

CASE STUDY

Education (K-12)



Pacific Ridge School Gives Ruckus ZoneFlex an "A" for a Robust WLAN that's Simple, Scalable and Affordable

With students arriving soon, Pacific Ridge School, a new private, non-profit 7-12 grade school, needed to deploy a ubiquitous but reliable wireless LAN (WLAN) across its sprawling campus on 7.3 acres just north of San Diego. But like many K-12 schools, Pacific Ridge didn't have a big IT staff or budget.

Pacific Ridge wanted Wi-Fi to be more than a convenient way to connect students, faculty and staff to the network. It wanted Wi-Fi to be a reliable utility that would adapt to the changing RF environment, as well as their changing network requirements, without constant IT intervention.

Business Concerns. As a greenfield project, Pacific Ridge deployed a gigabit Ethernet fiber optic network between its four main, single-story buildings as well as Category 6 Ethernet cabling throughout each building. But at nearly \$200 per Ethernet drop, Pacific Ridge wanted to minimize the number of wired jacks - understanding that its user population would prefer to connect via Wi-Fi anyway.



Top on the list of Pacific Ridge Wi-Fi requirements were simple configuration and flexible deployment options that would let them to easily scale a WLAN system as buildings, classrooms and students were added.

Pacific Ridge has one part-time, outsourced IT manager available four hours a day, three days a week with a wide range of network, client and software responsibilities. The WLAN was yet another responsibility. Consequently, ease of use and remote management and monitoring of the WLAN wasn't an option, but rather another essential requirement.

Capital costs and labor were also factors for the non-profit school. Minimizing the number of access points and man power required for site surveys, installation and optimization of the WLAN system was essential.

According to Pacific Ridge, its faculty remains 99 percent wireless moving from building to building, classroom to classroom via secure Wi-Fi connectivity. Finally, reliable support for the school's ShoreTel voice over IP system was important.

SCHOOL SPECS

- Four buildings
- 7.3 acre campus
- 500 students and faculty
- ShoreTel VoIP system
- Mixed client environment of MACs, PC, PDA and other devices
- Gigabit fiber network between buildings
- One part-time, outsourced IT staff

The Solution. "We looked at several competing solutions from the main players in the wireless LAN market but couldn't really find one with the right feature/functionality at the right cost," said Bill Maynard, CTO of Net Com America, the value-added solutions provider tasked with implementing a WLAN for Pacific Ridge. "From strictly a cost perspective, ZoneFlex was 60 percent of the cost and 110 percent of the functionality relative to competitive solutions. And we looked at them all."

THE ZONEFLEX DIFFERENCE

To address Pacific Ridge's requirements, NetCom America selected the Ruckus ZoneFlex Smart WLAN solution. For Pacific Ridge, the Ruckus ZoneFlex system addressed all their business concerns was approximately 60 percent the cost of all other competing Wi-Fi systems. The Ruckus solution included ZoneFlex 2942 access points and a ZoneDirector 1025 wireless LAN controller.

COMPANY OVERVIEW

Pacific Ridge is a non-profit, independent middle and high school on a 7.3 acre campus in Carlsbad, California. Opened in the fall of 2007, Pacific Ridge School operates four buildings designed to support over 500 students in grades 7-12.

REQUIREMENTS

- Ubiquitous Wi-Fi coverage throughout the entire school
- Minimize the number of access points
- Mitigate radio frequency (RF) interference
- Minimize Ethernet drops
- Simple administration and robust security
- Consistent performance at every location
- Fast, easy installation and configuration
- Self-optimizing system
- Reliable support for VoIP over Wi-Fi
- At-a-glance remote monitoring of WLAN
- Support for a mixed environment of MACs, PCs, PDAs, phones and other wireless client devices

SOLUTION

- One Ruckus ZoneDirector 1025 WLAN controller
- Eight Ruckus ZoneFlex 2942 APs

BENEFITS

- Complete Wi-Fi coverage
- Only eight APs required for entire school as opposed to over 20 from competitors
- Reduction of Ethernet drops from 240 (planned) to 180 (actual)
- 60 percent reduction in capital costs relative to competitive solutions
- Dependable Wi-Fi signal quality
- Seamless roaming between buildings
- Robust security using Dynamic PSK eliminates individual client configuration
- Superior wireless handling of VoIP traffic
- Unique multicast over IP video support
- Automatic interference avoidance





“Wi-Fi connectivity at schools has moved from a nice-to-have to a must have with reliability, ease-of-use and seamless mobility topping the list of requirements.”

