



WebSphere Application Server 5.0

Overview

WebSphere. software



Updated 4/1/2003

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Agenda

- **WebSphere Application Server 5.0: Themes**
- **WebSphere 5.0 Product Packaging**
- **WebSphere 5.0 Product Contents**
- **Development Tooling**
 - WebSphere Studio Family of Products
 - Application Server Toolkit
- **End-to-End Development and Deployment Scenario**

WebSphere 5.0: Major Themes

- **J2EE 1.3 Compliance**
 - EJB 2.0, Servlet 2.3, JSP 1.2
 - Integrated, built-in JMS provider
 - Interoperable Naming Service
 - J2EE 1.3 Security: Java 2 Security, JAAS, Enhanced Pluggable Authentication
- **Extended WebServices Support**
 - Enhanced SOAP support, Private UDDI
- **New, more open, flexible administration model**
 - Based on Java Management Extensions (JMX)
 - Provides improved failover capability and high availability
 - User interface enhancements and application management
- **Distributed Platform Additions**
 - WebServices Gateway
 - Edge Components Integration
 - Standard programming model extensions (coming on z/OS)

WebSphere 5.0: Major Themes

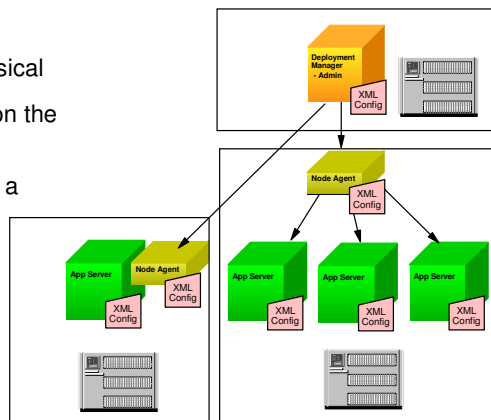
- **Family Programming Model Convergence**
 - Common architecture for z/OS & Distributed editions
 - Common code base
 - This was not true for 4.0.x
 - Some differences to exploit z/OS QOS will remain
 - Common administration model - GUI & scripting
 - Common terminology and topology
 - While continuing to exploit z/OS Sysplex capabilities
 - One set of development tooling
 - Remove “friction of movement” between editions
- **Material presented covers both editions**
 - Common unless otherwise noted, annotated as follows:
 - Dist → Distributed Edition
 - z/OS → z/OS Edition

