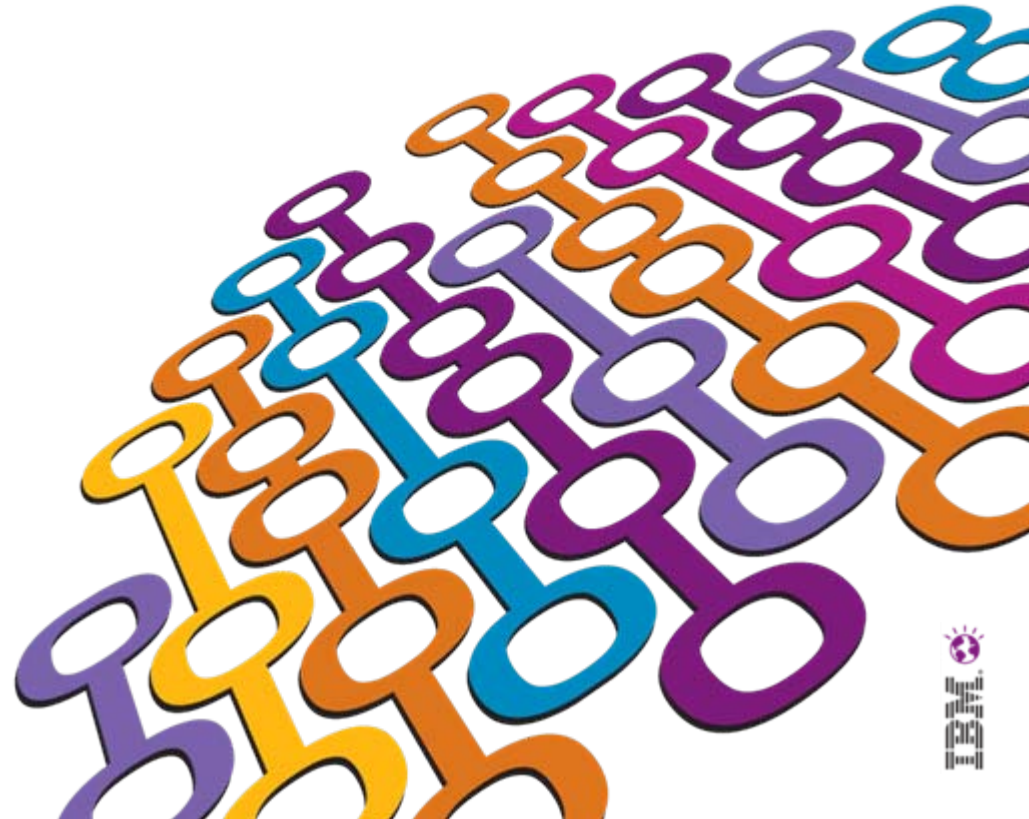


WebSphere Application Server Update and Direction

Ian Robinson

IBM Distinguished Engineer

WebSphere Foundation Chief Architect





Please Note

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal at IBM's sole discretion.

Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision.

The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

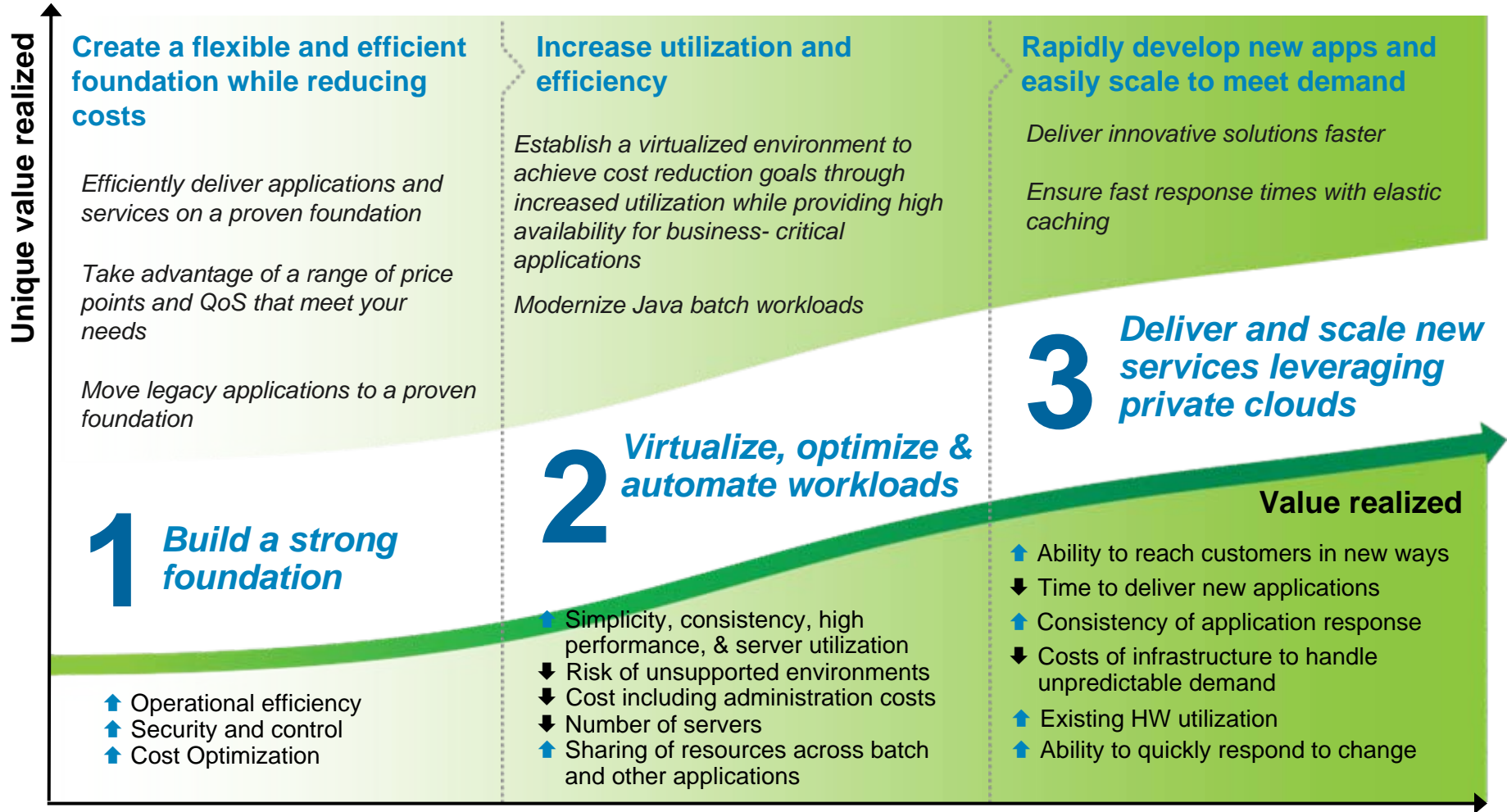
Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user's job stream, 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.





