

The ROI of Real Time Location Systems



RTLS helps to speed up the flow of assets in warehousing facilities.

An enterprise can save money using real time location systems in a number of ways. The overall hard cost savings of active RFID, for example, comes from increasing the efficient use of the existing asset base. As the equipment base is refreshed, the organization can reduce its inventory of equipment. The need for leased and rental equipment is also eliminated.

Soft cost savings, such as improvements in employee efficiency, depends on having a thorough knowledge of the workflow in the facility and determining inefficiencies such as how much time employees spend looking for equipment. It also depends on the size of the facility.

"The ROI from having RTLS tags in place comes from having the application software that enables you to reduce your inventory or increase your throughput or reduce your parts on the assembly line for just-in-time manufacturing. That's what provides the value," says Tim Harrington, vice president for product strategy, WhereNet Corporation.

Not only can assets be found more quickly, but also a number of telemetry readings can be monitored, such as

temperature and pressure. Specialized software applications can create histories of asset or employee movement for established zones of the facility. Movement patterns can be determined, analyzed and changed if inefficiencies are found. The lack of motion of an employee can trigger an alarm. An asset moving toward the exit of a building can produce a warning, as well.

RTLS can also be used in automation. Similar to geofencing in a GPS system, immediate zone alerts can be programmed into the active RFID software. For example, if more units of a piece of equipment than are needed are stored in a certain zone, a caution will be sent to the user. In the case of a hospital, if more infusion pumps are stored on a floor than can be used there, staff will be alerted and equipment will be redistributed for more efficient use.

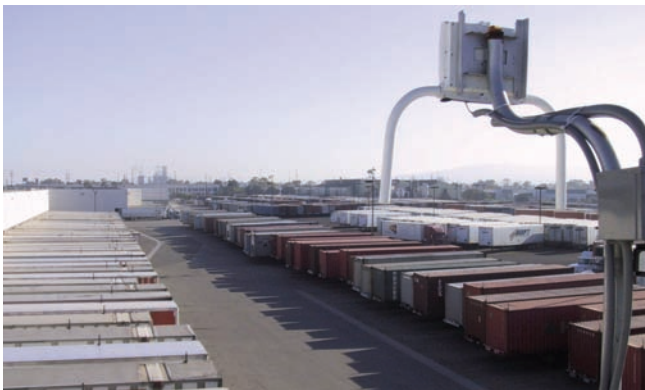
"Accuracy is important to the RTLS process to reduce the number of exceptions, which cause the system to be operated manually," says Harrington. "You have to have high-precision, accurate location information so that you can automate these systems."

Logistics

RTLS proves beneficial in efficiently managing yard operations. NYK Logistics, which transfers imported goods from ocean containers to semi-trailers, has deployed WhereNet RTLS systems in its marine terminal facilities in Norfolk, Virginia, and Long Beach, California, where it handles 120,000 containers annually for Target Corporation, as well as goods for CVS variety stores and Kohl's and Mervyn's department stores.

"The biggest challenge is coordinating the logistics between yard movement and the labor in the warehouse to make sure you are working efficiently," says Rick Crawford, director of operations, NYK. "Throughput is extremely important." NYK measures efficiency in several ways: how fast it can process trailers at the gates, how quickly the trailers move from the yard to the door and the speed of the cargo from one side of the dock to the other.

In the case of NYK, real-time location has increased throughput, streamlining and increasing the velocity of the movement of assets through the facility. "The capacity of the terminal can be increased just through the ability to run goods, containers and trailers through it faster and more efficiently," says Harrington. Compared with the manual process, the WhereNet system increased NYK's productivity between 20 to 30 percent. ROI was met in less than a year.



RTLS finds the right trailer at the right time.

Healthcare

Hospitals have tens of millions of dollars of equipment, and more and more of it is mobile. Knowing where these assets are is critical to patient care, because time spent looking for equipment takes away from face time with patients. Hospitals are also good candidates for active RFID location systems because many of them are already wired for Wi-Fi.



Healthcare personnel may have more time with patients, if they spend less time looking for equipment.

"Everything is on wheels in a hospital. It is total chaos," says Tuomo Rutanen, vice president, business development, Ekahau. "We can cut the equipment search time by 50 percent, because they still have to get the equipment. Eliminating time wasted looking for lost equipment may reduce the number of employees needed or it could allow them to utilize their time in more productive ways."