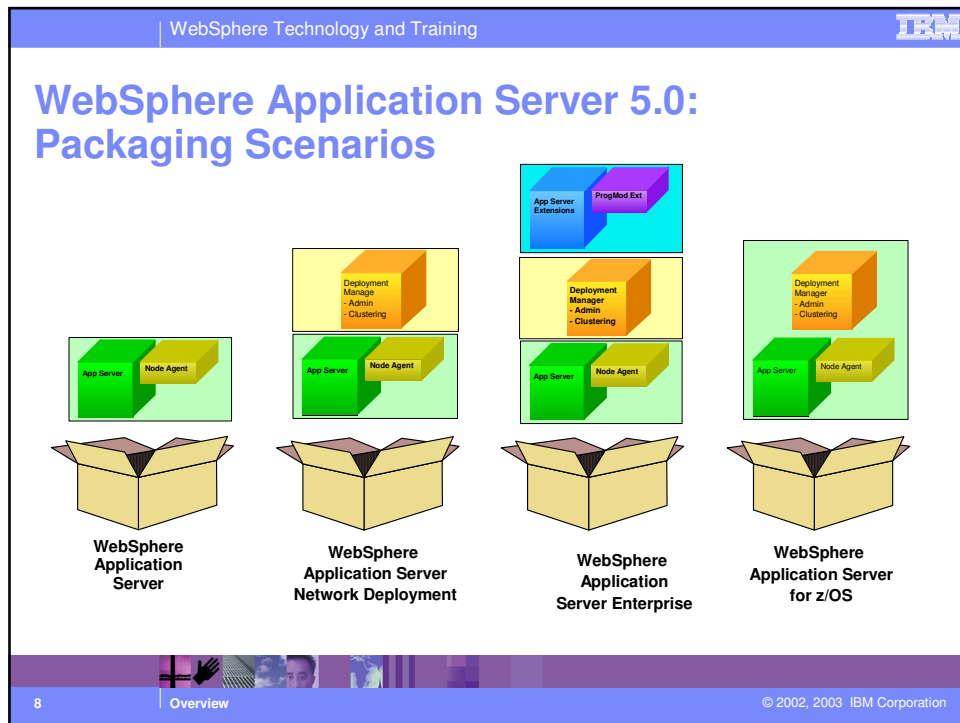
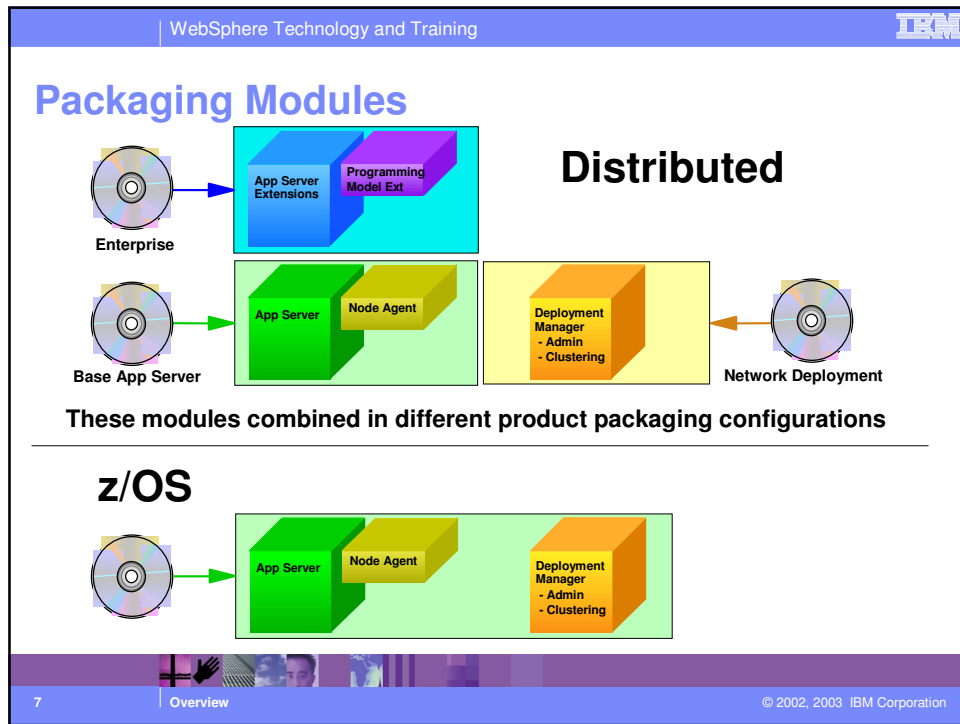
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WebSphere Application Server Product Packaging

New Terminology - Introduction

- **Managed Process or Server**
 - Each server running in its own JVM
 - Application Servers
 - JMS Server
 - z/OS → Control/Servant JVMs
- **Node Agent**
 - Resides on a single node (physical machine or LPAR)
 - Manages the servers running on the node
- **Deployment Manager**
 - Manages the multiple nodes in a distributed topology
- **Cell**
 - Network of multiple nodes in a single logical administration domain
- Explained more precisely in subsequent presentation





WebSphere Technology and Training

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WebSphere Application Server 5.0 Packaging for Production Use

