

What's New with WebSphere Development Studio for iSeries

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Agenda

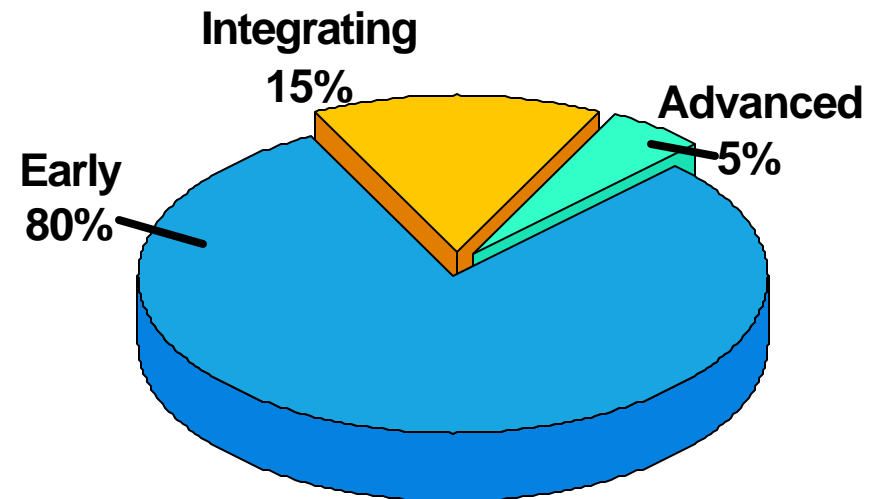
- Introduction to the Environment
 - Introduction to eclipse
- WebSphere Development Studio for iSeries
 - RPG and COBOL tools
 - Java Tools
 - Web Tools
 - XML, Web Services and Database Tools
 - WebFacing
- Summary and Appendix

Where we are now

States of e-business Adoption

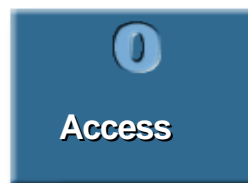
iSeries Focus:

1. Extend existing applications to the web
2. Buy new e-business solutions from ISV's
3. Build new e-business applications

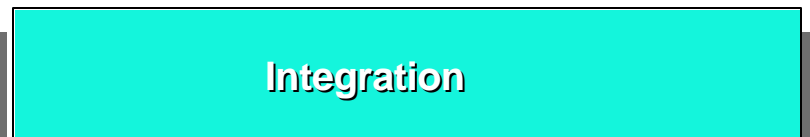
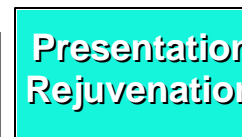
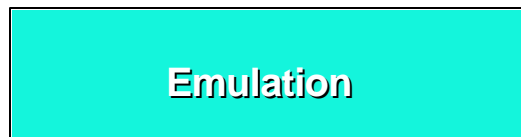


