Lotus Expeditor (XPD)

Overview

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Agenda

- **Lotus Expeditor – In Theory**
  - Business Value
  - Components
  - Programming Models
- **Lotus Expeditor – In Practice**
  - Overview of Lotus Expeditor Client (XPD)
    - Desktops
    - Devices
  - Overview of Lotus Expeditor Server(XPDS)

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Lotus Expeditor in Theory

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Lotus Expeditor Business Value and Capabilities

Business Values

- Allows customers to start simple and grow over time
- Better tuned to today's mobile deployment scenarios
- Simplified install
- Extends WebSphere to provide an End to End java programming environment first on desktops and then on devices
- Increases employee productivity by streamlining business processes, reducing data collection times, and providing instant access to information through a rich, server managed client
- First step in executing on End to End SOA vision

Lotus Expeditor

Technical Capabilities

- Java EE Application programming model
- Transactional Messaging
- Database Synchronization
- Device Management
- Web Services
- Integrated User Management
- Integrated Install
- Composite Applications
- Portal Integration
- Mobile Devices

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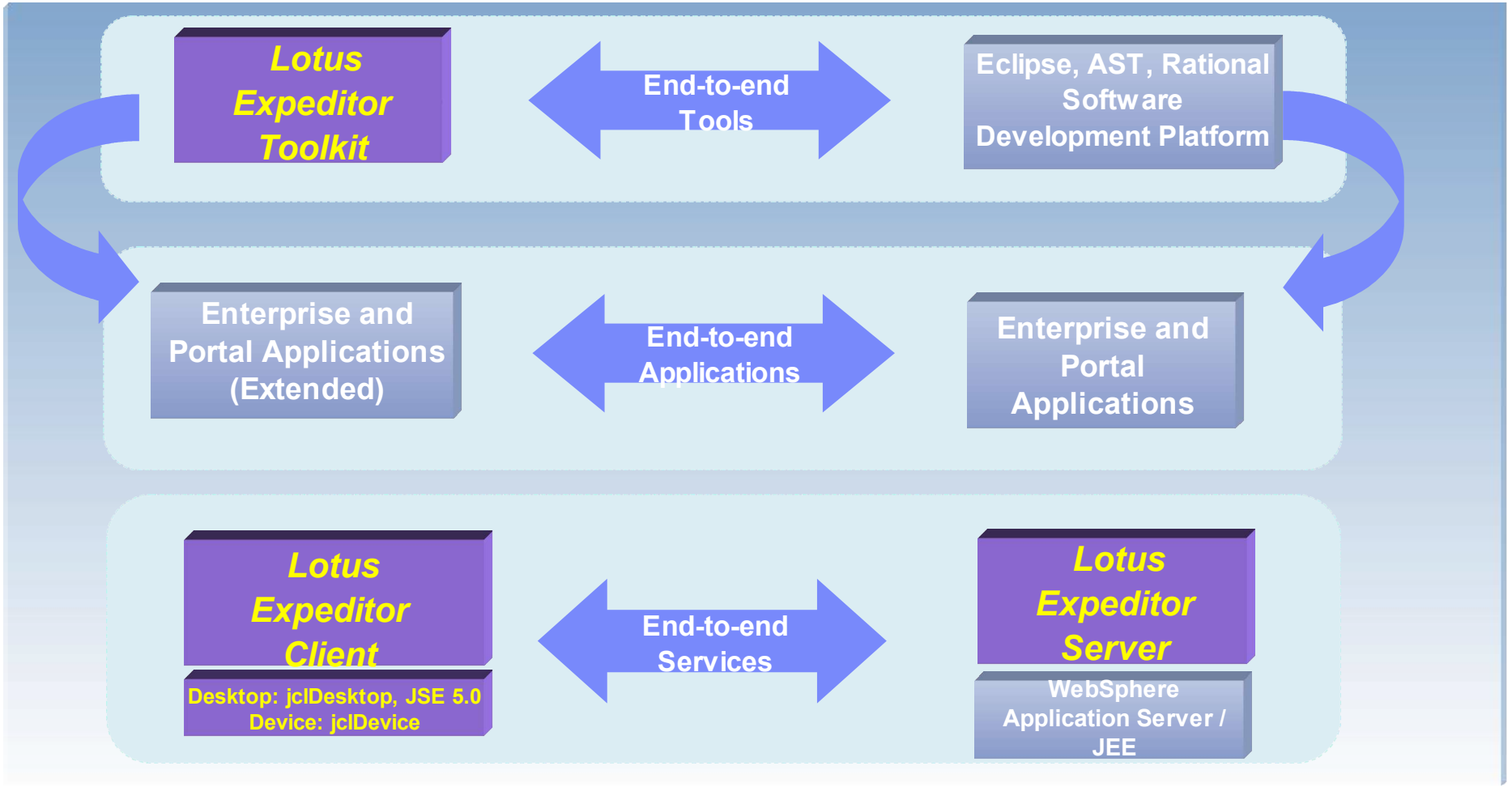
Lotus Expeditor (XPD) v6.1 Components



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XPD End to End Solution Model

Lotus Expeditor Toolkit

Web Services
Assured Transactions
Data synchronization
Device Management
Java Runtime

Web Services
Assured Transactions
Data synchronization
Device Management
WebSphere Application Server

Enterprise Application domain
Application 1
Application 2
Application 3
⋮
Application N

Databases

End to End Security

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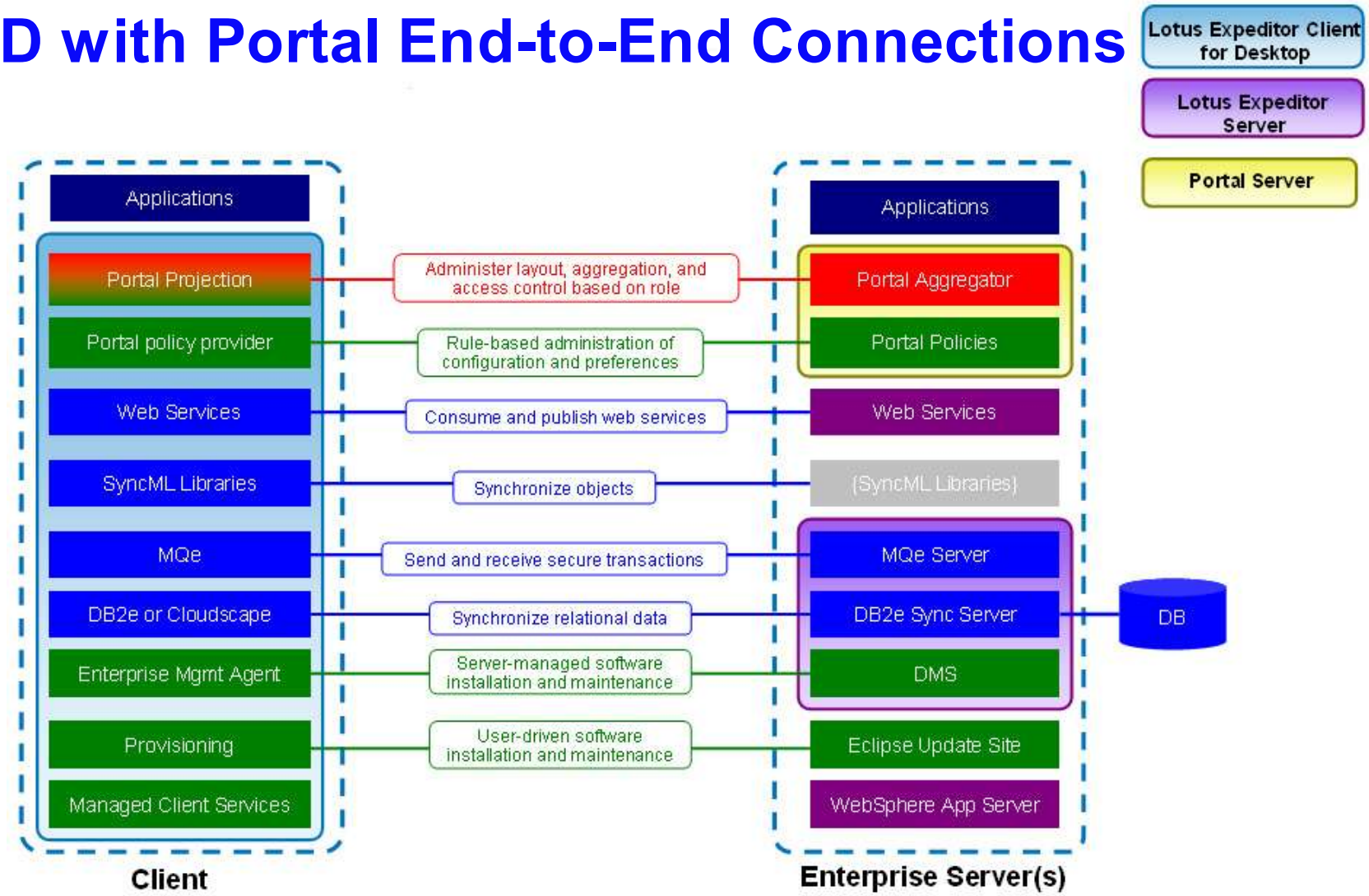
XPD with Portal End-to-End Connections