IBM WebSphere Application Server <ul style="list-style-type: none"> Application Server IBM HTTP Server Application Client Application Server Toolkit DataDirect Technologies JDBC Drivers for WAS 	IBM WebSphere Application Server Network Deployment <ul style="list-style-type: none"> Application Server IBM HTTP Server Deployment Manager Edge Components Application Client Application Server Toolkit DataDirect Technologies JDBC Drivers for WAS DB2 Universal Database Enterprise Edition v7.2 IBM Directory v4.1 	IBM WebSphere Application Server Enterprise <ul style="list-style-type: none"> Application Server IBM HTTP Server Deployment Mgr Edge Components Enterprise Extensions Application Client Application Server Toolkit DataDirect Technologies JDBC Drivers for WAS DB2 Universal Database Enterprise Edition v7.2 IBM Directory v4.1 WebSphere MQ v5.3 	IBM WebSphere Application Server Express <ul style="list-style-type: none"> Lightweight version of Application Server Cloudscape Database for development use WebSphere Studio Site Developer 	IBM WebSphere Application Server for z/OS <ul style="list-style-type: none"> Application Server Deployment Manager Application Client WebSphere MQ v5.3.1 Java Developer Kit for OS/390
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WebSphere Application Server 5.0 Packaging for Development Use

IBM WebSphere Application Server for Developers <ul style="list-style-type: none"> Application Server, IBM HTTP Server Application Client Application Server Toolkit DataDirect Technologies JDBC Drivers for WAS DB2 Personal Developer's Edition v7.2 	IBM WebSphere Application Server Enterprise for Developers <ul style="list-style-type: none"> Application Server, IBM HTTP Server Enterprise Extensions Application Client Application Server Toolkit DataDirect Technologies JDBC Drivers for WAS DB2 Personal Developer's Edition v7.2 IBM Directory v4.1 WebSphere MQ v5.3 	IBM WebSphere Application Server for Developers (Trial Use Only) - Web only <ul style="list-style-type: none"> Application Server, IBM HTTP Server Application Client Application Server Toolkit DB2 Personal Developer's Edition v7.2
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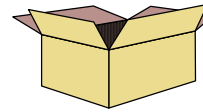
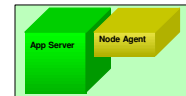
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WebSphere Application Server: Features

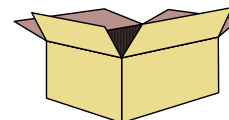
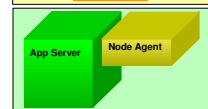
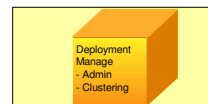
- **Single server environment**
- **Full J2EE 1.3 support**
- **Enhanced Web Services support**
- **Extended relational DB support**
 - Add Oracle 9i
 - Ships Cloudscape for samples
- **New Administrative Model**
 - Based on Java Management Extensions (JMX) framework
 - Browser-based Administration Console
 - XML-based configuration repository
 - No RDB is required
 - Role based administration security
 - Scripting administrative interface based on Bean Scripting Framework
- **Security**
 - Java 2, JAAS, CSiv2
 - Support for crypto card Eracom CSA 8000
- **Problem determination/tracing**
 - FFDC First failure data capture
 - End-to-End Transaction Trace
 - Messaging improvements
- **Application Assembly Tool**
 - Supports J2EE 1.3
- **Enhanced migration tooling**
 - 3.5 or 4.x → 5.0
- **3.5 and 4.x interoperability**
- **IBM HTTP Server**
 - IHS 1.3.26
 - IHS 2.0
- **JDK 1.3.1**



WebSphere
Application
Server

WebSphere Application Server – Network Deployment

- **Targets multiple servers, multiple nodes environment**
 - Focus is on scalability, availability, and performance
 - Clustering and failover support
 - Web server plug-in supports weighted workload management
- **Distributed Administration**
 - Browser based administration console for the entire topology
 - XML-based repository
 - No RDB requirement
- **Ships with Edge Components**
 - Network Dispatcher
 - Switch Consultants for CISCO and Nortel switches
 - Site Selector for scaling Network Dispatcher
 - Caching Proxy
 - Reverse Proxy, Content Based Routing,...
 - Dynamic content caching: integration with WAS servlet caching
- **Enhanced Web Services functions**
 - UDDI Registry - for private UDDI registry
 - Web Services Gateway



