



# **WebSphere Studio Application Developer**

**The Application Development Tooling  
Platform for the 21st Century**

# **WebSphere**

**| The Fastest Way to e-business |**

# Agenda

- **Announcement / Summary**
- **Problem**
- **Solution**
  - ▶ **Workbench (Eclipse)**
- **Offering**
  - ▶ **WebSphere Studio Application Developer**
  - ▶ **Build, Test, & Deploy J2EE applications from end-to-end**
  - ▶ **Java IDE and Tracing Tools**
- **Partners**
- **Summary**



## Gartner

### Hot! IBM's Eclipse Seeks to Revive Best-of-Breed Tool Concept

*"IBM is first to launch a 'community property, best of breed' AD platform designed to integrate a variety of tools from a variety of vendors... The implications ..are not only significant, but far-reaching."*



### New Eclipse Platform Promises to Simplify Tool Integration for Collaborative Development

*"we noted the trend of active partnering in the AD tool-vendor community to provide customers with better life-cycle integration, the Eclipse project takes this spirit of openness to a new level"*

## Illuminata

### IBM's Eclipse: Aggressively Open, Openly Aggressive

*"Now comes IBM's most audacious and aggressive gambit so far. ... IBM plans to be the game changer."*

### Robert Francis Group:

*"IBM is hoping Eclipse will 'eclipse' support for proprietary application and Web services development environments, notably Microsoft's .Net initiatives."*

## FORRESTER

### Eclipse Will Fuel IBM's Software Might

*"IBM's new Eclipse initiative ... will boost WebSphere's marketshare and challenge Microsoft and Sun Microsystems ... A strong move for IBM"*

Over 55 Articles Published in the First 3 Days!!!

**The New York Times**  
ON THE WEB

***"Eclipse is a break from the proprietary pattern, it come at a critical time in the industry...its a very aggressive move. [IBM] is betting that opening up the software tools ecosystem will work to its advantage"***

the **451**™ technology firestarters

***"IBM Aims to Eclipse Tools Market...for Microsoft, Eclipse presents something of a problem...they will have to contend with yet another open source threat on a relatively unprotected flank..."***

boston.com **THE BOSTON GLOBE** BREAKING NEWS  
**Online**

***"The name of this new open source initiative is Eclipse, as in overshadowing of Microsoft's proprietary approach ... it may take a long time, but the open-source movement eventually will accomplish what the government failed to do .."***

**it business.ca**

***"IBM's plans can change the entire industry. As revolutions go, this one is a bargain"***

**TechRepublic**  
Real World. Real Time. Real IT.

***"IBM is leading the pack with its new development tools"***

Significant Initial Interest!

Over 10,000 Downloads of Studio Products in the First 3 hours of availability!

Over 31,000 Visitors to Eclipse.org Site in first two days

Over 4,400 Eclipse Downloads in first two days

Blew Up the Eclipse.org WebSite three Times Due to So much Interest !!



## What Are We Announcing?

**Solutions that unlock the full power of open e-business platforms through unprecedented gains in developer productivity and quality**

*Tools + Infrastructure + Open Technology + Community*

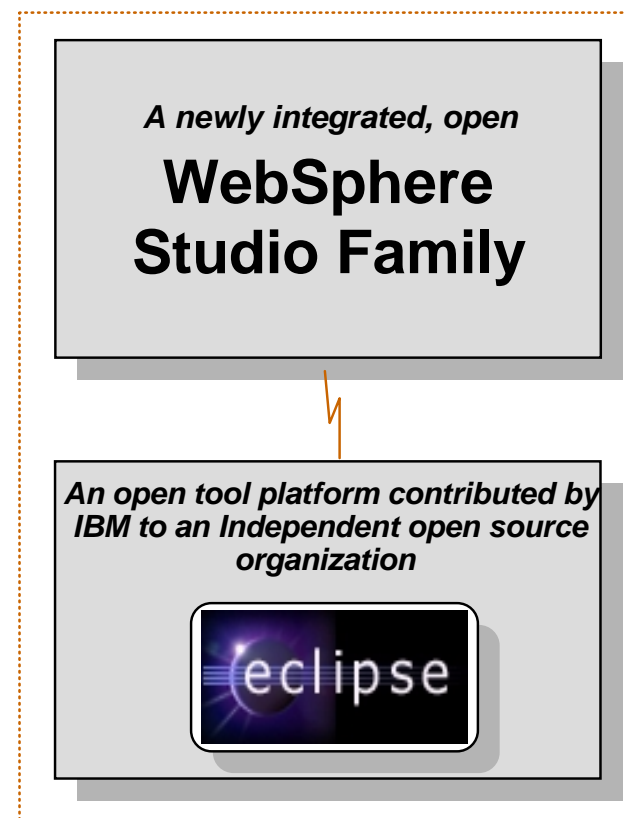
### Business Problem

Productivity & quality limitations due the inability to integrate best-of-breed tools & infrastructure in a single, seamless environment



### Technology Problem

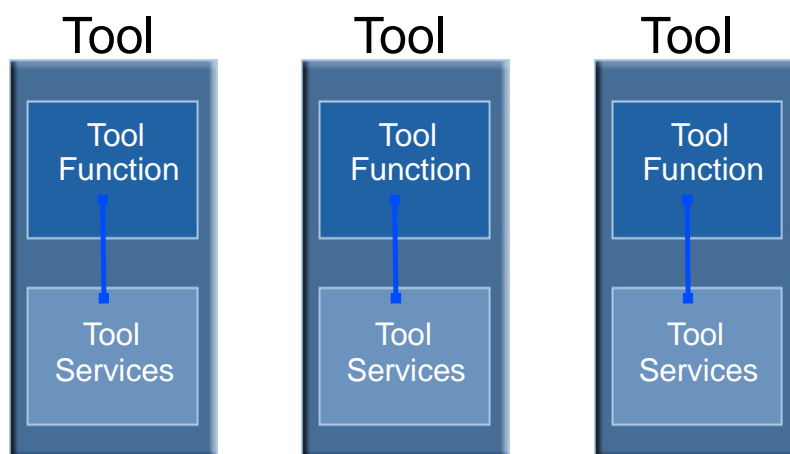
Lack of an open application development integration platform similar in nature to what is available for servers (e.g., Apache / J2EE / Linux)



# WebSphere Studio Workbench :

## Delivering a Comprehensive Development Environment

### A fundamental change in AD Tooling paradigm

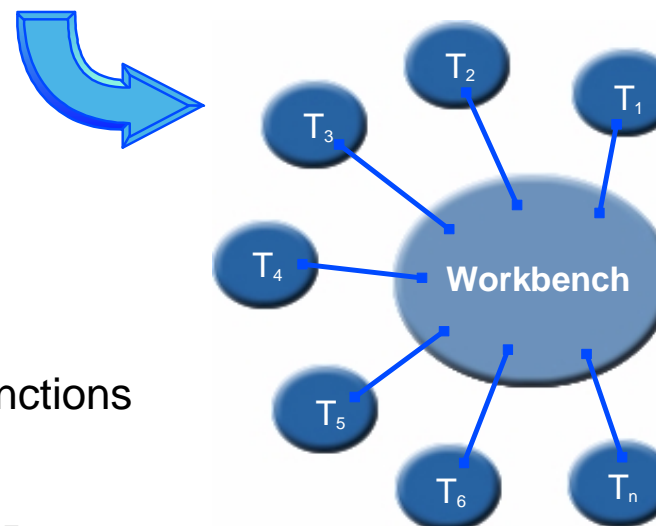


### ■ Challenges

- ▶ Difficulty of integration
- ▶ Different Semantics, UI etc
- ▶ Different repositories
- ▶ Not best-of-breed Tool Services
- ▶ Difficult to manage
- ▶ Slow to Market


### ■ Benefits

- ▶ Easier integration
- ▶ Single view/mgmt
- ▶ Common look and feel
- ▶ Best-of-breed Tool Services
- ▶ Tool builder focus on tool functions
- ▶ Fast to Market



