



## Delta School District Enriches Student Experience and Staff Efficiency with Smarter Wireless LANs

Faced with a population of over 16,000 students, limited resources and Wi-Fi-enabled devices of all shapes and sizes, the Delta School District (Delta) recognized it was time to take action in finding a simple, streamlined solution to their growing wireless needs.

Delta needed to deploy a reliable wireless infrastructure in each of its schools to accommodate a variety of applications, such as supporting small-footprint laptops provided to special-need students, video surveillance, tablet computers, mobile computing carts equipped with laptops, back-office applications and even the ability to control school heating, ventilation and air conditioning (HVAC) systems.



Delta School District includes 33 schools along with auxiliary buildings occupying over 2 million square feet of space.

Located just south of Vancouver, Delta School District includes 26 elementary schools, 7 secondary schools, 1 maintenance center, 1 district resource center, 2 adult learning sites and 10 smaller, auxiliary buildings. Having initially deployed consumer-grade Wi-Fi technology, Delta quickly replaced this gear with some centrally-managed wireless LAN (WLAN) products from another major systems supplier. While the move to a centrally-managed WLAN system yielded improvements, Delta was only able to sprinkle single access points (APs) in most of its 33 schools, equipping some with several APs and a centralized controller. But adding more APs meant adding more controllers at each physical location and backhauling traffic from each AP to a central management site over a WAN connection.

Delta's goal was to deploy a professional-grade WLAN system in each school that could be centrally managed from its board office. Each school WLAN needed to blanket the campus with Wi-Fi coverage that was reliable while providing consistent performance to users wherever they were. The WLAN also needed to support multiple virtual WLANs, each with their own distinct sets of security and user parameters.

Delta's existing Wi-Fi solution provided limited adaptability to changing RF conditions and would require multiple access points and expensive controllers, meaning it would take years to completely outfit each school with a robust WLAN. "The existing enterprise-class wireless systems were simply too expensive and time-consuming to configure and deploy," said Paul Parsons of the Electronic and Computer Services (ECS) Group within Delta School District. "With this many schools and a limited IT staff, our wireless environment needs to be robust but more importantly, simple to deploy and easy to manage."

In addition, Delta needed a Wi-Fi system that was much more flexible. The ability to reduce Ethernet cable runs to every access point could save Delta time and money while providing better flexibility to add, move or change the network. Client density, dropped connections, security and ease-of-use were other essential Wi-Fi problems that Delta had to solve.

"Our goal was to standardize our wireless applications across the entire district on the most advanced wireless LAN solution we could find and one that was simple to deploy and easy to manage," said Parsons. "But the real problem was that we were looking at implementing a solution that would take five years to complete based on the amount of money we could put into the project each year. This all changed when we found Ruckus."

### COMPANY OVERVIEW

Located 30 minutes outside Vancouver, British Columbia, Delta School District operates 33 K-12 schools (7 secondary and 26 K-7) occupying more than two million square feet of space and with a student population of over 16,000. Delta employs over 900 teachers and 50 administrators throughout the district.

### REQUIREMENTS

- Deploy centrally-managed WLANs through the 33-school district
- Minimize the number of APs
- Maximize signal coverage
- Low-cost, high value system
- Integrated support for voice and video
- Guest networking
- Multiple SSIDs
- Remote management of WLANs

### SOLUTION

- 150 ZoneFlex 2942 802.11g APs
- 84 ZoneFlex 7942 802.11n APs
- 23 ZoneDirector 1006 WLAN controllers
- 3 ZoneDirector 1012 WLAN controllers
- 4 ZoneDirector 1025 WLAN controllers
- FlexMaster management software
- Smart Mesh network technology

### BENEFITS

- Complete WLAN solution for all schools within the district for 70 percent of the cost of alternatives
- Smart wireless meshing increases deployment flexibility, simplifies administration
- Integrated smart antenna array in each APs eliminates Wi-Fi coverage gaps/holes
- Streamlined configuration and deployment
- Adaptable Wi-Fi signals allow reliable coverage
- WLANs can be centrally managed and configured by FlexMaster software



*"Our goal was to standardize all of our wireless applications across the entire district on the most advanced wireless LAN platform we could find with the easiest deployment and management capabilities."*

*The Ruckus ZoneFlex system was our ultimate choice.*

*We are now in the process of rolling out Ruckus ZoneFlex Smart Wireless LANs across our entire district."*

**Paul Parsons**

Electronic and Computer Services (ECS) Group  
Delta School District

**GETTING SMART WITH RUCKUS ZONEFLEX**

Introduced to Delta by Meloko Technical Services, a leading Canadian wireless systems integrator, the Ruckus ZoneFlex system would allow Delta to deploy a complete wireless LAN in every school in approximately one year at about one quarter of the cost of alternatives.

"This was a shock to us and our customer," said Mark Nomura, director of Wireless Networking Services at Meloko Technical Services. "Like most people, we didn't believe it until we implemented the first two pilot schools. Once we did, there was no question that Delta could achieve its goals much more quickly and easily while saving significant costs that they'd have incurred otherwise."

Delta standardized on the Ruckus ZoneFlex 2942 802.11g and ZoneFlex 7942 802.11n Smart Wi-Fi APs and ZoneDirector WLAN controllers. A Ruckus ZoneFlex controller in most schools provides local RF management and AP controls while FlexMaster management software lets Delta monitor and administer each ZoneFlex WLAN and discrete APs from their central school board office.

A number of Elementary school sites are connected to secondary schools using a high-speed fiber network. These elementary sites are being equipped with only ZoneFlex APs. The traffic from these APs is backhauled to a remote ZoneDirector via the fiber connection.

Over any wide area IP network or the Internet, Delta can use FlexMaster to upload new firmware, access the management system within each ZoneDirector and make any changes to the local environment just as if they physically connected to the system. "We really needed that global visibility and control over each WLAN so we didn't have to spend hours driving to sites to troubleshoot problems," said Parsons.

Each Ruckus ZoneFlex AP supports multiple SSIDs for different applications and user groups. Guest networking allows Delta to provide visitors, parents and others access to the Internet with rate limits for every user.

"One of the things we really liked about the system is that with the Ruckus product we get a lot of features for which we'd have to pay extra with competitive products," commented Parsons.

**Right: Jarvis Elementary is one of 33 schools within the Delta School District that is being equipped with a Ruckus Smart Wireless LAN system.**

Delta also plans to use the Wi-Fi network to access, control and monitor school maintenance systems, such as HVAC, that are increasingly accessible over IP networks. Remotely controlling HVAC systems over the Wi-Fi network reduces labor costs, physical access to HVAC system and provides the ability to enact changes faster.

Going forward, Delta envisions using the Wi-Fi network to augment poor cellular phone coverage that exists in many schools through the use of dual-mode (Wi-Fi/GSM) phones. "Moving some of our voice traffic to the Wi-Fi network would do two things for us: it improves the ability to communicate within a school and reduces the cost of that communication," said Parsons. Delta also plans to use the wireless LAN to support video surveillance cameras. Until now, cabling each camera has been costly and cumbersome.

"With the Ruckus ZoneFlex system, we can now concentrate on automating and improving the overall experience of our staff and students. This is what technology in education is all about," concluded Parsons.