% of Adoption by States

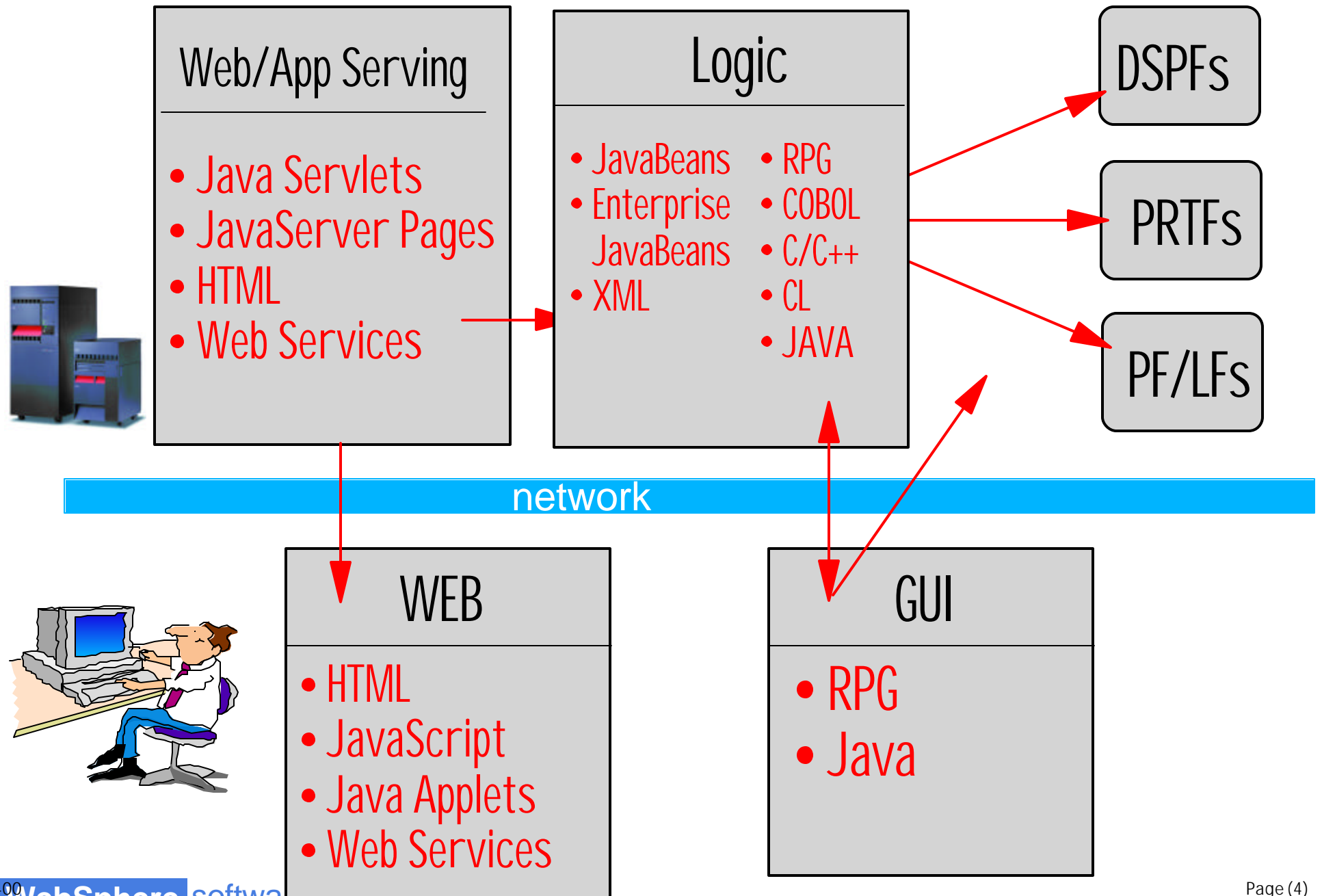
IBM States
of
e-business



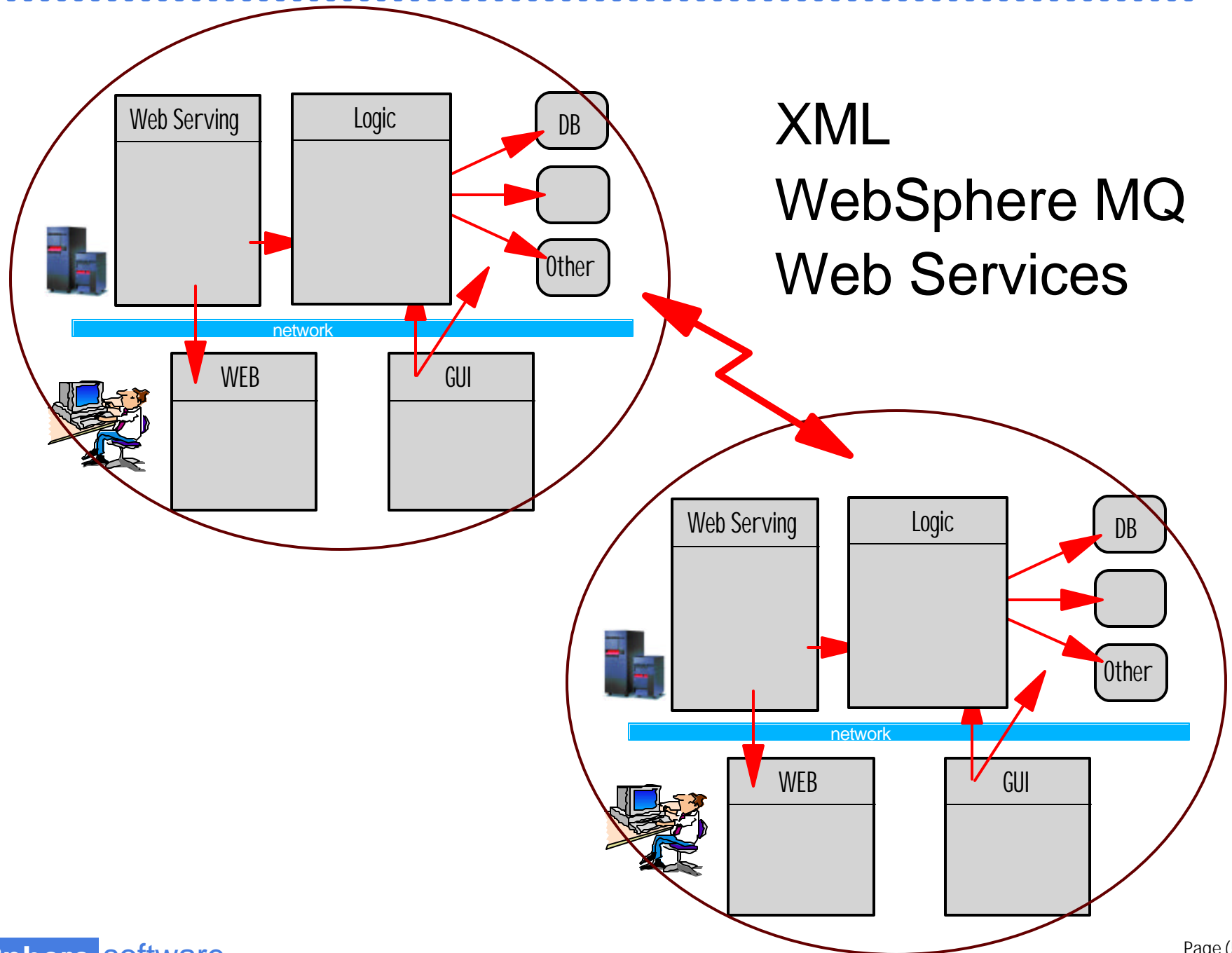
Gartner View
of Host
Integration



eBusiness Application Models

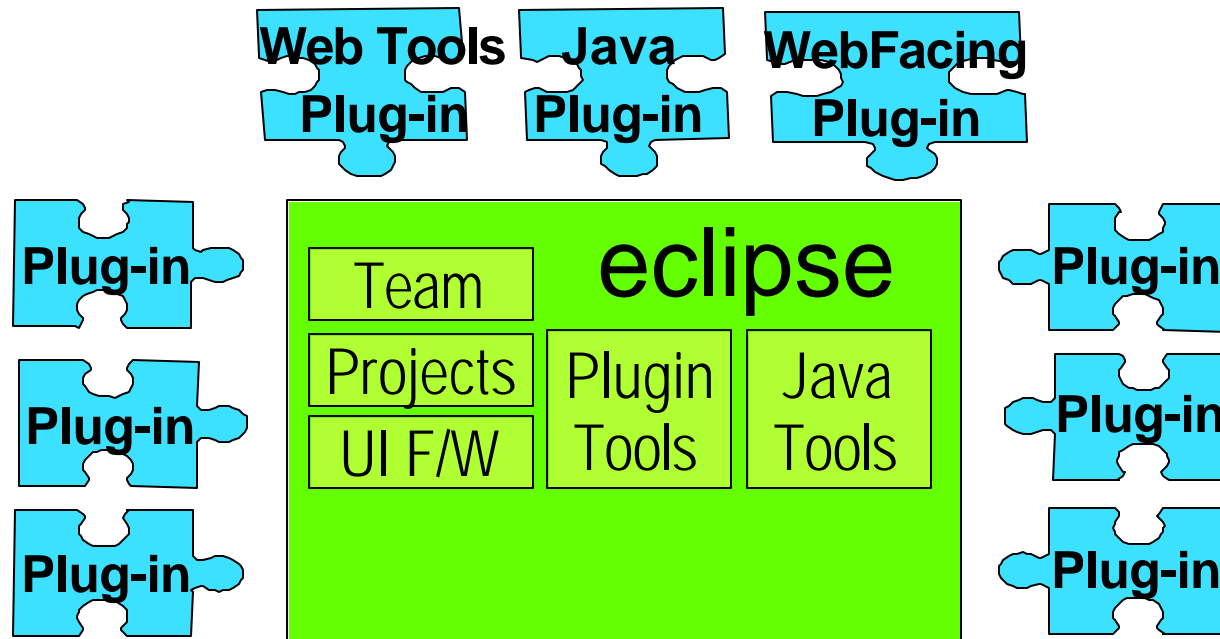


eBusiness Application Models



eclipse

- eclipse powers IBM's new IDE technology engine
 - fully open-source @ www.eclipse.org
 - huge interest: > 500,000 downloads
 - written in Java
 - easily extended by plugins
- Great industry feedback
 - buy in from many industry tool vendors



eclipse.org consortium

The screenshot shows the Eclipse.org website with a navigation menu on the left and a main content area. The navigation menu includes links for home, organization, projects, downloads, articles, newsgroups, mailing lists, search, and bugs. The main content area is titled "What is eclipse.org?" and contains the following text:

The eclipse.org Consortium was formed to deliver new-era application development tools. Industry leaders Borland, IBM, Merant, QNX Software Systems, Rational Software, RedHat, SuSE, TogetherSoft, and WebGain form the initial eclipse.org board of directors. These companies plan to release Eclipse Platform compatible product offerings.

In the Eclipse Platform, code access and use is controlled through the Common Public License¹, which allows individuals to create derivative works with worldwide re-distribution rights that are royalty free.

As with other open source communities, eclipse.org brings together the broad participation needed to establish, refine, and promote high-quality shared software technology. More than 1,200 individual developers from over 150 leading software tool suppliers in 63 countries have already participated in the eclipse.org community.

¹ Some components of eclipse.org downloads may be governed by license terms other than the CPL.

Below the text is a section titled "Board members" with the following text: "For more information about member organizations and their support for Eclipse.org, click the following links."

The board members are represented by logos for Borland, IBM, Merant, QNX, Rational, Redhat, SuSE, TogetherSoft, and webGAIN.

The browser's address bar shows the URL <http://www.eclipse.org>.

eclipse Support

✓ eclipse has broad industry support

Hundreds of companies have been involved in the Eclipse project, including these industry leaders ...

- Altoweb
- Bowstreet
- BrowserSoft
- CommerceQuest
- Computer Assoc.
- Compuware
- Crystal Decisions
- Embarcadero
- Holosofx
- Instantiations
- LegacyJ
- Macromedia
- Merant
- Mid-Comp
- Neuvis
- QSSL
- Rational
- Red Hat
- Serena
- Sitraka
- Skyva
- TeleLogic
- TogetherSoft
- Versant
- Versata

- Aldon
- MKS
- Softlanding
- Lansa
- ASC



www.eclipse.org

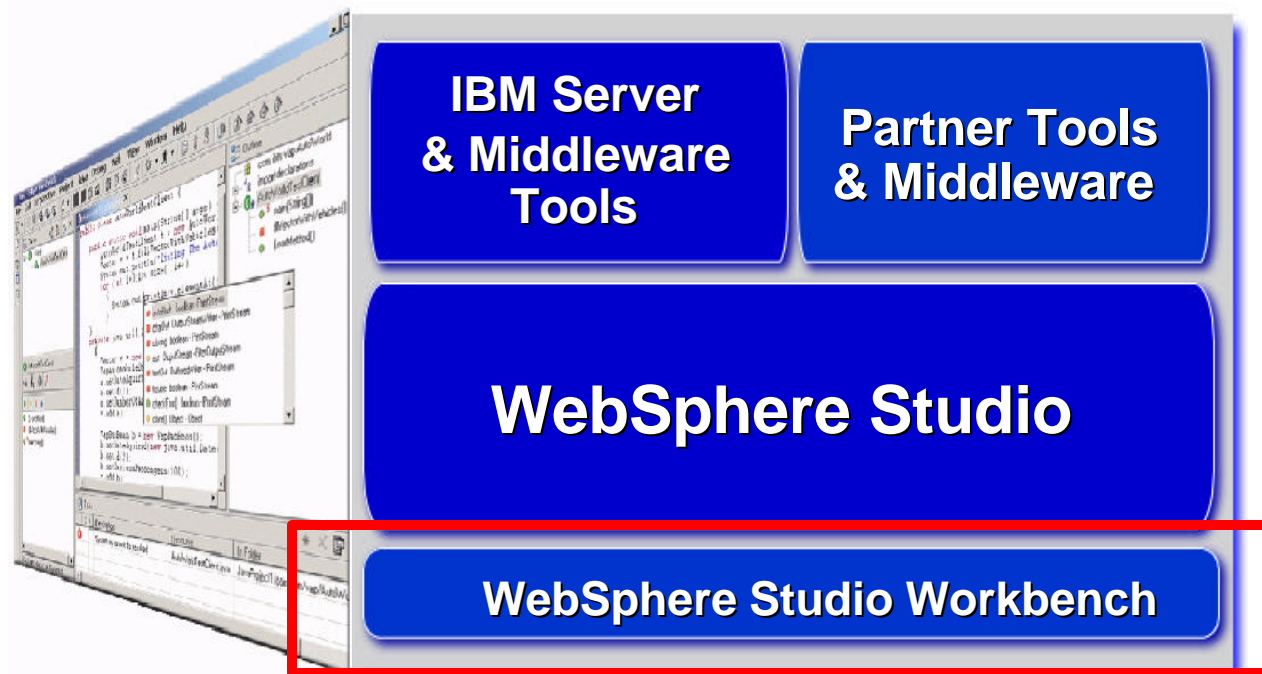
"This has long been a dream of developers, and now IBM is providing the integration framework to make it possible."

Arun Gupta, CTO, Neuvis Software

Not a complete list!!

WebSphere Studio Workbench

- IBM's commercially supported implementation of the Eclipse open source technology
- the foundation for the new Websphere Studio family and future IBM middleware tools
- Enables partners or customers to develop, customize or integrate tools with the Websphere Software Platform
- Support by a new business partner program

