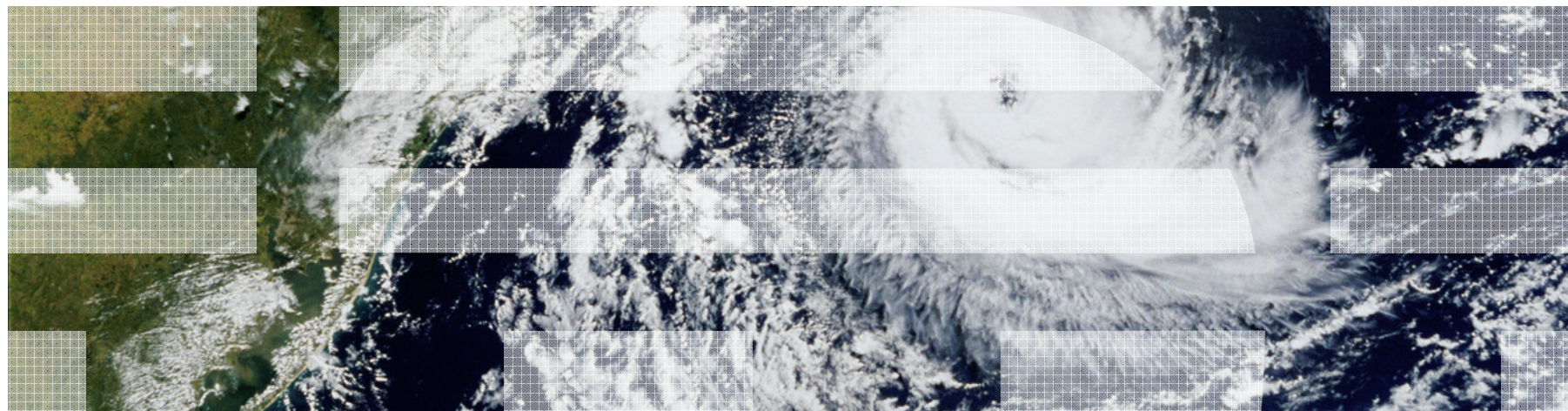



What's new in application development for WebSphere !

Anita Rass Wan Product Manager, WAS Product Management



Agenda

- 
- ❖ Developer Productivity and WebSphere
 - Introducing WAS Tools Editions
 - ❖ WAS – Speed Delivery of Application and Services
 - Programming Models and Integrated Tools and Runtime
 - ❖ Operational Efficiency, Reliability, Security and Control
 - ❖ What's Coming Up with WAS and Tools
 - WAS 8.5 Beta and Liberty

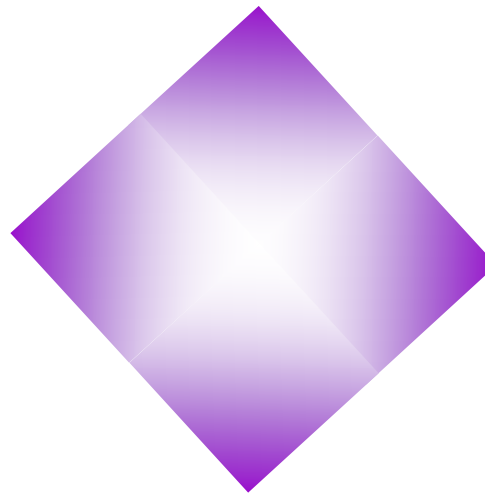
Enhanced Developer Productivity: Addressing Key Issues

Incremental Publishing

Faster, simpler debug when making changes to an application

Performance

Enhanced responsiveness to changes made during development



Simple Configuration

Simpler, lightweight tools, configuration and configuration sharing amongst a development team

Problem Determination

Simpler to identify and resolve problems as applications are always broken during development, due to bugs, missing or incomplete code, or bad configuration

Accelerate application development with simple and comprehensive tools solutions for WebSphere

Eclipse based WebSphere Developer tools and Rational Application Developer available in the WebSphere Application Server bundles

- Expand the tools choices and simplify development for the WebSphere Application Server
 - Support building a wide range of applications from large mission-critical projects to open source-based projects and projects with no up-front budgets
 - Lower costs using these new solutions for tools and runtimes
-
- **Available: November 18, 2011 !!**



Introducing: WAS Tools Editions

WAS for Developers – Tools Edition for Eclipse



Easily & quickly obtain WAS Developer Tools (server adapters) for WAS environments (V7.0 & V8.0) via Eclipse updater:

- ✓ Available for both unsupported (no charge) and supported (for fee).
- ✓ Deploy applications from Eclipse development environments directly to the WebSphere Application Server

WAS – Tools Edition

WAS ND – Tools Edition



WebSphere Application Server V7.0 & V8.0 bundled solutions more closely match customer needs:

- ✓ Production ready runtime and tools purchased together to provide an end to end environment.
- ✓ Unlimited use of RAD or WAS Developer Tools (server adapters) with the bundled WebSphere Application Server

WAS for Developers – Tools Edition for Eclipse

- **Unsupported (free)**

- ✓ Install directly into the Eclipse environment already on developer's machine
- ✓ Easily & quickly obtain Eclipse adapters 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**

- ✓ Delivery via an update site or IBM Install Mgr wrapped version
- ✓ Install directly into the Eclipse environment already on developer's machine
- ✓ Easily & quickly obtain Eclipse server adapters 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 7 / WAS v8
- Development use license

WAS Developer Tools for Eclipse

- Server Adapter tools (v7, v8)

Eclipse

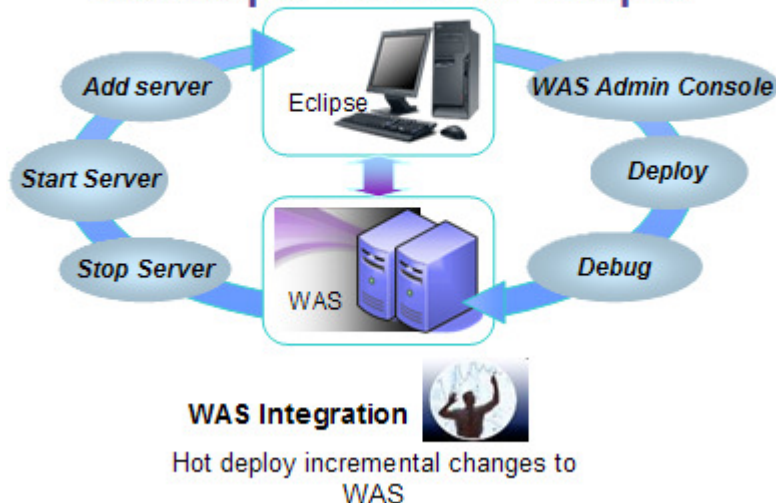
- ✓ *Runtime available from developerWorks download site*
- ✓ *Tools available on Eclipse Marketplace*

WAS for Developers – Tools Edition for Eclipse

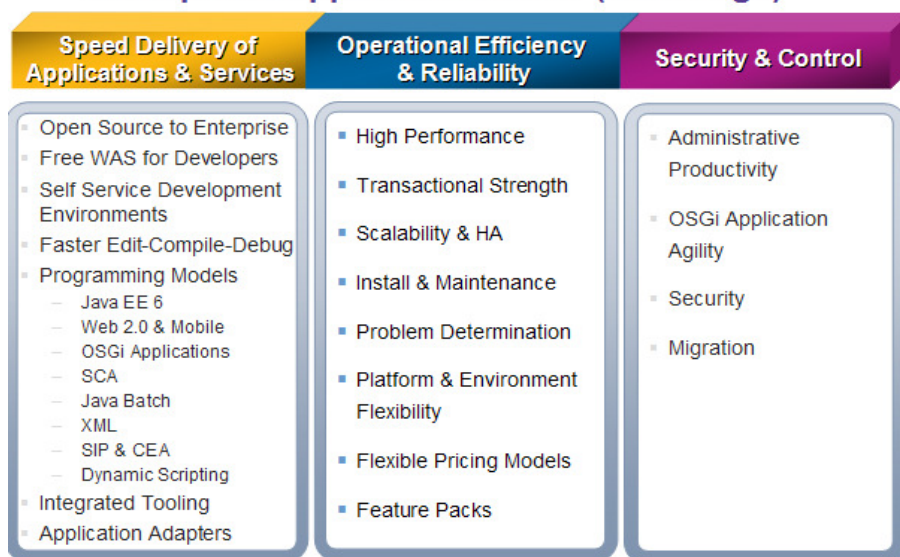
Tools

Runtime

WebSphere Application Server – Developer Tools for Eclipse



WebSphere Application Server (dev usage)



Available both free and unsupported or supported in the WAS for Developers Tools Edition for Eclipse Bundle

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 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 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

