

WebSphere V8.5: Migration Recommendations and New Features

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Agenda

- Migration
 - **Migration overview**
 - **Migration planning roadmap**
 - Migration Best Practices
 - Migration Impacts
 - Migration tools
- V8.5 Feature Highlights
 - High level overview
 - Administration Changes
 - Installation Changes
 - Development Changes
 - Liberty Profile

Introduction

- This presentation is intended to educate and assist in performing WebSphere Application Server Version to Version Migrations
- It contains overall planning guidelines as well as common migration concerns for your awareness
- It does not prescribe one Migration path
 - Varies with customer policies
 - Varies with versions involved
 - Varies with customer procedures
- Use this information as a guide to build your own plan
- Get assistance if needed

Migration Overview

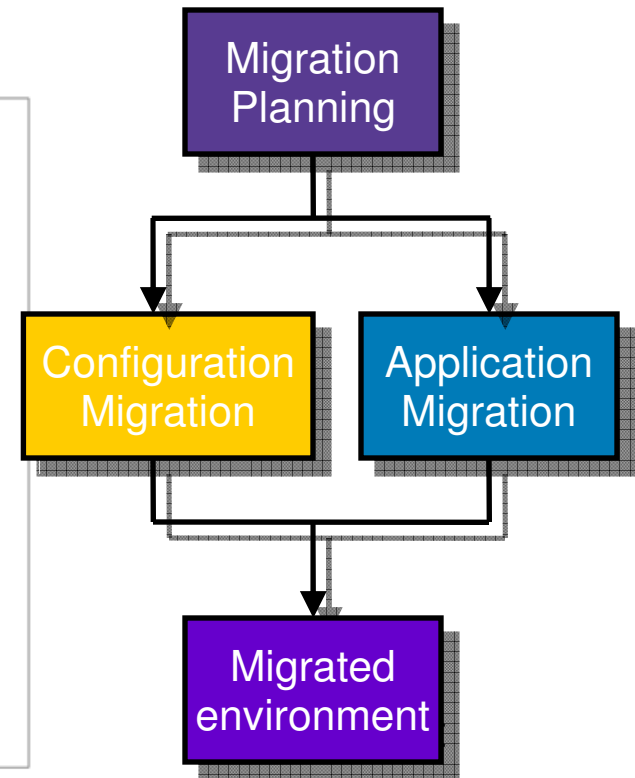
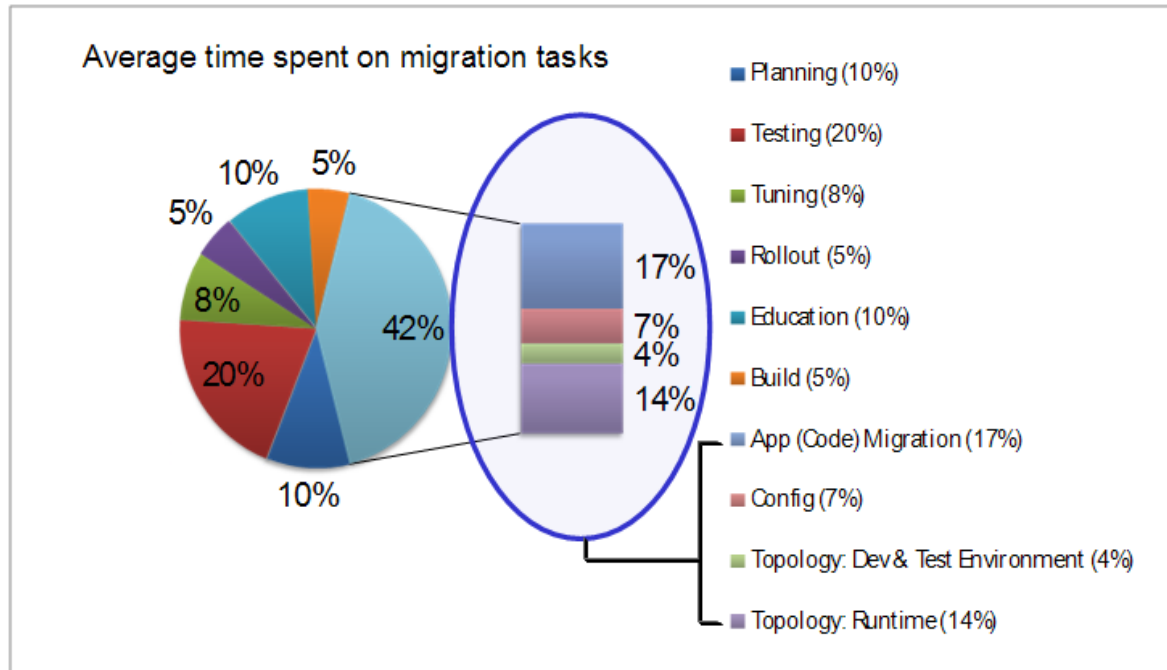
Migration is the action of moving from an existing release to a newer release.

When doing a WebSphere Application Server migration, consider it a complete project because it is more than just applying a new product version.

WebSphere Application Server migration impacts the following components of your infrastructure:

- Applications
- Middleware
- Operating systems

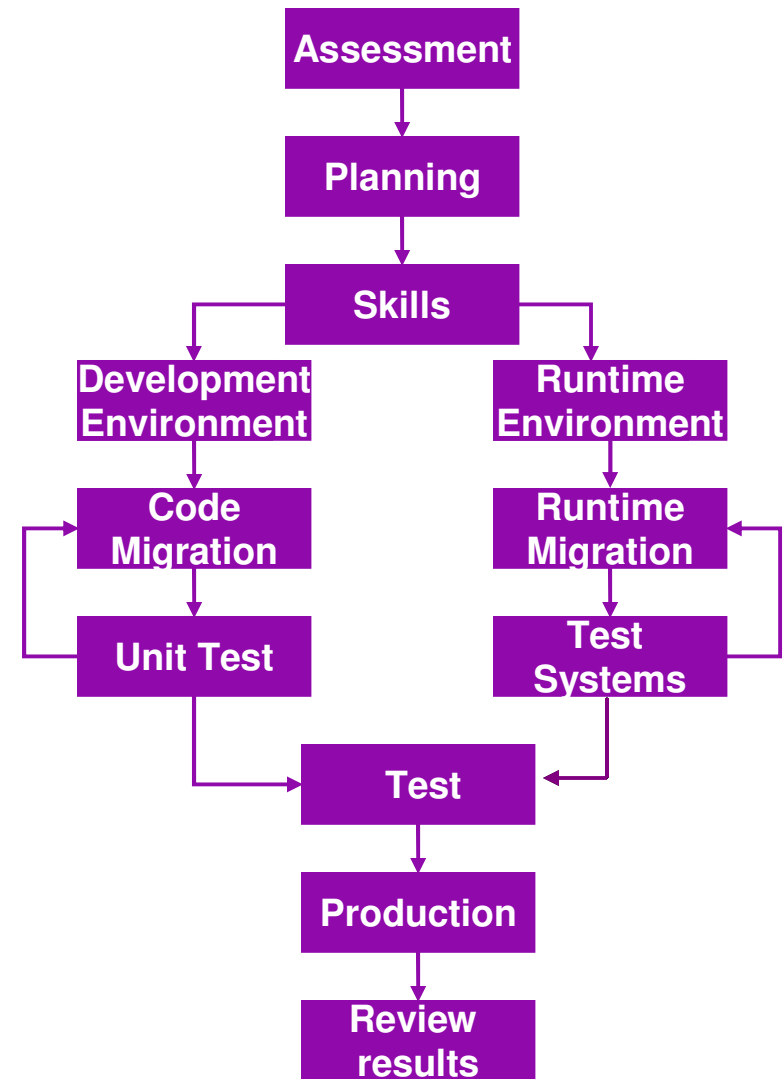
Migration Aspects



- The whole migration process involves a variety of steps
 - Migration process needs planning and cannot compromise day-to-day business
- Each situation is unique
 - There is no one standard plan

Migration Plan Roadmap

- Assessment
- Planning
- Skills
- Development Environment
- Application Code Migration
- Runtime Environment Migration
- Test
- Production
- Review the results



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Five Network Deployment strategies

1. Side by Side

- Create a new cell and populate with scripts or manually
- No runtime migration tools

2. In Place - Copy and replace the cell

- Recreates the **exact** existing configuration in the new cell
- DMgr and nodes are migrated

3. In Place - Copy and replace the DMgr

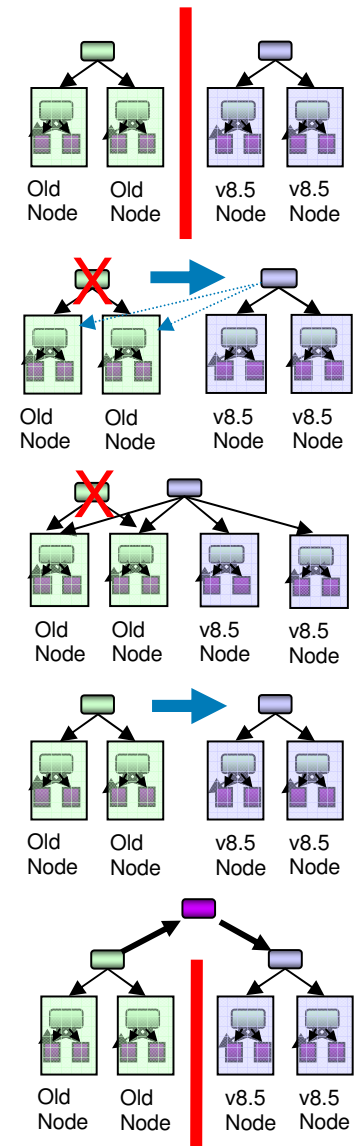
- Recreates the **exact** existing configuration in new cell
- Add new nodes and move incrementally