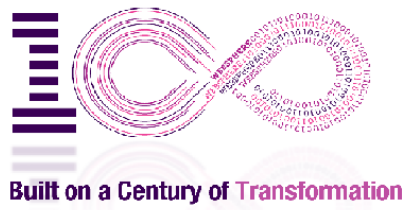
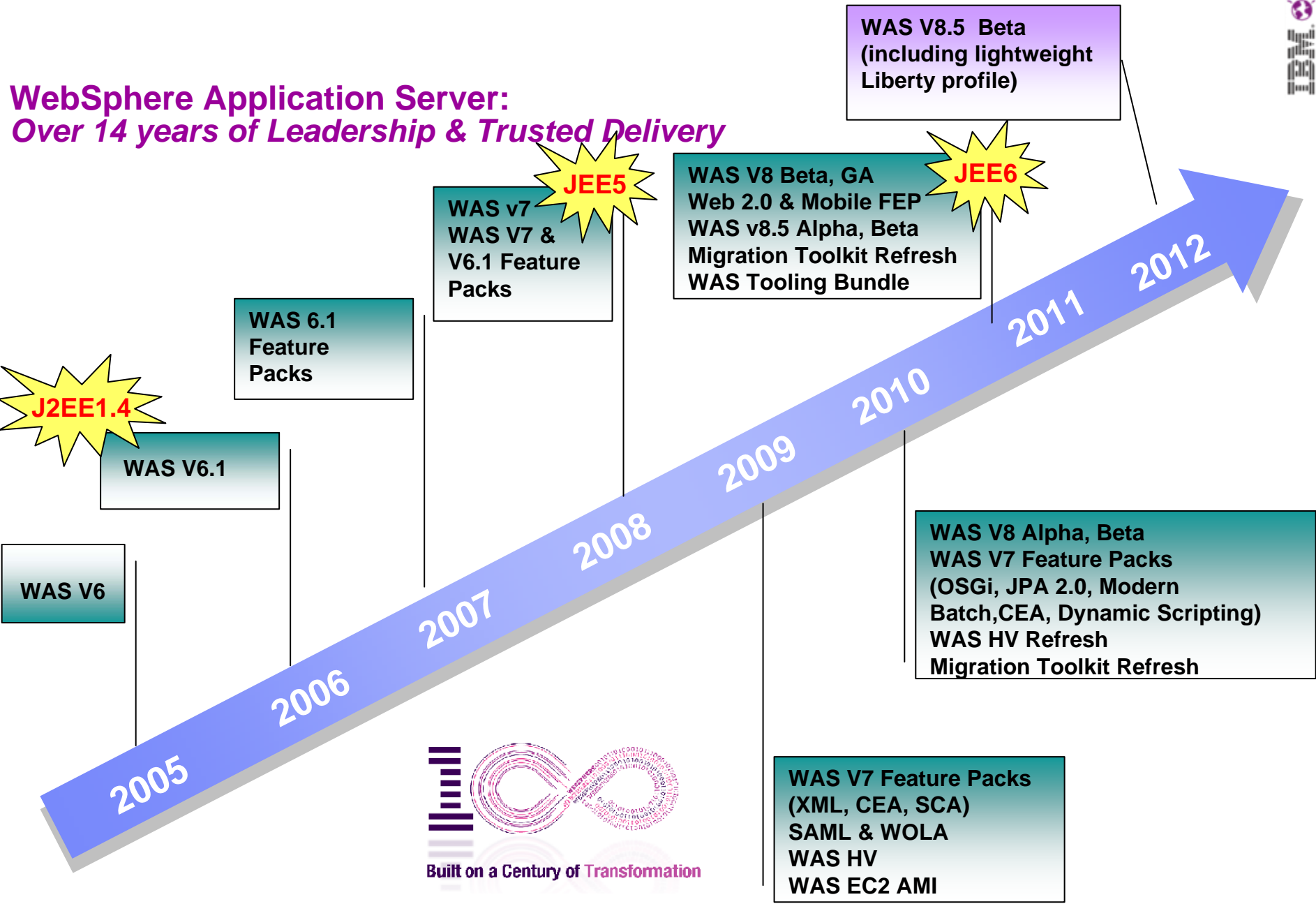
Application Foundation, Virtualization and Cloud

Efficiently deliver innovative applications and reach customers while optimizing resources and reducing costs





WebSphere Application Server: Over 14 years of Leadership & Trusted Delivery



WAS V8 and V8.Next Focus: Unparalleled Application Development and Management Environment

Developer Experience

Platform Resiliency

Operations & Control

Fast, flexible and simplified application development

- Java EE 6
- Web 2.0 & Mobile
- OSGi Applications
- SCA
- Java Batch
- Migration Toolkit
- Lightweight Liberty Profile
- Lightweight Tooling
- Expanded Tooling Bundles
- OSGi and SCA App Enhancements
- Java SE 7

Intelligent Management and Enhanced Resiliency

- Transactional Strength
- Scalability & HA
- Install & Maintenance
- **New in V8.5 Beta**
- Additional Message Infrastructure Resiliency
- Application Memory Leak Detection and Protection

Improved Operations, Security, Control and Integration

- Security Defaults
- Administrative Productivity
- OSGi Application Agility
- Selectable JDK
- Repository checkpoint and Admin Audit
- Cross Component Trace (XCT)

IBM WebSphere software early programs - I... +

United States [change] [↵ Uni

IBM

Home Solutions ▾ Services ▾ Products ▾ Support & downloads ▾ My IBM ▾ Welcome Dr. Ian

Software > Early programs > WebSphere >

IBM WebSphere Application Server V8.5 Beta and IBM Rational Application Developer V8.5 Beta

Overview | Download | Library | Support | Live Sessions

IBM Early Programs

IBM WebSphere Application Server V8.5 Beta and IBM Rational Application Developer V8.5 for WebSphere Software Beta (March, 2012 Beta Refresh)

Related links



Download

V8.5 Beta March 2012 Refreshes of WAS, RAD, Application Server Migration Toolkit

<https://www14.software.ibm.com/iwm/web/cc/earlyprograms/websphere/wasv8na/library.shtml>

Library

V8.5 Beta InfoCenter Online documentation

Live Sessions

Sign up for WebSphere Customer Experience Program (CEP) Feature Focus Sessions: Send a note to cep@us.ibm.com

Support

New online Request For Enhancements (RFE) capability to raise and rate defects (Early Program only) and future enhancements.



Request For Enhancements (RFE)

<http://www.ibm.com/developerworks/rfe>

developerWorks > RFE Community > WebSphere >

WebSphere RFE Community

Welcome WebSphere users! Here you have an opportunity to collaborate directly with the WebSphere product development teams and other product users.

- ➔ [Search for RFEs](#) (view, comment, vote, and watch)
- ➔ [Submit RFEs](#)
- ➔ [Track your RFEs](#) (My RFEs)

Customize this page for your favorite product:

WebSphere Application Server V8.5 Beta

Spotlight

- ➔ [Announcements](#)
- ➔ [Give us your feedback](#)

Brands

- [All brands](#)
- [Information Management](#)
- [Rational](#)
- [Tivoli](#)
- [WebSphere](#)

Welcome WebSphere Application Server V8.5 Beta users

Select a WebSphere Application Server V8.5 Beta view. The related RFEs will be displayed in the list to the right.

