IBM speeds online delivery of technical designs with WebSphere MQ.

Overview

- ***Challenge***
  Improve service to suppliers through faster delivery of technical drawings and diagrams
- ***Solution: Enterprise Integration***
  Redesigned its EGI Net e-procurement application using IBM WebSphere® MQ and XML technology
- ***Why IBM?***
  Not only were IBM solutions the natural choice for the project, but the performance of WebSphere MQ further validated the development team's selection
- ***Key Business Benefits***
  Turnaround time for drawing and diagram delivery reduced from an average of 4-6 hours to less than 30 minutes; eliminated overnight delay on new releases; improved quality of data; 100% customer satisfaction in latest surveys; ability to support growing user base

With its EGI Net e-procurement application, IBM is facilitating faster product development cycles.

As the world's top provider of computer hardware—with large software and semiconductor businesses—IBM has a tall order to fill in terms of its manufacturing commitment. For assistance, the $85.8 billion global enterprise contracts with outside manufacturers to produce some of its components and parts.

To share design data with these worldwide suppliers, IBM has relied upon its Electronic Graphic Interchange Network (EGI Net) system, a Web-based solution originally designed using scheduled

"The average turnaround time to fulfill drawing and design requests was four to six hours—and some requests were taking up to three days to process. If a manufacturer is under a tight schedule to deliver parts or quotes, such a long wait could be quite detrimental."

–Joe Gagliardi, Advisory Engineer, Hardware Common Tools, IBM

Key Components

Software

- IBM WebSphere MQ, Version 5.2
- IBM WebSphere Application Server Advanced Edition, Version 4
- IBM DB2® Universal Database™ for z/OS™ and for AIX®
- IBM Lotus® Domino™

Servers

- IBM @server pSeries™
- IBM @server xSeries™
- IBM @server zSeries™

agents and FTP. EGI Net is the front end to the company's Enterprise Repository Environment (ERE)—the central repository for all IBM technical data. ERE, based on IBM DB2 Universal Database for z/OS and DB2 Universal Database for AIX, is located in Ehningen, Germany.

EGI Net's growing popularity has resulted in a large volume of requests on the network. Until recently, however, it couldn't deliver the fast response times that electrical and mechanical suppliers need to meet their deadlines. Explains Joe Gagliardi, an advisory engineer with IBM Hardware Common Tools, the team behind EGI Net: "The average turnaround time to fulfill drawing and design requests was four to six hours—and some requests were taking up to three days to process. If a manufacturer is under a tight schedule to deliver parts or quotes, such a long wait could be quite detrimental."

Seizing an opportunity to improve EGI Net for a scheduled release, IBM revamped the application using XML technology, with IBM WebSphere MQ serving as the new messaging agent to the ERE backend. The redesign has made a world of difference.

"Today, more than 400 of our suppliers access roughly 12,000 part files each month from EGI Net," notes Jeff Nordyke, lead developer of the application. "Turnaround time for design data requests has dropped to under a half hour, and there's no longer an overnight delay on new releases, which include updates as well as completely new drawing files."

Getting connected with WebSphere MQ

In the latest survey, customers expressed 100 percent satisfaction with the redesigned EGI Net application, according to Gagliardi. "Before, knowing that it could take a day or two to get their design data, customers were turning to other channels, such as procurement or EGI Net support, and asking for e-mailed files," says Gagliardi. "We expect these customers to return to EGI Net and usage to grow each month. WebSphere MQ is already processing a high volume of messages daily, so we're confident about its ability to scale."

"WebSphere MQ is already processing a high volume of messages daily, so we're confident about its ability to scale."

–Joe Gagliardi

To request a technical drawing or diagram, a supplier logs onto a password-protected section of EGI Net. The application is powered by IBM Lotus Domino, which provides security and manages the business logic, and runs on an IBM **@server** xSeries server. After the supplier provides the appropriate part number and submits the request, the application converts the part number into an XML-based request to the ERE. WebSphere MQ envelops the XML message and routes the request between EGI Net and the ERE, which resides on IBM **@server** pSeries and IBM **@server** zSeries servers.

Explains Shellie Grooters, ERE deployment lead, "The ERE then takes the request and, using a DB2 Universal Database query, retrieves information on drawing and design formats available for the particular part and sends it back to EGI Net in XML format." Once EGI Net receives this response, it builds a menu of available drawing formats from which the supplier may choose.

"Even though EGI Net resides on servers located in Schaumburg, Illinois, and the ERE is located in Germany, WebSphere MQ enables all of this to be completed in realtime," notes Nordyke. "And, unlike before, multiple suppliers can access the system and make requests simultaneously. Previously, with our scheduled agents, requests would essentially be lined up, waiting to be processed."

When the supplier selects a format, this action triggers another request for information, facilitated by WebSphere MQ, from the front end to the backend. The ERE processes the request, retrieving the selected drawing directly from a repository of IBM MVS™ data sets running on a zSeries server and, if needed, converting it to the format desired. Then, the application packages the drawing in a compressed format—split into 1MB binary messages—and routes it back to EGI Net using WebSphere MQ.

"More than 400 of our suppliers access roughly 12,000 part files each month from EGI Net. Turnaround time for design data requests has dropped to under a half hour, and there's no longer an overnight delay on new releases."

–Jeff Nordyke, Lead Developer of EGI Net, IBM

IBM engineers can take their product designs to the desktops of contract manufacturers through the company's EGI Net e-procurement application, which has been redesigned with WebSphere MQ.

Using Java™ technology, EGI Net reassembles the 1MB binary messages into a binary file and attaches that file to the supplier's request. Finally, EGI Net notifies the supplier by e-mail that the requested design data is available for download.

Built on IBM e-business software

Internal IBM users can access the ERE database through a Java technology-based application which they install on their desktops by downloading an executable file from the Web. ERE users on the AIX operating system launch the application using a shell script that resides in the distributed file system.

IBM WebSphere Application Server Advanced Edition, Version 4, provides the runtime environment for the ERE's Java technology components. DB2 data management software handles the meta data as well as more than 930,000 part numbers associated with drawing formats.

Reusing the code behind the ERE, the development team is creating a new application that will enable individuals to exchange data at the product design stage. "The programming ease of WebSphere MQ," says Evan Roubicek, ERE developer, "makes our development process that much more efficient."

Says Bob Larson, ERE developer, "In the two years we've been working with it, we've experienced only one abnormal end with WebSphere MQ and it has demonstrated excellent automatic recovery."

E-procurement evolution

One of IBM's principal procurement strategies calls for a commitment to a competitive advantage in areas such as technology, price, quality, delivery, responsiveness, speed and innovation. Integrating WebSphere MQ into EGI Net to enhance the application fits right into this approach.

IBM Corporation
Corporate Marketing
New Orchard Road
Armonk, NY 10504
U.S.A.

Produced in the United States of America
11-02