

**Deployment solutions**

White paper



**WebSphere** software

# **IBM WebSphere Application Server for z/OS: An ISV perspective**

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**Introduction**

With the move to a common programming model for the IBM WebSphere® Application Server product family across all platforms, enabling independent software vendor (ISV) applications on IBM WebSphere Application Server for z/OS has never been easier. You can now take advantage of the security, reliability and scalability of the mainframe without the need for the custom packaging and coding that was necessary with previous versions. Information Builders Inc. (IBI), a large, international ISV, has recently discovered first hand the ease-of-deployment capabilities that the WebSphere Application Server common programming model brings. This white paper uses IBI's experiences to highlight the benefits of enabling applications on WebSphere Application Server for z/OS.

IBI's customers run critical business analytics across many platforms. Like IBI, other application providers are finding that for some large-scale enterprise customers, WebSphere Application Server for z/OS is an excellent option. The need for the strength of the mainframe is reflected in the market, where the IBM z/OS® operating system was the fastest-growing platform in 2005 across the WebSphere Application Server family.

As Java™ 2 Platform, Enterprise Edition (J2EE) continues to gain market acceptance, critical applications inevitably find their way onto WebSphere Application Server for z/OS. These applications can take advantage of the platform integration that makes WebSphere Application Server for z/OS one of the most scalable and reliable application server products available. Today, approximately 25 percent of the IBM System z™ landscape uses WebSphere Application Server for z/OS. The continued client adoption of service oriented architecture (SOA) also plays to the strengths of WebSphere Application Server for z/OS, which features a robust Web services stack and a flexible run time capable of tightly supporting existing mainframe assets.

*A brief introduction to the IBI WebFOCUS application*

The IBI WebFOCUS application is a fully integrated, enterprise business-intelligence suite that delivers comprehensive functionality – including enterprise reporting; ad hoc query and online analytical processing (OLAP) analysis; information delivery and management; data access and management; extract, transform and load (ETL); portal integration; flexible and intuitive development tools; administration; security and closed-loop business intelligence.

IBI WebFOCUS is a Java application built to J2EE specifications. WebFOCUS, Versions 5.x through 7.x conform to the J2EE, Version 1.2 specification (Servlet, Version 2.2 and JavaServer Pages [JSP], Version 1.1). WebFOCUS does not use Enterprise JavaBeans (EJBs), so it requires only a Web container when used as an application front end.

IBI WebFOCUS uses WebSphere Application Server for z/OS with two tiers of its application logic:

- The presentation layer or user interface, also known as the application front end. *This layer consists of Web pages (including HTML files, Cascading Style Sheets, JavaScript, Java classes and images); it resides on the Web server, and is served to the user's Web browser.*
- User interface logic. *User interface logic enables you to create and manipulate the components of a report. You can configure either the IBI WebFOCUS servlets or the Internet Services Application Programming Interface (ISAPI) program to provide the user interface logic, which can reside on the application server or servlet engine plug-in to the Web server.*

**The evolution of WebFOCUS support for WebSphere Application Server for z/OS**

Since IBI began its support for WebSphere Application Server for z/OS with Version 3.5, so much has changed. IBI WebFOCUS has matured into a fully integrated enterprise business-intelligence suite, and WebSphere Application Server for z/OS has evolved from a simple servlet engine into a robust, J2EE transaction engine for the mainframe.

*IBI WebFOCUS evolution*

IBI launched FOCUS, a fourth-generation language (4GL) in 1976. Since then, IBI has been adding and launching new products, like EDA 3.1, FOCUS 6, WEB390, Cactus and FUSION, each with new business-intelligence features and functionalities. WebFOCUS, originally launched in 1997, is a descendent of WEB390. WebFOCUS, Version 4.3.1 was the first release to officially support WebSphere Application Server for z/OS, which was at Version 3.5 at the time.

Based on some performance recommendations, IBI recently incorporated code changes in WebFOCUS, Version 7.1.1 to enhance the performance experience of WebFOCUS applications deployed on WebSphere Application Server for z/OS. IBI also introduced some new and enhanced product functionality. Benchmarking WebFOCUS, Version 7.1.0 compared to Version 7.1.1 on WebSphere Application Server for z/OS, Version 5.0 yielded a performance improvement greater than fifty percent in terms of overall throughput with the WebFOCUS Report Assistant, an HTML-based graphical tool that takes full advantage of the capabilities of the WebFOCUS reporting language.