[WebSphere Application Server V8.5 Beta: Top 20 watched RFEs](#)

- **Raise and track requirements using the new IBM RFE system:**
 - Introduced for WAS V8.5 Beta
 - Bugs and features
- **Live for commercially available WAS since 12 March 2012.**





Level Set: WAS V8.0 Family

WebSphere Application Server for Developers

Enables efficient development of innovative applications that will eventually run on WAS in production

Also available as a no-charge edition for the developer desktop

WebSphere Application Server Hypervisor Edition

Optimized to instantly run in VMware and other server virtualization environments

WebSphere Application Server Network Deployment

Delivers near-continuous availability, with advanced performance and management capabilities, for mission-critical applications

WebSphere Application Server for z/OS

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



Integrated Tooling Support Through Rational Application Developer (RAD)

Web 2.0 & Mobile

Extend SOA and Java EE assets to the glass & mobile devices via dynamic, rich JSF, DOJO & mobile web applications



Java EE 6

Develop and test Java EE 6 applications with annotation based programming



OSGi

Build dynamic, modular, and easily manageable applications



WAS Integration

Hot deploy incremental changes to WAS



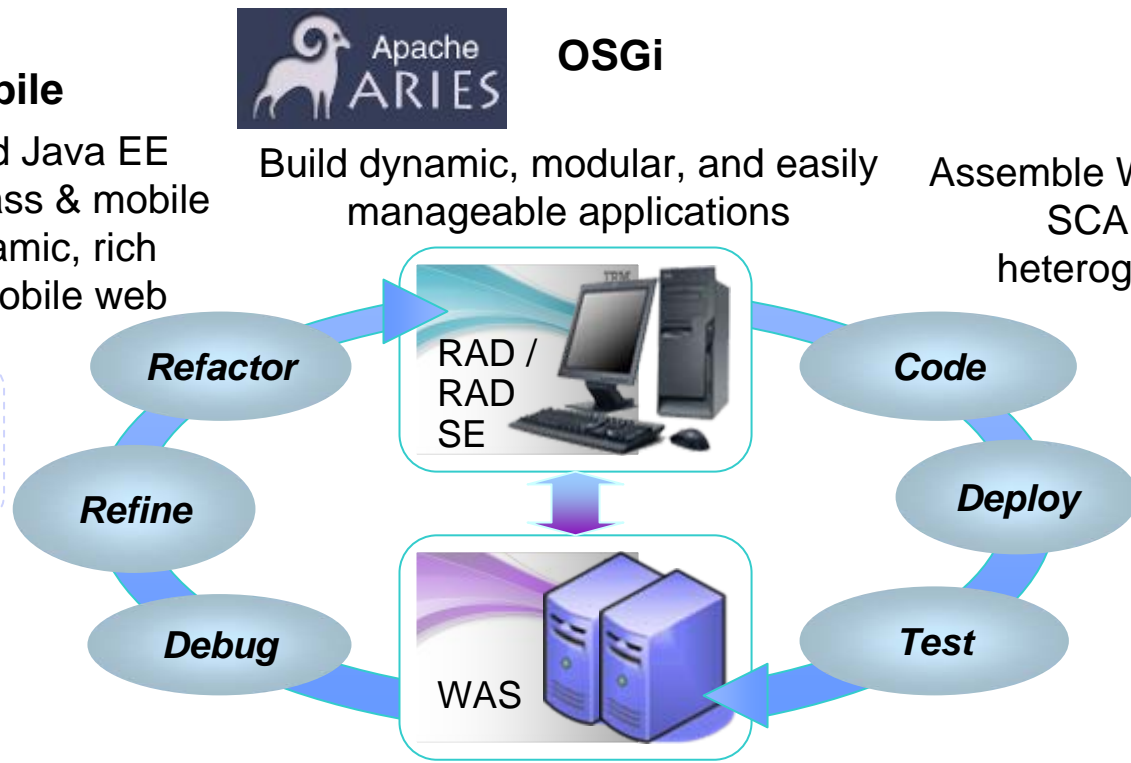
SOA

Assemble Web services and SCA components into heterogeneous business applications



Modern Batch

Integrated programming model support for batch applications



WAS Tools Editions



FREE for Developers- Unit Testing

WAS for Developers – Tools Edition for Eclipse



Easily & Quickly Obtain Eclipse Adapter for WAS Environments (V7.0 & V8.0)

- ✓ **WAS for Developers + Eclipse Adapter**
- ✓ Available unsupported (no charge) and supported (for fee)
- ✓ Eclipse adapter makes it easy to deploy applications from Eclipse development environments directly to WAS

Purchase these Bundles – RAD + WAS

WAS – Tools Edition

WAS Network Deployment– Tools Edition



WebSphere Application Server V7.0 & V8.0 Bundled Solutions:

- ✓ **Unlimited use of RAD (Rational Application Developer) and/or Eclipse adapter w/ WAS or WAS ND for developing applications *for the production use WAS server in the bundle***
- ✓ **Production ready runtime and tools**

WAS - Tools Edition

WAS Network Deployment - Tools Edition

- ✓ **Runtime and tools available in one bundle to provide an end to end development solution**
- ✓ Unlimited licenses of RAD and/or WAS Developer Tools for Eclipse for developing applications for the production use WAS server in the bundle
- ✓ Implement the "right-fit" desktop environment to meet varied development and application needs
- ✓ Maximize productivity and project delivery speed by using RAD and/or WAS Developer Tools for Eclipse to help deliver high quality departmental through mission-critical applications for WAS environments

WAS - Tools Edition

WAS Network Deployment - Tools Edition

WAS (Base / ND)

- WAS V7 or V8
- Production use license

Rational Application Developer

- Includes Java EE, OSGI, web & mobile tools
- Problem determination and code quality tools
- WAS servers (n-2), WP server test environments
- Enterprise connectivity (CICS, IMS, ..)
- SCA, SIP, Java Batch, Portal support

WAS Developer Tools for Eclipse v8.0.x

- Install as Eclipse feature
- Server Adapter tools (V7, V8, V8.5 Beta)
- Java EE, OSGi (*), web/mobile (*) dev tools

(*) introduced in WDT v8.5 Beta



WAS for Developers – Tools Edition for Eclipse

Unsupported (free)

- ✓ Install directly into the Eclipse environment already on developer's machine
- ✓ Easily & quickly obtain Eclipse adapter for WAS environments (V7.0 and V8.0) via Eclipse updater
- ✓ Eclipse developers can now easily deploy newly developed apps to a WAS infrastructure

Supported (fee per authorized user)

- ✓ Delivery via an update site or IBM Install Mgr version
- ✓ Install directly into the Eclipse environment already on developer's machine
- ✓ Easily & quickly obtain Eclipse adapter for WAS environments (V7.0 and V8.0) via Eclipse updater
- ✓ More easily match project development needs to tools of choice. Utilize diverse developer skills; use Eclipse-based environments to build simple applications.

WAS for Developers - Tools Edition for Eclipse

WAS for Developers

- WAS V7 / WAS V8
- Development use license

WAS Developer Tools for Eclipse v8.0.x

- Install as Eclipse feature
 - Server Adapter tools (V7, V8, V8.5 Beta)
 - Java EE, OSGi (*), web/mobile (*) dev tools
- (*) introduced in WDT v8.5 Beta

