



St. John's Hospital Implements Wireless VoIP and Reaps Positive ROI in Less than 1 Year

St. John's Hospital in Springfield, Illinois is a regional health-care center serving central and southern Illinois. The hospital is licensed for over 700 beds, making it the largest hospital in downstate Illinois. Founded in 1875 by the Hospital Sisters of the Third Order of St. Francis, it is also one of the largest Catholic hospitals in the United States.



Challenge

Migrate existing wireless telephony users from a proprietary system to a converged wireless LAN for voice and data applications in a challenging healthcare environment.

Solution

- Meru Networks Wireless LAN Controller and AP 200s
- Multiple VLANs with different security settings
- Air Traffic Control technology enables zero handoff of voice clients

Benefits

- Estimated \$2,000,000 cost savings in first year after deployment
- Only system tested to provide high voice quality with no dropped connections, even while roaming
- Quickly enabled multiple applications including voice, secure data and guest access using multiple VLANs
- Eliminated site survey using Virtual Cell capability
- Compatible with Vocera and SIP-based wireless VoIP phones

Improving Patient Care Through Use of Wireless LANs

St. John's Hospital realized the advantages wireless mobility could provide to caregivers and other hospital staff many years ago. An early investment in 802.11b allowed case managers to enter patient information into the electronic medical record system. Using laptops, patient information could be entered directly, providing immediate updates to the patient record for other medical staff as well as reducing errors formerly due to transcription of written records. After seeing the dramatic improvement in just this one area, the IT administrators realized that a more pervasive wireless LAN that could support not just data, but also voice applications would provide even greater benefits.

To provide voice mobility inside the hospital, St. John's also had an Avaya wireless voice system that operated in the 1.9 GHz band. Newer more advanced voice systems and the possibility of using a dual-mode cellular/Wi-Fi phone led the team to look at new wireless LAN solutions, including those that supported 802.11a. Multiple data and voice applications needed to be combined onto a single network without degrading the quality of service for those using the phones.

ROI in Just One Year Easily Justifies Pervasive WLAN Network

St. John's selected Meru Networks after a lengthy and comprehensive evaluation process of multiple vendors. The initial rollout has worked so well, plans to expand the wireless LAN to cover the entire twelve floors of the hospital have been put in place. A Return on Investment analysis was completed and the resulting economic advantages were compelling.

"The system is working so well, we are regularly receiving unsolicited requests to expand it to additional areas and applications," said Gretchen Niehaus, Manager, IT/Telecom, St. John's. "It hasn't been hard to justify either. Using only selected nurses saving thirty minutes per day, we expect the system

to save us \$2 million dollars in just its first year. That doesn't even include the additional savings we expect for respiratory therapists, lab technicians and dieticians when they come online."

At completion, over 400 access points will be deployed as well as additional applications such as a more extensive electronic medical record system, barcode scanning for accurate inventory control and care delivery, guest and patient Internet access and RFID for asset tracking.

Meru Networks Tests Out with a Clean Bill of Health

To evaluate the wireless LAN systems, a lab was set up to provide a separate environment for testing the different applications. Multiple vendors were brought in to be tested against two main criteria.

1. Support for multiple VLANs with multiple security settings for the different applications and users
2. Support for seamless roaming of voice clients across APs and subnets, with no degradation of voice quality

Multiple vendors were brought in, but only the Meru Networks Wireless LAN system exceeded expectations in both areas.

"When we brought other wireless LAN systems into the test lab, we noticed they dropped the voice over Wi-Fi calls as they roamed," said Niehaus. "As voice clients roamed, they had to re-authenticate with the Access Points which would drop the call. Even centrally managed wireless switch systems that claimed support for seamless roaming across the access points dropped the call if the client roamed from one switch to another."

"The Meru Wireless LAN system was the only one that provided seamless roaming for voice clients, with no loss in quality or dropped calls. And, Meru supports up to 64 separate VLANs with individual security settings, so it was no problem to deploy multiple applications and users on the same infrastructure."

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A Truly Converged Network for Wireless VoIP and Data

The Meru Wireless LAN is currently installed on floors one through four of St. John's Hospital. 120 access points provide mobile connectivity for voice and data applications with a redundant controller in place to ensure the highest availability. One of the key attributes that attracted St. John's to the Meru System was the fact that no site survey was required. Meru accomplishes this process with Virtual

Cell technology, which eliminates co- and cross-channel interference. With the issue of co-channel interference resolved, Meru access points are simply placed in the best locations to ensure complete coverage. Complex 3-dimensional site plans to ensure that access points on the floor above or below are on different channels are a thing of the past and the network is up and operating cleaner and smoother in less time.

For voice communications, St. John's has chosen Vocera Communications. One hundred Vocera Communication Badges deliver quick, easy communications among caregivers and other hospital staff. The system has been so well received that there are plans to expand to 300 Vocera Badges. In addition to the voice and case management applications, the hospital has also moved its Surgery Information System (SIS) to the wireless network. Prior to that, operating room nurses would do pre-operative checks on the patient and then move to another area to transcribe the information into the system. Now, carts with laptops can be wheeled right into the O.R. and the information can be entered directly, saving valuable time and reducing mistakes.



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