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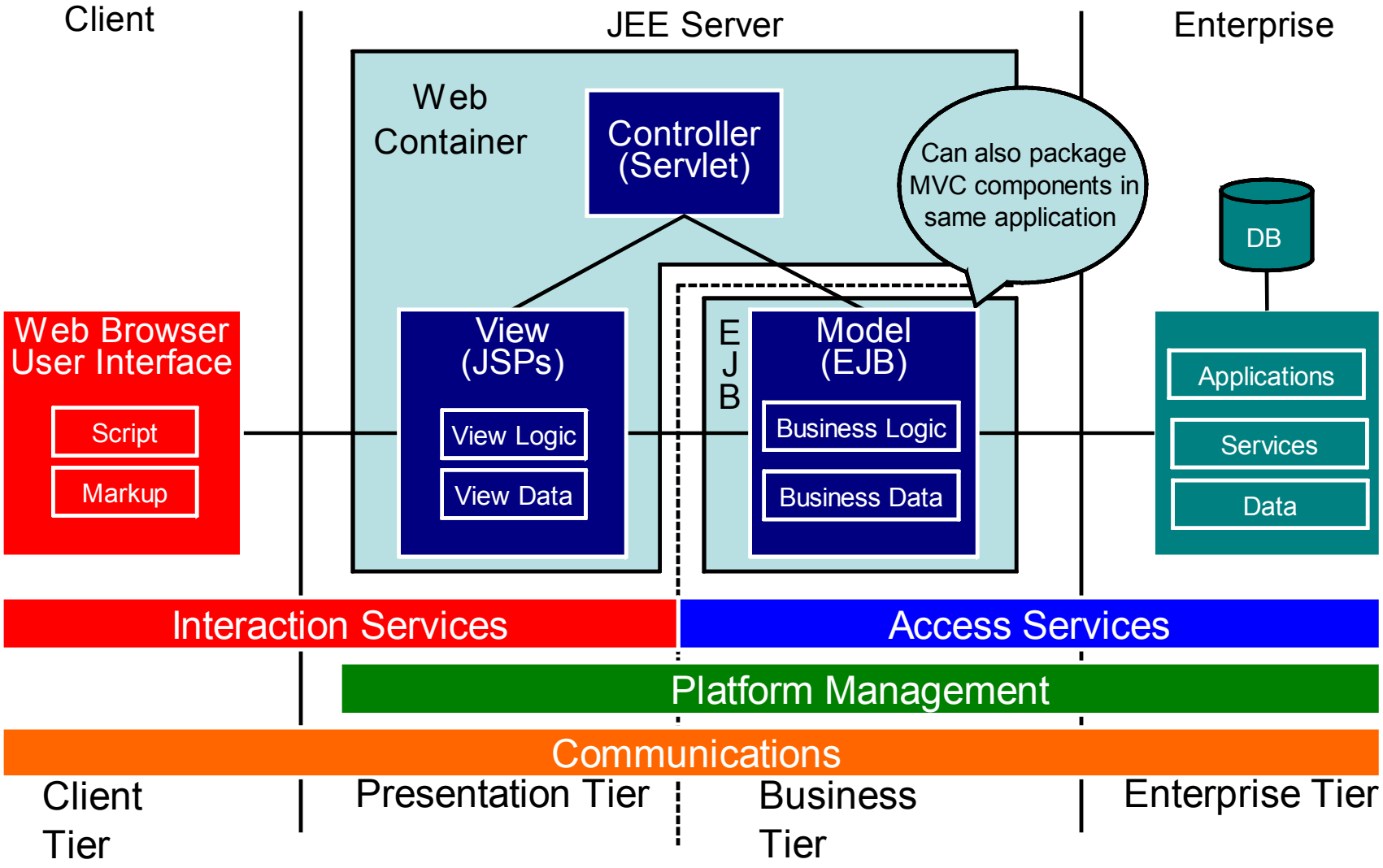
Conventional e-Business Programming Model



