Healthcare IT News
THE NEWS SOURCE FOR HEALTHCARE INFORMATION TECHNOLOGY

Hospitals Struggle to Keep the Noise Down

May 1, 2007

by John Andrews

When Scott Sbihli went to work for GE Healthcare five years ago, he saw a hospital wireless environment that was virtually unrecognizable from today.

“Because of concerns over interference with medical devices, wireless was an afterthought,” said Waukesha, Wis.-based GE’s global product manager. “But since interference was determined to be a non-issue, wireless has gained a lot of traction in the past couple of years.”

Indeed, hospital deployment of wireless technology has proliferated greatly in a very short amount of time – to the point where the cacophony of frequencies now needs to be toned down, Sbihli said. The confluence of wireless applications and devices includes wireless medical telemetry service, patient monitoring, IEEE 802.11 versions a, b and g with encryption, voice-over-WLAN, two-way radios, cellular/PCS, Wi-Fi, paging, public safety radio and security communications.

To help hospitals simplify their “multiple ad hoc systems and separate parallel networks,” GE and Vienna, Va.-based MobileAccess have partnered on GE Enterprise Access, designed to mitigate interference from disparate sources.

“Hospitals now have a fragmented world of wireless, driven by different engines,” said Jeff Kunst, vice president of marketing for MobileAccess. “Applications and services run over various different frequencies. The challenge we set out to solve is simplifying wireless from installation to maintenance to control to management of infrastructure by harmonizing them into a universal wireless network.”

Among the adopters are Northwestern Memorial in Chicago and Intermountain Medical Center in Salt Lake City. Northwestern has completed two of three planned deployments throughout its 3 million square-foot campus. Besides delivering wireless coverage for GE’s wireless telemetry, patient monitoring, Wi-Fi-enabled mobile PC carts, wireless VoIP phones and clinician pager alerts, the system also supports wireless Internet access for patients and visitors and in-building cellular/PCS and 3G services from all of the major mobile carriers in the Chicago area.

Intermountain Healthcare incorporated GE Enterprise Access into design plans for its new 1.5 million square-foot campus and the organization plans on making the system standard for all new buildings in its healthcare system.

“In today’s hospital, migrating to a wireless infrastructure is more than ‘nice to have,’ it is becoming the intrinsic ‘need to have’ for both staff and patients,” said David Baird, Intermountain’s urban central region director of information systems.

Streamlining Referrals

Wireless technology has revolutionized communications in ways beyond the obvious, such as expediting patient discharge and transfer. New York-based Vettro has created a mobile system that has greatly quickened and simplified the patient referral process for Boston-based skilled nursing facility Hebrew SeniorLife.

Using personal digital assistants, Hebrew's nurses who work inside hospitals can electronically arrange for an acute care patient's discharge and transfer to the nursing home. By automating the process, "the referral gets done in a matter of minutes that would take days to complete with paper," said Pat Smith, Vettro's vice president of product marketing.

Vettro's wireless connection and software is designed to allow nurses to capture patient data and quickly transmit it to Hebrew SeniorLife's admissions office. The information collected can also be assimilated into a patient's electronic medical record.

"We've seen this emerging across the board in the past 12 months as acceptance of mobile devices increases," Smith said. "Organizations are seeing mobile technology as more than e-mail and consider it to be a mobile tool that can help field workers do their jobs better."

Wireless Tracking

Radio frequency identification, or RFID, is becoming an integral part of the wireless environment, especially as it relates to tracking patients and equipment, say representatives from Irving, Texas-based NEC Unified Solutions, which introduced its enhanced Univerge Assured Mobility location tracking component at HIMSS07.

"RFID is still very early in adoption and deployment, but there are key trends that are causing wireless infrastructure to grow aggressively," said Lance Mehaffey, NEC's director of healthcare markets. "There is a need to have a paperless EMR, along with the ongoing nursing shortage and the need for mobility solutions to keep nurses on the floor and at the patient's bedside. It has reached a natural evolution point of overlaying RFID capabilities."

The system uses Wi-Fi-based radio frequency identification within NEC's wireless architecture to track the location of medical devices, patients and hospital staff.

"Wal-Mart has seen the benefits of RFID and they now insist all their wholesalers use it," Mehaffey said. "It is still at the palette level now, but it won't be long before it gets to the unit level."

Homer & Tug

Although they sound like cartoon characters, Homer and Tug actually have more in common with Star Wars' R2D2 robot. That's because they are part of a robotic unit made by Pittsburgh-based Aethon.

"Tug is actually short for tugboat, which is a small but powerful device out of proportion for its size," said Peter Seiff, vice president of customer solutions. "Tug is the motor – about the size of a typewriter – that uses electronics and sensors to navigate autonomously through the hospital. It is like a train engine and the hospital cart is the caboose. It can pull up to 500 pounds and handles all types of payloads, including medical, pharmacy and housekeeping supplies."

Tug navigates through the hospital on its own without tracks, global positioning or wires. Homer is a specialized Tug that navigates with an RFID antenna inside. Attuned to a radio frequency, it has the ability to move automatically throughout the facility. A wireless interface allows it to control elevators so that it can move from floor to floor.

Hospitals can tag a variety of objects, and the Aethon system can be used with any third-party RFID tag. At this point, the robotic cart is best suited for carrying high-tech payloads, Seiff said.

"That's because the tags are between $20 and $30," he said. "But it won't be long before the price comes way down on it."