Eclipse

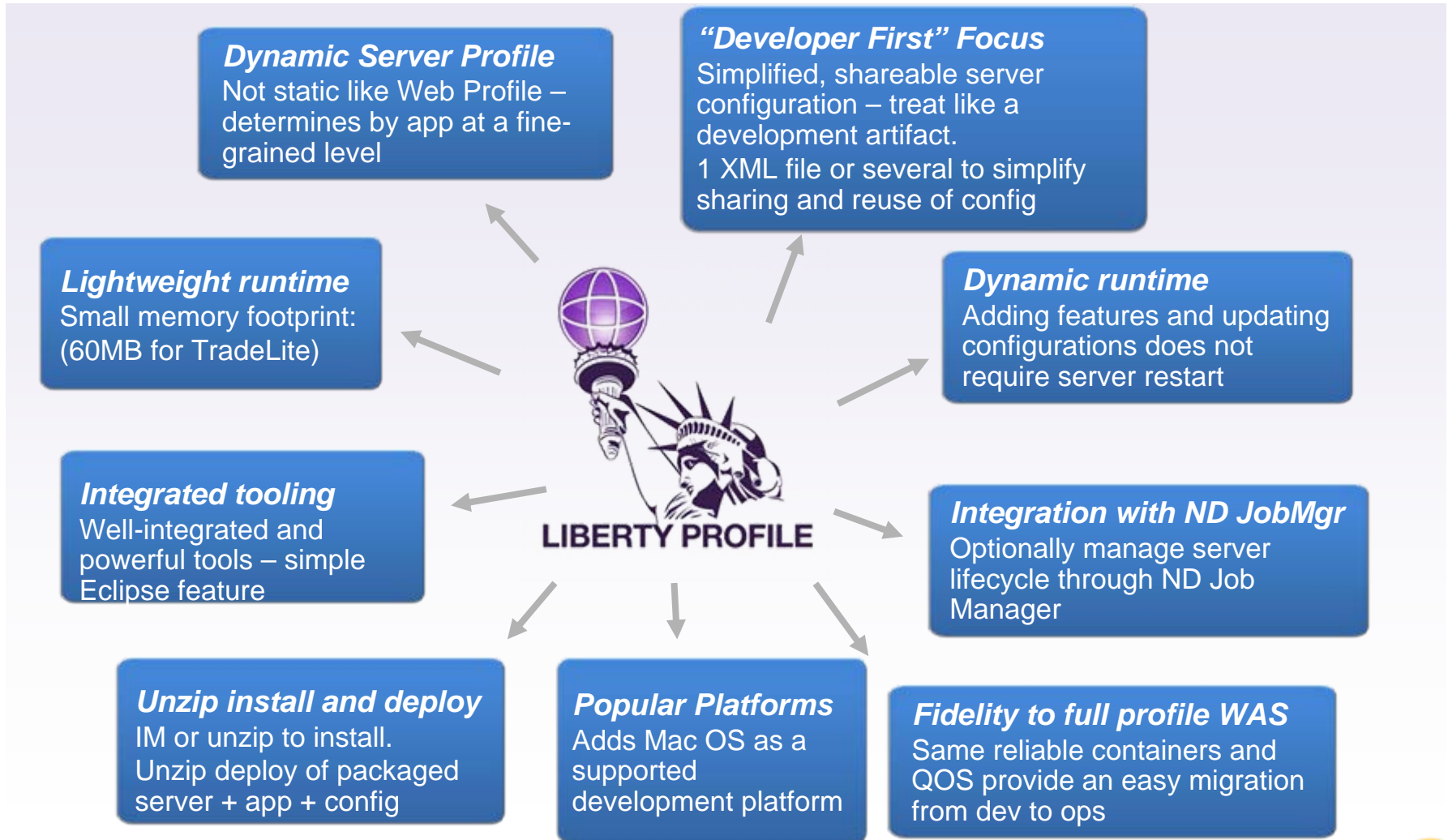
- ✓ *Available from developerWorks download site*

<http://www.ibm.com/developerworks/downloads/ws/wasdevelopers>

WAS V8.5 Beta: Introduces the lightweight WAS “Liberty” Profile



A highly composeable, dynamic Server profile



Simplified Configuration



```
<server>
```

```
<featureManager>
```

```
<feature>jsp-2.2</feature>
```

```
<feature>jdbc-4.0</feature>
```

```
</featureManager>
```

features control which capabilities (bundles) are installed in the server

'singleton' configurations specify properties for a runtime service like logging

```
<logging trace.specification="webcontainer=all=enabled:*=info=enabled" />
```

```
<application type="war" id="tradelite" name="tradelite" location="tradelite.war" />
```

```
<dataSource id="tds" jndiName="jdbc/TradeDataSource" databaseName="${server.config.dir}/tradedb"/>
```

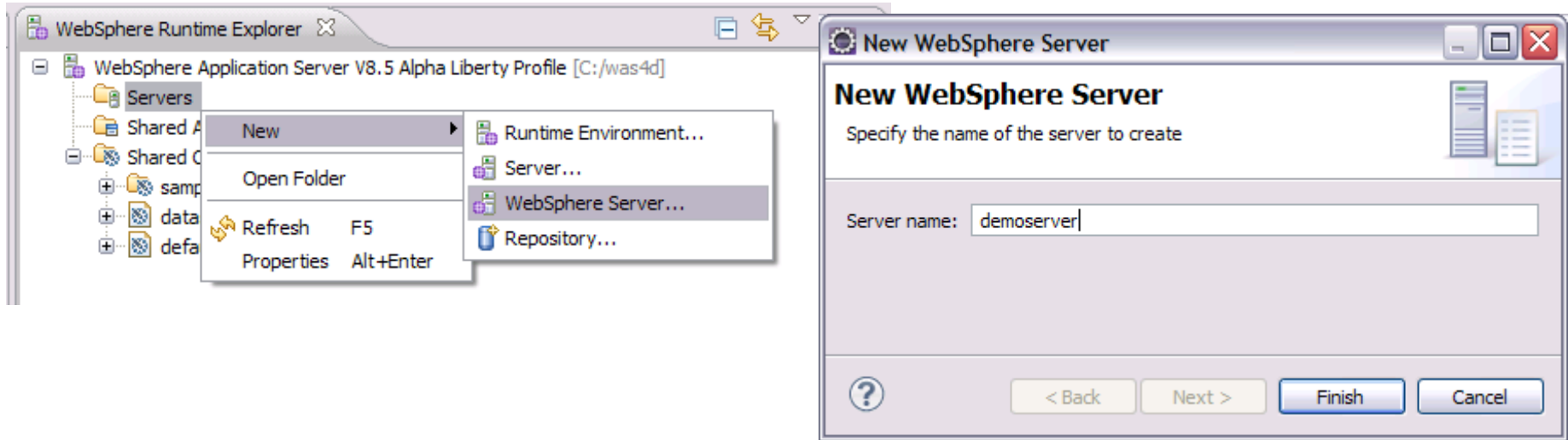
'instance' configurations specify multiple resources like applications and datasource definitions

```
</server>
```

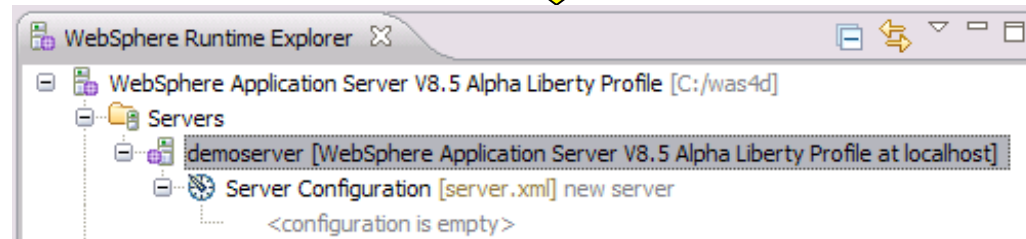
Any of this configuration could be put into a separate xml file and 'included' in this 'master' configuration file