## Roles-based Development:

- **Developing Web Applications requires more than writing Java Code**

Role	Enterprise Integrator	Bean Provider	Application Assembler	Page Producer	Web Master
Concern	Connection Data	Business Logic Data	Application Flow	Page Layout & Content	Operational Environment
Produces	Java Beans EJBs	Java Beans, Enterprise Java Beans	HTTP Servlets, JSPs, JavaBeans	Java Server Pages, HTML, MIME types	Configuration Data, Site Usage Statistics
Tool	The Ultimate Development Environment where everything works together				





# **Solution: WebSphere Studio Workbench**

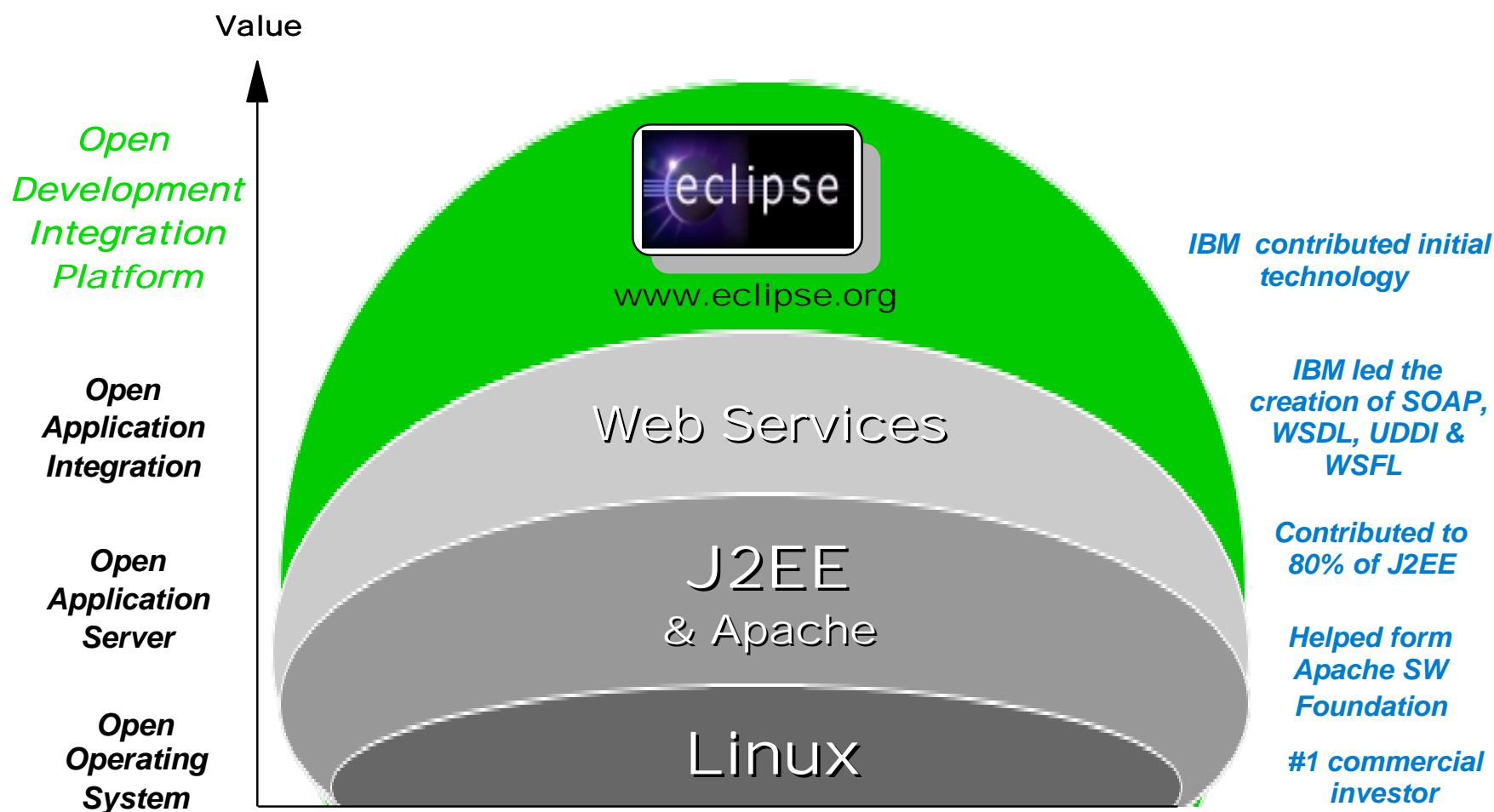
# **WebSphere**

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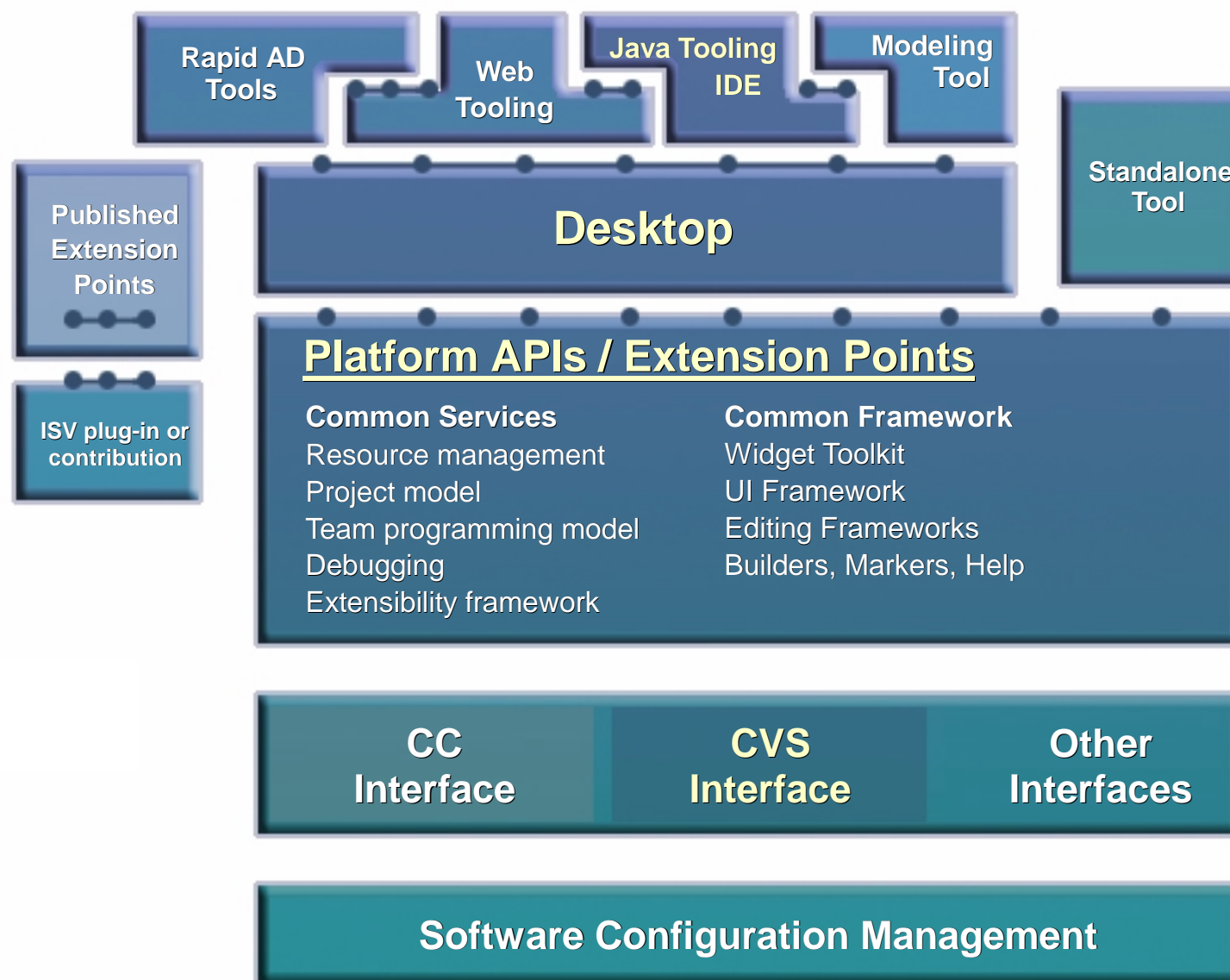
## Open Technology Leadership

