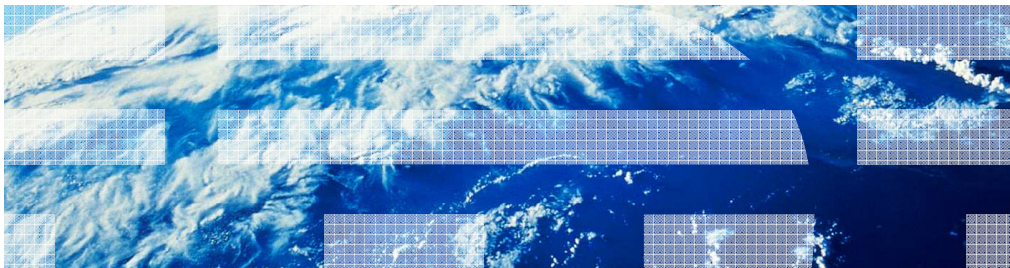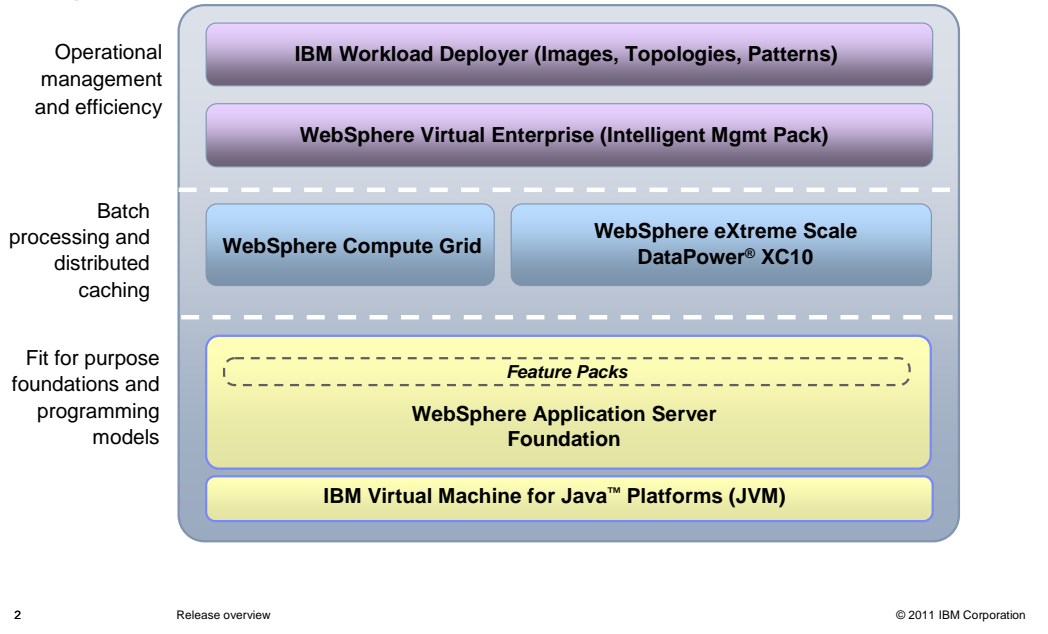IBM

WebSphere Application Server V8.0

Release overview

This presentation provides an overview of the new features in WebSphere® Application Server Version 8.0.

WebSphere application infrastructure: The big picture - vertically integrated and horizontally fit for purpose

Operational management and efficiency

IBM Workload Deployer (Images, Topologies, Patterns)

WebSphere Virtual Enterprise (Intelligent Mgmt Pack)

Batch processing and distributed caching

WebSphere Compute Grid

WebSphere eXtreme Scale DataPower® XC10

Fit for purpose foundations and programming models

Feature Packs

WebSphere Application Server Foundation

IBM Virtual Machine for Java™ Platforms (JVM)

2   Release overview   © 2011 IBM Corporation

WebSphere Application Server Version 8.0 delivers the core foundational requirements for the rest of the WebSphere Application Server portfolio of products.

Build upon the IBM Virtual Machine for Java Platforms, the Application Server provides the foundation for the WebSphere portfolio, including IBM Workload Deployer, WebSphere Virtual Enterprise, WebSphere Compute Grid, and the WebSphere eXtreme Scale and DataPower XC10 appliance.

WebSphere Application Server Family

WebSphere Application Server for Developers	WebSphere Application Server Hypervisor Edition	WebSphere Application Server Network Deployment	WebSphere Application Server for z/OS®
Enables efficient development of innovative applications that will eventually run on WebSphere Application Server in production Also available as a no-charge edition for the developer desktop	Optimized to instantly run in VMware and other server virtualization environments	Delivers near-continuous availability, with advanced performance and management capabilities, for mission-critical applications	Takes full advantage of the z/OS Sysplex to deliver a highly secure, reliable, and resource efficient server experience

WebSphere Application Server	Provides secure, high performance transaction engine for moderately sized configurations with web tier clustering and failover across up to five application server profiles

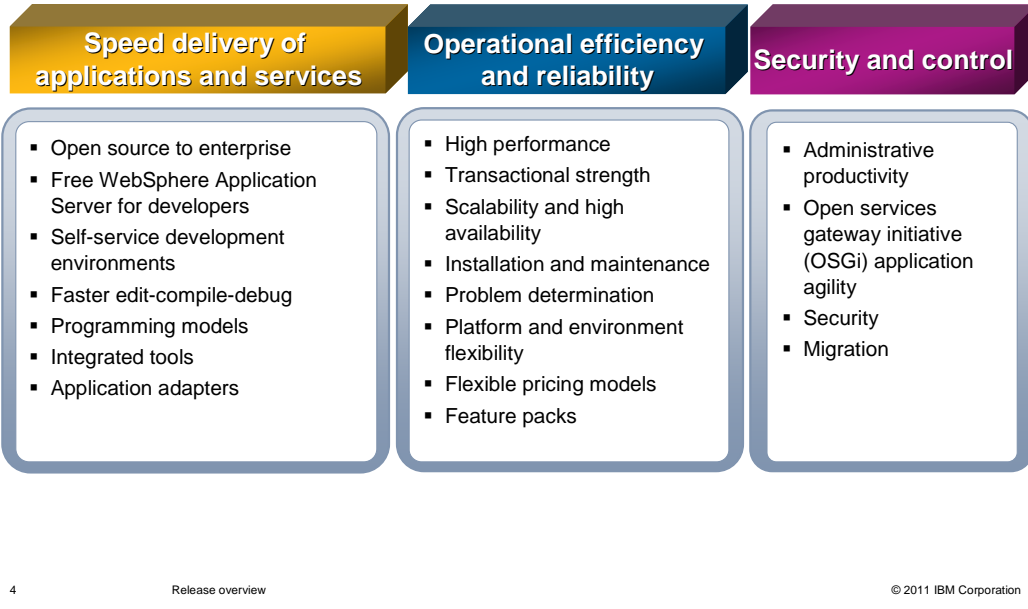| WebSphere Application Server - Express	A lower-cost, ready-to-go solution to build dynamic Web sites and applications	WebSphere Application Server Community Edition	An open source-based, small footprint foundation with no up-front acquisition costs

▨ Built on a common code base

The WebSphere Application Server family for Version 8.0 continues to provide offerings to fit your needs ranging from lightweight developer desktop environments to highly complex and highly available enterprise environments.

As additional qualities of service are required in your environment, the WebSphere Application Server family of offerings will continue to meet those requirements. The offerings in purple are built upon a common code base. The WebSphere Application Server Community Edition is built upon open source application server Apache Geronimo.

Intelligently manage application environments and deliver rich user experiences faster

Speed delivery of applications and services	Operational efficiency and reliability	Security and control
▪ Open source to enterprise ▪ Free WebSphere Application Server for developers ▪ Self-service development environments ▪ Faster edit-compile-debug ▪ Programming models ▪ Integrated tools ▪ Application adapters	▪ High performance ▪ Transactional strength ▪ Scalability and high availability ▪ Installation and maintenance ▪ Problem determination ▪ Platform and environment flexibility ▪ Flexible pricing models ▪ Feature packs	▪ Administrative productivity ▪ Open services gateway initiative (OSGi) application agility ▪ Security ▪ Migration

4　　　　Release overview　　　　© 2011 IBM Corporation

WebSphere Application Server Version 8.0 focuses on three primary goals: speeding the delivery of applications and services in your application server environment, enhancing the operational efficiency and reliability of the application server, and expanding the security and administrative control of the application server.