The Ruckus ZoneFlex wireless LAN system was 60 percent of the cost and 120 percent of the functionality of competing solutions.

And we looked at them all.”

Bill Maynard
Chief Information Officer
NetCom America



While alternative WLAN systems called for 20 or more access points, Pacific Ridge needed to deploy only two ZoneFlex 2942s for each of its four buildings. Each 2942 was installed using power over Ethernet in each building.

Smart Wi-Fi Antenna Array Makes a Big Difference.

The ZoneFlex 2942 is a high-gain, directional Smart Wi-Fi access point that provides a two- to four-fold increase in signal range and the ability to automatically avoid Wi-Fi interference. This enables a more consistent Wi-Fi signal and predictable performance all over campus.



Pacific Ridge School campus, located in Carlsbad, sits on 7.3 acres of land north of San Diego, California.

Significant Savings. By deploying only eight ZoneFlex 2942s, NetCom was able to save an additional \$10,000 by reducing the number of Ethernet drops from 240 to under 180.

“ZoneFlex combined the best aspects of a centralized wireless LAN with new smart antenna technology, allowing us to build a robust and predictable Wi-Fi environment more quickly and at a lower overall cost. The alternatives were either costly and cumbersome, or cheap and ineffective,” said Maynard.

Robust but Simple Wireless Security. For wireless security, Pacific Ridge uses a pre-shared key (PSK) for all users but is moving to Dynamic PSK™ with the Ruckus ZoneFlex system.

A patent-pending technology, Dynamic PSK ensures strong wireless security while eliminating the requirement to install a single encryption key on every client device.

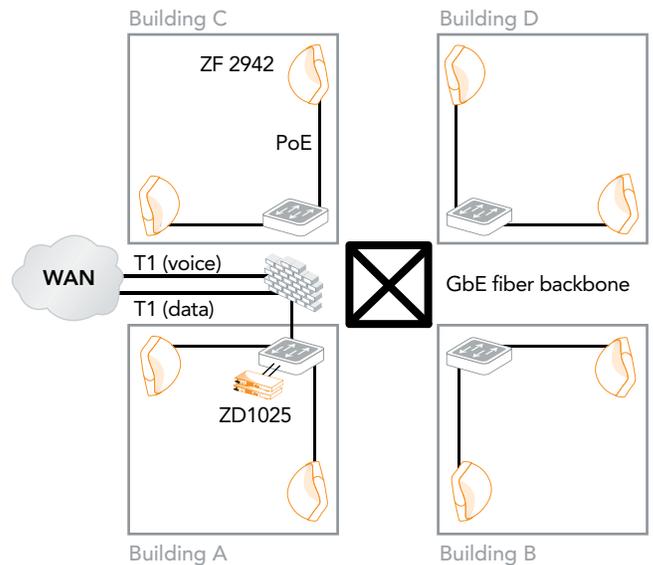
With Dynamic PSK, once a user successfully authenticates, a unique 63-byte encryption key is generated by the ZoneDirector and downloaded, using an applet, to each client device. The applet then automatically configures the

client device with the unique encryption key along with the requisite SSID. No IT or user intervention is required and each PSK is bound to each client device for a specified period of time.

Installation and Configuration. The Ruckus ZoneFlex system provided another big advantage for Pacific Ridge. A simple Configuration Wizard allowed a single administrator to configure all the access points, wireless security and user policies for the entire WLAN in under 15 minutes. Once configured, the IT administrator connected two access points to the Ethernet network in every building and the network self-configured and was completely operational.

“With the directional, high-gain antenna system in each AP, we didn’t have to worry or even think about where to place the APs,” said Maynard. “Because the APs are designed to automatically extend signal coverage and focus RF energy to each client using the best RF path, RF and interference management becomes a thing of the past.”

With the ZoneFlex system, IT administration for Pacific Ridge is simple and can be performed remotely. A complete Web-based system dashboard provides a



comprehensive view of the health of the WLAN, letting an administrator easily drill down to gather detailed statistics and information for troubleshooting.

“With the Ruckus ZoneFlex system, Wi-Fi is now a dependable and ubiquitous utility that functions just like a wire but without all the hassles,” Maynard concluded.