4. In Place - Copy and coexist

- Recreates the **exact** existing configuration in the new cell
- Modify the ports in the new cell and coexist

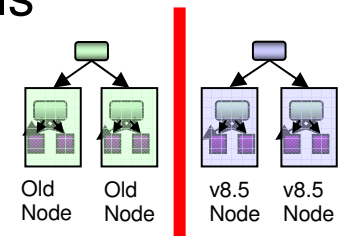
5. Side by Side - Fine Grained

- Create a new cell and incrementally copy existing configuration
- Uses an intermediate profile, runtime migration and wsadmin tools



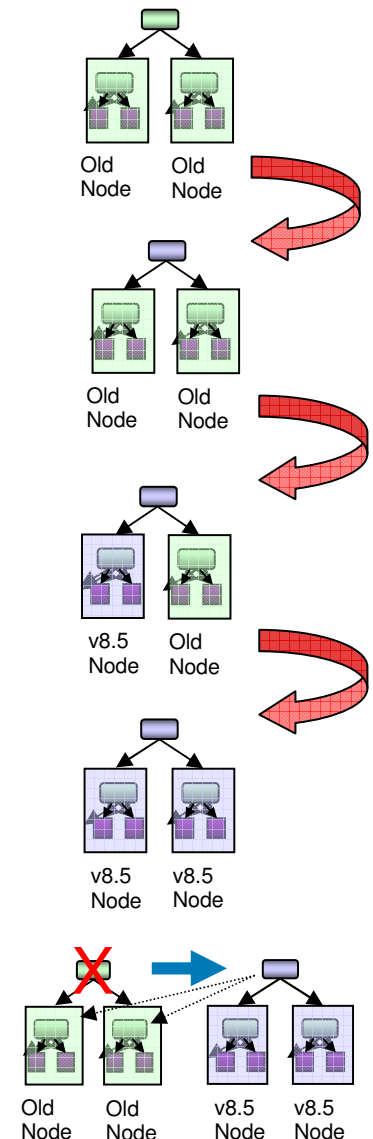
Side by Side

- Ignores the existing configuration
- Create a new cell and populate with administration scripts or manually
- Best results with a comprehensive set of scripts or tools for configuration automation
- Pros
 - No dependencies on tooling
 - Least risk assuming existing scripts are comprehensive
 - Can easily migrate applications singly
- Cons
 - Comprehensive set of scripts and ongoing maintenance of those scripts can be expensive
 - Any required changes to these scripts must be done before migrating
 - Any tuning of the old configuration is not carried forward



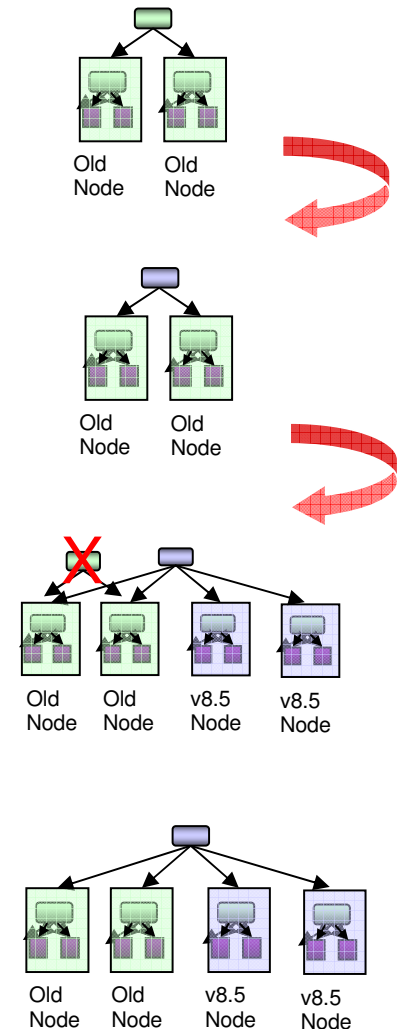
In Place – Copy and Replace Cell

- Use Runtime migration tools on DMgr
 - Recreates the **exact** existing configuration in the new cell
- Later migrate the existing nodes using the runtime migration tools
 - All applications on a managed node are migrated at the same time
- Pros
 - Does not require comprehensive set of scripts
 - All configuration is moved forward
- Cons
 - Dependency on using the runtime migration tools
 - Requires all applications on a node be ready to migrate at the same time
 - Limited value if you are refactoring your topology
 - Carries default values forward from the old cell



In Place – Copy and Replace DMgr

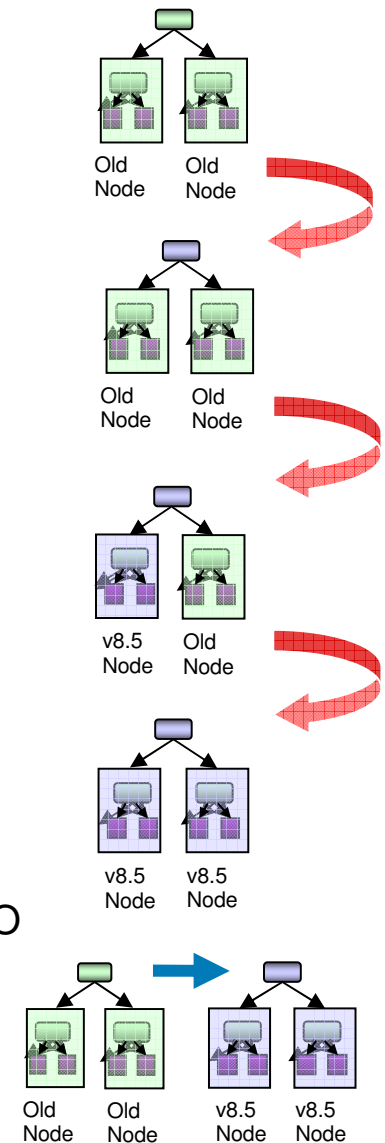
- Use Runtime migration tools on DMgr
 - Recreates the **exact** existing configuration in the new cell
- Add new nodes
 - Applications can be migrated singly when ready
 - Remove old nodes when no longer needed
- Pros
 - Does not require comprehensive set of scripts
 - All configuration is moved forward
 - Cell and cluster level configuration accessible by older nodes
- Cons
 - Dependency on using the runtime migration tools
 - Limited value if you are refactoring your topology
 - Carries default values forward from the old cell



In Place – Copy and Co-exist

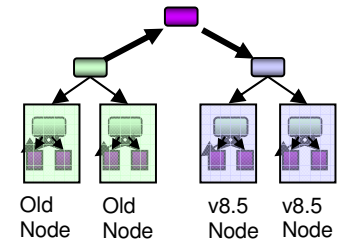
- Same steps as “Copy and replace Cell” except:
 - Use the options of the runtime Migration tools to not disable the DMgr
 - Turn off the old DMgr (the federated nodes should be able to continue running)
 - Migrate all the nodes
 - Modify the new cell to resolve port conflicts
 - Start old DMgr, new DMgr and all nodes in the new cell

- See latest Migration redpiece for example
 - <http://www.redbooks.ibm.com/redpieces/abstracts/redp4635.html?Open>



Side by Side – Fine Grained

- Uses a combination of tools
 - An intermediate profile
 - The runtime migration tools
 - Properties based configuration tool (PBC)
- Approach
 - Migrate the existing data to an intermediate profile
 - Extract portions of the configuration from that profile
 - Import them into the final DMgr profile using PBC
- See latest Migration redpiece for example
 - <http://www.redbooks.ibm.com/redpieces/abstracts/redp4635.html?Open>



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Migration impacts overview

Migration impact is gated by two overarching factors

1. The versions involved in the customer Migration scenario
 - Moving from v6.1 to v8.5 would be different than v5.1 to v8.5
2. The amount of change introduced in and between these versions
 - Moving from v6.1 to v8.5 involves changes introduced by v7.0, v8.0 and v8.5
 - Moving from v5.1 to v8.5 involves changes introduced by v6.0, v6.1, v7.0, v8.0 and v8.5

	v6.0	v6.1	v7.0	v8.0	v8.5
Configuration	Port assignment	Security	None	None	None
Application	JSP and Servlet	Java Runtime	Minimal	Minimal	None*

None* means no required code changes with default of JRE6 when using traditional WAS runtime

Externals summary

	v5.x	v6.0	v6.1	v7.0	v8.0	v8.5
IDE	WebSphere Studio 5.1	RAD v6.0	RAD v7.0	RAD v7.5 WDT 7.0	RAD v8.0 WDT 8.0	RAD v8.5 WDT 8.5
Code	J2EE 1.3 JRE 1.3 (v5.0) JRE 1.4 (v5.1)	J2EE 1.4 JRE 1.4	J2EE 1.4 JRE 5	JEE 5 JRE 6	JEE 6 JRE 6	JEE 6 JRE 6/JRE 7
Deploy	EAR	EAR Config in EAR	EAR Config in EAR	EAR/BLA Config in EAR EBA(FeP)	EAR/BLA Config in EAR EBA	EAR/BLA Config in EAR EBA

- Rational Application Developer (RAD)
- WebSphere Development Tools (WDT)

Choosing the “right” version

- Question: “Which WebSphere Application Server version should I migrate to?”

