



IBM Server Technology Group

Enabling SOA – WebSphere Application Server V6.1

Technical Overview

A horizontal bar containing a series of small, square icons. From left to right, the icons include: a green square, a yellow square, an orange square, a purple square, a cyan square, a grayscale image of a server rack, a circular arrow icon, a grayscale image of a woman's face, a grayscale image of a hand holding a device, and several grayscale images of human figures and abstract shapes.

@business on demand.

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Agenda

- Overview
- Programming model enhancements
- Consumability and ease of use enhancements
- Enterprise class function enhancements
- Migration and mixed version node support
- Application Server Toolkit V6.1
- Serviceability enhancements
- z/OS specific topics

Section

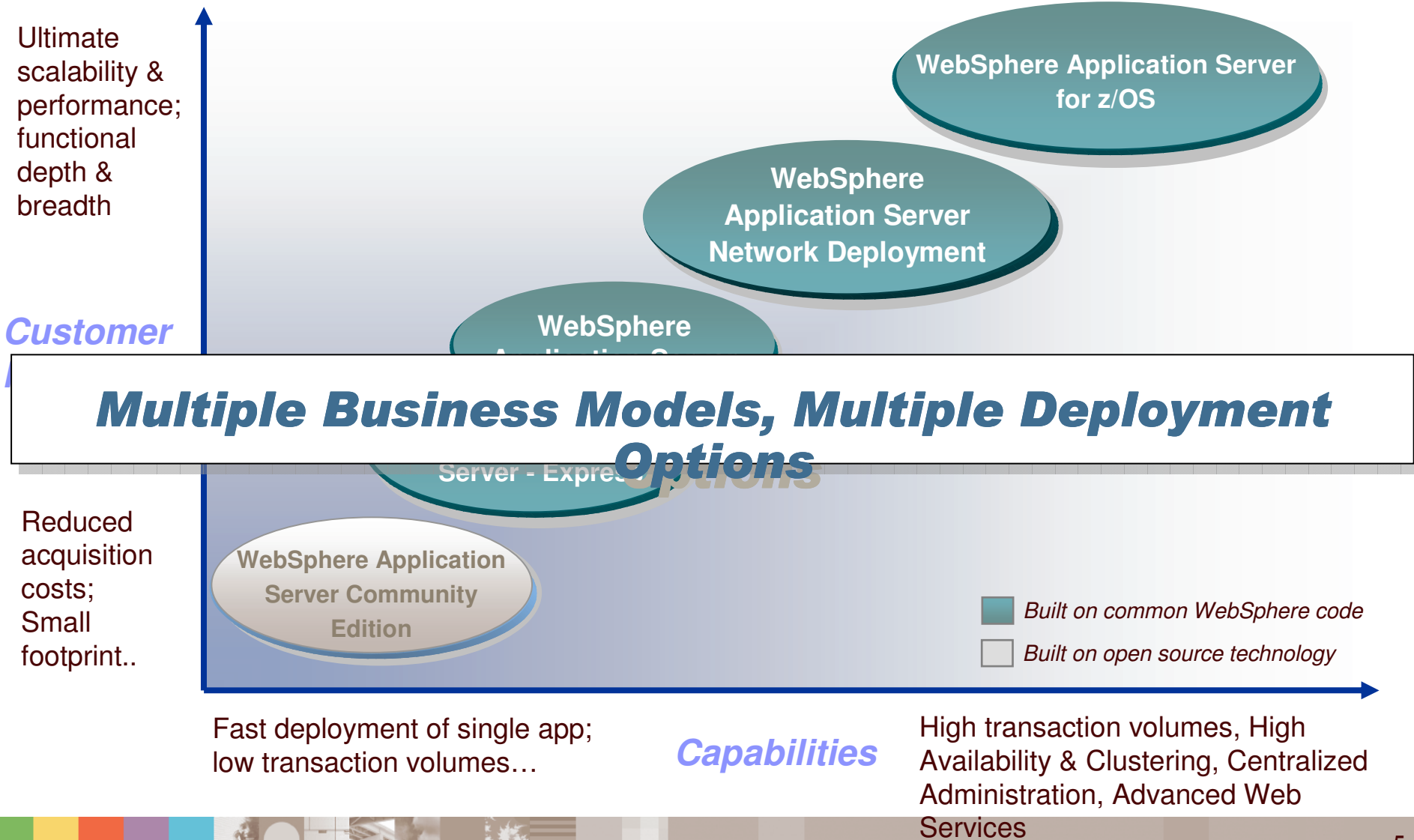
Overview

WebSphere Application Server V6.1 Overview

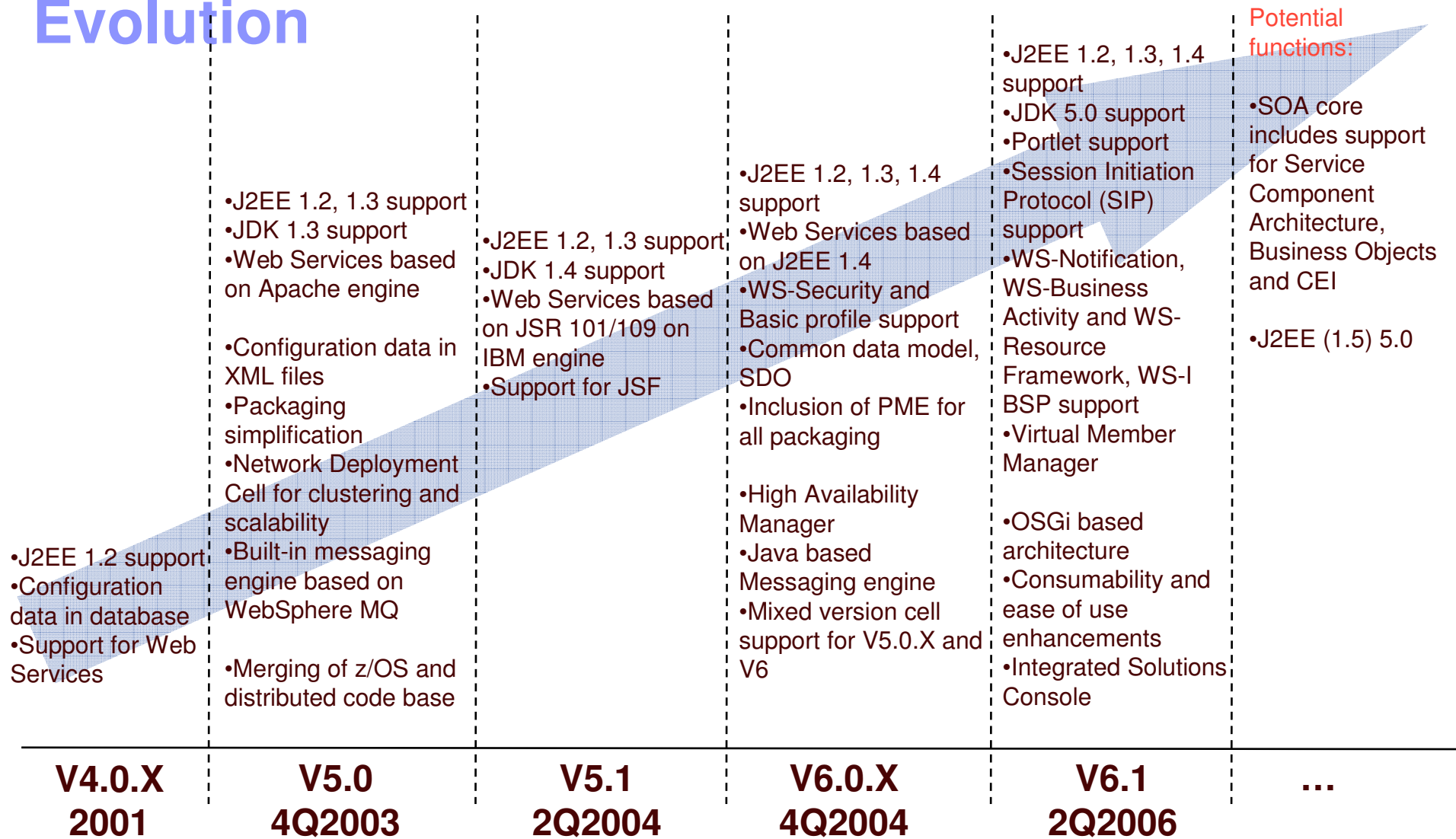
- WAS V6.1 is a set of enhancements to WAS V6.0

- Focus of V6.1
 - ▶ Consumability and ease of use
 - ▶ Extending the programming model
 - Portlet and SIP (Session Initiation Protocol) applications
 - J2SE 5.0
 - Additional Web Services (WS*) specifications
 - ▶ Security enhancements