Create a Lightweight WAS Server in WDT



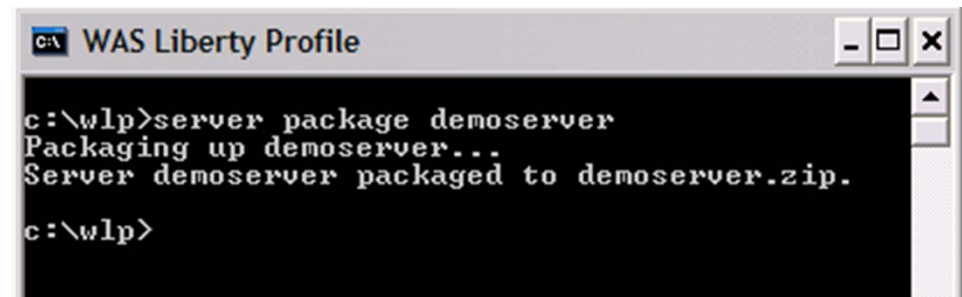
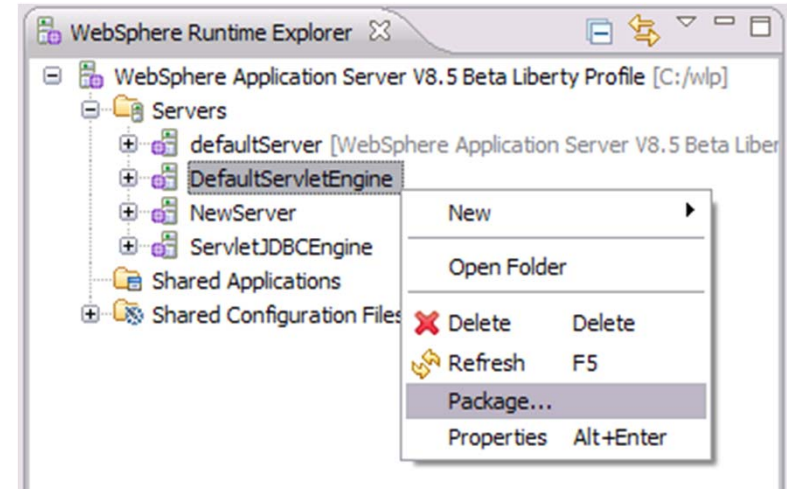
Create a lightweight WAS server configuration in seconds.





New Deployment Options

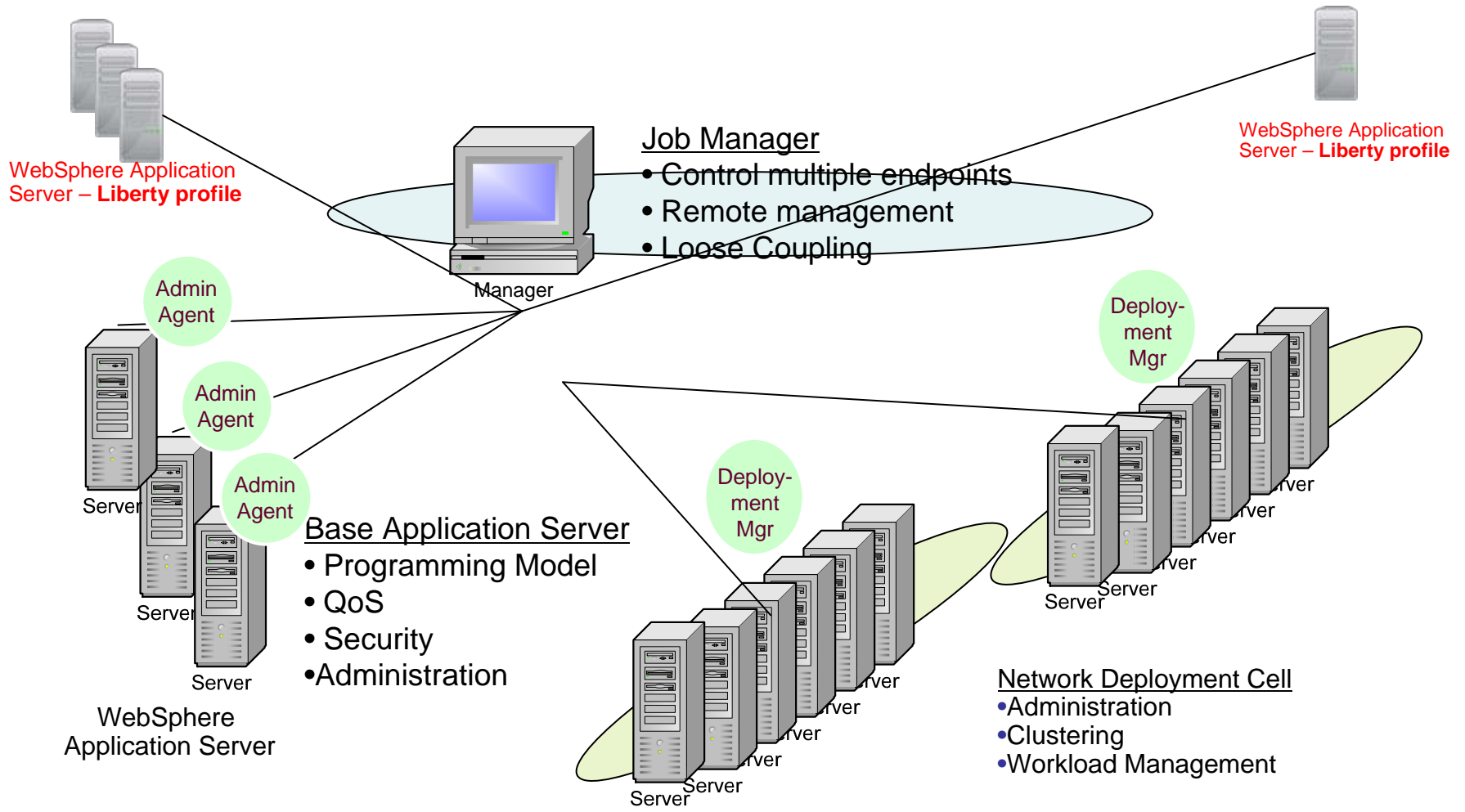
- Package up a compressed archive of a configured Liberty server type along with its applications
 - Directly from Eclipse environment
 - Resulting zip can be copied to integration or production environment and simply unzipped.
- For test automation outside the IDE, a command-line program to manage the lifecycle of server instances:
 - Create [serverName]
 - Start and stop [serverName]
 - Package [serverName]
 - Status [serverName]



- Updates to configuration of running server are effective immediately.
- Add/remove apps dynamically by drag/drop to monitored directory.



Centralized Management through Job Manager





No Hurdles to Install

Tools and runtime are **free** for development. No time limit

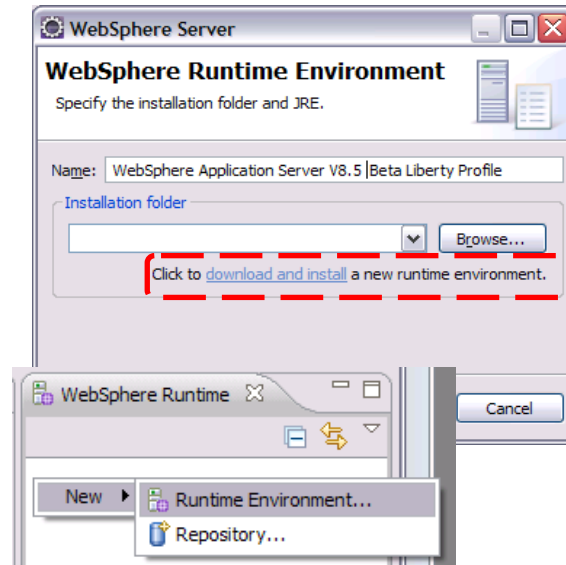
- Eclipse feature install for tools; 30MB zip download for server profile.
 - Installation Manager also supported → same installed result.

