



## Midwest Surgical Gets Healthy Dose of Smart Wi-Fi to Improve Quality of Patient Treatment

Midwest Surgical Hospital had a good plan - make hospital operations more efficient, staff more productive and patient care more expedient by using Wi-Fi everywhere within its new medial facilities. Midwest's goal was to deploy a centrally-managed wireless infrastructure reliable enough to support its Source Plus electronic healthcare records (EHR) software, Advantix billing and practice management applications as well as some 30 physicians and 50 staff equipped with HP tablet PCs and Spectralink Wi-Fi VoIP phones.

A physician-owned hospital, Midwest's new two-story facility includes six operating rooms, 19 overnight staybeds, offices, a pharmacy and clinic. Complete coverage, HIPAA-compliant security, ease-of-use, support for delay-sensitive applications and automated RF management topped the list of requirements for the new Wi-Fi system - a tall order for any WLAN.

"Hospitals tend to be very noisy RF environments and these EMR applications are extremely sensitive to any sort of network delay or outage - down to a millisecond," said Spencer Williamson, network administrator at Midwest Surgical Hospital. "We really wanted the Wi-Fi network to be the primary communications medium but didn't have faith that conventional technology was there yet."

Midwest wanted something simple yet robust and reliable. Because doctors and clinicians are constantly moving, healthcare environments are well-suited for Wi-Fi communications. However typical WLAN systems aren't designed to deal well with the changing RF environment and disrupting hospital operations to fix or tune the Wi-Fi system was strictly taboo. Midwest had also implemented a Mitel 3300 voice over IP phone system and wanted the Wi-Fi network to ultimately support Spectralink i640 VoFi phones over the wireless infrastructure.

Finally, Midwest wanted to the Wi-Fi system to support multiple virtual WLANs so it could dedicate SSIDs to different user groups (e.g.. guests vs. staff) and applications (e.g. voice vs. data). As with most hospitals, security was essential and HIPAA-compliance was not negotiable. Midwest required the WLAN system to that could provide robust link layer security and authentication but be simple to administer and manage.

Midwest surveyed the WLAN market and found most of the centralized WLAN solutions costly, cumbersome and unable to adapt to a fluid RF environment. "We don't have an army of IT staff here. We wanted to system that was easy to deploy but still come with an RF engineer in every box. Vanilla Wi-Fi just wasn't suitable for a hospital environment. We had to have Wi-Fi technology designed to make the RF connection as solid as it could possibly be. If we were going to use Wi-Fi as the main network, we needed a wireless system that was as reliable as a wire. And we were getting frustrated not being able to find such a product," said Williamson.

That's when Tel Serv introduced Williamson and Midwest Surgical Hospital to the Ruckus ZoneFlex Smart Wireless LAN system. Ideally suited for hospitals, the ZoneFlex system is the only WLAN solution that combines long-range, directional beam forming and beam steering technology with advanced wireless meshing to enable a WLAN that adapts to any changes in the RF environment.



The new Midwest Surgical Hospital in Omaha, Nebraska includes six operating rooms, 19 overnight beds, offices, a pharmacy and clinic.

### COMPANY OVERVIEW

Located in Omaha, Nebraska, Midwest Surgical Hospital is a physician-owned specialty hospital built by Midwest Neurosurgery. Serving patients in Nebraska, Iowa, Kansas, Missouri and South Dakota, Midwest Surgian Hospital has over 30 physicians and 50 full time staff. Its new state-of-the-art 40,000 square foot healthcare facility includes six operating rooms, 19 overnight bedrooms, doctors offices, clinic and pharmacy.

### REQUIREMENTS

- Deploy centrally-managed Wi-Fi environment to service 80+ doctors and staff as well as vistors and guests
- Eliminate any Wi-Fi dead spots
- Minimize the number of access points
- Reduce network administration and trouble calls, improve user experience
- Remote management
- Guest networking
- Easy maintenance and customization

### SOLUTION

- ZoneDirector 1025 Smart WLAN controller
- 16 Ruckus ZoneFlex 2942 802.11g APs

### BENEFITS

- A wire-like Wi-Fi environment capable of handling voice, video and data traffic
- Complete Wi-Fi coverage with the elimination of dead spots
- Multiple virtual WLANs over the same infrastructure
- Reduced administration through localized RF management within each AP
- Simplified network administration
- Complete HIPAA compliant WLAN
- Remotely manageable



*"Hospitals tend to be noisy RF environments that constantly change.*

*"We wanted a wireless LAN system that was not only simple and easy to administrate but one that delivered a entire new level of adaptiveness and reliability.*

*The Ruckus ZoneFlex system has been so reliable that it's allowed us to focus on why we are here - to deliver world-class healthcare services.*

*This is what any good hospital looks for when integrating next-gen technology."*

**Spencer Williamson**  
Network Administrator  
Midwest Surgical Hospital

## MIDWEST MOVES TO SMART WI-FI

After exhaustive testing, Midwest was convinced they had finally found a WLAN system worthy to be the primary means of connectivity.