WebSphere Application Server Family



WebSphere Application Server Function Evolution

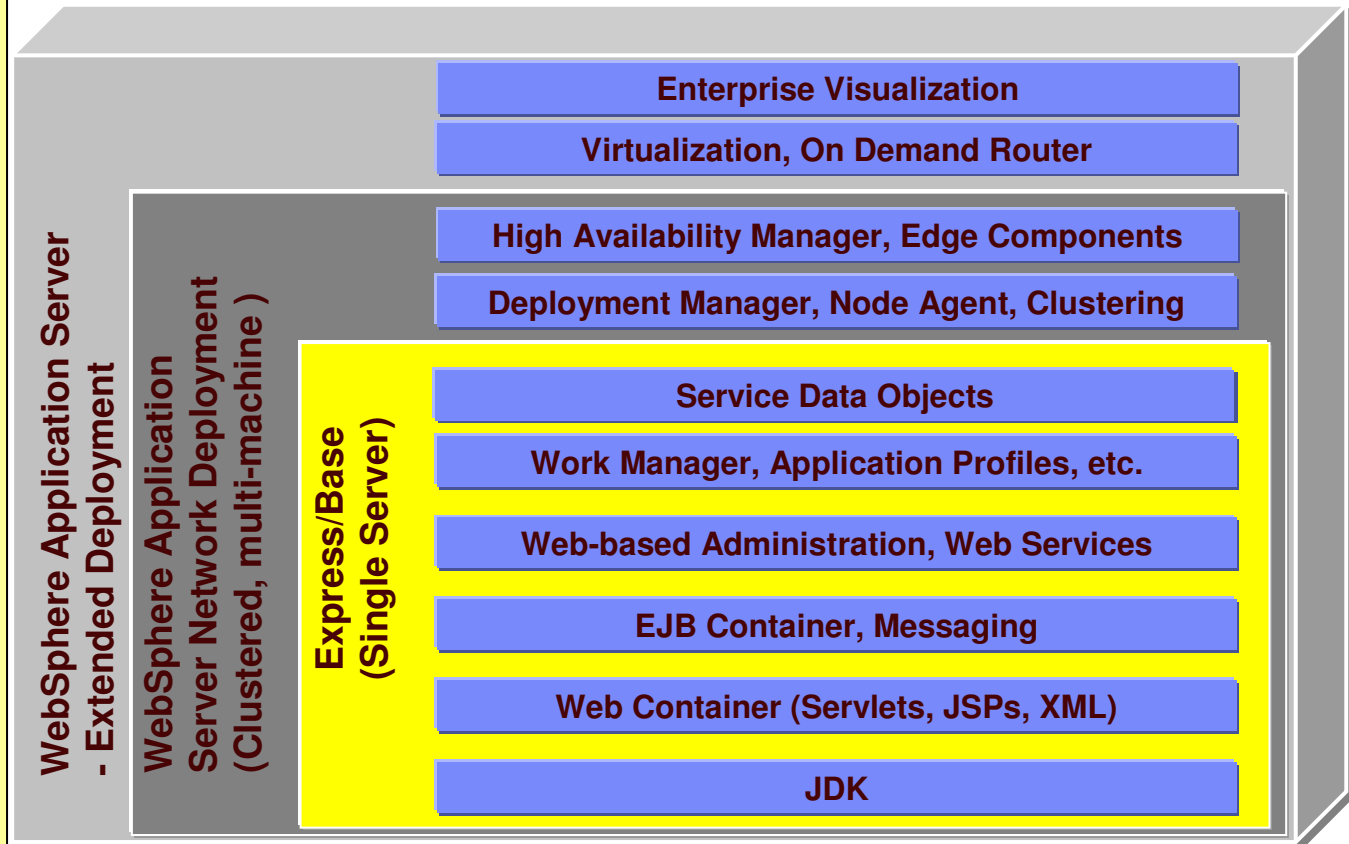


Product Packaging

- Product packaging is similar to V6.0.X
 - ▶ WebSphere Application Server V6.1 Express
 - ▶ WebSphere Application Server V6.1
 - ▶ WebSphere Application Server V6.1 Network Deployment
 - ▶ WebSphere Application Server for Z/OS, V6.1

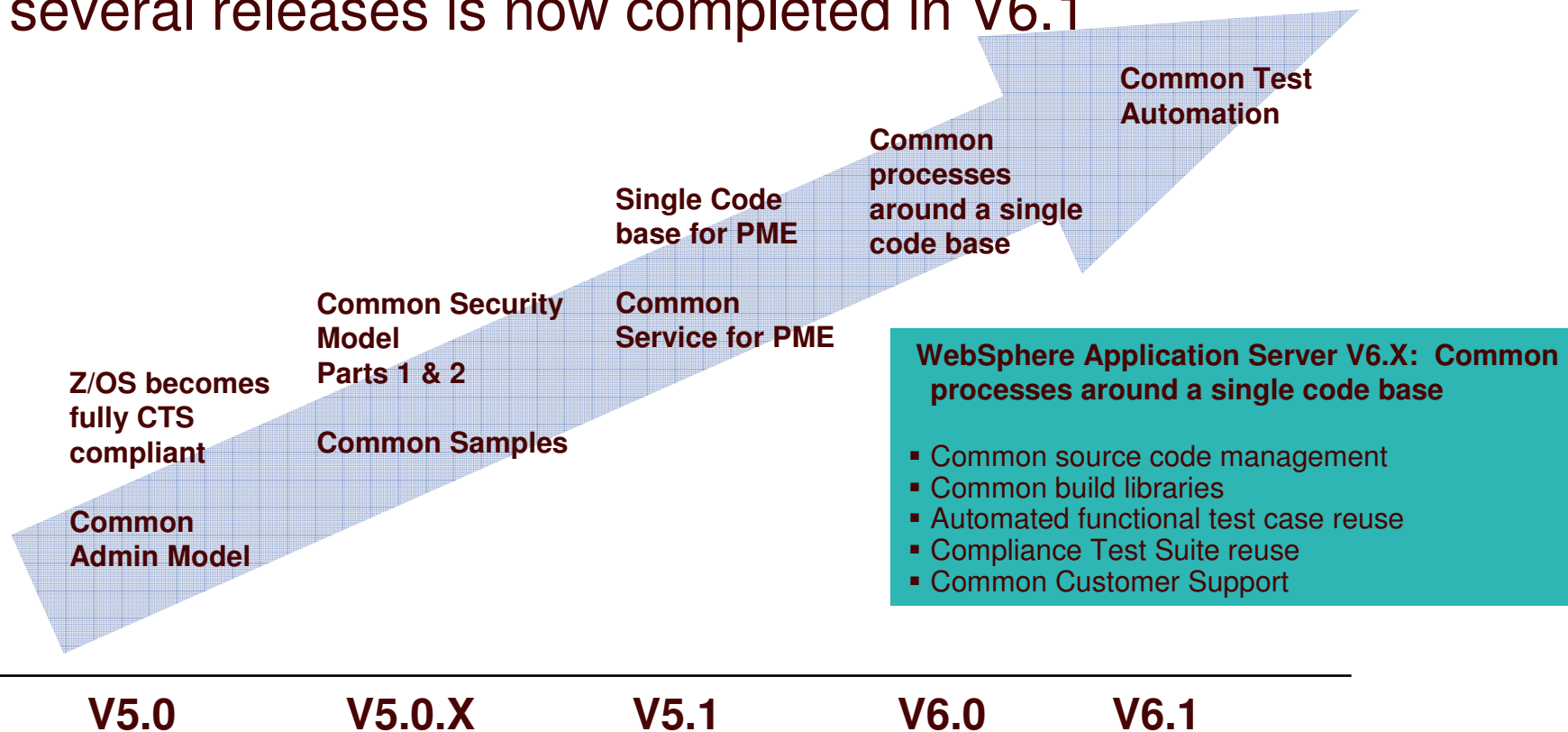
- Distributed platform product images available on DVDs, CDs and electronically

