IBM

WebSphere® software

IBM WebSphere Application Server for z/OS, Version 6.0.1

Highlights

■ *Provides the foundational elements for an SOA on the mainframe*

■ *Deploys powerful Web services through integrated support for key Web services open standards and UDDI registries*

■ *Supplies full J2EE, Version 1.4 compatibility, including a native, enterprise-ready JMS provider with full WebSphere MQ interoperability*

■ *Integrates with core z/OS assets to extend and optimize your existing infrastructure*

■ *Enhances flexibility through broad, cross-platform heterogeneous support and multiple configuration options for system optimization*

■ *Enhances developer productivity with an integrated, open-standards-based development environment*

■ *Delivers advanced security with support for mainframe products, while providing a robust, security-rich infrastructure that is extensible through a pluggable architecture*

■ *Delivers a single, unified Web browser-based administration across all configuration options*

■ *Offers distributed-workload and caching capabilities to intelligently optimize performance*

■ *Provides enhanced application availability with sophisticated clustering and load-balancing capabilities*

Building an On Demand Business to extend your market reach and maximize your return on investment (ROI) requires a service oriented architecture (SOA) approach for the most effective delivery. To participate in the next stage of On Demand Business, you must integrate new applications with existing data stores, other applications and Web services that exist in heterogeneous environments, in multiple programming models and on different sides of firewalls. You must be able to use disparate entities to help ensure that your business runs smoothly.

ON DEMAND BUSINESS™

IBM WebSphere® Application Server for z/OS, Version 6.0.1 is a comprehensive Java™ 2 Platform, Enterprise Edition (J2EE), Version 1.4 application server that provides the cornerstone of SOA, a key strategy for efficient, cost-effective, technical business methodologies. Through a rich, application-deployment environment, you can build, manage and deploy dynamic On Demand Business applications, handle high-transaction volumes, and extend back-end business data and applications to the Web.

The WebSphere Application Server family of products enables you to choose the level of capability best suited to your current needs — with the option to scale to more-advanced product offerings as your business needs evolve. As a result, the WebSphere Application Server family of products supports a wide range of scenarios, from simple administration of a single server to a clustered, highly available, high-volume, business-application environment with heterogeneous compatibility. As your applications scale to the high-end WebSphere Application Server for z/OS product, you can employ specialized configurations, such as the ability to run in a localized environment with back-end data sources using ultra-high-speed data connections. These specialized configuration options give you the flexibility to respond to an ever-changing marketplace — without the cost of migrating to a different technology base.

Deploying your applications in close proximity to the data they must access is often the most efficient way to operate your business systems. This is because it eliminates network overhead — which can be vulnerable to malicious attacks and bottlenecks — while enabling you to centralize and consolidate your systems on the mainframe. It also helps provide a more cost-effective and less-complex infrastructure.

Delivering business value to support your On Demand Business needs
As the foundation of the WebSphere software platform and the core J2EE and Web services configuration, WebSphere Application Server for z/OS, Version 6.0.1 is optimized to simplify and maximize the value of deployments of critical applications that run your business. Integration with core IBM @server® zSeries® assets helps provide a superior infrastructure, by offering state-of-the-art availability delivered through the IBM Parallel Sysplex® environment, the integrity of transactions with Resource Recovery Services (RRS) and the potential cost-cutting value for Java applications with IBM zSeries Application Assist Processor (zAAP).

Advanced management and automated performance optimization make WebSphere Application Server for z/OS, Version 6.0.1 the next level in application serving. WebSphere Application Server for z/OS offers a robust solution for today's On Demand Business environment by adding features such as world-class clustering, caching and high availability; advanced Web services that can operate across disparate application frameworks; and extended Web services-management capabilities.