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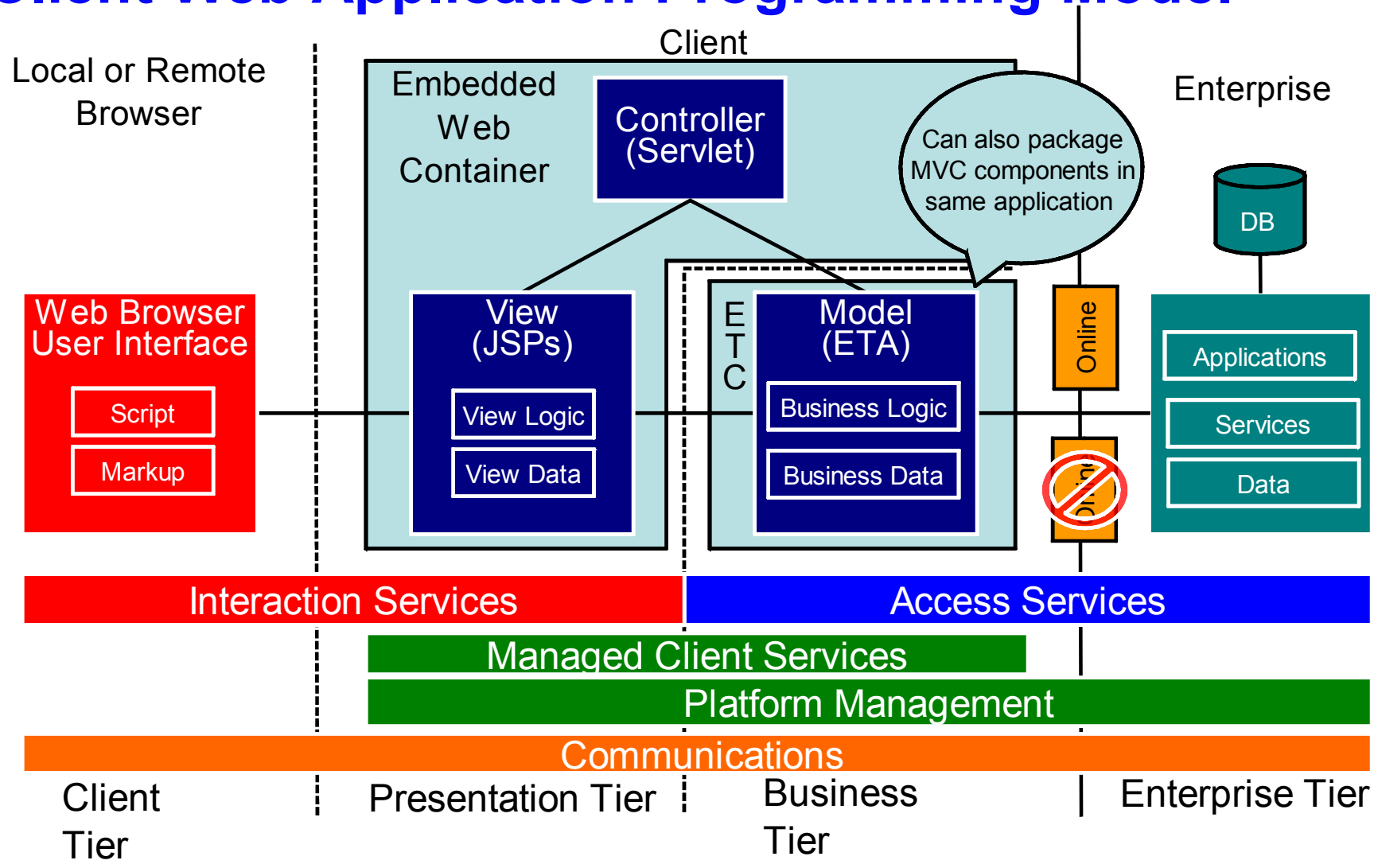
Client Web Application Programming Model



ETC = Embedded Transaction Container ETA = Embedded Transaction Application
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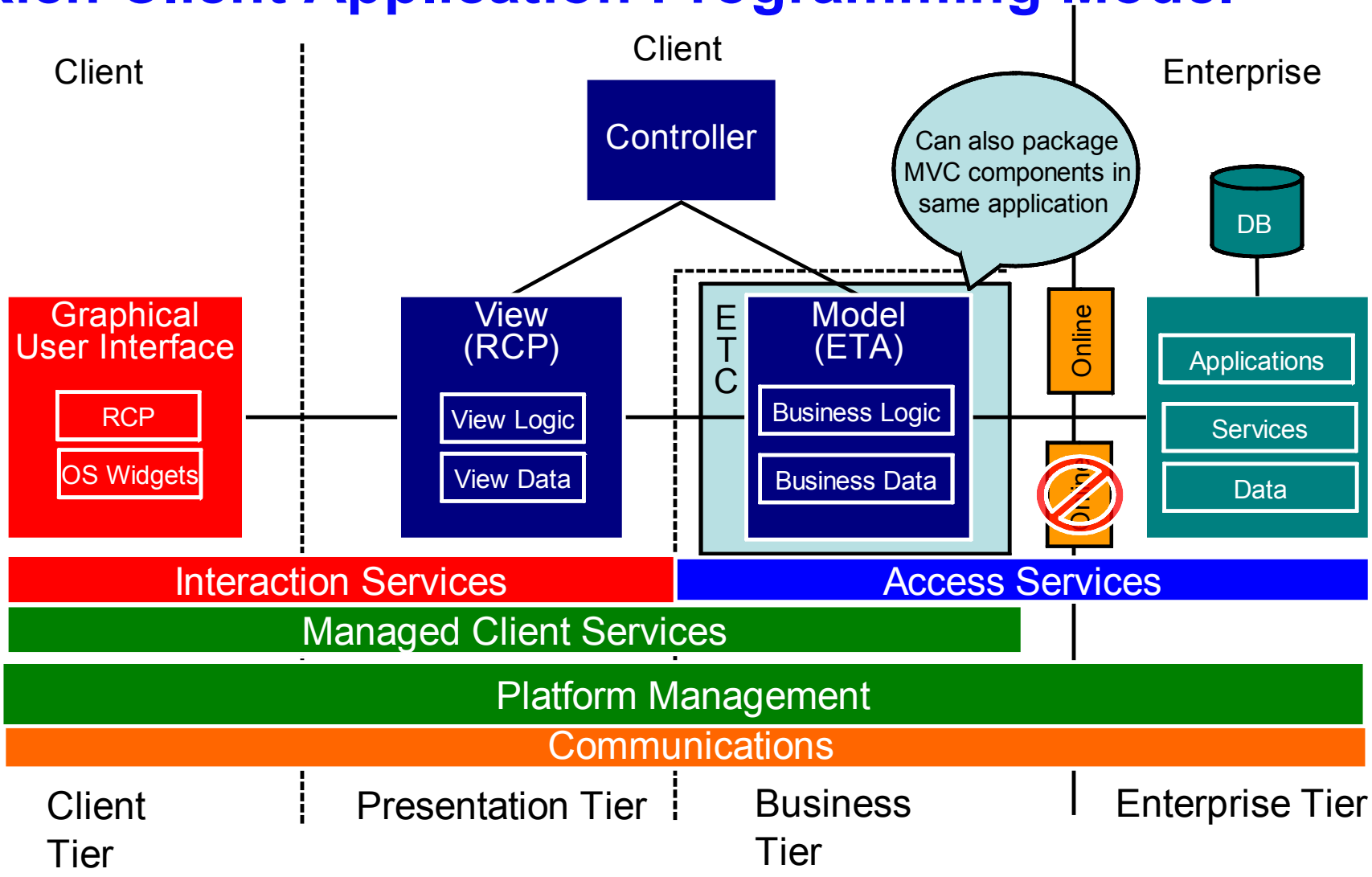
Rich Client Application Programming Model



ETC = Embedded Transaction Container ETA = Embedded Transaction Application
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Lotus Expeditor in Practice

