

eBay enables on demand exchange of goods with resilient IBM technology.

Overview

■ Challenge

Provide a scalable platform that responds dynamically to fluctuations in system resource demand, in order to deliver realtime responses to customers' auction requests

■ Solution

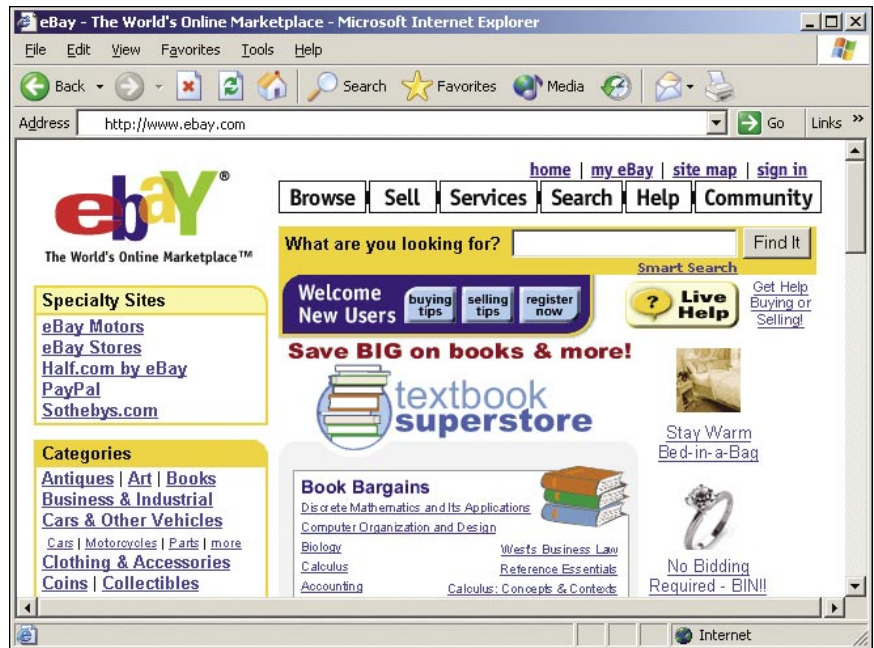
Revamped auction Web site based on Java™ 2 Platform, Enterprise Edition (J2EE) technology to support services in realtime

■ Why IBM?

IBM perceived as a reliable partner to help deploy a highly scalable, resilient architecture allowing eBay to focus on its core business

■ Key Business Benefits

Greater than 99.9 percent site availability through improved network performance, enhancing customer satisfaction; strengthened resilience and ability to resist external network threats; augmented IT skills with IBM training



eBay partnered with IBM to focus on creating a highly responsive and resilient Web platform for realtime Internet shopping.

Whether you're looking for the newest Beanie Baby or a set of golf clubs, chances are you'll find it on eBay. As the Web's leading online marketplace, eBay employs 4,000 people and sells millions of items in more than 18,000 categories. Founded in 1995 at www.ebay.com, the site serves a diverse community of individuals and businesses. And, with more than 62 million registered users generating over \$15 billion annually in gross merchandise sales, eBay is one of the most popular shopping sites on the Internet.

“We wanted to improve the reliability of our Web site to deliver realtime marketplace services in all regions and boost customer satisfaction, which would, in turn, impact our bottom line. With WebSphere software, we have solid tools to help us respond to our customers' needs — by providing over 99.9 percent site availability.”

—Chuck Geiger, Vice President of Product Development, eBay

Responding in realtime to market opportunities and external threats

Key Components

Software

- IBM WebSphere® Application Server Advanced Edition, Version 4.0
- IBM WebSphere Studio Application Developer
- IBM Tivoli® Performance and Availability Management Solutions
- IBM Tivoli Configuration and Operations Management Solutions

Servers

- IBM @server xSeries™ 330

Services

- IBM Global Services, Learning Services
- IBM Software Services for WebSphere

“By standardizing on WebSphere software, we have an open standards-based, J2EE technology platform capable of managing the highest volumes of transactions. In addition, WebSphere software has helped us to become more efficient and to streamline our IT processes.”

—Chuck Geiger

eBay has remained competitive in today's economic environment, as consumers continue to seek alternatives to traditional shopping outlets. “People want to spend less and that's great for eBay, since they're coming to us to buy and sell used items,” explains Chuck Geiger, eBay's vice president of product development. “We are seeing reasonably strong numbers month after month—even in these tough times.”