Williamson had 16 ZoneFlex 2942 (802.11g) access points installed, connecting them with 802.3af power over Ethernet throughout the two floors of the hospital. He then configured the Ruckus ZoneFlex system with multiple SSIDs, one for guests that mapped to a VLAN within a DMZ, firewalled to only allow Internet access and another for doctors and administrators that provides AES encryption and user/device authentication.

"The ZoneFlex system was surprisingly simple and easy to configure," said Williamson. "But, while simple, it still provided a very advanced set of features like the ability to automate the distribution of unique pre-shared encryption keys, define user roles and restrict user bandwidth thresholds per SSID."

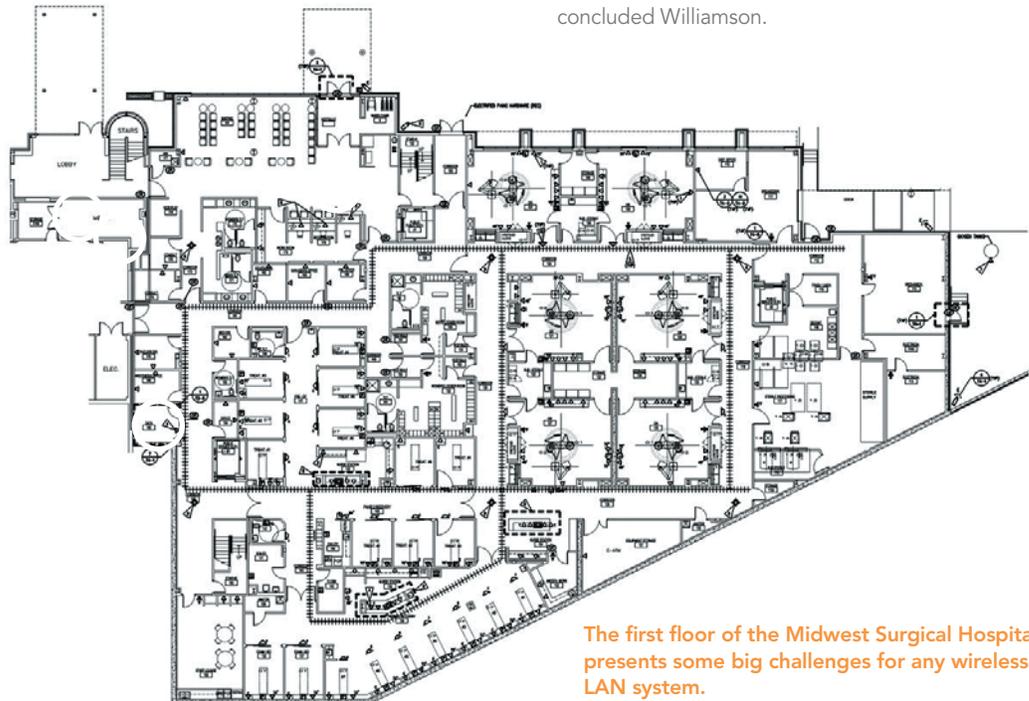
According to Midwest, dropped connection were common place at their last facility as doctors roamed from registration to pre-op to surgery to post-op to recovery. At their new facility coverage and stable connections are no longer an issue due to the extended range of the Ruckus ZoneFlex Smart WLAN system, that integrates high-gain, directional antenna arrays.

"We don't have that problem any longer with the Ruckus system," commented Williamson. "One of the biggest benefits we've seen is outrageous coverage from a relatively few number of access points. And we really didn't have to worry about where to place the APs or perform extensive RF site surveys. The system basically takes care of all this for you by automatically determining the best signal path to every client and altering that signal path on-the-fly is problems are encountered.

Despite the noisy RF environment, the Ruckus ZoneFlex WLAN allows Midwest to ensure reliable Wi-Fi connections throughout what would be considered one of the most challenging buildings for Wi-Fi due to large amounts of metal, mirrors and other refractive and hard to penetrate materials.

According to Midwest, the cost of the Ruckus ZoneFlex system made the decision easy. "The entire ZoneFlex solution was less than half that of the nearest alternative at which we had looked. But with those alternatives you still didn't get the range and reliability inherent with smart antenna implementations," said Williamson.

Looking forward, Midwest plans to use its new wireless infrastructure to support voice over Wi-Fi communications with Spectralink Wi-Fi phones. "Now that we have a robust WLAN in place, applications to leverage it are coming out of the woodworks," concluded Williamson.



**The first floor of the Midwest Surgical Hospital presents some big challenges for any wireless LAN system.**