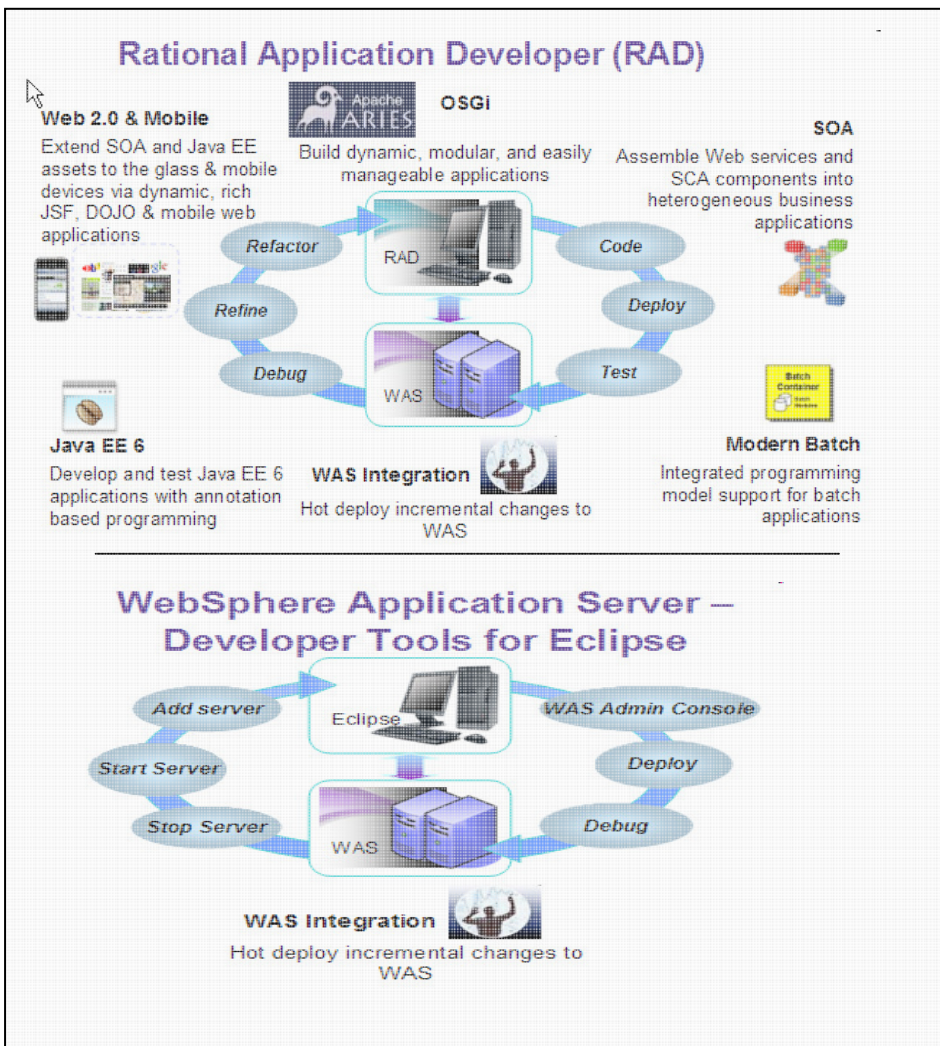
- Includes JEE, OSGI, web & mobile tools
- Problem determination and code quality tools
- WAS servers (n-2), WP server test environments
- Enterprise connectivity (CICS, IMS, ..)
- SCA, SIP, Java Batch, Portal support

WAS Developer Tools for Eclipse

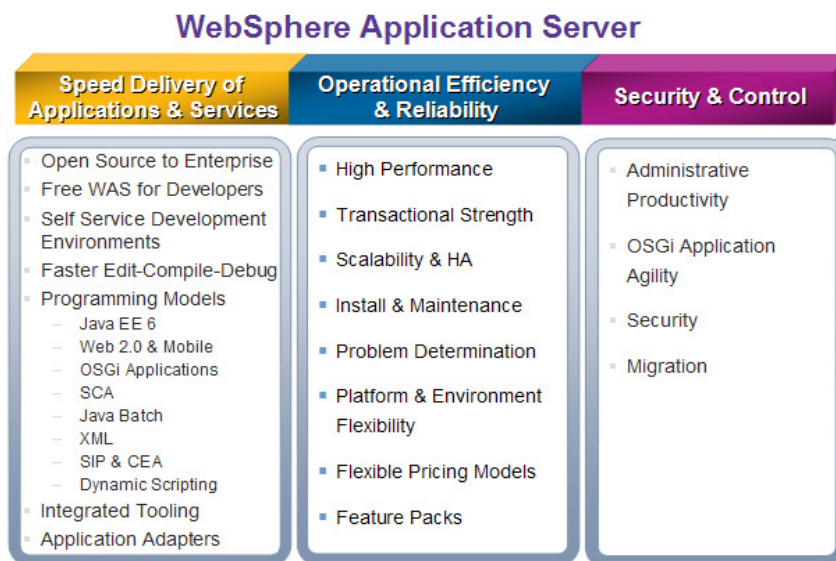
- Available as separate install
- Server Adapter tools (v7, v8)

WAS and WAS ND Tools Editions

Tools



Production Ready Runtime



- Customer buys either WAS or WAS ND
- Customer can use either RAD or WAS Developer Tools for Eclipse