WebSphere Application Server for z/OS, Version 6.0.1 configurations also include enhancements designed to help increase time to value and reduce total cost of ownership (TCO):

- *Enterprise archive (EAR) files enable you to create integrated test environments within IBM Rational® tools and the WebSphere Application Server for z/OS toolkit.*

- *The rapid-deployment feature now provides an easy-to-use framework to help you quickly and easily deploy applications to WebSphere Application Server for z/OS configurations. The rapid-deployment feature helps you significantly reduce the complexity of building J2EE applications by automating the most common aspects of application construction, assembly and deployment.*

- *Service Data Objects (SDOs) address the problem of disparate models and application programming interfaces (APIs) for data retrieval and representations. This data programming architecture (along with APIs) unifies data programming across data-source types; provides*

robust support for common application patterns; and enables applications, tools and frameworks to more easily query, view, bind and update data on Java platforms. SDOs are designed to help you save development time and reduce maintenance costs through the use of this unified programming model.

- *Policy-based IBM z/OS® Workload Manager enables WebSphere Application Server for z/OS deployments to run intelligently by differentiating and prioritizing workloads to help ensure that service levels are not jeopardized in times of system stress. With the advanced capabilities of zSeries utilization rates, systems can run at full stress for extended periods without downtime or thrashing.*

- *zSeries Application Assist Processor (zAAP) is a one-time-charge, specialized processor that enables you to offload Java workloads from your usage-charged general processors and run them exclusively on the zAAP. Not only can zAAPs help reduce costs over time, they can also help free space on the general processor to further enhance the server with the highest utilization rates in the industry, helping to run your business more effectively.*

Make the most of existing software assets

In today's business environment, it's more important than ever to take full advantage of your existing IT resources — from hardware to personnel. Through open standards and extensible connectivity features, WebSphere Application Server for z/OS can help to improve your ability to make the most of these vital assets. It also helps increase productivity through its close interoperability with Rational tools, which provide a tightly integrated Java development environment based on open Eclipse Workbench technology. This technology enables you to develop, test and deploy Java and Web services applications with easy access and minimal errors.

IBM WebSphere Developer for zSeries software offers a specialized toolset to provide additional support for your PL/I and COBOL programming needs. The integrated development and deployment platform of WebSphere Application Server for z/OS optimizes development resources through its ability to reuse CORBA, C++, Java and other existing assets.

Application adapters that quickly and easily extend enterprise applications to On Demand Business can also help you use current resources. WebSphere Application Server for z/OS is designed to reduce the risk, complexity and cost of using and deploying application adapters through its advanced support for J2EE Connector Architecture (JCA). JCA provides a consistent way of connecting to, and communicating with, a wide range of enterprise systems and applications — without the need for advanced programming skills or extensive coding. It also enables you to reuse and integrate disparate systems and applications, while allowing broad, cross-platform support, and unparalleled connectivity and integration with a variety of back-end systems.

WebSphere Application Server for z/OS is also optimized to connect to mainframe data sources, such as IBM CICS®, IBM IMS™ and IBM DB2® systems. Specialized adapters, as well as unique configuration options for application deployment, enable highly optimized transaction and communication channels. This functionality is critical for large enterprises that have most of their data on mainframes and contained within previously existing environments.

Rich J2EE implementations
The WebSphere Application Server family of products — ranging from IBM WebSphere Application Server - Express to WebSphere Application Server for z/OS — support J2EE, Version 1.4, enabling you to use Java technology to develop more-demanding business applications with less time and effort. You also have the ability to scale these applications to new WebSphere products as business needs change. New functions within the J2EE, Version 1.4 platform can help eliminate the need to write custom code, enabling developers to use a single technology to develop, test and deploy end-to-end enterprise applications and solutions.

Also, WebSphere Application Server for z/OS support for J2EE, Version 1.4 helps simplify enterprise applications by basing them on standardized, modular components. Comprehensive services handle many details of application behavior automatically, with little complex programming required. J2EE, Version 1.4 and WebSphere Application Server for z/OS help simplify business integration through connectors and Java Message Service (JMS) support. All WebSphere Application Server configurations now have a common Java programming model, which includes a comprehensive range of Java technology-based APIs and protocols.

These include:

- *Compliance with Enterprise JavaBeans (EJB), Version 2.1*
- *Improved Java security APIs in the distributed security model*
- *An expanded programming model to include more loosely coupled integration through asynchronous messaging*
- *The ability to work with JavaServer Pages (JSP) in XML*

Besides providing support for J2EE, Version 1.4, all WebSphere Application Server configurations now deliver a range of programming model extensions that were previously available only in higher-end configurations. These enhancements can help improve development cycle times and include last-participant support, internationalization services, work-area services, activity-session services, extended Java Transaction API (JTA) support, timer services (scheduler services), object pools, dynamic query capabilities and application-profiling capabilities.

