



# Hard dollar ROI from RTLS in hospitals and healthcare facilities

Avoiding costly and disruptive Wi-Fi infrastructure upgrades, recalibration and maintenance is key to success.

The value of Real Time Location Systems (RTLS) in hospitals has become so well known it has attracted many technologies. Because of the prevalence of Wi-Fi in many hospital settings, there have been articles proclaiming it as the obvious choice. However, most obvious is not always best.

By combining unparalleled innovation in technology with a uniquely innovative business approach, San Diego, California-based Awarepoint is a game changer. More than ever, hospitals must invest in solutions that offer rapid a return on investment (ROI). Awarepoint's wireless sensor network RTLS, with the fastest installation time on the market and no disruption of ongoing operations, actually produces greater, and quicker, ROI than Wi-Fi.

As hospitals face tightened budgets, layoffs and hiring freezes, the impulse may be to pause infrastructure spending. Yet, knowing the location, status and movement of equipment and people provides valuable information, and savvy healthcare professionals are turning to RTLS as a solution to budget pressures, not an additional cost.

## Cost-saving alternative to crowded, less accurate Wi-Fi

There has been confusion as to whether leveraging an existing Wi-Fi network would be more sensible than installing a dedicated network for RTLS. Hospital utilization of Wi-Fi is already substantial, crowded with existing data and voice traffic. Using the Wi-Fi network for RTLS is impractical from both a cost and performance perspective, and potential adverse affects on Wi-Fi-based mission- and life-critical applications must be carefully scrutinized.

Wi-Fi nodes are typically 50 or 100 meters apart, feeding a network optimized for computers and voice transmission. When Wi-Fi is enlisted for RTLS, it is generally accurate to only about 10 meters, covering zones of about 30 square meters. Such a large zone would encompass about 20-25 typical hospital rooms, plus the closets, nursing stations or other locations within that zone. When a defibrillator must be found to save a life, narrowing its location to dozens of rooms may not be enough.

Awarepoint's wireless transceivers create a self-organizing network which provides



Awarepoint's RTLS enables quick, simple implementations with unobtrusive, "plug and play" sensor transceivers (shown above) which create self-forming wireless networks.

a 1-3 meter, in-room and defined area accuracy throughout the entire facility. Awarepoint installation is quick and non-disruptive to operations: Installers simply plug transceivers into wall sockets. The wireless sensor network is self-forming and self-calibrating, and runs on ZigBee 802.15.4, a frequency that is not a part of the Wi-Fi band, eliminating interference concerns. Ray Lowe, former Information Technology Leader at Kaiser Los Angeles, said, "In over 18 months of operation, our IT department did not receive a single call related to the Awarepoint system".

All of these factors result in a road to ROI that appears almost immediately. For example, Jackson Health System, an integrated healthcare delivery system in Miami, Florida, uses the Awarepoint RTLS to actively track 12,000 medical equipment assets throughout the hospital's widespread, multi-building campus (an astounding 91 floors and 17 buildings). The entire 3.8 million square foot campus installation was completed in less than six weeks with no shut-downs. Similarly, at Thornton Hospital, the University of California San Diego's 119-bed, general medical-surgical facility, a system was up and running with RTLS within three weeks covering a quarter million square feet, with measurable cost savings within the first month.

With Wi-Fi, a costly network upgrade is necessary, requiring disruptive shut-downs, drilling, running cable, mounting hardware and ongoing calibration. And even then, the system will not approach the same level of performance.

## RTLS Only Begins With Location

"RTLS starts at finding assets," said Valerie Fritz, Awarepoint Senior Vice President of Marketing. "The real point is gathering business intelligence to make smart decisions about asset usage." Thornton Hospital reduced their \$8,000 monthly infusion pump rental fees by 75% after just three months. Using the visibility into usage and needs delivered by the Awarepoint RTLS, the hospital was able to sustain these savings month over month, resulting in a \$90,000 annual savings.

"The hard dollar ROI comes when you make decisions that affect the capital budget," Fritz noted. With Awarepoint, the University of California San Francisco (UCSF) Medical Center cancelled a planned purchase of transport monitors and intubation tools, saving \$248,000. "Soft savings are great, like nurses being utilized more productively, but hard savings must be there to justify purchasing the system," she said. Applications such as par level management, exit alerts, tray tracking and patient flow demand a whole hospital system with both room and designated area accuracy – a level of clinical significance that is not possible with Wi-Fi based RTLS.

Even though hard dollar ROI justifies purchase of Awarepoint's RTLS, soft savings can also be substantial. For example, Awarepoint's RTLS is directly credited with reducing UCSF Medical Center's staff search times by 73%. In addition to maximizing staff usage, increased visibility into equipment location can reduce some

counterproductive behavior, such as stashing or hoarding frequently used or difficult to locate items. With all equipment visible, duplication and overstocking can be eliminated from purchase and lease decisions, creating measurable dollar savings.

Nowhere do soft and hard savings collide like in the high stakes environment of a hospital. In one documented event, a piece of equipment had caused the death of a patient and was to be immediately removed from use. RTLS revealed the equipment had ended up in another patient's room, waiting to be put to use. The savings from preventing a potential calamity: incalculable.

## Unique sales model lowers barriers to entry and ongoing costs

A successful RTLS implementation is one with actionable data that leads to business decisions resulting in ROI. Awarepoint emphasizes the importance of an organization's response to the new avalanche of information RTLS can bring forth. "With so much more data available to you than you ever had before, people do not automatically know what to do with it," according to Awarepoint CTO, Matt Perkins.

By charging per asset per month based on a calculation of square footage and total number of assets, the company minimizes the barriers to entry and eliminates the need for capital purchase. Awarepoint has gone a step further with its flexible business model. Awarepoint is so confident that RTLS is valuable and profitable for hospitals, it offers a shared risk business model. Complete installation, maintenance and training is provided at no cost, and Awarepoint shares the business process-related savings with the hospital. By putting their contract fees at risk, Awarepoint allows hospitals to experience the value of RTLS and only pay for performance. "We take on the responsibility and cost of implementing the RTLS and training on how to get value and where to look for it – and if the hospital doesn't see expected savings, they don't pay," says Jason Howe, CEO of Awarepoint. "We are confident the return to Awarepoint in sharing the savings will result in highly profitable business for us."

## Five Essential Steps to RTLS Success

- 1. Enterprise-Wide Coverage.** RTLS is at its best fully integrated into the fabric of the organization, maximizing user adoption and providing full protection from lost, stolen or otherwise missing equipment.
- 2. Location Accuracy.** In the healthcare environment, room level accuracy is a critical factor, and to approach that with a zone-level Wi-Fi network, a costly and disruptive upgrade to the already overtaxed network is necessary.
- 3. Installation & Maintenance.** The cost and disruption of adding hard-wired nodes to increase the accuracy of an existing Wi-Fi network would be compounded by ongoing calibration needs and potential for interference.
- 4. Interoperability.** Standards-based technology and the ability to deliver data to end-users and third-party applications are crucial to fully leveraging the system.
- 5. Low Risk.** An easily scaled installation that does not require a large capital purchase or long-term contractual commitment will deliver maximum ROI with minimum risk.