

Tyco Electronics Uses Wi-Fi for Trailer Tracking

The electronic products manufacturer is using OATSystems software and its existing Wi-Fi access points to track truck trailers with active tags at its distribution center.

By Claire Swedberg

March 3, 2008—Electronic products manufacturer Tyco Electronics is using a Wi-Fi-based, active RFID system to track truck trailers at its distribution center in Greensboro, N.C. Tyco Electronics has implemented OATSystems' Asset Tracking solution, as well as Wi-Fi active tags with G2 Microsystems' system-on-chip (SoC) technology. By leveraging the DC's existing Wi-Fi access points, the company avoided having to install new RFID reader infrastructure.

Tyco Electronics builds products and product components for a number of industries, including automotive, aerospace and consumer electronics, and ships them from a variety of manufacturing sites located in North Carolina. Its Greensboro distribution center routes materials destined for Tyco Electronics manufacturing facilities, as well as finished products that ship to customers worldwide, making for a complex supply chain. "Our North Carolina distribution center acts as a hub," says Kevin Anderson, Tyco Electronics' RFID director and product line manager. "There is a high volume of material routed in and out on a daily basis."

To track those shipments, Tyco Electronics personnel have often resorted to phone calls and visual reads of truck trailer numbers to determine which shipments have arrived or departed, and when. Trailers are frequently moved from one building to another as products are unloaded and repacked for shipment elsewhere.

Tyco Electronics sought an inexpensive method for increasing automation and improving operational efficiencies. In the fall of 2007, it deployed the initial system by attaching one active Wi-Fi 2.45 GHz tag each to the inside of 20 tractor-trailers. Each Wi-Fi tag has a uniquely assigned ID number and is identified using an OATSystems Internet-based server. The tags are battery-powered and constantly send out a brief beacon signal containing the tag ID data.

When a truck arrives within 100 feet of existing Wi-Fi access points, in any of the three facilities included in the current implementation, the system captures its tag's unique ID number. These access points then forward this ID number to the OATSystems software running on a server, which correlates it to the access-point location, then time-stamps and displays the truck's arrival or departure information on a Web page that Tyco Electronics can access via the Internet.

Paul Cataldo, OATSystems' VP of marketing, likens the system to an airport, with the server acting as an airport reader board displaying each trailer's status, as well as which building it has arrived at or departed, and when. "One of the keys to this deployment was leveraging the existing Wi-Fi infrastructure that can correlate a tag to an access point," Anderson says. "For this application, we only need to know which building a trailer is located at."

This, Anderson explains, eliminates the need to implement a conventional real-time locating system that uses

multiple access points to more precisely triangulate an asset's location. "Since we didn't have to install new access points [or RFID readers]," he adds, "this was a very inexpensive solution and easy to deploy."

Tyco Electronics estimates that an annual cost savings of more than \$100,000 from improved efficiencies will be realized once the system has been fully integrated into the operation's business processes. "The return on investment is very tangible and real," Anderson says.

One potential future enhancement of the RFID tracking deployment is to deploy a passive ultrahigh-frequency (UHF) RFID system with portals installed at dock doors at the distribution center, and EPC Gen 2 tags attached to cartons and pallets containing products and components. In that way, says Prasad Putta, OATSystems' founder, Tyco Electronics can track not only the trailer but the goods within it as they are unloaded and reloaded in different trucks.

RELATED_ARTICLES Plans for expanding the current implementation and incorporating new features are currently in progress, Anderson says. "What they need initially is presence-based active RFID," Putta notes. "They want to know, 'Is it here, or not?'"

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