WebSphere Application Server and Tools Support

Speed Delivery of Applications & Services

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

Operational Efficiency & Reliability

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

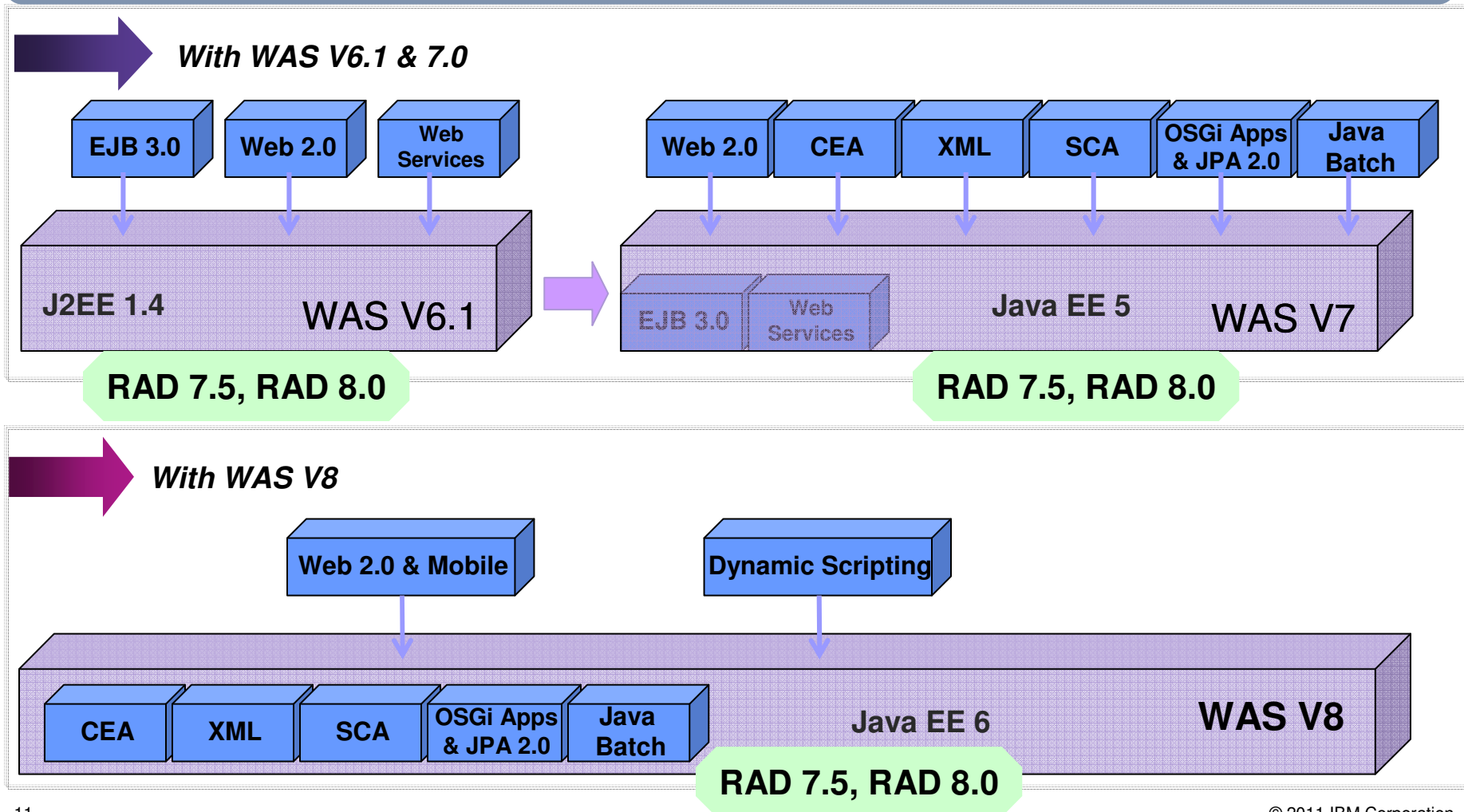
Security & Control

- Administrative Productivity
- OSGi Application Agility
- Security
- Migration

WebSphere Application Server Feature Packs

Programming Models of Choice and extended Support Policy

Access innovative standards and programming models faster on a stable foundation



Integrated Tools 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

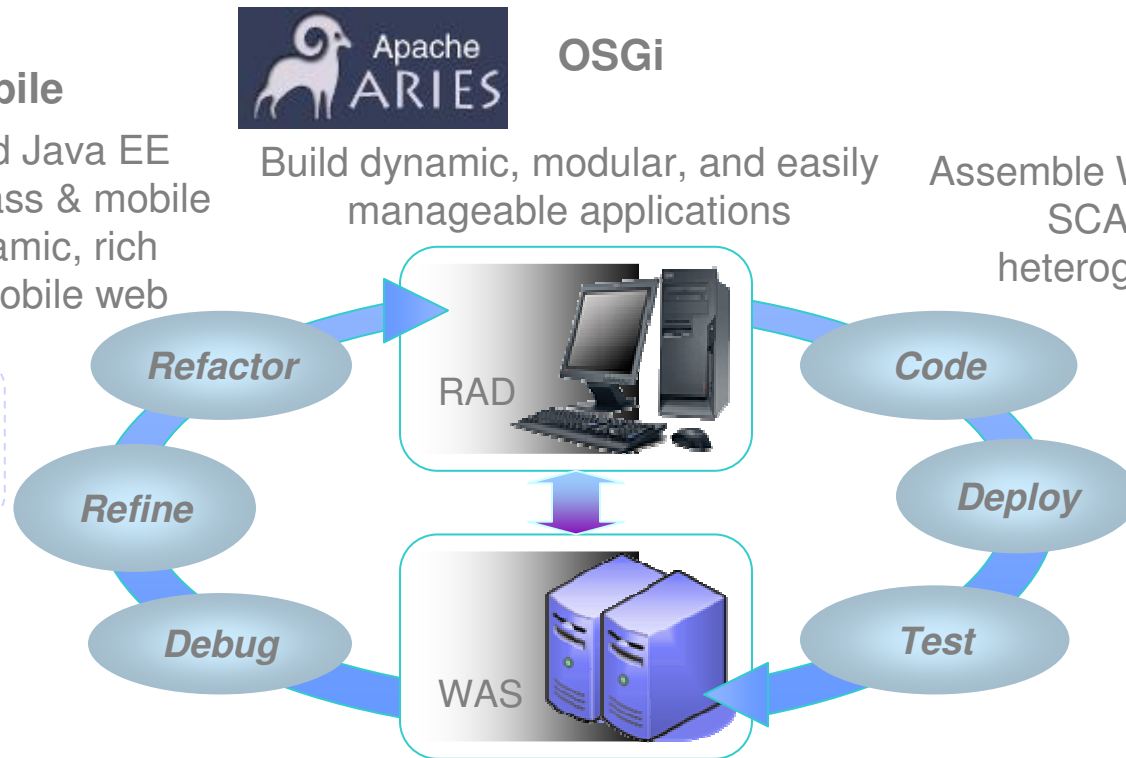
SOA

Assemble Web services and SCA components into heterogeneous business applications



Modern Batch

Integrated programming model support for batch applications



WAS Integration

Hot deploy incremental changes to WAS



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

Enhanced developer productivity, user experiences, performance & integration:

- ✓ **Enterprise JavaBeans (EJB) 3.1:** Enhanced developer productivity through simplification; including testing outside of the application server, new timer support & async enhancements
- **Contexts and Dependency Injection for Java (CDI) 1.0:** Faster time to value through tighter and simpler integration between Web & business logic tiers
- ✓ **Java Persistence API (JPA) 2.0:** Enhanced developer ease of use & app performance through improved locking, mapping support & dynamic query construction
- ✓ **Java Servlet 3.0:** Enhanced time to value through annotations and ease of integrating third party presentation frameworks
- ✓ **Tools support available in RAD**
- ✓ **Java API for RESTful Web Services (JAX-RS) 1.1:** Deliver better user experiences faster through integrated Web 2.0 prog model support
- ✓ **JavaServer Faces (JSF) 2.0:** Enhanced developer productivity & end user experience through annotations & 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 via 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

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

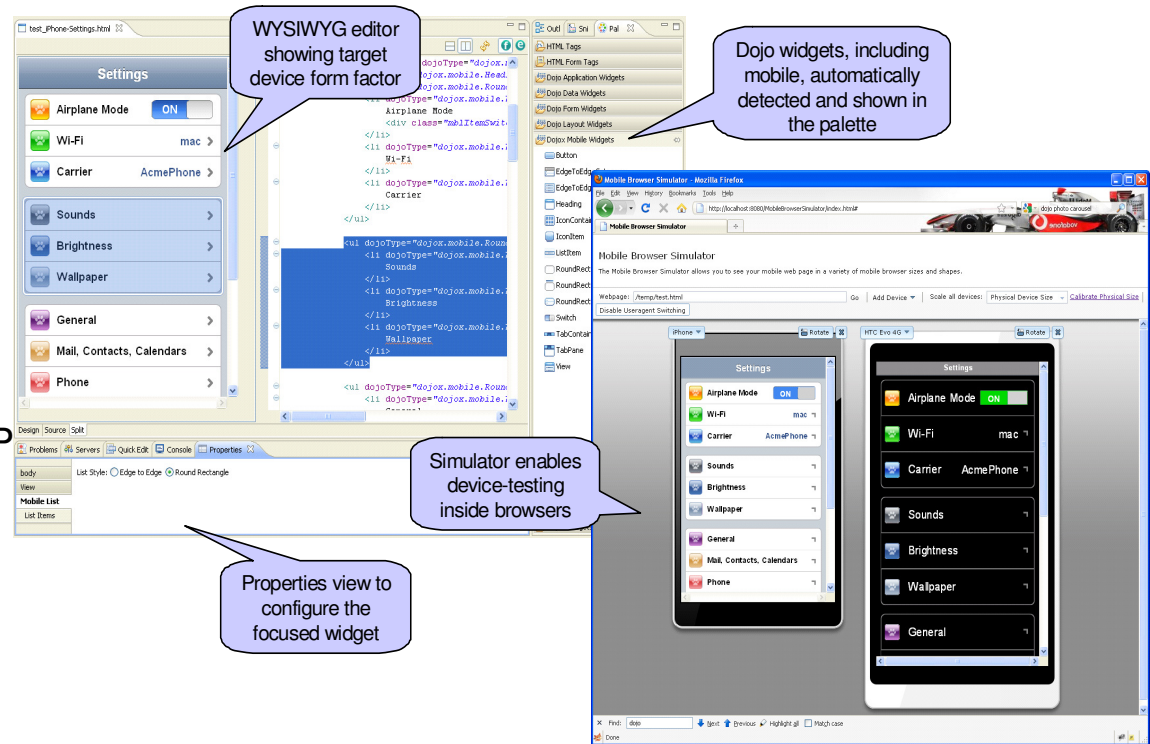
Enabling Mobile UI's:

- Dojo Core & Widget Infrastructure
- New Dojo Mobile Widget Library

Common Mobile & RIA Building Blocks:

- Directory Listing Service
- File Upload Service (multipart)
- Graphics Conversion Service (SVG/PNG/JPG)
- Logging/Debug/Analytics Capture Service

- ✓ **Developer productivity tools with RAD:**
- ✓ Visual development of Web2.0 apps
- ✓ Unit test Web Applications in RAD
 - ✓ Integrated device simulators
- ✓ Component updates: Dojo 1.6++, JAX-RS

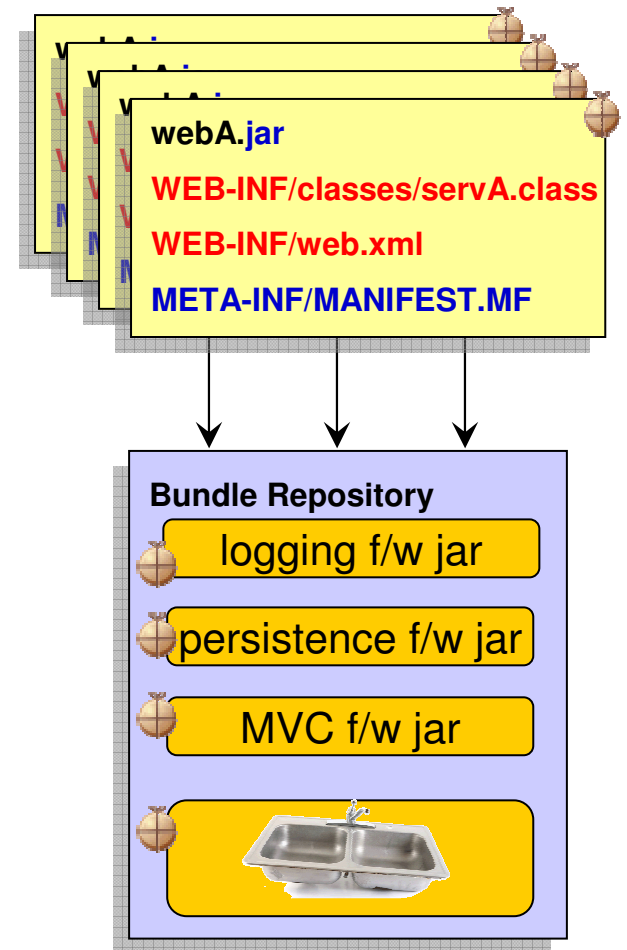


Available as a Feature Pack supporting WAS v8, v7 & v6.1

Speed development, increase ease of use and reuse through the modularity, dynamism, and versioning capabilities of OSGi applied to web & enterprise applications