Intelligently manage application environments and deliver rich user experiences faster

Speed delivery of applications and services

- Open source to enterprise
- Free WebSphere Application Server for developers
- Self-service development environments
- Faster edit-compile-debug
- Programming models
- Integrated tools
- Application adapters

　Release overview

First, a discussion of the features of WebSphere Application Server Version 8.0 that speed the delivery of applications and services will be provided.

Enabling developers to start with open source and community software and benefit from IBM value-add in production
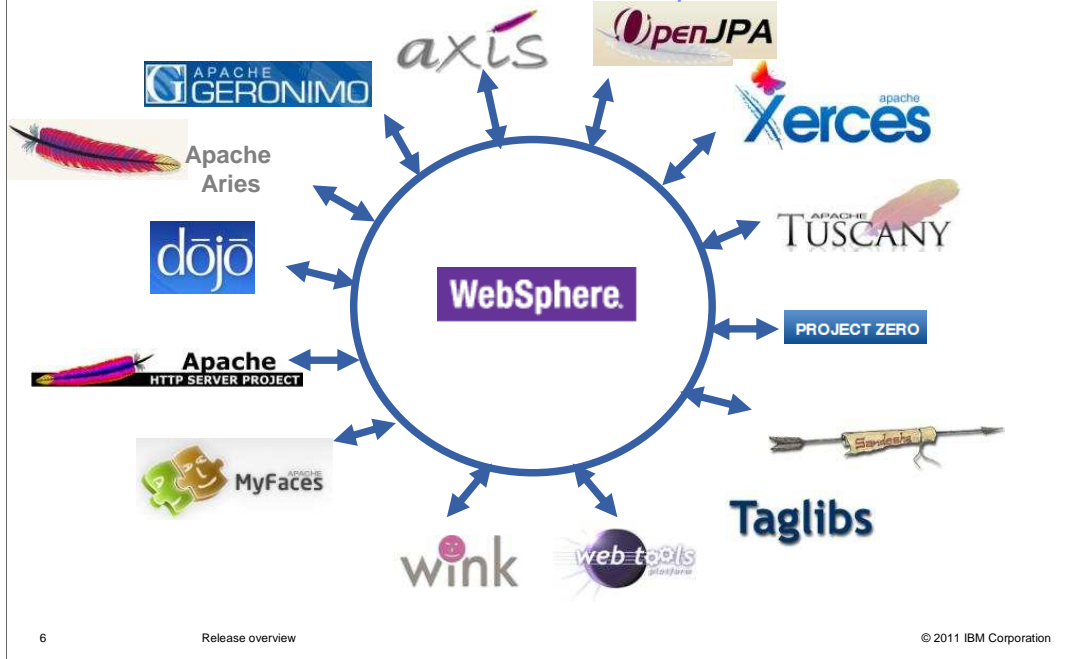
WebSphere Application Server Version 8.0 continues to deliver cutting edge open source software, and standards community-developed software for your enterprise environment, many of which are illustrated here.

IBM extends the value of these open source contributions with high qualities of service and reliability for your production environments.

Lowering barriers to developer adoption

- No charge WebSphere Application Server for Developers
  - For use on developer desktop at no charge
  - Download at: http://bit.ly/bq49yq

7   Release overview   © 2011 IBM Corporation

WebSphere Application Server Version 8.0 delivers a no-charge offering to enable quick and easy developer access to the application server, built upon the same code base as the other WebSphere Application Server offerings.

WebSphere Application Server for Developers, which was introduced in the Version 7 timeframe and is available with WebSphere Application Server Version 8.0, too, allows developers to develop and test on their desktop using the same code base and same application server that will be used in production environments.

Speed the development and test life cycle through self-service access to repeatable environments

IBM Workload Deployer & WebSphere Application Server Hypervisor Edition
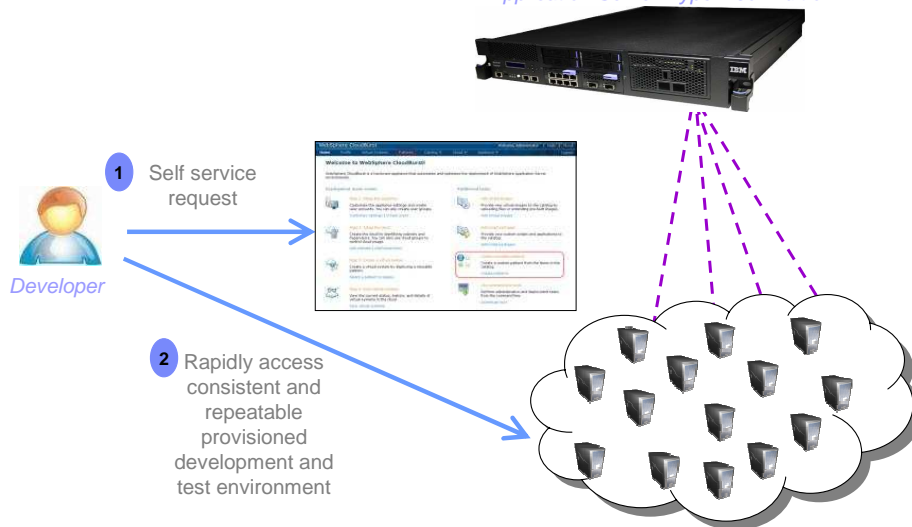
1 Self service request

Developer

2 Rapidly access consistent and repeatable provisioned development and test environment

WebSphere Application Server Version 8.0 speeds the development and test life cycle by providing "self-service" access to consistent topologies and patterns through the WebSphere Application Server Hypervisor Edition and the IBM Workload Deployer.

IBM WebSphere Application Server Hypervisor Edition, a version of IBM WebSphere Application Server software that is optimized to run in virtualized hardware server environments including IBM zVM, IBM PowerVM™ on AIX® and VMware ESX.

IBM Workload Deployer (previously the Cloudburst appliance) is a hardware appliance that provides access to software virtual images and patterns that can be used as-is or easily customized, and then securely deployed, managed and maintained in a private cloud. Workload Deployer works seamlessly with IBM WebSphere Application Server Hypervisor Edition.

New!

Monitored directory support

Accelerate edit-compile-debug tasks during the development life cycle

- Enhanced developer productivity through new monitored directory-based application install, update and uninstall of applications
- Drag-and-drop and command line support
- Supported with WebSphere Application Server Express, Base, Network Deployment and z/OS
- Supported file types:
  - EAR (Enterprise Archive)
  - WAR (Web Application Archive)
  - JAR (Java Archive)
  - SAR (SIP Application Resource)

Another of the ways that WebSphere Application Server Version 8.0 makes it faster to edit, compile and debug is through a new Version 8 feature that permits you to use a monitored directory for application install, uninstall and updates. Application contents, which may be complete applications or individual modules, can be moved into or out of the monitored directory to accomplish these tasks.
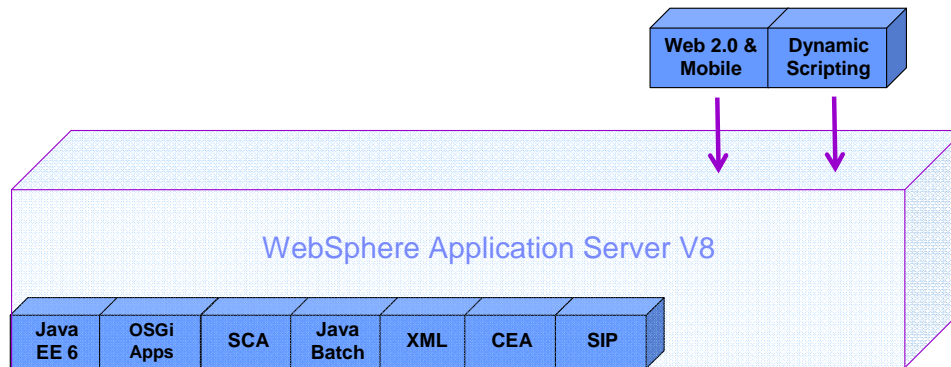
This new monitored directory does not require any tools or other products. Instead it uses the native file system, using file drag-and-drop or file copy or move.