More efficient asset utilization can also reduce the amount of healthcare equipment needed. "One hospital reduced its plan to purchase 1500 infusion pumps down to 1200, saving them the amount they paid for the active RFID system in one day," says Rutanen. "The typical ROI is in the six to nine month range in the healthcare industry."

Parco Merged Media Corporation, which supplies real-time location systems to the health care industry, commissioned a study recently that showed a typical 950-bed hospital employs approximately 300 IV pumps at any given time at a cost of close to \$25 for each device per day, but kept 600 pumps on hand to sufficiently serve the patient population. If all IV pumps could be accounted for at all times, the actual number of pumps could be reduced to approximately 330, resulting in more than \$2 million annual savings for that typical hospital.

This same study also pointed out that of the 300 beds using the IV pumps daily, typically less than 150 patients were actually paying for the per day cost to the hospital. The Parco system can help the typical 900-bed hospital recover almost \$8 million of annual lost charges simply by tracking precisely when and where the pump is set up and in use. According to this scenario the return on

investment for the hospital is realized within the first few months of operation. Similar savings and recovery on lost charges can be expected with other expensive medical equipment.

RTLS has equal value for locating and tracking patients and personnel, as well as equipment, in healthcare facilities. Parco Merged Media Corporation supplied Lehigh Valley Hospital and Health Network in Mission Viejo, California, with a patient tracking system in April. The automatic tracking software provides real-time tracking of patients and mobile medical devices using wireless badges worn by patients throughout the surgical staging units, the operating rooms and post-anesthesia care units. The software organizes communications between caregivers regarding the status of patients, rooms, and the availability of clinical staff.

Earlier this year, the University Hospital of Ghent in Belgium deployed a Wi-Fi-based Active RFID system to track the location and status of at-risk patients as they move throughout the hospital, enabling staff to more efficiently respond to emergencies. In the first stage of the project, AeroScout tags will be attached to the monitoring equipment and located using the hospital's Cisco Wi-Fi network and the Cisco 2710 Wireless Location Appliance. If a patient emergency occurs, an immediate phone call will be triggered to a nurse carrying a Cisco IP phone.

Manufacturing, Mining and Chemical Factories

Manufacturers of big-ticket items are adopting RTLS because the industry is increasing efficiency of their factories and reducing the number of employees.

"To do this, the process must be much more visible, says Rutanen. "They need information on their work in progress items to better serve their customers' need for just-in-time production." RTLS can be used to help reducing manufacturing errors. For example, tags can be used for marking cars that incurred defects during



When phones aren't available, RTLS can be a vital link to the surface in a mining operation.

the manufacturing process so they can be easily found and repaired post-assembly.

In January, Cisco launched the Wi-Fi Asset Tracking Solution, which is specifically designed to help aerospace, automotive, mining and semiconductor manufacturing industries to reduce the misplacement of assets such as mobile toolkits, machinery, parts and work-in-progress inventory.

WhereNet worked with Ford Motor Company to develop an RTLS system to track parts within a 250,000 square foot area of its Van Dyke facility in Sterling Heights, Michigan, which produces more than nine million components annually for Ford cars and trucks. The resulting product, known as WhereCall, sends out a wireless "call" for parts to be brought to the line as needed.

Tracking personnel in hazardous environments, such as mines or chemical plants can be crucial in the event of an accident. The company instantly knows which workers are trapped and where. Active RFID can also serve as an automated "man-down" feature, sending out an alert if an employee remains motionless in a hazardous area.

CVRD Inco Ltd., a mining and metals company, selected Ekahau in May 2007 to provide underground asset tracking technology to track production vehicles in the company's mines in Ontario, Canada. Active RFID will help employees to find equipment during shift changes. Reports will allow mine management to analyze operations to improve productivity. Employees wearing the Wi-Fi tags will be able to push an alert button in case of an emergency. □

Crosby *continued from page 2*

come from?

We have more work to do and much yet to accomplish during the remainder of 2007. For more details about these and other EWA

advocacy efforts, please feel free to contact me. Of course, members are always welcome to participate in our bi-weekly "Regulatory Update" conference call, which provides our members the opportunity to voice their viewpoints and to participate in the

formation of EWA's advocacy initiatives. And finally, timely, up-to-date news is contained within EWA's reformatted and easy to read e-newsletter *Insider*.

As always, we welcome your thoughts and suggestions. □