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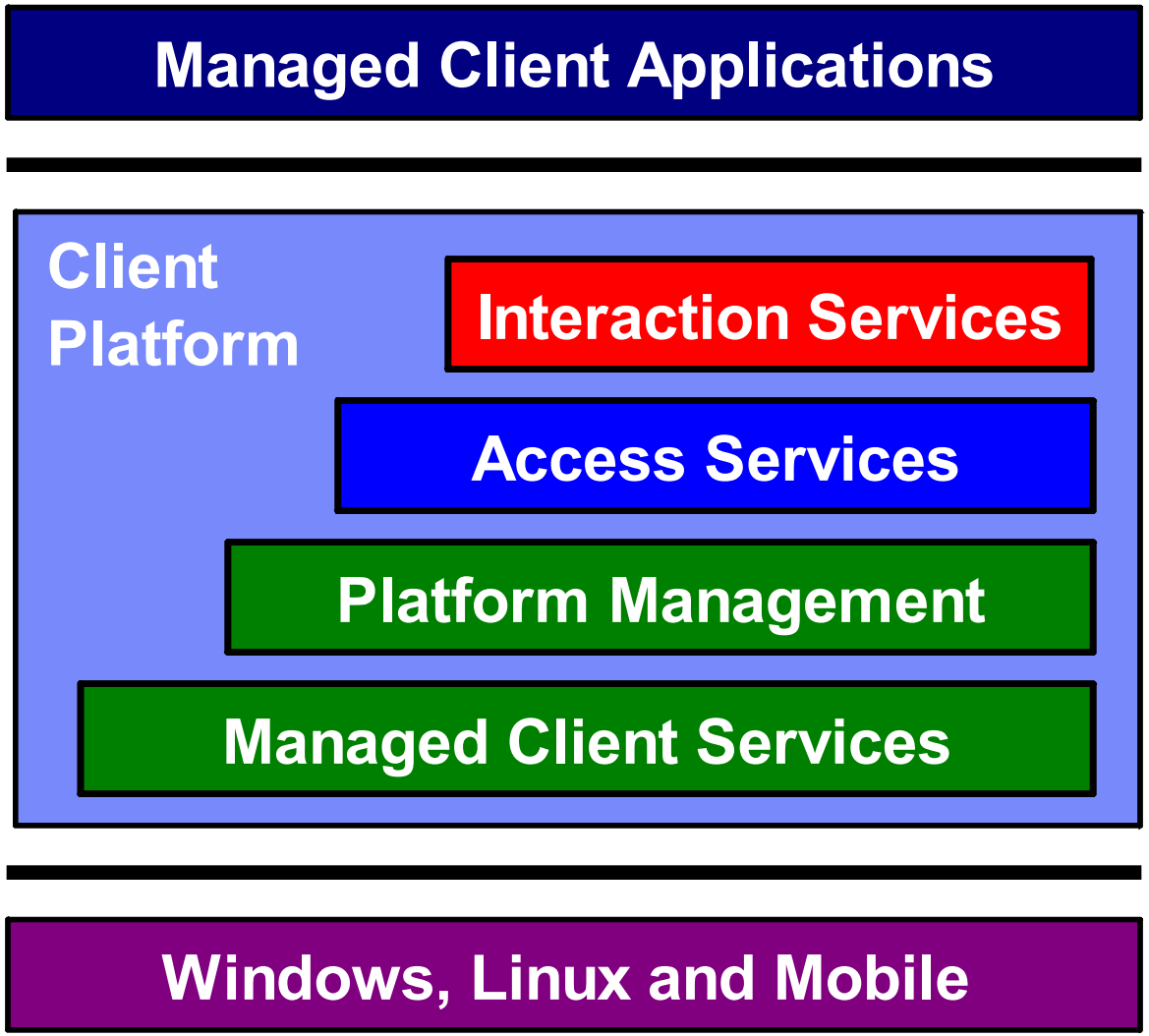
Lotus Expeditor Client Platform



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IBM Lotus Expeditor Client for Desktops

- **An integrated client platform…**
  - Supports a subset of the J2EE programming model
  - Supports the Eclipse programming model
  - Supports online and offline operations
  - Runs on Windows and Linux (RedHat & Novell) desktops and laptops
  - Follow-on release to WebSphere Everyplace Deployment v6.0 (WED)
- **With end-to-end tools…**
  - IBM Lotus Expeditor Toolkit integrates with Rational Software Development Platform
  - Toolkit directly targets development of applications on client platform
- **To deliver end-to-end applications**
  - Client platform integrates with IBM Lotus Expeditor Server v6.1

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XPD Desktop Client Supported Environments

- **Client environments**
  - Microsoft Windows XP Service Pack 1 or 2
  - Microsoft Windows XP Tablet PC Edition 2005
  - RedHat EL 4.0 WS with GTK support – Update 3
  - Microsoft Windows 2000 Professional Service Pack 4
  - Novell Linux Desktop 9 (NLD9) - SP3
- **Minimum hardware configuration**
  - 512 MB RAM (for LPP)
  - 200 MB free disk space (for LPP)
  - x86 processors capable of supporting the supported operating systems
  - RAM and disk space might be reduced for custom OEM platforms

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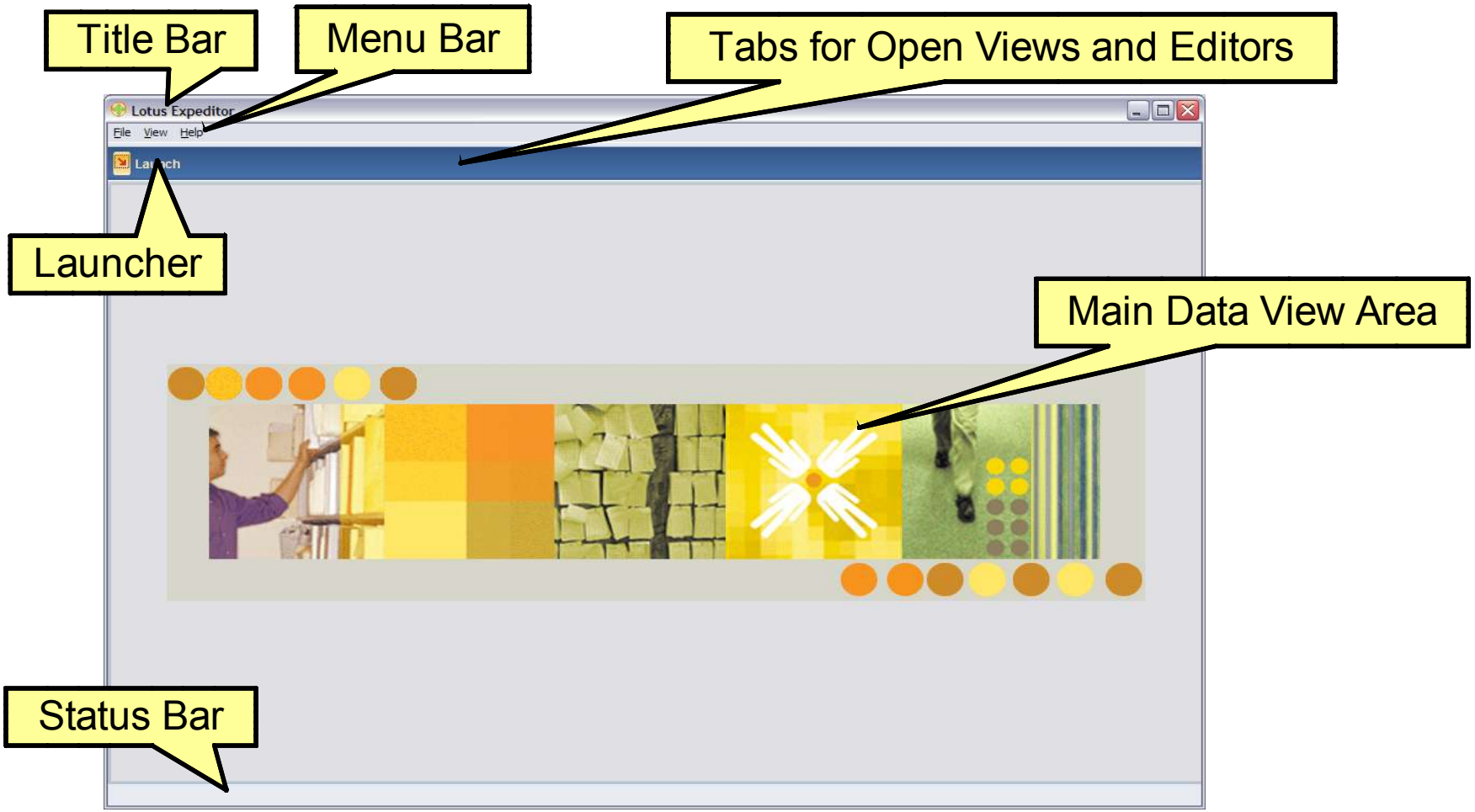
Expeditor Client for Desktops Workbench