- z/OS platform product SMPE images available on tape
 - ▶ z/OS clients also receive the distributed platform utilities and tools CD



Unifying WebSphere Application Server Code

- The process of unifying the code and processes across z/OS, iSeries and distributed platforms that has spanned several releases is now completed in V6.1



Section

Programming Model Enhancements

Upgrade to J2SE 5.0

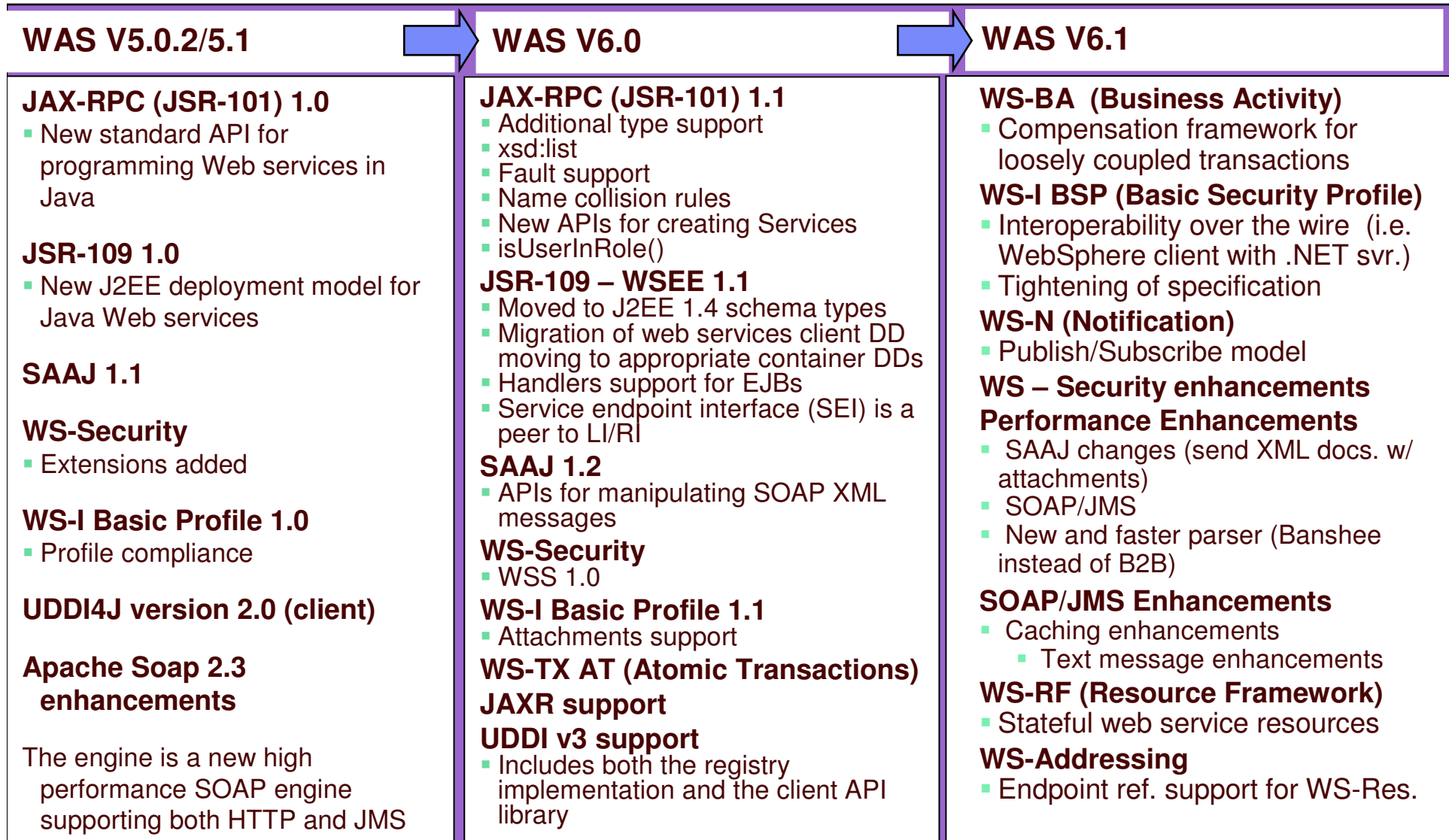
- Features
 - ▶ Generics
 - ▶ Auto-boxing of primitives
 - ▶ Annotations
 - ▶ Support for enumerated types

