

GZA BRINGS PATIENT CARE TO THE BEDSIDE WITH ARUBA WIRELESS SOLUTION



With three hospital sites totaling 1,100 beds and four elderly care centers with 300 residents, GasthuisZusters Antwerpen (GZA) Hospital Group is one of the largest providers of healthcare services in the greater Antwerp region of Belgium. The hospital has built a reputation throughout the region as a premier healthcare organization. It also boasts the largest maternity center and second-largest oncology center in Flanders.

Seeking to maintain the name it had established for itself and increase service efficiency and quality, GZA sought a secure and scalable wireless local area networking (WLAN) solution. GZA found what it needed from Aruba Networks.

The Aruba solution provides the hospital's medical staff with the mobility to update medical records in real time at patients' bedsides, reducing the reliance on manual paper processes and the associated errors. Additionally, patient monitoring can now be brought to the patient rather than moving the patients to specially-equipped wards, easing stress on patients and reducing labor demands. The network delivers the security required for sensitive medical records and information, but still offer Internet access to patients and visitors.

"Our nurses and doctors adapted quickly and have really come to count on the Aruba solution," says Jan de Sitter, chief information officer of GZA. "We're very pleased with it."

SELECTING A SOLUTION

GZA's existing wired network comprises an Extreme BlackDiamond 8810 backbone switch, three Extreme 51 Gigabit distribution switches, and about 80 Hewlett-Packard switches in the access layer. While this infrastructure sufficed for many of the hospital's day-to-day applications, it limited the mobility and flexibility necessary to take their care to the next level.

With no wireless network in place, GZA began its search for a solution in late 2005, when it sent requests for proposals to three vendors: Aruba, Cisco, and Trapeze. The key decision criteria, according to de Sitter, were quality, ease of integration, and price.

REQUIREMENTS:

- Deploy user-centric wireless network to make medical staff more mobile
- Bring patient monitoring directly to the bedside
- Reduce reliance on paper while allowing real-time electronic updates to patient records
- Integrate seamlessly with wireless monitoring equipment

SOLUTION:

- One Aruba 6000 Mobility Controller
- One Aruba 2400 Mobility Controller
- 150 Aruba access points covering three hospital sites
- Aruba Policy Enforcement Firewall and Wireless Intrusion Protection
- Approximately 100 IBM/Lenovo laptops with wireless connectivity
- Dräger Medical patient monitors (Infinity Delta and Infinity GammaXL) with wireless option

BENEFITS:

- Centrally managed user-centric wireless network allows secure data access at patient bedside
- Increases efficiency, improves care, and reduces patient stress
- Quality of service (QoS) features allow easy integration with patient monitoring equipment, ensuring prioritized access
- Enables wireless Internet access for visitors, and secure network access for doctors on their own laptops
- Provides scalability and flexibility for future network extensions and additional applications including PACS and location-based services

After its initial evaluation, GZA determined that the difference in pricing among the three vendors was not significant. However, de Sitter says that Aruba stood out for its excellent customer references. Together with Quantum, a local network integrator, Aruba had already completed a number of wireless deployments for education and healthcare customers in the Flanders region. As de Sitter noted, "It was clear that they understood our problems and our way of working."

GZA asked Aruba and Quantum for a proof of concept in early 2006, running tests with one Aruba 6000 Multi-service Mobility Controller and about 20 access points (APs) spread out over the different hospital locations. According to de Sitter, there were no problems with network availability or performance—two crucial concerns in the healthcare environment—but he was also looking to see how medical personnel would respond to using a wireless device at patients' bedsides. Demand and satisfaction were high, and GZA made the decision to roll out the Aruba solution at the end of 2006 and in early 2007.



WIRELESS AT WORK

Currently, GZA's deployment comprises a total of approximately 150 APs: about 75 at the hospital's main St. Augustinus site in the south of Antwerp; about 50 at its St. Vicentius site in downtown Antwerp; and about 25 at its Mortsel site, also in the south of Antwerp. An Aruba 6000 controller, used for central management, serves both St. Augustinus and Mortsel, while an Aruba 2400 controller at St. Vicentius acts to minimize overhead on the LAN interconnect. The wireless network seamlessly overlays the wired network and uses Aruba's Policy Enforcement Firewall (PEF) module to apply distinct security and access policies based on a user's role and the Wireless Intrusion Protection (WIP) module to detect and shut down rogue APs and other wireless attacks.