Increase productivity with messaging integration

WebSphere Application Server for z/OS enables dynamic application interaction through an integrated, high-performance JMS provider, and support for J2EE, Version 1.4 and EJB, Version 2.1. The JMS API increases productivity by defining a common set of messaging concepts and programming strategies. JMS further simplifies development by enabling loosely coupled, reliable, asynchronous interactions among J2EE components and core systems capable of messaging.

EJB, Version 2.1 message beans and container-managed messaging save valuable programming time and skill by enabling requests to be processed without requiring code to check for messages when they arrive. And developers can easily incorporate new behavior in a J2EE application with existing business events by adding a new message-driven bean to operate on specific business events.

If you prefer to use WebSphere MQ, IBM continues to provide a product that is fully compatible within a WebSphere MQ messaging environment.

Maximize ROI with Web services

WebSphere Application Server for z/OS extends the J2EE, Version 1.4 programming model by providing a comprehensive infrastructure to support the production-ready deployment of Web services-based applications. It allows you to build, publish and manage integration-ready application services that can be used by other internal or external organizations or platforms. Create new business opportunities and help reduce costs by finding the least-expensive trading partners and sharing applications electronically with other organizations.

All WebSphere Application Server configurations support key Web services open standards, including SOAP; Universal Description, Discovery and Integration (UDDI); Web Services Description Language (WSDL); SOAP with attachments API for Java (SAAJ); Web Services Invocation Framework (WSIF); Web Services Security (WS-Security); XML Signature; and XML Encryption.

Support for WS-I Basic Profile, Version 1.1 gives Web services developers a head start on creating interoperability across heterogeneous environments and enterprise boundaries. And support for private UDDI registries — which act as directories of services to help users find information about Web services — enables developers to publish and test their internal On Demand Business applications in a security-rich, private environment.

With WebSphere Application Server for z/OS, you can deploy and consume Web services with a variety of communications protocols, including SOAP and HTTP, JMS or Remote Method Invocation Internet Inter-ORB Protocol (RMI/IIOP). Web services enable you to easily consume components, regardless of the technology with which they were developed.

WebSphere Application Server for z/OS also provides extended Web services support through a Web services gateway. This gateway helps reduce development costs by making selected services available to different divisions within an enterprise, or to customers and trading partners who use different protocols or are outside the firewall. Using the Web services gateway, developers and IT managers can safely externalize a Web service so that users can invoke it from outside the firewall.

It isn't economically sound to rewrite or replace core business assets that have been running efficiently and effectively for decades. Web services enable you to connect silos of business assets and extend your existing core business to address emerging business needs. Using WebSphere Application Server for z/OS alongside your CICS and IMS infrastructure enables you to effectively extend key components of your business.

Help reduce costs with simplified deployment, common code and administration features
WebSphere Application Server for z/OS provides a central and open management interface, along with flexible setup options and administration features, to help you deploy and manage multiple applications and components from the same environment, while helping to lessen the complexity of application and systems management. You can also extend these capabilities to help manage configurations that include large numbers of application servers. Automated application-server management functions help enhance productivity and help reduce administrative costs.

As your business needs change, WebSphere Application Server for z/OS can help you quickly and easily move from one configuration to another by providing a single Web browser-based administration console across all deployment options. Along with the mobility of your operations staff, you can also enjoy the mobility of applications that the common programming model provides. This

mobility makes it easy to move applications up to higher functioning releases as needs dictate. For example, as your applications grow in volume and importance, you can move them from IBM WebSphere Application Server Network Deployment to a WebSphere Application Server for z/OS deployment — and manage both from a common administrative console.

To let you effectively manage your operations and applications, WebSphere Application Server for z/OS provides installation and administration capabilities through exposed Java Management Extension (JMX) interfaces and an extended command-line interface. Support for JMX allows other products (like IBM Tivoli® software) to read and manage WebSphere software in a standardized way.