The first AD integration platform to fully embrace open technologies, adopting the open approach that has been successful for Apache, J2EE & Linux





# Workbench - Architecture



## Workbench Integration Levels

- **Different levels of integration are available in the Workbench**
  - ▶ **Most competitor tools only provide invocation support only**

	Levels of Integration	Example
<b>Invocation</b>	Integration is through invocation of registered applications on resource types	Tool A is launched from workbench based on file extension
<b>Data</b>	Integration is achieved through data sharing	Tool A changes a UML model which automatically changes implementation in Tool B
<b>API</b>	Tools interact with other tools through platform APIs	Tool A invokes Tool B through Tool B APIs
<b>UI</b>	Tools and their user interfaces are dynamically integrated with the workbench at runtime	Tool A runs as embedded view in workbench

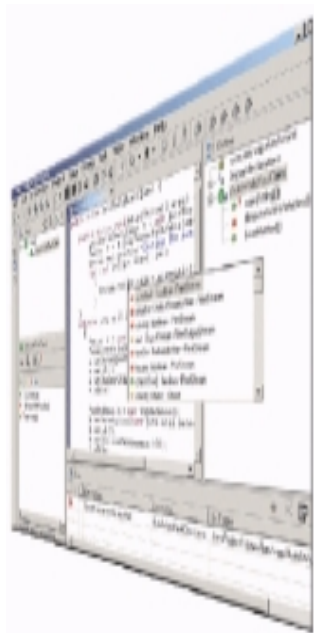
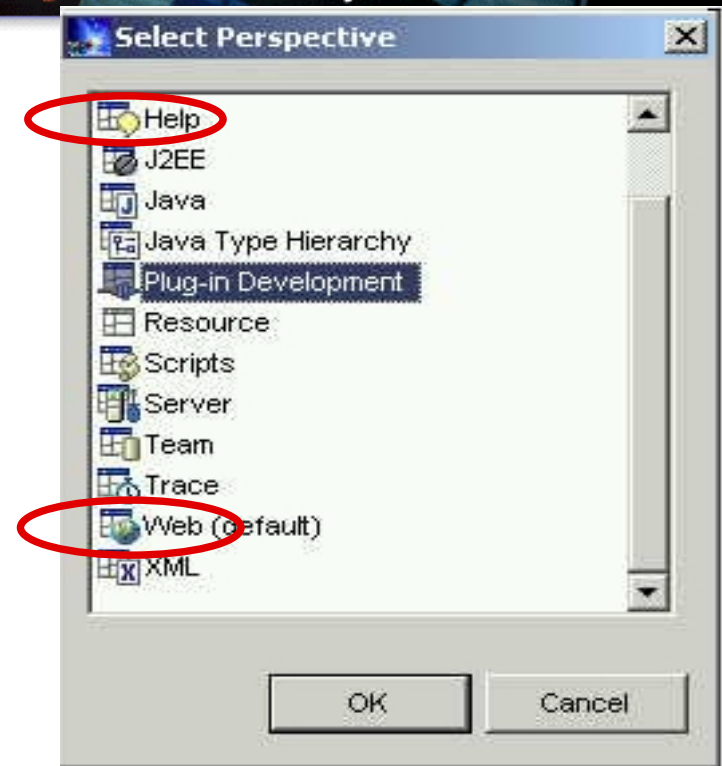


## WebSphere Studio Workbench

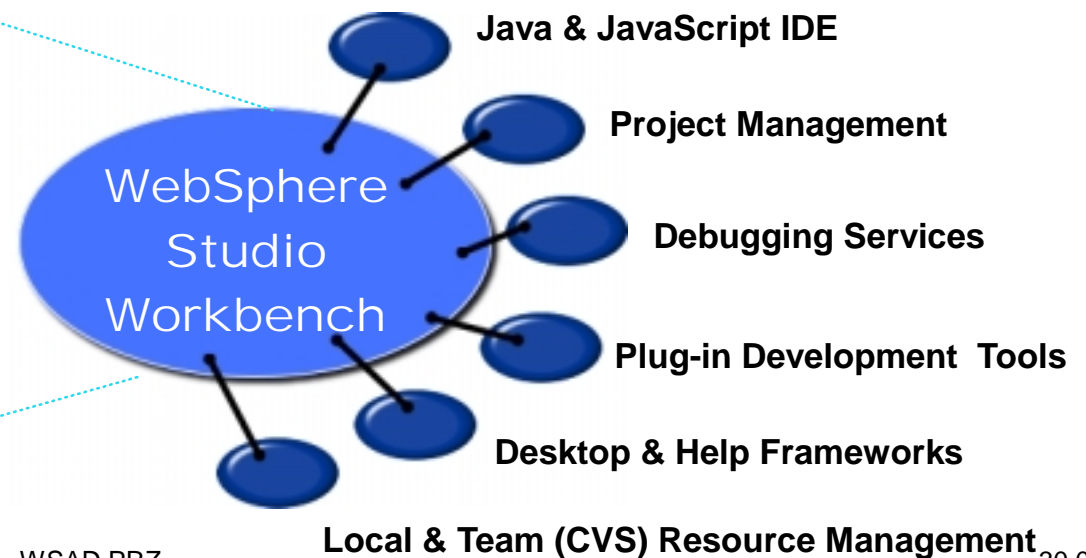
An Open Tool Integration Platform

A personalized, extensible  
development platform organized  
via developer

**"Perspectives"**

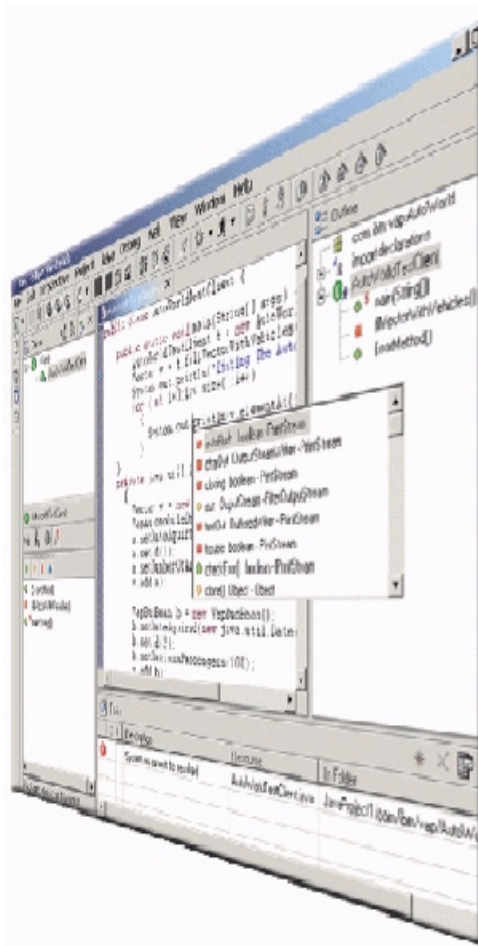


Products built  
with Eclipse  
inherit these  
capabilities  
plus 'plug-ins'  
built by others



# The New WebSphere Studio Family

IBM's Development Solution for e-business



**IBM Server  
& Middleware  
Tools**

**Partner Tools  
& Middleware**

**WebSphere Studio**

**WebSphere Studio Workbench**





**Offerings:  
WebSphere Studio**

**WebSphere**

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# WebSphere Studio Tooling Platform

## WebSphere Studio Enterprise Developer

### Application Developer, Integration Edition 4.1(1Q/2002)

#### Application Developer

##### Site Developer

- HTML/JSP Tooling
- Servlet Tooling
- Web Services Tooling
- XML Tooling
- ClearCase LT OEM

- EJB Tooling
- Performance and Trace Tooling
- Advanced Data Tooling

- Services architecture for accessing EIS resources
- J2C Connectors (CICS, IMS, HOD)
- Microflow Builder
- CCF Connectors
  - Runtime Only
- VAJ EAB migration tooling

