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Koch cranks up the volume

When a new line of business caused backups at Koch Entertainment's packing stations, an automated packaging system cleared the logjam. Now the music and film distributor is shipping a lot more orders in much less time.

NEW PRODUCT LINE, NEW CUSTOMERS, NEW REVENUE ... WHAT'S NOT TO LIKE? Nothing—unless that nice new chunk of business doesn't fit well with your existing process for packaging and shipping orders.

That was the position Koch Entertainment found itself in two years ago. The company, which bills itself as the largest independent wholesale distributor of music and videos in North America, had just taken on fulfillment of direct-to-consumer orders for some of its customers, most of which are music retailers. Trouble was, the picking, packing, and shipping system in its distribution center was designed to handle cartons, not the individual CDs or DVDs needed to fill consumers' orders.

Picking was no problem, but the flood of small orders gummed up the works when they reached the packing stations. Fortunately, Koch quickly found a solution. An automated packaging system directed by a warehouse control system (WCS) not only broke up the logjam, it also allowed the distributor to ship out more orders in much less time. It's so efficient, in fact, that the company will be able to take on even more new business without skipping a beat.

Shipper sings the blues

Koch Entertainment Distribution handles distribution for dozens of music and video labels, large and small, from its distribution centers in the United States and Canada. The U.S. organization

serves customers from a 90,000-square-foot DC staffed by some 80 employees in Port Washington, N.Y. Each day, the DC ships out between 2,500 and 3,000 mail orders to consumers by UPS, FedEx, and the U.S. Postal Service, and about 1,500 larger shipments by parcel carrier or less-than-truckload to its customers' warehouses and DCs.

Until late 2006, the DC had handled only wholesale orders for music and video retailers. But with online sales of CDs, DVDs, and other entertainment media growing fast, Koch saw an opportunity to swiftly expand its business. The distributor could cut time and cost for its retailer customers by fulfilling individual consumer orders directly from its own DC, rather than shipping orders in bulk to the retailers' facilities for repackaging and fulfillment.

Koch's distribution center had the capacity to take on the additional business. The facility already was highly automated, with a 125,000-location, 21-level storage and retrieval system; a futuristic robotic picking system developed by a sister company in Austria; and an automated storage and retrieval crane for large orders. Orders were picked to totes, which then traveled by conveyor to a series of bulk shipping stations. There, workers would perform the labor-intensive process of taking the items from the totes, scanning them, packing them in boxes, adding dunnage and packing slips to the cartons, sealing the cartons, and sending them on to shipping.

This worked well for the large commercial orders the system was designed for. But when Koch took on fulfillment of individual consumer orders—and the volume of those orders grew more quickly than expected—the packing stations couldn't keep up with the flood of small items, and backlogs soon developed.

There were two reasons for the holdups. First, the ware-

house management system assigned each order to a separate tote or group of totes. "If we got 500 orders, we potentially could get 500 totes, with orders as small as one piece per tote taking up prime real estate on the conveyor," says Phil Wulff, senior vice president of logistics. And second, because it took much longer to manually pack, say, 100 individual consumer orders than it did to pack a bulk order of 100 items, throughput slowed dramatically.

Any sort of slowdown, though, was unacceptable. For one thing, the entertainment industry is extremely time-sensitive: New products must be in retail stores and mail orders must be available to ship on the announced release, or "street," date, Wulff explains. "You can't get them there too early because you don't want them on the shelf before the street date, and you don't want them to get there late or they won't sell," he notes. For another, it was taking two or more days to ship some direct-to-consumer orders, and Koch's customers required same-day shipping for those orders. Wulff and John Papazoros, Koch's senior director of distribution, had to find a way to move orders through the packing stations much faster. The solution would be to automate the cumbersome manual packaging process—and there was not a moment to lose.

Just what they needed

For help, Koch turned to systems integrator Glen Road Systems Inc. (GRSI), which had extensive experience with automated packaging solutions. GRSI's task was to figure out "how to achieve the best results with the least amount of labor and cost," says Steve Martyn, the integrator's CEO.

After examining Koch's existing operation and considering its future needs, GRSI and partner Sealed Air Corp., a manufacturer of automated packaging equipment and packing materials, developed a solution that filled the bill. Just three weeks after the backlog began to develop, they installed what Martyn calls an "in-motion order and packaging fulfillment system." This solution included Sealed Air's PriorityPak automated packaging equipment, along with automatic feeders, scanners, a bar-code printer, an in-motion scale, a print-and-apply labeler, and a sorter. All of these components are controlled by GRSI's proprietary FastTrak warehouse control system.

