

Army Expands RFID Implementation to Critical Defense Systems

The U.S. military organization plans to use the technology to speed up the redeployment of these systems for field use in Afghanistan and Iraq.

By Beth Bacheldor

Oct. 9, 2006—The United States Army has, for the past year, been using RFID to help track all the parts of two communications systems throughout their refurbishing and preparation for redeployment. The technology has proven so successful—the Army reports it could save nearly a half million dollars this year—that it is now tracking the renovation of a critical defense system used in Iraq and Afghanistan.

In 2005, the Army began its RFID pilot at Tobyhanna Army Depot in Tobyhanna, Pa.. Part of the Army's Communications-Electronics Command (CECOM), Tobyhanna is a full-service repair, overhaul and fabrication facility servicing surveillance and radar systems.

The pilot at Tobyhanna utilized WhereNet's RFID-based real-time location system (RTLS) to streamline the process of overhauling two radar antenna systems, the AN/TRC-170 and AN/TPS-75 (see U.S. Army Tests WhereNet System). Active 2.4 GHz RFID tags, called WhereTags, were affixed to parts and containers of parts, with RFID readers placed throughout the facility and surrounding grounds so Army personnel could locate items more easily. This also allowed them to manage the process of disassembling, repairing, testing and reassembling systems, which can take up to 15 months.

Each tag transmits a unique ID number and additional data, as determined by Tobyhanna personnel. That number is associated, in a database, with its respective tagged part or container. The database houses both the information on the container, and the parts held within it.

WhereLAN location sensors, which act as RFID readers, scan the tags, record the read times and relay that information to WhereNet's Visibility Server, which processes the RFID data and calculates the distance of the tag from at least two sensors. Personnel can then use the software to access a graphical map illustrating the locations of the tags within the facility.

The pilot "validated the use of RTLS technology at the depot," says Mike Shea, federal sector director of WhereNet. "They were able to generate an ROI in 11 months."

In fact, the Army expects the depot to save approximately \$450,000 annually using the WhereNet RTLS system to track refurbishment of the AN/TRC-170 and AN/TPS-75 radar antenna systems, by cutting about 836 repair-cycle days each year. Eliminating the need to reorder any parts—previously a problem because it was hard to locate them during assembly—also contributes to the savings, according to Shea. The cost of the initial implementation of the WhereNet RTLS system, Shea says, was in the range of \$200,000 to \$700,000.

Additionally, the system is helping to expedite the refurbishment process. According to WhereNet, each

AN/TPS-75 will make it to the field 35 days sooner than anticipated, with each AN/TRC-170 system hitting the field 10 days sooner.

This ROI spurred the Army to extend the use of the WhereNet RTLS system to track, locate and help manage parts during the refurbishment of its Firefinder radar system, which detects and tracks enemy mortar and artillery shells. Firefinder systems have been used in the Afghanistan and Iraq wars, Shea explains, and the military wants get the defense systems back into the field as quickly as possible. "With RTLS, the Army is able to refurbish systems faster and at higher volumes," he says. The Army began tracking the Firefinder systems with the WhereNet RTLS system in January, and was able to leverage the RTLS equipment already installed at the depot. Several thousand tags are currently being used to track all three systems.

The WhereNet system is helping the Army improve and optimize its refurbishing processes. Since implementing the RTLS system, the military organization has been able to establish baselines illustrating how long a single process should take during a renovation. According to Shea, if the time taken exceeds the baseline, the system can send an e-mail alert. For example, there are periods of time when parts must be stored outdoors, but many parts can be exposed to that environment only for a short period of time. If a particular part sits outside beyond the time it's supposed to, the system can alert a manager. "This helps them proactively manage the processes going on in the facility," Shea says.

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