IBM

Ringnes: Creating new business intelligence through container tracking

Overview

■ **Business Challenge**

Norway's largest brewer/beverage distributor, Ringnes AS, sought a better overview of the freight flow at its production facilities. The company wanted to optimize the flow by gaining better control of the location and status of containers on trailers at any given time. To do this, Ringnes needed to know whether they were on- or off-site, and the time they were parked at the facility, unloaded, loaded and driven away.

■ **Solution**

In collaboration with IBM, the company implemented a system for recording container location and status, based on Radio Frequency Identification (RFID) technology. Antennas placed at the main gate and at each of the 40 load gates of the Ringnes facility in Gjelleråsen record the arrival, departure, loading and unloading of each individual RFID-tagged container.

■ **Key Benefits**

• Creates new, actionable information about product shipment location and flow

• Enables optimization of container and trailer use

• Lays the groundwork for expanded control of the supply chain

Ringnes AS, a subsidiary of the Carlsberg Group, annually produces and ships well over half a billion liters of beverages, including beer, soft drinks and bottled water. With such a high volume of product moving through the Ringnes supply chain, the challenges of operating its distribution system efficiently are considerable.

A key issue facing any large distributor is knowing the status of assets – such as containers, trailers and even the products themselves – at any given time. With accurate and timely information, flow patterns and problems can be spotted quickly and true optimization becomes possible.

"Looking at container management at the facility has given us a better overview of where they are in the process, and which ones are on the road."

– Jan Inge Bakkane, business process manager, Ringnes AS

Making the supply chain more transparent

"Product flow can be automated far more than is common with more traditional systems. Combined with a better overview of stock, this will mean improvements to much of the delivery chain."

– Jan Inge Bakkane

The operational control that this kind of business intelligence makes possible lets the company work smarter and more efficiently, not only saving time and fuel (and thereby reducing environmental impact), but also getting fresher product to retailer shelves.

A technological quantum leap at Ringnes
To create the conditions it needed for greater control over its supply chain, Ringnes teamed with IBM and IBM Business Partner Intermec to implement an advanced RFID-based tracking and control system at the company's Gjelleråsen distribution facility.

Ringnes installed RFID tags on its containers – one on the back, and one on the side. The tags' signals are captured by antennas placed at the main gate for registering arrival and departure from the facility, and at each of the 40 load gates for recording loading and unloading. The antennas are part of an integrated solution for registering and processing data, which also incorporates RFID readers and IBM WebSphere® RFID Premises Server middleware.

The IBM team created a special-purpose application, built using IBM DB2® AphaBlox,® which receives RFID tag data from the Premises Server and "enriches" it with additional information about the shipment. The resulting information is stored in a DB2 database for logistical analysis.

"We have 200 trailers on the road at any given time. With the new technology, we will be able to exploit them better, which will benefit both us and our clients," says Jan Inge Bakkane, Ringnes business process manager in Oslo.

In addition to addressing complex technological requirements, the RFID system had to be integrated seamlessly into the logistics operations at Ringnes. The system at Gjelleråsen consists of many components, and the rigorous workplace conditions place a premium on the robustness of the solution.

The physical installations on the trailers and at the storage site are naturally vulnerable, and an important part of the project is to get this to work in the operations environment. While the devices can withstand punishing conditions, breakage and loss is inevitable under field conditions. This eventuality was accounted for in the solution design. "A monitoring system automatically detects if a reader falls out or is broken. The unit can then be repaired or replaced," says Bakkane.

A wealth of new information
The solution, tailored to Ringnes' logistics use, needs and wishes, provides entirely new information that managers can use to support decisions about how the operation runs. "Looking at container management at the facility has given us a better overview of where they are in the process, and which ones are on the road," says Bakkane.

The information provided by the solution is extensive and unprecedented for Ringnes. For the first time, managers can see how many and which trucks are outside the terminal, how many and which trucks are inside the terminal and their load status (full, empty or being loaded, and at what loading port). Through analysis, valuable intelligence can be derived, such as how long trucks spend being loaded and unloaded, how long it takes them to reach the port after entering the facility and how long it takes them to get back on the road. Managers can also see which ports are used the most, which are used the least and how much time each port spends loading and unloading – which can help them plan and coordinate resource use and needs.

"This will provide a better overview of how much time is spent on different tasks. Managers can also receive immediate reports on weaknesses in the logistics system, which they also are able to correct," says Bakkane. "A better overview leads to far more predictable logistics."

All of the data is available through a custom, near-real-time, Web-based "dashboard." In addition to being available to managers, a dashboard display is mounted in the facility's canteen so that anyone with an interest can see what's going on at any given moment.

Solution Components

Software

• IBM DB2

• IBM DB2 AlphaBlox

• IBM WebSphere RFID Premises Server

Services

• IBM Global Technology Services – RFID Services

IBM Business Partner

• Intermec

Smarter Infrastructure

To gain greater visibility into and control over its distribution supply chain, Norway's largest brewer, Ringnes AS, teamed with IBM to install an advanced RFID tracking solution at its distribution center in Gjelleråsen. The solution provides near-real-time location data for containers and trucks, allowing the company to work smarter by optimizing traffic flow and the usage of shipping containers and facility loading ports. It also lays the groundwork for future extension both to other facilities and deeper into the supply chain, for example by enabling RFID tracking of individual pallets.

New opportunities

The system is designed to be flexible and expandable, allowing Ringnes to decide which logistics components to track. At present, the system receives data from the RFID registration from the moment the containers come through the gate at Gjelleråsen until they leave again.

In the future, Ringnes will consider establishing systems in which RFID tags are also attached to pallets or crates to track product movement out to shops, including inventory at shops, to help it decide when it is time to refill products. Data from the RFID tags can be directly linked to order, invoice and account systems, making the entire system more automated.

"With the technology and our systems as a foundation, product flow can be automated far more than is common with traditional systems. Combined with an even better overview of the stock at the facility, this will mean improvements to much of the delivery chain," says Bakkane.

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