2 minutes from “Nothing” to “Done”:

1. Install WAS Developer Tools for Eclipse Feature



2. Use the Tools to download the WAS Liberty Profile or download 30MB zip from WASdev.net



wasdev.net

WebSphere Application Server Family (update)

WebSphere Application Server for Developers – Tools Edition for Eclipse

Enables efficient development of innovative applications that will eventually run on WAS in production

WebSphere Application Server Hypervisor Edition

Optimized to instantly run in VM environments such as zVM, PowerVM

+ Lightweight profile

WebSphere Application Server Network Deployment

Delivers near-continuous availability with advanced performance and capacity for mission-critical applications.

+ Lightweight profile

New bundle with RAD - WAS ND - Tools Edition

WebSphere Application Server for z/OS

Takes full advantage of the z/OS platform to deliver reliable, efficient server experience

+ Lightweight profile

WebSphere Application Server

Provides high performance transaction engine for most configurations with web tier clustering and failover support to five application server profiles

+ Lightweight profile

New bundle with RAD – WAS - Tools Edition

WebSphere Application Server - Express

A low go-to-go dynamic application

+ Lightweight profile

WebSphere Application Server Community Edition

An open source-based, small footprint foundation with no up-front acquisition costs

+ Lightweight profile

Built on a common code base



WebSphere Developer Tools (WDT) & RAD



RAD

Install: IM

WebSphere Integration

- Support for WAS v6.0, v6.1
- Test Environments for WAS v6.1, 7.0, v8.0
- Portal Tools & Portal Server support
- Profile applications on WAS
- Cloud: Deploy to IWD, or WebSphere/Portal instances on SCE

Problem Determination

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

Team Productivity

- RTC integration
- Collaborative debug
- Collaborative code analysis

Extended Programming Model Support

- Advanced support for J2EE 1.4 and earlier:
 - EJB & Web Services deploy
 - DD editors
 - JAX-RPC
- Web:
 - Page & site designer
 - Web diagram Editor
 - Struts, JSF support
 - iWidget support

Enterprise Connectivity

- J2C (EIS) tools
- CICS, and IMS Adapters
- Adapters for SAP, Siebel, JDE, Oracle, PeopleSoft

Programming Model Support

- SCA
- Java (WAS) Batch
- SIP/CEA
- XML (feature pack)

WDT

Install: Eclipse update site or IM

WebSphere Integration

- Support for WAS v7.0, v8.0
- Publish, start/stop the server
- Debug Jython/wsadmin scripts

WAS Extensions Support

- Binding and extension editors
- Support for non-spec extensions

OSGi Tools

- Creation and editing support
- Blueprint editor and validation
- Visual Bundle Explorer

Liberty Profile Integration

- Publish, start/stop the server
- Edit & manage server configuration

Eclipse (WTP, DTP)

Programming Model Support

- Basic creation, editing, and validation support for JEE applications:
 - Web, XML, JPA, EJB, EAR
- Database tools

WDT adds support for Mac for dev/test with WAS Liberty Profile

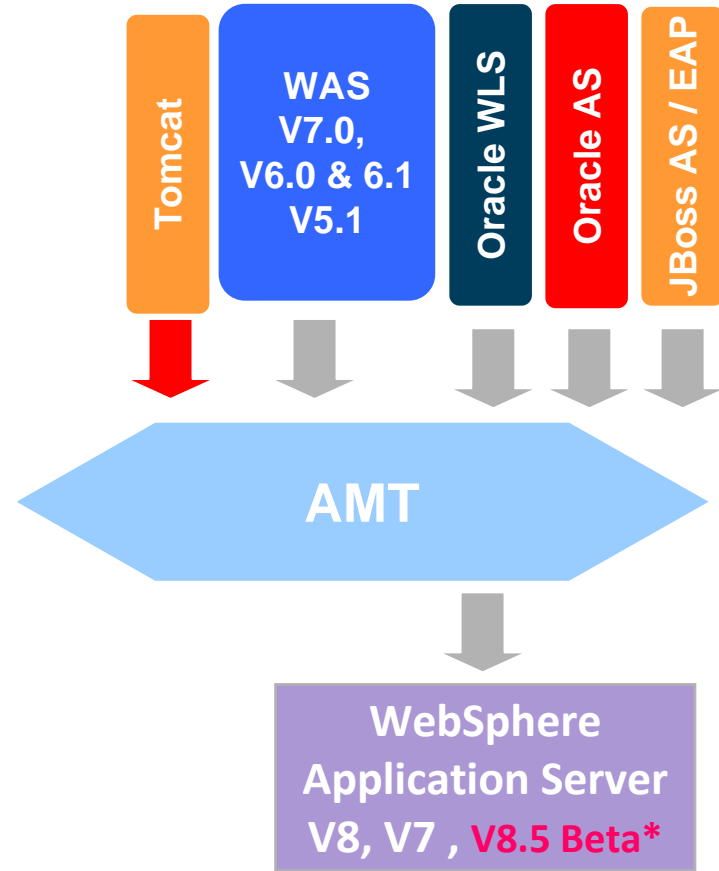




Application Migration Tooling Update

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

- **NEW for Beta – Support for Tomcat migration to WAS v8.5 Beta**
- Migrate applications from older releases to WAS V8 or V7
- Migrate from Oracle or JBoss faster and easier to WAS to V8.5V8 or V7
 - Migrate applications up to 2x as fast
 - Migrate web services up to 3x as fast
- **Application Migration Tool**
 - Analyzes source code to find potential migration problems:
 - Removed features
 - Deprecated features
 - Behavior changes
 - JRE 5 & JRE 6 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 (RAD)



Get the Tool at No Charge:
Updated as part of **WAS V8.5 March Refresh**

***Tomcat Migration Added**



Cross-Component Trace (XCT)

Simplify problem determination of complex distributed requests through request-related correlation of log and trace entries across systems

XCT can augment log / trace entries with a requestID which you can view and filter using HPEL (WAS High Performance Extensible Logging) and see a cross-server trace through the XCT log viewer, available for the IBM Support Assistant

The screenshot displays the IBM Support Assistant interface for viewing Cross-Component Trace (XCT) logs. The main window shows a hierarchical tree view of log entries on the left and a detailed table of log entries on the right. The table has columns for Type, Time, Thread ID, and Contents.