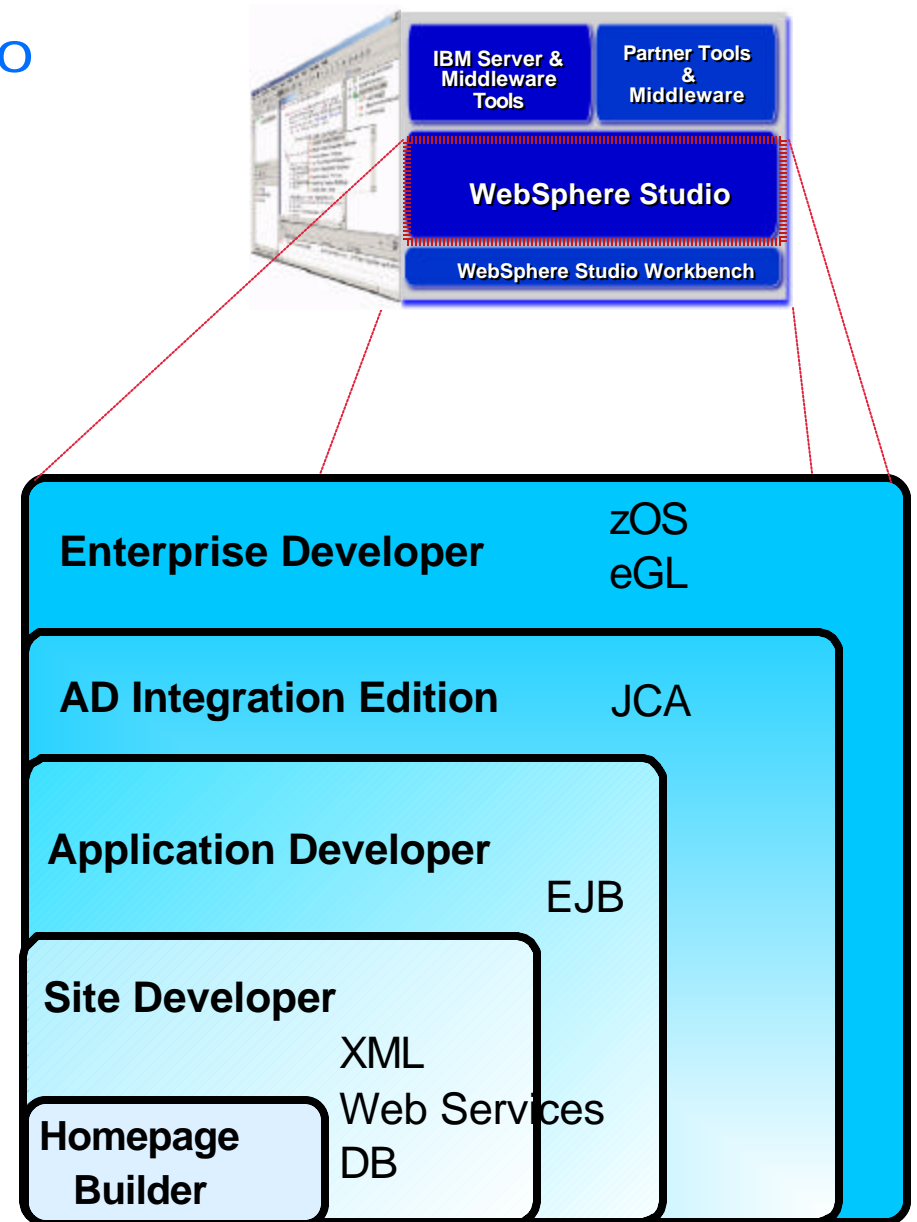


WebSphere Studio

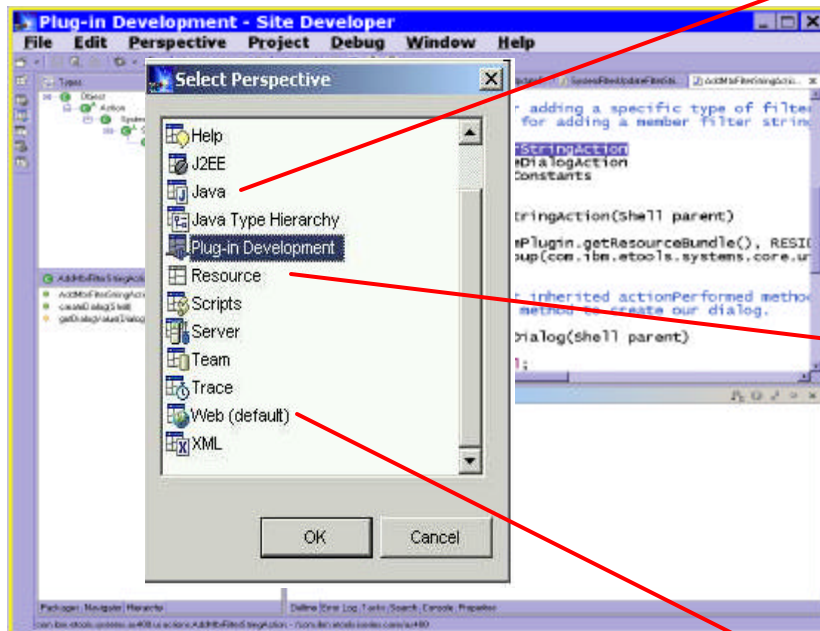
The New WebSphere Studio

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 Middleware Plug-ins
- ★ Common development environment across Windows and Linux



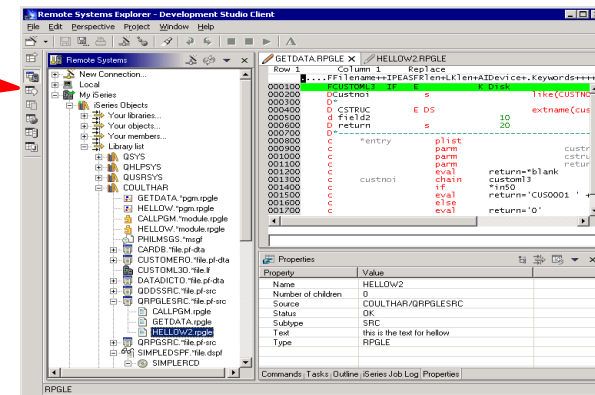
One Development Environment



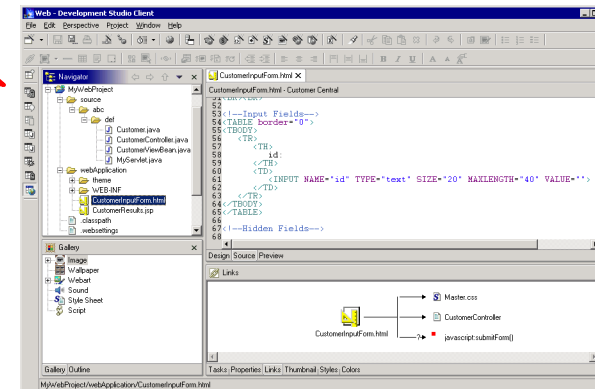
Java



Remote System Explorer



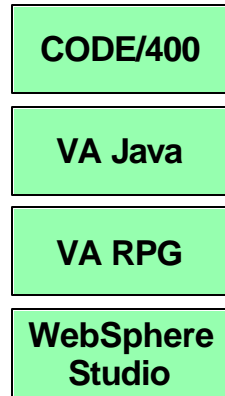
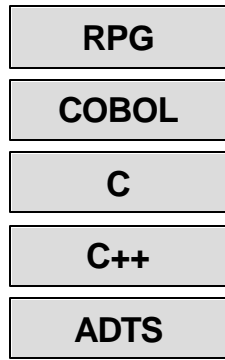
Web



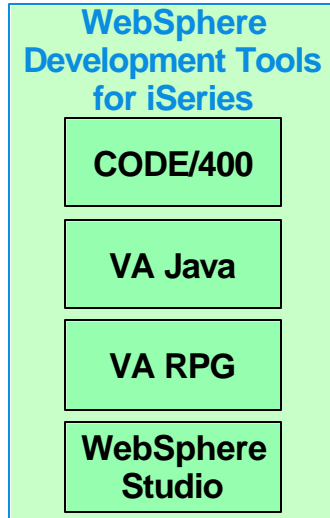
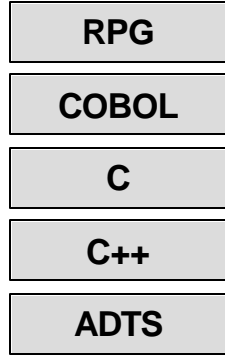
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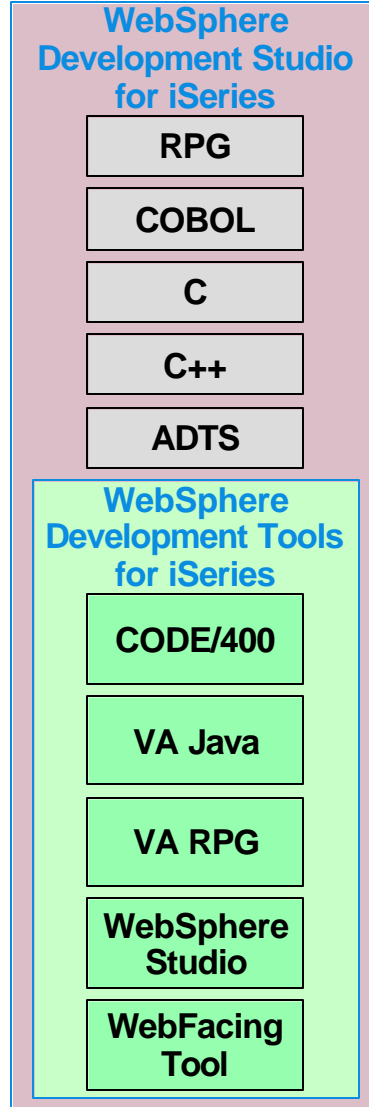
The Evolution of Websphere Development Studio for iSeries