Now, 100 small orders at a time are batch picked into a tote, which operators scan and place on a conveyor. When the tote arrives at the packaging system, another operator removes the CDs and DVDs and stacks them in an automatic feeder. An induction scanner reads the bar code on each individual item. The WCS then asks the warehouse management system to identify the next order for those items and matches the items with that order. "There

show stoppers

Automated packaging systems are available in all sorts of variations, ranging from stand-alone, manual equipment all the way up to fully automated solutions that can be integrated with material handling and data-capture devices as well as with warehouse management, warehouse control, and automated shipping systems.

If you'd like to learn more and see some of this equipment in action, consider attending one of these trade shows:

- PackExpo (<http://my.packexpo.com>): Sponsored by the Packaging Machinery Manufacturers Institute (PMMI), this year's event was held Nov. 9–13 in Chicago. PackExpo 2009 is scheduled for October 5–7 in Las Vegas.

- ProMat 2009 (www.promatshow.com): Sponsored by the Material Handling Industry of America (MHIA), the big show will be held in Chicago from Jan. 12 through 15, 2009.

- Interpack (www.mdna.com/shows/interpack.html): The world's largest trade fair for the packaging industry, Interpack is held in Düsseldorf, Germany, every three years. This year's event has come and gone; the next show will be held May 12–18, 2011.

could be five different orders with the same product. PriorityPak grabs the first order it sees and starts the whole packaging process," Papazoros explains. "When it sees that SKU (stock-keeping unit) again, it reaches for the next order with that item."

As the items move down the line, PriorityPak scans their dimensions and dispenses two sheets of rigid cardboard, sized to fit the items on the conveyor. The underside of the board is coated with a special cohesive, which sticks only to itself and not to the items sandwiched between the sheets, says Jeff Zahansky, Sealed Air's business manager for automated packaging. As the machine gently compresses and seals the coated board to create a protective package, the cohesive closes around the product and prevents it from shifting. The package provides extra protection for the corners of the CDs and DVDs, where damage is most likely to occur in transportation. Essentially, says Martyn, the packing stations have been converted from assembly operations to manufacturing operations, where packaging is created on demand.

Meanwhile, the FastTrak WCS scans the item's bar code and assigns it to a random bar code that is preprinted on the rigid board. The latter bar code functions as a "license plate" for a particular customer order, and the system creates a "marriage" between the two bar codes for tracking

purposes, Wulff says. The items then move on down the line to be scanned once again, and then weighed, labeled, and sorted for shipping. Martyn notes that the WCS is tied into Koch's automated parcel shipping system, so that information about the order seamlessly moves from packaging to shipping, with no need to rekey.

With PriorityPak handling about 1,200 orders an hour, orders can be weighed, packaged, and labeled in a little over two hours—a big improvement over the two days it often took with manual packaging processes. "Once we got the machine commissioned, the problems were quickly solved," Papazoros says.

Not every mail order passes through the PriorityPak system. Some items—bulky boxed sets, for instance—are too big for the fully automated line. Based on each SKU's characteristics, the WCS directs oversized items to the most appropriate of Koch's other packing stations, including some that are partially or fully manual. If they're part of an order that includes small items from the automated station, they are reunited with the rest of the order during pre-shipping sortation.

Savings signed, sealed, delivered ...

As for the cost of this type of equipment, Martyn and Zahansky estimate that prices for automatic packaging systems range from around \$60,000 to \$115,000 for low-tech, largely manual equipment, to about \$200,000 to \$300,000 for a mid-range system, and \$350,000 or so for a completely automated in-motion fulfillment system with extras like a shipping sorter. All of them, Zahansky says, typically achieve payback in less than one year.

For Koch Entertainment, the payback has come on several fronts. PriorityPak handles so many orders in so little time that the company was able to eliminate five of its packing and shipping stations. The cost of packaging materials and dunnage has declined, as has the incidence of in-transit damage. Orders now fly through the system so swiftly that some customers have actually complained that they ship out *too* quickly, Wulff laughs.

Getting orders out sooner opened the way for Koch to ship a lot more of its direct-to-consumer orders via the U.S. Postal Service. Using the Postal Service lets the distributor pay by the ounce instead of by the pound, at a "considerable" savings, says Papazoros. (Koch does use third-party expeditor services, including FedEx SmartPost and UPS Mail Innovations, for those mail shipments.)

Wulff and Papazoros consider the automated system to be more than a money saver; it's a moneymaker as well, they say. Although PriorityPak is currently processing 1,200 small orders per hour, the integrated system can handle up to 3,000 per hour. "As our business grows, we have the ability to add more throughput," says Wulff. "And if we didn't have this automation, we could not have taken on the mail order business. Automating allowed us to go out and get more business." □



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