| Type | Time | Thread ID | Contents |
|--|---------------------------|-----------|---|
| Invocation sequence (imap/FlightBookingInf_To_FlightBookingInfWithTrgAny:bookFlight) | Oct 30, 2008 09:32:04.921 | 0000037b | |
| Start invoke (imap/FlightBookingInf_To_FlightBookingInfWithTrgAny:bookFlight) | Oct 30, 2008 09:32:04.921 | 0000037b | Start of the asynchronous invocation of operation imap/FlightBookingInf_To_FlightBooki |
| Start component (imap/FlightBookingInf_To_FlightBookingInfWithTrgAny:bookFlight) | Oct 30, 2008 09:32:04.968 | 00000378 | Start of the component processing of operation imap/FlightBookingInf_To_FlightBooking |
| Start invoke (imap/FlightBookingInfWithTrgAny_To_AnyInterface1:operation1) | Oct 30, 2008 09:32:04.968 | 00000378 | Start of the asynchronous invocation of operation imap/FlightBookingInfWithTrgAny_To |
| Start component (imap/FlightBookingInfWithTrgAny_To_AnyInterface1:operation1) | Oct 30, 2008 09:32:05.218 | 00000377 | Start of the component processing of operation imap/FlightBookingInfWithTrgAny_To_A |
| Start invoke (FlightResModSRPWithAny:operation4) | Oct 30, 2008 09:32:05.218 | 00000377 | Start of the invocation of operation FlightResModSRPWithAny:operation4 in module Flig |
| Start component (FlightResModSRPWithAny:operation4) | Oct 30, 2008 09:32:05.234 | 00000377 | Start of the component processing of operation FlightResModSRPWithAny:operation4 in |
| Start invoke (SearchFlightInfWIDImport1:findFlight) | Oct 30, 2008 09:32:05.328 | 00000377 | Start of the invocation of operation SearchFlightInfWIDImport1:findFlight in module Flig |
| End invoke (SearchFlightInfWIDImport1:findFlight) | Oct 30, 2008 09:32:05.406 | 00000377 | End of the invocation of operation SearchFlightInfWIDImport1:findFlight in module Flig |
| Start invoke (SearchFlightInfWIDImport2:findFlight) | Oct 30, 2008 09:32:05.421 | 00000377 | Start of the invocation of operation SearchFlightInfWIDImport2:findFlight in module Flig |
| End invoke (SearchFlightInfWIDImport2:findFlight) | Oct 30, 2008 09:32:05.500 | 00000377 | End of the invocation of operation SearchFlightInfWIDImport2:findFlight in module Flig |
| Start invoke (imap/SearchFlightInfWid_To_SearchFlightInf:findFlight) | Oct 30, 2008 09:32:05.500 | 00000377 | Start of the invocation of operation imap/SearchFlightInfWid_To_SearchFlightInf:findFl |
| Start component (imap/SearchFlightInfWid_To_SearchFlightInf:findFlight) | Oct 30, 2008 09:32:05.500 | 00000377 | Start of the component processing of operation imap/SearchFlightInfWid_To_SearchFlig |
| Log message | Oct 30, 2008 09:32:05.500 | 00000377 | EClassifier "http://www.opentravel.org/OTA/2003/05/beta#OTA_AirAvailRQ" not not fr |
| Log message | Oct 30, 2008 09:32:05.500 | 00000377 | EClassifier "http://www.opentravel.org/OTA/2003/05/beta#OTA_AirAvailRQ" not not fr |
| Start invoke (DeltaHttpImport:findFlight) | Oct 30, 2008 09:32:05.515 | 00000377 | Start of the invocation of operation DeltaHttpImport:findFlight in module FlightRe |
| Start import (DeltaHttpImport:findFlight) | Oct 30, 2008 09:32:05.515 | 00000377 | Start of the import processing of operation DeltaHttpImport:findFlight in module FlightRe |
| Log message | Oct 30, 2008 09:32:05.515 | 00000377 | CW5CA6048W: The HTTP Import received a request with DynamicOverrideURL set. Ple |
| Fail import (DeltaHttpImport:findFlight) | Oct 30, 2008 09:32:05.562 | 00000377 | A failure occurred during the import processing of operation DeltaHttpImport:findFlight i |
| Exception | Oct 30, 2008 09:32:05.578 | 00000377 | CNTR0020E: EJB threw an unexpected (non-declared) exception during invocation of m |
| Fail invoke (DeltaHttpImport:findFlight) | Oct 30, 2008 09:32:05.578 | 00000377 | A failure occurred during the invocation of operation DeltaHttpImport:findFlight in modu |
| Exception | Oct 30, 2008 09:32:05.578 | 00000377 | CNTR0020E: EJB threw an unexpected (non-declared) exception during invocation of m |
| Fail component (imap/SearchFlightInfWid_To_SearchFlightInf:findFlight) | Oct 30, 2008 09:32:05.578 | 00000377 | A failure occurred during the component processing of operation imap/SearchFlightInfW |
| Exception | Oct 30, 2008 09:32:05.578 | 00000377 | CNTR0020E: EJB threw an unexpected (non-declared) exception during invocation of m |
| Fail invoke (imap/SearchFlightInfWid_To_SearchFlightInf:findFlight) | Oct 30, 2008 09:32:05.578 | 00000377 | A failure occurred during the invocation of operation imap/SearchFlightInfWid_To_Searc |
| Log message | Oct 30, 2008 09:32:05.593 | 00000377 | isAAREturned in Snippet 8:true |
| Log message | Oct 30, 2008 09:32:05.593 | 00000377 | Catching runtime exception and terminating |