When an application is moved into the monitored directory, the application is automatically installed and started.

If an application or module is moved into the directory again, that application or module will be updated. The appropriate elements of the application will be stopped, the new elements updated and restarted without your needing to provided additional administration.

Similarly, if the application is moved out of the directory, the application is automatically stopped and uninstalled.

Broad set of integrated standards-based programming models

WebSphere Application Server V8

Web 2.0 & Mobile | Dynamic Scripting

Java EE 6 | OSGi Apps | SCA | Java Batch | XML | CEA | SIP

Java EE 6 – Java Platform, Enterprise Edition (Java EE) 6
OSGi – Open Services Gateway initiative
SCA – Service Component Architecture
XML – Extensible Markup Language
CEA – Communications Enabled Applications
SIP – Session Initiation Protocol

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Building upon the programming models that were introduced in previous versions of WebSphere Application Server, which include J2EE 1.2, J2EE 1.3, J2EE 1.4 and Java EE 5, Version 8 continues expand its set of programming model support.

Several of the core programming models in Version 8 were first made available to you in Feature Packs on Version 7, and are now integrated into the core of Version 8.

Several new programming models are available as feature packs on Version 8, as well.

Additional educational sessions are available that will go into detail of the Version 8 capabilities for each of these programming models.

Java EE 6

Simplify standards-based enterprise Java development for dept. to core business apps

Enhanced developer productivity, user experiences, performance, and integration:

- **Enterprise JavaBeans (EJB) 3.1:** Enhanced developer productivity through simplification including testing outside of the application server, new timer support and asynchronous enhancements
- **Contexts and Dependency Injection for Java (CDI) 1.0:** Faster time to value through tighter and simpler integration between web and business logic tiers
- **Java Persistence API (JPA) 2.0:** Enhanced developer ease of use and application performance through improved locking, mapping support and dynamic query construction
- **Java Servlet 3.0:** Enhanced time to value through annotations and ease of integrating third party presentation frameworks

- **Java API for RESTful Web Services (JAX-RS) 1.1:** Deliver better user experiences faster through integrated Web 2.0 programming model support
- **JavaServer Faces (JSF) 2.0:** Enhanced developer productivity and user experience through annotations and Facelets support
- **Bean Validation 1.0:** Improved developer productivity through declarative means for describing validation constraints for data
- **Java Architecture for XML Binding (JAXB) 2.2:** Improved performance through new default marshalling optimizations
- **Enterprise Web Services 1.3:** Improved integration and reuse support
- **Java API for XML-Based Web Services (JAX-WS) 2.2:** Developer productivity and security enhancements

11   Release overview   © 2011 IBM Corporation

In WebSphere Application Server Version 8, Java EE 6 expands greatly the developer value that was first introduced in Java EE 5, a core programming model in Version 7.

Java EE 6 continues to focus on developer productivity, "programming by exception" and providing reasonable defaults. It increases the support for annotations and injections, and where Plain Old Java Objects (POJOs) can be used to test business processes outside of the application server environment.

WebSphere Application Server provides a high performing, reliable and scalable implementation of the Java EE 6 specifications with additional integrated capabilities, such as dynamic caching support for Servlet 3.0, JPA L2 cache performance and security integration.

Additional educational sessions are available that will go into deep detail for each of these Java EE 6 technologies.

Rational Application Developer and Rational Application Developer Standard Edition

New!

Rational Application Developer

Team Productivity
- Integration with RTC
- Collaborative debug
- Collaborative code analysis

Problem Determination
- Code visualization   class, sequence and topic diagrams
- Static analysis (code review)
- Code coverage: optimize unit testing

Enterprise Connectivity
- J2C (EIS) tools
- CICS®, and IMS™ Adapters
- WebSphere Adapters for SAP, Siebel, JDE, Oracle, PeopleSoft

Rational Application Developer SE

Programming Model Support
- Create, edit, validate applications:
  Specs / Standards:
    - Java EE (Web, EJB, WS, JAX RS…)
    - SCA, OSGi, SIP, XML
  Web (JSF, Dojo, JavaScript, Web 2.0)
- Debug applications on WebSphere
- Database tools
- Integration with ClearCase® SCM Adapter, ReqPro, Rational Unified Process

WebSphere Integration
- WebSphere test servers: V6.1, V7.0, V8.0, remote support for version 6.0 Publish, start or stop the server
- WebSphere feature pack support
- Create and debug Jython and wsadmin scripts
- Portal Tools and Portal Server support
- Profile applications on WebSphere
- Find and deploy to WebSphere or Portal instances in the IBM SBDT cloud

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Smooth integration with development tools enables you to quickly and efficiently deliver applications and services.

Rational® Application Developer continues to be *the* most popular and feature-rich development solution for teams developing software for WebSphere Application Server.

Rational Application Developer SE's core focus is to provide developers with a single environment that helps simplify and accelerate their core tasks of designing and writing code, testing WebSphere applications and then maintaining those applications.

It is synchronized with WebSphere Application Server in terms of strategic focus on technologies and standards, including Java EE (and in the case of Rational Application Developer V8, it is Java EE 6), SOA, web and Web 2.0, Portal and, new this year, the OSGi programming model.

New!

IBM Assembly & Deploy Tools for WebSphere Administration

Rapidly assemble and deploy applications to WebSphere Application Server environments

Key capabilities:

- Import and validate applications
- Edit deployment descriptors and binding files
- Edit Enterprise Archive (EAR) configuration (Enhanced EAR)
- Create and debug Jython and wsadmin scripts
- Deploy EJB and web services
- Deploy applications to local or remote WebSphere Application Server Version 8 servers
- Debug applications on WebSphere Application Server Version 8

- *Tools replace the previously available IBM Rational Application Developer Assembly and Deploy function*
- *Restricted to assembly and deployment usage only*

The application assembly and deploy tool delivered together with the WebSphere Application Server Version 8 offering is the IBM Assembly and Deploy Tools for WebSphere Administration.

This tool will meet your key assembly and deployment needs including the editing of deployment artifacts, development and testing of scripts, application deployment and debugging.

Application adapters

Enhance reuse and extend application asset life

- IBM WebSphere Adapters 7.5 includes enhanced adapters for:
    - SAP Software
    - Siebel Business Applications
    - Oracle E-Business Suite
    - JD Edwards EnterpriseOne
    - PeopleSoft Enterprise
- Supported for development and test with WebSphere Application Server as part of the Version 8 license
- Production usage requires separate WebSphere Adapters license

IBM WebSphere Adapters
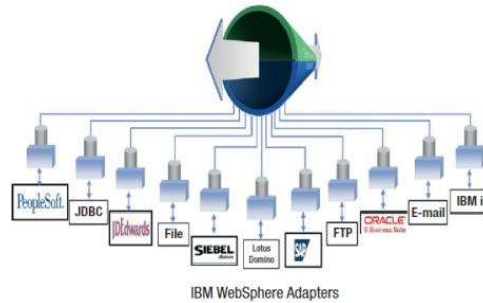
14   Release overview   © 2011 IBM Corporation

WebSphere Application Server Version 8 includes the IBM WebSphere Adapters 7.5 for development and test use.

Enhanced adapters are available for SAP Software, Siebel Business Applications, Oracle E-Business Suite, JD Edwards EnterpriseOne and PeopleSoft Enterprise.

The adapters are supplied for development and test use with WebSphere Application Server.

Intelligently manage application environments and deliver rich user experiences faster

Operational efficiency and reliability

- High performance
- Transactional strength
- Scalability and high availability
- Installation and maintenance
- Problem determination
- Platform and environment flexibility
- Flexible pricing models
- Feature packs

Next, a discussion of the WebSphere Application Server Version 8.0 features that improve the operational efficiency and reliability of the application server will be provided.

High performance

Reduce total cost of ownership (TCO) through higher performance application foundation

- **Java 6**
  - JVM runtime enhancements
  - JIT optimizations
- **Application performance improvements versus Version 7**
  - DayTrader: Up to 20%
  - OSGi Applications: Up to 26%
- **End-to-end performance improvements versus Version 7 including**
  - Up to 15% faster product installations
  - Up to 20% faster server startup time for developers
  - Up to 69% faster application server creation in a large topology
  - Up to 31% faster application server cluster creation in a large topology
  - Up to 22% faster application deployments in a large topology
  - Up to 11% better vertical scaling on larger multi-core systems
  - JPA 2.0 optimizations with DynaCache and JPA Level 2 cache

Performance data is based on WebSphere Application Server in a distributed environment

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.