- IBM JDK and JIT includes
 - ▶ Improved performance
 - ▶ Improved startup
 - ▶ Improved GC

- IBM JDK used on Windows, Linux, AIX, iSeries, zLinux and z/OS platforms

- Sun JDK used on Sun and HP platforms

Web Services Evolution



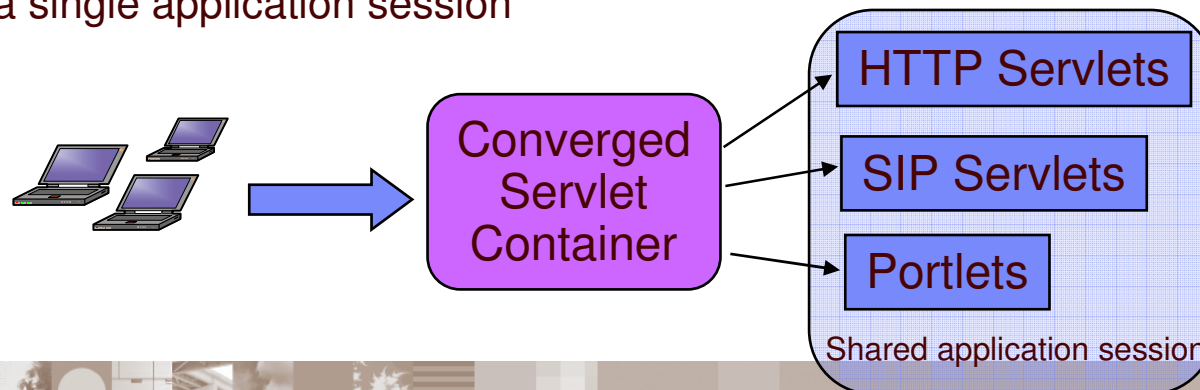
Portlets

- Supports JSR 168 Portlet programming model
- Allows Portlets to be accessed like servlets via URL
 - ▶ `http://host:port/context/portlet-name/portletwindow`



Session Initiation Protocol (SIP) – JSR 116

- Next generation of applications, built using SIP:
 - ▶ Chat/Instant messaging
 - ▶ Voice over IP (VoIP)
 - ▶ Video conferencing, video over IP
 - ▶ Collaborative applications
 - ▶ Gaming
- V6.1 includes support for JSR 116 SIP Servlets
 - ▶ Built in the first truly converged container
 - ▶ Servlets can share a single application session across protocols
 - ▶ HTTP Servlets and Portlets can create SIP messages and tie state together with a single application session



IBM JSF Widget Library (JWL)

- JWL included in V6.1
- JWL contains FacesClient components based on Java Server Faces (JSF) technology
- Allows creation of rich interactive web pages and improves performance by reducing round-trip interactions with the server
- Sample components:
 - ▶ DatePicker
 - ▶ DataGrid
 - ▶ Graph
 - ▶ Input
 - ▶ Menu
 - ▶ TabbedPanel
 - ▶ TimePicker
 - ▶ Tree
 - ▶ More ...

Date Restriction

Default

StartDate=2004/04/26, EndDate=2004/11/25

StartDate=2004/09/25, Range upto two weeks after start date

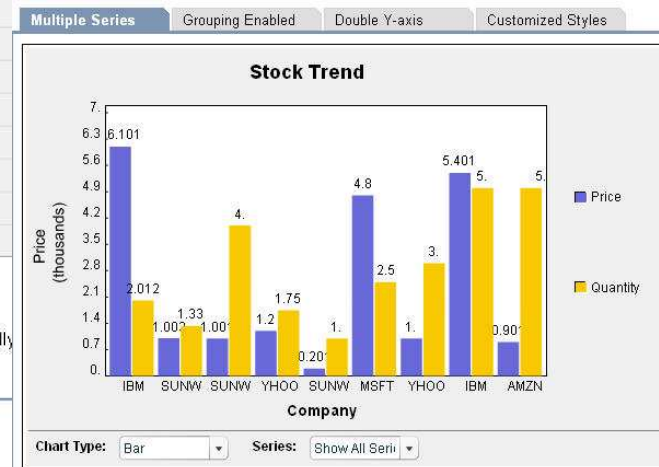
Range starts from one year before today

Range ends one year from today

Unselectable weekends

price	purchaseDate	quantity	refNum	symbol
6100.85	Jul 18, 2005	2012	2	IBM
1002.65	Jul 18, 2005	1330	3	SUNW
1000.95	Jul 18, 2005	4000		
1200.41	Jul 18, 2005	1750		
200.55	Jul 18, 2005	1000		
4800.12	Jul 18, 2005	2500		
1000.21	Jul 18, 2005	3000		
5400.75	Jul 18, 2005	5000		
900.85	Jul 18, 2005	5000		

- ◆ Allows sorting of data by column..
- ◆ Data sorted by content of column.
- ◆ Data can be sorted by date, number or alphabetically



Reference: http://www-128.ibm.com/developerworks/rational/library/05/524_face/

OSGi based architecture

- Supports open standards (Eclipse + OSGi)
- Better modularity
- Restricted class visibility mode
 - ▶ Encapsulation of system internals
 - ▶ Protects against fragile dependencies
 - ▶ Allows multiple versions of a library to be loaded for system bundles