- Answer, as always - “It depends”
 - End of Service date for your current version
 - WebSphere Application Server v5.1 was September 2008
 - WebSphere Application Server v6.0.2 was September 2010
 - WebSphere Application Server v6.1 is September 2013
 - Characteristics of your targeted version
 - End of Service date for the version – most likely an estimate
 - Stability in lifecycle
 - JEE/JDK levels relative to targeted version
 - New WebSphere Application Server features you want
 - Version requirements of vendor or IBM products that you have or want
 - Version your Enterprise has committed towards
 - What about fixpack level? – is there an implicit company policy?
 - What else that you use that depends on a WAS version number?

Support policies

- At least 12 months notice prior to an IBM branded product release's EOS date and the availability of support extensions for an extra charge set by IBM
 - Endeavor to coordinate most EOS dates to occur on 30 April or 30 September
- Enhanced '5+3' support statement as of March 2007
 - Five years for standard, three for extended support.
 - Updated April 2008 to include selected products within the Information Management, IBM Lotus, IBM Rational, IBM Tivoli and WebSphere...
 - <http://www-1.ibm.com/support/docview.wss?uid=swg21256700>
- Latest as of Summer 2011
 - One of our new initiatives will be to support, on a going-forward basis for select IBM branded products that have not previously announced an EOS date, not only the 'current' version of the product, but also up to two previous versions, in an effort to limit disruptive technology transitions.
 - In this context, a 'version' is a major functional enhancement level. While not every IBM software product will be subject to this new initiative, our initial focus is to support key products from all of our software brands, and expand the number of products over time

<http://www.ibm.com/software/support/lifecycle/lc-policy.html>

Migration impacts (worst case scenario)

Potential Impact areas	v6.0	v6.1	v7.0	v8.0	v8.5
Java Runtime (v8.5 has JRE6 and 7)	n/a	6	2	n/a	0/20 _{note}
JEE - JSP	8	n/a	1	1	0
JEE - Servlet	5	n/a	0	1	0
JEE - Other	3	n/a	5	6	0
WAS Specific	1	6	0	4	0
3 rd party packages	2	0	1	0	0
Development total	19	12	9	12	0/20
Administrative script	4	3	2	0	0
WAS directory structure	1	1	0	0	0
Other administrative	5	2	6	7	0
Total administrative	10	6	8	7	0
Total potential impact areas	29	18	17	19	0/20

Note: Java7 introduces a number of potentially breaking changes. "0" represents Java6 and "20" is for Java7. Not all breaking changes will impact all applications

JEE specification change analysis (1 of 3)

	v6.0	v6.1	v7.0	v8.0	v8.5
Java Runtime	1.4.2	1.5	1.6	1.6	1.6 1.7
	v6.0	v6.1	v7.0	v8.0	v8.5
WebApps					
Servlet	2.4	2.4	2.5	3.0	
JSF	1.0	1.1	1.2	2.0	
JSP	2.0	2.0	2.1	2.2	
Portlet	n/a	1.0	2.0	2.0	
SIP	n/a	1.1(FeP)	1.1	1.1	
EJB apps EJB	2.1	2.1/3.0(FeP)	3.0	3.1	
JDBC	3.0	3.0	4.0	4.0	
JMS	1.1	1.1	1.1	1.1	
JPA	n/a	1.0(FeP)	2.0(FeP)	2.0	
Java Web Start	1.4.2	1.4.2	1.4.2	1.4.2	
Web Services JAXB	n/a	2.0	2.1	2.2	
JAXP	1.2	1.3	1.4	1.4	

Red indicates significant,
Yellow indicate some breakage

JEE specification change analysis (2of3)

	v6.0	v6.1	v7.0	v8.0/v8.5
Web Services...				
JAXR	1.0	1.0	1.0	1.0
JAX-RPC	1.1	1.1	1.1	1.1
JAX-RS	n/a	n/a	n/a	1.1
JAX-WS	n/a	2.0	2.1	2.2
RAMP	n/a	1.0	1.0	1.0
SOAP	1.1	1.2	1.2	1.2
SAAJ	1.2	1.3	1.3	1.3
MTOM	n/a	1.0	1.0	1.0
StAX	n/a	1.0	1.0	1.0
UDDI	3.0	3.0	3.0	3.0
W3C XML	1.0	1.0	1.0	1.0
WS-Addressing	n/a	1.0	1.0	1.0
WS-AT	1.0	1.0	1.2	1.2
WS-BA	n/a	1.0	1.2	1.2
WSDL	1.1	1.1	1.1	1.1
WS-I Basic Profile	1.1	1.1	1.1	1.1

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Yellow indicate some breakage

JEE specification change analysis (3of3)

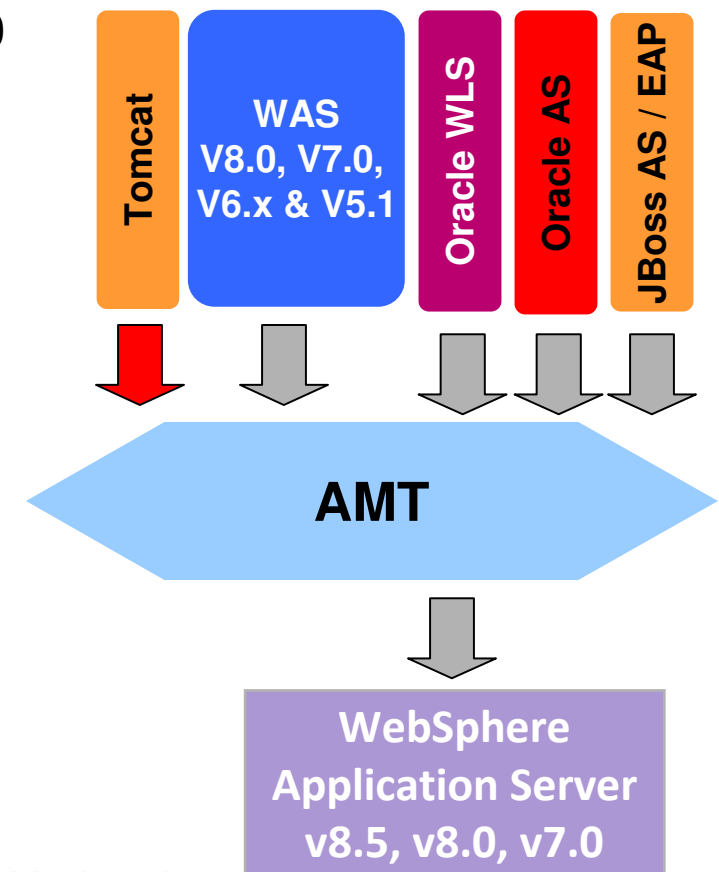
	v6.0	v6.1	v7.0	v8.0/v8.5
Web Services...				
WS-I Attachments	1.0	1.0	1.0	1.0
WS-Notification	n/a	1.3	1.3	1.3
WS-Policy	n/a	n/a	1.5	1.5
WS-ReliableMessaging	n/a	1.1	1.1	1.1
WSRF	n/a	1.2	1.2	1.2
XOP	n/a	1.0	1.0	1.0
ServiceComponentArch				
SCA*	n/a	n/a	1.0	1.0
SDO	n/a	n/a	2.1.1	2.1.1
Data Access				
JCA	1.5	1.5	1.5	1.6
JMS	1.1	1.1	1.1	1.1
Mail, URL and Other				
JavaMail	1.3	1.3	1.4	1.4
URL1.3	1.4.2	1.4.2	1.4.2	1.4.2
JAF	1.0.2	1.0.2	1.1	1.1

Red indicates significant, Yellow indicate some breakage

Application Migration Tooling v3.5

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

- Migrate from older versions to WAS v8.5, v8.0 or v7.0
- Migrate from Oracle, TomCat, JBoss faster & easier
 - 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 & deprecated features
 - Behavior changes
- JRE 5 & JRE 6 differences
 - Java EE spec changes or enforcements
 - Capable of making some application changes
 - Provides guidance on how to make required changes
 - Works with Eclipse or RAD (RAD)



Get the Tool at No Charge: <http://ibm.co/hqfkdj> or Eclipse Marketplace (WAS version to version)

Configuration Migration Tooling

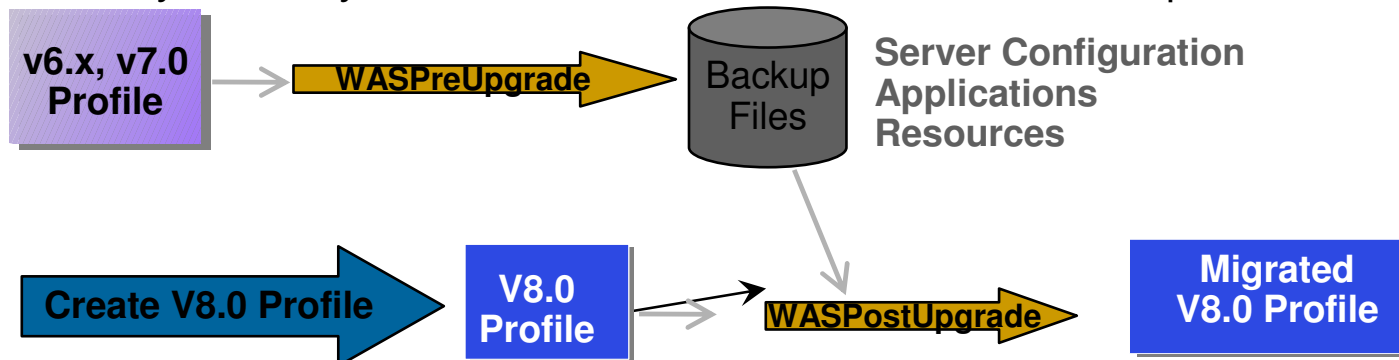
Migrate WebSphere environments faster with minimized risk