- Visual Enterprise Application Tooling
  - Apache Struts Builder
- Remote E/C/D for COBOL/PL1
- EGL Development Tools

## WebSphere Studio Workbench

- IBM's commercially supported version of Eclipse Workbench
- Basis for IBM Tooling in the future

## Eclipse Workbench

- Universal Tool Platform Initially Developed by IBM
- Basis of Open Source Project ([www.eclipse.org](http://www.eclipse.org))
- Provides frameworks for tool builders to focus on tool building
  - e.g. Core Java IDE
  - e.g. core VCM API/ CVS Plug-in



# WebSphere Studio - Target Users

## WebSphere Studio Enterprise Developer

### Application Developer, Integration Edition 4.1(1Q/2002)

#### Application Developer 4.02

##### Site Developer

- Web Developer
  - Create Web Content
  - HTML/JSP/Graphics
  - Servlets
  - Web Services

- Basic J2EE Developer
  - Create Web Content
  - EJBs

- Advanced J2EE Developer
  - Integrate existing EIS applications into J2EE Applications
  - CICS, IMS, HOD, J2C, etc

- Enterprise Developer
  - Create new EIS applications into J2EE a Application
  - RAD Tooling

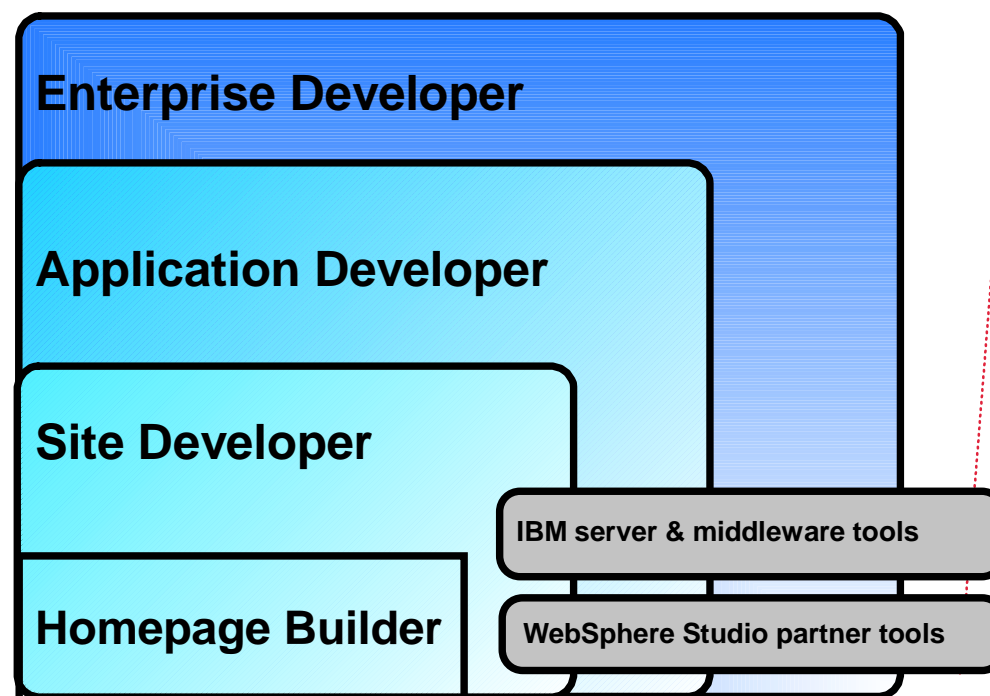
## WebSphere Studio Workbench

## Eclipse Workbench

## The New WebSphere Studio

Fast, Easy and Powerful

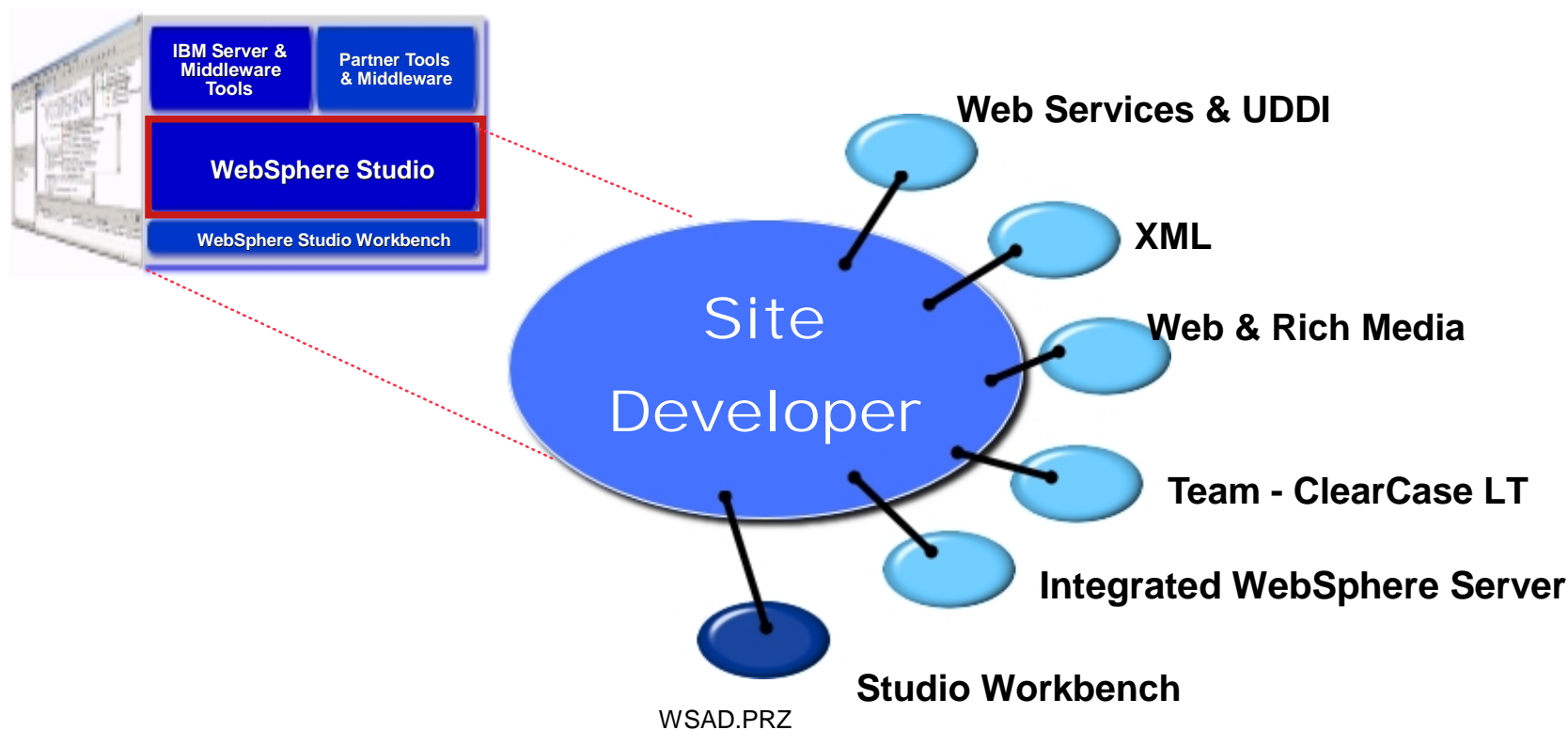
- ★ A single, comprehensive IDE with unprecedented flexibility & extensibility
- ★ Configurations add or subtract "perspectives" to meet the needs of specific developer roles
- ★ Extend and customize with partner, customer & IBM plug-ins
- ★ Common development environment across Windows and Linux