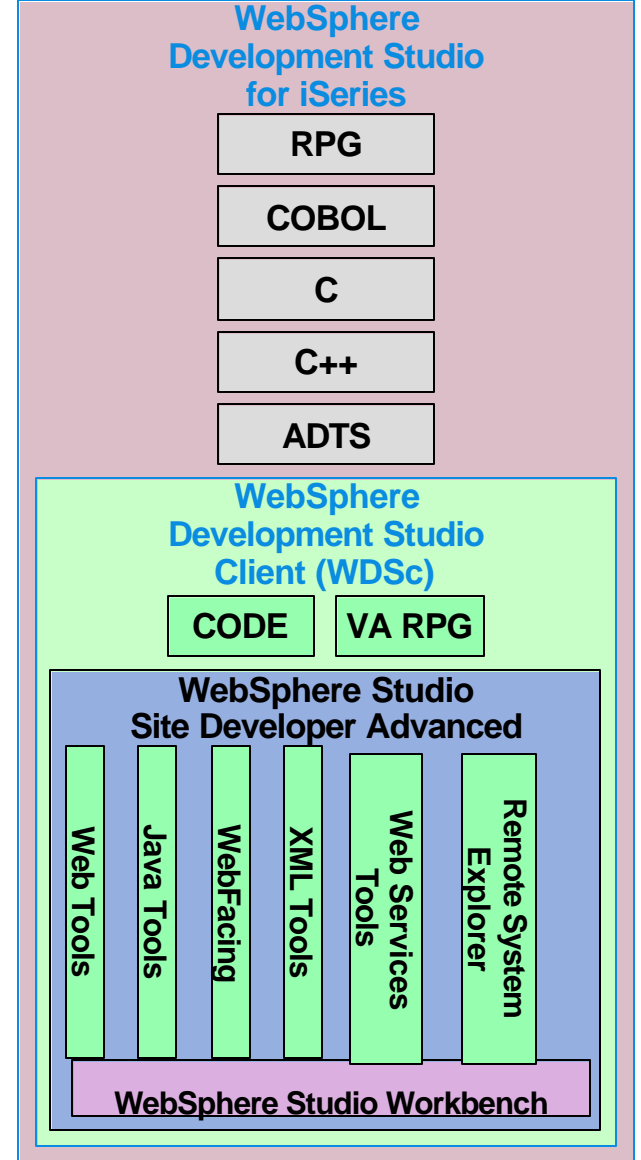
V4R4



V4R5



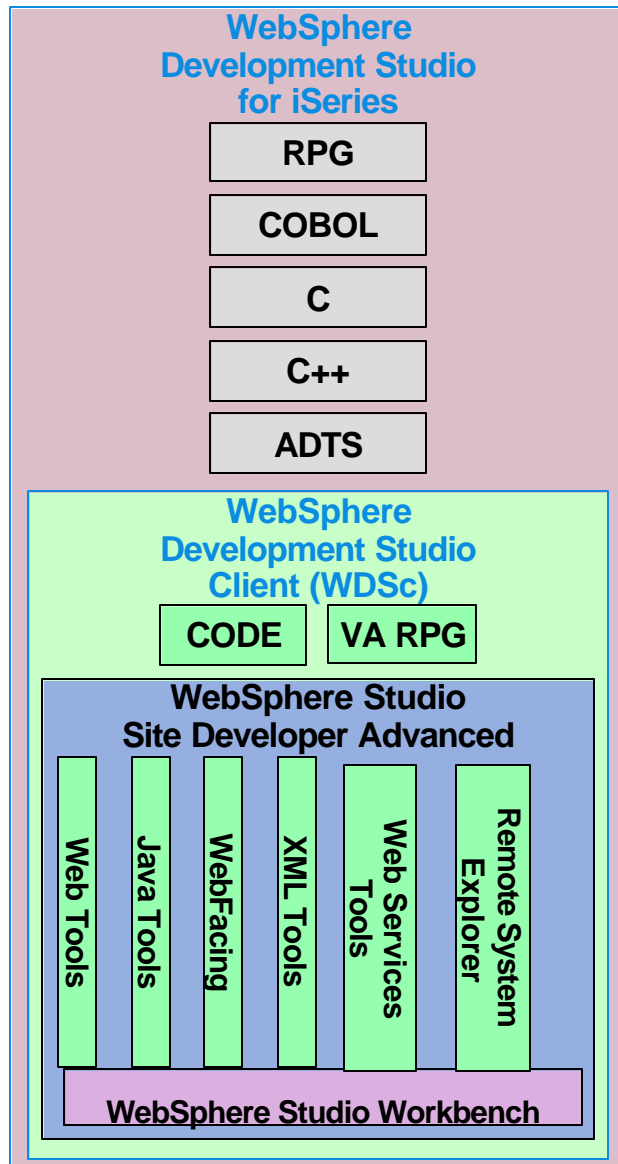
V5R1
V4R5 - Order Refresh



V5R2
V5R1 - order refresh
2655

WebSphere Development Studio for iSeries

NEW!



WebSphere Development Studio client V4

- announced June 4, 2002
- client tools based on WSSD
- integrated with Workbench

WebSphere Development Studio client V5

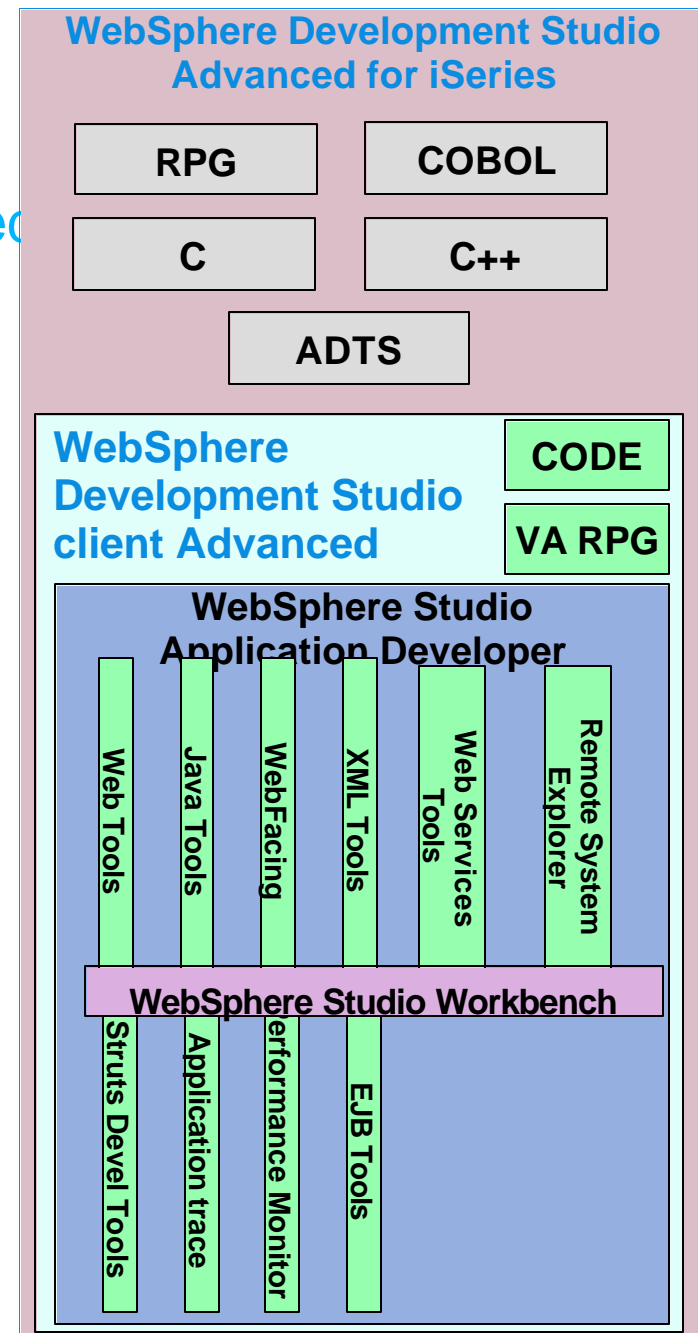
- announced January 20, 2003
- enhancements added
 - webfacing scalability
 - webfacing performance
 - iSeries project support
 - JDK 1.3, JSP 1.2, Servlet 2.3
 - visual Java Editor
 - visual VMC editor for Web
 - integration with vendors

WebSphere Development Studio Advanced for iSeries

NEW!

WebSphere Development Studio Advanced

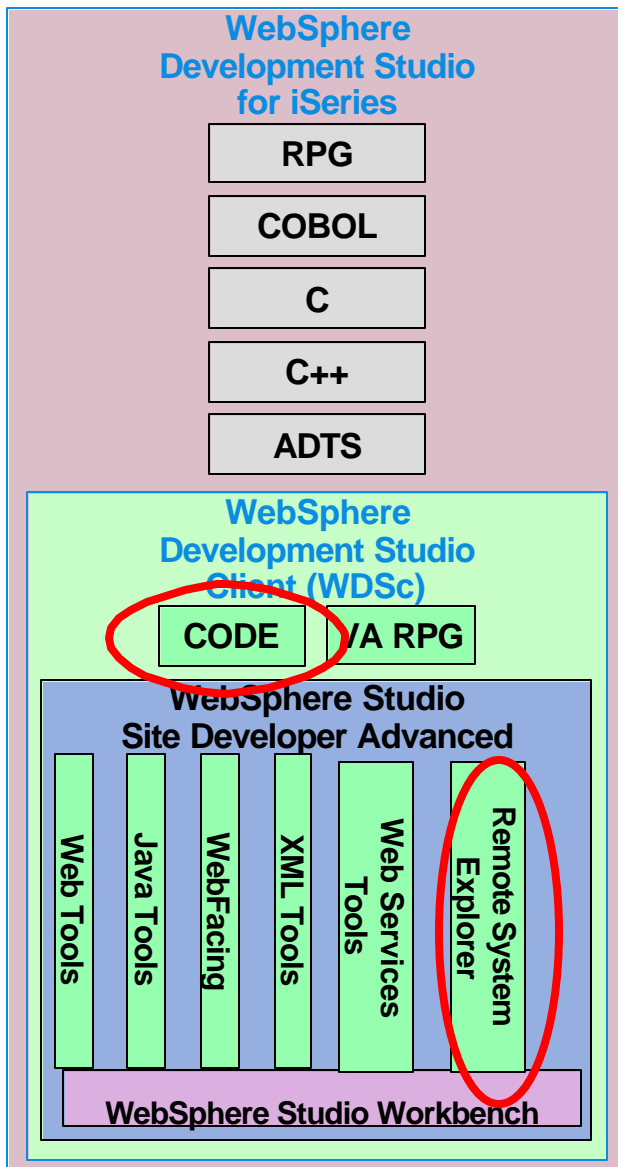
- inherits capabilities of WSAD
 - Enterprise Java Beans
 - application tracing
 - profiling tools
 - struts builder
- iSeries extensions
 - same as in WDS*c*
 - WebFacing
 - conversion time extensions
 - custom tags
 - print file display and printing
 - Portal Support
 - iFrame Portlet and sample



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WDS*c*: RPG and CBL Tools



- Remote Systems Explorer
 - PDM-like drill-down or filtered access to:
 - **iSeries** libraries, objects, members, records, fields
 - **iSeries** Jobs
 - **iSeries IFS** Folders and Files
 - **Linux** (including iSeries **LPAR**) Folders and Files
 - **Unix** and **Windows** Folders and Files
 - **Local** Folders and Files
- iSeries Projects and Navigator
 - Project-based, team-sharable, development

Remote Systems Explorer

- A perspective with many views
 - Remote Systems
 - the primary "tree" view for exploring
 - Commands
 - the view for running and logging commands
 - Properties
 - the view for showing information about selected object(s)
 - iSeries Error List
 - the view for showing errors returned by compilers
 - many more views...