Assists administrators in moving their configuration when migrating

- Merges old configuration with new configuration
- Provides deep functionality, e.g. “Lights-on” WAS 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, WPS and Virtual Enterprise



Enablement

- This information and more is available online!
- Includes general planning with detailed notes and WebSphere AppServer version specific information
- Updated with timely information
- IBM Migration Knowledge collection
 - <http://www-1.ibm.com/support/docview.wss?rs=180&uid=swg27008724>
- Google: “websphere application server migration”



The screenshot shows the IBM Support Portal interface. At the top, there is a navigation bar with the IBM logo, a language selector for 'United States', and a search bar. Below the navigation bar, there are links for 'Home', 'Solutions', 'Services', 'Products', 'Support & downloads', and 'My IBM'. The main content area is titled 'Knowledge Collection: Migration planning for WebSphere Application Server'. On the left side, there is a sidebar with options like 'Support & downloads', 'Bookmark this page', 'View my bookmarks', and 'Feedback'. The main content area includes a 'Product documentation' section, an 'Abstract' section with a summary of the migration plan, and a 'Content' section with a 'FLASH' section. The 'FLASH' section contains text about the extension of the end-of-service date for IBM WebSphere Application Server (WAS) V6.1 from September 30, 2012, to September 30, 2013. Below the text, there is a 'Planning' section with tabs for '8.5.x', '8.0.x', '7.0.x', '6.1.x', 'z/OS', and 'Other'. At the bottom, there are links for 'Overview', 'Education and Tutorials', and 'Forums and Blogs'.

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WebSphere Application Server V8.0

Speed Delivery of Applications & Services

- Open Source to Enterprise
- Free WAS for Developers
- Self Service Development Environments
- Faster Edit-Compile-Debug
- Programming Models
 - Java EE 6
 - Web 2.0 & Mobile
 - OSGi Applications
 - SCA
 - Java Batch
 - XML
 - SIP & CEA
 - Dynamic Scripting
- Integrated Tooling
- Application Adapters

Operational Efficiency & Reliability

- High Performance
- Transactional Strength
- Scalability & HA
- Install & Maintenance
- Problem Determination
- Platform & Environment Flexibility
- Flexible Pricing Models
- Feature Packs

Security & Control

- Administrative Productivity
- OSGi Application Agility
- Security
- Migration

WAS V8.5 Delivers

Unparalleled Application Development and Management Environment, Rich User Experiences...Faster

Developer Experience



Fast, flexible, and simplified application development

- Liberty Profile
- Expanded Tooling and WAS Tooling Bundles
- OSGi programming model enhancements
- EJB support in OSGi apps
- JDK7 Support
- Migration toolkit
- Web 2.0 & Mobile Toolkit; IBM Worklight Integration
- SCA OASIS programming model

Application Resiliency



Intelligent Management & Enhanced Resiliency

- Application Edition Management
- Application Server Health Management
- Dynamic Clustering
- New Intelligent Routing capabilities
- Messaging infrastructure resiliency
- Memory leak detection & protection in WAS

Operations and Control

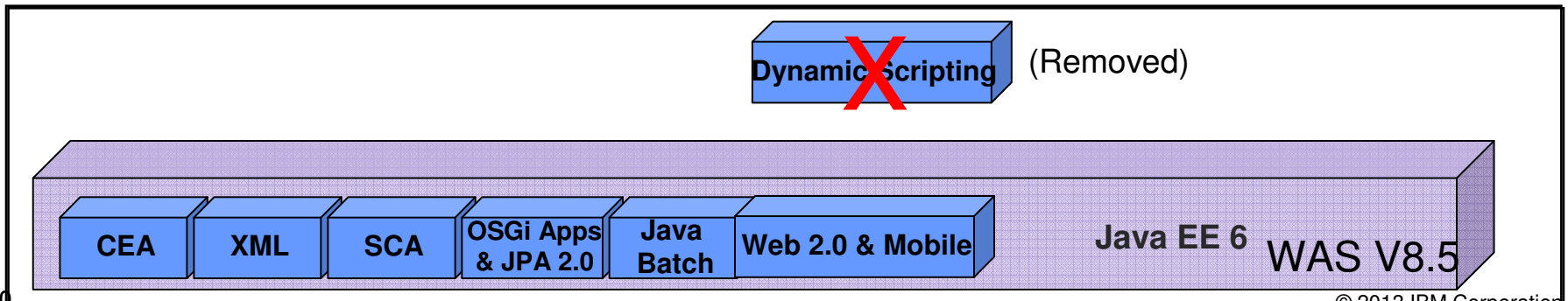
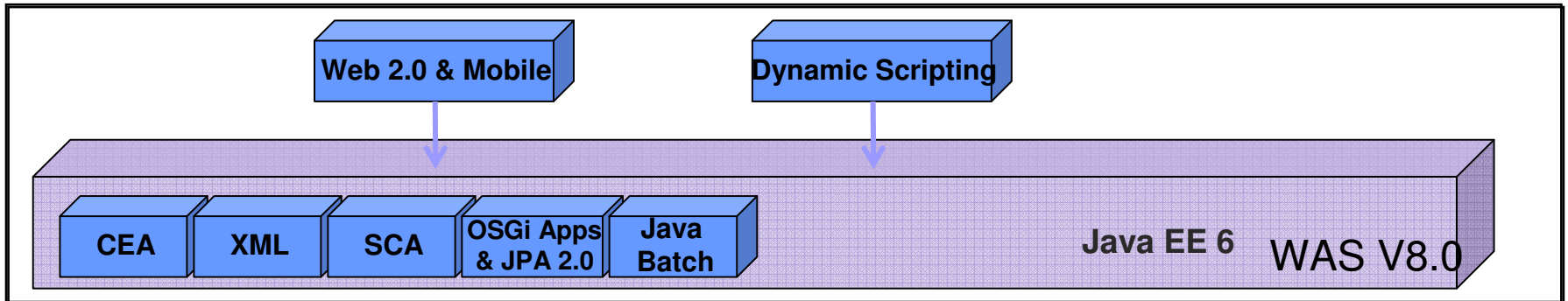
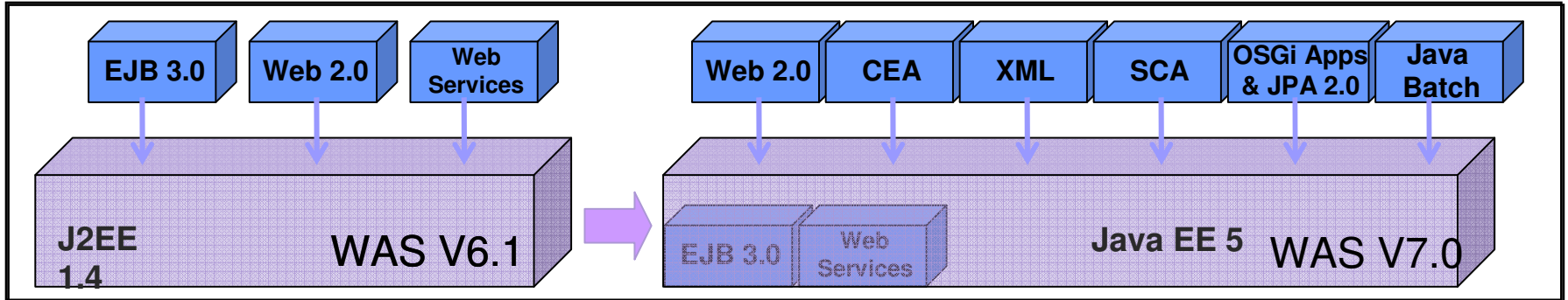


Improved Operations, Security, Control & Integration

- Selectable JDK
- WebSphere Batch enhancements
- Admin Security Audit
- OSGi Blueprint security improvements
- Cross Component Trace (XCT)
- Enhanced IBM Support Assistant
- Better log and trace filtering

WebSphere Application Server Feature Packs

Access innovative standards and programming models faster on a stable foundation



Changes in v8.5

- Administration changes
 - One new port used for Liberty profile management
 - A number of minor default setting changes
 - Information provided in the v8.5 InfoCenter
 - http://pic.dhe.ibm.com/infocenter/wasinfo/v8r5/topic/com.ibm.websphere.nd.doc/ae/welc_transition.html
- Development changes
 - Development tool changes
 - Java7 upgrade – Java6 is the default
 - Breaking changes: (AWT, Internationalization, IO, JAXP, Language, Networking, Text and Utilities)
 - JPA (2)
 - Custom settings are provided to provide compatibility
- Conversion of existing applications to Liberty

