

RFID Helped Alliance Entertainment Improve Accuracy in CD and DVD Product Distribution

Testing at Avery Dennison's Atlanta Technical Center helps leading distributor of home entertainment products ramp up shipping accuracy and customer service levels.

Alliance Entertainment Corporation, a subsidiary of Source Interlink, is a leading distributor of videos, DVDs, music CDs, video games and related merchandise. The company's direct-to-retailer operation provides just-in-time inventory replenishment for over 22,000 storefronts nationwide, including major retailers such as Barnes and Noble, Circuit City, Amazon, Best Buy, and Blockbuster, as well as a host of independent shops.

Perhaps the most complex and demanding part of Alliance Entertainment's distribution channel is its vast Consumer Direct Fulfillment (CDF) service, in which e-commerce retailers relay small, individual orders to Alliance for shipping directly to consumers. The CDF order volume handled by the company's distribution center is significant – more than five million orders were shipped last year.

Because of the sheer volume of orders and the need for shipping speed and accuracy, the labor involved in sorting, labeling, packing and shipping orders was intensive. In addition, errors caused high costs and customer service problems related to the order return rate. These circumstances led Alliance to reevaluate and reengineer its entire consumer direct distribution operation.

Stymied by High Volumes and Processing Complexity

According to James Rink, Alliance Entertainment's Vice President of Alliance's Distribution & Fulfillment Group, "In our CDF operation, a typical non-peak day calls for processing and shipping 10,000 to 15,000 orders. Over the holiday season, it's higher – up to 50,000 orders per day," he said. "It became clear that our largely manual pick-and-pack system was simply not sufficient to support these volumes in a cost-effective way *and* provide our customers and their customers with better service."

At the time, pick-and-pack of CDF orders was performed on a batch basis, with 36 items per pick being placed in a tote. In the sorting area, the batch was sorted into individual orders and transferred by cart to the packing area. Here workers would evaluate each order, select the right size box, pack the items and place a 'license plate' on the outside of the box to identify the order. The boxes were then conveyed to the shipping area for weighing, manifest generation, and printing and application of shipping labels.

In an effort to increase speed and efficiency, Alliance had deployed a sequenced automation process to weigh, manifest and label the boxes based on scanning the license plate on the outside as they passed. The problem with the sequencing system was that, if a worker disturbed the sequence for any reason, not only could the wrong label be applied to one package, but the entire batch could be

thrown out of sync, with no quick way to verify that the orders inside the box matched the labels on the outside.

“You can imagine the customer’s dissatisfaction when they received the wrong shipment, or if a shipping label read customer A instead of Customer B,” says Rink. “Plus, we were paying for the customer to return the item and consequently send them the correct items. We obviously had to do something to improve the accuracy of our CDF distribution process. RFID technology offered an innovative packaging solution.”

Early RFID Pilot: A Hit-and-Miss Proposition

In 2005, Alliance set out to deploy RFID technology to help streamline its order fulfillment operation with the goals of increasing accuracy, efficiency and throughput, without requiring more warehouse space, which was already constrained.

One physical improvement the company made was to install cold-seal cohesive packaging machines for small orders (one to four items), which automated the process of shrink wrapping and enveloping the order within an adhesive corrugated material for protection. This was a significant time-saver on the packaging end, since smaller orders constitute about 80 percent of the orders Alliance processes. The company also reengineered its conveying system to allow more streamlined workflow.

When it came to specifying an RFID labeling solution, however, Rink found that quarterbacking his team’s learning curve and hardware selection path was much more difficult. Acting as project coordinator, he initially selected the discrete components for an RFID solution and implemented a limited-scope pilot test application. However, the read rate performance was unacceptable – only about 80 percent.

In retrospect, Rink notes that these early problems may have been caused by the foil graphics commonly used on the cover of some DVDs and CDs. “Metallics are known to be problematic for UHF RFID readers,” he explains. “But even after changing out the hardware, our read rates were still not approaching 100 percent, which is where we needed to be. At that point, we decided to partner with two companies noted for their respective RFID knowledge – Avery Dennison and Weber Marking Systems.”

