



## CASE STUDY

# Middleware Helps Supplier Meet Web Catalog Requirement

by John Ghrist

**T**HE TALE OF A LARGE CUSTOMER IMPOSING its business transaction needs on a smaller supplier is getting to be an archetypal story. Despite its status as a \$1.8 billion company with 80 plants and 10,000 employees, Cenveo, Inc., a commercial printing products provider found itself playing the smaller-company role early last year. As a condition of keeping a hefty contract with a \$69 billion healthcare services provider, Cenveo was required to interface its Web catalog system with the customer's SAP-based procurement system, receive purchase orders, and transmit acknowledgements and invoices back using the Common Business Language (xCBL) XML standards. It fell to Cenveo's LaSalle Street Data Center in Chicago, which manages networks and software at 20 locations for Cenveo's 1,000 commercial division envelope-segment end users, to figure out how to comply.

Specifically, the problem fell to Bob Weinstein, director of information resources at the LaSalle center, and the customer account manager. Upper management tasked the pair with finding a solution and provided funding to do whatever was required to keep the customer contract. Fortunately, this ad hoc committee had some idea of what to do because a similar project had been started previously for another customer. In 2002, Cenveo had called in some consultants to try to set up a similar system based on WebSphere 4.0.3, but the solution proved too cumbersome, and Cenveo was relieved when the customer dropped the requirement.

### Preparing for the Future

Weinstein knew that eventually another customer would have a similar requirement. "We decided to prepare for the next round by setting up a prototype using HiT Software, Inc.'s Allora middleware as the center link of our interface between internal systems and whatever XML-based requirement might blow in with the next RFP," Weinstein recalls. "I knew about HiT from an earlier purchase we had made of their ODBC driver software, and I knew they had a tool for XML-iSeries interfacing. I tried a few tests with the evaluation copy and decided we could use it if another XML project came our way."

Weinstein also credits a book for inspiration, *Applied XML Solutions* by Benoit Marchal (SAMS Professional Publishing, ISBN 0-672-32054-1), which described a common electronic catalog business transaction and provided sample Java and



**FIGURE 1**

Cenveo, Inc., is a commercial printing products supplier headquartered in Englewood, Colorado

XML components. "It seemed so accessible," Weinstein relates. "We could do a Web catalog, a listener service to receive and respond to HTTP requests, and all of the back-end interface to our systems."

After testing an XML parsing program, a homegrown Windows 2000 ASP prototype program, and Allora, Cenveo

### VENDOR CONTACT INFORMATION

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**Allora**

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settled on writing the catalog in ASP (although now it's in .NET) and using Allora-generated Java as the interface to back-end applications on the iSeries. The Allora wizard works with Borland Corporation's JBuilder running on a Windows 2000 server to create the Java objects. The prototype project was complete in November 2003. "When we were asked to do the current project with our healthcare customer in the spring of 2004, we felt we were ready," Weinstein notes. "We had a month to come up with a proof-of-concept test that convinced the customer we really could do it. The implementation project began in earnest at the beginning of July." Cenveo hosted the project on its iSeries model 270-2454 running V5R1.

### Project Milestones

The core rollout team consisted of three people. Weinstein developed the Allora and Java parts, an analyst programmed the back-end interfaces to the production system, and a Web developer handled the catalog and associated routines. Other staff members contributed help with setting up FTP and PGP data encryption and resolving other security issues. By the end of July, the catalog and data-return routines in xCBL were complete. At the end of August, the purchase order receipt, acknowledgement, and invoice-generation parts were ready. By the end of September, the encryption/decryption procedure was complete and undergoing testing, and the project went live October 18.

"The application we built with Allora is simple and powerful," Weinstein reports. "First, one of our processes decrypts our customer XML transactions and drops them into a network folder. Then, we built a small Java program that looks every hour for new transactions and triggers the Allora process to automatically import the customer XML purchase order into our iSeries database. Once a day, we send an XML invoice via FTP back to the customer from the iSeries using the Allora export function."

The project was facilitated by the earlier prototype work. Weinstein's team was able to adapt that code to manage the interface for data coming from the inbound XML and had to write new routines for identifying and queuing outbound invoices. "Allora's customer support was terrific. E-mails were promptly answered, and we could get HiT's staff on the phone easily. They were always interested in our project and supportive of our efforts," Weinstein adds.

The IT team trained Cenveo staff at the main production plant in O'Fallon, Missouri, via telephone. "Since these orders arrive at customer service already set up, they are almost invariably simply approved by customer service and sent through the system for picking in the warehouse," Weinstein points out.

### Cataloging the Benefits

By meeting its customer's electronic interface requirements, Cenveo retained a major account. The company estimates that the savings from doing the work internally saved it at least

\$50,000. The company can now also say to other customers with similar future requirements that a live implementation is in place rather than "we're working on it." In fact, since completion of this project, Cenveo has done a similar one for a national financial services company and is working on a third one. The implementation team also gained great satisfaction in taking on the challenge and succeeding with it. "We own our own solution and don't need to rely on external help anymore," Weinstein reports. But there were also other rewards.

"Another benefit was the normalization of processes at the warehouse. In order for the whole train of transactions to thread through the system, we established replenishment item sets to match the electronic catalog orders. The result was a standard process for managing the inventory received from manufacturing and better controls in the warehouse. In addition, the automated order load saved time in order entry by eliminating paper order forms and data keying," Weinstein relates. "The process is now so integrated that we can generate a pick ticket direct to the warehouse from the inbound XML order."

Weinstein credits Allora with streamlining all of Cenveo's electronic interchange projects. "Allora's ability to generate the Java code needed to link the inbound and outbound file operations between XML and DB2 was key. It was a good way for us to become acquainted with Java without making a resource commitment that would have been outside both our budget and time frame." Weinstein states. He also cited Allora's GUI- and iSeries-friendliness, as well as its wizard-supported integration with JBuilder, which facilitated creation and testing of Java objects. "We created a mapping file visually and a Java class using the Allora wizard. Only elementary programming was involved," Weinstein recalls.

Weinstein is recommending Allora to other Cenveo locations because of its support for XML schema-centric messaging. "I know we're only using 10 percent of the power of Allora," Weinstein admits, but "in the future, we may also use more evolved transportation protocols, such as JMS or Web services, which Allora already supports." ■

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