Key Features:

- **Modular deployment and management:** Separate common libraries from application archives; manage them centrally and across many versions, concurrently
- **Standards Based DI Framework:** POJO development model, with a container that manages injection of configuration, and controls activation & deactivation, integrated with the server
- **Update applications modules without restarting the application**
- **Java Standards Layering:** Java standards such as transaction, security, & persistence can be mixed into the componentized apps as services
- **SCA Integration:** Components can be decorated as SCA components to provide coarse grain SOA services
- ✓ **Developer productivity tools with RAD:** Content assist, validation and wizards and editors to define OSGi application manifests



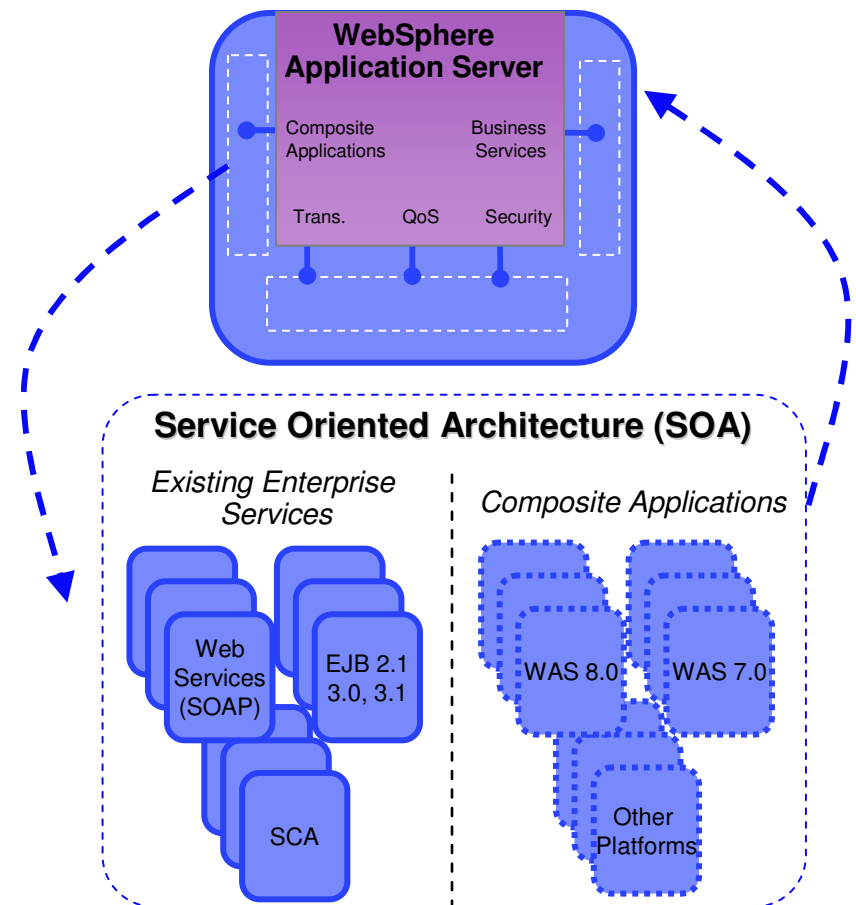
Service Component Architecture (SCA)



Speed SOA application delivery and customization by separating business logic from implementation considerations

Key Features:

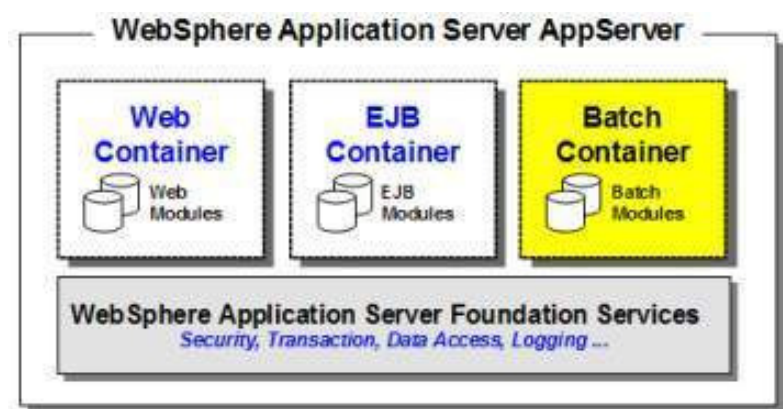
- **Compose:** Create SCA service compositions using POJOs, EJB 3.1, 3.0 or 2.1 components, Java Servlets, OSGi bundles & AJAX/JavaScript
- **Wire Services:** Bindings for Web Services, JMS, SCA and EJB 3.1, 3.0, 2.1 & 2.0
- **Spring Support:** Expose EJB 3.x & Spring components for composition re-use
- **RIA/Web 2.0 Support:** Expose business logic to Web 2.0 apps via JSON-RPC & ATOM feeds
- **SCA Domains:** Services interoperability across WAS V8 & V7 over all supported bindings
- **Data Support:** Support for data as Java Architecture for XML Binding (JAXB) or SDO 2.1
- **Simplified Deployment:** Flexible service deployment as a JAR
- ✓ **Developer productivity tools with RAD:** Create SCA artifacts; configure, explore the SCA content; assemble SCA components using a graphical composite editor; package into a contributions; test, debug and manage the application.



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

Key Features:

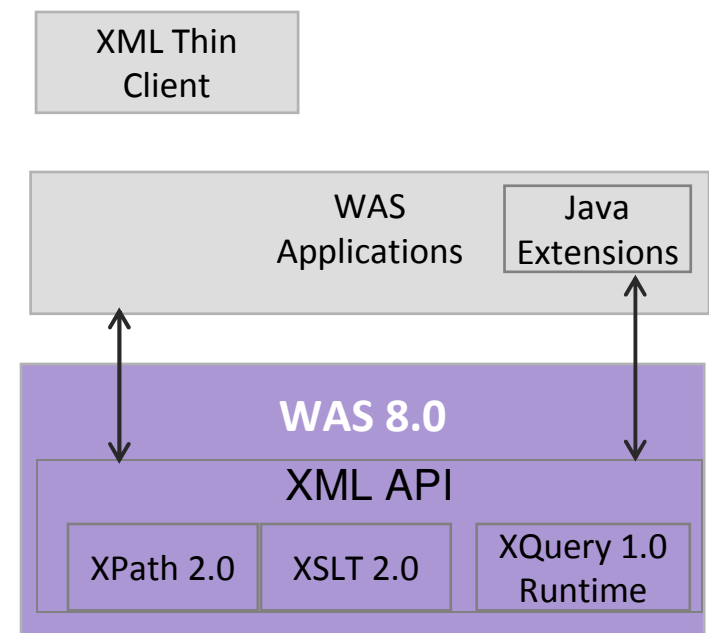
- **Lower TCO:** Concurrent execution of batch & online transaction processing (OLTP) workloads using shared business logic on a shared infrastructure; Higher throughput and lower resource consumption on z/OS when collocated with data subsystems
- **Enhanced Developer Productivity:** Pre-integrated app framework, Java batch programming model and tools to manage batch life cycle
- **Automation & Admin:** Container managed services for checkpoint & restart capabilities in addition to reliable, highly available, secure and scalable infrastructure. Integrated admin of OLTP apps & batch jobs
- **Packaging utility:** Utility to package batch application that can be deployed using JEE runtime
- **Ease of Access & Use:** Integrated with WAS V8
- ✓ **Developer productivity tools with RAD:** Create xJCL scripts based on provided patterns and leverages existing java tools to customize the pattern framework classes to create the batch application.