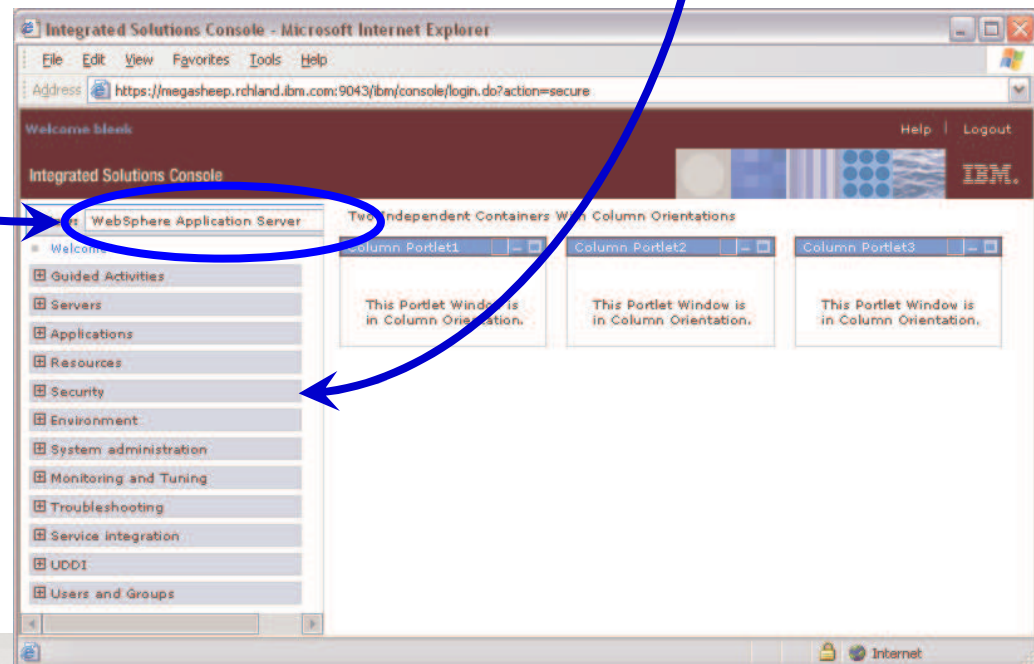


Section

Consumability and Ease of Use Enhancements

Integrated Solutions Console (ISC)

- V6.1 Administrative Console is built using ISC
- ISC uses Portal Application Archive schema for deployment
- Allows extending ISC to add custom application to the console by adding custom portlet content
- ISC is used by other IBM products
 - ▶ Allows common console UI across IBM products
 - ▶ Filter navigation area by product



- Eclipse Help for portlets

Install Enhancements

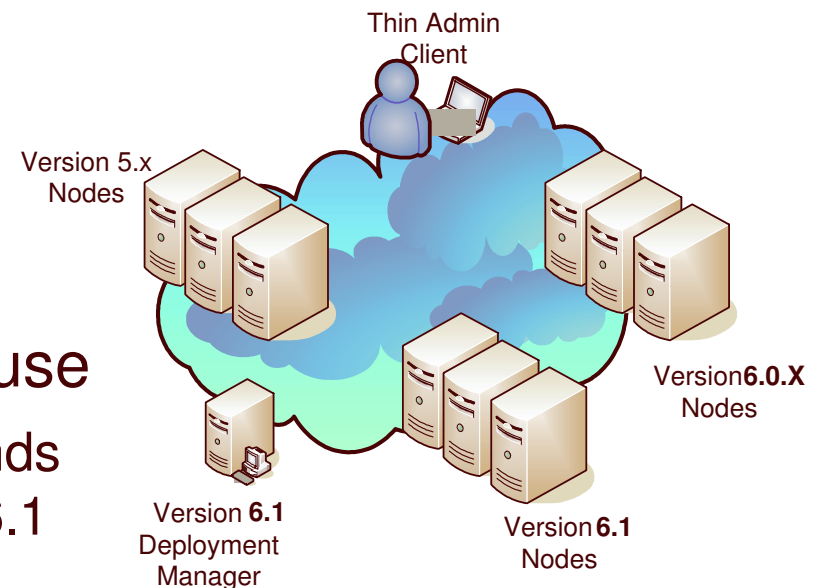
- Support for non-root/non-Administrator install
 - ▶ Except for IHS and HTTP Server Plug-in
- Option to enable administrative security out of the box
- IBM HTTP Server installer includes capability to install and configure Web Server Plug-in
- Eclipse based Profile Management Tool replaces previous version of ISMP (Install Shield) based Profile Creation Tool
- Install Factory tool (distributed platforms only) allows customization of installation package
 - ▶ Included in V6.1 tools CD

Simplified Administrative Console

- Improved scope-selection process for resources
 - ▶ Added “All Scope” to see the resources of a particular type (like JDBC) for the entire topology
- Enhanced Resource Management UI
 - ▶ Console navigation panel re-factoring to manage frequently used resources directly from the panel
 - ▶ New wizards to help create data sources
- Enhanced Application install user interface – provides a fast path install
- Enhanced shared library configuration for new application install or existing applications
- Enhanced cluster creation wizard, cluster member weight management user interface and new guided task for creating for clusters and configuring for high availability
- Enhanced security administration panels, including new guided task
- Command assistance in the console to view Jython wsadmin scripting commands for the actions being performed in the console