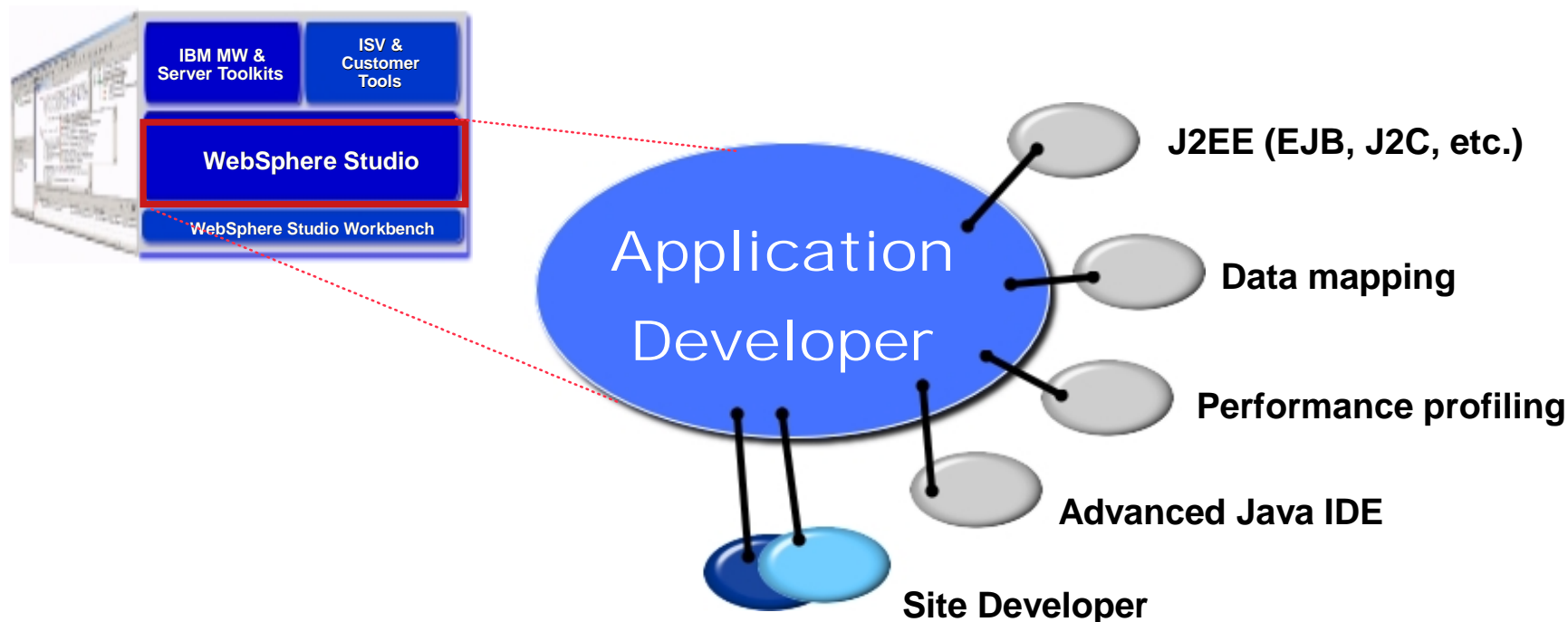
## The New WebSphere Studio Site Developer

- ★ For professional developers of dynamic Web applications & sites
- ★ Delivers integrated support for open Web standards, including Java, JSP, XML, Rich Media & Web services tools
- ★ Includes Rational ClearCase LT as a team development option



## The New WebSphere Studio Application Developer

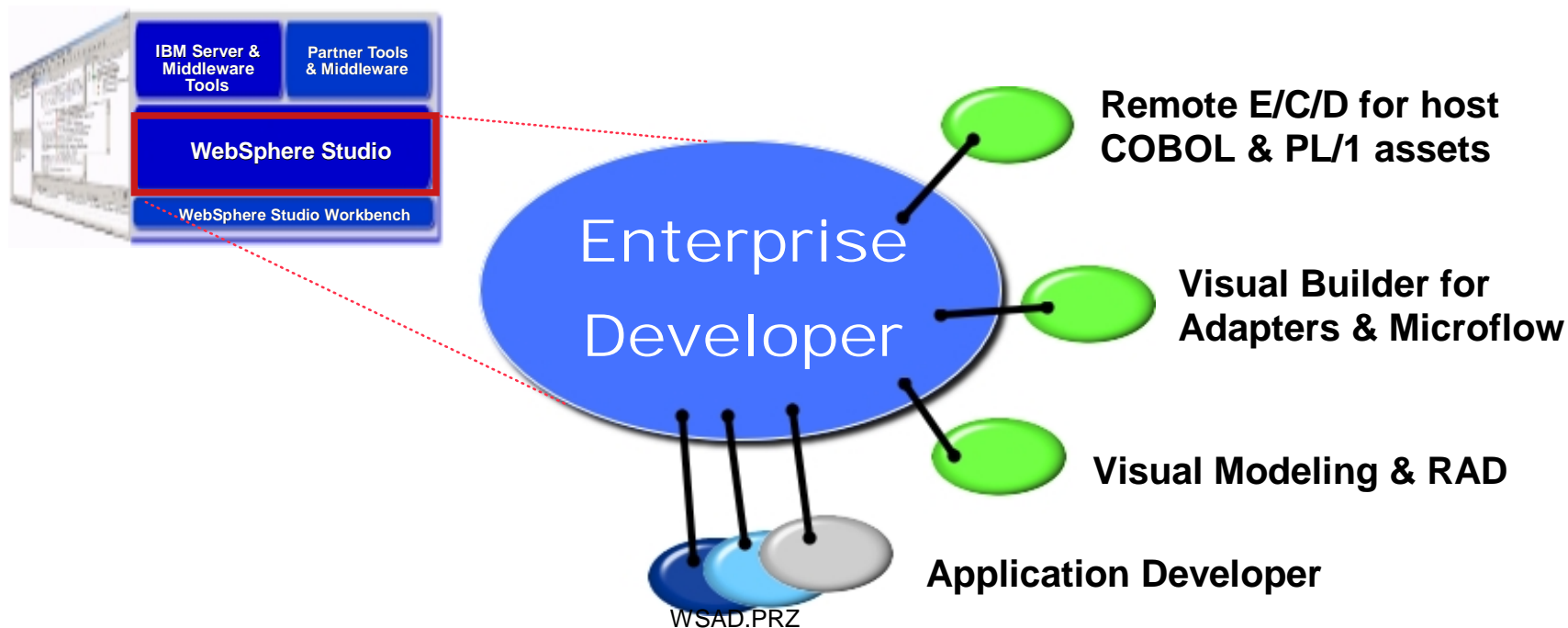
- ★ For professional developers of Java & J2EE applications, requiring integrated Web, JSP, XML & Web services support
- ★ Advanced tools for code generation, performance tuning & quality
- ★ Includes a highly integrated WebSphere Application Server test environment and deployment automation tools





## The New WebSphere Studio Enterprise Developer

- ★ For developers & integrators of advanced J2EE & Web services
- ★ RAD tools for visual application modeling, composition & adaptability (e.g., business rules)
- ★ Advanced EAI tools for generating adapters & dynamic microflows including integration of remote host assets