Reuse Java skills & improve ease of use while developing applications to process structured data

Key Features:

- **Speed & Simplicity:** Work with structured data using high performance tools optimized for XML data processing and querying
- **Standards Based:** Support for the XPath 2.0, XSLT 2.0, and XQuery 1.0 W3C standards
- **Consistency:** XML runtime API that offers consistent execution and data navigation API while allowing access to existing Java logic
- **Enterprise grade:** Enterprise class multi-threaded scalability & serviceability with IBM support
- **Samples:** 40+ samples including 4 end to end scenarios
- **Ease of Access & Use:** Integrated with WAS V8
- ✓ **Developer productivity tools with RAD:** Wizards, and editors to create XPath 2.0 expressions, and XSLT 2.0 files including mapping tools to graphically connect elements between documents



Communications Enabled Applications (CEA)

Integrated!

Simply and rapidly add communications capabilities, like Click to Call and Cobrowsing, to any Web application leveraging existing skills and an SOA approach

Key Features:

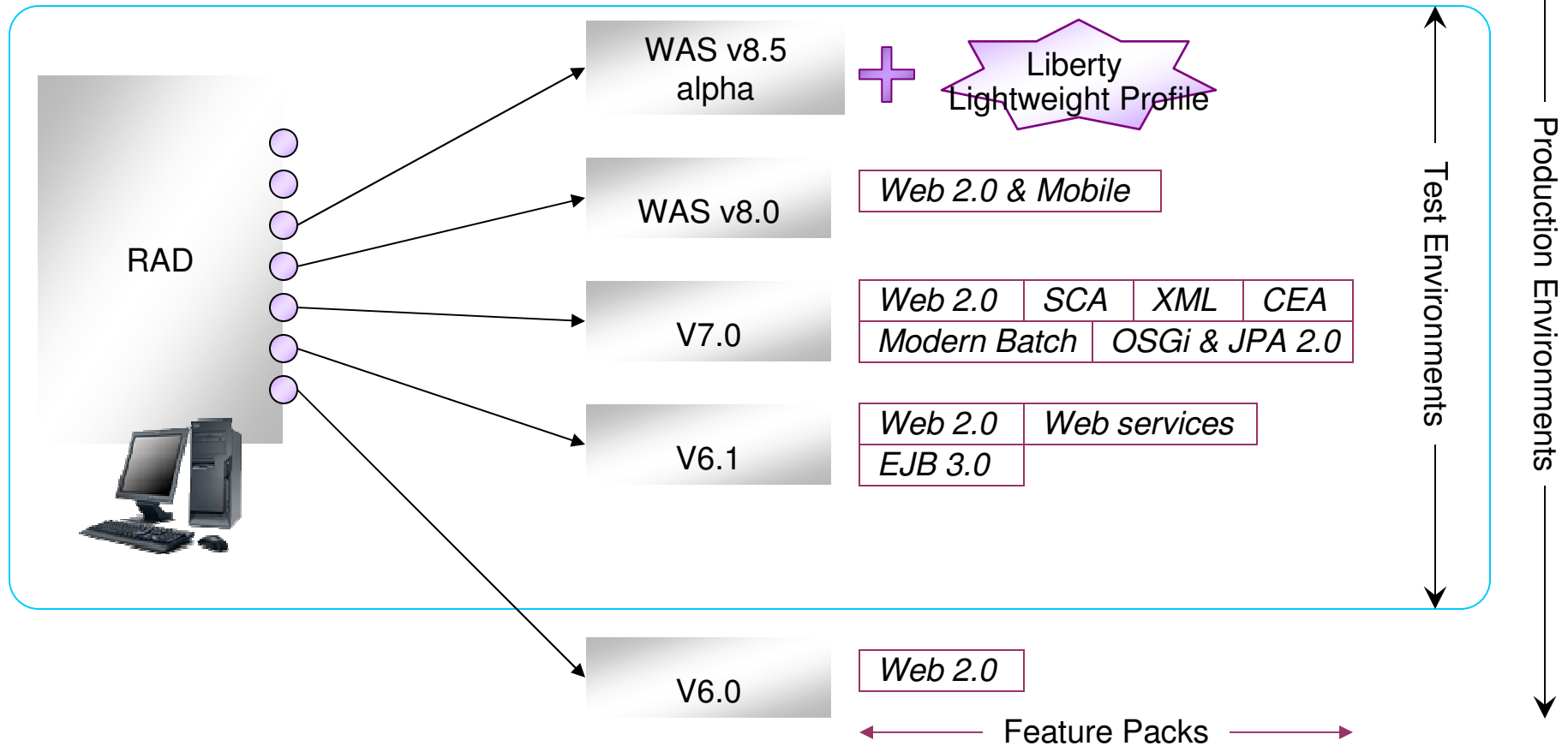
- **Simplicity:** 3 lines of code to add CEA into web app
- **Existing Skills:** Java & JavaScript
- **Mobile Browser Widgets:** Enable native look & feel
- **Telephony Access:** REST & Web service interfaces to Make call, disconnect call & incoming call notifications
- **Web 2.0 Widgets:** Customizable & extensible with iWidget support
 - Click to Call
 - Call Notifications
 - Collaboration Dialog
 - Contact Center and Peer to Peer Cobrowsing
 - Two-way Synchronized Forms
- **PoC Friendly:** Unit test environment & pre-tested with Avaya, Cisco & Nortel unified communications products
- **Ease of Access & Use:** Integrated with WAS V8
- ✓ **Developer productivity tools with RAD:** Visual construction of web pages with the CEA Web 2.0 Widgets to build communications enabled applications.



WebSphere Application Server Test Environments



RAD supports multiple WAS test environments including Feature pack support. Developers can also target remote a WAS v6 test environment



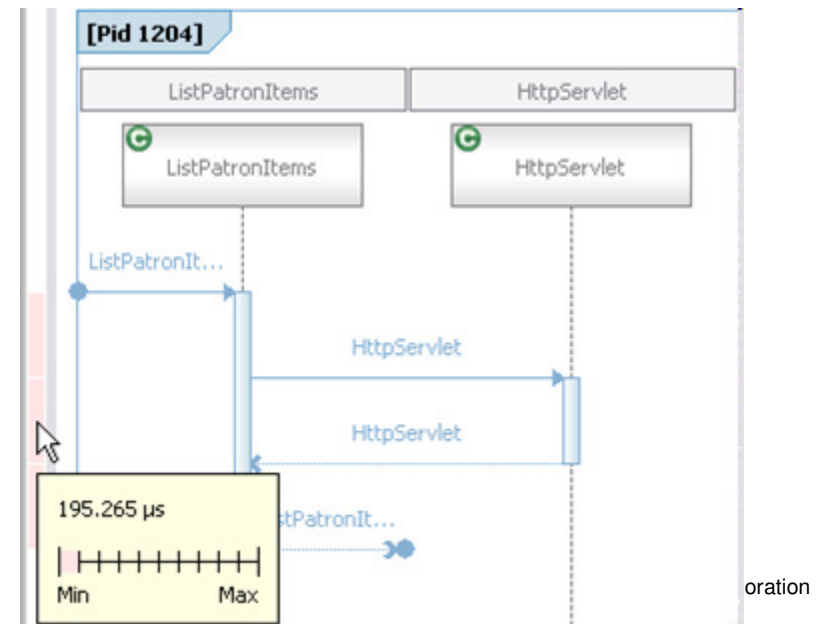
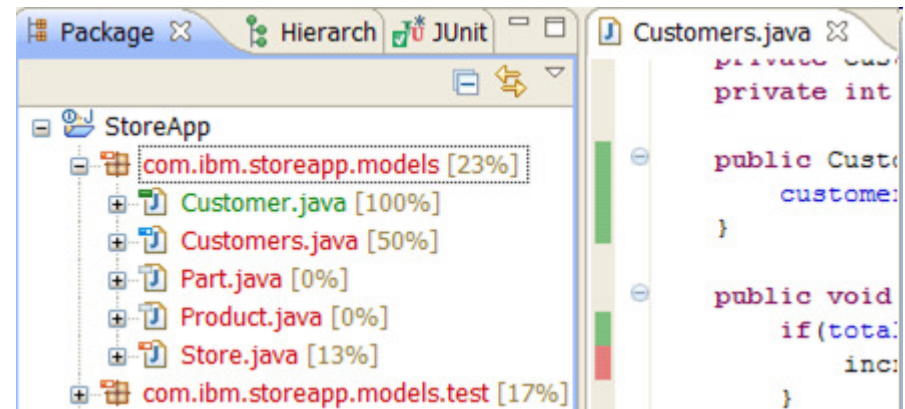
- Remote deployment to all servers.
- Universal Test Client.
- Ajax test server for Web apps.

Problem Determination with RAD



Validate code at development time with static analysis, line level code coverage and profiling

- ✓ Productivity is hard to measure, especially when it is being lost a few seconds at a time.
 - ✓ UML based code visualization.
 - ✓ Validators, quick fixes, refactorings.
 - ✓ Rapid deployment to WAS.
- ✓ The longer a bug lives the bigger it gets and the more expensive it is to exterminate.
 - ✓ Extensible static code analysis tools.
 - Over 200 rules with quick fixes.
 - ✓ Dynamic code coverage tools.
 - Manual or automated (build).
 - Coverage comparison reports.
 - ✓ Cross language debugging tools.
 - ✓ Memory, performance, thread profiling.