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WebSphere Application Server Version 8.0 continues to provide a high performance application foundation for your business.

In combination with optimizations in both the IBM JDK and the Application Server, Version 8.0 application performance has been substantially improved over Version 7.

New installation processes, which will be discussed later in this education session, noticeably improve the installation and server life-cycle processes.

And performance enhancements and optimizations have been made in Version 8, resulting in great improvements in product startup times, server and cluster creation times, and application installation times in larger and more complex topologies.

WebSphere Application Server for z/OS performance and utilization enhancements

Reduce TCO through higher performance application foundations

- Performance improvement through z196 hardware exploitation
- Enhanced system utilization by providing granular control over application server configuration parameters for application consolidation

IBM System z®

Release overview

WebSphere Application Server for z/OS sees some additional performance and serviceability benefits in Version 8.

In combination with optimizations in both the z196 hardware and the Application Server, Version 8.0 application performance has increased.

And reliability, availability and serviceability (RAS) attributes can be assigned at a more granular level in Version 8.0:

For HTTP requests, RAS attribute values can be assigned to HTTP requests on a per-URI basis.

For IIOP requests, RAS attribute values can be assigned to IIOP requests on a per-EJB-method basis.

For optimized local adapter requests, RAS attribute values can be assigned to optimized local adapter requests on a per-service name or a per-JNDI home name basis.

And for MDB requests, RAS attribute values can be assigned to MDB requests on a per-selector basis.

High availability improvements (1 of 2)

Reduce unexpected and expected operational down time

- Improved high availability (HA) support for messaging applications
  - Reconnect to a standby gateway queue manager when an active queue manager fails or becomes available
- Improved reliability and performance with DB2®
  - Support for client affinity and client reroute for apps that use IBM DB2
  - New location transparency for EJBs using DB2 connections
- Improved transactional integrity
  - Support for shared database locks between transaction branches and integration of new programming models with WebSphere Application Server proven transaction engine
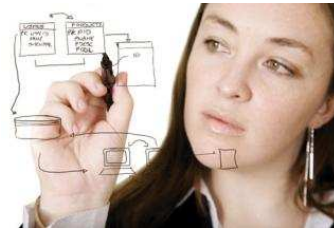
18   Release overview   © 2011 IBM Corporation

WebSphere Application Server Version 8.0 provides several new high availability (HA) capabilities to keep your systems up and running. Some of these enhancements are a new queue manager failover feature, support for DB2 client affinity and client reroute, and exploitation of a recent DB2 capability which allows database locks to be shared across multiple transaction branches.

High availability improvements (2 of 2)

Reduce unexpected and expected operational down time

- Resource failover and retry logic for relational data sources and JCA connection factories
  - Simplifies application development
    - Minimizes the application code required to handle failure of connections to relational databases and other JCA resources
    - Provides a common mechanism for applications to uniformly respond to planned or unplanned outages
  - Administrator can tailor data sources and connection factory configuration based on application needs:
    - number of connection retries
    - alternate/failover resource
    - pre-population of alternate/failover resource connection pool
    - auto failback
  - Full control of functionality available to scripts and programs through management bean (MBean)

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Another HA enhancement is the resource failover and retry for relational data sources and JCA connection factories.

This new capability simplifies application development, allows the administrator to tailor the configuration of data sources and connection factories based on the application needs.

And full control of this new functionality is available through scripting and through the management MBean

WebSphere Application Server for z/OS high availability enhancements

Reduce unexpected and expected operational down time

- HA enhancements for WebSphere Optimized Local Adapters resource adapter failover scenarios
- Enhanced resource and request routing by matching failure notification codes with response actions

IBM System z

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WebSphere Application Server for z/OS sees some additional HA enhancements in Version 8.

WebSphere Optimized Local Adapters have enhanced capabilities in resource adapter failover scenarios.

And resource and request routing has been enhanced to match failure notification codes with response actions in error scenarios.

IBM Installation Manager

Faster time to value and lower operational costs through new installation and maintenance technology

- Full local and centralized product life cycle management:
  - Install or uninstall
  - Update or rollback (Fix packs and iFixes)
  - Modify (add or remove features)
- Installs exactly the required level of service in one pass
  - No need to install base level of product first and then apply a fix pack or ifixes as separate steps
- Writes binary files relevant to user selections and system environment
- Graphical User Interface (GUI) and command line
  - GUI to perform individual operations
  - Command line mode
  - Response files can be recorded from the GUI or created by specifying the appropriate xml
- Single user experience across WebSphere Application Server, WebSphere components and various IBM products
  - A single instance of IBM Installation Manager can manage the product life cycle for any IM based products, from WebSphere, Rational, and so on.
  - Support for all offerings
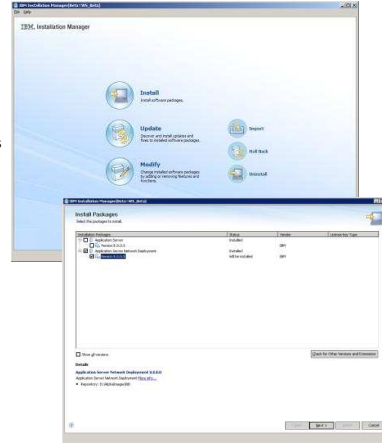
WebSphere Application Server Version 8.0 uses an entirely new installation process.

Based on the IBM Installation Manager, the installation experience is now unified across all of the WebSphere platforms. And, various other IBM products use the same IIM installer, too.

Several benefits of the new installation process in Version 8 include the single-pass installation of fix packs and iFixes together with the server installation, more optionally installable features, automatic pre-requisite and co-requisite checking and sophisticated repository management.

Remote repositories are available for installation directly from the web, or product images and fixes can be stored in local repositories and customized.

Centralized Installation Manager

Faster time to value and lower operational costs through new installation and maintenance technology

- Centralized Installation Manager Version 8 is available from job manager and the deployment manager
  - Job manager-based solution spans the boundaries of the cell
  - Install targets are specified in an agent-less fashion
  - Install and configuration job scheduling is supported
- Centralized Installation Manager version 8 is able to remotely install WebSphere Application Server, IBM HTTP server, application clients, DMZ security proxy server, and web server plug-ins
- Better scalability due to more distributed architecture
- Distributed and z/OS scenarios supported
- "Centralized Installation Manager Version 7 function" is still available with the deployment manager

IIM Repository

Binary payload

IIM Install Kit:
• Response File
• Install jobs

Centralized Installation Manager

Inventory info

IIM

Target

Separation between Job Manager, Target Hosts and IIM repositories

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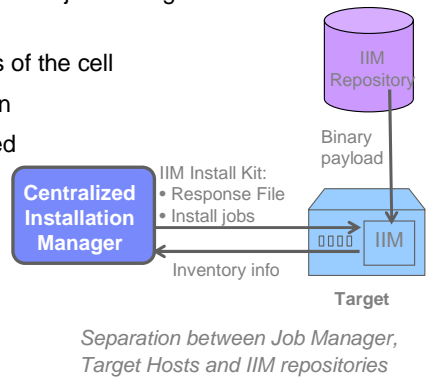
The Centralized Installation Manager (or CIM) in version 8 has been greatly enhanced. CIM capabilities are available through the deployment manager, as it was in version 7, and now also through the job manager.

This permits CIM job scheduling that spans multiple cells and stand-alone servers. An enormous benefit of the new Version 8 CIM capabilities is that remote installation via CIM no longer requires agents on the target nodes. CIM will "push" the required IBM Installation Manager to the target node and perform the remote installation with nothing more than identification of the target node and any required authorizations.

New!

