



ORGANIZATION:

A major retailer of seasonal goods with over 600 stores throughout the U.S.

APPLICATION:

Implementation of a new WiFi infrastructure and improvements to an existing WMS system including new RF technology and training for picking, replenishment and other distribution and inventory management uses.

ENVIRONMENT:

An existing 900 MHz wireless system in the company's warehouse wasn't used in the past because slow response times discouraged users.

KEY BENEFITS:

- Instantaneous Inventory Updates
- Reduced Backorders
- Realtime instructions and minimized travel time between slots

Wireless Infrastructure Upgrade Helps Retailer Increase Productivity



Overview of Organization

A significant upgrade to the wireless infrastructure in its warehouse helped a major retailer increase productivity while also reducing stockouts. The 900 MHz wireless system in its warehouse wasn't used much in the past because slow response times discouraged users. The company worked with PEAK Technologies, a SAP systems integrator, to design and implement a new WiFi infrastructure, improve the existing wireless WMS implementation, and provide intensive user training. Warehouse employees now get real-time instructions on the wireless system that minimize travel time between slots. Barcode scanning provides instantaneous inventory updates, reducing the percentage of backorders. A new application developed by PEAK for the special order department greatly reduces the amount of time needed to select product for each order. "The success of the implementation has transformed our users from being skeptics or even critics to enthusiasts for wireless technology," said the development manager for the retailer.

Challenge/Opportunity

The company's earlier wireless system performed below expectations. In the past, the company's main distribution center used an RF system that was interfaced through a warehouse management system to SAP R/3 enterprise resource planning (ERP) software. The company had a number of forklift and workstation-mounted wireless computers designed to provide operators with picking instructions and to scan package and slot numbers. But the slow response time pro-

vided by the older technology RF units hindered user acceptance. In the vast majority of cases, clerical staff printed out instructions on paper for each wave, which made it impossible to optimize travel time for each driver. Drivers also had to return to the office for instructions when they finished picking the wave. Inventory levels were not adjusted until operators returned paper documents to the office and clerical staff keyboarded the information, which could take several days. As a result, the clerical staff did not have a current picture of where all of the merchandise in the warehouse was located, which sometimes caused stockouts in the stores. As user acceptance dropped, many warehouse staff became unfamiliar with the RF system and had difficulties using it even when response time was acceptable.

"We recognized the opportunity to increase our efficiency through better utilization of RF technology," the development manager said. "We talked to a number of different vendors but selected PEAK because they went several steps beyond most of the other vendors who focused on selling hardware or software. PEAK took a close look at our operations and came to the conclusion that upgrading our wireless infrastructure was the key to improving our efficiency. Through their technical expertise, software development capabilities, training staff, and relationships with major hardware suppliers, they showed us how they could provide a turnkey solution that would put complete responsibility on their shoulders for the ability of the system to meet our goals."

Application/Solution

PEAK Technologies consultants surveyed the performance of the existing wireless system and reviewed the distribution center's entire business process, from receipt of product to delivery to the store. PEAK performed a site survey to determine how many wireless access points were needed and the best places to locate them to provide coverage throughout the required area. PEAK also provided a report that included site survey results, suggested equipment and locations, drawings that show the coverage pattern of each access point, cabling information, and a pre-installation

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tion check list. They reviewed each transaction, data validation criteria, database schema, label requirements, communications requirements, security issues/requirements, etc.

PEAK concluded the problem was not with the current WMS technology and that by preserving that portion of the system they could substantially reduce the investment required to solve the problem. They zeroed in on the RF infrastructure as the root cause of the problem and suggested that by upgrading the infrastructure to improve response time and coverage, making minor changes in the transactions, and retraining the users, they could bring the system up to the state-of-the-art at a reasonable cost. PEAK recommended a 2.4 Megahertz WiFi Cisco backbone and handheld wireless computers. In order to bring the benefits of wireless to the entire distribution center, the number of wireless computers was increased from 25 to 190 vehicle and wrist-mounted units. Users that commonly need both hands free, such as to lift boxes, were supplied with the wrist-mounted units that can scan a barcode by swiping it with their wrist. The consultants looked closely at the existing WMS transactions and recommended utilizing two additional transactions that were not originally turned on.

Training plays important role

PEAK consultants also wrote a series of custom user manuals each designed for a specific job in the distribution center, such as put-away and forward replenishment. They provided 3-day training classes to the more than 200 users of the RF system that covered the hardware as well as the transactions simultaneously. "The training classes were successful because the PEAK trainers know the wireless system, know the WMS system and understand how a distribution center works," the development manager said.

The development manager also asked PEAK to propose a SAP RF solution for the custom cuts department, which is responsible for producing special orders. "In the past we didn't have the knowledge of how much product existed within a slot," he said. "In the worst case situation our pickers would have to pull out and inspect all of the bolts to find one that had the right amount remaining to fill the order." PEAK's solution involves tracking the amount of fabric left on each bolt as well as the exact bin location of each bolt and interfacing this data into the company's SAP system in real time. A handheld wireless

computer is mounted to the cutting table. Whenever a cut is made, the computer looks at how much fabric was originally on the bolt, how much was cut off, calculates how much is left, and prints out a label that is attached to the bolt. The handheld wireless computer also queries SAP and determines a slot to put the bolt away in. "We saw an immediate increase in productivity that paid for this application in less than six months," the development manager said.

Benefits/Results

"PEAK's solution empowered our employees to take full advantage of RF," the development manager said. "Upgrading the infrastructure and training our employees made it possible for us to take full advantage of the technology that we had in place. We saw substantial productivity gains throughout our facility. One of the biggest improvements is the use of RF by the forklift drivers. Giving them their instructions over the wireless computer makes it possible to wait until the moment they have completed their previous job and the WMS generates a new job based on the current priorities and the location of the driver. This cuts down on their travel time and also saves the time previously spent driving back to the office for instructions. The drivers also scan in picks and putaways so we now know the exact location of every item in the warehouse, which has significantly increased our full order percentage and reduced stockouts in the stores."

"We have seen additional time savings in slot checks," the development manager continued. "In the past, clerical staff had to carry around paper forms, write down the results of the check, and they later keyboard the information. Now, they simply scan the slot and the item in the slot and the results are immediately updated. We previously used RF to scan non-conveyable goods. But the faster response time provided by the new infrastructure has dramatically reduced the amount of time required from 30 minutes to a minute or two. These and other improvements have changed the opinion of our people regarding RF technology. They used to feel RF was unreliable but the current system has earned their faith and trust. Response time is down from minutes in the past to a second or so now."

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Development Manager



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