

## **More Support Could Push WebSphere Application Server for z/OS Into Mainstream**

**Massimo Pezzini**

IBM's WebSphere Application Server for z/OS has now reached the levels of reliability, scalability and security that users expect. But high cost of entry and a lack of support from independent software providers could put off some buyers.

## WHAT YOU NEED TO KNOW

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After nearly four years in the market, WAS for z/OS has reached a degree of maturity sufficient to cover a wide spectrum of high-end, multi modal transaction processing requirements. Users of large IBM mainframes committed to J2EE for business critical deployments can seriously consider WAS z/OS. But before embarking on strategic, high-risk projects, they should carefully evaluate if IBM's commitment, independent software vendor (ISV) offers, local support from IBM and partners and total cost of ownership (TCO) fit their expectations.

## STRATEGIC PLANNING ASSUMPTION(S)

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By 2008 less than 30 percent of the IBM mainframe customer base will have at least one WAS z/OS application in production (0.7 probability), up from 5 percent in 2005.

By 2008, more than 50 percent of new WAS z/OS applications will implement the business logic of large scale, multi-modal transaction processing systems (0.8 probability), up from less than 15 percent in 2005.

## ANALYSIS

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WebSphere Application Server for z/OS (WAS z/OS) is the only product compatible with Java 2 Platform Enterprise Edition (J2EE) available on IBM's zSeries z/OS platform. Although fully compatible with the classic WAS, which runs on AIX, HP UX, Linux, OS/400, Solaris and Windows, WAS z/OS takes full advantage of z/OS features like Resource Recovery Service (RRS), Automatic Restart Manager (ARM) and Workload Manager (WLM). Its optimized integration with customer information control systems (CICS), information management systems (IMS), IBM's DB2 and Resource Access Control Facility (RACF) also distinguishes the product.

WAS z/OS is targeted at users fully committed to the mainframe platform, because it is very rare for non-mainframe users to go through the steep learning curve needed to adopt it. Nevertheless, WAS z/OS aims to play at least three crucial roles in IBM's strategy:

- It differentiates the entire WebSphere Application Server family from its direct competitors (BEA Systems's BEA WebLogic and Oracle's OracleAS)
- It attracts investment in the mainframe platform from new users and independent software vendors (ISVs)
- It prepares the ground for a long-term replacement of CICS and IMS as online transaction processing platforms of choice

For more information, see "IBM Quietly Revolutionizes its Mainframe Middleware" and "Will WAS z/OS and OS/390 Succeed CICS?"

In fact, the product confirms IBM's commitment to WebSphere Application Server (WAS) as a platform for business critical applications, further boosting the credibility of WebSphere in the company's mainframe installed base.

Other aspects of the strategy have so far been less successful, despite the growing interest of users for the product.

The first version of WebSphere for z/OS, named Version 4, was released in early 2001. It took nearly a year to fix bugs typically associated with a new product and to reach the demanding

service quality requirements of mainframe users. So production deployments only started in 2002, and even leading-edge organizations initially adopted the product only for a few selected applications.

Once stabilized, version 4 proved to be reliable and scalable, but also revealed a couple of crucial issues:

- Administration, monitoring and management tools were rudimentary and not compatible with those of WAS.
- It consumed a significant amount of CPU and memory resources. For example, processing power needed for even simple applications can easily be around 100 MIPS. To deal with this, users had to upgrade their mainframe hardware and the capacity unit-based licenses of certain third-party mainframe software.

With the release of version 5 in May 2003, and with the most recent version 6, IBM introduced several improvements. They were aimed at addressing some of these issues, aligning with corresponding versions of WAS, and supporting J2EE 1.4 and Web services. For more information, see "WebSphere Forms Mainstay for IBM's Platform Strategy."