High Performance Extensible Logging (HPEL)

Improve performance and ease of use of log/trace to improve problem determination

- **Key features:**

- Speeds up logging and tracing
  – Log primitive over 6x faster than Version 7
  – Trace primitive 3.8x faster than Version 7

- Provides more flexible access to log and trace data
  – Command-line access to filter and format
  – Administrative console GUI to filter and format local or remote logs and trace, even when the remote server is down
  – Programmatic access to filter, format, and merge local or remote logs and trace

- Works with existing application log and trace instrumentation

- Provides a common solution for z/OS and distributed platforms
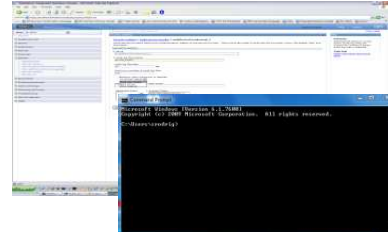
Examples:

View only warning and higher messages for this one application:
    logViewer.sh -minLevel warning -includeLoggers "com.acme.app1.*"

View messages from 07/11/2010 onward beginning with SEC on thread 0x0000000c:
    logViewer.sh -startDate 07/11/2010 -message "SEC*" -thread 0c

An optional binary logging capability called High Performance Extensible Logging (or HPEL) is new to WebSphere Application Server Version 8.0.

Faster and lighter-weight than the existing default logging methods that are text-based, HPEL includes post-collection filtering, formatting and merge capabilities that permit faster and easier log and trace analysis.

The same data can be filtered and re-filtered using the console, the command line, or programmatically.

WebSphere Application Server feature packs

Access innovative standards and programming models faster on a stable foundation

With WebSphere Application Server V6.1 and 7.0

| EJB 3.0 | Web 2.0 | Web services |

J2EE 1.4   **Version 6.1**

| Web 2.0 | CEA | XML | SCA | OSGi Apps & JPA 2.0 | Java Batch |

| EJB 3.0 | Web services | Java EE 5   **Version 7**

With WebSphere Application Server V8

| Web 2.0 and Mobile | | Dynamic scripting |

| CEA | XML | SCA | OSGi Apps & JPA 2.0 | Java Batch | Java EE 6   **Version 8**

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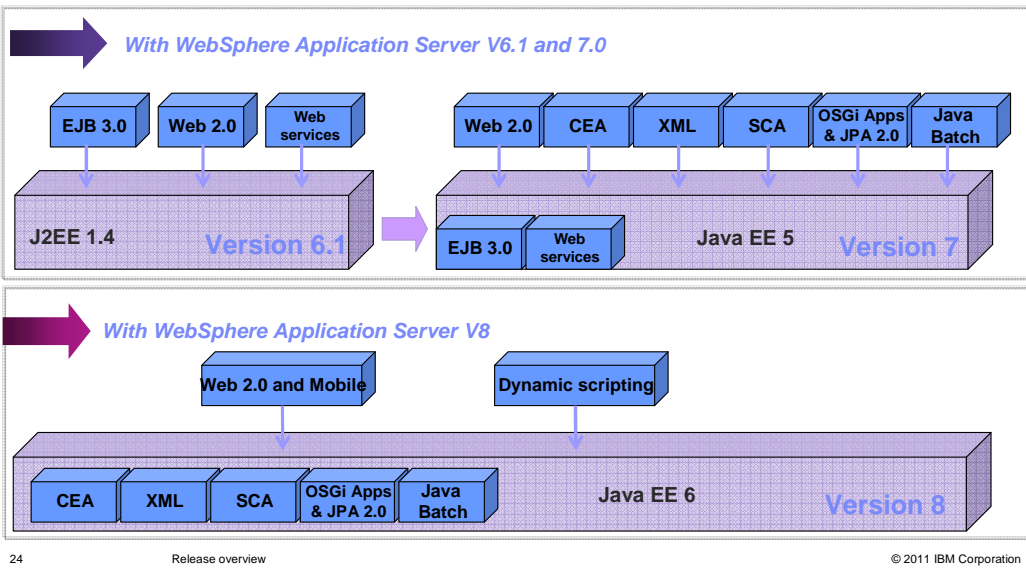
WebSphere Application Server Version 8.0 continues to provide access to new technologies before the next major release through feature packs.

WebSphere Application Server Version 6.1 feature packs provided early access to the EJB 3.0, Web 2.0 and web services functionality. The EJB and Web Services technologies were delivered as a part of the core support of Java EE5 in Version 7.

Similarly, there were many programming model features packs for WebSphere Application Server Version 7, and many of these programming models are now a part of the core in Version 8.

Additionally, the Web 2.0 and Mobile feature pack and the Dynamic Scripting feature pack are both available for WebSphere Application Server Version 8.

Intelligently manage application environments and deliver rich user experiences faster

Security and control

- Administrative productivity
- Open services gateway initiative (OSGi) application agility
- Security
- Migration

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Now, a discussion of the features of WebSphere Application Server Version 8.0 that enhance the security and control of the application server environment will be provided.

Create cells from a template

Improve administrator productivity and repeatability and minimize errors

/dmgrNode/node1 → backupConfig → template.zip
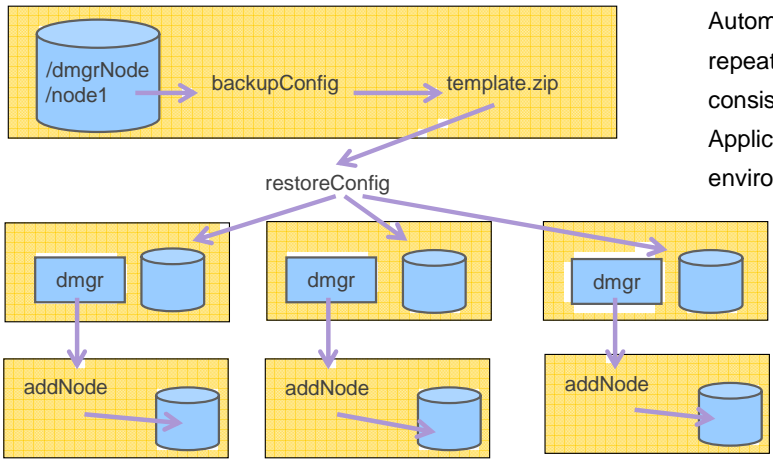
Automate and improve repeatability of deploying consistent WebSphere Application Server environments

restoreConfig

dmgr → addNode
dmgr → addNode
dmgr → addNode

Administrative control has been enhanced in WebSphere Application Server Version 8.0 through the use of several new administrative commands.

The first is a method to backup a cell configuration and to be able to restore the configuration of that cell through a single command. The cell's configuration is stored away in an archive file, and can be used to create a new cell based on that configuration.

New!

Move nodes to new environments with ease

Improve administrator productivity and minimize down time

dmgr

/dmgrNode
/node1

- Automate the movement of existing deployments to new machines and operating systems

1

2

Node agent

server1

/node1

addNode -asExistingNode

/node1

Node agent

server1

/node1

Original Machine: host1

New Machine: host2

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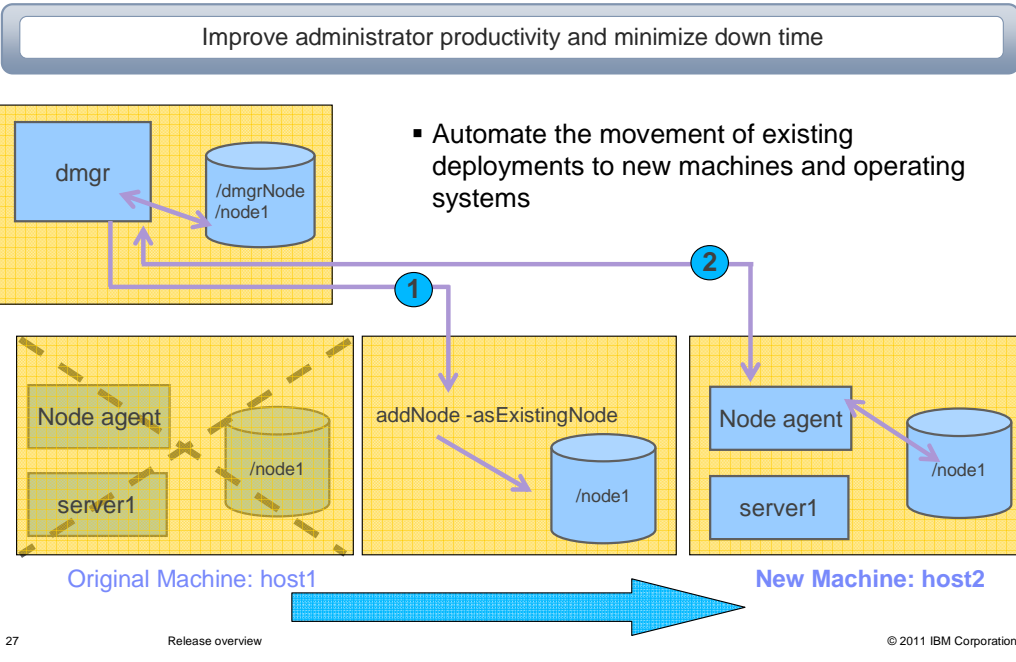
Another administrative enhancement in Version 8.0 is a new option on the addNode command that permits the movement of a node from one machine to another, even between different operating systems or platforms.

