

SECURITY SYSTEMS NEWS

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REID SOURCE BOOK

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As the RFID market heats up, the security industry sees a chance for new opportunity

The dramatic entry of RFID technology into logistics applications is opening unprecedented opportunity to RFID hardware, software and service suppliers

By Deborah Navas

Early last summer, Wal-Mart made an historic announcement to its suppliers that sent shockwaves that resonated not only with those suppliers, but throughout the vast security and supply chain industries worldwide.

Wal-Mart told its top 100 suppliers — tier-one consumer product goods and pharmaceutical manufacturers — that they had to put RFID tags on incoming cartons, cases and pallets by January 2005, and that all other suppliers must be compliant by January 2006. Wal-Mart buys \$178 billion worth of goods annually, and its directives are not treated lightly by suppliers who want to continue as business partners.

This mandate was followed four months later by the U.S. Department of Defense's guidelines for RFID to be used by its 37,000 suppliers on cartons and pallets.

The compliance date, January 2005, had a familiar ring and was no coincidence. Behind the scenes, Wal-Mart and the DOD, along with a range of RFID vendors and other participants, had culminated years of hard, tedious work.

The goal was to transform RFID wireless hands-free data collection into a robust, viable option for high-volume logistics applications.

Price point, performance, electronic product code standards and critical mass — courtesy of Wal-Mart's and the DOD's mandates — had all come together to bring RFID to commercial reality.

OPENING THE DOOR TO OPPORTUNITIES

The new mandate means vast new opportunities for RFID hardware, software and service vendors, not to mention systems integrators and security product manufacturers.

"The RFID mandates are going to have a tremendous cross-industry impact. With the economic strength of Wal-Mart and the DOD together, their suppliers have no choice but to comply with the mandates," said Ralph Rio, director, ARC Advisory Group. "Ever since Sept. 11, 2001, all kinds of opportunities have opened for security suppliers. It's a huge opportunity with many applications."

Opportunities lie not only in marketing services and



Along with Wal-Mart, the DOD has issued guidelines for RFID to be used by its 37,000 suppliers on cartons and pallets.

solutions to meet compliance requirements, but also offering other security-related opportunities in the logistics arena. Examples include security systems for cargo containers entering ports or the whole area of food safety along the entire supply chain.

Rio predicts that security providers will leverage a lot of different strategies — whether accelerating technology development, private labeling the technologies they don't have or partnering — to take advantage of this market.

Roughly 72 percent of solutions providers consider RFID a major business opportunity, and more than half say their customers are requesting RFID integration services, according to a mid-2003 survey conducted by Texas Instruments' TI-rfid Systems. Such demand is fueling aggressive market speculation, says Wireless Data Research Group, of San Mateo, Calif. For example, it predicts RFID hardware, software and services will triple from \$1 billion in 2003 to \$3 billion in 2007.

MULTI-APPLICATION POTENTIAL

Fifteen years ago, Texas Instruments pioneered commercial RFID applications, beginning with livestock tracking and automotive ignition security that is now embedded in 100 million cars. The company's tags are used by

six million drivers for Exxon Mobil's Speedpass transactions and also in global retail supply chain applications such as Marks & Spencer's recyclable fresh food trays.

"We've been in RFID longer than anybody," said Bill Allen, TI-rfid Systems' marketing communications manager. "About four years ago we became involved with supply chain applications and participated in establishing ISO standards used extensively worldwide."

The company is now developing a UHF chip to meet the US compliance mandates and is a member of EPCglobal US's Hardware Action Group.

"A whole new dynamic is entering this space, and the cost savings potential is terrific," he said. "Global supply chain costs amounted to \$3 trillion in 2002 – second only to the cost of manufacture. Today, the only way you can add to profits is to reduce costs."

One of those ways to reduce supply chain costs was through the bar codes initiative. But Allen expects RFID will take it to the next level, as it gains traction for streamlining processes and offers solutions to markets like security.

"We anticipate more powerful access control, purchasing and asset tracking capability all performed with one RFID badge," he said.

FROM EAS TO EPC

One very successful RFID vendor plying both the security and logistics fields is Tyco Fire & Security. Tyco Fire & Security, via its Sensormatic solutions portfolio, is considered the leading supplier of Electronic Article Surveillance tags and reader systems to the retail industry – with more than 80,000 system implementations in the UHF band under its belt, according to George Reynolds, Tyco Fire & Security's vice president of RFID development.

The company also has a sizable manufacturing customer base and has moved quickly into the logistics arena.

To get into the RFID fray, Tyco Fire & Security has developed a consortium of business partners called epcSTARS to offer customers a turnkey solution. Partners include Finland's UPM Rafsec, a global player in RFID labels and tags, Dallas's GlobeRanger, supplying its iMotion middleware and Cambridge, Mass.-based ThingMagic for reader design, as well as its own divisions, Sensormatic and ADT Security Services.

THE SUPER PILOT PROGRAM

Tyco Fire & Security is currently in the pilot stage with several customers who are linking two facilities together and reading passive EPC tags on cases

at near 100 percent accuracy, even when dozens of them are on a pallet. In one case, tags are read at the factory packaging line, as the cases are palletized, then conveyed onto the truck. at the receiving dock, and finally at pick locations.