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Lotus Expeditor Client for Devices

- **Support for following devices:**
  - Microsoft Windows Mobile 2003SE (PPC and Phone)
  - Microsoft Windows Mobile 5 (PPC and Phone)
  - Recommended HW requirements: 16MB FS/16MB RAM available
  - Devices under test: Dell Axim (x50v, x51v), iPAQ (hx4700, hx2790), i-mate JASJAR
  - Resource Checker will report devices capabilities
- **Base Platform**
  - J9 2.3 jclDevice (based on JME Foundation)
  - Eclipse eRCP 1.0 (OSGi R4)

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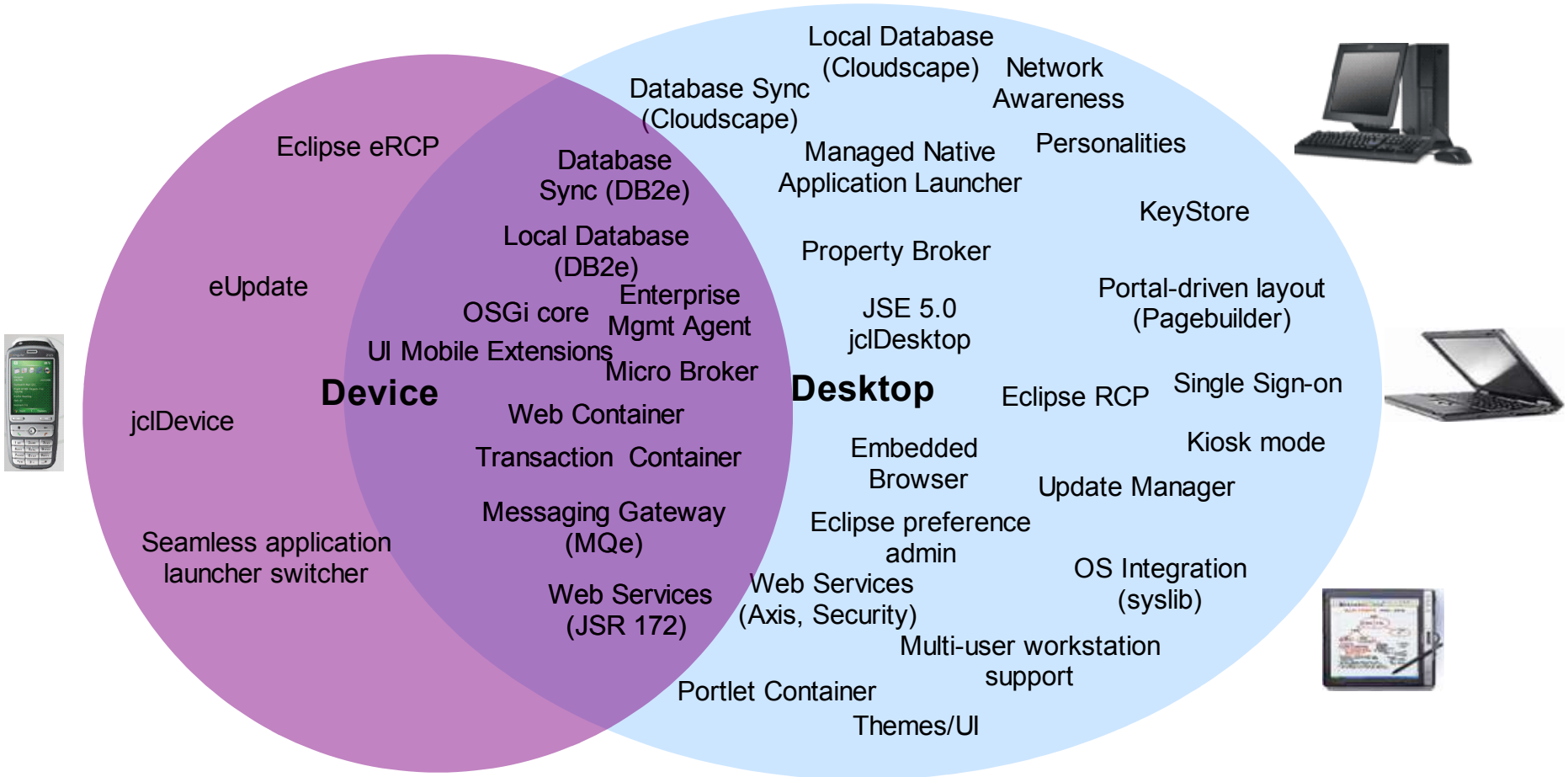
Lotus Expeditor Client Releases



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Client Programming Model Summary

- **Developers move key components of their applications to the client through the use of standard APIs and services**
- **Moving application components to run on the client can have dramatic results for business**
  - Support mobile users (online/offline)
  - Improve application response time
  - Reduce network traffic
  - Distribute application workload
  - Provide the appropriate user experience
- **Client applications access Enterprise applications, services and data**

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Client Application Types

- **Web applications (Servlets, JSPs)**
- **Eclipse RCP applications**
- **Embedded RCP (eRCP) applications (for devices)**
- **JSR-168 Portlet applications**
- **Composite applications**
- **Embedded Transaction applications**
- **Database applications**
- **Messaging applications**
- **Web Services applications**
  - Publisher
  - Consumer