This option will not allow movement of a node between z/OS and non-z/OS platforms.

Nodes can be moved seamlessly to a new machine, even to a new operating system where the path names are compatible, for example between different versions of Windows®, or different versions of UNIX variants.
If nodes are to be moved between operating systems where the file system path names are not compatible, you can move the node by changing the host names for the node and the path names stored in the node's configuration files.

Rapidly recover a damaged node

Improve administrator productivity and minimize down time

- Automate the recovery of damaged nodes along with prior configuration information

dmgr /dmgrNode/node1

① Damaged Node — Node agent, server1, /node1

② addNode -asExistingNode /node1

③ Recovered Node — Node agent, server1, /node1
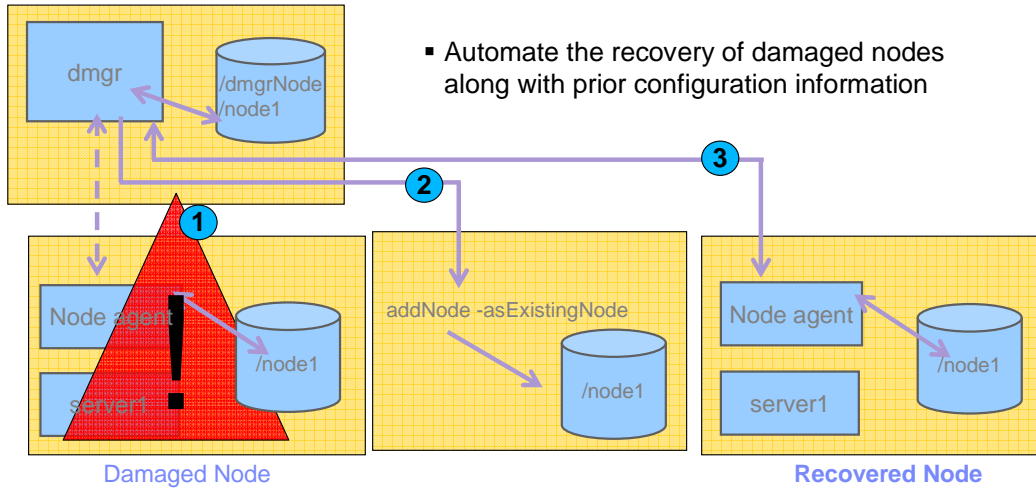
This same administrative command option that permits purposeful transitioning of a node from one machine to another will also permit recovery of a node if it becomes damaged and unusable. The node can be re-created on a different machine using the prior configuration information.

Additional administrator productivity enhancements

Improve administrator productivity and minimize down time

- Job Manager enhancements to simplify the creation, augmenting and deletion of profiles on remote nodes

- Enhanced portability of Properties File Based Configuration to speed and standardize customizations across different cells

- Enhanced Properties File Based Configuration format for easier editing of application deployment options

- Administrative option for all platforms to list all SDKs in use and select SDK to use amongst supported Java SDKs

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Several other capabilities in Version 8 have enhanced its administrative control, as well.

These include job manager improvements with additional job types, expanded properties file-based capabilities, and administrative commands to support the management of IBM Virtual Machine for Java Platforms that are in use.

Continued mixed version cell support

Support for existing infrastructure in new V8 deployments.
Save time, save money, reduce risk

WebSphere Application Server Network Deployment V8 cell
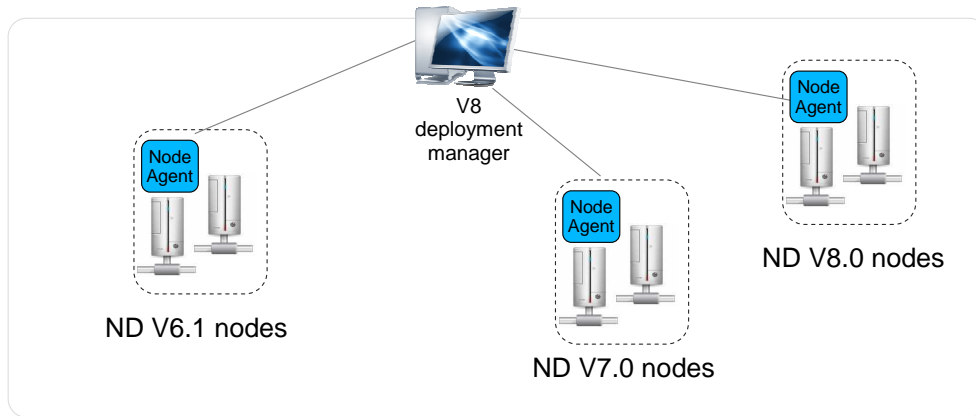
V8
deployment
manager

Node
Agent

Node
Agent

Node
Agent

ND V8.0 nodes

ND V6.1 nodes

ND V7.0 nodes

V8 cell can contain 6.1, 7.0, and 8.0 nodes

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WebSphere Application Server Version 8.0 continues to support mixed-version cells, allowing you to upgrade your nodes in a staggered fashion as your needs and capabilities permit.

Continued support for existing applications

Support for existing Java EE applications in new Version 8 deployments to continue
achieving value from existing investments

WebSphere Application Server Network Deployment V8 cell

V8
deployment
manager

J2EE 1.2
J2EE 1.3
J2EE 1.4
Java EE 5
Java EE 6

V8.0 node
JSE 6

J2EE 1.2
J2EE 1.3
J2EE 1.4
+EJB3 FEP

V6.1 node
JSE 5

J2EE 1.2
J2EE 1.3
J2EE 1.4
Java EE 5

V7.0 node
JSE 6

V8 cell can contain 6.1. 7.0 and 8.0 nodes

Release overview   © 2011 IBM Corporation
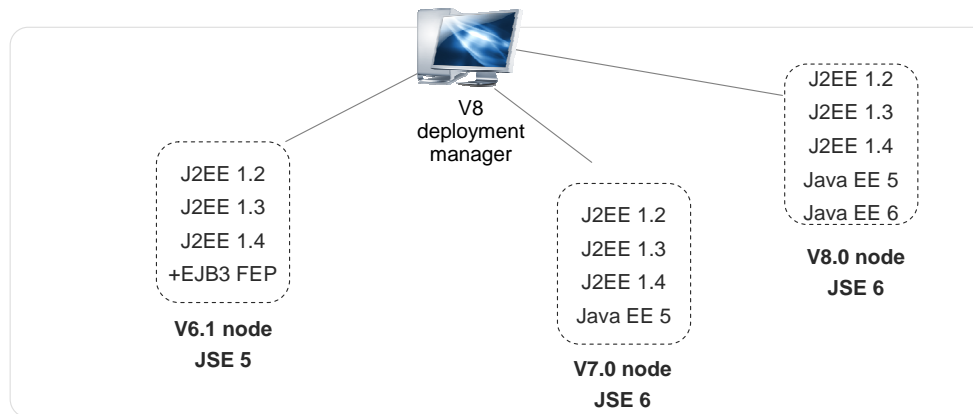
And WebSphere Application Server Version 8.0 continues to support the full set of
programming models that have been introduced over time, permitting you to maximize the
value of your existing application set.