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Administration Changes

- JDK
- Intelligent Management
 - Health Management
 - Application Edition Management
 - Intelligent Routing
 - Dynamic Clustering
- High Availability Deployment Manager
- Compute Grid & modern Batch
- Resiliency of Messaging Infrastructure
- Monitoring and trace
 - Admin Security Audit
 - Repository Checkpoint & Admin Audit
 - Memory leak detection and Protection
 - HPEL

JDK

Allow development and production environments to select the most appropriate JDK for the situation (JDK 6 or 7)

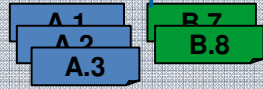
- WAS v8.5 introduces “selectable” JDK:
 - Some of the environment can use Java 7 while the rest continues to use Java 6
 - Use Java 7 in a small subset of your topology & keep the rest on Java 6
 - Switch back and forth between Java 7 and Java 6 as necessary
- Install as feature extension to new or existing WAS v8.5 installation
 - Use with either full WAS profile or Liberty profile
- Create WAS admin profiles for developer use
 - Use managesdk to set WAS new profile and command defaults to Java 7
 - 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

WAS ND V8.5: Resiliency enhancements -

WebSphere Virtual Enterprise (Intelligent Management) &

WebSphere Batch

Application Edition Management



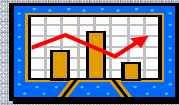
➤ Enables interruption free application rollout (Self-Managing)

Health Management



➤ Monitors the status of your applications with the ability to sense and respond to problem areas (Self-Protecting, Self-Healing)

Dynamic Clustering



➤ Dynamically provision and start/stop new instances of app server based on workload demands (Self-Optimizing)

Intelligent Routing



➤ Ensures priority is given to business critical applications via administrator defined rules

WebSphere Batch

Batch processing

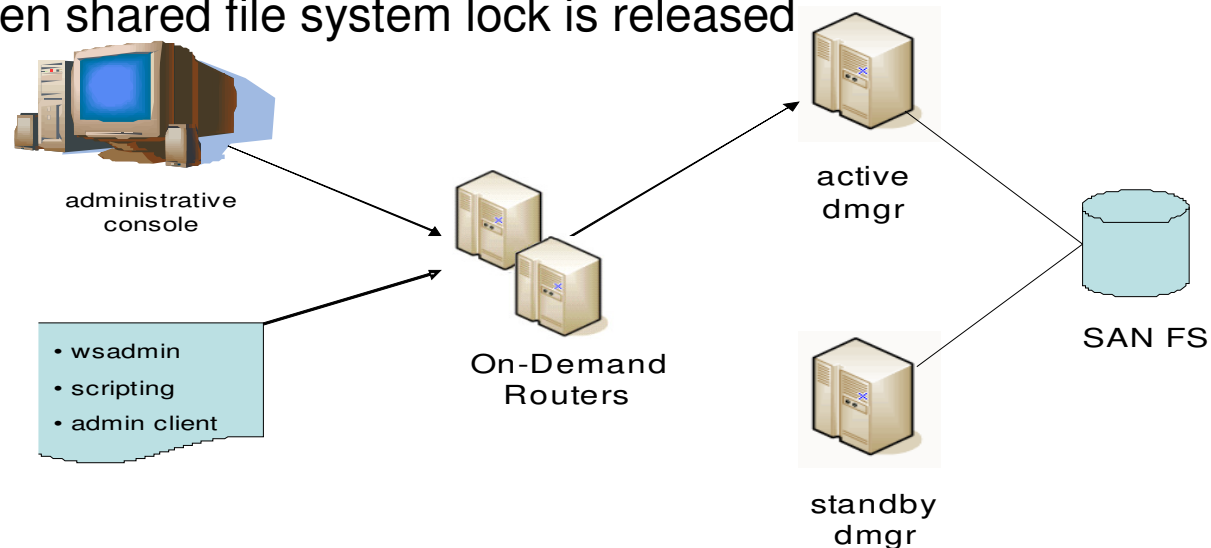


➤ Support that leverages your existing Java online transaction processing (OLTP) infrastructure to support new Java batch workloads

High Availability Deployment Manager

Automatic failover capability for Deployment Manager

- Hot-standby deployment manager (Dmgr)
- ODR routes to currently active Dmgr
- SOAP connector is supported for scripting
- Shared file system with fast lock recovery is used to:
 - Share configuration and work space
 - Failover when shared file system lock is released

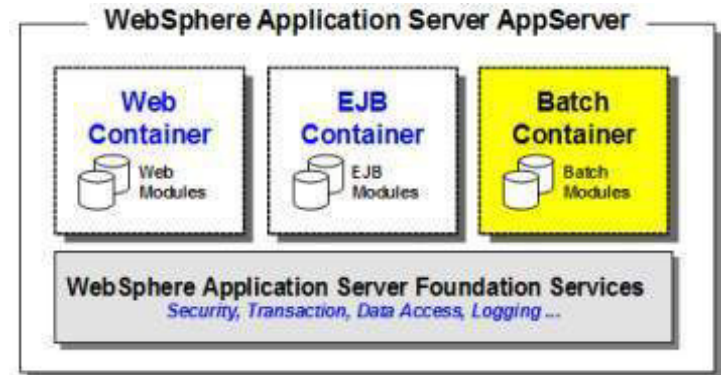


WebSphere Compute Grid & Modern Batch

A job scheduler to execute Compute Grid jobs

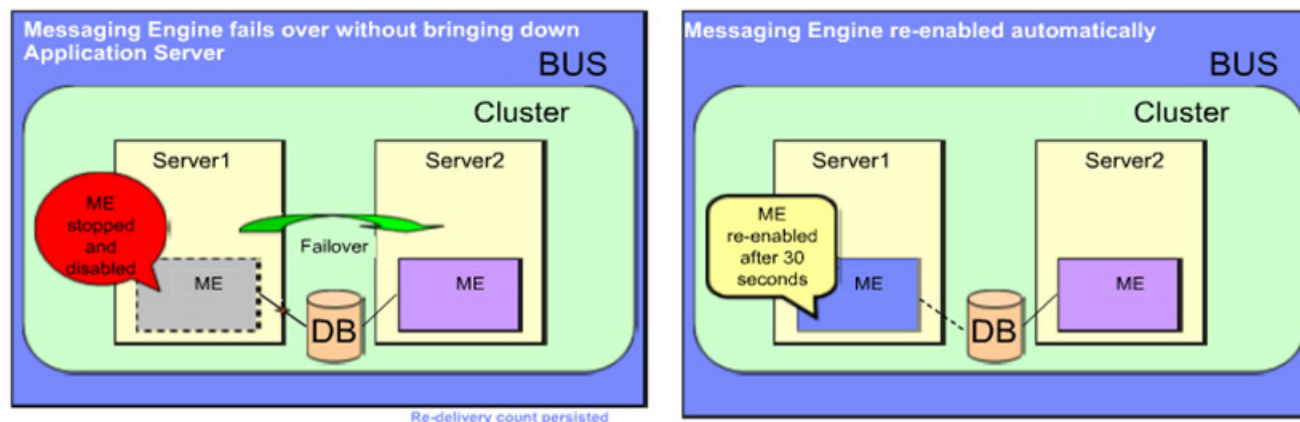
Quickly develop and deploy batch applications and dramatically reduce infrastructure and operational costs

- **Automation & Admin:** Container managed services for checkpoint and restart capabilities. Integrated administration of OLTP applications and batch jobs
- **Packaging utility:** Utility to package batch application that can be deployed using JEE runtime
- **WebSphere Compute Grid Capabilities**
 - Enhanced Scheduling Capabilites
 - Enhanced Developer productivity
 - The scheduler can be replaced or integrated with an external job scheduler
 - Scheduler can be made highly available



Resiliency of Messaging Infrastructure

- Smart Messaging Engine (ME) that will attempt to shutdown itself gracefully when it encounters irrecoverable problems without killing the JVM.
- Smart Messaging Engine (ME) that will re-enable itself after a configurable amount of time so that it can be available to be started if needed.
- Smart Messaging Engine (ME) that will persist the JMS redelivery count.



Repository Checkpoint and Admin Audit

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

- Provides “full” and “delta” checkpoints of the master configuration repository.
- Simplifies restoration to a previous configuration
- 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
 - See When and What configuration files were changed and by Whom

WebSphere Integrated Solutions Co...
WebSphere, software
Welcome rc
Call=birdlandCell01, Profile=Dmgr01

Views: All tasks

Extended Repository Service > Repository Checkpoints

Repository checkpoints represent saved images of the repository before configuration changes are made. Checkpoints can be either full or delta images. A full checkpoint is created manually by the administrator and is a copy of the entire configuration repository. This includes applications and connectors, so it can be very large. A delta checkpoint is created automatically when configuration changes are made. The delta checkpoint is formed by making a copy of the configuration documents affected by the configuration change before the changes are actually applied. Checkpoints can be used to restore the configuration repository back to a prior state. Use a full checkpoint to restore the entire configuration repository back to the state it was in at the time the full checkpoint was made. Use delta checkpoints to undo recent changes. Delta checkpoints can only be restored in the reverse order in which they were created. Each delta checkpoint has a sequence number. The highest sequence number represents the most recent delta checkpoint. Delta checkpoints can be restored in descending sequence number only. After the configuration repository is restored from a delta checkpoint, that checkpoint is destroyed.