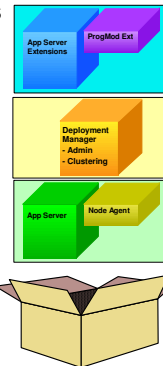
WebSphere
Application Server
Network Deployment

WebSphere Application Server Enterprise

- **Focus is on extending the J2EE Programming Model**
 - Enable implementation of sophisticated application functions
 - To provide performance advantages

- **Functions provided in WAS Enterprise 5.0**

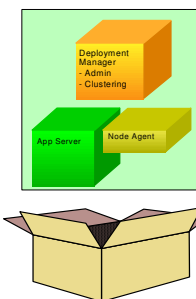
- Dynamic Access Intent and Application Profiling
 - As opposed to static Access Intent
- Activity Sessions
 - Extend standard transaction model
- Dynamic Query Capabilities
 - Extend static and standard EJB QL
- Extended Messaging Support
- Business Process Workflow Support
 - Microflow / Macroflow runtime support
- Asynchronous Beans
- Scheduler
- Startup Beans
- Business Rules Beans, Work Area, Internationalization, CORBA SDK



WebSphere
Application
Server Enterprise

WebSphere Application Server – z/OS

- **Targets Sysplex Environment**
 - Focus is on scalability, availability, and performance
 - Clustering and failover support
- **Web Services functions**
 - UDDI Registry - for private UDDI registry
- **Full J2EE 1.3 support**
- **New Administrative Model**
 - Based on Java Management Extensions (JMX) framework
 - Browser-based Administration Console
 - XML-based configuration repository – DB2 not required
 - Role based administration security
 - Scripting administrative interface based on BSF
- **Security**
 - Java 2, JAAS, CSlv2
- **New Database**
 - Ships Cloudscape for samples
- **Application Assembly Tool**
 - Supports J2EE 1.3
- **Enhanced migration tooling**
 - 4.0.1 → 5.0
- **4.0.1 interoperability**
- **IBM SDK 1.3.1**



WebSphere
Application Server
for z/OS

Operating Systems Supported

Operating System	Levels Supported (Dist 5.0.1, z/OS 5.0)
Win2000	Advanced Server SP3 Server SP3
NT	SP 6a
AIX	4.3.3 level 4330-10 5.1 levels 5100-02 or 5100-03 5.2
Linux/Intel	RedHat AdvancedServer 2.1 RedHat 8.0 SuSE 7.3 SuSE SLES 7 SuSE SLES 8
Linux/390	RedHat 7.2 SuSE SLES 7
Solaris	8 Patch Cluster July 29, 2002 or later
HP-UX	11i
OS400	5.1 5.2
OS/390	V2R10 and up
z/OS	V1R1 and up
z/OS.e	V1R3 and up

Databases Supported by Platform

Supported Databases	OS
CloudScape 5.0.9 (for Samples) DB2 7.2 FP 7, DB2 8.1 DB2 for 390 6.1 and 7.1 (through DB2 Connect) Oracle Enterprise Edition 8i Rel. 3 and 9i	Win2000, NT AIX Linux/Intel Linux/390 Solaris
CloudScape 5.0.9 (for Samples) DB2 7.1	OS/390 z/OS
SQL Server Enterprise 7.0 SP 2	NT
SQL Server Enterprise 2000	Win2000
Sybase 12.0	NT AIX Solaris
Informix 7.31 and 9.3	Win2000, NT AIX Solaris
DB2/400	OS/400

Also check: <http://www.ibm.com/software/webservers/appserv/doc/latest/prereq.html>