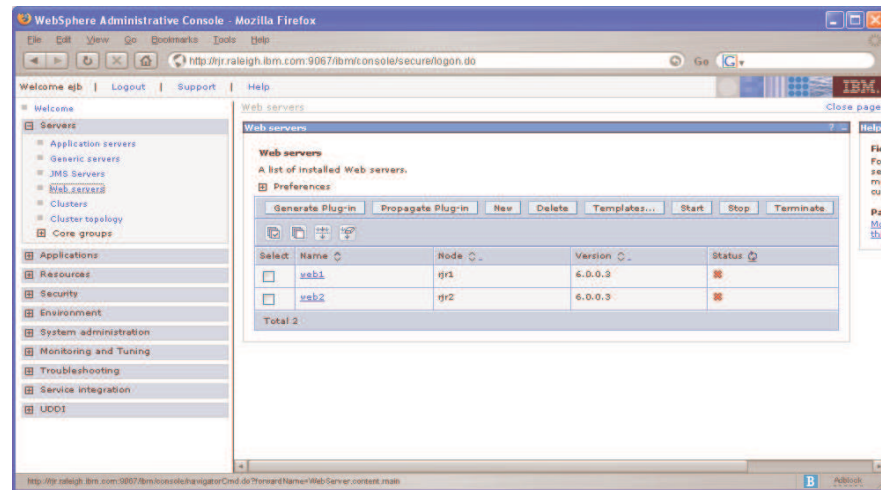
Systems Management Enhancements

- Mixed version node support
 - ▶ Similar to V6.0.2
 - ▶ Mixed version (V5.X and V6.X) and platforms (z/OS, i5/OS and distributed)
- Administrative command ease of use
 - ▶ New high level administrative commands and new utility commands added to V6.1
- Thin administration client
 - ▶ A lightweight runtime package to support administrative client functions to run wsadmin or stand-alone administrative Java client



IBM HTTP Server (IHS) Administration

- Allows the complete configuration of IHS through the Administrative Console
- Provides operational management of IHS through the Administrative Console



Section

Security Enhancements

Security Enhancements: Overview

- Administrative security enabled out of the box
- Fine-grained administrative security capability**
 - ▶ Users can now be defined to administrative roles on a specific set of resources, like Cells, NodeGroups, Nodes, Clusters, Servers and Applications
- Integration with WebSphere Virtual Member Manager
 - ▶ Ability to federate multiple user registries
 - ▶ User identity, profile, and relationship management
- Simplified security administrative console tasks and guided tasks
- Simplified certificate and key management
- Interoperability with other vendors on WS-Security using WS-I BSP (Basic Security Profile) support
- SPNEGO support for web single sign-on authentication through Windows™ desktop

**Instance specific administrative security in wsadmin only

Section

Enterprise Class Function Enhancements

Platform Messaging Enhancements

- V6.1 includes several messaging enhancements
- Optional file-based message store offers simpler configuration and higher performance
- Enhanced security configuration from wsadmin and Administrative console makes it easier to configure secure messaging resources
- New server type, “WebSphere MQ Server”, simplifies WebSphere MQ integration
 - ▶ J2EE applications use WebSphere MQ-hosted queues the same way they use V6.1 messaging hosted queues

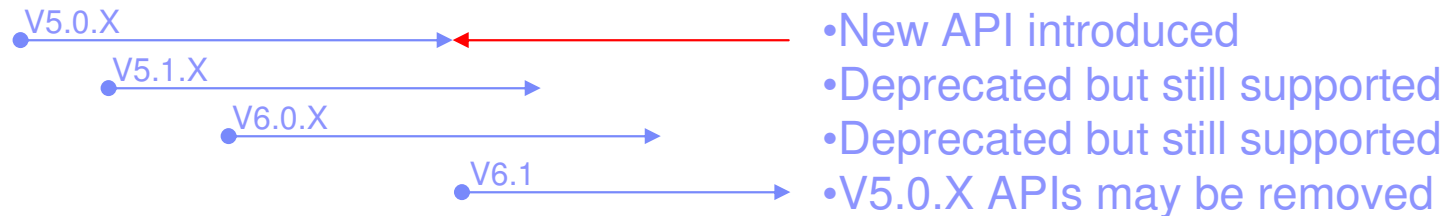
Section

Migration Support

Application Migration

- V6.X supports J2EE 1.4
 - ▶ Implicitly supports J2EE 1.2 and J2EE 1.3
- J2EE 1.4 supports incremental upgrade
 - ▶ Modules within an application can be J2EE 1.2/1.3 or 1.4
- V6.X in general is very compatible with prior J2EE specification levels.
 - ▶ Many V4.X applications run unchanged
 - ▶ Most V5.0/V5.1 applications run unchanged
- RAD J2EE Migration Wizard

Deprecation Policy



- Deprecation policy in place for all WebSphere Application Server APIs and JDK APIs
- API supported for 2 full releases from the point of deprecation or 3 full years whichever is longer
- API may be removed at such point
- Deprecations and Removals are documented in Information Center