Preferences

New Delete Restore Export

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

Cross-Component Trace (XCT) - Problem Determination

Improve your ability to diagnose & debug SW problems in order to minimize and eliminate application downtime

- XCT log viewer - available for the IBM Support Assistant, can render log and trace content from multiple log / trace files grouped by request
 - View that detailed information on HTTP and JMS requests and responses to easily debug complicated application problems.
- High Performance Extensible Logging (HPEL) now has log / trace entry extensions
 - Filter entries by application name, by request ID or by other custom fields

Memory Leak Detection & Protection

Reduce possibilities of memory leak in your applications

Get enough info. if leak is detected to help fix my app

List stopped apps that have memory leaks

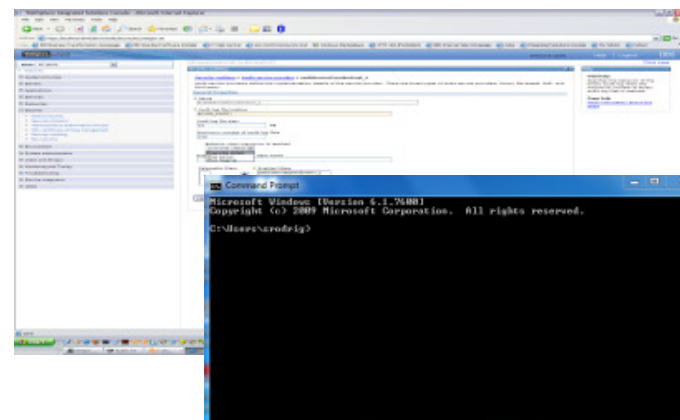
WebSphere Application Server V8.5:

- Ability to mitigate memory leak when stopping apps
- Ability to prevent leaks, receive leak warnings and get heap/system dumps
- MBean to list stopped apps that have memory leaks

High Performance Extensible Logging

Improve performance & ease of use of log & trace to improve problem determination

- Speeds up logging and tracing
 - Log primitive over 6x faster than WAS v7
 - Trace primitive 3.8x faster than WAS v7
- 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 msgs for this one application:

```
logViewer.sh -minLevel warning -  
includeLoggers "com.acme.app1.*"
```

View msgs from 07/11/2010 onward beginning with SEC on thread 0x0000000c:

```
logViewer.sh -startDate 07/11/2010 -message  
"SEC*" -thread 0c
```

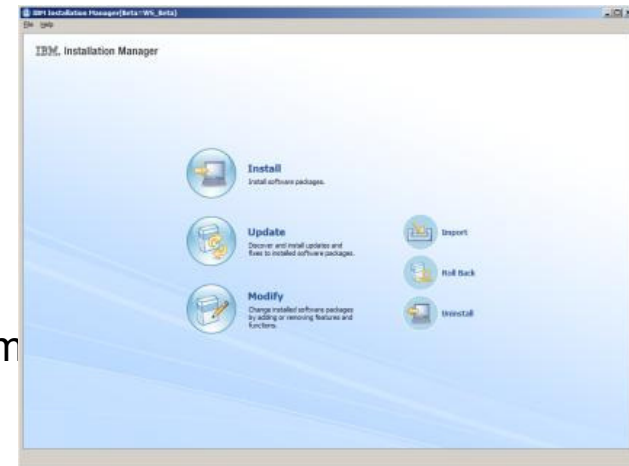
Agenda

- Migration
 - Migration overview
 - Migration Best Practices
 - Migration planning roadmap
 - Migration Impacts
 - Migration tools
- V8.5 Feature Highlights
 - High level overview
 - Administration Changes
 - **Installation Changes**
 - **Development Changes**
 - **Liberty Profile**

IBM Installation Manager

Faster time to value & lower operational costs through new install & maintenance tech.

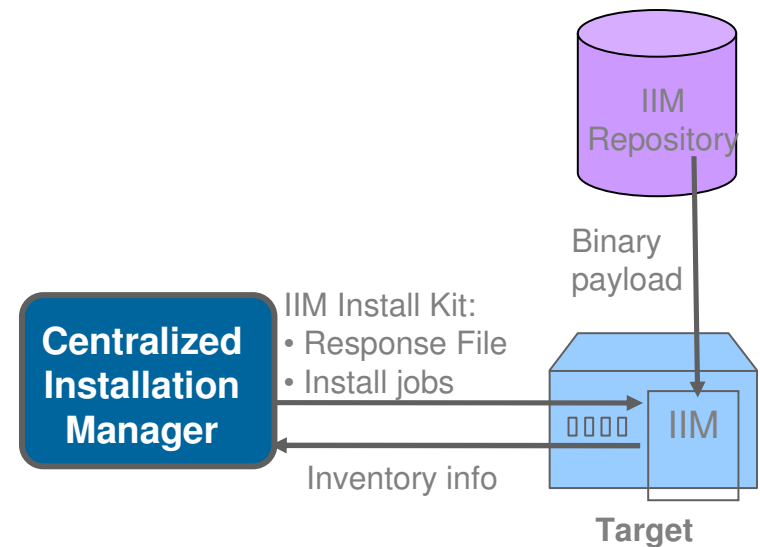
- Full local & centralized product lifecycle management:
 - Install/Uninstall
 - Update/Rollback (Fixpacks and iFixes)
 - Modify (Add/Remove features)
- Installs exactly the desired level of service in one pass
 - No need to install GA product first and then apply a fixpack and/or ifixes as a separate step
- Lays down binaries relevant to user selections and system environment
- GUI & response file modes of operation
 - GUI to perform individual operations
 - Response files can be recorded from the GUI or created by specifying the appropriate xml
 - Silent mode support for invoking multiple operations
- Single user experience across WAS, WAS components & various IBM products
 - A single instance of IIM can manage the product lifecycle for any IM based products, from WebSphere, Rational, etc.
 - Support for WAS, IHS, WCT, etc.



Centralized Installation Manager (CIM)

Faster time to value & lower operational costs through new install & maintenance tech.

- CIM V8 is available from Job Manager & DManager
 - Job Manager based solution spans the boundaries of the cell
 - Install targets are specified in agentless fashion
 - Install and config job scheduling is supported
- CIM V8 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 & z/OS scenarios supported
- “CIM V7” function is still available with Deployment Manager along with new “CIM V8” function

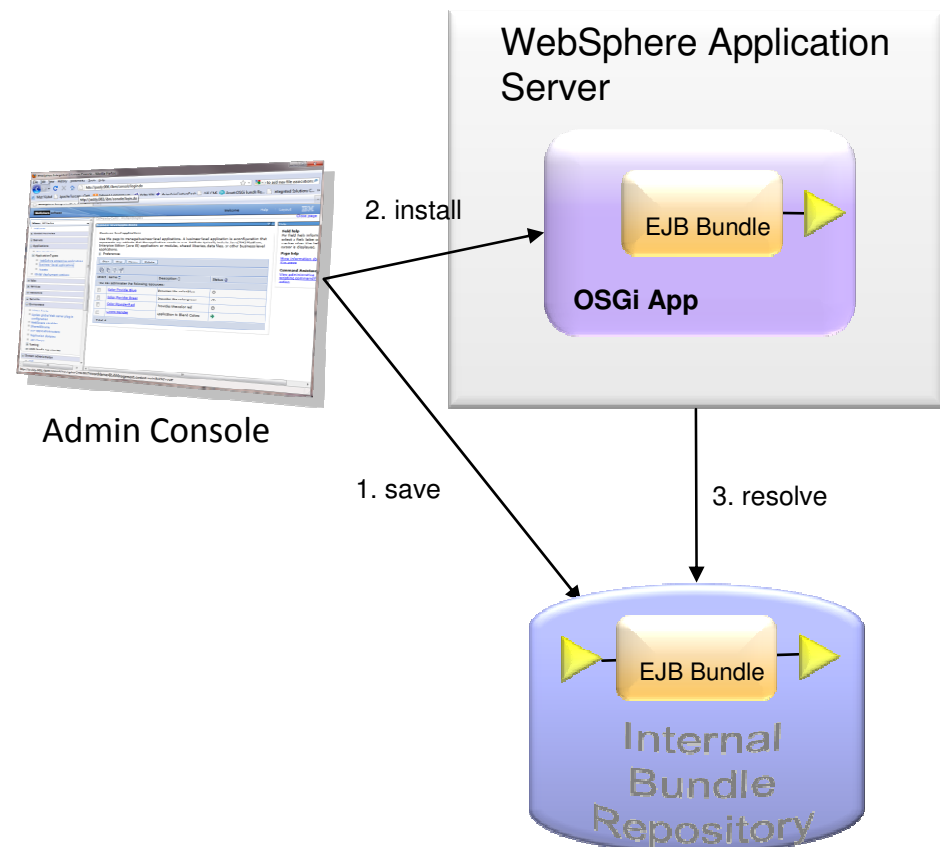


Separation between Job Manager, Target Hosts and IIM repositories

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



Web 2.0 & Mobile (Mobile Application Development)