"The customer is building a business case for using the technology in-house," Reynolds said. "We also have solutions with relatively straightforward steps to compliance only, but nobody can survive very long doing something for Wal-Mart that they're not doing for other customers." SSN

The RFID mandates . . . Now here's what it all means

• THE MANDATES DO NOT EXTEND TO ITEM-TRACKING

A great deal of confusion was generated when the mandates were first announced, especially by an early DOD reference to item tracking. This inflamed longstanding consumer and civil libertarian concerns for privacy if all consumer items now marked with barcodes should carry embedded radio frequency transponders. Since December 2003, the DOD has pragmatically backed off the item-tracking issue in order to focus on more realistic implementation goals. Also the development of a brand new "blocker tag" technology that can prevent RFID tags from being read was announced in late February by RSA Security, which would prevent tagged consumer items to be read by maverick scanners.

• SUBSTANTIAL TIME AND COST PRESSURES ON SUPPLIERS

Wal-Mart has made it clear that it is not picking up the costs for its suppliers and is giving no price breaks in compensation. The DOD's position on supplier technology costs has not yet been clarified. Neither mandate asks that suppliers implement RFID technology in their own operations. However, since Wal-Mart is also encouraging its suppliers to identify other cost-saving supply chain initiatives associated with RFID, suppliers will have to implement if they want to comply, or simply see an return on investment.

However, Donnie Lee, chairman and chief executive officer of reader manufacturer AWID, noted that the feeling around the industry was that suppliers have to demonstrate at least token compliance by the deadline. AWID is one of the four companies that Wal-Mart allowed to demonstrate its RFID readers.

• IT MEANS BILLIONS OF DOLLARS IN COST SAVINGS

Enhanced supply chain productivity and efficiencies — for Wal-Mart, the DOD, other retailers and policymakers who follow in the mandate path, as well as ensuing costs saved by the suppliers who implement RFID data collection, are part of the benefits. RFID can improve demand forecasts by 10 to 20 percent, slash inventory levels by 10 to 30 percent and increase sales by one to two percent, according to Accenture, a New York-based management consulting firm. SSN

An up-close look at the Dep. of Defense RFID edict

By Deb Navas

The DOD has been using RFID technology in its global supply chain for several years employing Savi rewritable RFID tags to track cargo containers. In 2000 it joined Massachusetts Institute of Technology's Auto-ID Center, taking part in the development of Electronic Product Code standards and compliant systems to assure interchangeable tags and readers for RFID-based logistics applications.

The DOD's December 2003 announcement specified its own UID numbering system used in conjunction with EPC and International Standards Organization RFID standards, creating some confusion because EPC and ISO are not compatible. The plan is to reconcile ISO and EPC standards with the Generation 2 tag specification to be published this summer. The DOD's final RFID policy and

implementation strategy will be announced at an April 2004 summit meeting.

THERE'S STILL TIME

All 37,000 DOD suppliers aren't being asked to comply between now and January 2005, however. With the exception of battlefield armament, pharmaceuticals and war materiel requiring a speedier timetable, suppliers are asked to put passive RFID tags/labels on pallets and cartons when they sign or renew contracts. The

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largest depots will demand full compliance by 2010. The

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For systems integrators, product vendors and installers alike, there's lots of work to be done

A number of issues, such as tag placement and readings, need to be resolved

By Deb Navas

Integrating RFID-based data collection into existing supply chain systems presents considerably more challenges than bolting a bar code-based solution onto a warehouse management system or enterprise resource planning system. And any number of reading and tag placement issues will have to be resolved on the fly.

As Joe Freeman of J.P. Freeman Co. said, "The security industry seems to have a leg up here, especially where tags are emanating from security industry vendors."

For example, watermelons cause interference due to their high water content. Dan Bodnar, director of product marketing for Intermec, a company that provides equipment and integration of systems in the barcode market, observed that reading label tags on a conveyor is relatively straightforward compared to reading a pallet of cartons.

"Products can present a range of reading characteristics. For example, liquids typically offer less bulk and signal interference where the handles are, so that tags read better if placed on carton tops," he explained. "Until the EPCglobal US Hardware Action Group publishes the specification for the UHF Generation 2 tag, customers are using the Class 1 or Class 0 tags in order to work through other issues such as tag placement. They'll need to upgrade to UHF Generation 2, but most readers are software configurable."

Checkpoint Systems is one of the leaders in integrated product tagging, embedding EAS tags in CPG product tagging. The company works with Accenture and SAP and other ERP vendors as integration partners, as well as hardware partners such as Matrics for readers.

John Thorn, general manager of supply chain and brand solutions group for Checkpoint, said companies like his have spent years working on the technology.

"We've done a lot of work getting the technology right," said Thorn. "Resolving issues surrounding placement — whether foil or blister packaging, reading product by the case, embedding tags into packaging for high-speed lines, for example. It's a long process."

RFID projects also require a fair amount of engineering, according to Steve Banker of the ARC Advisory Group, a research firm focused on supply chain technologies.

"For example, a forklift unloading pallets may unin-



Integrating RFID-based data collection is expected to be a complicated endeavor, especially as product is scanned while on a pallet.

tionally read an adjacent pallet instead of the one being picked up. Therefore, readers have to be carefully shielded to prevent the reading of adjacent tags," he said. "One supplier that has done testing in this area believes that readers are not hardened enough to take the wear and tear of being attached to forklifts."

Another whole set of challenges falls under the "What do I do with all the data?" head. Existing warehouse management systems aren't geared to process the bursts of data collected by RFID readers. Companies piloting implementations are discovering that data collection points need stronger business intelligence rules to control incoming information.

Companies are also being forced to buffer existing backend legacy data systems unused to the overload with middleware, variations of an EPCglobal US software product, Savant, or similar data-routing software. Deploying RFID tags and related equipment, and integrating data from the tags with internal and trading partners' systems may at this point feel like reinventing the wheel — even if it is a better wheel — to suppliers pioneering this application. *SSN*