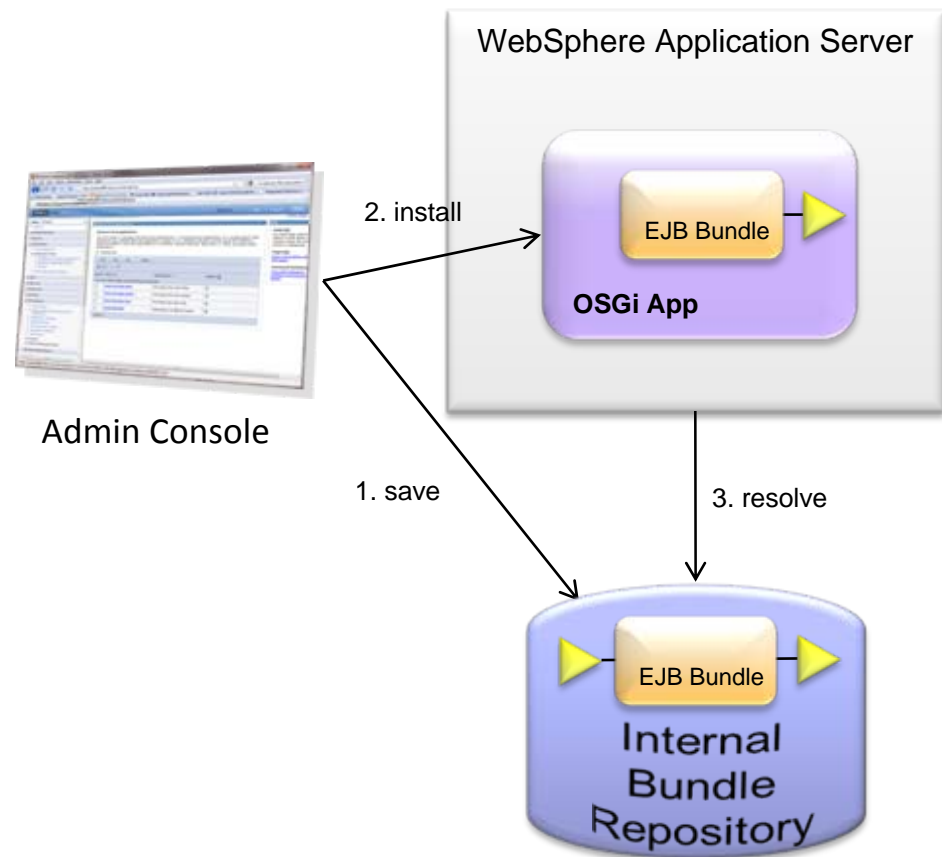


OSGi Application Enhancements: EJBs



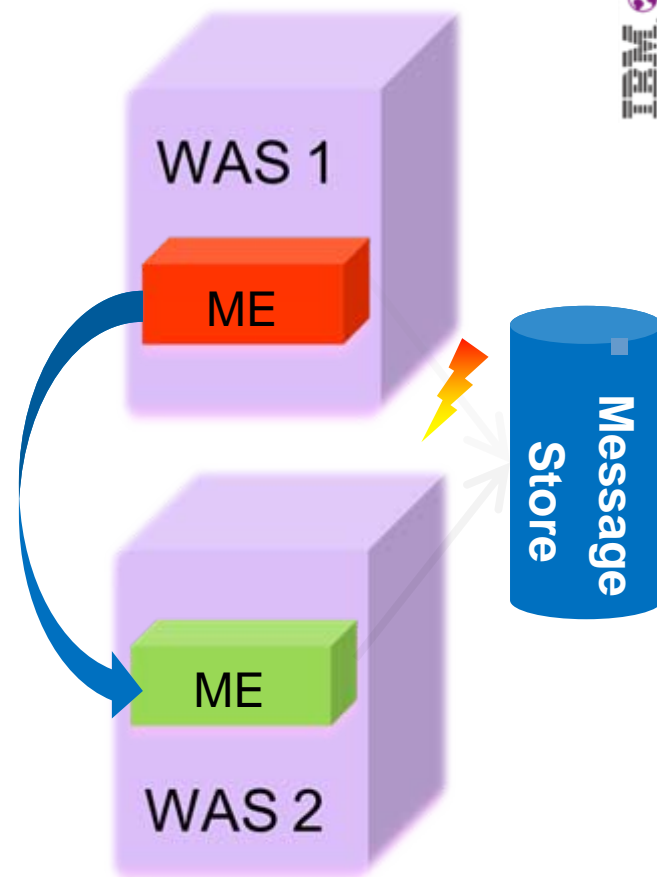
Include EJB bundles in OSGi applications to simplify the development, deployment and administration of modular enterprise applications

- OSGi bundles can now contain version 3.x EJBs
 - Local & Remote
 - Asynchronous beans, Session beans & Singleton beans
- Stateless Session Beans can be exported as services to the OSGi Service Registry
- Provisioner and Internal Bundle Repository extended to understand EJB Bundles
 - Services provided by EJBs
 - Services required by EJBs



Additional Server Resiliency

- WAS ND Message Destinations are virtualized for scalability and availability
- **Additional** resiliency to message store outage: failover MEs without impacting non-messaging workloads on the server



- **New** configurable memory leak policies to provide proactive classloader mediation to detect, prevent, and take action, if possible, on classloader memory leaks.





Pluggable JDK7 support

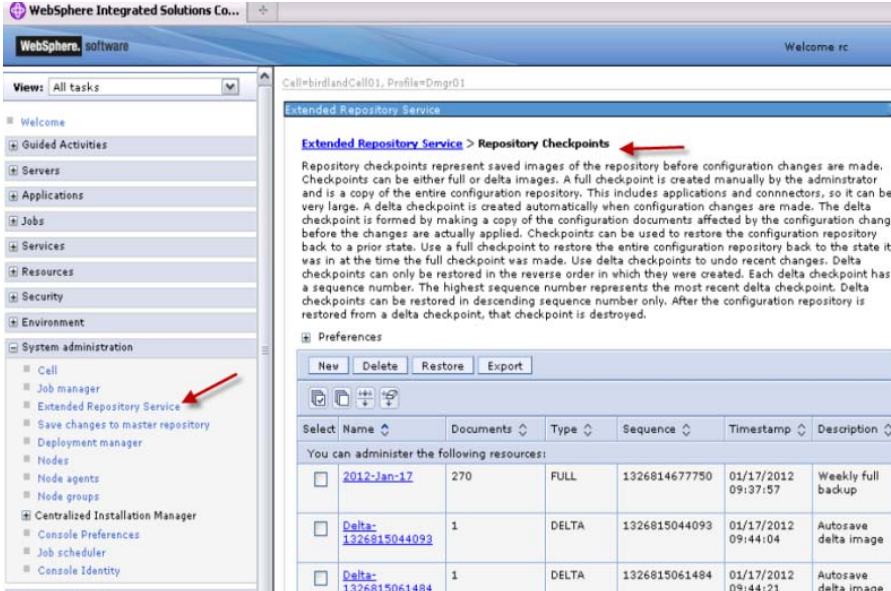
- JDK 7 is installed as an optional feature to new or existing WAS V8.5 Beta installation
 - Use with either full WAS profile or Liberty profile
- Create WAS admin profiles for developer use
 - Use **managesdk** to set WAS profile and command defaults to chosen JDK. JDK 6 is the default.
 - Create admin profile and start server
- Build and test Java 7 applications
 - Use ant or maven to build Java 7 applications
 - See PlantsByWebSphere sample docs for information
 - Use RAD to develop, deploy, and test Java 7 applications



Repository Checkpoint and Admin Audit

Simplify restoration of earlier configuration checkpoints and record all configuration updates in security audit log.

- The Repository Service is consolidated from WVE.
- Provides “full” and “delta” checkpoints of the master configuration repository.
- Simplifies restoration to a previous configuration state.
- Full checkpoint created manually
- Delta checkpoints, when enabled, are created automatically in checkpoint repository on every configuration-save
- New Security Audit event - ADMIN_REPOSITORY_SAVED refers to corresponding delta checkpoint records.
 - The delta checkpoint can be exported to review configuration changes when needed



The screenshot displays the WebSphere Integrated Solutions console interface. The left-hand navigation pane shows a tree structure under 'System administration', with 'Extended Repository Service' selected and highlighted in blue. A red arrow points to this item. The main content area is titled 'Extended Repository Service > Repository Checkpoints'. It contains a descriptive paragraph about checkpoints, a 'Preferences' section with buttons for 'New', 'Delete', 'Restore', and 'Export', and a table of checkpoints. A red arrow also points to the 'Repository Checkpoints' breadcrumb in the top navigation bar.

| Select | Name | Documents | Type | Sequence | Timestamp | Description |
|--------------------------|---------------------|-----------|-------|---------------|---------------------|----------------------|
| <input type="checkbox"/> | 2012-Jan-17 | 270 | FULL | 1326814677750 | 01/17/2012 09:37:57 | Weekly full backup |
| <input type="checkbox"/> | Delta-1326815044093 | 1 | DELTA | 1326815044093 | 01/17/2012 09:44:04 | Autosave delta image |
| <input type="checkbox"/> | Delta-1326815061484 | 1 | DELTA | 1326815061484 | 01/17/2012 09:44:21 | Autosave delta image |



Summary

- WAS V8 delivered Industry's first Java EE 6 platform
- WAS V8.5 Beta builds on this success:
 - Lightweight Liberty Profile + agile WAS Dev Tools Eclipse feature deliver smallest, fastest, most developer-friendly WAS ever.
 - Additional install and deploy flexibility including “packaged server” with “unzip deploy” to simplify continuous build and promotion to operational environment
 - Selectable JDK support delivers new levels of choice – enables latest Java SE 7 or Java 6
 - Security Auditability of Admin updates and repository checkpoint capability
 - Resiliency and Serviceability focus
 - Incremental programming model additions including OSGi EJB Bundles and OASIS SCA.

