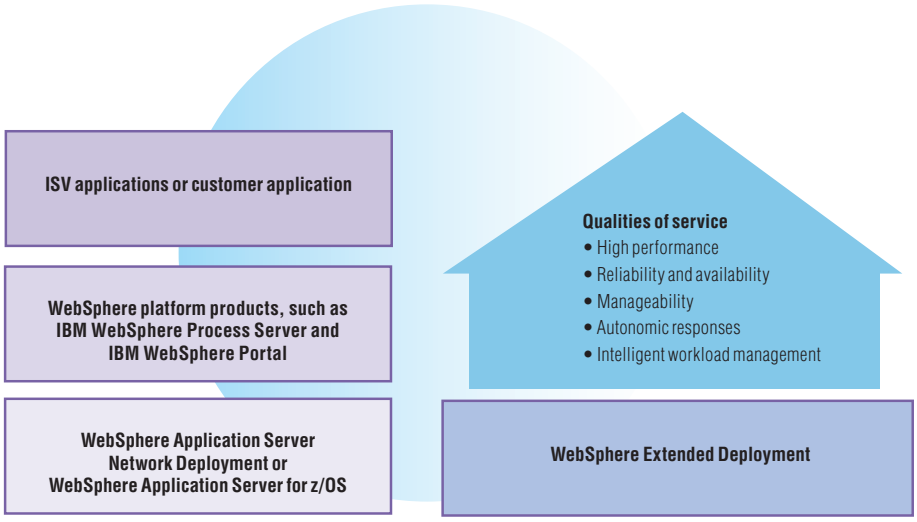
Providing a dynamic, goals-directed, high-performance environment for running mixed application types and workload patterns within the WebSphere platform.

WebSphere® software

IBM WebSphere Extended Deployment, Version 6.0

Highlights

- ***Helps take your WebSphere Application Server foundation to the next level in computing competence***
- ***Helps enhance quality of service throughout the application server software stack***
- ***Helps optimize transactional performance and reliability***
- ***Helps enable you to dynamically accommodate variable and unpredictable business demands***
- ***Helps reduce the time and cost associated with managing complex application environments***
- ***Helps deliver the business flexibility necessary to effectively support mixed workloads and mixed application server environments***



WebSphere Extended Deployment can help you achieve your On Demand Business goals.

To compete effectively in today's marketplace, you have to respond quickly and accurately to customer and market demands. Your IT infrastructure must be able to keep pace as your business needs fluctuate—with a minimum of human intervention. Building robust function into your IT infrastructure can help you reduce IT management complexities to make better use of your existing assets. You can also improve your organization's ability to adapt to changing customer and trading-partner demands on the fly—and be prepared for future growth.

To do so, you need a cost-effective infrastructure capable of supporting your business needs as they evolve. Incorporating sense-and-respond capabilities into your infrastructure can increase efficiencies and enable you to shift valuable IT and human resources to higher-value work.

ON DEMAND BUSINESS™

Help extend the capabilities of your IT infrastructure

IBM WebSphere® Extended Deployment, Version 6.0 software builds upon the precedent set by Version 5.1 — to deliver enhanced functionality to IBM WebSphere Application Server Network Deployment. With this release, WebSphere Extended Deployment software provides broader functionality to support WebSphere Application Server for z/OS and other WebSphere platform software, such as WebSphere Business Integration Server Foundation. You can easily and effectively use these capabilities to optimize the resource utilization and management of your deployments, while enhancing the quality of service of your business-critical applications.

WebSphere Extended Deployment helps deliver an operationally excellent computing environment that is:

Dynamic

With WebSphere Extended Deployment, your application environment can scale as business needs dictate — through the virtualization of WebSphere software resources and the use of a business goals-directed application infrastructure, helping you increase the speed at which your company can adapt to business change.

Manageable

WebSphere Extended Deployment can help improve the management of complex system operations with meaningful, real-time, advanced visualization tools and gradual, controlled implementation of autonomic capabilities — helping you reduce the cost of managing IT resources.

High-performing

WebSphere Extended Deployment can enhance the quality of service of your business-critical applications to support high-end transaction processing — helping you to improve customer-service levels while also leveraging existing Java™ programming skills and resources. The robust performance capabilities delivered are extendable to existing and competitive application-server environments.

