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Show Off The Benefits Of Wireless Printing

▲ Forget about the days of pulling cable. Integrators like DataCapture Technologies, Inc. are almost exclusively installing — and increasing profits from — wireless bar code printing solutions.

by Dan Schell

Sometimes a few extra footsteps can make all the difference. At least that's what DataCapture Technologies, Inc. (DCT) (Kansas City, MO) discovered when selling wireless bar code printing solutions.

The majority of DCT's clients use the AIDC (automatic identification and data collection) integrator for installing data collection solutions in warehouses. Last year, 100 of the bar code printers in those data collection solutions were wireless. "Of course, initially, customers are excited by the cost savings associated with eliminating pulling cable [i.e. Cat-5 Ethernet]," explains Shane Langston, president of DCT. "However, they are usually blown away when they find out the productivity increases mobile printing solutions offer by eliminating the extra footsteps warehouse pickers take going back and forth to a wired bar code printer."

Company: DataCapture Technologies, Inc. (DCT)

Headquarters: Kansas City, MO

Founded: 1998

2003 sales revenue: \$3 million

2003 sales growth rate: 25%

2004 projected sales revenue: \$4 million

2004 projected sales growth rate: 33%

Employees: 13

Principals: Shane Langston, president

Markets: distribution/transportation, food processing, manufacturing

Vendors: Inducomp, Intelligent Instrumentation, Intermec, LXE, SATO America, Symbol, Zebra

Distributors: BlueStar, Nimax, ScanSource

Customers: Cargill, Con-Agra, Gear For Sports, Hallmark, Organized Living

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Traditionally, a warehouse picker goes to a location in a warehouse and uses a handheld computer to scan the bar code label of the desired item's bin or shelf. The picker uses the handheld to verify the quantity picked at each location and then proceeds to a packing station. Once there, a bar code printer produces the shipping label and/or labels for the items picked. If a picker forgets an item or picks a wrong item for an order, he must go back and retrieve the correct item and/or return the wrong one. No matter what the size of the warehouse or if the picker is using a fork-lift to pick items, that return trip is wasted time.

Providing a printing solution at the point of activity transforms warehouse employees from being portable workers to mobile workers not reliant on a wired

printer servicing a small area. "For wireless bar code printing in warehouses, portable direct-thermal printers are most common, but wireless tabletop printers are gaining in popularity," says Langston. He adds that all of his customers are now asking about transitioning to wireless printing. To meet this demand, DCT combines its understanding of the pros and cons of mobile printing with its wireless LAN (WLAN) expertise.

Consider The Impact Of Label Rolls And Batteries

"Wireless printing is a real challenge because portability and usability sometimes don't go together," says Langston. "For instance, many companies want pickers to be able to label items as they move through a

Integrator Connects 45 Bar Code Printers To WLAN

When asked about his company's wireless bar code printing applications, Shane Langston, president of DataCapture Technologies, Inc. (DCT) (Kansas City, MO), can provide plenty of examples. After all, in the past two years almost all of this integrator's projects have involved wireless printers. One installation highlights DCT's expertise in this area.

The client is a wholesaler of beauty products that DCT has worked with since a 1999 rollout of a Y2K POS (point of sale) software solution. From one warehouse, the client supplies products to 80 franchised stores. "We had maintained a steady relationship with this customer over the years and recently offered a solution to help increase warehouse operations efficiencies," Langston explains. In particular, DCT targeted the customer's bar code printing solution for an upgrade. "Actually, the only bar coding they were doing involved using laser jet printers to create POS bar codes for the items in the stores," says Langston.

DCT equipped each of the warehouse's 36 pickers with mobile carts that included SATO America (Charlotte, NC) CT410 bar code printers. The pickers were also given LXE (Norcross, GA) MX2 wireless handheld computers for scanning the bar codes pertaining to the location of picked items. All of the picked items were labeled using the SATO printers. The printers and handhelds were connected to a

wireless LAN (WLAN).

Today, once the items for an order are picked and labeled, pickers move to one of eight packing stations and again scan items as they are put into a shipping box. The packing stations are equipped with SATO M5900Rve printers for printing packing labels. "This two-step process may be considered overkill, but if your customer wants 100% accuracy on shipping orders, this could be the best way to achieve that metric," states Langston.

"We chose the SATO tabletop printer instead of a printer worn on the hip because the SATO model has a much larger label roll than a hip printer. That helped reduce the number of times the label roll needed to be changed. With the number of items this client was picking, if they had used hip printers, they would have been changing the label roll a few times per day. With the SATO, they only needed to change the roll once every few days."

Power for the printer was also a challenge. SATO found DCT a battery with the same footprint as the CT410 printer that can last almost an 8-hour shift. In all, DCT sold 45 SATO printers for this project and also installed a Cisco WLAN backbone.



DataCapture Technologies, Inc. used a combination of SATO M5900Rve (right) and CT410 printers to increase warehouse efficiencies for a wholesaler of beauty products.

