

In-transit Visibility

TECHNOLOGY AIDS TRACKING THE MOVEMENT OF MATERIEL.

**By WILLIAM MURRAY
MLF CORRESPONDENT**

Greater efficiency, or “getting there faster and better,” is the goal of many logistics enterprises, whether Amazon.com, DoD, FedEx or UPS, according to David Lincourt, a former Canadian military officer and vice president for field services for SAP’s Global DoD Business. That’s not to mention the goal of having items spend less time in warehouses and more time in the possession of operators who need them.

DoD officials are trying to use radio frequency identification (RFID) technology and change management within their logistics enterprises to gain greater in-transit visibility of items and containers in their logistics enterprises. This will go a long way toward eliminating errors such as duplicated orders, as well as reducing duplicative technology, according to vendors. Over time, it is clear that DoD logisticians and the vendors that they work with will pay close attention to commercial logistics breakthroughs and best practices, and DoD is seeking to implement them within their supply chains.

Not only do military logisticians have to carry side arms and prepare to be engaged in battle when in a theater of operations, but they also should be prepared to read *Business Week* and *The Wall Street Journal* to stay on top of what the Global 500 companies are doing in logistics if they want to get ahead.

Through in-process visibility, “We want to know the status of the order,” SAP’s Lincourt said—similar to how customers using Amazon.com, FedEx and UPS want know the status of their product orders, regardless of whether the product is in the physical custody of the logistics enterprise. “It may be in a container or in a warehouse,” Lincourt said. The reality of asset visibility, he said, is that it can be very fragmented within a military enterprise. Regardless, logisticians then have to make their supply chains more mobile, to get their assets “as close as possible” to operators within the enterprise, he said.

With the ending of the war in Iraq and the draw-down of American troops in Afghanistan, Lincourt understands that the logistics community will play a large role in making decisions on equipment to be shipped out of theater. Much like Iraq, the retrograde from Afghanistan is a huge operation with the added challenge of geography.

DoD suppliers have to ensure that all items transitioning through military distribution centers are RFID tagged, a requirement that started in 2004-2005, according to Michael Fein, service product manager for RFID at Zebra Technologies Corp., an RFID company in Lincolnshire, Ill. Fein sees the influence of commercial logistics companies such as Walmart, which instituted a tracking requirement for pallets and cases for its 1,500 vendors that became mandatory in December 2006, eventually giving way to a mandate that covered individual items. Zebra sells both active and passive RFID technologies.

DoD requires passive RFID tags, which are less expensive than active RFID tags. Active tags have batteries to send signals to readers that provide real-time updates.

An emerging requirement to use RFID on heavy metal containers might be driven by DoD, according to Fein, whose company claims to spend four times as much on research and development as its closest competitor. Overall, he has seen improvements in accuracy and range in RFID solutions deployed by DoD in recent years.

With continuous asset visibility that provides location and status information at the container and item level, the wireless networking technology to be used in the Army and Defense Department’s Next Generation Wireless Communication (NGWC) for Logistics Applications could result in reduced operations and maintenance expenses and better accountability throughout the supply chain, according to Jim Kilfeather, vice president of global engineering and operations for Cubic Corp. of San Diego. DoD officials will need to conduct audits to determine the effectiveness of the NGWC for Logistics Applications. The Army is using this technology at Bagram Airfield, Afghanistan, and in Kuwait.

“They don’t care how it’s collected,” Kilfeather said of military logisticians and the data they seek on assets. Some of the information they collect comes through satellite and WiFi networks. “The information flows into the back end systems,” he said.

DoD has also been implementing least cost routing, which means selecting a route from origin to destination for an item or container based on least cost, and keeping a close eye on the cost of tag readers and sensor networks, he said.



David Lincourt



James Brian Kilfeather

In a mesh system such as the NGWC for Logistics Applications, every tag can communicate with every reader. Kilfeather predicted that mesh networking will become the focal point for every total logistics solution. He believes that Cubic Corp. is best positioned to provide secure, scalable and cost-effective mesh solutions for military logistics enterprises, given the company's track record.

Satellite tracking of containers, according to Doug Brown, senior vertical marketing manager at Honeywell Scanning and Mobility, Norcross, Ga., allows for greater information to pass through the supply chain, such as the temperature in the container and information on when the container is moved.

Brown is seeing significant gains in commercial logistics from the use of two-dimensional barcodes, which can store information horizontally, like one-dimensional barcodes, as well as vertically. While a one-dimensional barcode can only store up to 20 characters, a two-dimensional one can store up to 7,089 characters. Many companies are popularizing the use of 2-D code through quick time codes, integrated with smartphones and content on websites.

Two-dimensional barcodes have been around for more than 20 years, but only in the last five years has Honeywell's Brown seen warehousing software available that can unpack the potential of the extra data generated by 2-D barcodes through item unique identification technology.

