Walgreens Opens RFID-Enabled Distribution Center

The drugstore chain's DC in Anderson, S.C., has tagged 170,000 totes used to supply merchandise to 700 stores throughout the Southeast, enabling the company to prevent errors and streamline its shipping processes.

Pharmacy retail chain Walgreens has deployed an RFID system in its approximately 600,000-square-foot distribution center in Anderson, S.C., that alerts employees before they load a shipment on the wrong truck bound for retail locations throughout the Southeast. This has helped the company meet its goal of eliminating shipment loading errors and paperwork.

The deployment, provided by Palo Alto, Calif., RFID infrastructure company Blue Vector, also enables Walgreens' warehouse management system to automatically send out advance shipment notices as products leave the center. Altogether, the system includes 170,000 plastic totes fitted with Avery Dennison EPC Gen 2 passive RFID tags, some tagged dollies and 45 Blue Vector RFID portals installed at dock doors and other locations around the center.

The RFID system, which Walgreens has been trialing for about one year, has been successful enough that the retailer is now installing the same application at its DC in Windsor, Conn.

At the Anderson distribution center, first opened in 2007, nearly half of the DC's entire staff are physically or cognitively disabled. One of Walgreens' initial goals in deploying the RFID system was to make the work for these staff members more manageable, says John Beans, Blue Vector's VP of marketing. Ultimately, however, the company focused on reducing shipping errors and eliminating paperwork in Anderson, as well as at all of its distribution centers.

The RFID system is designed to alert employees when a tote has been moved to the wrong dock door, and when it is being loaded in the incorrect order. For instance, often a truck will transport multiple shipments to several stores and needs to have the goods loaded in the order in which they will be delivered.

Walgreens uses plastic totes measuring approximately 2 feet by 18 inches by 12 inches. When an order is received, employees take a tote, load it with the proper goods, stack the loaded tote with others on a dolly and wheel the stack of totes to the dock door.

In the traditional system, workers would read printed lists of the items to be shipped, then use scanners to read bar-coded labels attached to the totes and access the warehouse management system via computer so they could check off the items they were shipping, and insure that a tote was properly loaded. This system made the truck-loading process cumbersome and error-prone—especially, Beans points out, since dozens of trucks are loaded at the same time, bound for different destinations.

With the Blue Vector system, all totes now have Avery Dennison RFID tags affixed to their sides. The empty totes are stacked in a storage area, where they await being loaded with product to be shipped. As each order manifest arrives at the DC, the warehouse management system automatically shares that manifest with the Blue Vector system server. As an employee places the filled totes on a conveyor, to be loaded on dollies, a Blue Vector portal captures the tote tags' ID numbers and links them with the manifest. "At that point," Beans says, "the system knows which item is loaded in that tote."

Filled totes are then loaded on the dollies (which are also tagged for redundancy) and rolled toward the dock doors, past an RFID portal. Manufactured by Blue Vector, the portal stands about 7 feet high and features a Motorola RFID interrogator and an LED screen that displays data related to those totes, including the location where they need to be loaded.

The dolly is then rolled to the appropriate dock door, where another Blue Vector portal scans the tag ID number of each tote, as well as the dolly, and emits a loud alert if the batch of totes approaches the wrong dock door, or if the batch is being loaded in the wrong order compared with others that need to be loaded.

Once the totes are loaded properly aboard the correct truck, the Blue Vector portal sends a notice to the warehouse management system via a cabled connection, which the system then forwards to the receiving store. As empty totes are returned to the distribution center, the Blue Vector portals read their tags and workers clean them and scan their tags once more. Totes that are damaged or have unreadable tags are taken to a "tote hospital," where they are repaired or replaced.

The system consists of 45 portals, most of which are installed between every other dock door, and which are capable of reading totes being loaded through either door. The portals include Blue Vector's edge manager software, which links the totes' tag ID numbers with the shipment data and recognizes an error as it occurs. All the portals, whether installed at dock doors and at conveyors, are managed by 65 edge managers, which receive information from the portals and analyze the totes' location based on reads from those portals. The edge manager then shares the data with the Blue Vector network manager. "The edge manager is where the software meets the real world," Beans says.

The edge manager software can determine the location of a dolly and its totes based on the number of times their tags are read by a specific reader, or readers, as well as where they travel next. "The problem isn't getting a read," Beans explains. "The problem is anywhere near a dock door, you can get a read from three of five or more readers at once. It's not a problem of missing tags, but discriminating between reads."

By analyzing which specific portals consistently capture reads, the system can thus identify where the totes are being placed.

According to Beans, the pilot phase of the system began with a few RFID portals in 2007, and as the distribution center was built, additional portals were added. In full operation, the Anderson DC ships about 80,000 tagged totes daily to about 700 stores. Walgreens declined to be interviewed for this story, though Beans indicates the company's managers have been happy with the system thus far. "They wanted to eliminate misshipments, and they wanted to eliminate paperwork," Beans says, adding that the drugstore chain has accomplished both goals.

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