Meet the changing demands of On Demand Business

Dependable system availability can help you avoid costly downtime and, in turn, build customer loyalty. But as volume increases, it can become more difficult to maintain high levels of performance. WebSphere Application Server for z/OS can help you handle unpredictable volumes without degrading the user experience. The consistent, leading-edge performance and scalability of WebSphere Application Server for z/OS helps maintain high responsiveness to constantly changing environments. Take advantage of new levels of scalability, reliability and performance through expanded database support and enhanced security to help enable continuous operation of critical enterprise Java applications.

WebSphere Application Server for z/OS offers an optimized architecture through the z/OS Workload Manager feature, which enables you to prioritize so that more-important workloads get first access to available resources. Another benefit of z/OS Workload Manager is the linear scalability it enables. Servant regions, or the region in WebSphere Application Server for z/OS that does the application work, can increase and decrease as needed, without manual intervention. This capability enables rapid and complete scaling while addressing considerable changes in resource demand.

A key benefit of a WebSphere Application Server for z/OS deployment is the high usage rates of the underlying hardware. It is possible for zSeries and IBM System z9™ architectures to perform at 100 percent usage rates for extended periods of time without performance degradation. This capability makes zSeries and System z9 stand out as exemplary production hardware.

Instill confidence with security-rich applications

It's more important than ever that you provide your employees, trading partners and customers with the most advanced levels of security and superior performance. The most reliable security offerings are mainframe security products, which have helped secure global data repositories for decades without fail. WebSphere Application Server for z/OS is designed to work with:

- *IBM RACF® software, which protects your vital system resources and controls what users can do on the operating system. RACF has been the mainframe standard for security since 1976.*
- *eTrust ACF2 Security for z/OS, by Computer Associates, which helps ensure the integrity and security of your critical information assets.*
- *eTrust CA-Top Secret Security for z/OS, by Computer Associates, which is an integrated security solution that is designed to protect your enterprise.*

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Along with separate mainframe security options, WebSphere Application Server for z/OS offers a sophisticated, security-rich infrastructure and extensive support of open-standards-based Java specifications, including:

- *Java Authentication Authorization Services (JAAS). Authenticates new principals and manages privileged information for a principal.*
- *Java 2 security model. Helps secure system resources.*
- *Java Secure Socket Extension (JSSE). Helps secure communications channels based on transport-level security (Transaction Layer Security [TLS] and Secure Sockets Layer [SSL]).*
- *Java Cryptographic Extension (JCE). Provides a framework for security encryption and message authentication.*
- *Java Cryptographic Architecture. Provides Java cryptographic extensibility, as with public key infrastructure (PKI) integration.*
- *Common Secure Interoperability (CSI), Version 2. Supports secure interoperability between application services.*

You can implement sophisticated enterprise topologies and infrastructure through the WebSphere Application Server for z/OS pluggable security architecture. These include:

- *Pluggable user registries to enable you to exploit Lightweight Directory Access Protocol (LDAP) or custom registries.*
- *Web single sign-on exclusively provided with WebSphere software or through integration with front-end, authentication end points with Trust Association Interceptor (TAI) technology.*
- *Highly secure access to enterprise information systems through a pluggable principal-mapping and credential-mapping facility.*

For more information
IBM WebSphere Application Server is the foundation of the IBM WebSphere software platform — a set of integrated, award-winning On Demand Business solutions. No matter where you are in the On Demand Business cycle, the WebSphere software platform can help you to grow at the speed your market demands. Building on this robust platform, you can integrate your current investments and take advantage of existing skills with a full range of server solutions from the WebSphere family of products.