IBM Tivoli Composite Application Manager (ITCAM) for WebSphere Application Server Version 8

Lower TCO and minimize down time through integrated monitoring tools

- Data collector available in WebSphere Application Server V8.0 as an extension offering (optional installation)
- ITCAM for WebSphere Application Server provides additional request-based response time and processor metrics
- Customer application code is not instrumented in any way
- Simple upgrade from ITCAM for WebSphere Application Server to ITCAM for Application Diagnostics – no rip and replace
- After upgrade ITCAM data still visible in Tivoli® Performance Viewer as well

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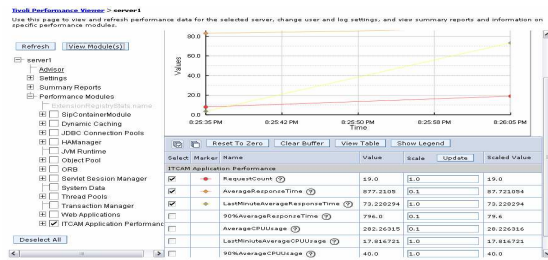
IBM Tivoli Composite Application Manager (ITCAM) for WebSphere Version 8 has been enhanced and can now be installed together with the application server. This integrated monitoring tool allows you to view the health of web applications and servers, and drill down to diagnostic information for specific application requests to identify the root cause of problems.

There is also a simple upgrade path from ITCAM for WebSphere Application Server to ITCAM for Application Diagnostics that does not require an uninstall and reinstall.

In the area of OSGi application agility, Version 8.0 introduces a new "in-place" bundle update capability for OSGi applications.

The WebSphere Application Server Version 8 administrative console displays the version of each bundle used by the application. In this illustration, the application is using Version 1.0.0 of each of its bundles.

You can update one of the bundles in this application by adding the new version (that is, Version 1.1) of the bundle to the bundle repository. After doing so, the available bundles list will have both versions 1.0 and 1.1.

The administrator can then choose between the available bundles and preview the changes to make sure the selected version will still enable the application to be fully resolved before updating the application to use the new version of the bundle and, if it is a safe change to make, the change can be committed.

Throughout the in-place bundle update, the OSGi application remains continuously available.

Dynamic application extension of OSGi applications

Another new feature in Version 8 related to OSGi application agility permits applications to be dynamically extended, without requiring them to be restarted.

Extensions are installed into the WebSphere Application Server Internal Bundle Repository as Composite Bundle Archives (using the file extension ".cba").

The administrator can add extensions to an already deployed OSGi application and provide any necessary configuration (for example, context roots for web application bundles), which creates a "new deployment" for the application.

The administrator can then choose to update to this new deployment. The runtime determines whether the extension can be added without requiring an application restart and, if it can, installs and activates the new extension.

New!

Security enhancements

Use a more secure environment

- **Security hardening**
  - Require SSL communication for Remote Method Invocation over Internet Inter-Orb Protocol (RMI/IIOP) communication by default
  - Enable session security by default
  - Enable cookie protection through HttpOnly attribute to reduce cross-site vulnerabilities
- **Support for Java EE 6 security standards**
  - Servlet 3.0 security
  - Basic security for EJB Embeddable container
  - Support for Java Authentication SPI for containers (JASPI)
  - Web services security API and WS-Trust support in JAX-WS to enable customers building single sign on web services-based applications
  - Security enhancement for JAX-RS 1.1

In WebSphere Application Server Version 8.0, many security settings are now enabled by default, providing a higher level of security for every server installation.
To provide stronger security, new installations of WebSphere Application Server Version 8.0 are configured with stronger default settings.

CSIv2 (or Common Security Interoperability Version 2) connections now require SSL

New HttpOnly settings on LTPA and session cookies guard against cross-site scripting attacks

Session security is enabled to restrict access to the user who created the session.

Web authentication is set to make login information available to unprotected resources.

And Java EE 6 has also added several security-related enhancements to the specifications, enabling more secure applications.

Single sign on (SSO) improvements

Improve ease of use for users while maintaining security controls

- Enhanced security in SSO web applications to reduce cross-site scripting vulnerabilities

- Support for using for SAML (Security Assertion Markup Language) Token through WS-Security SAML Token Profile 1.1

- Generate SAML tokens, request SAML tokens from an external Security Token Service (STS) and propagate SAML tokens in SOAP messages using the web services security application programming interfaces

- Generate and consume tokens using WS-Trust issue and WS-Trust validate requests for JAX-WS web services that use web services security

Username

Password

☐ Remember Me   Log In

Lost your password?

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Single sign-on support has been enhanced in WebSphere Application Server Version 8.0, as well.

WebSphere Application Server Version 8 provides the ability for SAML (Security Assertion Markup Language) Assertions to be propagated as security tokens in SOAP web services messages. This allows the client identity and other security attributes of the client to be transferred, within a security domain or across security domains.

Multiple security domains in version 7

Separate applications, users and infrastructure to increase flexibility and control

Applications can have their own application security domain and user population

Applications in a cluster share a common application security domain.

Deployment Manager, Node Agent, and the Admin Subsystem common administrative security domain.

- Multiple security domains provide flexible security configuration under centralized management
- Option to separate user security domain from administrative security domain
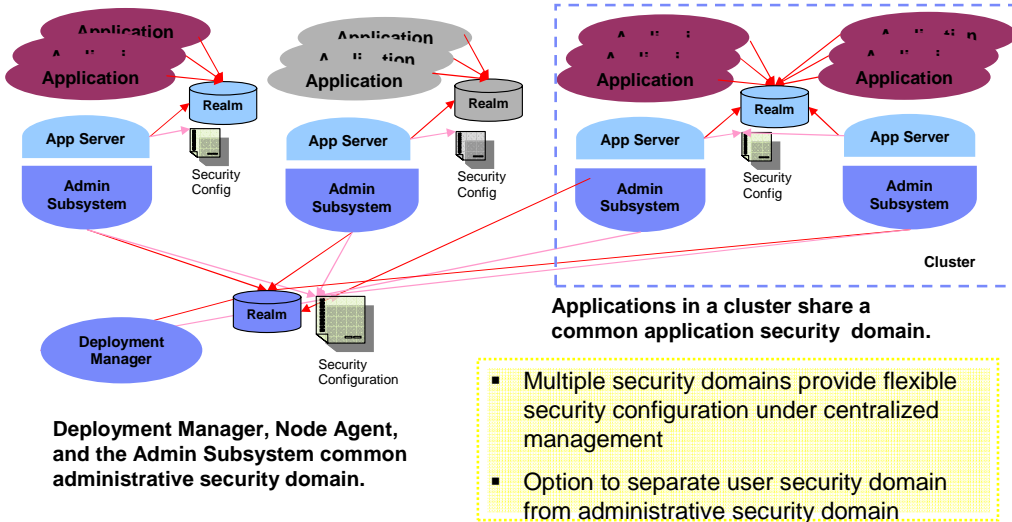
WebSphere Application Server Version 7 introduced a new capability that will help to explain the context for the next Version 8 enhancement.

Before Version 7, there was a single security domain per cell. Security configurations, like user registries, were common for all applications (including both administrative applications and user applications).

In Version 7, the new feature of multiple security domains was introduced and offered greater granularity, flexibility and control over users and infrastructure. Multiple security domains provided flexible security configuration under centralized management.

This new Version 7 option permitted you to separate the end-user application security domain from the administrative security domain. Security domains can be scoped to specific cells, servers, clusters, or service integration buses.