Flexible

WebSphere Extended Deployment helps enable existing resources to act as a parallel environment to efficiently support long-running batch workloads within the same computing resource as transactional workloads by intelligently determining resource usage availability and by constantly taking advantage of idle computing resources that would otherwise go unused.

Dynamic operations capabilities that can help increase business responsiveness

WebSphere Extended Deployment is designed to deliver dynamic operations through two key capabilities — the virtualization of WebSphere environments and the introduction of a business goals-directed infrastructure. A virtualized environment is implemented by creating pools of resources with common capabilities that can be shared among applications to optimize utilization and help simplify the allocation of WebSphere resources to meet business demands.

The ability to allocate resources in response to actual resource demand can potentially allow you to run more applications on the machines you already have in place. WebSphere Extended Deployment can deliver a virtualized, dynamic WebSphere environment through the following features:

- Resource pooling *is achieved using node groups and dynamic clusters. A* node group *is a pool of nodes with a common set of capabilities and properties (for example, connectivity to a given network or database). A* dynamic cluster *is a set of virtual servers similar to a static cluster, but with a crucial difference—the number and placement of cluster members can vary over time. By removing the static barrier of the cluster definition, you can create an IT foundation that enables dynamic response to your organization's business needs.*
- Autonomic managers *use performance data and dynamic-cluster definitions to compute and control the optimal allocation of available resources to running applications by changing the priorities of applications or by modifying the number of application instances.*

Although WebSphere Extended Deployment focuses on the WebSphere components of your infrastructure, it can also optionally work with IBM Tivoli® Intelligent Orchestrator* (available separately) to expand beyond the defined WebSphere software environment. For example, if WebSphere Extended Deployment determines that it can't meet your defined business goals, Tivoli Intelligent Orchestrator can provide more server hardware on which to deploy WebSphere applications. Tivoli Intelligent Orchestrator can then allocate more server resources to WebSphere Extended Deployment, which adds the resources to the available pool and balances the workload across the new, larger set. If other resources aren't available, WebSphere Extended Deployment can try to work with the resources it has available until the requirements on the system decrease.

The goals-directed infrastructure capabilities of WebSphere Extended Deployment help ensure that user requests for application resources are classified, prioritized, queued and routed to servers based on application operational policies affiliated with user-defined business goals. These policies drive application performance based on service-level goals and their relative importance to your organization. You can define application importance, and the autonomic managers within WebSphere Extended Deployment help ensure those applications have the highest-priority access to your WebSphere resources at the right time. When deployed on the IBM z/OS® operating system, the business goals-directed infrastructure capabilities of WebSphere Extended Deployment provide complementary functionality to IBM z/OS Workload Manager, which also supports policy-driven workloads. IBM z/OS Workload Manager supports an IBM *@server*® zSeries® enterprise-wide view of workload importance, whereas WebSphere Extended Deployment focuses on a more granular breakdown of application workload importance and policy.

WebSphere Extended Deployment implements a business goals-directed application infrastructure through several functions:

- Operational policies *are user-defined entities, either health or service, that enforce a rule or condition.* Health policy management *provides system intelligence to monitor for preexisting software conditions, such as memory leaks and failed servers. After these conditions are detected, the system can automatically act to resolve them.* Service policies *provide the ability to differentiate applications according to their perceived level of importance or business value. A* transaction class *defines a grouping of work, and is the smallest unit of monitoring. A* service class *is a collection of transaction classes and is used to define application-performance goals and business requirements, such as average response time (number of milliseconds) and relative importance (highest to lowest).*
- *The* on demand router *(ODR) can help to ensure application service levels by routing work according to defined service policies, including classification and prioritization of workload, queuing, flow control and workload routing. It can be deployed using a staged approach where the ODR fronts existing application-server resources, and can provide significant value in a traditional application-server environment. When deployed in a zSeries environment, the ODR provides improved cross-logical partitioning (LPAR) workload routing.*
- Dynamic workload management *enables the system to monitor the workload on each server in a cluster and automatically route incoming requests to the server that is in the best position to process the request.*

Extended manageability can help simplify IT management while maintaining administrator control

It can be difficult to visualize and manage complex, distributed IT environments where multiple applications are deployed on tens or even hundreds of application servers. Although the WebSphere Application Server administration console provides excellent built-in capabilities, the special needs of very complex deployments require an aggregated, meaningful view of the application run-time environment.