### **Characteristics of WAS z/OS Versions 5 and 6**

Some of the improvements featured in the latest versions include:

- IBM removed WAS z/OS backward compatibility with Component Broker, a rarely adopted CORBA-based predecessor of WAS. By doing this, the WAS z/OS "footprint" has been significantly reduced (up to 40 percent decrease in real storage use) and performance has been improved (about 10 to 15 percent up on average).
- The entire WAS family now shares a common code base in which z/OS specific code simply plugs-in. Compatibility between WAS and WAS z/OS is extremely high, so porting across is usually fairly trivial. Moreover, the delay of WAS z/OS availability has come much closer to WAS release (WAS z/OS V.6 is available at the end of March 2005, three months after version 6 on other platforms). However, the goal of maintaining compatibility with the common code base can sometimes slow down the fixing of WAS z/OS specific issues.
- The entire family now shares the same Web-based administration console, so users can consistently manage mixed WAS z/OS and WAS networks. For the most sophisticated deployments though, WAS z/OS management tools are not yet as good as they should be in terms of application life cycle management and end-to-end monitoring and troubleshooting.

IBM has also made available the zSeries Application Assist Processors (zAAPs), special processors to run only Java code. zAAPs are not intended to improve performance, but to allow users to buy Java-specific processing power without affecting the cost of other mainframe software. zAAPs require z/OS 1.6 and WAS z/OS 5.1 or 6, but there is no need for changes to the application code. Early adopters have given positive feedback, so zAAPs will likely ameliorate the total cost of ownership of WAS z/OS. But at \$125,000 per processor, their price can only be justified in the context of large-scale deployments.

To increase the appeal of the product, IBM is also making other WAS-based products available on z/OS. WebSphere Business Integration Server Foundation version 5.1 z/OS has been available since May 2004. WebSphere Portal version 5.1 z/OS will be released in 2H05 (0.8 probability). The firm also plans for a z/OS version of the WebSphere Business Integration Server suite of application integration and business process management tools in 1H06 (0.6 probability).

Most of the reliability, scalability, manageability and security characteristics customers have been expecting have been reached in the most recent versions. The product has demonstrated unique value thanks to its links with other z/OS environments — for example, security on WAS z/OS is better than on WAS because of its integration with mature and powerful z/OS access control systems like RACF, ACF2 and TopSecret. Therefore, the number of users going into production with critical WAS z/OS applications grew in 2004, despite IBM's low-key marketing of the product.

However, high cost of entry still limits the use of WAS z/OS to only large zSeries shops (for example, 2,000 to 3,000 MIPS or more) that can afford the associated cost.

According to IBM, about a thousand organizations have licensed the product so far (about 20 percent of the mainframe base), but only 30 to 35 percent of them have applications in production. Most are still being evaluated, piloted or developed.

Because of these relatively narrow addressable markets, and with the lack of pressure from IBM and users, the third-party portfolio of tools and applications available on WAS z/OS remains negligible (about 20 ISVs). This is a major challenge for the company and an obstacle to widespread adoption.

### **WAS z/OS Usage Scenarios: Integration Platform or Application Platform?**

Although WAS z/OS is positioned as a platform for large-scale, business-critical projects, most users have initially tested the water with relatively simple applications. Companies have only started to embark on more ambitious, long-term projects during the past 18 months.

More than 90 percent of WAS z/OS applications in production at YE04 were used for one or more of the following tasks:

#### **Integration Layer in Service-Oriented Architecture**

- WAS z/OS is used to implement Enterprise Java Beans (EJBs), or Web service "facades" to CICS and IMS applications. They are then published over the corporate Intranet to be used (via IIOP or SOAP or other protocols) by a variety of client systems.
- WAS z/OS applications of this kind are usually simple and have moderate security constraints, though they can also be demanding in terms of performance and scalability. WAS z/OS proved to work well in these contexts because of its fast and secure interoperability with CICS and IMS. About 50 percent of WAS z/OS applications in production are of this nature.

#### **Web or Multichannel Front-End**

- For this kind of application, WAS z/OS runs the Web-based (or multi-channel) presentation logic of CICS or IMS applications to support Intranet or Internet access (this is rare and due to security concerns). About 35 percent of WAS z/OS applications fall into this category.