Federated repository (VMM) now supports multiple security domains

Enhanced security control and flexibility for improved business agility

- Ability to have unique Virtual Member Manager (VMM) Security configuration per Security Domain
- Ability to have a one global VMM configuration for the entire cell
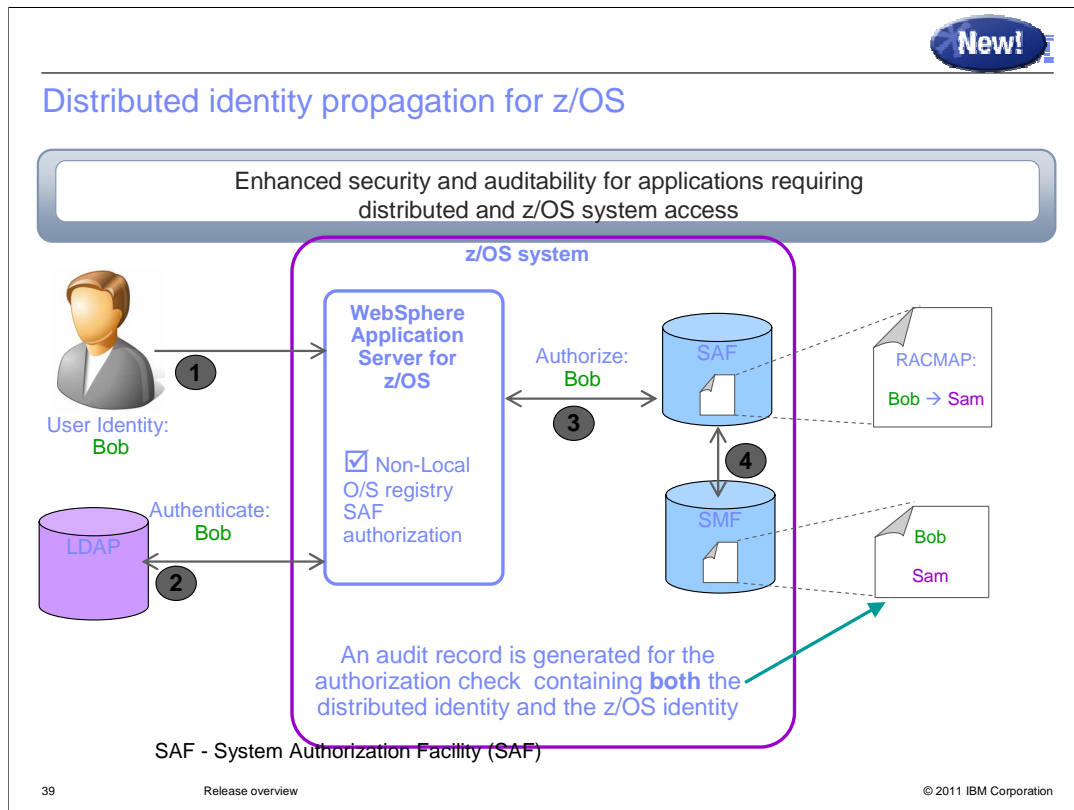- Configuration per cell or JVM instance using WebSphere Security Domains
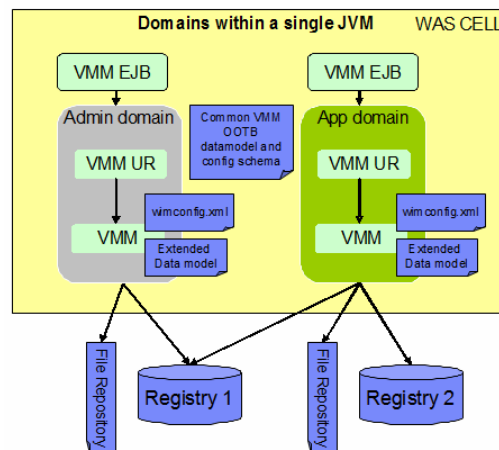
In WebSphere Application Server Version 8.0, you can also now configure a unique instance of a federated repository (also called a virtual member manager or VMM) at the domain level in a multiple security domain environment.

Also new in this release of WebSphere Application Server, a new Realm configuration setting allows you to set the global schema option for the data model in a multiple security domain environment.

Distributed identity propagation for z/OS

Enhanced security and auditability for applications requiring distributed and z/OS system access

SAF - System Authorization Facility (SAF)

WebSphere Application Server Version 8.0 introduces distributed identity propagation for z/OS, which allows you to audit distributed identity in z/OS System Authorization Facility (SAF).

With Version 8, you are no longer required to write a custom JAAS login module in order to map the distributed identity to the z/OS SAF identity.

The ability to map and propagate distributed identities on z/OS is a SAF feature that was introduced in z/OS 1.11. This feature allows z/OS transactional subsystems, such as WebSphere and CICS, to associate a user's distributed identity with an SAF identity. When a distributed identity is mapped to an SAF, audit records will contain both identities. The mapping of distributed identities to SAF identities is now shifted to the z/OS security administrator, instead of the WebSphere administrator.

Configuration migration tools

Migrate WebSphere environments faster with minimized risk

Assists administrators in moving their configuration when migrating

– Merges old configuration with new configuration

– Provides deep functionality, for example "Lights-on" WebSphere Application Server migration

– Especially useful for customers that have large topologies

– Large telecom customer recently used the tool when migrating a 500+ JVM environment

Provides a framework for stack product migration

– Already in use by Commerce, Portal, Process Server, and Virtual Enterprise

V6, V7 profile → **WASPreUpgrade** → Backup files — **Server configuration applications resources**

Create V8 profile → V8 profile → **WASPostUpgrade** → **Migrated V8 profile**
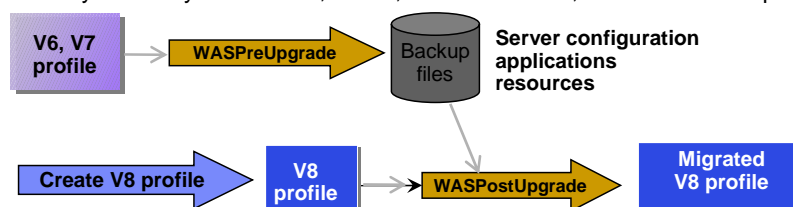
WebSphere Application Server Version 8.0 configuration migration tools, as with previous versions, supports the upgrading of nodes and cells from one version of WebSphere Application Server to Version 8.
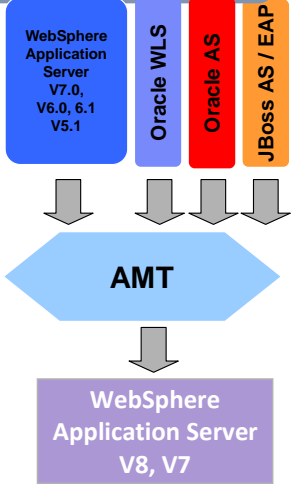
The WASPreUpgrade and WASPostUpgrade commands will facilitate the migration of your topology configuration to Version 8.

New!

Application migration tools

Migrate applications from WebSphere and other Java EE application servers to WebSphere faster with minimized risk

- Migrate applications from older releases to WebSphere Application Server V8 or V7
- Migrate from Oracle or JBoss faster and easier to WebSphere Application Server V8 or V7
  - Migrate applications up to twice as fast
  - Migrate web services up to three times as fast
- Application migration tool
  - Analyzes source code to find potential migration problems:
    - Removed features
    - Deprecated features
    - Behavior changes
    - Java Runtime Environment (JRE) differences
    - Java EE specification changes or enforcements
  - Capable of making some application changes
  - Provides guidance on how to make required changes
  - Works with Eclipse or Rational Application Developer

WebSphere Application Server V7.0, V6.0, 6.1 V5.1 **Oracle WLS** **Oracle AS** **JBoss AS / EAP**

AMT

WebSphere Application Server V8, V7

41   Release overview Get the tool at no charge: http://ibm.co/hqfkdj   © 2011 IBM Corporation

As a part of configuration migration, when nodes and cells are upgraded from one version of WebSphere Application Server to Version 8, applications also may need to be migrated, too.

Or, applications may need to be moved from a non-IBM application server to WebSphere Application Server Version 8.

In either case, the Application Migration Tool, which is available on the web for download, now supports WebSphere Application Server Version 8.0.

Built on IBM Rational Software Analyzer, the Application Migration Tool helps organizations migrate applications from other application servers to WebSphere Application Server, and applications from previous versions of WebSphere (5.1, 6.0, 6.1 or 7.0) to Version 8.

Summary

Release overview

This section provides a summary of what you have learned in this presentation.

IBM

Summary

- WebSphere Application Server Version 8.0:

Speeds the delivery of applications and services

Enhances operational efficiency and reliability

Expands the security and administrative control of the server

In summary, WebSphere Application Server Version 8.0 speeds the delivery of applications and services in your application server environment, enhances the operational efficiency and reliability of the application server, and expands the security and administrative control of the application server.

References

Release overview

This section provides a set of reference links that may be helpful.

Reference

IBM Education Assistant
   http://publib.boulder.ibm.com/infocenter/ieduasst/v1r1m0/index.jsp

Has modules for:
   – IBM WebSphere Application Server Version 8
   – IBM WebSphere Application Server Version 7

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Additional IBM Education Assistant modules are available to provide more information and lower-level details about many of the new and enhanced features in the WebSphere Application Server Version 8.

If you are unfamiliar with the features of WebSphere Application Server Version 7.0, the IBM Education Assistant modules will be very helpful to gain an understanding of the evolution of the WebSphere Application Server.

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mailto:iea@us.ibm.com?subject=Feedback_about_WASV8_ReleaseOverview.ppt

This module is also available in PDF format at: ../WASV8_ReleaseOverview.pdf

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