WDS*c*: RPG and COBOL Tools

Remote Systems View

Remote Systems Explorer - Development Studio Client

Perspective Project Window Help

Remote Systems

- New Connection...
- Local
- My iSeries
 - iSeries Objects
 - Your libraries...
 - Your objects...
 - Your members...
 - Library list
 - QSYS
 - QHLP SYS
 - QUSR SYS
 - COULTHAR
 - GETDATA.*pgm.rpgle
 - HELLOW.*pgm.rpgle
 - CALLPGM.*module.rpgle
 - HELLOW.*module.rpgle
 - PHILMSGS.*msgf

iSeries Objects expanded

Library list expanded

GETDATA.RPGLE x HELLOW2.RPGLE

Row 1	Column 1	Replace
000100	FCUSTOML3 IF E K Disk	
000200	D Custnoi	s like(CUSTNO
000300	D*	
000400	D CSTRUC	E DS
000500	d field2	1
000600	D return	s 2
000700	D*	
000800	c *entry	plist
000900	c	parm
001000	c	parm
001100	c	parm
001200	c	parm
001300	c	eval return=*blank
001400	c custnoi	chain customl3
001500	c	if *in50
001600	c	eval return='CUS0001 ' +
001700	c	else
		eval return='0'

F4

Built-in Lpex Editor. Can also launch CODE editor

Source Prompter

Line type: C: Calculation

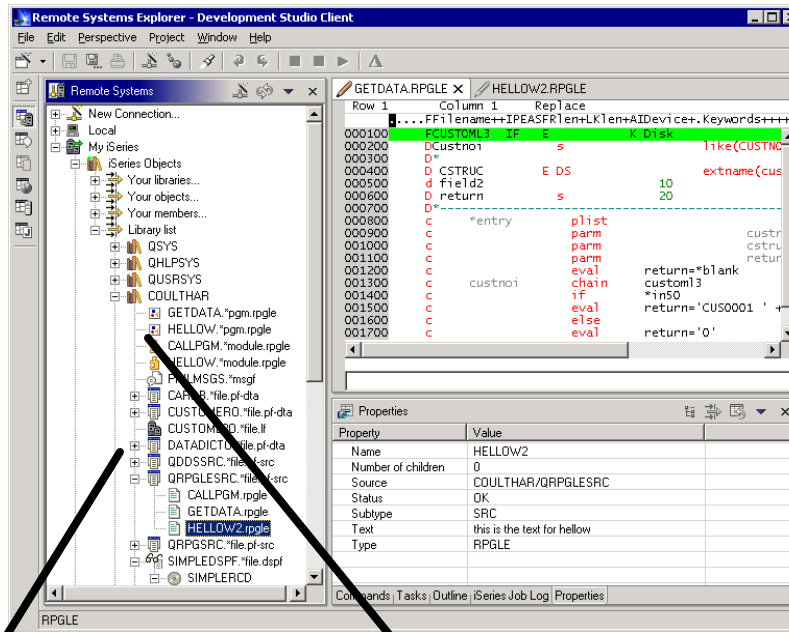
Control level	Indicator N01	Factor 1	Operation and extender	Factor 2	Result field	Field length	Decimal positions	HI	LO	EQ
		*entry	PLIST							

.....CLON01Factor1+++++Opcode(E)+Factor2+++++Result+++++Len++D+HiLoEq....

C *entry plist

Commands | Tasks | Outline | iSeries Job Log | Properties | Source Prompter

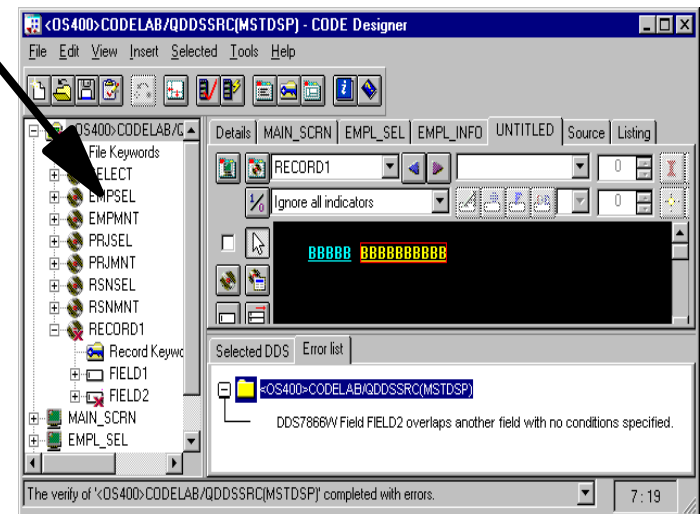
WDS*c*: RPG and COBOL tools - Version 5



RSE Integration
LPEX editor
Program Verifier
New Build Styles
CL
Command

Conflict Detection

Tighter Integration



WDS*c*: RPG and COBOL tools - Version 5

Tool Vendor Integration: ASC - Abstract

The screenshot displays the Remote Systems Explorer - Development Studio Client interface. The main window shows a tree view of Remote Systems with a context menu open over the CUSNOCHGC object. The context menu includes options such as Rename, Copy, Move, Delete, Debug, Run, Run (No Prompt), Update..., Properties, Remove cross reference, Load cross reference, Object where used, Object references, and Flowchart. The Object where used option is highlighted. To the right, the ASC Abstract Tree View shows a hierarchy of objects including ASC406, AATEST, ABSLIBTEST, ANYAGE#, APLSAMPLE - Sample library, REU#, SEQUEL# - SEQUEL Source, SEQUELU# - SEQUEL - Level40 compatible, SUZETTE, SUZETTEB, SUZETTEW, and ASC404. A yellow starburst graphic with the word "NEW!" is overlaid on the right side of the interface. At the bottom, the Commands window shows a dropdown menu with ASC406 selected, and a Run button is visible.

Property	Value
Name	CUSNOCHGC
Number of chil...	0
Source	APLSAMPLE
Status	OK
Subtype	CLP
Text	

WDS*c*: RPG and COBOL tools - Version 5

Tool Vendor Integration - SoftLanding Systems

The screenshot displays the IBM WebSphere Studio Application Developer interface. The main window shows the 'Overview - View Mode' for a project named '112612 Webface Work with Products option'. A yellow starburst graphic with the word 'NEW!' is overlaid on the right side of the interface.

The 'Form Details' section lists various components and files, including:

- WSTOOLS/ENDAPPSVR.APPSERVER(QA_Server)
- SHOPSLSQ - MNUCMD
- SHOPSL - MNUDDS
- SHOP5005 - DSPF
- SHOP5006 - DSPF
- SHOPSL - MNUMSG
- SHOPR006 - RPGLE
- SHOPR005 - RPGLE
- SHOPSL - MENUJ
- styles\apparea\apparea.css
- RecordJSPs\STOREDEV\QDDSSRC\SHOP5005\CMDFMT.jsp
- RecordJSPs\STOREDEV\QDDSSRC\SHOP5005\CMDFMTJavaScript.jsp
- RecordJSPs\STOREDEV\QDDSSRC\SHOP5005\MSG5FLC.jsp

The 'TurnOver Explorer' on the left shows a project structure with 'Object repository' and 'Storefront' containing various objects like CATALOG, CATITEMS, NEXTID, ORDERHDR, ORDERITEM, ORDERITEM1, PRODUCT, SHOPMSGPGM, SHOPR001, SHOPR002, and SHOPR003.

The 'Remote Systems' panel at the bottom left shows connections to 'Local', 'ZEU5', and 'QA400'.

The 'Properties' panel at the bottom right shows a table of objects:

Object	Library	Type Code	Source File	Source Lib...	Source Me...	Application	Release	Ve
SHOPR005	STOREPRD	RPGLE	QRPGLSRC	STOREPRD	SHOPR005	SHOP	0	0
SHOPR005	STOREQA	RPGLE	QRPGLSRC	STOREQA	SHOPR005	SHOP	0	0
SHOPR005	STOREDEV	RPGLE	QRPGLSRC	STOREDEV	SHOPR005	SHOP	0	0
SHOPR006	STOREPRD	RPGLE	QRPGLSRC	STOREPRD	SHOPR006	SHOP	0	0
SHOPR006	STOREQA	RPGLE	QRPGLSRC	STOREQA	SHOPR006	SHOP	0	0
SHOPR006	STOREDEV	RPGLE	QRPGLSRC	STOREDEV	SHOPR006	SHOP	0	0
SHOP5005	STOREPRD	DSPF	QDDSSRC	STOREPRD	SHOP5005	SHOP	0	0

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WDS*c*: Java Tools

- Choice of Java level
 - IBM JRE 1.3 built-in and offered as default
- Java projects
 - Optimized for Java development
 - Specialized views
 - Package view and Hierarchy view;
 - Outline view: many tools launchable from here!
 - Java Editor
 - Content Assist: Ctrl+Space bar to get list of classes or methods
 - JavaDoc shown as hover help
 - F3 to open selected class
 - Refactoring support
 - Rename updates all references
 - Incremental compile
 - When Ctrl+S pressed in editor
 - Or on demand via Build Project action

Java Tools: Extensions for iSeries

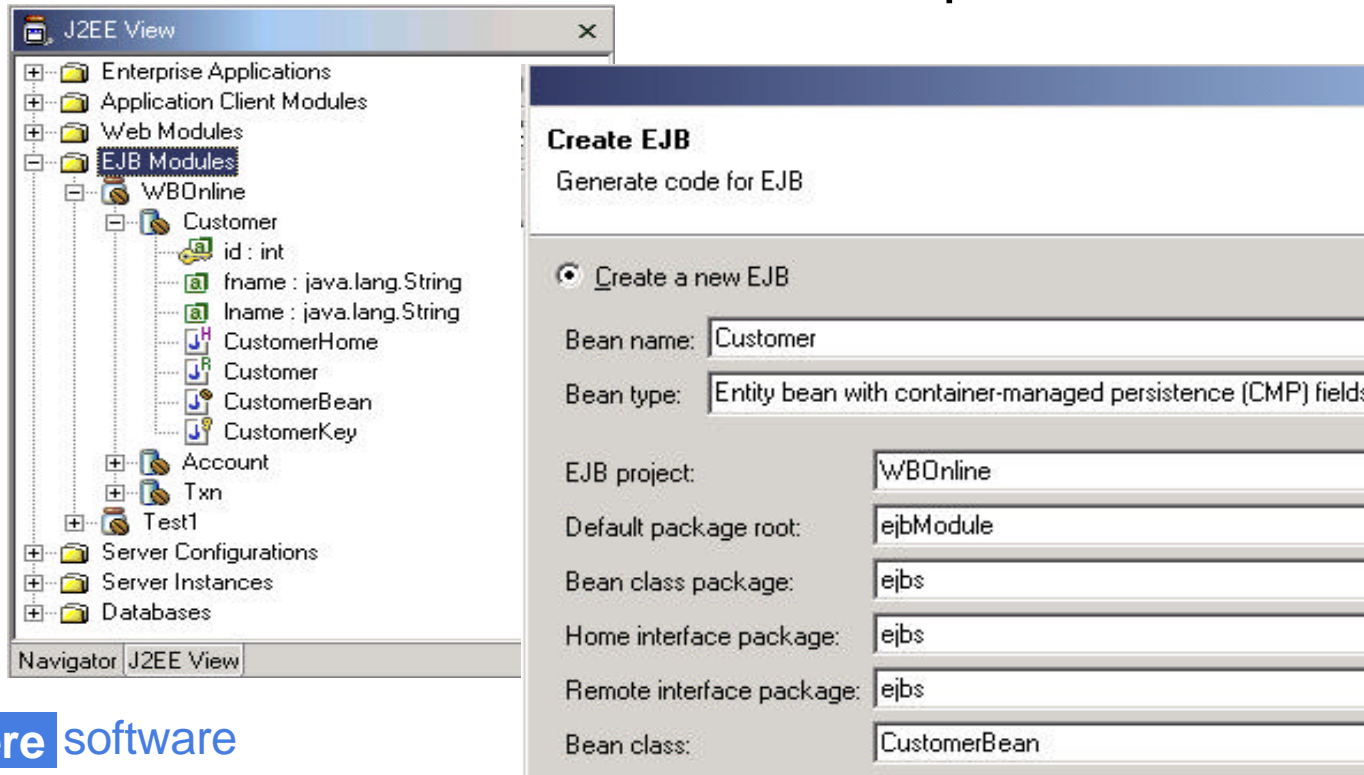
- iSeries extensions for Java
 - Import and export from/to remote system
 - Remote Compile and Run
 - Remote Debug
 - Program Call wizard
 - Toolbox for Java built-in
 - As an Eclipse Java project (ie: easy to add to classpath of your project!)
 - Integrated help
 - Runnable samples
 - Supplied Java-beans
 - Swing GUI beans (dspf-like functionality)
 - DFU beans (database access)
 - Object list beans (lib, obj, mbr, field, record lists)