WebSphere Extended Deployment expands the capabilities of the existing WebSphere Application Server administration console to allow you to see, at a glance, what is happening in your infrastructure and assess the relative health of your application resources. It can also enhance the existing WebSphere administration console by charting application performance against business goals to easily determine success. WebSphere Extended Deployment uses alerts to notify you when intervention is required to meet your business goals—helping to decrease personnel-intensive monitoring and management. For example, if a business-critical application is in danger of not meeting its defined business goal, a WebSphere Extended Deployment view might suggest that you allocate more servers to the application. Over time, you can automate these decisions and corresponding actions.

Manageability features delivered by WebSphere Extended Deployment include:

- *Virtually interruption-free application updates to support the deployment of multiple application versions without interrupting service, while providing a highly available application infrastructure with built-in failover support.*
- *An aggregated view, called a* tree map, *of the application run-time environment to help operators see areas that need their attention more quickly. The WebSphere Extended Deployment tree map provides a summary view of the configuration and performance of your entire environment. This starting point can be used to drill down to more-specialized views.*
- *Run-time topology views to show what applications are running where (important in a virtualized, dynamic environment) and application relationships to other WebSphere artifacts.*
- *Operations views to offer customizable charting to provide a graphical representation of application performance compared to performance goals.*
- *Events to alert operations of areas that are in the process of change or that require action, with direct links to chart views and other, more-detailed views.*
- *Autonomic computing options with three modes of operation – manual, supervised and on demand mode – enabling you to choose the level of control that you have over your environment. The supervised mode provides a first step toward autonomic operation, while letting you maintain control, and offers a way to incrementally adopt autonomic computing capabilities. WebSphere Extended Deployment enables granular control of operating modes, so new applications can be treated with less trust than reliable, proven applications.*

High-performance computing can reliably support high-volume transaction requirements

To reliably support high-end transaction-processing requirements within a unified WebSphere environment, WebSphere Extended Deployment provides an optimized transactional environment by reducing unnecessary traffic to the data stores, which helps eliminate the most likely cause of bottlenecks. WebSphere Extended Deployment enables you to design applications that divide logic and data into partitions that can be mapped to available servers. With this capability, you can cache information much more efficiently than if the request went to a random server, and adjust the partitions to provide better performance. WebSphere Extended Deployment automatically makes partitions fault tolerant, and in the event of a failure, provides partition recovery in seconds. Together with sophisticated algorithms to manage the workload, these techniques using WebSphere Extended Deployment can enable you to achieve near-linear scalability as the transaction load increases, and very fast recovery time in the event that a server fails.

WebSphere Extended Deployment, Version 6.0 introduces a caching fabric—the ObjectGrid—that enables object data to be shared among multiple clients, creating a reduction in transactions against back-end services such as database transactions, IBM CICS® transactions and other back-end transactions. This caching fabric can be deployed to a cluster and scaled up dynamically, while providing support for thousands of concurrent clients with integrity, increased performance and reduced complexity.

High-performance computing features in WebSphere Extended Deployment include:

- *The* partitioning facility, *which enables the partitioning of applications and data to improve database, as well as in-memory, caching and workload management—helping to improve performance by as much as 10 times for some applications, and providing near-linear scalability.*
- *The* ObjectGrid function, *which enables an intermediate layer containing object data to interface with a variety of clients, delivering localized caching with built-in integrity to increase transactional performance by reducing the need to transact with the back-end environment by as much as 95 percent. This can help reduce the load on back-end services such as databases or mainframe applications and allows these applications to be horizontally scaled more effectively and economically.*
- High-availability services *that offer quick application recovery by detecting application-level failure and rapidly dispatching the services to another member of the cluster to take over for the failing service.*

Business flexibility enables diverse workloads to use the same resources effectively and efficiently

In today's On Demand Business environment, you continually face competitive pressure, while being challenged to minimize IT expenditures. You must respond quickly to market demand—and your IT infrastructure must keep pace. Business flexibility is the ability of the application infrastructure, powered by WebSphere Extended Deployment, to optimize heterogeneous business environments to support mixed workloads including batch, compute-intensive and online transaction processing (OLTP), as well as mixed application-server types, while providing the ability to run on and integrate with a broad set of platforms. Business flexibility in WebSphere Extended Deployment, Version 6.0 extends the WebSphere platform to support long-running applications and enables you to deploy these new long-running applications alongside your traditional transactional applications in a single infrastructure.