WebSphere 5.0: Standards Checklist

Standards	Level	WebSphere 5.0
J2EE	1.3	✓ Fully certified and part of Sun's JCEE list
EJB	2.0	✓ EJB 2.0 and EJB 1.1 support
JDK	1.3	✓ JDK 1.3
Servlet	2.3	✓ Servlet 2.3
JSP	1.2	✓ JSP 1.2
JTS/JTA	1.0	✓ w/distributed transactions
JMS	1.0.2	✓ With Native Provider, and MQ plug-in
JDBC	2.0	✓ 2PC across heterogeneous databases
JNDI	1.2	✓ JNDI 1.2 for EJB lookup and CosNaming
RMI/IIOP	1.0	✓ Fully supported
JavaMail/JAF	1.2	✓ Plus Domino support
SSL Security	2.0	✓ JSSE and JCE
XML JAXP	1.0	✓ XML in EJBs
J-IDL/CORBA		✓ IIOP 1.2
J2C	1.0	✓ Bean and container managed
LDAP		✓ SecureWay, iPlanet, ActiveDirectory
HTTP	1.1	✓ Yes, plus across multiple Web servers
SOAP	2.2.2	✓ Soap support for WebServices.
SOAP-SEC	1.0	✓ Tech preview
COM/ASP Support		✓ w/Java wrapping & proxy
JMX	1.0	✓ JMX pending
XML4J	4.0	✓ XML support
XSL	2.3	✓ XSL parser

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Development Tooling

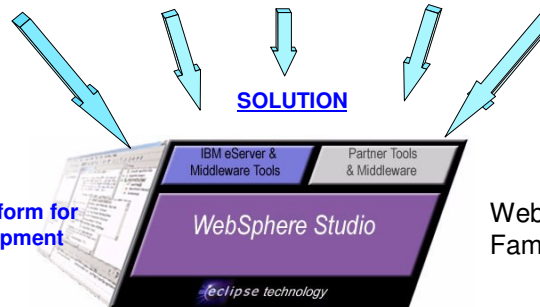
Development Roles

- Each development role requires specialized tooling:



SOLUTION

An integrated platform for e-business development



WebSphere Studio Family of Products

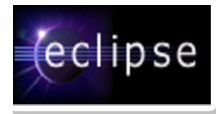
WebSphere Studio Workbench

- Open, extensible tool platform for WebSphere

- The IBM commercially supported implementation of Eclipse
- A foundation for the WebSphere Studio family
- First AD integration platform to fully embrace open technologies
 - Same successful approach as for Apache, J2EE, and Linux

- Largest contribution to the open-source initiative

- Licensed via Common Public License
- Allows partners, customers to develop, customize, and integrate their tooling using open standards
- Based on Java
- Initially supported on Windows and Linux
- Continued IBM investment in Eclipse

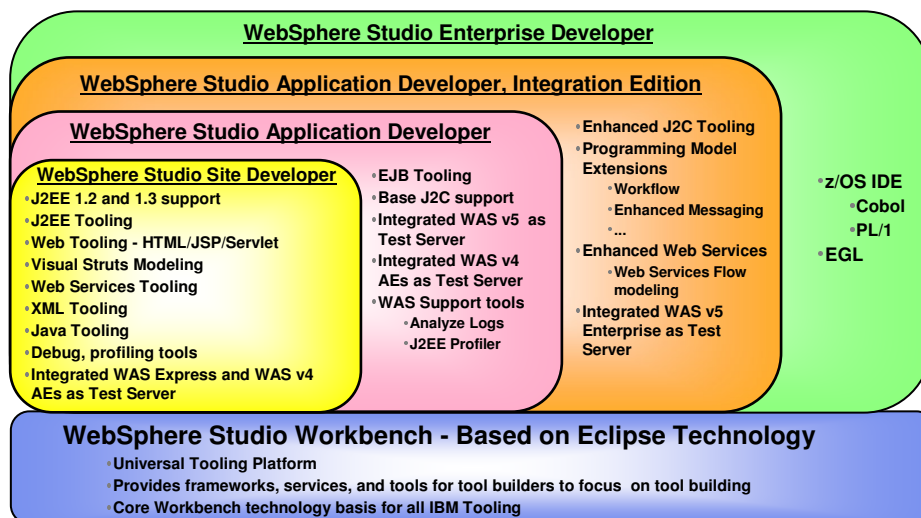


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WebSphere Studio Family of Products