WDS*c* Advanced: Java Tools

- J2EE Tooling provides facilities to easily create session and EJB
 - Simplifies **server** and **client** EJB development
- Supports EJB 1.1 and 2.0 (J2EE 1.2 and 1.3)
- Built-in tooling helps developer isolate and fix performance problems with their web application
- Built-in Trace Perspective allows for analysis of the performance data for the Java developer



NEW!



The screenshot displays the J2EE View window in WebSphere software. The left pane shows a project tree with 'EJB Modules' expanded to show 'WBOOnline' and its sub-packages. The right pane shows the 'Create EJB' dialog box with the following fields:

- Bean name: Customer
- Bean type: Entity bean with container-managed persistence (CMP) fields
- EJB project: WBOOnline
- Default package root:.ejbModule
- Bean class package: .ejbs
- Home interface package: .ejbs
- Remote interface package: .ejbs
- Bean class: CustomerBean

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WDS*c*: Web Tools

- J2EE-defined folder structure for Web Apps
- Superset of Java projects (inherits Java Tools)
- Automatic creation/maintenance of web.xml file
- Editor support
 - Create/Edit/Validate/Debug JSP and HTML files
 - Images and animation
 - Cascading Style Sheets (CSS)
- Import/Export from/to a variety of sources
 - HTTP/FTP/WAR/EAR
- Link viewing and management
 - Converting links, flagging broken links, and fixing up links as linked resources are moved or renamed
- Java Bean Web Pages Wizard
- Database Web Pages Wizard

Web Perspective

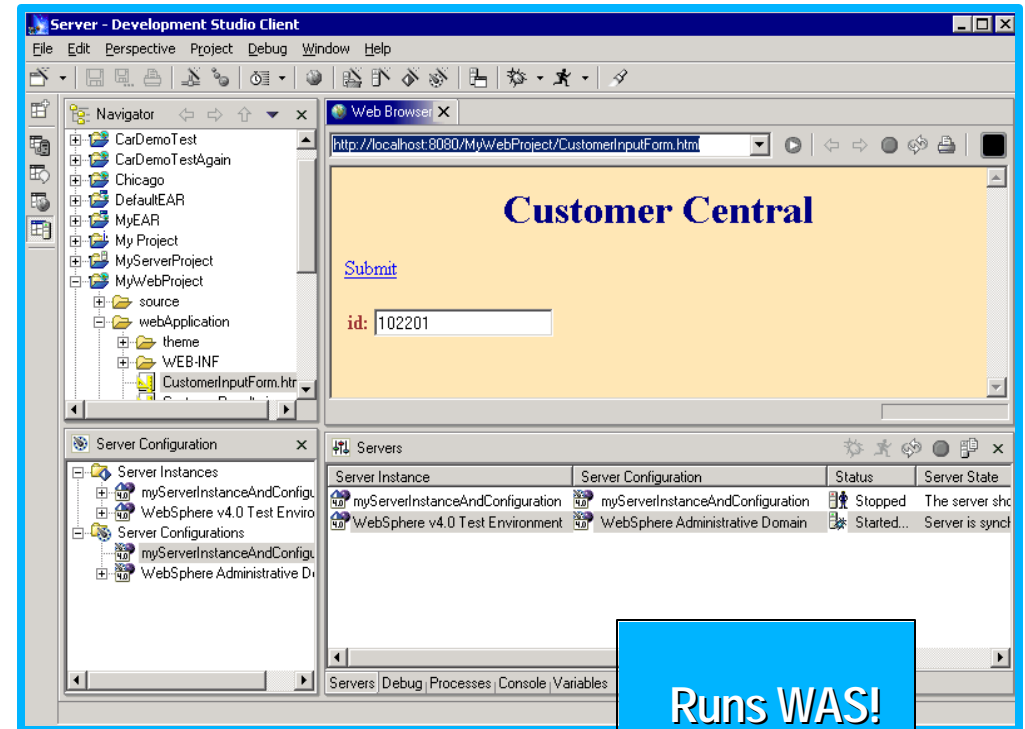
The screenshot displays the WebSphere Development Studio Client interface in the Web Perspective. The main editor shows the source code for `CustomerInputForm.html`, which includes HTML tags for a table and an input field. The interface is annotated with several callouts:

- Page Designer:** A blue box with yellow text stating "Page Designer: Work in source mode, or WYSIWYG mode". Two red arrows point from this box to the "Design" and "Source" tabs at the bottom of the editor.
- IE built-in:** A blue box with yellow text stating "IE built-in". A red arrow points from this box to the "Preview" tab at the bottom of the editor.
- Gallery of images for to include in your page:** A blue box with yellow text pointing to the "Gallery" panel on the left, which lists resources like Image, Wallpaper, Webart, Sound, Style Sheet, and Script.
- Links view:** A blue box with yellow text pointing to the "Links" panel at the bottom, which shows a diagram of links between `CustomerInputForm.html`, `Master.css`, `CustomerController`, and `javascript:submitForm()`.

The status bar at the bottom indicates the current file path: `MyWebProject/webApplication/CustomerInputForm.html`.

WDSvc: Run On Server

- When ready to test the Web app
 - Right click on initial html or jsp file
 - or whole project, which implies the index.html file
 - Select "Run on Project"
- Web application will run
 - Opens Server perspective
 - Publishes it to built-in copy of WAS
 - Starts built-in copy of WAS
 - Brings up a Web Browser
 - **Runs the application!!**
 - ✓ Tip: breakpoints can be set in the Java code



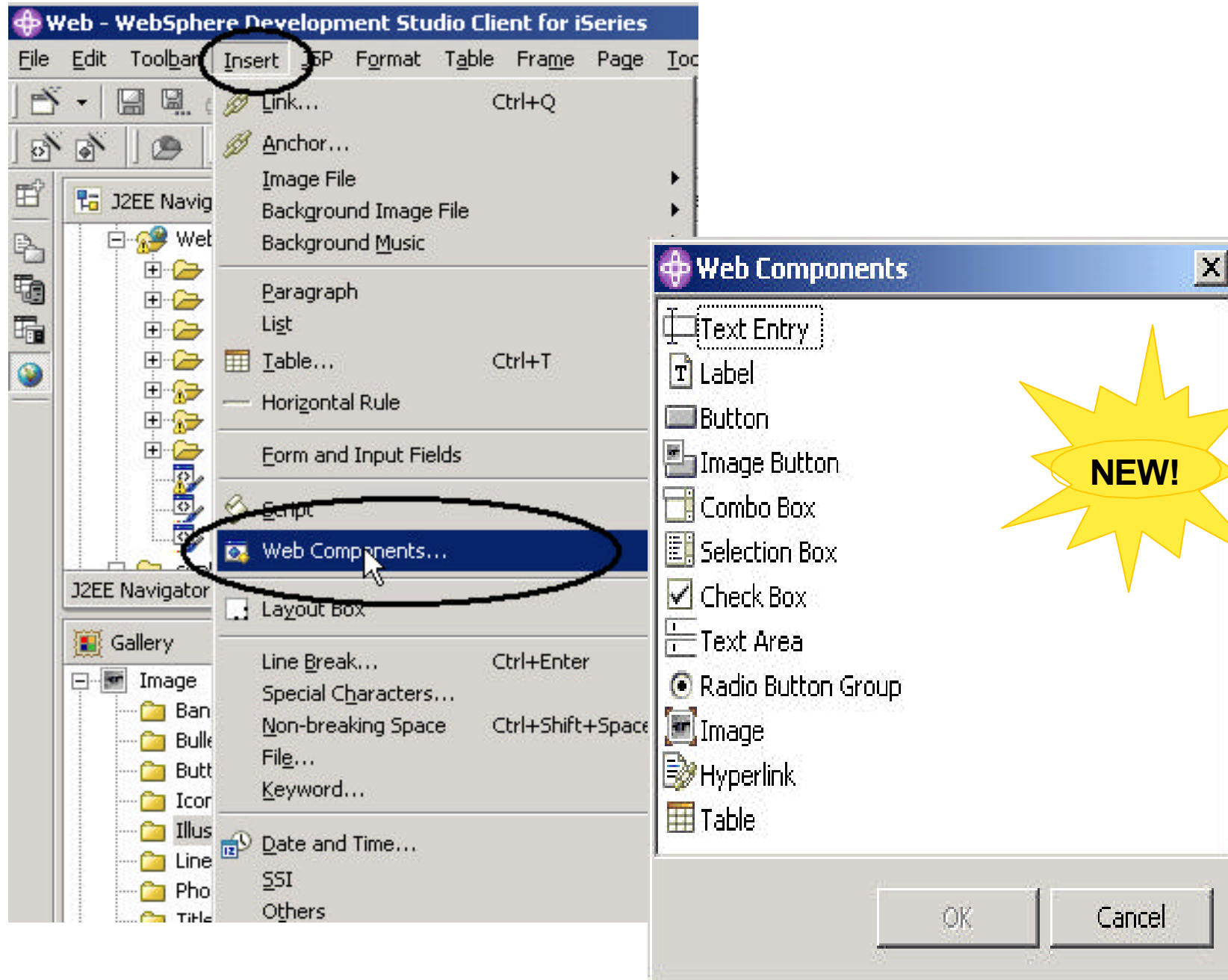
WDS*c*: iSeries Extensions

- Tools optimized for iSeries developers!
- Web Interaction wizard
 - Input: *PGM or ILE proc parameter information
 - Output:
 - Input JSP page prompting for input properties
 - Output JSP page displaying output properties
 - Java Bean for calling the *PGM or ILE procedure
 - Servlet that ties them together
- Host Information wizard
 - Set runtime information such as library list and sign-on information, to be used by glue generated by all Web Interaction wizards for this Web project
- Web GUI Widgets (formerly Design Time Controls)
 - Web GUI Widgets that support DSPF-like attributes such as error checking by datatype, and edit-code and edit-word



NEW!