#### **Brand New Transaction Processing Application**

- WAS z/OS is used to execute the business logic (usually a combination of EJBs, MDBs and servlets) of a new, large transactional application manipulating large DB2 databases. The presentation logic is often executed on WAS z/OS (maybe in another logical partition for security reasons). More often than not, WAS z/OS simply hosts business components triggered over the network via request/reply calls (Web services or IIOP), or message-based events. Applications for this class make up the remaining 15 percent.

The share will change significantly during the next 36 months. More and more mainframe users are considering developing new business critical, transaction processing applications on J2EE (and not on CICS or IMS). This may be for a number of reasons, including an aging skill-base, the need for support of Web services or events, and high-cost legacy platforms.

Users will increasingly consider WAS z/OS as the application server of choice for those applications requiring a mainframe-caliber quality of service. On the other hand, as they move toward enterprise service buses to support service-oriented and event-based architectures (and CICS and IMS introduce native support for Web services and events), there will be less need for WAS z/OS as an integration layer.

Many Web front-end WAS z/OS applications were deployed for testing purposes and not for specific technical or business requirements. As users gain confidence with WAS z/OS, they will turn to deployments on distributed platforms for most of these applications, and consider WAS z/OS only for the most demanding scenarios. Therefore, we believe that more than 50 percent of new WAS z/OS applications deployed by 2008 will implement large-scale transaction processing applications (0.8 probability). This is up from less than 15 percent in 2005.

WAS z/OS is ready for these kinds of projects, but IBM is possibly not — in some regions, getting quality support for WAS z/OS is still a challenge. Support issues, lack of ISV support and low-key marketing may be seen as signs that IBM is watering down its enthusiasm. The company's main challenge in 2005 is to communicate a sense of long-term commitment to WAS z/OS to reassure mainstream users. Should it fail to do so, WAS z/OS will be relegated to a niche role.

IBM is aware of these issues and is putting money on the table to increase local sales and support resources and is rolling out specific ISV programs. However, the firm is working on many other projects, and the resources it is willing to commit to a product that still generates relatively low license revenue are limited, the strategic role of WAS z/OS notwithstanding (Gartner estimates about \$50 million of WAS z/OS license revenue in 2004). Therefore, we believe that, during the next three years, WAS z/OS will continue to be used only by the most technically skilled large mainframe users for custom projects. By 2008, fewer than 30 percent of IBM mainframe customers will have at least one WAS z/OS application in production (0.7 probability), up from 5 percent in 2005.

## **Product Strategy**

- Foster a new cycle of mainframe-based developments via compatibility with the highly successful WAS.
- Position WAS z/OS as the long-term alternative to the now dominant CICS and IMS.
- Entice mainframe users to adopt WebSphere as their strategic application server on any hardware/operating system platform.

## **Strengths**

- Profound integration with z/OS operating system and software environments (CICS, IMS, DB2, RACF).
- Proven reliability, availability, scalability, security and performance in transactional applications.
- Full compatibility with WebSphere Application Server on iSeries, Linux, Unix and Windows.

## Challenges

- High cost of entry.
- Almost nonexistent ISV support.
- Limited availability of support skills.

## Consider This Product When

- Looking for a J2EE platform providing mainframe-caliber reliability, scalability and security and tight integration with CICS, IMS or DB2.
- User company is fully committed to the mainframe platform.
- z/OS skills are available.

## Consider Alternatives When

- z/OS skills are not available.
- Seeking for a low-cost J2EE application server for limited-budget projects.
- Looking for a J2EE platform to run packaged applications.

## Key Issues

Which vendors will dominate the enterprise application platform and application infrastructure markets?

## Company Information

### IBM

**Headquarters:** Armonk, New York

[www.ibm.com](http://www.ibm.com)

**Founded:** 1911

**Ownership:** Public

**Employees:** Approximately 316,000 (at year-end 2002)

## Product Information

**Name:** WebSphere Application Server for z/OS and OS/390

**Product Compatibility:** zSeries (z/OS), S/390 (OS/390)

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