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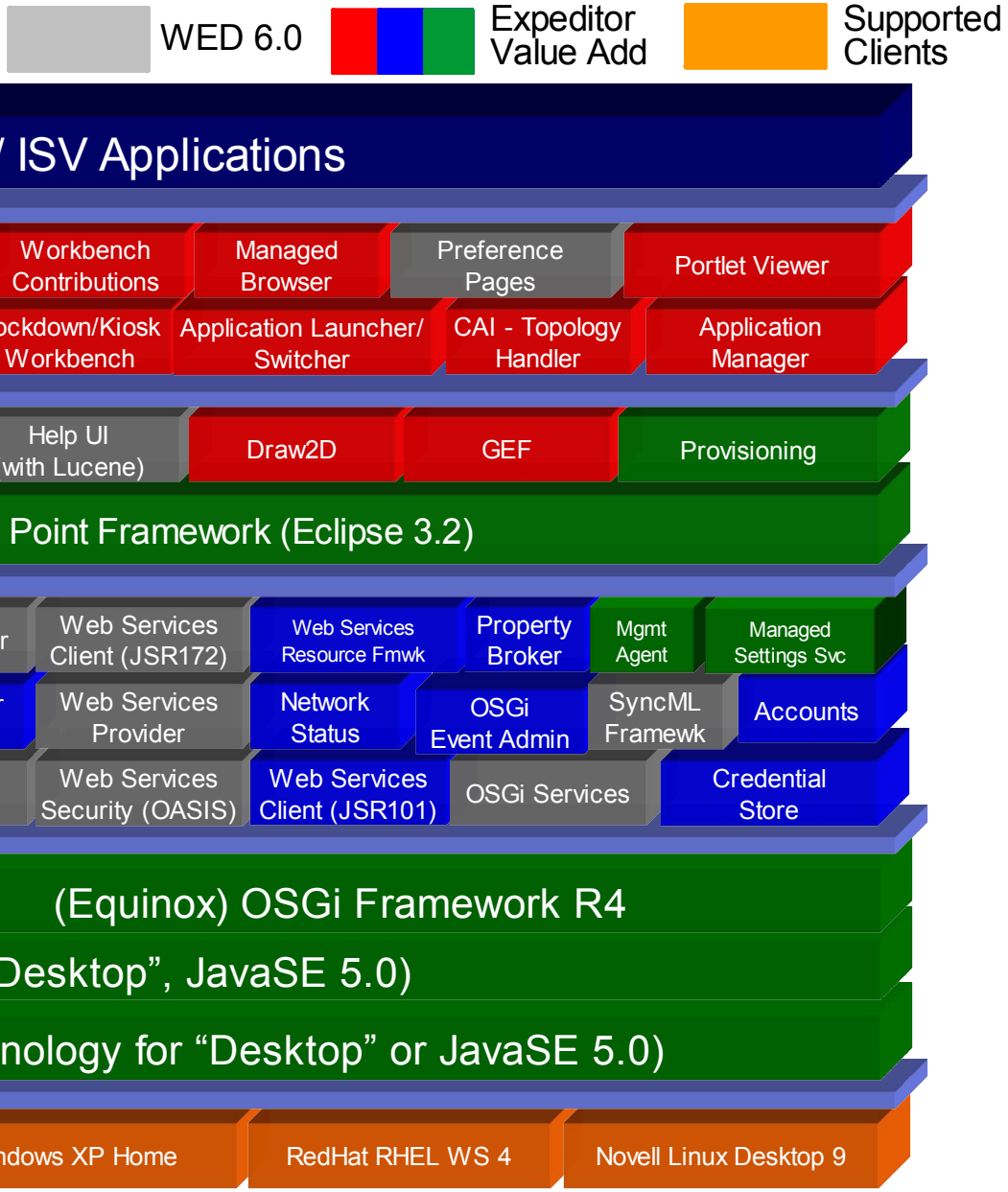
Complete Client Stack



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Lotus Expeditor Server v6.1 (XPDS)

- **An integrated server platform**
  - Supports Java EE programming model
  - Supports Eclipse programming model
  - Provides synchronization services for clients
  - Provides management of client devices
- **Components**
  - DB2 Everyplace Synchronization Server, Enterprise Edition, v9.1
  - Device Management Server v2.1
  - WebSphere MQ Everyplace for Multiplatform v2.0.2

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Server Features

- **Integrated install and configuration of the individual server components**
- **Common user registry for DB2e and DMS**
- **A user management console that allows you to create users and groups when DB2 is configured as the user repository**
- **Configuration wizard**
  - Reconfigures the user management subsystem to use an enterprise LDAP (Microsoft Active Directory 2003) as the user repository instead of DB2
  - Change the administrator passwords in the XPD components
  - Change to enable clustering of services
- **Custom LDAP support (IBM Tivoli Directory Server, Domino, etc.)**
- **Scaling Lotus Expeditor Server services**
- **InfoCenter downloadable from the XPD external website**

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DB2 Everyplace (DB2e) Overview

- **Local Database on client to manage data**
  - IBM's smallest mobile relational database available - app.180KB
  - High performance design - main memory database techniques and advanced indexing
  - Java, C/C++ and Visual Basic support for easy application development
  - Support for basic transaction processing and per table encryption
  - Globalized for major languages
- **DB2e Sync Server (included with XPD Server) to synchronize data from client to server**

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Device Management Services (DMS) Overview

- **Allows you to remotely manage mobile devices (PDAs, handheld PCs, PCs, subnotebooks, etc.)**
- **Identifies devices and performs many tasks for managing them, such as configuration, inventory collection, distribution of software and initial provisioning**
- **Device Manager will**
  - Improve time-to-service delivery
  - Extend the customer service and distribution capabilities of the system administrators
  - Supply APIs for integrating value-added applications

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MQ Everyplace (MQe) Overview

- **Industry strength messaging optimized for the mobile environment by allowing intermittent network connectivity**
- **Provides**
  - Asynchronous & synchronous messaging
  - Support for a wide range of devices with small, customizable footprint
  - Message authentication, encryption, non-repudiation and compression
  - Automatic channel management
  - Built-in comprehensive security features
  - Object messaging (data & function)
  - Once-only assured delivery
- **Gateway to IBM's enterprise messaging offerings**
  - WebSphere MQ
  - WebSphere Business Integration Message Broker
  - WebSphere Business Integration Event Broker

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Clients Supported by the Expeditor Server

- **Lotus Expeditor Client for Desktops and Mobile Devices v6.1**
  - Windows XP
  - Red Hat Linux
  - Windows Mobile 2003 SE and Windows Mobile 5 (PPC and Phone editions)
- **WebSphere Everyplace Deployment (WED) v6.0 and v6.0.0.1**
- **IBM Workplace Client Technology Micro Edition Enterprise Offering (WCTME-EO) v5.8.1**
- **IBM Workplace Client Technology Micro Edition (WCTME) v5.7.1 and v5.7.2 for devices**
  - Windows Mobile 2003 2nd Edition with HP iPaQ Pocket PC h5550, h4700 or h3715
  - Windows Mobile 2003 with HP iPaQ Pocket PC h5550

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End-to-End Application Samples

- **Open Financial Network**
  - Demonstrates bank branch teller capabilities and coding best-practices using XPD v6.1
  - Implements the rich client user interface pattern
  - Uses Web Services, DB2e with ISync and MQe end-to-end services
  - Provides documentation on installation / configuration and application design
- **Mobile Adjuster**
  - Demonstrates insurance industry capabilities and coding best-practices using
  - XPD v6.1
  - Implements the browser user interface pattern
  - Uses Web Services, DB2e with ISync and MQe end-to-end services
  - Provides documentation on installation / configuration and application design