Bank of Montreal requires critical business analytics to deliver better quality to their customers more quickly. “In the past, if something occurred that affected the Bank of Montreal’s business, it could take weeks before we realized it,” says Mel Rosenfeld, business designer at Bank of Montreal and IBI customer. Now metrics and drill-downs are a click away. Managers can view high-level national or regional summaries and quickly drill down to individual branches. And all of this is powered by WebSphere Application Server for z/OS, the z/OS platform and WebFOCUS – IBI’s flagship software product.

WebSphere Application Server for z/OS, Version 5.1 introduced many significant product improvements, including a common programming model for a stable application upgrade path through the WebSphere Application Server product family. IBI experienced performance gains as well. Launch time was reduced by 25 percent when comparing IBI WebFOCUS, Version 7.1.1 on WebSphere Application Server for z/OS, Version 5.0 to WebSphere Application Server for z/OS, Version 5.1.

*WebSphere Application Server for z/OS evolution*

The release of WebSphere Application Server for z/OS, Version 4.0 introduced a full application-serving infrastructure, including Software Development Kit (SDK), Version 1.3.0 and support for:

- *Web components (servlets and JSP) that complied with J2EE, Version 1.2 specifications*
- *EJBs that complied with J2EE specifications*
- *CORBA components consistent with the WebSphere Application Server family programming model*
- *Basic applications at the Java 2 API level*
- *Version 4.0.1 program temporary fixes (PTFs) that enabled a J2EE, Version 1.2 technology-compliant deployment platform for servlets, JSP and EJB*

With each iteration of WebSphere Application Server for z/OS, the functionality improved, enabling applications like IBI WebFOCUS to deliver more-comprehensive business intelligence for the enterprise.

WebSphere Application Server for z/OS, Version 5.0 marked an IBM commitment to move the entire WebSphere Application Server family to a common code base. Clients and IBM Business Partners rallied around this critical decision because it enabled the foundation for a common experience across the product family. Before the investment in common code, WebSphere Application Server for z/OS was programmatically unique from its distributed counterpart, limiting application portability and providing an inconsistent user experience.

WebSphere Application Server for z/OS, Version 5.1 further advanced the progress made in Version 5.0 by introducing:

- *A common programming model shared across the WebSphere Application Server product family, while preserving tight integration with the z/OS platform through family plug-points engineered to minimize code differences between platforms.*
- *Support for SDK, Version 1.4 as the first step toward J2EE, Version 1.4 compliance, which has helped enable enterprises to use Java technology to develop more-demanding business applications faster and with less effort.*
- *Third-generation support for Web services standards to help transform and integrate business designs and processes, while helping to ensure business continuity through better integration with key partners, suppliers and customers.*
- *Support for the June 2003 Board Approved Draft of the WS-I Basic Profile, Version 1.0, which has helped give developers a head start on interoperating across heterogeneous environments and enterprise boundaries.*

WebSphere Application Server for z/OS, Version 6.0.1 marked the first time IBM delivered a release concurrently across z/OS and distributed platforms. Along with providing a totally common runtime experience, this release also featured:

- *A common WebSphere programming model across the product family*
- *Support for unified administration of mixed WebSphere Application Server environments, releases (Version 5.0, 5.1 and 6.0.1) and platforms for a more flexible upgrade to Version 6.0.1*
- *Rapid development and deployment procedures to help reduce the complexity of developing and deploying J2EE applications*
- *Other Web services standards above J2EE, Version 1.4 to create a sound foundation for SOA*

### Why WebSphere Application Server for z/OS?

Today, all currently supported IBI WebFOCUS releases run on WebSphere Application Server Versions 5.0, 5.1, 6.0 and 6.1 on almost all platforms. The diversity of deployment options available to IBI WebFOCUS customers enables them to determine the strongest foundation for their business-intelligence needs. With so many other platform options available, why do clients select WebSphere Application Server for z/OS?

WebSphere Application Server for z/OS is an excellent environment for clients who want rapid, repeatable deployments; reliability and advanced availability; and superior scaling for their business applications. With a common WebSphere programming model, WebSphere Application Server for z/OS is the same as the distributed WebSphere Application Server Network Deployment product, with some beneficial exceptions.