# **Build-Test-Deploy J2EE Applications (from end-to-end)**

# **WebSphere**

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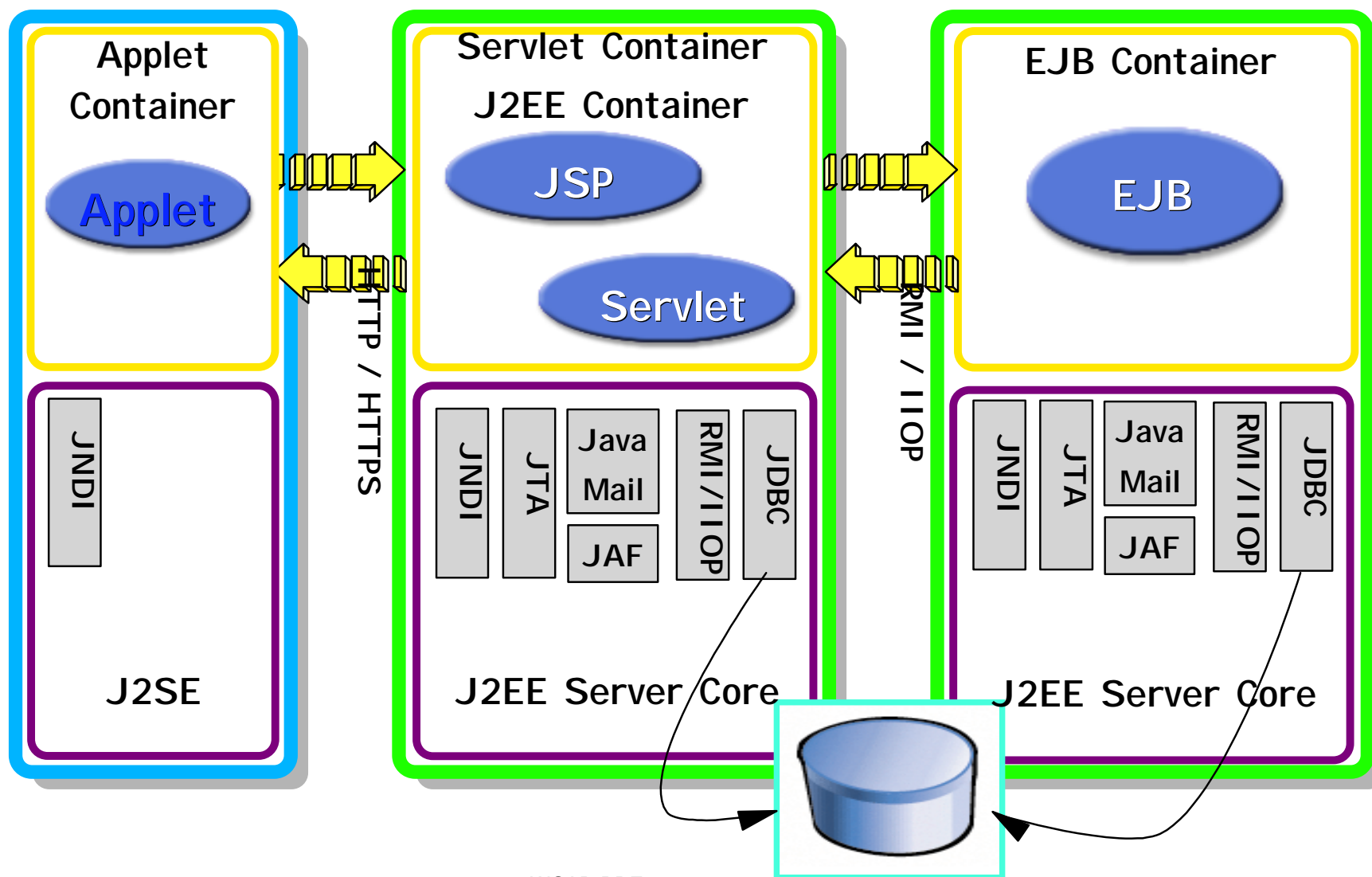


# J2EE Architecture

Client-Side  
Presentation

Server-Side  
Presentation

Server-Side Business  
Logic



# WebSphere Studio Application Developer

## Support for J2EE

### Legend



Built-in Tooling



Add-on Tooling



No specific tooling,  
use Java IDE/SDK  
to develop

- ① EJBs
- ② Servlets
- ③ JSPs
- ④ Transactions
- ⑤ JDBC
- ⑥ J2EE Connector
- ⑦ XML ← Covered in another Presentation
- ⑧ JNDI
- ⑨ JMS
- ⑩ CORBA
- ⑪ Performance/Tracing ← Covered in another Presentation





# **J2EE Server Side Development**

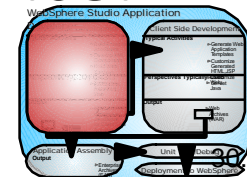
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## EJB Development Tooling

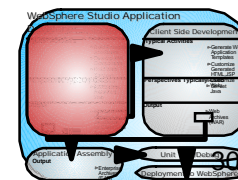
- **J2EE Tooling provides facilities to easily create session/entity EJBs**
  - ▶ Simplifies server and client EJB development
- **Various Mapping approaches**
  - ▶ Top down, bottom up, Meet in the middle
- **Easy to use EJB Access Bean Tooling**
- **Visual Editor for EJB Deployment Descriptor, for**
  - defining standard and extensions
- **Built in EJB Test Client**
- **App Server Unit test Environment**
  - ▶ allows for the configuration of multiple unit test servers





## XML Development

- **Built-in XML Tooling provides integrated tools/perspectives to create XML based components:**
  - ▶ DTD Editor
  - ▶ XML Schema Editor
  - ▶ XML Source Editor
  - ▶ Additional XML Tools:
    - XML Mapping Editor
    - XSL Trace Editor
    - XML to/from Relational Databases
    - RDB/XML Mapping Editor
    -
- **Built in XML perspective provides the useful views for the XML developer**



# Web Services Development

## ■ Easily Consume/Construct Web Services:

### ▶ Discover

- Browse UDDI registry to locate existing web services
- Generate JavaBean Proxy for existing web services

### ▶ Create/Transform

- Create new Web Services from JavaBeans, databases, etc.

### ▶ Deploy

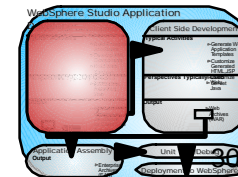
- Deploy Web Service to WebSphere or TomCat for testing

### ▶ Test

- Built-in test client allows for immediate testing of local/remote Web Services

### ▶ Publish

- Publish Web Services to UDDI registry







# **J2EE Client Side Development**

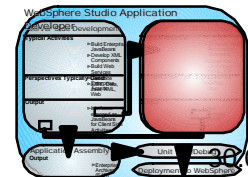
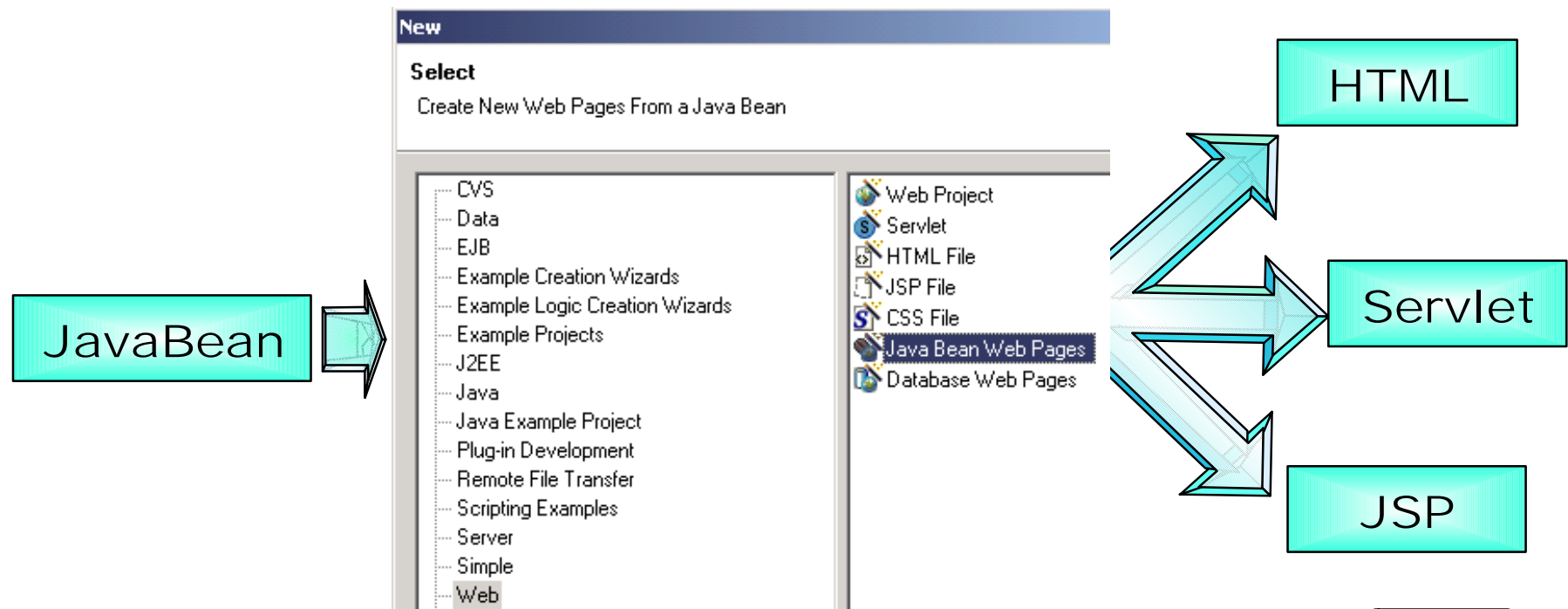
# **WebSphere**