"Through AIDC [automatic identification and data capture] technology, personnel can make real-time decisions," Brown said of a technology with which 2-D barcodes work well. As a result of the increased amount of data about an object or container—and the faster speed at which this information is delivered—it is easier for front line employees in a logistics enterprise to reroute packages and items to updated destinations.

Savi's solutions span the range of AIT and support active, passive, GPS, GPRS, and satellite tracking capabilities all on a single integrated platform. Because there is no one size fits all solution, Savi's device-agnostic platform enables users to read and write to virtually any Savi or third-party supplied asset and in-transit visibility tag, sensor and reader. "Our software technology captures and aggregates data—in any format and at any velocity—from those devices to provide valuable information that helps organizations respond to a variety of logistics challenges—from route optimization to asset security," said Rosemary Johnston, Savi's vice president of federal sales and strategy.

There are a host of solutions used across the commercial world that are not necessarily well-suited for use in military circumstances. Asset tracking systems, however, usually can be used without a loss in capability. "Military and commercial supply chain managers all want to know where their assets are and when they can expect to receive them," said Johnston. "Savi's technologies respond to both environments with equal effectiveness."

High on Savi's radar is the January 1, 2014, deadline for DoD's mandate that requires all software and hardware information systems that read and write to/from aRFID devices be compatible with ISO 18000-7. "Savi helped drive the creation of the active RFID ISO 18000-7 standard to support active RFID interoperability on a global basis. ISO 18000-7 has since been adopted worldwide by commercial enterprises and defense organizations," explained Johnston. "Our

products, such as the ST-654 ruggedized active RFID tag, support the ISO 18000-7 protocol and are purpose-built for the locating, tracking and managing of medium to high value assets in both defense and commercial applications."

One of the U.S. Army's largest depots, covering 59 square miles, has achieved nearly 100 percent location and condition accuracy for the tens of thousands of containers, pallets, vehicles and shipping crates stored in and across the facility using Savi solutions. The resulting efficiencies have helped drive down personnel costs, improve response times and decrease asset spoilage.

Looking to the future, Johnston said that Savi sees both evolutionary and revolutionary technology advances. "Significant evolutionary improvements, like those provided by Savi's System on a Chip, extend the range, reliability, battery life, storage capacity and computing capability of the tag, sensor and reader devices. This allows users to identify and track critical assets over longer ranges, at greater speeds, and with greater reliability and accuracy."

According to SAP's Lincourt, the massive amounts of data that become possible in a logistics enterprise enable logistics planners to use predictive analytics based on ordering history and changes on the ground and in the supply chain. He sees the future of DoD logistics also including more machine-to-machine interfaces in the logistics enterprise and a larger role for big data analysis.

In the future, Brown sees organizations such as DoD emulating large logistics enterprises such as Walmart in their use of cross docking. Cross docking enables the giant retailer to decrease the amount of time it holds inventory through the use of long, thin warehouses with many doors on each side, which allow trucks to quickly load and unload pallets and crates.

Military logisticians also might consider giving more latitude and decision-making capabilities to junior enlisted personnel within the logistics enterprise, a practice that Brown sees operating well in European commercial warehouses but not followed as much by American companies.

Brown also predicts that logistics enterprises like DoD will implement devices such as iPads and smartphones given the demands and comfort level of their users. Honeywell, in addition, has seen its customers need to hot swap ruggedized computers in warehouses to allow employees to work more efficiently. Honeywell is also pushing out greater capabilities for customers to repair their own computers.

Mike Lennon, industry principal for DoD for SAP and a former U.S. Marine officer, would like to see the gap between SAP's research and development efforts and DoD customer implementations better bridged. "We're working with DoD applied research organizations in implementing technology that is baked" and could be ready for broader deployment, he said.

With the amount of money that commercial RFID and technology companies spend, it's clear that DoD has a number of willing publicly traded and experienced dance partners to accompany it as it seeks to emulate commercial best practices in supply chain logistics. ★



Rosemary Johnston

rjohnston@savi.com



Michael Lennon

For more information, contact Editor-in-Chief Jeff McKaughan at jeffm@kmmimedialogroup.com or search our online archives for related stories at www.mlf-kmi.com.

Route items
more efficiently
with **fewer**
disruptions
using **sense and**
respond logistics.



Savi Technology's next generation active RFID tags and analytics software turn sensor data into real-time information on the location, condition, and security status of assets and shipments. Defense organizations use Savi's solutions to access, analyze and learn from new data in ways previously impossible, yielding streamlined operations, enhanced security, and more-timely decisions.

To learn how Savi's 23 years of military logistics experience can help improve your operations visit www.savi.com/militarydefense.