Multi Node Support

Category	Supported Actions	Platforms D = Distributed, Z = z/OS	V6.1, V6.0.2	V6.0
Adding new node	V6.X node	D, Z	Yes	Yes
	V5.X node	N/A	No	No
Adding new server	V6.X servers in a V6.X node	D, Z	Yes	Yes
	V5.X servers in a V5.X node	D	Yes	No
Adding new cluster member	V5.X server in a V5.X-only cluster	D	Yes	No
	V5.X server in a V6-only cluster	N/A	No	No
	V6.X server in a V5-only cluster	N/A	No	No
	V5.X server in mixed (V5.X and V6.X) cluster	D	Yes	No
	V6.X server in mixed (V5.X and V6.X) cluster	D	Yes	Yes

- Limitations (same as V6.0.2):

- ▶ V6.X attributes cannot be edited from a V5.X admin client
- ▶ V5.X node cannot be directly added to a V6.X cell
- ▶ V5.X node cannot be directly removed from a V6.X cell (can be done indirectly by upgrading to V6.X and performing remove node function)
- ▶ z/OS V5.0.X nodes are not supported in the mixed node cell

Section

Application Server Toolkit V6.1

Tool Stack

Rational Application Developer and Web Developer

UML modeling & visualization,

Graphical application construction

Component test automation & mgmt

Code analysis, complexity & correctness

Application trace & profiling

WebSphere Application Server Toolkit (AST)

WebSphere Application Server application
creation, assembly, deployment & unit test
support

Eclipse: Base & WTP

Basic framework, Web

Tools, Models & Wizards

- Rational Application Developer (RAD) and Web Developer provide the first class IBM development experience, with focus on the graphical construction of applications
- AST is focused at a more basic (textual) level than RAD, but provides support to create & deploy WebSphere Application Server applications
- AST is included with V6.1
- Both Rational and AST are based on Eclipse base and a new open source Eclipse project called WTP (Web Tools Platform)

** Rational V7 platform will be available later in 2006 for support of WebSphere Application Server V6.1

Application Server Toolkit V6.1

- Eclipse 3.1
- Web Tools Platform (WTP) 1.0
 - ▶ J2EE tools
 - ▶ XML tools
 - ▶ Web tools
 - ▶ Web Service tools
 - ▶ RDB Tools
- Test and performance tools
- Graphical editor framework
- Eclipse modeling framework (EMF)
- JDK 1.4.2 (also supports 5.0)
- WebSphere additions:
 - ▶ WebSphere Rapid Deployment
 - ▶ Graphical deployment descriptors
 - ▶ IBM Web Services tools
 - ▶ Automation Toolkit for WebSphere for writing and testing wsadmin Jython scripts
 - ▶ EJB deployment support
 - ▶ WebSphere server integration



Section

Serviceability Enhancements

Serviceability Enhancements - Overview

- WebSphere Application Server V6.1 contains the following major serviceability-related enhancements
- IBM Support Assistant
 - ▶ Local serviceability tool that enables you to investigate problems quickly and work more efficiently with IBM Support
 - ▶ Included in V6.1 tools package
 - ▶ Integrated tools help solve software problems
 - Memory Dump Diagnostic Tool for Java™ (MDD4J)
- Diagnostic Providers
 - ▶ New framework in V6.1 that enables the server components to provide more useful diagnostic data

Diagnostic Providers

- Diagnostic Providers are MBeans that provide diagnostic data for individual components
 - ▶ State dump
 - ▶ Configuration dump
 - ▶ Self-test routines
- Error messages from supported components contain a diagnostic provider identifier (DPID)
 - ▶ Components can be queried directly by DPID to get more information
 - ▶ Components can also be selected from a tree view
- Only implemented by a few components in this release

Section

z/OS Specific Items

V6.1 z/OS Specific Items

- New
 - ▶ Pre-req is z/OS 1.6
 - ▶ Addition of z/OS profile creation wizard on Windows
 - ISPF dialog and Profile Creation Tool co-exist in V6.1
 - ▶ 64 bit support (post GA)

V6.1 z/OS Specific Items

- Security
 - ▶ Support for lower case passwords in SAF in V6.1
 - ▶ Security out of the box – options
 - SAF security option
 - LDAP based security option
 - Default is to have security enabled
 - ▶ Installation panels are the same for security out of the box

V6.1 z/OS Specific Items

- Differences
 - ▶ Removal of DB2 JDBC Legacy driver support
 - JCC is fully supported and is faster and more functional
 - ▶ Virtual Member Management does not support SAF security option
 - ▶ Installation Factory not available for z/OS

Section

Summary and References

Summary

- WebSphere Application Server V6.1 Enhances WAS V6.0
- Several programming model enhancements are included
 - ▶ J2SE 5.0
 - ▶ Portlet container
 - ▶ SIP Servlet

References

- **WAS V6.1 Announcement Letter**
 - ▶ <http://www.ibm.com/common/ssi/cgi-bin/ssialias?infotype=an&subtype=ca&appname=GPA&htmlfid=897/ENUS206-076>
- **Sales and Marketing Kits**
 - ▶ WAS V6.1
 - <http://w3-103.ibm.com/software/xl/portal/viewkitcontent?srcID=KP01&kitID=L812693U59352C51>
 - ▶ WAS ND V6.1
 - <http://w3-103.ibm.com/software/xl/portal/viewkitcontent?srcID=KP01&kitID=U852976U56304P69>
- **New web pages**
 - ▶ <http://www-306.ibm.com/software/webservers/appserv/was/>