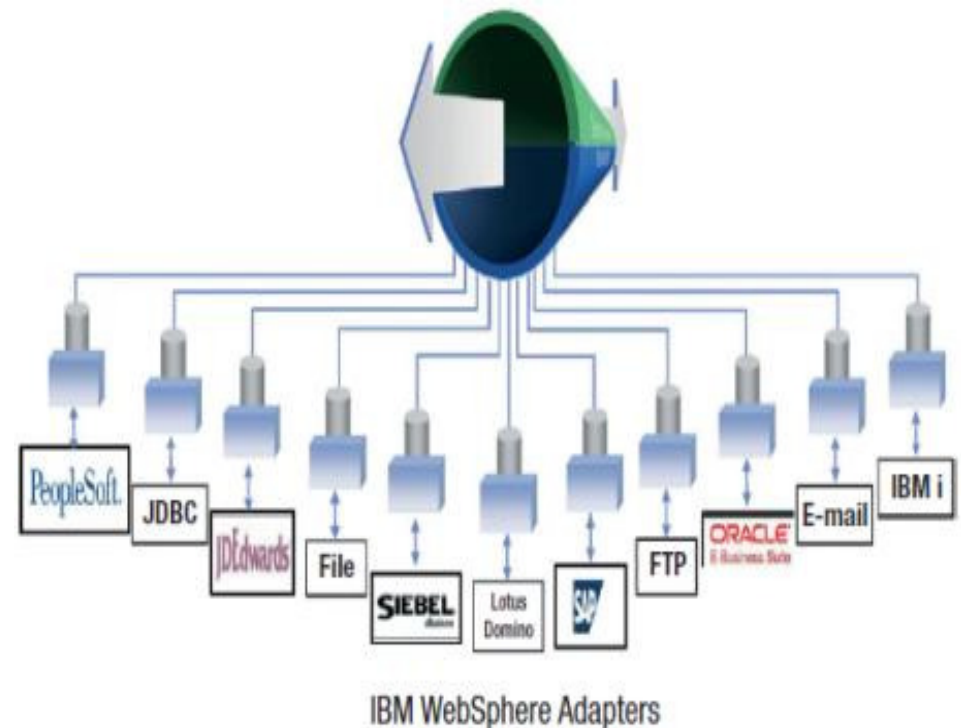


Application Adapters



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 & test with WebSphere Application Server as part of WAS V8 license
- Production usage requires separate WebSphere Adapters license

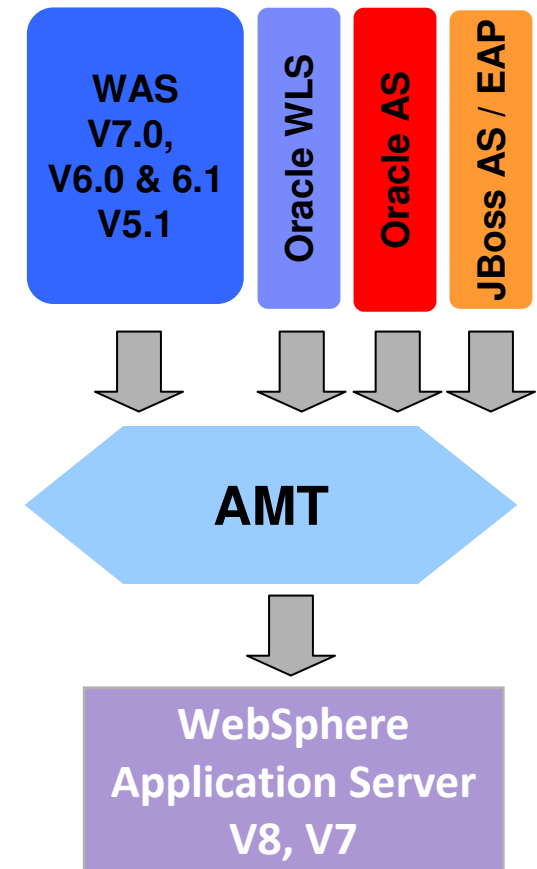


Application Migration Tooling

New!

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

- Migrate applications from older releases to WAS V8 or V7
- Migrate from Oracle or JBoss faster and easier to WAS V8 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, WebSphere Developer Tools (WDT) or Rational Application Developer (RAD)



✓ - Tools support available in RAD

Get the Tool at No Charge: <http://ibm.co/hqfkdj>

Intelligently Manage Application Environments & Deliver Rich User Experiences Faster – WAS v8

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 Tools
- 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 - High Performance

Enhanced!

Reduce TCO through higher performance application foundations

- **Java 6**
 - JVM runtime enhancements
 - JIT optimizations
- **Application Performance Improvements vs. WAS v7**
 - DayTrader: Up to 20%
 - OSGi Applications: Up to 26%
- **End-to-end performance improvements vs. WAS v7 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.

IBM HW+SW Optimized Systems Performance



Leadership to reduce TCO

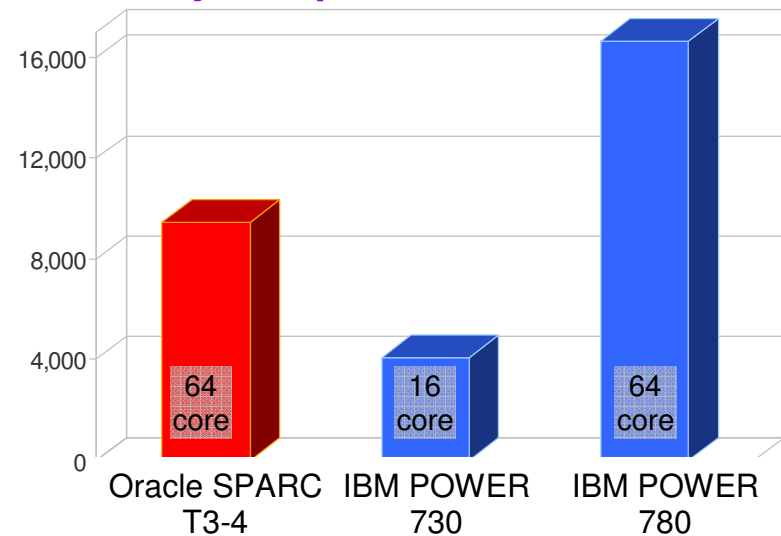
76%

POWER7 with WebSphere Application Server and DB2 9.7 outperforms Oracle SPARC T3-4 with Oracle WebLogic and Oracle Database 11G by 76%

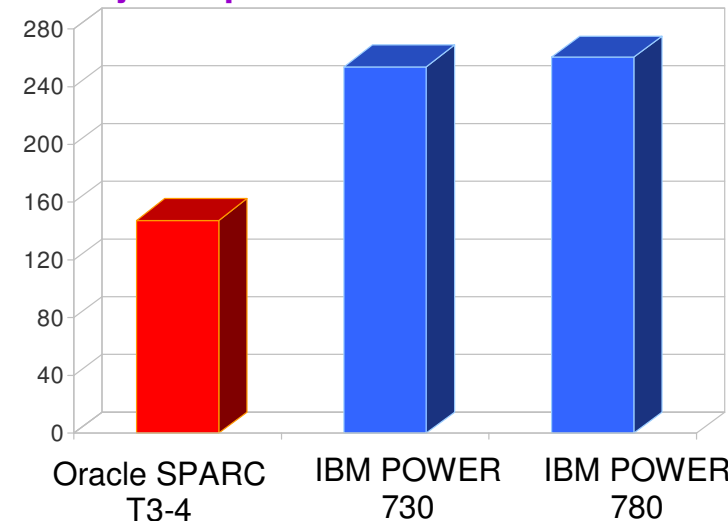
- ✓ IBM software and hardware outperform Oracle software and hardware on SPECjEnterprise2010 benchmark
- ✓ POWER7 delivers performance per core leadership
- ✓ POWER7 vertical scaling is almost linear
- ✓ Largest SPECjEnterprise database ever built

Based on SPECjEnterprise results: Power 780 3.86GHz 64c @ 16,646 EjOPS; Power 730 3.55GHz 16c @ 4,062 EjOPS; Oracle SPARC T3-4 1.6GHz 64c @ 9,456; Source: <http://www.spec.org> as of 2/23/11