As for mobile devices, for Electronic Medical Records (EMR), GZA issued approximately 100 IBM/Lenovo laptops, with an Odyssey client for authentication, to nurses and doctors at the three main hospital sites. And here, according to de Sitter, is where the only problem was encountered; demand exceeded supply. The wireless capabilities proved so popular that nurses complained the doctors were dominating usage. GZA addressed the situation by providing two additional laptops for every nursing station. In all, some 1,500 nurses and 250 physicians are regularly using the system.

In some units, paper charts have completely disappeared. While not a hospital requirement, this is clearly the direction things are headed. Since the network covers every hospital room, physicians have their patients' records updated before they leave the bedside rather than having to return to the nursing station, resulting in greater efficiency and record accuracy.

GREATER MOBILITY FOR BETTER CARE

Another key driver for the wireless network was bedside patient monitoring. Many patients require continuous cardiac and vital sign monitoring, but don't need the full support and expense of an Intensive Care Unit. GZA turned to Dräger Medical, one of the world's leading manufacturers of medical devices, for assistance. Dräger Medical recommended their Infinity OneNet® approach. This open network architecture allows the use of Dräger Medical patient monitors throughout the hospital, including during transport, and transmitting the data over a wired and wireless infrastructure.

Patient monitoring information is time-critical and latency-sensitive. However, GZA did not want to incur the capital and operational expense of a separate, dedicated monitoring network, nor did they want to invest in additional packet shaping hardware, as required by alternate networking solutions to achieve Quality of Service (QoS). Aruba Networks solved this problem with bandwidth management features included on all of its Mobility Controllers that ensure QoS. Aruba enables flexible bandwidth usage depending on which clients are on each access point, freeing reserved bandwidth when patient monitors are not present. Aruba and Dräger Medical worked closely together to ensure that the monitoring system transmissions would be secure and protected against latency and jitter.

As de Sitter notes, now bedside monitoring can be brought to any patient anywhere in the hospital—rather than the other way around—most importantly resulting in better care, but also providing big gains in efficiency by eliminating the labor of moving patients and cleaning additional rooms.

DELIVERING LIMITLESS OPPORTUNITY

Because Aruba's Policy Enforcement Firewall delivers differing levels of network access based on the user, GZA is able to provide Internet access to patients, families, and other visitors, via a captive portal and temporary ticket, without any security risk to other network resources. Similarly, doctors and other healthcare workers can gain access to the network from their personal laptops and work just as they would from their homes or main offices.

GZA sees a number of additional opportunities and uses for the WLAN, including electronic prescribing, for which they are placing additional laptops at each nursing station, and bringing Picture Archiving and Communications Systems (PACS) to patients' bedsides. They are also planning to use location-based services to track their laptops as well as medical equipment that requires regular, periodic maintenance. "Locating an IV pump can actually cost more than the actual maintenance work," de Sitter remarks. "The location tracking can also help us keep tabs on patients and ensure that residents at our elderly care facilities don't wander into harm's way."

The Aruba WLAN infrastructure provides the scalability required to meet future requirements. Next year, GZA plans to install a network at each elderly care facility, and at some point, they may utilize Aruba's Remote AP functionality to securely extend the WLAN to physicians' and administrators' homes.

But for now, de Sitter is pleased with how easily GZA has been able to meet its main goal of bringing patient care to the bedside. And he sees Aruba as an important partner going forward. "The network has done just what we hoped it would, and we are confident it will continue to do so as we extend the network and introduce new applications," he says. "We have no regrets."

ORGANIZATION OVERVIEW:

GZA is a group of private healthcare institutions consisting of three hospitals and four elderly care centers, with approximately 1,100 hospital beds, 350 doctors, and more than 3,000 employees, of which 1,500 are nurses. Located in the Antwerp region of Belgium, it has the largest maternity center and second-largest oncology center in Flanders.



"We chose Aruba for its combination of price, quality, and integration—and we don't regret it."

Jan de Sitter

Chief Information Officer

GasthuisZusters Antwerpen (GZA)



www.arubanetworks.com

1344 Crossman Avenue, Sunnyvale, CA 94089

1-866-55-ARUBA | Tel. +1 408.227.4500 | Fax. +1 408.227.4550 | info@arubanetworks.com