Getting a Read on Book Inventories

Robert Mitchell   August 14, 2006 (Computerworld) --

At Boekhandels Groep Nederland's Selexyz bookstores, taking an inventory typically requires closing the doors for a day and paying 25 employees to take every book off the shelf and scan each one individually. With a new system that takes advantage of RFID technology, two workers can inventory a store in just two hours. RFID scanners can read each book's RFID tag without employees removing it from the shelf -- and the store can remain open during the inventory process.

"Two employees during opening hours are now capable of scanning 38,000 books," says Jan Vink, IT director at the Houten, Holland-based bookstore chain. Vink estimates that the RFID system, which cost between $550,000 and $650,000 to deploy at its store in Almere, Netherlands, will save 270,000 euros (about $350,000) in inventory-related costs while allowing the staff to know what books are on the shelves and where they're located. The Almere store's RFID system -- the chain's first -- went live in April. Vink plans to roll out the technology in another 20 stores in the fourth quarter. By late 2007, if all goes according to plan, all 42 stores should be using RFID, Vink says.

While other retailers are experimenting with RFID or are tagging pallets or boxes, Selexyz was one of the first to tag individual items -- at a cost of about 19 cents per item -- and go live with a storewide deployment. "It's one of the first real store implementations out there," says Jeff Woods, an analyst at Gartner Inc.

Selexyz also uses the RFID system to check in books as they arrive and track shipments from its distributor, Centraal Boekhuis. "Centraal Boekhuis agreed to implement a semiautomated RFID-handling [workflow]," says Vink. The distributor attaches a passive RFID tag to each book in a shipment and sends an electronic advanced shipment notice (ASN) to Selexyz. Store employees then run received shipments through an RFID scanning "tunnel" from CaptureTech Benelux BV in Nieuw Vennepe, Netherlands. The scanning tunnel identifies each book in the box and sends the data in real time back to a Progress Software Corp. OpenEdge database. From there, the data is matched up with the ASN, and a confirmation is sent to the distributor.

Selexyz's distribution challenge is fairly unique, says Woods. "A typical retailer would impose on the warehouse to ship orders correctly. They have a kind of unique supply chain problem, and this is the right answer for it," he says. But the system also has another benefit: "When [a store] receives inventory, they're able to count it and sort it very quickly," says Woods.

The scanning tunnel at the Almere store cut shipment check-in times from three to five minutes per box to less than five seconds, Vink says. Each box contains 25 to 35 books, and the store receives 45 to 50 boxes per day. With 752,000 books arriving every day across all 42 stores, the potential time savings quickly add up and should allow staff to spend more time with customers. "On a yearly basis, we process 7 million books," Vink says.

The RFID scanning system also solves another problem: sorting out special orders from the rest of the stock. Not only does the system flag special orders, but customers are
also automatically notified. "The customer receives an SMS or an e-mail indicating that the book is ready," says Vink.

Once received at the store, the books are carried to the correct department, and each one is scanned again as it is placed on the shelf to establish its location. Because the RFID system continuously reads each tag, Vink uses Progress Software's Apama event-stream processing tool to filter out duplicate reads and ensure that every book is counted just once.

The project, which took about four months to complete, ran into its share of glitches. Some security functions were missing, and network bandwidth had to be bumped up from 512Kbit/sec. to 4Mbit/sec. to accommodate real-time flows of data to the back-end systems in Selexyz's corporate headquarters. Initially, the ASN was missing some data, Short Messaging Service was unstable, and wireless coverage to support scanners in the stores was incomplete. Vink also spent time debating what type of RFID labels to use and what type of glue to use to affix them securely to books. "If delay is not an option, you must reconsider things and come up with work-around solutions," he says. While Vink is still working with vendors to tune the systems, overall "the core technology is working as expected," he says.

Selexyz tracks books until they are sold to the customer; the tags are deactivated at the time of sale because of privacy requirements. "We don't want to have a link between the RFID and the customer information," Vink says.

Next, Selexyz plans in-store customer information kiosks. Driven by Progress Software's EasyAsk software, the kiosks will give customers access to book availability and location data provided by the RFID scanning system. "When a customer comes in, they can more accurately know whether a book is in stock. Or if a book is in stock but not on the shelf, you can find it," says Mark Palmer, vice president of event stream processing at Bedford, Mass.-based Progress.

While Vink says the transition has been worthwhile, he cautions others to be thoroughly prepared before moving forward. "As an IT decision-maker, you are making a strategic decision," he says. Once you've committed, he warns, "you can't back out."

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