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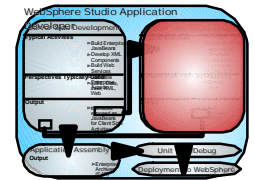
# Generate Web Application Templates

- **JavaBean Wizard can generate web application template**
  - ▶ **HTML, JSP, Servlet**

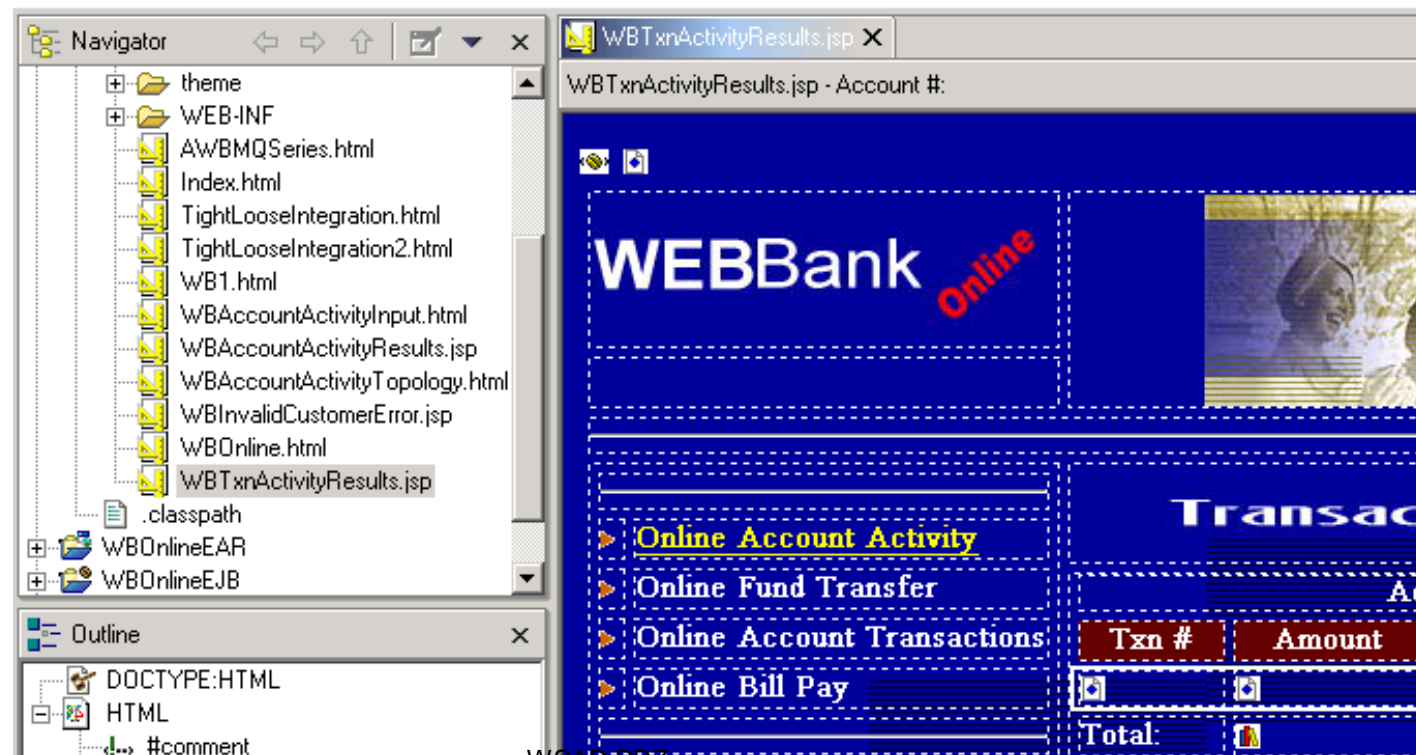




## Customize the HTML/JSP

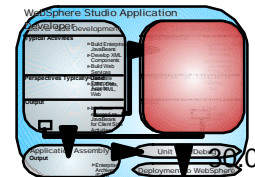


- **Built in Page Designer can be used to customize the generated HTML/JSP**
  - ▶ Design, Source, Preview modes
  - ▶ Code Assist available in Source view



## Other Web Tooling Features

- **HTTP/FTP Import**
- **WAR Import/Export**
- **Links View (Relations)**
  - ▶ **View HTML/JSP and all links referenced in HTML/JSP**
- **Parsing/link management**
  - ▶ **Automatically fix links when resources are moved/renamed**
- **Built-in JSP Source Debugging**
- **Site-Style and Template Support**
- **Web Perspective provides the useful views for HTML/JSP developer**







# **J2EE Application Assembly**

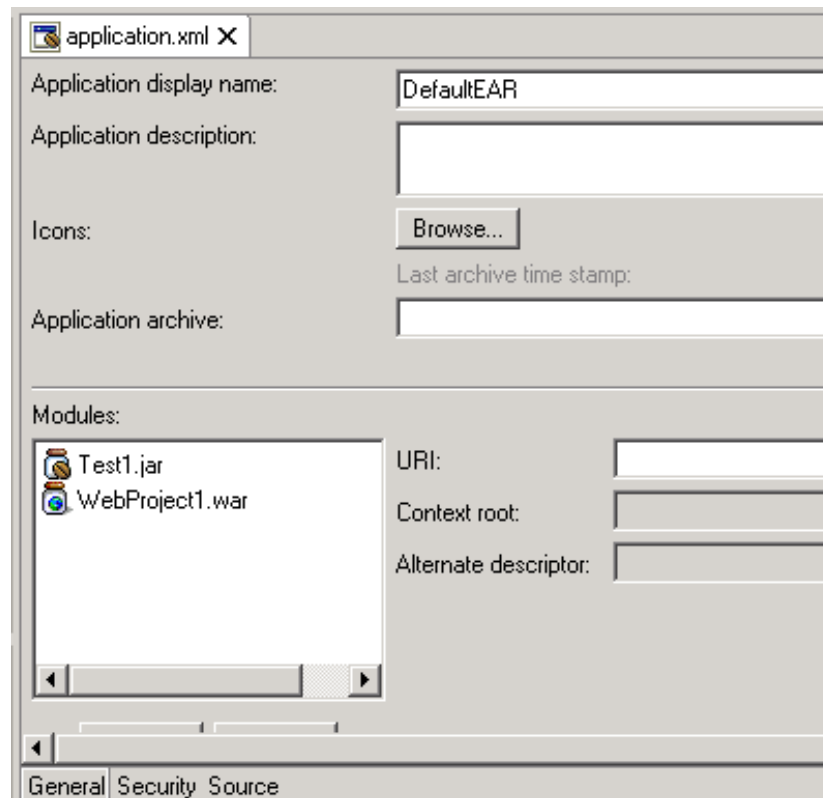
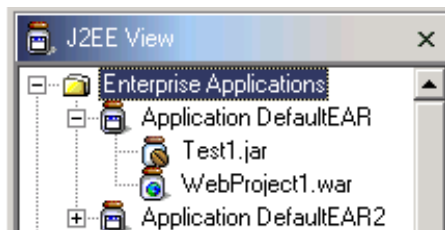
# **WebSphere**

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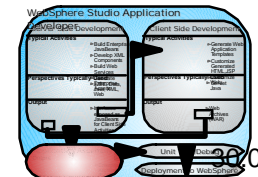


# Application Assembly

- **Built-in Enterprise Archive (EAR) editors are used to customize the EAR**
  - ▶ Add WARs, EJB JARs, create context roots, set security, etc.