For More Info. On SATO America

Go To www.satoamerica.com





“Wireless printing is a real challenge because portability and usability sometimes don’t go together. ...”

Shane Langston, DataCapture Technologies, Inc.

the data collection process.

Power can also be a problem with mobile printing. The life of a printer’s battery is dependent on how many times a label is printed. A printer’s wireless NIC (network interface card) also draws power from the battery. Thus, VARs should pay particular attention to the number and type of batteries they sell for mobile printing applications. If the client can use a printer mounted on a mobile cart, a longer-lasting, larger battery may be the best choice (see example application in sidebar on page 38).

How Will You Connect A Wireless Printer?

For wireless printing, VARs need to understand a printer’s connectivity options. For instance, Langston says he can make any printer wireless by using such hardware as USB (universal serial bus) adapters, HP Jetdirect cards (which include USB, serial, and LocalTalk connectors), or client bridges from Symbol Technologies (Holtsville, NY).

“You have to understand TCP/IP [an open computer communications language] or serial communications,” Langston says. “We have created so many specific

warehouse. However, if an employee is picking hundreds of items and using a traditional hip printer, the label roll will constantly need to be changed.”

Having warehouse workers continually changing label rolls is not only inefficient; it can be dangerous to the printer. If there are morale problems (e.g. they don’t want to use a new technology) with the warehouse staff, changing the label roll gives them an opportunity to break a printer and stymie

solutions.” One of those variations involved replacing a printer’s parallel ports with a wireless card. DCT developed this solution with assistance from bar code printer company SATO America (Charlotte, NC).

Wireless printing does increase the load on a WLAN. This happens because not only are you scanning data and sending it to a server, but data is being sent back via the network to the mobile printer. However, even with the 802.11b (i.e. 11 megabits per second) WLANs DCT has installed, this amount of extra data has not impacted the networks’ performance.

Seamless Roaming On The WLAN Is Essential

Understanding WLAN technology plays a large role in deploying a successful wireless printing application. DCT has years of experience installing WLANs, from narrowband UHF (ultra-high frequency) systems to today’s common 802.11 a/b versions. With the latter, configuring the WLAN properly to allow seamless roaming is a challenge because, for instance, RF (radio frequency) signals are absorbed by water, liquid, cardboard, and paper while metal deflects signals. “A customer’s inventory is the greatest barrier to achieving a continuous wireless signal in a ware-

Wal-Mart-Related RFID Solution A Priority For Integrator

“We are trying to evolve from being a bar code generalist to a company with market-specific applications,” explains Shane Langston, president of DataCapture Technologies, Inc. (DCT) (Kansas City, MO). “The food processing industry is one of the markets we are focusing on.”

Recently, DCT even designed an RFID (radio frequency identification)-based solution for a potential client in the chicken processing industry. The client, who is a supplier to Wal-Mart, is seeking a way to comply with the retailer’s recent mandate requiring RFID tags on cartons and pallets shipped to its distribution centers. DCT’s solution includes the integrator’s own labeling software along with RFID-enabled bar code printers from SATO America (Charlotte, NC). “We recently completed writing the code for the software to accept RFID information,” Langston explains. “We are relying on SATO to provide us with the RFID expertise since this is our first potential project with this technology.”



house,” Langston explains. “For example, we have a sportswear manufacturer that has racks of cardboard boxes filled with sweatshirts stacked almost to the ceiling of the warehouse. The cardboard boxes absorb RF signals, so we had to put an access point [AP] at the end of each aisle and equip the APs with a directional antenna.”

DCT conducts site surveys to ensure a picker will maintain a strong signal as he travels from AP to AP. The integrator used to boost the power of APs’ antennas to increase the coverage area. However, Langston says this solution often produced inconsistent coverage patterns. With the cost of APs falling, he says it is now more affordable to just deploy more APs than to buy separate antennas.

Manufacturers, Distribution Centers Prime Candidates

Many of DCT’s customers using wireless printing have large manufacturing plants or distribution centers. “Most of our customers won’t replace existing wired [Ethernet] printers, but those that have large facilities already using a WLAN almost always choose to install wireless printers when they need to add new ones,” Langston says. “Also, manufacturers often move equipment or change the configuration of a production floor. This results in having to rerun Cat-5 cables to the existing printers. They can eliminate the cost

and extra labor that process requires by adding wireless printers.”

Instead of selling a lot of large industrial printers cranking out labels in back rooms, DCT has been selling smaller bar code printers that are placed throughout facilities at the points of activity. For example, the integrator is currently working on a project in which SATO America 5900 printers will be mounted on and powered by the customer’s forklifts. Fifteen of these smaller mobile printers will replace four older and larger industrial-style models. With this new solution, warehouse workers will no longer have to get out of their forklifts to make bar code labels. In projects like these, warehouse workers may be saving just a few extra steps. But, sometimes eliminating a few steps can add up to that increase in productivity your client has been looking for. □



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