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**TECHNOLOGY REVIEW | YARD MANAGEMENT**

# Taming the trucks

**Looking to bring order to a chaotic freight yard? There's an app for that.**

By **Peter Bradley**

The yard of a large and busy distribution operation may seem a chaotic place, with trucks entering and leaving, yard jockeys whisking trailers to and from dock doors, and all of it happening rapidly and with virtually no break in the action.

Keeping track of all that movement, and keeping track of every trailer and the valuable inventory it holds, can in fact be daunting. But the evolution of yard management systems (YMS) and real-time location systems (RTLs) has gone a long way toward providing DC managers with greater visibility and control of the yard. Put to use, the tools can lead to greater productivity and efficiency in yard operations. Managing trailers efficiently means managing the inventory they hold efficiently, and that benefits operations inside the DC and indeed across the supply chain.

Daunting as the yard management challenge may be, it appears the stakes may be about to get higher. Dwight Klappich, an analyst for the research firm Gartner Inc., believes that both regulatory and operational pressures are likely to make efficient yard management even more important in the future. For instance, if pending changes to hours-of-service regulations curtail truck drivers' working hours, truckers will insist that customers get their drivers in and out of DCs as quickly as possible. They may even start penalizing customers who hold drivers and equipment too long, he warns.

## Enhanced efficiency

Yard management systems are designed to address these kinds of inefficiencies. They can provide DC managers with real-time information on trailers, help manage the flow of trailers to and from the correct dock doors—inbound or outbound—and ensure that trailers are moved in and out of the gates more efficiently.

David Phillips, director of sales engineering for the Americas and Asia/Pacific for Zebra Technologies, says that a yard management system is fundamentally an execution management tool for yard activity. Among other functions,

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the software can oversee both door and gate management, which can be manual, semi-automated, or automated. These systems can also generate move requests, again either manually or automatically, based on conditions at dock doors or trailer status.

The development of RTLS linked to the YMS adds to that efficiency by providing managers with data on the precise location of all trailers in the yard at all times. This technology, which automates the data collection and entry processes, virtually eliminates not only lag time but also the potential for human error.

RTLS comes in a variety of forms. For instance, Zebra's yard management suite incorporates the company's WhereNet RTLS technology, based on the ISO 24730 interface protocol. (That protocol aims to encourage interoperability among RTLS systems.) It is a wireless system that uses a local area network for location and messaging. It can integrate with either passive- or active-tag RFID systems.

The RTLS offered by Pinc Solutions makes use of passive RFID tags and readers with global positioning system capabilities mounted in yard trucks. The system can use RFID tags already installed on trailers, or if a trailer does not have a tag, one can be mounted on a trailer with a magnet at the guard gate, says Dr. Aleks Gollu, chief technology officer and a founder of the company.

The companies most likely to benefit from an RTLS system, according to Phillips, are high-volume operations—those managing 750 or more trailers and 400 to 500 gate transactions daily. By contrast, a YMS on its own can pay off at facilities with a couple hundred trailer slots, he adds.

As for specific benefits offered by the combined technologies, the biggest gains are likely to come from a reduction in labor, Gollu says. An RFID-enabled RTLS linked to the YMS allows a driver to jump to 12 moves an hour from an average of five by reducing the time drivers spend getting instructions and searching for trailers. "That's saved customers a lot of money," he says. "Spotting costs are \$40 to \$50 an hour [per driver]. If you have a large yard, that's a huge savings."

Phillips says Zebra customers have seen similar benefits. "Where we see most customers pick up ROI is in the switchers—equipment and labor—and subsequently dispatching. We see a reduction of 30 to 50 percent in the number of switchers and switch cabs."

The system also speeds up processing at the gate, he says, allowing reductions of 25 to 30 percent in gate personnel. Overall, he says, the system helps eliminate manual procedures, cutting processing times nearly in half. "With sites that have 1,200 trailers, that's a tremendous benefit," he says.

Perhaps more important, users are tracking every trailer every day, allowing better management of the inventory in the yard. That becomes particularly important for trailers carrying perishable goods. These RTLS-enabled yard management systems, for instance, can alert managers to refrigerated trailers waiting to be unloaded.

### **Beyond asset tracking**

As important as this type of asset tracking may be, at least one observer believes that YMS and RTLS have the potential to do much more. Klappich of Gartner says that savvy companies are finding ways to use the technology to improve overall inventory performance. "We are starting to see innovative companies use the yard as an

extension of the warehouse," he reports. In particular, he says, they're using information provided by these systems to help boost inventory velocity, throughput, and cycle times.

"One of the things we've seen [in an annual Gartner study] is that efficiency and productivity are at the top of the priority list, even beating out cost," Klappich says. "Most people think of labor productivity first, and of course, that's important. But we're also thinking about inventory efficiency, and that gets to things like throughput and cycle time issues. Inventory that is sitting is not efficient. Minimizing the time it sits can have a huge impact on the financials of an organization."

Gollu adds that yard management systems also allow users to collaborate across organizations in an effort to improve inventory management. For example, he says, when a food manufacturer ships to a grocer's DC, a typical move includes substantial idle time. "If a trailer is idling for 12 to 14 hours at the source and the same at the destination, that's a day's worth of inventory we could take out," he argues.

"Why do they sit in the yard so long? Typically, companies build in a lot of slack. If you have real-time accurate data [shared among shipper, carrier, and receiver] on when a trailer started loading, when it left the facility, and you know the drive time, then you will know when it will arrive and can unload quickly and release it for the next shipment," he says. "You can take a half day out of the order cycle."

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