WDS*c*: Web Tools iSeries Web Components

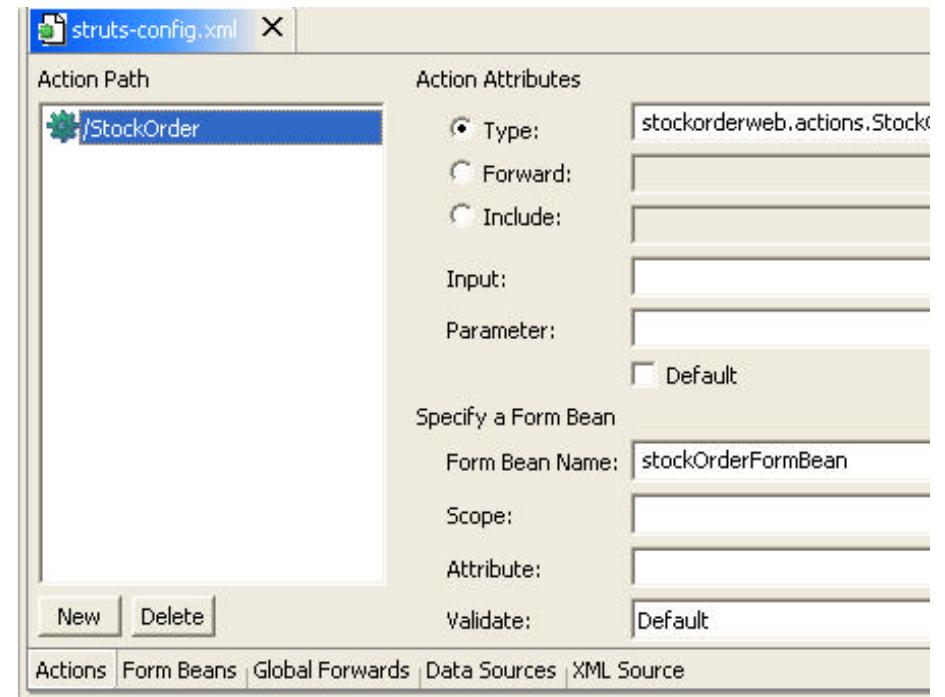
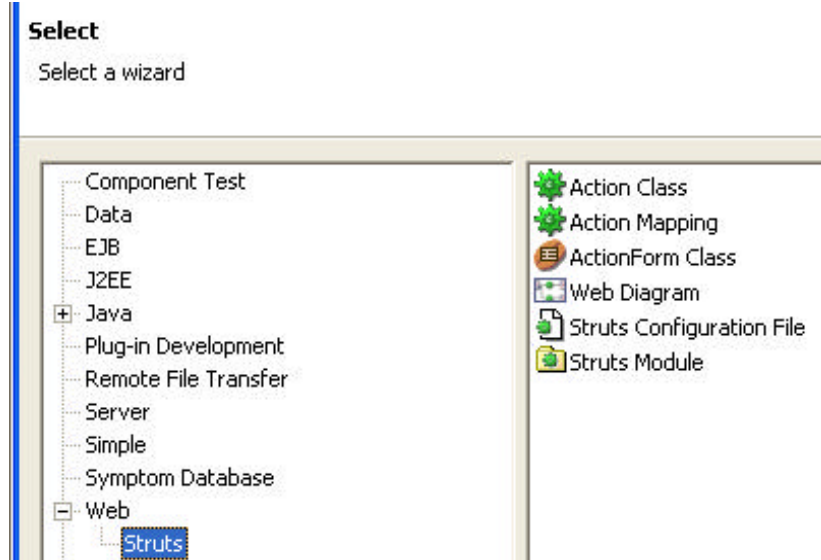


WDS Sc Advanced: Struts Tools - Three Sets of Tools



1) Wizards to generate Struts components (Actions, FormBeans, etc)

2) A Visual editor to configure Struts-config.xml



WDS Sc Advanced: Struts Tools - Three Sets of Tools

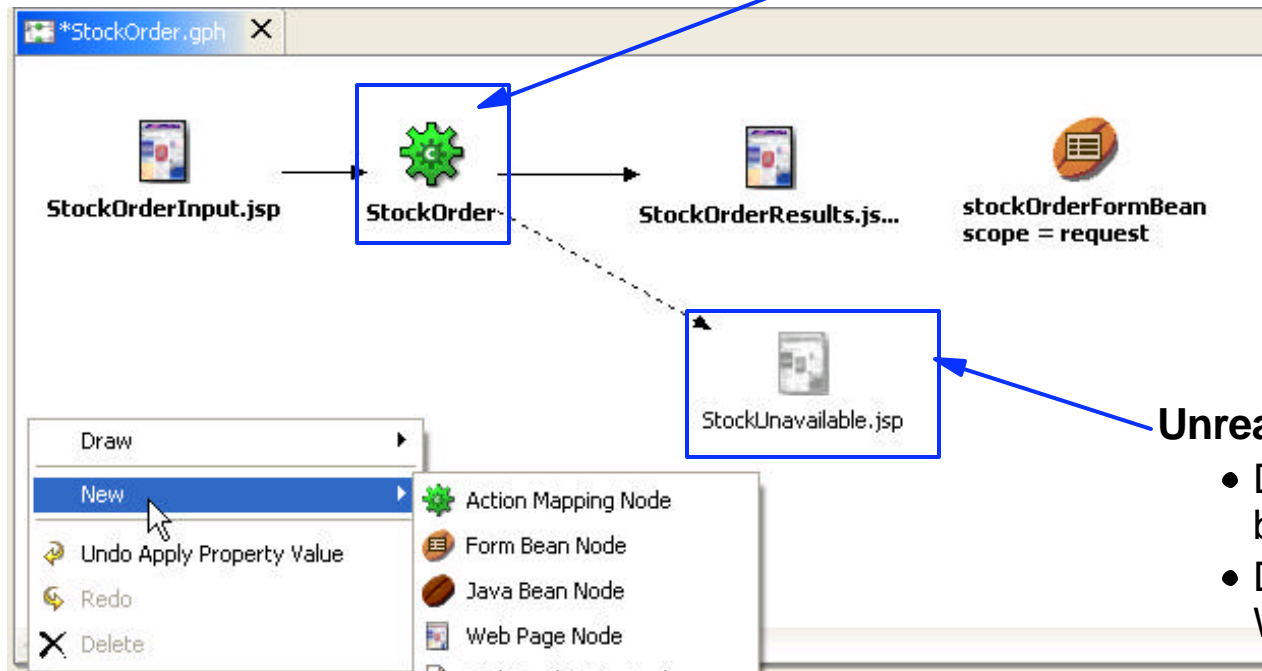
3) Web Diagram Tool

- Visually layout the design and flow of a Struts based Web Application

NEW!

Realized (color)

- Does exist (has been generated)
- Double-clicking launches Editor to customize



Unrealized (grey)

- Doesn't exist (hasn't been generated)
- Double-clicking launches Wizard to generate

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WDS*c*: Web Service Tools

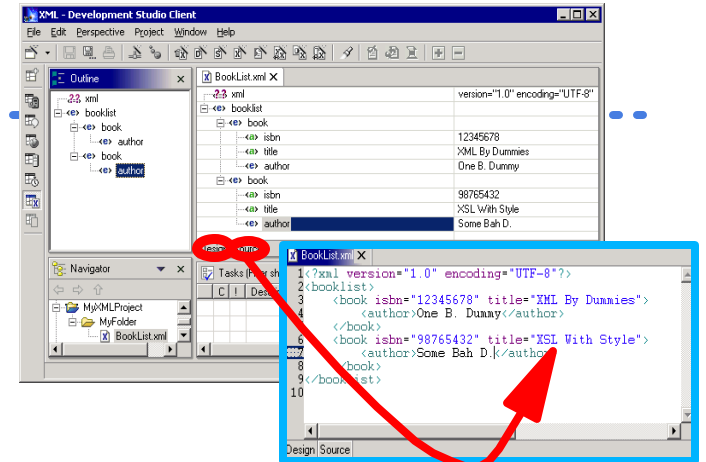
- Consume/Construct Web services:
 - Discover
 - Browse UDDI registry to locate existing services
 - Generate Java Bean Proxy for existing services
 - Create/Transform
 - Create new Web services from Java Beans, databases
 - ✓ Including Java Beans output from iSeries ProgramCall wizard
 - Deploy
 - Deploy 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

WDS*c* Web Services Tools: *i*Series Extensions

- Program Call Wizard
 - Generates a remote interface to a native *PGM or *SRVPGM in the form of a JavaBean
 - Input: *i*Series *PGM/*SRVPGM interface info or PCML
 - Output: JavaBean proxy
 - PCML: Program Call Meta Language
 - holds all interface info required by Program Call Wizard
 - V5R2 Compilers now generate PCML file for you!
 - *i*Series *PGM/*SRVPGM can now be used remotely within the scope of a Java or Web application via the new JavaBean proxy

WDS*Sc*: XML Tools

- XML Editor
 - For creating and viewing XML files
- DTD Editor
 - For creating/viewing Document Type Definitions
- XML Schema Editor
 - For creating, viewing and editing XML Schemas
- XML to XML Mapping Editor
 - To map one+ source XML files to a target XML file
- XSL Trace Editor
 - To visually step through an XSL transform
- XML and SQL Query Wizard
 - To create an XML file from an SQL query
- RDB to XML Mapping Editor
 - To map one+ relational tables to a target XML file



