

WAKEMED PUTS PATIENTS FIRST WITH ARUBA MOBILITY SOLUTION



Honors and awards attest to WakeMed Health & Hospitals' quality of care. But a continued commitment to the community is more important than accolades.

WakeMed identified mobility through wireless technology as a key enabler in living up to their rigorous internal standards as the premier provider of healthcare services for the Raleigh-Durham area of North Carolina. Supporting critical initiatives like an advanced nurse-call system and integration of wireless point-of-care devices required deploying a highly secure mobile solution that could handle demanding voice and data applications, with the scalability to support the hospital's plans for growth.

WakeMed found what it wanted with Aruba Networks and its user-centric network architecture, which delivered a state-of-the-art solution addressing the hospital's mobility needs—and giving WakeMed good reason to believe its already superior patient satisfaction scores would keep on rising.

"With Aruba, we've gained everything we set out to gain, and we're extremely pleased," says John Tuman, WakeMed's Director of Network Services.

ON THE MOVE

That's a much-improved condition from January 2005 when WakeMed was reaching the limits of a wireless solution from another major network company. With expansion in the plans, WakeMed needed to extend wireless coverage from just one site to all of its most important locations. With a larger number and more demanding medical and voice applications coming online, it needed a highly scalable, high-performance system. And with easier administration and HIPAA compliance on its list of requirements, it needed simplified management and stronger security.

By October 2005, WakeMed had all of that and more. Now its wireless network comprises 600 Aruba AP-70 802.11 a/b/g access points offering over 2 million square feet of coverage over eight sites. Each AP is centrally managed from an Aruba 5000 mobility controller at the main location, which works in a master-servant relationship with Aruba 5000, Aruba 6000, and Aruba 2400 mobility controllers at the other locations to push out policies and upgrades.

The new system also integrates easily with devices like 802.11g EKG machines from GE, as well as with wireless medical applications running on CoWs (carts on wheels)—including AllScripts Healthmatics ED, McKesson Horizon Surgical Manager, and Siemens Envision, some of which are thin-client-enabled by

REQUIREMENTS:

- Deploy high-performance WLAN for voice and data
- Expand wireless network to important hospital locations
- Increase scalability and manageability in anticipation of further growth
- Integrate nurse-call response system with the Vo-Fi system
- Ensure security compliance with HIPAA regulations

SOLUTION:

- Seven Aruba 5000, one Aruba 6000 and one Aruba 2400 Mobility Controllers
- 600 Aruba AP 70 access points
- 150 wireless laptops
- Approximately 600 Nortel 2211 wireless VoIP phones based on SpectraLink technology
- Nortel Option IP PBXs

BENEFITS:

- Highly scalable infrastructure extends mobile network to multiple locations and supports new wireless applications
- Centralized architecture and management strengthen security, simplify administration and support HIPAA compliance
- Integrates easily with wireless point-of-care devices and medical applications on CoWs
- Integrates wireless VoIP (Vo-Fi) to improve nurse-call system and enhance patient care
- Quality of Service ensures clinical data and critical voice communications get through
- Enables wireless Internet access for patients, families, and other visitors

Citrix technology. Medical data gathered at the point-of-care can be sent directly over the HIPAA-secure network to doctors' laptops, about 150 of which are currently in use.

MAKING THE CALL

Among WakeMed's specific goals was an upgrade of the nurse-call voice communication system. Rapid response to patient requests is essential to customer care and satisfaction, and WakeMed wanted to make sure all its patients received attention as promptly as possible.

Leveraging the Aruba network, WakeMed implemented a wireless voice over IP (Vo-Fi) system integrating existing Rauland bedside call devices and IP-enabled Emergin servers. WakeMed also replaced its 150 Nortel Companion handsets, which were based on legacy cordless circuit PBX technology, with 350 Nortel 2211 Vo-Fi handsets based on SpectraLink technology. Now when a patient presses the call button, the Emergin server directs the call to a nurse carrying a Vo-Fi handset, which displays the room number, a text message indicating the type of situation, and a call-back number. As soon as the nurse accepts the call, a Vo-Fi connection is established over the wireless network back to the patient, and the two can talk. If necessary, nurses can also forward calls to medical staff better able to address the situation.

But the Vo-Fi implementation isn't limited to the nurse-call system. "It's everywhere," Tuman says. The network supports a total of approximately 600 Vo-Fi handsets and covers all offices and care locations, so that physicians and other medical staff can roam from clinic to lab to patient's bedside while remaining in touch with their colleagues. Engineering, IT, and administrative personnel have also been equipped with the phones. Tuman notes that aside from a short learning curve with the handsets, there were no implementation issues, and everything works just as envisioned.

Of course, in critical healthcare deployments, the quality and reliability of a Vo-Fi call must never be in doubt. And that was a concern for WakeMed, given the large amount of clinical data that would be competing with voice for space on the network. So before settling on a vendor, Tuman made sure to challenge the quality of service (QoS) capabilities of each. He devised a test that involved congesting a wireless access point with traffic; powering on the phone to make sure the AP could associate with it; attempting multiple four-digit calls on the congested link; and measuring quality. The outcome? Of the solutions he evaluated, "Aruba cleared this hurdle the most elegantly."

In the process, he and his team also discovered just how easy it is to configure the Aruba system. For example, setting up DiffServ QoS end-to-end for the testing took less than an hour. At that point, Tuman reports, "the engineers were really excited and began to heavily endorse the Aruba solution."

ORGANIZATION OVERVIEW:

WakeMed Health & Hospitals is an 870-bed private, not-for-profit health care system based in Raleigh, N.C. It is accredited by The Joint Commission, which monitors and evaluates healthcare organizations according to the established state-of-the-art quality and safety standards. In 2006, WakeMed Raleigh Campus was named among the 50 Top Hospitals in the nation based on the Leapfrog Hospital Quality and Safety Survey.

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LOGGING ON, LOOKING AHEAD

WakeMed's Aruba-enabled extension of the network has also helped it expand wireless Internet access for patients, families, and other visitors to the hospital. The response has been overwhelmingly positive. Instead of paging through old magazines while waiting for appointments or test results, visitors can use the WakeMed guest portal to access their e-mail or surf the Web while keeping the hospital's production network completely secure. Given WakeMed's location in the center of North Carolina's Research Triangle Park, the feature has proven especially popular among mobile-minded, tech-savvy patients accustomed to being in constant contact with the office. For those who arrive at the hospital without their wireless laptops, WakeMed has also set up dedicated terminals in places like pediatric care offices. "Just the guest access alone has made us look like rock stars," Tuman says.

Next up for WakeMed: wireless communication of patient bar-coding information, implementation of electronic patient records, role-based access control, and remote AP technology that lets remote users connect via the Aruba wireless network no matter their location. In short, Aruba's emphasis on mobility as a strategy has WakeMed thinking about much more than just a wireless network.

It also has Tuman excited about the future. "Am I confident about what's ahead? Oh yeah."



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