Backed by customer demand, eBay plans to offer enhanced realtime services and expand into new regions, with localized auction portals to support areas including Germany, France, Korea, United Kingdom and Australia. The on demand nature of eBay's business dictates that its network be available 24x7, but the company was concerned about whether its IT infrastructure could support the new initiatives. What eBay needed was a robust, responsive, resilient new platform to support its growing customer base. “We wanted to improve the reliability of our Web site to deliver realtime marketplace services in all regions and also boost customer satisfaction—which would, in turn, impact our bottom line,” says Geiger.

eBay considered e-business solutions from Microsoft and BEA Systems, but ultimately selected IBM after a rigorous four-month evaluation. “IBM offered us a consolidated product, training and support package to help us re-engineer our on demand business,” explains Geiger. “We also chose IBM because of its customer philosophy. We wanted a partner that would be in the trenches with us at midnight if there was a technology problem. IBM has shown that it is willing to support us 24x7, thereby reducing our IT burden and enabling us to focus on our core competencies.”

eBay is redeveloping its auction site with IBM WebSphere Application Server Advanced Edition, Version 4.0 and IBM WebSphere Studio Application Developer. “With WebSphere software, we have solid tools to help us respond quickly to our customers' changing needs—by providing over 99.9 percent site availability,” says Geiger.

Platform re-engineering for continued success

Aided by IBM Software Services for WebSphere engineers, eBay began its Web site re-engineering project. This first phase was part of a multiphase IT infrastructure improvement plan, designed to provide a scalable, resilient system that responds dynamically to fluctuating system resource demands and improves

customer service. The current phase uses WebSphere software to improve technology efficiencies within eBay and to increase developer productivity. "By standardizing on WebSphere software," says Geiger, "we have an open standards-based, J2EE technology platform capable of managing the highest volumes of transactions. In addition, WebSphere has helped us to become more efficient and to streamline our IT processes, by reducing duplication of efforts and shortening application development time. Now the development team can focus on implementing functions that drive revenue in our core business."

The new integrated platform is based on a three-tier architecture with a front end Web interface and backend databases managing merchandise and customer information. For the middle tier, eBay uses WebSphere Application Server running on IBM **@server** xSeries 330 systems, as the runtime environment for the Java components that provide the site's business logic—which horizontally integrates a vast amount of customer data with tailored business applications. The company developed these Java components with WebSphere Studio Application Developer.

"WebSphere Application Server—combined with WebSphere Studio Application Developer—gives our developers a common tool, enabling collaboration and sharing of common Java objects," says Geiger. "The result is greater flexibility in adding new Web site features, while improving site dependability and the overall user experience."

eBay chose xSeries systems as an affordable infrastructure option. Relying on the high performance and scalability of the systems, eBay deployed xSeries as the foundation of its IT infrastructure. "Using xSeries, we've been able to maximize application performance and avoid costly downtime," says Geiger.

Transparent upgrades deliver robust functionality

The infrastructure upgrades are transparent to eBay users, since transactions execute in the same manner as before. "Whether you are listing an item for sale, bidding or leaving feedback for someone, the action will create a unique URL containing application-specific data," explains Geiger. For example, when a user clicks on the bid icon, the transaction URL is routed to a random xSeries Web server. Then, through load balanced process scheduling, the transaction passes to an application server. Once the transaction URL enters WebSphere Application

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Using WebSphere software, eBay delivers an engaging online marketplace experience.

Server, a series of Java Database Connectivity (JDBC) database transactions pulls appropriate data from the backend database to fill each specific request. Ultimately, WebSphere Application Server processes the transactions and delivers responses to the customer's browser, using style sheets for the translation of XML files into HTML.

To monitor its global operations and provide enhanced system integrity and resilience, eBay has implemented a large-scale Tivoli infrastructure. IBM Tivoli Performance and Availability Management solutions maintain high system availability by gathering network information and in many cases, autonomic computing capabilities actually fix problems as they occur. In addition, IBM Tivoli Configuration and Operations Management solutions securely manage the distribution, automation and control of IT assets, thereby rendering the system resilient to unexpected changes or threats in the computing environment. "We need to maintain global operations," says Geiger. "And we found that the integrated Tivoli products helped us manage the complexity of our on demand environment."

IBM provides the total solution

To further protect eBay's hardware and software infrastructure, IBM created a specialized support package that guarantees response to operational problems within 15 minutes. Also, IBM Global Services, Learning Services delivered a full year of customized education and training—complete with hands-on labs and one-to-one mentoring. To date, eBay has received on-site training for more than 100 staff members on topics such as object-oriented technology and J2EE platform design. "Thanks to IBM's tailored training approach, we have a turnkey solution with dedicated facilities and two trained instructors," notes Geiger. "We have experienced a very successful skills transformation. And with the massive scalability and reliability provided by WebSphere software, we are confident that we're well positioned to realize our goal of being the World's Online Marketplace™."

For more information

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