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

ibm.com/software/webservers/ appserv/zos_os390

To learn more about how the WebSphere software platform can help you succeed in On Demand Business, contact your IBM representative or IBM Business Partner, or visit:

ibm.com/websphere

To join the Global WebSphere Community, visit:

www.websphere.org

To join the WebSphere Application Server for z/OS Virtual Users Group, visit:

www.websphere.org/websphere/site? page=ugdetail&groupId=102

IBM WebSphere Application Server for z/OS, Version 6.0.1 at a glance

	WebSphere Application Server Network Deployment, Version 6.0	WebSphere Application Server for z/OS, Version 6.0.1
Java programming model		
Full J2EE, Version 1.4 support	X	X
Support for JSP, Version 2.0 and Java servlets, Version 2.4	X	X
Full XML support	X	X
Web services		
Full Web services support	X	X
Support for private UDDI registries	X	X
Web services gateway	X	X
Database support and connectivity		
Java Database Connectivity (JDBC) and connection management for access to IBM DB2 Universal Database™, Microsoft SQL Server 2000, Oracle, IBM Informix® and Sybase[1]	X	X
Type 2 connectors for local DB2 connections		X
JDBC for access to DB2 Universal Database for i5	X	X
Restricted DB2 licenses	X	
Application development		
Sample applications	X	X
Web server support		
IBM HTTP server included[2]	X	X
Web server plug-ins	X	X
Security		
Basic authentication and authorization for security-rich access to Web resources	X	X
Enhanced authentication and authorization through CSI, Version 2.0, single sign-on and support for LDAP	X	X
Advanced authentication and authorization, such as JAAS and JCE, for enhanced security	X	X
Support for other mainframe security protocols such as RACF and others[3]		X

IBM WebSphere Application Server for z/OS, Version 6.0.1 at a glance

	WebSphere Application Server Network Deployment, Version 6.0	WebSphere Application Server for z/OS, Version 6.0.1
Platform support		
Broad platform support for rapid implementation on Microsoft Windows® 2000,[2] Windows 2003, Windows XP,[4] Linux®, IBM OS/400® and IBM i5/OS™, IBM AIX® systems, Sun Solaris operating environment, and HP-UX	X	
Support for Linux on zSeries	X	
Support for z/OS		X
Application connectivity		
Full JMS technology-supported message-driven beans, including embedded JMS transport	X	X
Microsoft component object model architecture to Enterprise ActiveX client and server resources[5]	X	X
Performance support		
Enhanced features for performance, such as dynamic caching, IBM Tivoli Performance Viewer software and integration with vendor tools	X	X
Availability		
High-availability (HA) support through the HA manager	X	X
Parallel Sysplex support		X
Automatic Restart Manager support		X
RRS support for transactional integrity, including full two-phase-commit capability for complex transactions		X
Administration and workload management		
Web browser-based remote administration	X	X
Convenient administration through an embedded administrative console	X	X
Intelligent workload distribution across a cluster	X	X
Failure bypass	X	X
Clustering support	X	X
Simple failover and load balancing	X	X
z/OS Workload Manager differentiated workload categorization and prioritization		X
Migration support		
Migration documentation	X	X
Migration tools and assistance	X	X

IBM WebSphere Application Server for z/OS, Version 6.0.1 at a glance

Hardware requirements

Any hardware model supported by z/OS, Version 1.4

Software requirements

- z/OS, Version 1.4 or later, and z/OS.e, Version 1.4 or later

Optional software:

- IBM HTTP Server for z/OS or equivalent
- Security Server LDAP server
- If your application environment uses a DB2 database: DB2 Universal Database for OS/390® and z/OS, Version 7 and later (can coexist with existing levels of DB2 programs used by other applications)
- CICS Transaction Server
  - If your application environment uses CICS Transaction Server: CICS Transaction Server for OS/390, Version 1.3 or later
  - If your application environment accesses CICS Transaction Server through CICS Transaction Gateway for z/OS: CICS Transaction Gateway, Version 6.0
- IMS
  - If your application environment accesses IMS through JDBC or through IMS Connect for Java: IMS, Version 8 or later with appropriate maintenance levels
  - If your application environment uses JCA, Version 1.5: IMS, Version 9 or later with appropriate maintenance levels
- To use the full-function WebSphere MQ for z/OS program: a separate license for WebSphere MQ for z/OS, Version 5.3.1 or later

Notes:
1. Not support for IBM @server i5
2. Ships as part of operating system
3. Supported for application design, development and testing only; not supported for production use
4. Supported for application design, development and testing only; not supported for production use
5. Not supported for i5

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