WebSphere Application Server for z/OS takes advantage of the unique value of the z/OS platform to provide an integrated J2EE run time for the mainframe. Some critical benefits of WebSphere Application Server for z/OS include:

- Vertical scaling. *With the industry-leading z/OS workload manager (WLM) integrated into the application-server architecture, application demand is met with dynamic scaling, while enforcing differentiating priorities, so high-priority work is allocated the resources it needs.*
- Advanced security support. *When running the System z platform, you can use stalwart security products for the mainframe, such as IBM RACF®, across the enterprise, without the overhead of passing noncompatible security options.*
- Simplified architecture. *A unique platform advantage of running WebSphere Application Server for z/OS is the ability to co-locate data and business logic, thereby helping to eliminate undue complexity, and streamlining path length for performance gains.*



IBI WebFOCUS provides out-of-the-box, rapid-integration capabilities for data, transactions and applications that require writing custom in-house code. Deploying IBI WebFOCUS on WebSphere Application Server for z/OS provides many benefits. With access to more than 280 relational, nonrelational, and application sources (including popular relational database management systems [RDBMSs], existing DBMSs and file systems, as well as IBM CICS®, IBM IMS™ transaction systems, SAP R/3, J.D. Edwards application environments and custom-developed applications written in COBOL, RPG, C, C++ or other callable languages), IBI WebFOCUS integrates fully with IBM WebSphere portal and application server solutions to deliver consistent, accurate real-time information on a broad scale throughout the enterprise with the potential for lower per-user cost.

IBI Enterprise Connector for IBM WebSphere Application Server complements the already substantial reach of WebSphere Application Server, and helps you and your trading partners, suppliers and employees integrate the information you need, when you need it, through the flexible and scalable WebSphere software platform.

### Enabling ISV applications to WebSphere Application Server for z/OS

IBM is invested in building and maintaining a healthy ecosystem for trading partners.

#### *IBM makes the mainframe accessible*

IBM has used its worldwide Virtual Innovation Centers to provide trading partners with a virtual mainframe that is designed to help open mainframe enablement to all IBM Business Partners. IBM Virtual Innovation Centers offer onsite and remote access to the latest technologies, development tools, security-rich porting labs and expert technical assistance throughout the application-development life cycle. IBM also provides workshops, which are designed to build technical skills on the latest technologies. To learn more, visit [ibm.com/jct09002c/isv/spc/index.html](http://ibm.com/jct09002c/isv/spc/index.html).

Remote development using Virtual Innovation Centers is just one option IBM Business Partners have to access mainframes; other options are available. To learn more, visit [ibm.com/servers/enable/hardware/index.html](http://ibm.com/servers/enable/hardware/index.html).

#### *WebFOCUS*

IBI, a long-time mainframe IBM Business Partner, has an IBM eServer™ zSeries® model 890 in-house, which is part of the enablement and testing infrastructure for IBI WebFOCUS. IBI WebFOCUS supports extensive products and platforms, including WebSphere Application Server – on both z/OS and distributed platforms. As the WebSphere Application Server family of products has progressed to a common experience across a broad set of platforms, enabling WebFOCUS on WebSphere Application Server for z/OS has become easier and easier.

IBI WebFOCUS is developed on a UNIX® platform. The product code is logically separated and then rebuilt using an automated build process. Before the common programming model, IBI WebFOCUS built for WebSphere Application Server for z/OS required special packaging and coding to run. With current releases of WebSphere Application Server for z/OS, unique application considerations are a thing of the past.

**About IBI**

IBI, a worldwide company with more than 1750 employees, provides enterprise integration and SOA middleware that can access any database or application to provide operational business intelligence. The company has a very simple mission – to help business people get to the information in their enterprise systems easily and quickly. With more than 12 000 customers worldwide, including most companies in the Fortune 100, all major federal agencies and many educational institutions, IBI helps companies to achieve a competitive advantage in an on demand world. By providing software and services that turn data into actionable information, IBI enables its customers and trading partners to make better decisions, faster.

IBI has been an IBM Business Partner since 1991 and, most recently, IBI honored IBM with their “Partner of the Year Award.”

**For more information**

To learn more about WebSphere Application Server for z/OS and its accompanying products, contact your IBM representative or IBM Business Partner, or visit:

[ibm.com/software/webservers/appserv/zos\\_os390/](http://ibm.com/software/webservers/appserv/zos_os390/)



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