Diverse application workloads, such as Java 2 Platform, Enterprise Edition (J2EE) batch and transaction processing workloads are supported through advanced scheduling agents that transcend the business grid created by WebSphere Extended Deployment and locate opportunities to use idle computing resources that are then consumed by waiting workloads. Effectively, a grid environment is created that takes full advantage of the autonomic capabilities of WebSphere Extended Deployment. As a result, you can experience the following benefits:

- *Utilization rates are optimized when a common pool of virtualized resources is used for multiple application types and harvested for available compute opportunities.*
- *Service levels are optimized when a common set of service policies drive allocation of resources across workloads.*
- *Development, administration and management can be handled centrally, while decreasing costs and increasing operational stability.*

By providing management support for non-WebSphere Application Server resources, the business flexibility of WebSphere Extended Deployment embraces IT infrastructures that are heterogeneous in nature. Non-WebSphere workloads can be managed using service policies, workload routing and manageability features such as visualization, enabling you to stretch the quality of service available in WebSphere Extended Deployment to your application software infrastructure.

A robust resource-management solution

WebSphere Extended Deployment can help enable you to:

- *Extend the existing qualities delivered by the WebSphere platform and apply the extended value throughout the application stack, helping to make your environment more reliable, better performing and more flexible.*
- *Scale as business needs dictate to almost seamlessly accommodate fluctuations in business demands with the virtualization of WebSphere application resources.*
- *Deliver application availability and performance using policies based on defined business goals.*
- *Confidently and efficiently manage your application infrastructure with a real-time, aggregated view of application resource usage and performance.*
- *Introduce autonomic computing capabilities in a controlled, gradual way with manual, supervised and on demand modes of operation.*
- *Optimize performance by creating a caching fabric that enables object data to be shared among multiple clients.*
- *Develop highly scalable, high-performance J2EE applications by leveraging the partitioning facility.*
- *Reliably support ultra-high-end transaction-processing requirements within a unified, distributed WebSphere software environment.*
- *Integrate your heterogeneous application-servers infrastructure by effectively managing non-WebSphere resources.*
- *Support computational and transactional workloads with a common set of resources and scheduling, while helping to drive down costs and increase your business effectiveness.*

For more information

To learn more about IBM WebSphere Extended Deployment, Version 6.0, contact your IBM representative or IBM Business Partner, or visit:

ibm.com/software/webservers/appserv/extend

To join the IBM WebSphere Global Community, visit:

www.websphere.org

IBM WebSphere Extended Deployment, Version 6.0 at a glance

Hardware requirements

- For WebSphere Extended Deployment, Version 6.0: WebSphere Application Server Network Deployment, Version 6.0 with support for the same hardware platforms.
- For WebSphere Extended Deployment for z/OS, Version 6.0.1: WebSphere Application Server for z/OS, Version 6.0.2 with support for the same hardware platforms

For IBM AIX® systems

- IBM @server pSeries® or IBM @server iSeries™ at 375MHz or faster
- Minimum 970MB available disk space for installation (includes software developer kit [SDK])
- Minimum 512MB physical memory; 1GB recommended
- CD-ROM drive

For HP-UX systems (32-bit WebSphere Application Server)

- PA-RISC at 440MHz or faster
- Minimum 1100MB available disk space for installation (includes SDK)
- Minimum 512MB physical memory; 1GB recommended
- CD-ROM drive

For HP-UX (64-bit WebSphere Application Server)

- Itanium 2 processor
- Minimum 1100MB available disk space for installation (includes SDK)
- Minimum 1GB physical memory
- CD-ROM drive

For Linux® on Intel® systems (32-bit WebSphere Application Server)

