essential: Wireless Connectivity

Denver, Colorado



## Customer

Aurora Public Schools (APS) is the sixth largest school district in Colorado and educates more than 33,000 students within its district. Its students speak 85 languages and come from more than 100 countries.

## Solution Provider

Based in Denver, Colorado, Anyware Network Solutions (ANS) is a value-added reseller focused solely on broadband wireless data networking solutions. ANS works with leading broadband wireless networking manufacturers and service providers to offer wireless network design assistance, knowledgeable sales and technical support, and implementation services in Colorado and the Rocky Mountain states. ANS offers complete turnkey wireless networking services including consulting, site surveys, product sourcing, installation, project management, training and network maintenance.

## The Situation and Challenge

The Aurora Public Schools district is committed to giving its students access to the latest developments in advanced learning technology such as VoIP, video and distance learning. But with 26 elementary schools and one K-8 school to connect, APS realized it needed a reliable, secure and cost-effective network with enough bandwidth to sustain the district both now and into the future as new applications and additional schools need support.

The T1 lines APS was using were too slow and expensive to maintain, and it wanted to replace them with a completely new wireless network. However, school campuses face challenges in taking advantage of wireless technology because traditional connections are difficult to sustain across the open spaces between buildings, security is questionable, and interference compromises reliability. In addition to traditional wireless network management, APS had to take into account that some of the sites posed a non-line-of-sight (NLoS) problem.

## Technical Requirements

APS needed to connect 26 elementary schools and one K-8 school with a wireless network meeting the following requirements:

- Must be able to establish secure, reliable connections in non-line-of-sight environments
- Must deliver high-performance bandwidth capable of supporting advanced voice and video applications
- Must be both cost-effective and scalable, able to support new applications and schools as needs arise

## Deployment Detail and Interoperability

APS evaluated several alternatives and decided to implement a secure, high-performing wireless solution from Motorola, deploying the Motorola Point-to-Point Wireless Ethernet Bridge – 400 Series to increase bandwidth and establish a next-generation wireless network. APS also created redundancy in the network by implementing three PTP 600 Series links.

*“We have been extremely impressed with the high-performance, ease of installation and reliability of the Motorola point-to-point products. Before, connections between our schools were slow and expensive to maintain, and carrier-provided options to increase the bandwidth were too costly over the long-term. Now, our school district is able to take advantage of 10 times the bandwidth of our previous system.”*

~ Mark Lindstone, Chief Information Officer, Aurora Public Schools

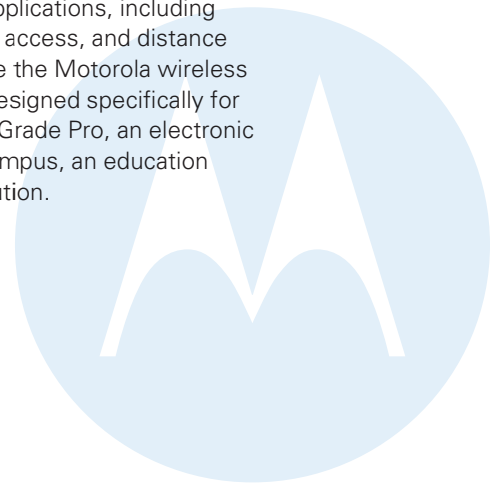
The Motorola PTP 400 and 600 families of point-to-point broadband wireless solutions succeed where traditional solutions disappoint, achieving far more reliable connections at higher data rates. In addition to 42 Mbps sustained data throughput rates, the PTP 400 Series maintains extraordinary availability, up to 99.999 percent, and can create reliable connections over and around obstacles such as buildings, trees and difficult terrain. In several cases, APS has been able to connect schools up to 2 miles (3 km) without line-of-sight due to buildings and trees. Once the Motorola PTP bridges were installed, there was little to no additional network equipment required.

The PTP 600 Series bridge provides a secure point-to-point broadband link to connect separate networks for up to 125 miles (201 km), with industry-leading performance of up to 300 Mbps aggregate user throughput. Moreover, Motorola's easy-to-install, easy-to-manage solutions provide APS with a dedicated, high-speed connection without the high monthly overhead of leased T1 lines. All radio equipment is securely managed and monitored by the APS IT staff from any location. Motorola firmware upgrades, which typically offer enhanced features and better performance, can also be done from a central location.

### The Results

By deploying Motorola's advanced, software-defined, intelligent point-to-point bridges, APS is equipped with a solution that combines carrier-class service quality with the flexibility of wireless connectivity. APS has increased its network capacity by a factor of 10 and now saves an average of \$350 US (\$276 Euro) per month, per T1 line. The school district estimates its new wireless network will pay for itself in less than four years.

Non-line-of-sight, in particular, was a significant problem at several of the district's elementary schools, and Motorola's technology has been instrumental in getting connectivity to these locations. In addition, the new network provides APS with the high performance they need – consistently, securely, and without unexpected interruptions. The additional bandwidth available to the school district has enabled it to support a number of new learning applications, including video, VoIP, remote server access, and distance learning. Teachers also use the Motorola wireless network for applications designed specifically for educators, including Easy Grade Pro, an electronic gradebook, and Infinite Campus, an education process-management solution.



At the time of this installation, the products deployed were the Orthogon Systems OS-Gemini and OS-Spectra point-to-point wireless Ethernet bridges. With Motorola's acquisition of Orthogon Systems, the OS-Gemini products were renamed as the PTP 400 Series bridges and the OS-Spectra products were renamed as the PTP 600 Series bridges. They are now part of Motorola's **MOTOwi4™** portfolio of innovative wireless broadband solutions that create, complement and complete IP networks.

Delivering IP coverage to virtually all spaces, the **MOTOwi4** portfolio includes Fixed Broadband, WiMAX, Mesh and Broadband-over-Powerline solutions for private and public networks.

**MOTOwi4™**



### Why Motorola?

- The Motorola Point-to-Point Wireless Ethernet Bridges – 400 and 600 Series increase bandwidth and establish a secure, reliable next-generation wireless network across non-line-of-sight conditions
- Combines carrier-class service quality with the flexibility of wireless connectivity
- Supports advanced voice, video and distance-learning applications for more than 26 schools
- More cost-effective and higher bandwidth than T1 lines or other carrier-provided options

### About Motorola

Motorola is known around the world for innovation and leadership in wireless and broadband communications. Inspired by our vision of Seamless Mobility, the people of Motorola are committed to helping you get and stay connected simply and seamlessly to the people, information, and entertainment that you want and need. We do this by designing and delivering “must have” products, “must do” experiences and powerful networks – along with a full complement of support services. A Fortune 100 company with global presence and impact, Motorola had sales of US \$36.8 billion in 2005. For more information about our point-to-point products and services, visit our website at [www.motorola.com/ptp](http://www.motorola.com/ptp).



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