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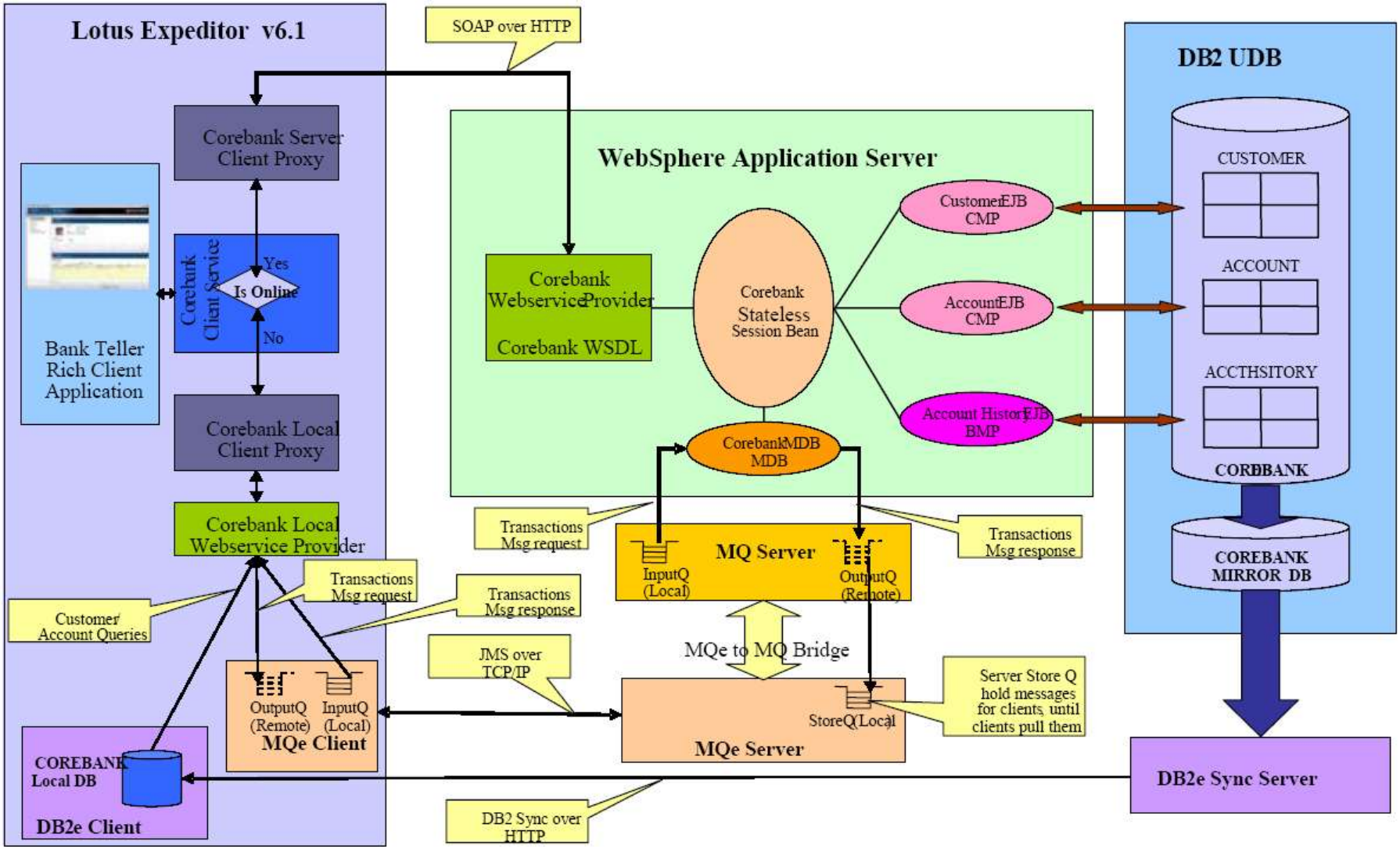
Open Financial Network End-to-End Architecture



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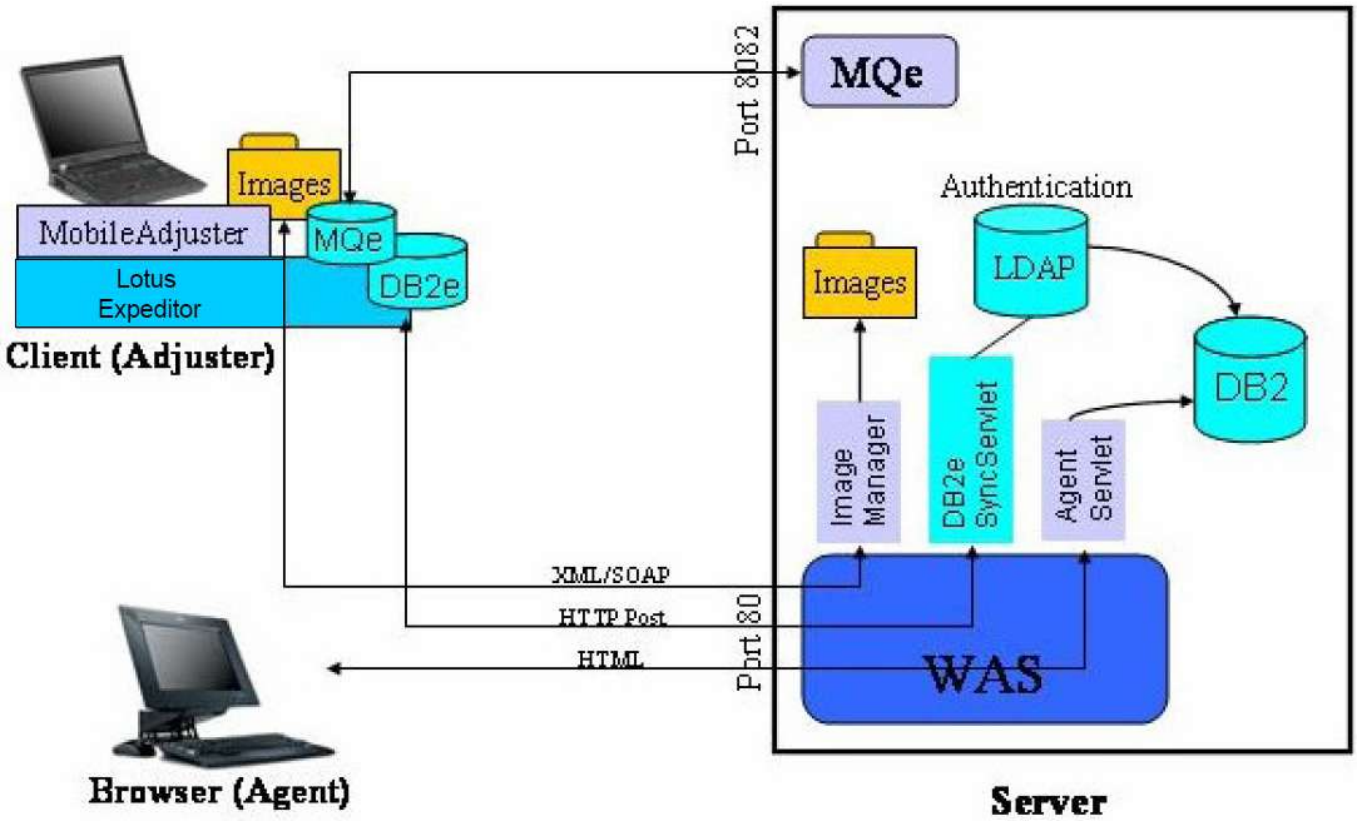
Mobile Adjuster End-to-End Architecture



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Summary

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End of Presentation

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Portal-managed client Integration

Bob Balfe

Sr. Software Engineer

Lotus software

e business on demand software

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Agenda

- Introduction to Composite Applications
- Developing Composite applications
- Sample Applications
- Questions and Answers

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Introduction to Composite Applications

What are composite applications?