SPECjEnterprise2010 Performance

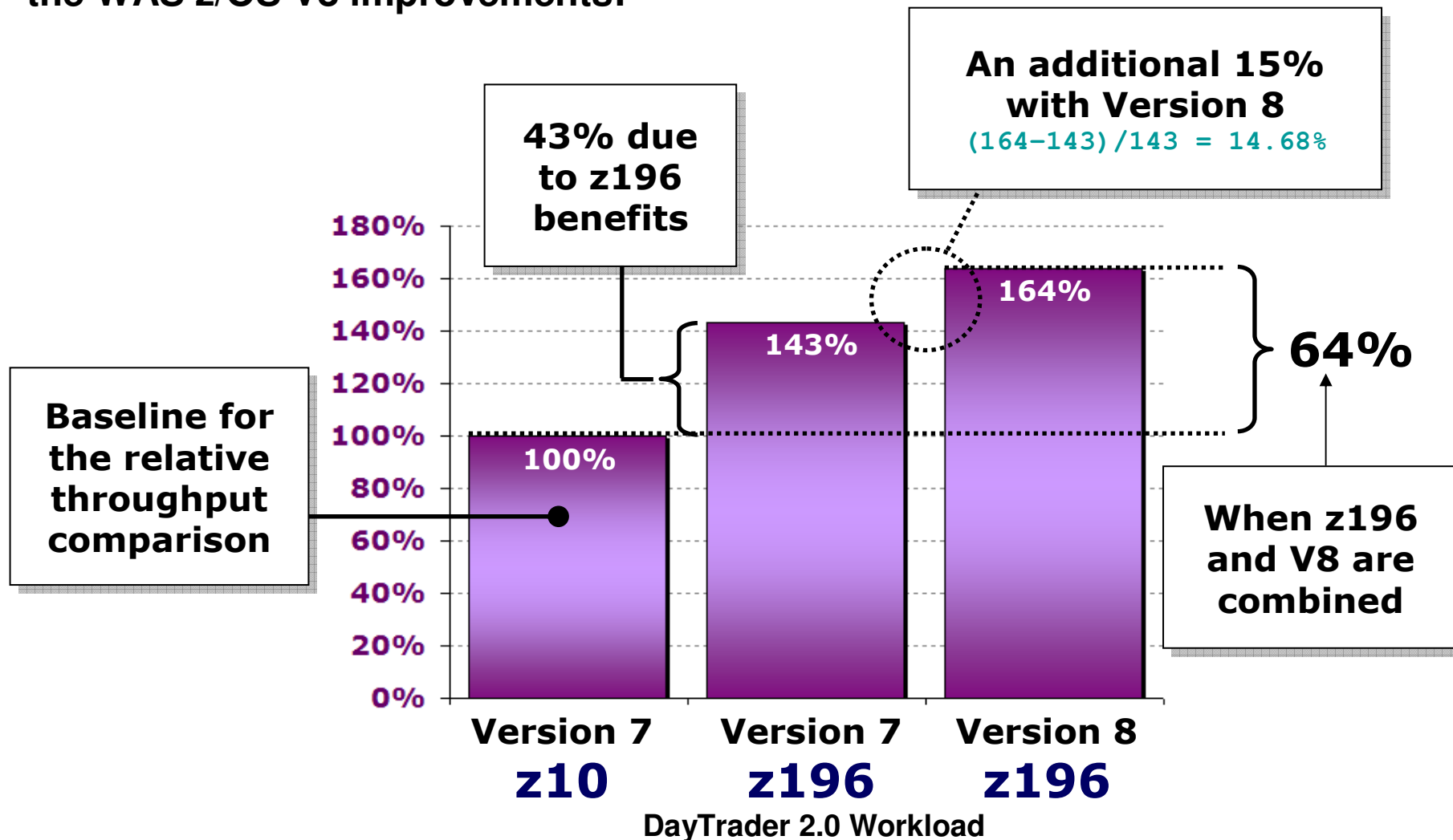


SPECjEnterprise2010 Performance Per Core



Benefit of z196 and WAS z/OS V8

Here we see the benefits of both the z196 hardware improvements as well as the WAS z/OS V8 improvements:



Platform & Environment Flexibility



Lower TCO through aligning business needs with platform/environment capabilities

Platform Specific Exploitation



Match deployments to preferred hardware:
Platform specific exploitation on IBM systems along with broad hardware & OS support including HP Itanium, Oracle SPARC, AIX, IBM i, z/OS, Linux, Windows, HP-UX & Oracle Solaris

Common Management of Heterogeneous Systems



IBM zEnterprise System

Match deployments to preferred OS on a unified zEnterprise System: Take advantage of zManager to manage multiple platforms under a logical management infrastructure

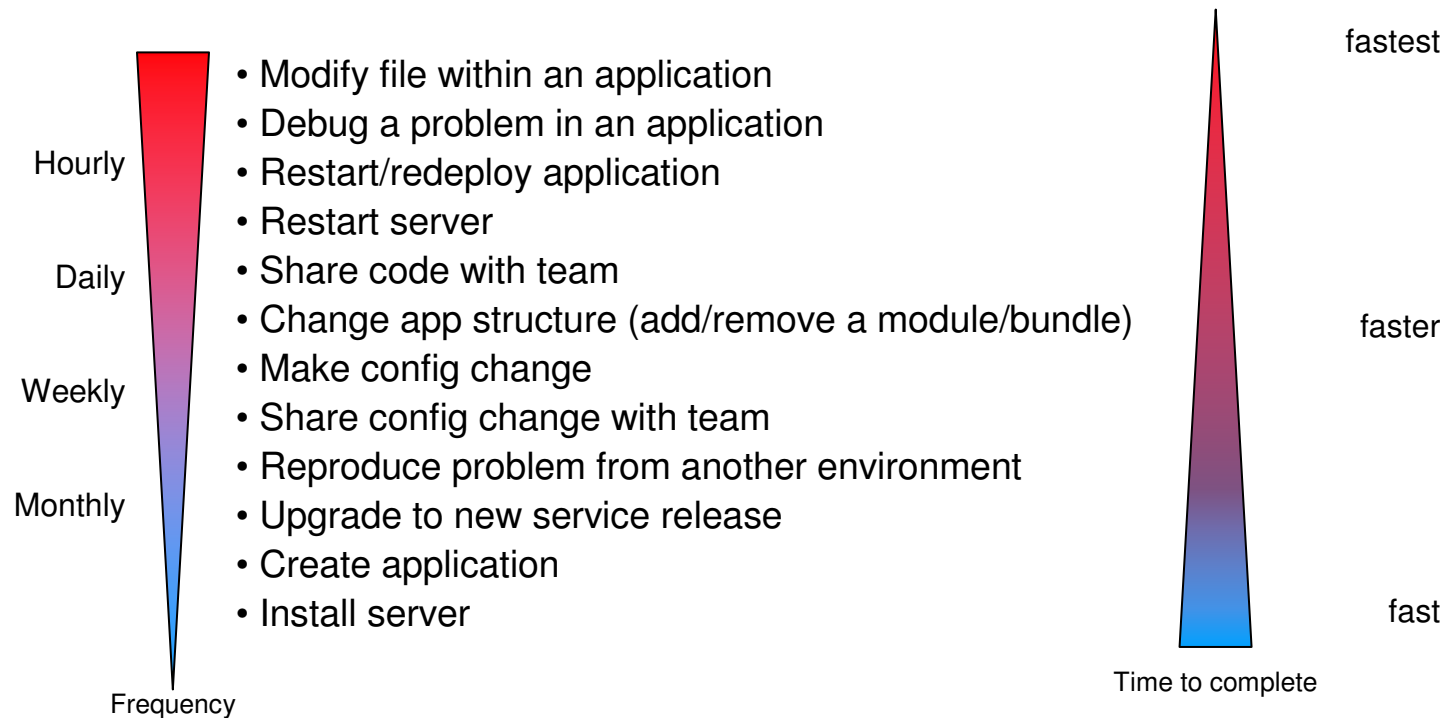
What's coming up with WAS and tools

Developer Feedback

- Developers are looking for more (or less) from the test server runtime in the tools.
 - Greater test simplicity
 - Config model (hard to edit, backup, share)
 - Admin console is for operational mgmt rather than development
 - Problem determination (including within customer apps)
 - Responsiveness
 - Primarily incremental publishing, app install, server startup time
 - Footprint
 - WAS server types defined to RAD have a WAS production server footprint and memory use, for all types of applications

Frequency of Development Tasks

- Common development tasks include:



- All tasks should be as painless as possible, with special emphasis on the more frequent ones. If the time taken to accomplish these tasks is an impediment to the development, the cost of the fidelity of the test server runtime is challenged.

WASDEV Community – www.wasdev.net

- WebSphere has introduced a new website that provides detailed information for WebSphere developers

The screenshot shows the WASdev Community website. At the top right, there is a blue oval with the text "New!". Below this is a navigation bar with four buttons: "BLOG", "DOWNLOAD", "LEARN", and "PARTICIPATE". The "PARTICIPATE" button is highlighted. To the right of the navigation bar is the "WASdev COMMUNITY" logo. Below the navigation bar, the main content area is titled "Participate". It contains a paragraph of text: "We want to collaborate with you to produce a product that best suits **your** needs. From here, you can join us in discussions on the Forum, ask us questions on the Q&A site, and raise defects/enhancements. Give us your feedback now and become part of the development team!" followed by a star icon and the number "1". Below this are three sections: "Forum", "Q&A", and "Development", each with a brief description. On the right side of the main content area, there is a "TRENDING TOPICS" section with a list of topics: "learn", "article", "blog", "sample", and "video". Below this is a "LINKS" section with the text "Connect. WASdev forum" and a speech bubble icon.