- AMD Opteron, Intel Pentium® (or equivalent) processor at 500MHz or faster, or Intel EM64T (32-bit kernel support only)
- Minimum 995MB available disk space for installation (includes SDK)
- Minimum 512MB physical memory; 1GB recommended
- CD-ROM drive

For Linux on Intel (64-bit WebSphere Application Server)

- AMD Opteron or Intel 64T (64-bit kernel support only)
- Minimum 995MB available disk space for installation (includes SDK)
- Minimum 1GB physical memory
- CD-ROM drive

For Linux on IBM @server i5 systems

- i5 models that support LPAR with a minimum of 450 commercial processing workload (CPW) in the Linux partition
- Minimum 16GB available disk space for the IBM OS/400® partition; 2.5GB minimum for the Linux partition
- Minimum 512MB physical memory; 1GB recommended for the OS/400 partition
- Minimum 512MB physical memory for the Linux partition; 1GB recommended
- CD-ROM drive

For Linux on pSeries systems

- pSeries models that support Linux
- Minimum 995MB available disk space for installation
- Minimum 512MB physical memory; 1GB recommended
- CD-ROM drive

IBM WebSphere Extended Deployment, Version 6.0 at a glance (continued)

Hardware requirements (continued)

For Sun Solaris operating environment

- Sun SPARC workstation at 440MHz or faster
- Minimum 1000MB available disk space for installation (includes SDK)
- Minimum 512MB physical memory; 1GB recommended
- CD-ROM drive

For Microsoft® Windows® 2000, Windows 2003 and Windows XP operating systems

- AMD Opteron, Intel Pentium processor (or equivalent) at 500MHz or faster, or Intel EM64T (32-bit operating system support only)
- Minimum 990MB available disk space for installation (includes SDK)
- Minimum 512MB physical memory; 1GB recommended
- CD-ROM drive

For z/OS on pSeries and zSeries systems

- pSeries models that support z/OS, Version 1.4 or z/OS.e, Version 1.4 or later
- zSeries z890, z990 and IBM System z9™ servers

Note: These requirements represent the recommended minimum requirements. Deployments that must support many users or require shorter response times might require additional resources. Use the IBM Workload Estimator for help to size system configurations. For more information, visit http://as400service.ibm.com/estimator.

Software requirements

One of the following

- WebSphere Application Server Network Deployment, Version 6.0.2 or later
- WebSphere Application Server for z/OS, Version 6.0.2 or later
- IBM WebSphere Process Server, Version 6.0 or later

For AIX (one of the following)

- AIX, Version 5.1 with recommended Maintenance Package 5100-04 or 5100-05
- AIX, Version 5.2 with recommended Maintenance Package 5200-01, 5200-02 or 5200-03

Note: Certain X11 file sets are required for the installation of Fix Pack (FP) 2 for WebSphere Application Server, Version 5.0 on AIX platforms.

For HP-UX (one of the following)

- For 32-bit WebSphere Application Server: HP-UX 11i, Version 1 with Quality Pack of December 2004, and required HP-UX patches for Java
- For 64-bit WebSphere Application Server: HP-UX 11i, Version 2 with Update 2

Linux for x86 (32-bit WebSphere Application Server) (one of the following)

- Red Flag Advanced Server, Version 4.1 (supported in China only)
- Red Hat Enterprise Linux (RHEL) ES, Version 3.0 for Intel with Update 2, 3 or 4
- RHEL AS, Version 3.0 for Intel with Update 2, 3 or 4
- RHEL ES, Version 4.0
- RHEL AS, Version 4.0
- RHEL WS, Version 3.0 with Update 2, 3 or 4
- RHEL WS, Version 4.0 (supported for application design, development and testing only; no support for production use)
- SUSE LINUX Enterprise Server (SLES), Version 8 with Service Pack (SP) 3 or SP4
- SLES, Version 9
- SLES, Version 9 with SP1

IBM WebSphere Extended Deployment, Version 6.0 at a glance (continued)

Software requirements (continued)

Linux for x86 (64-bit WebSphere Application Server) (one of the following)

- RHEL ES, Version 3.0 with Update 3 or 4
- RHEL AS, Version 3.0 with Update 3 or 4
- RHEL AS, Version 4.0
- SLES, Version 9
- SLES, Version 9 with SP1

Linux for zSeries (one of the following)