WebSphere Studio Family of Products



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The Right Tool for the Job

The diagram illustrates the mapping of WebSphere Studio development tools to different WebSphere Application Server environments. The tools are arranged in two rows: Application Developers and Site Developers. The servers are shown in boxes at the bottom, with arrows indicating the deployment path from the tools above.

Tool	Target Server Environment
WebSphere Studio Application Developer	WebSphere Application Server and Express
WebSphere Studio Site Developer	WebSphere Application Server and Express
WebSphere Studio Application Developer	WebSphere Application Server Network Deployment
WebSphere Studio Site Developer	WebSphere Application Server Network Deployment
WebSphere Studio Application Developer	WebSphere Application Server for z/OS
WebSphere Studio Site Developer	WebSphere Application Server for z/OS
WebSphere Studio Application Developer, IE	WebSphere Application Server Enterprise

Additionally, **WebSphere Studio Enterprise Developer** offers additional functionality such as EGL Tooling, Cobol and PL/1 development tooling, etc.

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Application Server Toolkit

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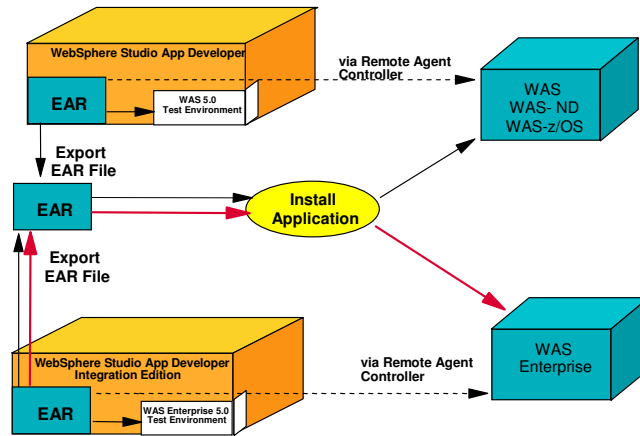
Application Server Toolkit Overview

- **Includes a number of Eclipse-based tools**
 - Debugger
 - Application Profiler
 - Eclipse-based Log Analyzer
 - Workbench
- **Ships with WebSphere Application Server**
 - Minimal footprint version of correspondent tools available in WebSphere Studio App Developer
 - Same look and feel
 - Installs separately

Section

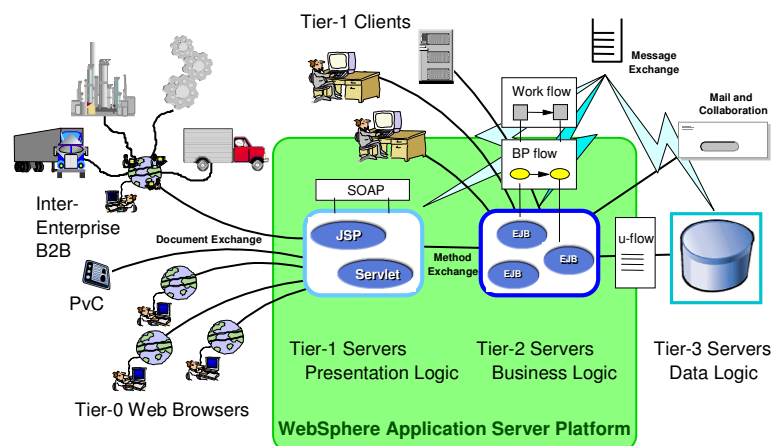
Development and Deployment Process

Development and Deployment Process



Remote Agent controller not available for z/OS

WebSphere 5.0: Summary



Runtime+Tools=Successful e-business applications