Enter Avery Dennison’s Real-World™ RFID Testing

Avery Dennison RFID and Weber worked closely with Alliance to perform testing on its application at the Atlanta Technical Center (ATC), the industry’s largest RFID technology education and testing facility. The extensive solution testing process was designed to help ensure Alliance’s application would perform to expectations in their real-world distribution center environment.

“Testing our solution at the ATC really kept us on track and turned the project around,” notes Rink. “Because the ATC is dedicated to offering customers a ‘vendor-neutral’ approach to RFID testing, we had access to many different combinations of RFID inlays and tags, as well as all leading brands of printer/encoders and readers – without having to purchase the hardware ourselves. So we were able to evaluate several brands of products and supplies and compare their performance results. We also gained confidence, working with a team of experts who have helped other companies achieve

success with their RFID implementations. As a result, we were able to select an integrated solution that really works for our application.”

Alliance found Avery Dennison’s ATC and its team-based, consultative approach to be a huge timesaver. Wisely, Rink brought scores of Alliance’s most challenging products – the foil-wrapped CDs and DVDs – to be tested, knowing that an integrated system that performed well on these would easily be able to support the rest of the product lines.

As a result of the testing, the team selected Avery Dennison’s AD-220 RFID inlay, to be converted into labels by Weber Marking Systems, along with RFID printer/encoders from Zebra and a newly released RFID reader from Impinj. Rink reports that once the components were selected, implementation of the system in the Alliance distribution center near Louisville, Kentucky, took about six months. That was followed by installation in the company’s Coral Springs, Florida facility.

Alliance’s RFID Solution in Action

Unlike many warehouse and distribution center RFID system installations, the new RFID system at Alliance Entertainment does not require reading tags from a distance as shipping cartons or pallets are moved through a portal or dock door. In fact, scanning is typically done at a distance of approximately six inches from each boxed order.

Here is how the new process works: Two labels are printed for each order, one of which is RFID-enabled. This one also serves as a customer invoice and is imprinted with the e-retailer logo. The RFID label is also encoded with the order ID number. The second label is simply a return label, imprinted with Alliance’s customer return policy and procedure.

The two labels accompany the picked order as it is placed onto a moving chain induction system equipped with pockets, which indexes the order and labels into the package sealing head. Here it is enveloped and sealed and emerges on the other side – with no visible identification. The package is then conveyed to the shipping area and identified using the RFID reader. Then the weight is captured and a 4 x 6-inch, bar coded shipping label is applied. Once it exits the printer, the package is scanned to verify that the encoded RFID chip inside the package matches the bar coded product identification on the outside shipping label. If it does not, the package is picked off the line and operators are notified of a possible out-of-sequence occurrence in time to make a correction before the package is shipped.

Although the company uses a high volume of labels in its new fulfillment process, Rink credits the label provider, Weber Marking Systems, with replenishing their supplies on a timely basis. “With storage space for consumables extremely limited at our distribution centers, we really appreciate this level of customer service.”

Fewer Shipping Errors Result in Dramatic Cost Savings

Alliance reports that its internal, closed-loop RFID-enabled consumer direct fulfillment system has so far resulted in significant savings in labor and shipping costs related to returned order claims. “This is huge, beyond even our best expectations,” asserts Rink. “This, combined with the time and labor savings associated with the new cold seal packaging machines, completely justifies our investment in the automated equipment.”

In addition, Rink notes that the operators engaged in processing orders have adapted easily to the new system. “Their workflow is faster and less stressful, so they can be more productive. They no longer have to manually fold the previously-used 8.5x11-inch invoice/return sheets. Best of all, they can verify that the contents of each package matches the shipping label with a simple scan with an RFID reader.”

The Alliance Entertainment CDF project has been so successful that the company is now working on ways to process its larger sized direct-to-consumer orders – those involving 4 to 24 items – using RFID technology. “After that, we could move on to smaller orders in our retail supply chain channel. And, as we take further steps to integrate RFID into our fulfillment processes, one thing is for sure – we will first thoroughly vet any new applications with performance testing at Avery Dennison RFID’s Atlanta Technical Center,” concludes Rink.

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