- RHEL AS, Version 3.0 with Update 2, 3 or 4
- RHEL AS, Version 4.0
- SLES, Version 8 with SP3 or SP4
- SLES, Version 9
- SLES, Version 9 with SP1

Linux on IBM POWER™ (32-bit WebSphere Application Server) (one of the following)

- RHEL AS, Version 3.0 with Update 2, 3 or 4
- RHEL AS, Version 4.0
- SLES, Version 8 with SP3 or SP4
- SLES, Version 9
- SLES, Version 9 with SP1

Linux on POWER (64-bit WebSphere Application Server) (one of the following)

- RHEL AS, Version 3.0 with Update 3 or 4
- RHEL AS, Version 4.0
- SLES, Version 9 with SP1

For Sun Solaris operating environment (32-bit WebSphere Application Server) (one of the following)

- Sun Solaris operating environment, Version 8 with the Patch Cluster of June 2005
- Sun Solaris operating environment, Version 9 with the Patch Cluster of June 2005
- Sun Solaris operating environment, Version 10

For Windows 2000, Windows 2003 and Windows XP (32-bit WebSphere Application Server) (one of the following)

- Windows 2000 Server with SP4
- Windows 2000 Advanced Server with SP4
- Windows 2000 Professional with SP4 (supported for application design, development and testing only)
- Windows Server 2003 Datacenter
- Windows Server 2003 Datacenter with SP1
- Windows Server 2003 Enterprise
- Windows Server 2003 Enterprise with SP1
- Windows Server 2003 Standard
- Windows Server 2003 Standard with SP1
- Windows XP Professional with SP1a or Service Pack 2 (supported for application design, development and testing only; no support for production use.)

IBM WebSphere Extended Deployment, Version 6.0 at a glance (continued)

Software requirements (continued)

For Windows 2000, Windows 2003 and Windows XP (64-bit Websphere Application Server)

- Windows Server 2003 x64 Editions

For z/OS and z/OS.e

Operating systems (one of the following)

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

Other elements, features and components that must be installed, enabled and configured

- IBM Communications Server (TCP/IP) or equivalent
- z/OS UNIX® System Services and the HFS
- Security Server (IBM RACF®) or equivalent security-management product
- System logger
- System Secure Sockets Layer (SSL) security required when using SSL
- Workload management in goal mode
- Resource recovery services

Optional z/OS elements, features and components

- IBM HTTP Server for z/OS or equivalent
- Security Server Lightweight Directory Access Protocol (LDAP) Server
- If your application environment uses an IBM DB2® database: IBM DB2 Universal Database Server for z/OS, Version 7 or later (can coexist with existing levels of DB2 programs used by other applications); and IBM CICS Transaction Server for z/OS, Version 3.1
- If your application environment uses CICS Transaction Server: CICS Transaction Server for OS/390®, Version 2.0 or later
- If your application environment accesses CICS Transaction Server through IBM CICS Transaction Gateway for z/OS: CICS Transaction Gateway, Version 6.0

Note: Language support in the national language version is limited to the languages supported by the operating system.

To learn about the latest hardware and software requirements for WebSphere Extended Deployment, Version 6.0, visit **ibm.com**/software/webservers/appserv/extend/requirements/.

© Copyright IBM Corporation 2005

IBM Corporation
Software Group
Route 100
Somers, NY 10589
U.S.A.

Produced in the United States of America
10-05
All Rights Reserved

AIX, CICS, DB2, DB2 Universal Database, **@server**, IBM, the IBM logo, iSeries, the On Demand Business logo, OS/390, OS/400, POWER, pSeries, RACF, System z9, Tivoli, WebSphere, z/OS and zSeries are trademarks of International Business Machines Corporation in the United States, other countries or both.

Intel and Pentium are trademarks of Intel Corporation in the United States, other countries or both.

Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries or both.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries or both.

UNIX is a trademark of The Open Group in the United States, other countries or both.

Linux is a trademark of Linus Torvalds in the United States, other countries or both.

Other company, product and service names may be trademarks or service marks of others.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

* IBM Tivoli Intelligent Orchestrator does not support a z/OS installation of WebSphere Extended Deployment at this time and may not in the future.

G224-9118-01