Worklight takes WAS mobile web applications to the next level

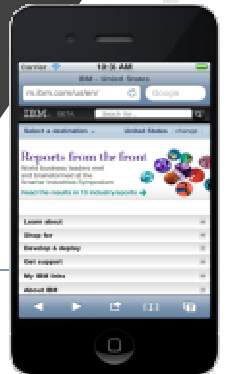
WAS	WAS + Web 2.0 and Mobile Toolkit	Worklight
<p>Enterprise Web Applications</p> <ul style="list-style-type: none"> • Java EE programming • Build, deploy and manage Enterprise applications and services • Server-side & Client-side development 	<p>Mobile Web App development based on standard web technologies:</p> <ul style="list-style-type: none"> • Run application in mobile browser • Based on HTML5, CSS3, JavaScript • Native look and feel • Advanced mobile UI components <p>Feature Pack for WAS v6.1/7/8 Toolkit in WAS v8.5</p>	<p>Application delivery in a variety of forms:</p> <ul style="list-style-type: none"> • Hybrid application • Native • Install through App Store • Access to native services

Desktop Web Applications

Mobile Web Applications

Mobile Applications

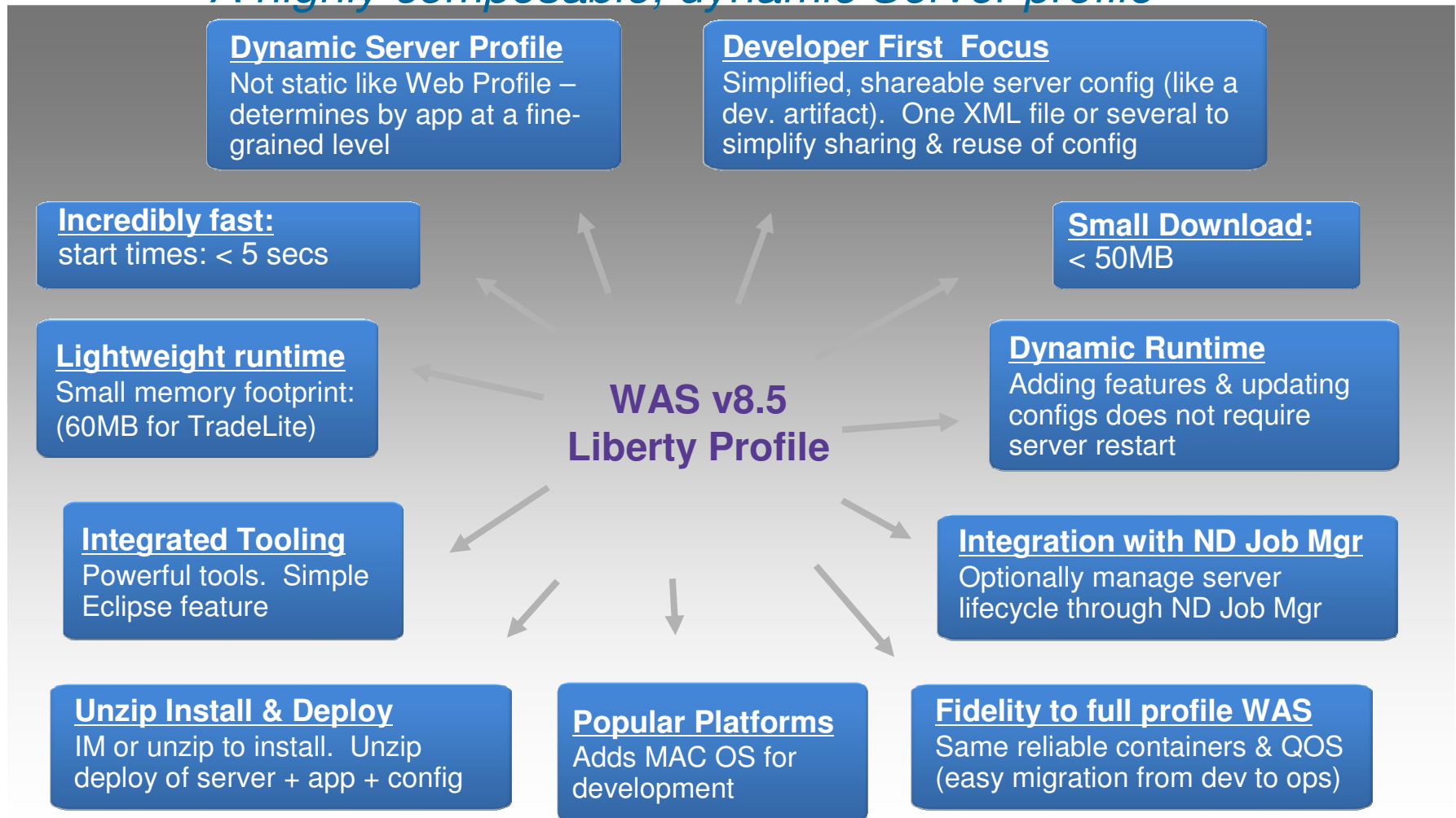
Extend the reach of enterprise web applications across devices to deliver high quality user experiences



WAS v8.5: Introduces the Lightweight “Liberty”

Profile – For Web, OSGi and Mobile Apps

A highly composable, dynamic Server profile



Why migrate to WAS 8.x?

- ✓ **Technology Advancement** - - Take advantage of an additional 7 years of development and resulting capabilities driven into WAS since v6.1
- ✓ **Performance** - - WAS 8.x provides significant performance benefits over previous releases
- ✓ **Productivity and Security** - - WAS 8.x provides the latest standards & programming model enhancements which greatly improve developer productivity and production efficiencies as well as improves security
- ✓ **Expanded use of Enterprise Apps** - - WAS 8.x allows you take advantage of virtualization, web & mobile and cloud capabilities
- ✓ **Tremendous Resiliency and Leveraged Infrastructure** - - WAS ND 8.5+ includes WAS Virtual Enterprise and WAS Compute Grid products for improved resiliency
- ✓ **Lightweight options** - - WAS V8.5+ includes the Liberty profile - a lightweight server for faster development and easy deployment of web apps. The Liberty profile can be used to deploy your applications to WAS 8.0+
- ✓ **Keep costs down** - - Avoid Support Extensions and unsupported environments

AVP Migration Assistance Offerings

The IBM Software Accelerated Value Program delivers a proactive, cost-reducing, and productivity enhancing advisory service.

PROACTIVE



- The program builds a foundational understanding of the customer's overall environment. Through that understanding, AVP provides expertise in the **custom version-to-version migrations** as well as improving staff skill set, and associated processes.

PREVENTIVE



- AVP customers are eligible to receive assistance in **migration planning, including education roadmap, making recommendations, avoiding pitfalls, and expediting upgrades from WAS V6.1** as part of the program.

Note: This program provide migration guidance, not migration services. AVP is a for-charge offering.

PERSONALIZED



- AVP has teamed up with WebSphere Level 2 on the IBM Migration Assist program.

Questions?



We love your Feedback!

Don't forget to submit your Impact session and speaker feedback!

- Your feedback is very important to us – we use it to improve next year's conference
- Go to the Impact 2013 SmartSite (<http://impactsmartsite.com>):
 - Use the session ID number to locate the session
 - Click the “Take Survey” link
 - Submit your feedback

Thank

References

- WebSphere Training and Technical Enablement
 - <http://www-01.ibm.com/software/websphere/education/>
- System Management
 - http://www.ibm.com/developerworks/websphere/techjournal/0505_wang/0505_wang.html
- The Ideal WebSphere Development Environment
 - http://www.ibm.com/developerworks/websphere/techjournal/0312_beaton/beaton.html
- Supported software information
 - <http://www-01.ibm.com/software/webservers/appserv/was/requirements/>
 - <http://publib.boulder.ibm.com/infocenter/prodguid/v1r0/clarity/index.html>
- IBM Support Policy Change: Announcing the "5 plus 3" support policy
 - <http://www-1.ibm.com/support/docview.wss?uid=swg21256700>
- Web Server plug-in technotes and Merge tool
 - <http://www-1.ibm.com/support/docview.wss?uid=swg21160581>
 - <http://www-01.ibm.com/support/docview.wss?uid=swg21139573>
 - http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.base.doc/info/aes/ae/twsv_configsimplelb.html

References

- What's new in WebSphere Application Server 8.0 & 8.5
 - http://www.ibm.com/developerworks/websphere/techjournal/1106_alcott/1106_alcott.html
 - http://www.ibm.com/developerworks/websphere/techjournal/1206_alcott/1206_alcott.html
- System Administration in WAS 8.5 – Part 1 of 4
 - http://www.ibm.com/developerworks/websphere/techjournal/1206_cheng/1206_cheng.html
- IBM Education Assistant
 - <http://www.ibm.com/software/info/education/assistant/>
 - <http://publib.boulder.ibm.com/infocenter/ieduasst/v1r1m0/index.jsp>
- JDK Compatibility
 - <http://java.sun.com/javase/technologies/compatibility.jsp>
- JACL to Jython conversion assistant
 - <http://www-1.ibm.com/support/docview.wss?rs=180&uid=swg24012144>
 - <http://www-128.ibm.com/developerworks/websphere/library/samples/SampleScripts.html>
- WebSphere Application Server Migration Toolkit
 - http://www.ibm.com/developerworks/websphere/downloads/migration_toolkit.html
 - <http://www-01.ibm.com/support/docview.wss?uid=swg27020784>