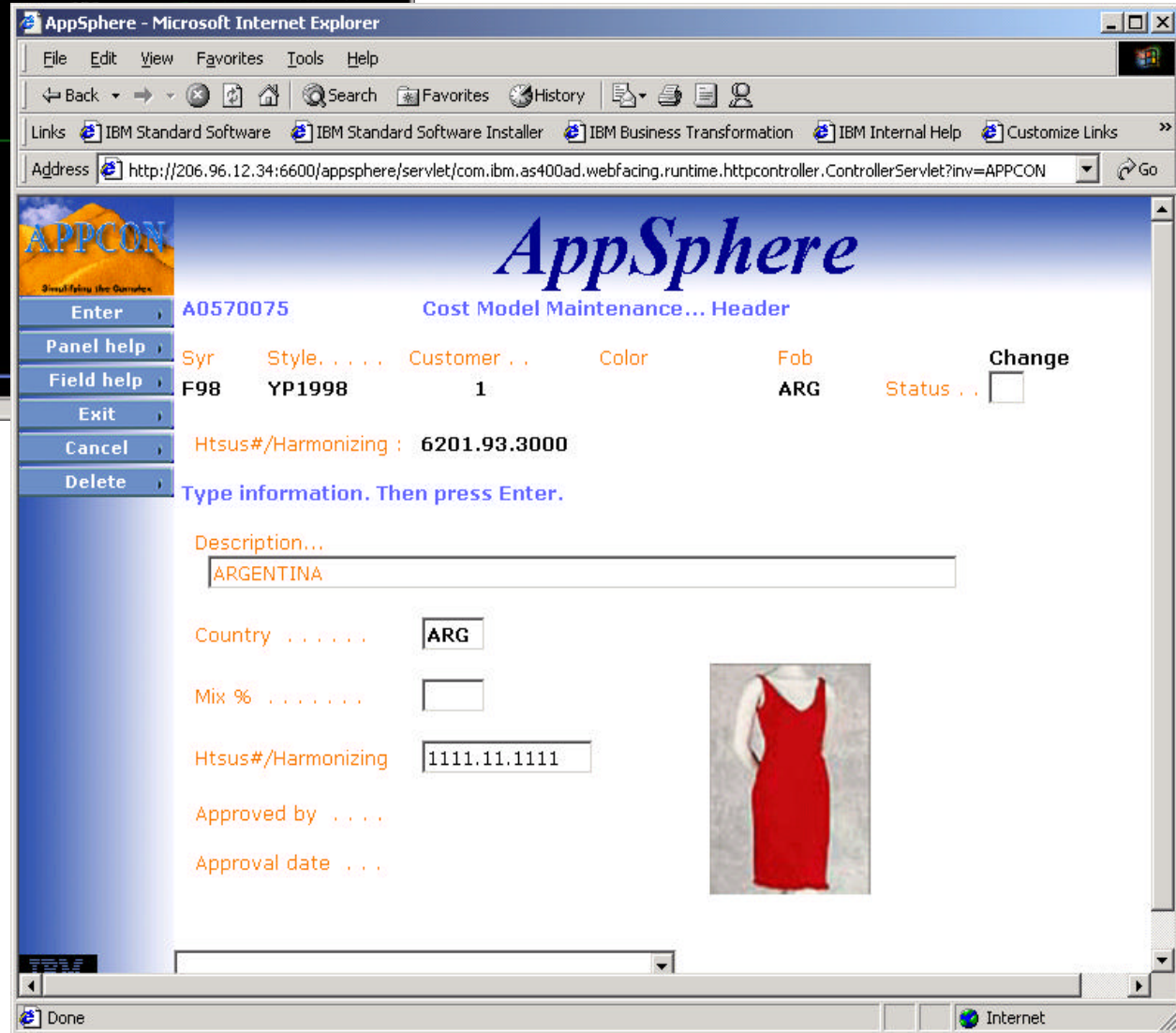
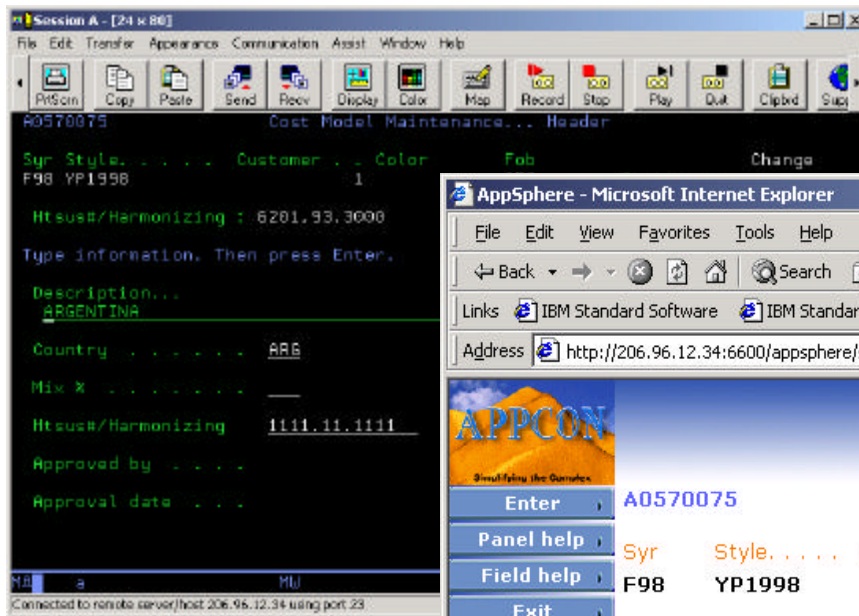
WDS*c*: Database Tools

- Relational Schema Center
 - Provides views geared for DBAs to
 - Create Databases
 - Create Tables/Views/Indexes/Keys
 - Generate DDL
 - Online and offline support for working with databases
 - Metadata generated as XMI
- SQL Query Builder
 - Visually construct SQL statements
 - Insert, update, delete, select supported
 - Metadata generated as XMI
- SQL/XML mapping

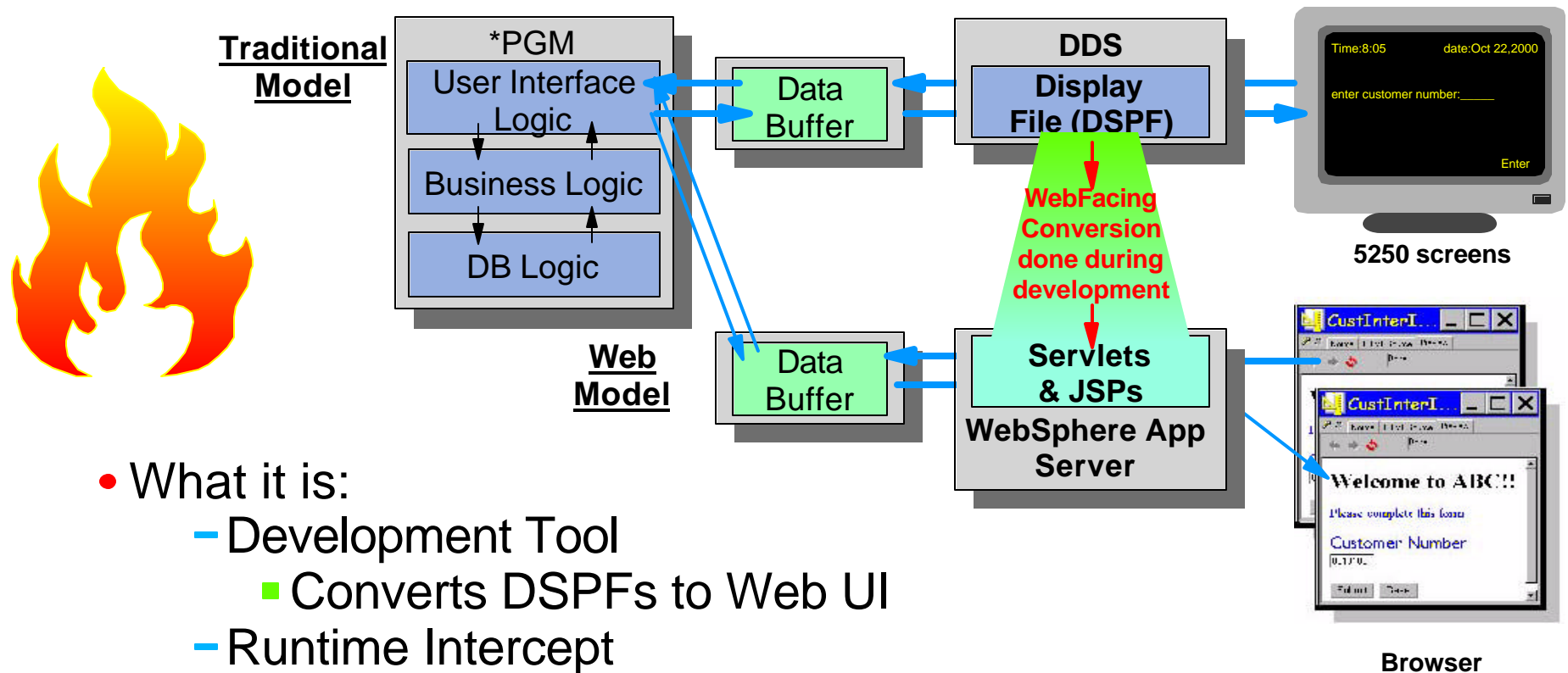
Agenda

- Introduction to the Environment
- Introduction to eclipse
- WebSphere Development Studio Client for iSeries
 - RPG and COBOL tools
 - Java Tools
 - Web Tools
 - XML, Web Services and Database Tools
- ★ - WebFacing
- Summary and Appendix

WebFacing: Before/after



WebFacing



- What it is:
 - Development Tool
 - Converts DSPFs to Web UI
 - Runtime Intercept
 - Redirect *PGM I/O to Web UI
- What is not:
 - 5250 datastream converter!
 - No 5250 datastream ever created
 - *PGM raw data buffers fed directly to Web UI
 - Conversion hit at development time, not runtime

WDS*c*: WebFacing Version 5.0



NEW!

- Create Struts-based WebFaced applications
- Support for function keys displayed in DDS window
- Faster conversion via new RSE comms layer
- Support for WRKSPLF
- Ability to override or add function keys supporting add'l actions not in current application
- Support for user written JSP custom tags
- New styles view in WebFacing perspective

IBM WebFacing Tool

+ New Models

= No Interactive CPW!



NEW!



NEW!

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Summary

The Best Gets Better!!!