Participate

We want to collaborate with you to produce a product that best suits **your** needs. From here, you can join us in discussions on the Forum, ask us questions on the Q&A site, and raise defects/enhancements. Give us your feedback now and become part of the development team! ★ 1

Forum - If you have a discussion, or an open topic that will likely create differing opinions, the forum is the best place to create a thread. If your topic is more of a question, use our **Q&A** feature.

Q&A - The Q & A feature is a stack overflow tag that can be used to ask or answer questions. This is typically used if your question has a definitive answer, rather than something that generates discussion. If your question does raise discussion, feel free to create a thread on our **forum**.

Development - We want your feedback directly, so we want to hear about any bugs you find or any enhancements you feel would be useful to you.

TRENDING TOPICS

- learn
- article
- blog
- sample
- video

LINKS

Connect. WASdev forum

wasdev.net

WASdev
COMMUNITY

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

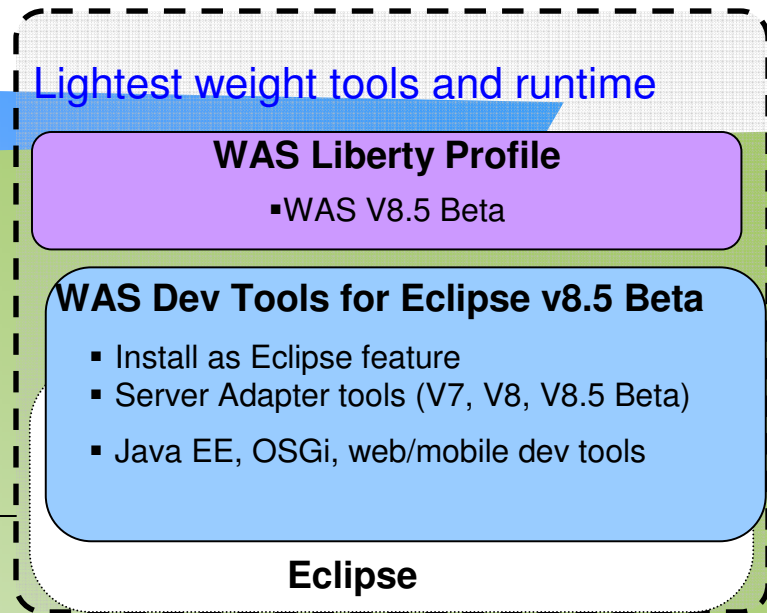
- WAS V8.5 “Liberty” Profile (Beta) introduces:
 - A new dynamic profile of WAS which is focused FIRST on the development experience
 - Memory footprint (web feature): < 50 MB
 - Simplified, shareable config
 - Lightning faster server (re)start time: < 5 seconds
 - Unzip install and unzip application deploy options
- Fidelity with full-profile WAS
 - Same containers, QoS as full-profile WAS
 - But radically refactored to focus on the development experience
- Extreme dynamicity to start what the app requires and no more
 - Initially focused on dev/test of web, mobile and OSGi apps.
- New WAS Developer Community for feedback, discussion, downloads:
 - <http://wasdev.net>



wasdev.net

WASdev
COMMUNITY

- **WAS 8.5 Beta introduces the lightweight WAS Liberty profile for developing and testing web apps that don't require the full JEE environment**
- **WAS Liberty profile will be part of all editions of WAS V8.Next**
 - **WAS Liberty Profile + WebSphere Developer Tools for Eclipse = free, lightweight tools and runtime for development**
- **Support for development/debug on Mac OS**
- **Operational support for “packaged” unzip deploy of application+server+config**
- **Integration with WAS ND Job Manager for centralized lifecycle management**



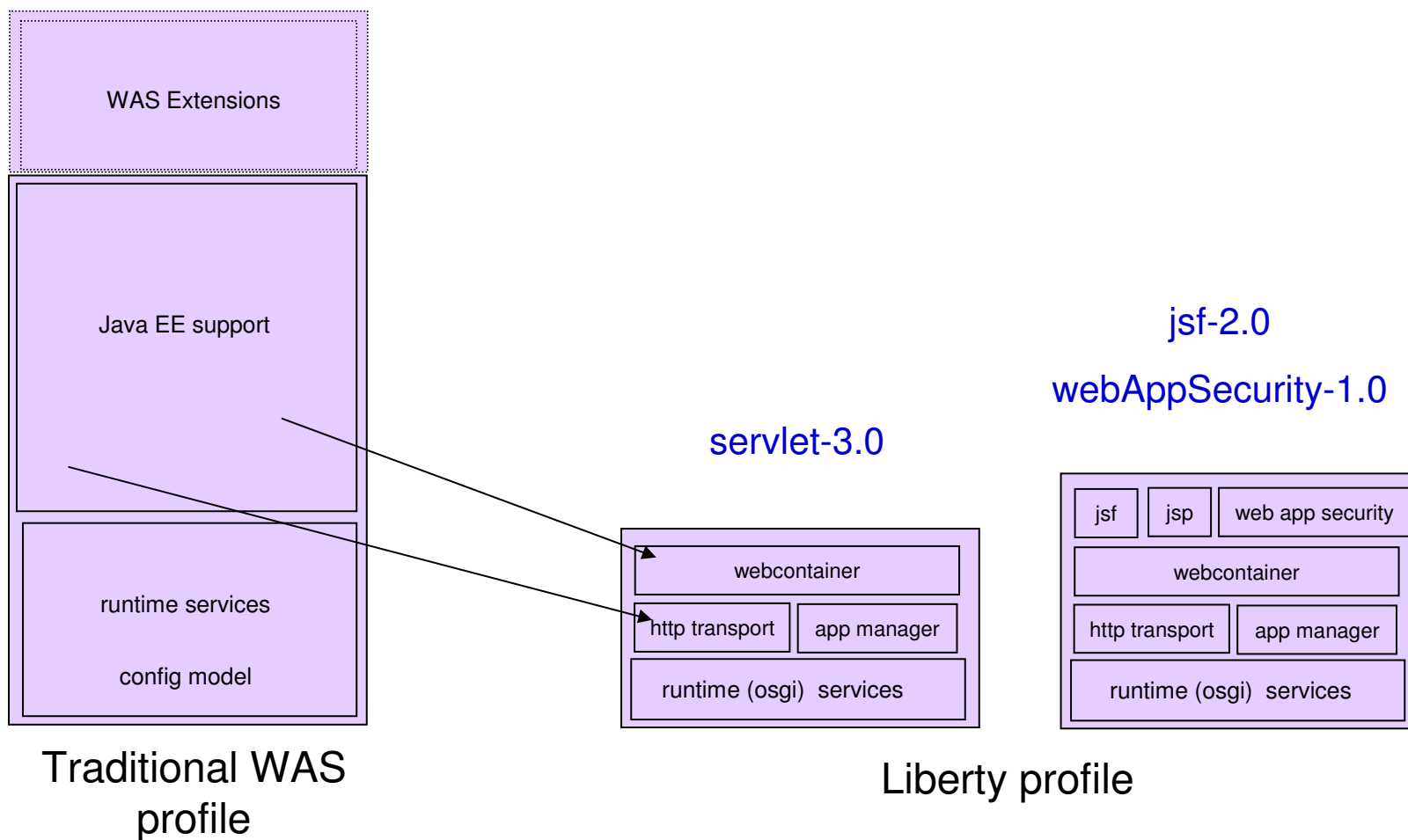
Other Developer Highlights of WAS V8.5 Beta:

- Pluggable JDK with Java SE 7 support for latest Java standards
- Modular OSGi Application support (includes EJB bundles)

WAS V8.5 Beta:

<http://www14.software.ibm.com/iwm/web/cc/earlyprograms/websphere/wasv8na/>

Highly composable runtime based on 'features'





Key Resources

- **WASDEV developer community:**
<https://www.wasdev.net>
- **WebSphere Tools Bundles:**
<http://www-01.ibm.com/software/webservers/appserv/was/tools/>
- **WAS for Developers download site:**
<http://www.ibm.com/developerworks/downloads/ws/wasdevelopers/>
- **WAS site:**
<http://www.ibm.com/software/webservers/appserv/was/>
- **RAD site:**
<http://www-01.ibm.com/software/awdtools/developer/application/>
- **RAD Wiki:**
<http://www.ibm.com/developerworks/wikis/display/rad/Home>
- **Redbooks (RAD v8 and WAS v7 available):**
<http://www.redbooks.ibm.com/>

BACKUP