References

- Knowledge Collection: Migration Planning for WebSphere Application Server
 - <http://www-01.ibm.com/support/docview.wss?uid=swg27008724>
- WebSphere AppServer API Deprecations, removals and stabilizations
 - http://www14.software.ibm.com/webapp/wsbroker/redirect?version=phil&product=was-nd-dist&topic=rmig_deprecationlist
- Script changes for wsadmin
 - http://www14.software.ibm.com/webapp/wsbroker/redirect?version=matt&product=was-nd-iseries&topic=txml_migrate6to6
- Sample scripts for WebSphere Application Server
 - <http://www.ibm.com/developerworks/websphere/library/samples/SampleScripts.html>
- HPEL
 - http://www14.software.ibm.com/webapp/wsbroker/redirect?version=phil&product=was-nd-dist&topic=ctrb_HPELOverview
- Config checkpoints:
 - http://www14.software.ibm.com/webapp/wsbroker/redirect?version=phil&product=was-nd-dist&topic=twve_xdappedcfg

References

- WebSphere Application Server Info Center (8.5 and 8.0)
 - http://www14.software.ibm.com/webapp/wsbroker/redirect?version=phil&product=was-nd-dist&topic=welcome_nd
 - http://www14.software.ibm.com/webapp/wsbroker/redirect?version=matt&product=was-nd-dist&topic=welcome_nd
- IBM Support Assistant
 - <http://www-01.ibm.com/software/support/isa/index.html>
- Introducing the Visual Configuration Explorer
 - http://www.ibm.com/developerworks/websphere/techjournal/0710_supauth/0710_supauth.html
 - <http://www.ibm.com/developerworks/forums/forum.jspa?forumID=1139>
- Best Practices for Configuring and Managing Large WebSphere Topologies
 - http://www.ibm.com/developerworks/websphere/library/techarticles/0710_targetopologies/0710_targetopologies.html
 - <http://www-1.ibm.com/support/docview.wss?uid=swg27010606>
- High Availability Manager Tuning Technote
 - http://www.ibm.com/support/docview.wss?rs=180&context=SSEQTP&dc=DB520&q1=High+Availability&uid=swg21251873&loc=en_US&cs=utf-8&lang=en

- IBM has various incentives & information to assist with migrations:
 - **PVU Waiver offer:** IBM will now grant customers no charge, temporary use Software Subscription & Support (S&S) rights to continue using their current licenses in production while also using up to 2x those license entitlements for migration to a later WAS Version.
 - **WAS discount:** new PVUs associated with a migration qualify for very significant discounts
 - **Migration Assist:** is available for customers on Support and Maintenance. Customers can call Support with migration questions
 - **ISSW Assessments:** are available to assist customers with their migration planning and execution activities
 - **IBM Software Accelerated Value Program:** provides expertise in custom version to version migrations.
 - **Website Knowledge Center**

Deeper Dive WebSphere 8.5 Features: Administration Changes

Intelligent Management (IM)

Health Management

Application Edition Management

Intelligent Routing

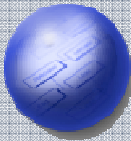
Dynamic Clustering

IM - Health Management

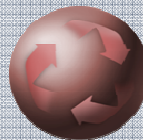
Sense and respond to problems before end users suffer an outage

- Automatically detect and handle application health problems
 - Without requiring administrator time, expertise, or intervention
- Intelligently handle health issues in a way that will maintain continuous availability
- Each health policy consists of a condition, one or more actions, and a target set of processes
- Includes health policies for common application problems
- Customizable health conditions and health actions

**Comprehensive
Health
Policies**



**Customizable
Health
Conditions**



**Customizable
Health
Actions**



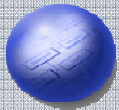
IM - Application Edition Management

Applications can be upgraded without incurring outages

- Upgrade Applications without interruption to end users
- Concurrently run multiple editions of an applications
 - Automatically route users to a specific application
- Multiple editions can be activated for extended periods of time
- Rollout policies to switch from one edition to another without service loss
- Easily update OS or WebSphere without incurring down time
- Easy-to-use edition control center in admin console, plus full scripting support

Validation

Mode



Rollout

Policies



Concurrent

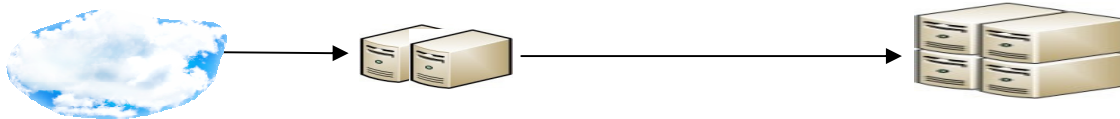
Activation



IM - Intelligent Routing

Improves business results by ensuring priority is given to business critical applications

- Requests are prioritized and routed based upon administrator defined rules
 - Flexible policy-based routing and control
- On Demand Router (ODR) is the focal point for Intelligent Routing
- A routing tier that's aware of what's happening on the application server tier
 - Application server utilization, request performance, etc...
- Route work to the application server that can do it best
- Provide preference for higher priority requests
- Integrates with Health Management and Dynamic Clustering



IM - Dynamic Clustering

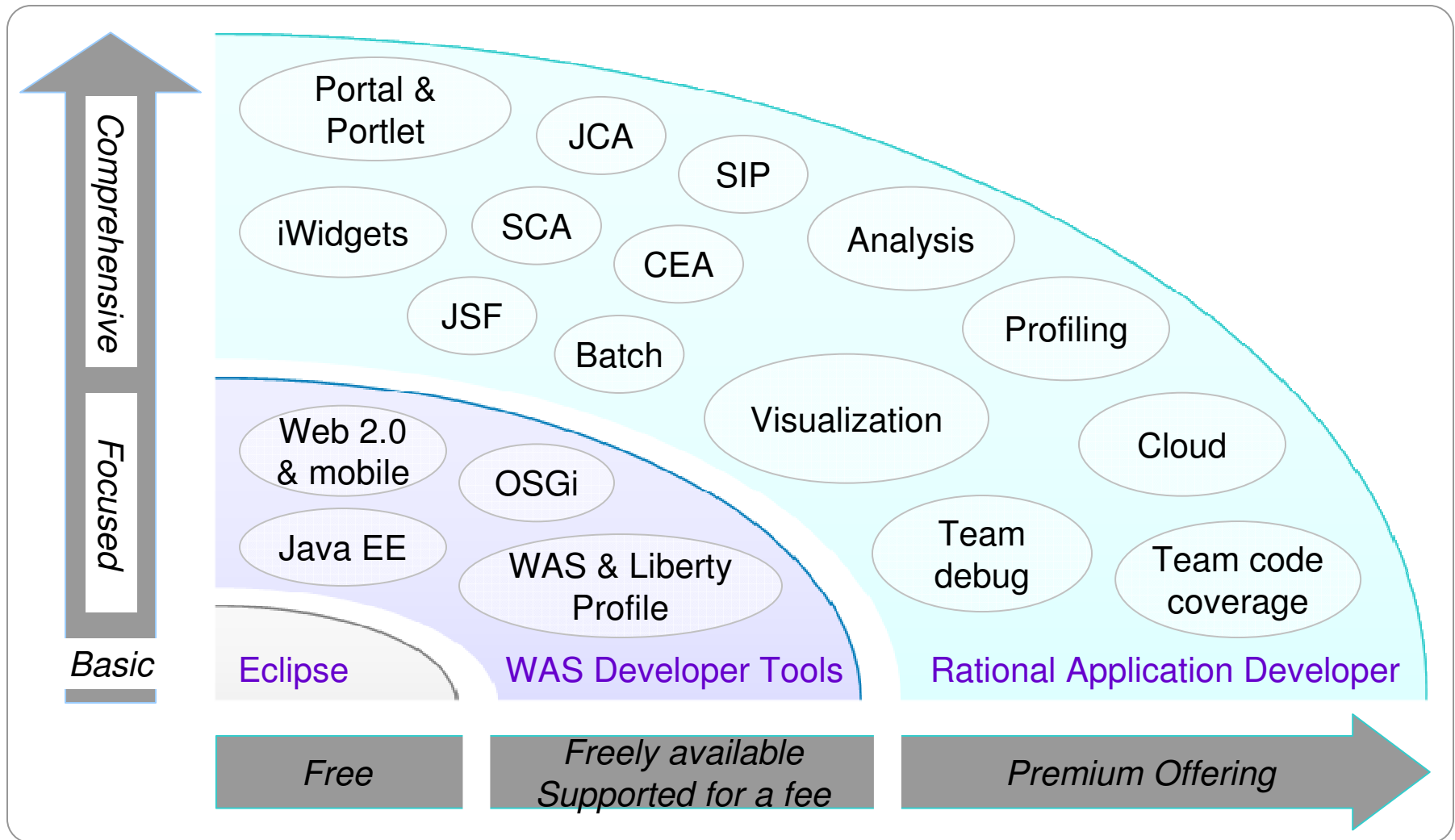
Proactively provision and start or stop application servers based on workload demands to meet Service Level Agreements

- Associate service policies with your applications
 - Let WebSphere manage to the service goals
- Programmatically respond to spikes in demand
 - Add or reduce application server instances as appropriate
- Automatically recover from infrastructure problems
- Includes automatic start and stop of cluster members based on load for MQ-driven applications
- Decrease administrative overhead required to monitor and diagnose performance issues



- Dynamic Cluster - a virtual cluster hosting an application, spread across a defined set of Nodes.
- Cluster Members (JVM's) are automatically Updated, Created, Deleted, Started and stopped depending on the needs of the application and the policies.

Rational Application Developer and the new WAS Developer Tools



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