WSAD.PRZ



30.05.02





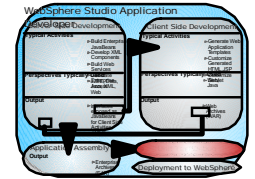
# **J2EE Unit Testing/Debugging**

# **WebSphere**

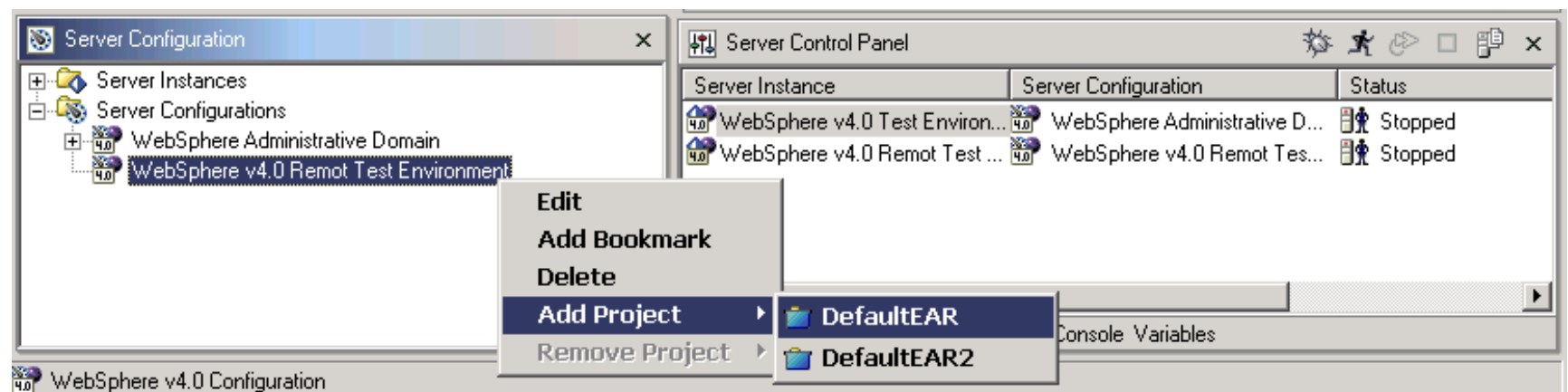
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# Unit Testing/Debugging



- **Built-in Unit Test Environment allows for the configuration of multiple unit test servers**
  - ▶ **Local servers**
    - e.g. Built-in WAS 4.0 AEs/AEd Application Server
  - ▶ **Remote servers**
    - e.g. External WAS 4.0 AEs/AEd Application Server





## Specific WebSphere Tooling Support

- **Built-in WebSphere Unit Test Environment**
  - ▶ WebSphere 4.0.1 AEs
- **Built-in support for local/remote testing with WebSphere Application Server**
- **Full support for generating WebSphere deployed J2EE modules:**
  - ▶ EAR, WAR, deployed EJB JAR
  - ▶ Command line generation of WebSphere deployed EJB JAR
  - ▶ Support for WebSphere J2EE extension bindings

**Runtime+Tools=Successful  
e-business applications**





# Java IDE and Tracing Tools

# WebSphere

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## Java IDE - Key Features

- **Ships with JDK 1.3**
- **Pluggable runtime JDK support per project**
  - ▶ Specify JRE and rt.jar for running/building/debugging
- **Incremental Saves**
- **Java Snippet support (Scrapbook)**
- **Task Sheet (All Problems Page)**
- **Code Assist**
- **JDI based debugger**
  - ▶ One debugger for local/remote debugging
- **Run code with errors**
- **Refactoring Support**
  - ▶ Rename/move support for method/class/packages
  - ▶ Fixes all dependencies for renamed element
  - ▶ Method Extraction

## Performance/Trace Tooling

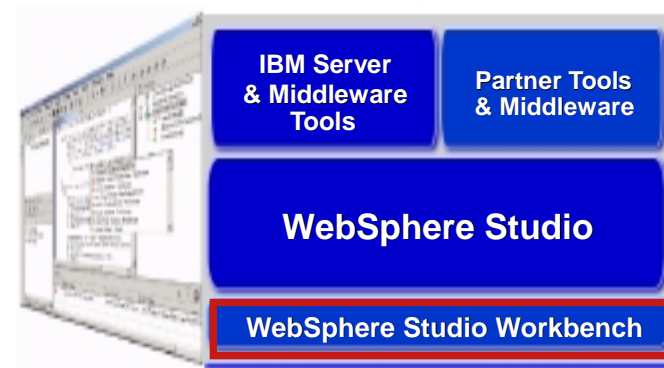
- **Built-in tooling helps developer isolate and fix performance problems with their web application:**
  - ▶ **Attach to local/remote agents for capturing performance data**
  - ▶ **JVMPI Monitoring-Java Virtual Machine Profiler Interface**
    - Heap
    - Stack
    - Class/Method details
    - Object References
  - ▶ **Resource Monitors**
    - Execution patterns
    - CPU usage
    - Disk usage
    - More...
- **Built-in Trace Perspective allows for analysis of the performance data for the Java developer**



## Eclipse Workbench Partner Programs

An Open Development Integration Platform

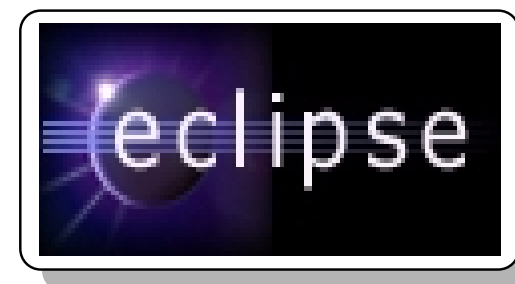
- ★ Enables vendors and customers to develop, customize and integrate tools and repositories via open standards
- ★ Based on Java with initial support for Linux & Windows
- ★ IBM has contributed the initial technology which is licensed via the Common Public License
- ★ IBM will continue to participate in Eclipse development and will adopt enhancements



Contribute



Adopt



[www.eclipse.org](http://www.eclipse.org)

## Eclipse - Broad Industry Participation

Over 1200 developers from 150 companies are participating in the Eclipse project, including these industry leaders ...

- Altoweb
- Asist
- Bowstreet
- BrowserSoft
- Cast Software
- CollabNet
- CommerceQuest
- Computer Assoc.
- Compuware
- Crystal Decisions
- Embarcadero
- Holosofx
- Instantiations
- Interwoven
- LegacyJ
- LogicLibrary
- Macromedia
- Merant
- Mercury Interactive
- Midcomp Intl.
- MKS
- NeuVis
- Peregrine
- QSSL
- Rational Software
- Red Hat
- Serena
- Sitraka
- Skyva
- Starbase
- SuSE
- Telelogic
- TogetherSoft
- Versant
- Versata
- Wily Technology

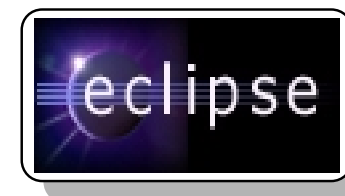
"Rational Software has been an early adopter of the Eclipse platform because we believe it delivers high value to software teams. We've been working closely with IBM to integrate our products into Eclipse...."

*Dave Bernstein, Sr VP of Products, Rational Software*

"The Eclipse community will allow developers to collaborate on enhancements to the Workbench technology and more rapidly integrate it within their own applications."

*Brian Behlendorf, co-founder and CTO, CollabNet*

"This has long been a dream of developers, and now IBM is providing the integration framework to make it possible." *Arun Gupta, CTO, NeuVis Software*





# Summary

- **WebSphere Studio Application Developer provides best-of-breed tooling for:**
  - ▶ **Building WebSphere Applications**
  - ▶ **Testing WebSphere Applications**
  - ▶ **Deploying WebSphere Applications**

**Runtime+Tools=Successful e-business applications**

# WebSphere

**■ The Fastest Way to e-business ■**



Thank You

## For More Information ...



### ★ WebSphere Studio Information and Web Demo

- [www.ibm.com/software/ad/adstudio](http://www.ibm.com/software/ad/adstudio)

### ★ WebSphere Studio Partner Program

- [www.ibm.com/partnerworld](http://www.ibm.com/partnerworld)

### ★ Eclipse

- [www.eclipse.org](http://www.eclipse.org)