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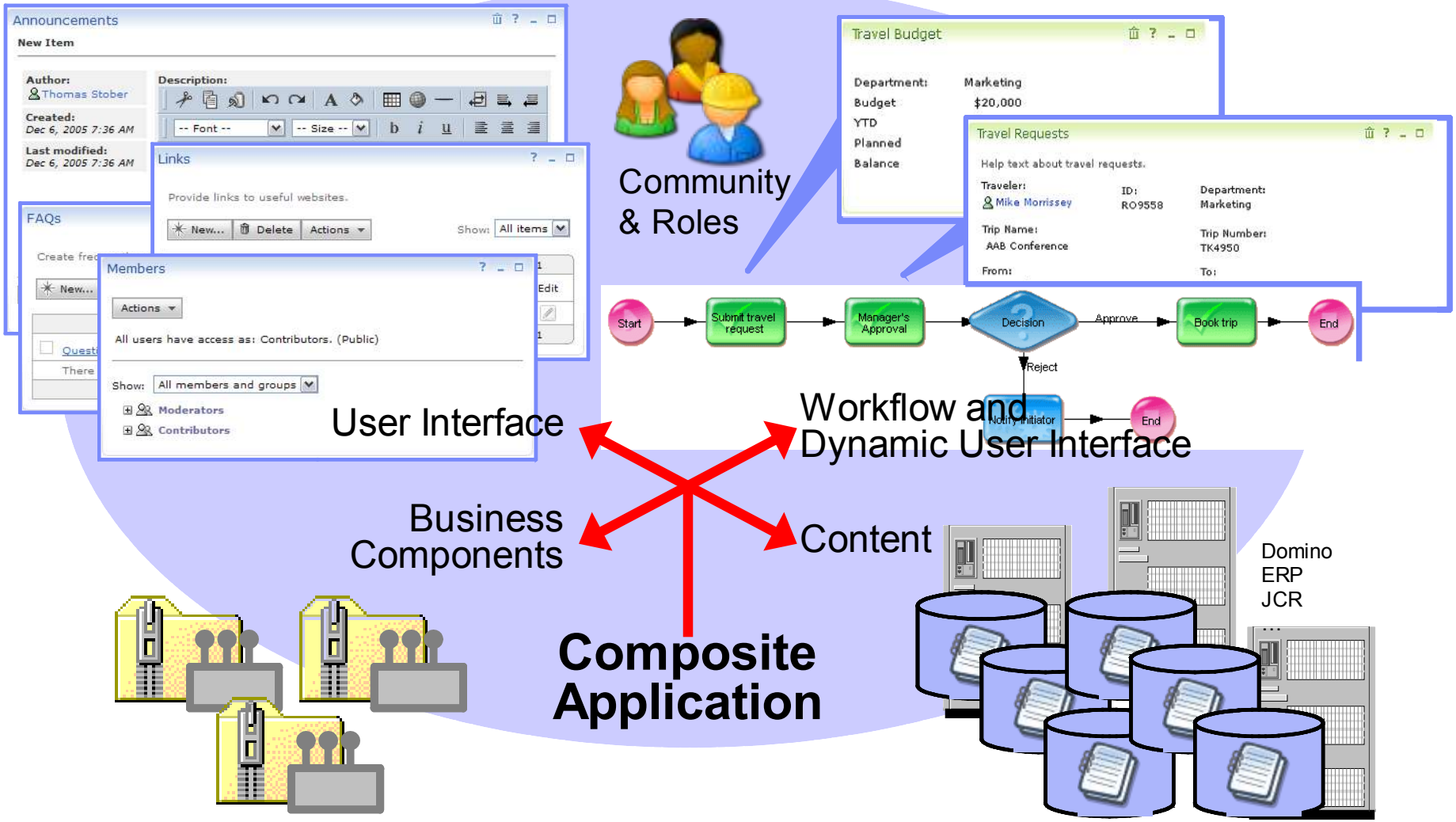
Composite Applications



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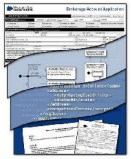
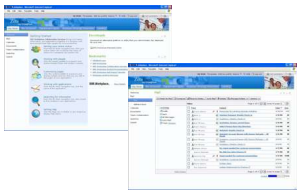
Portal family: The framework for flexible SOA based interaction services

IBM Lotus Expeditor

IBM Workplace Dashboards



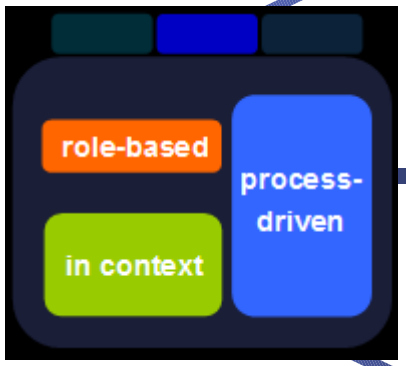
IBM Lotus Forms



IBM Workplace Collaboration Services

IBM Workplace Composite Products

IBM Lotus® Notes ® /Domino™



Rich Clients

Browser

Mobile Clients

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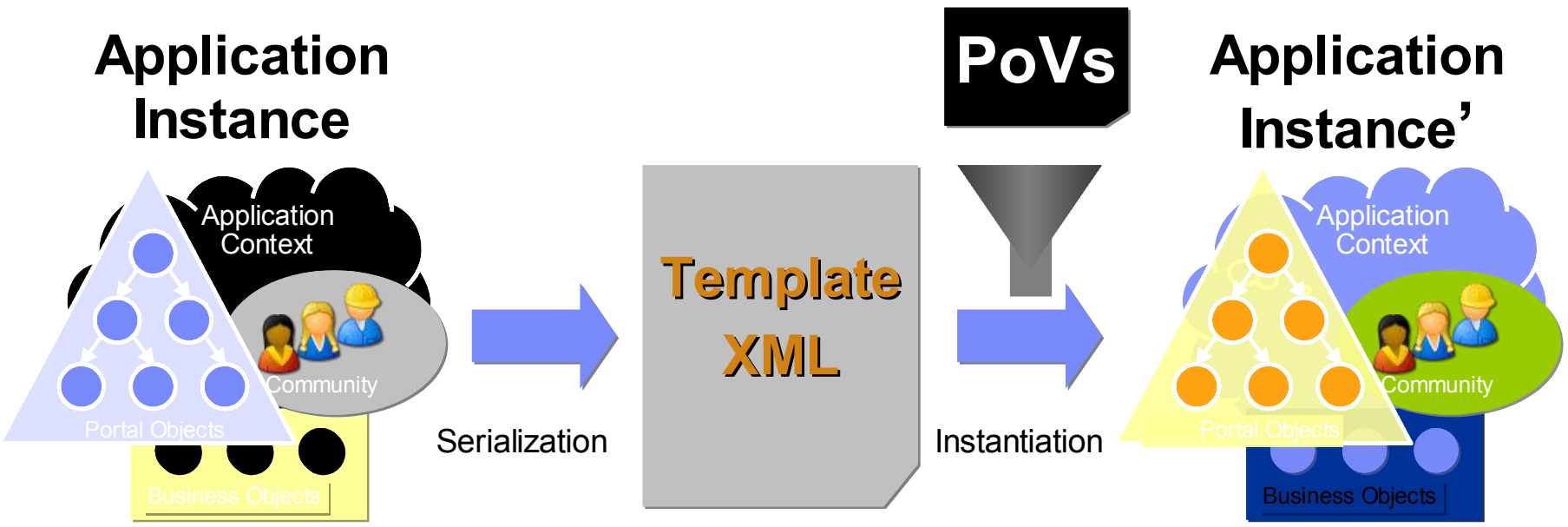
Templates and Applications



Template XML

- contains the blue prints to easily create another instance of that application
- allows for points of variability to be filled out during instantiation

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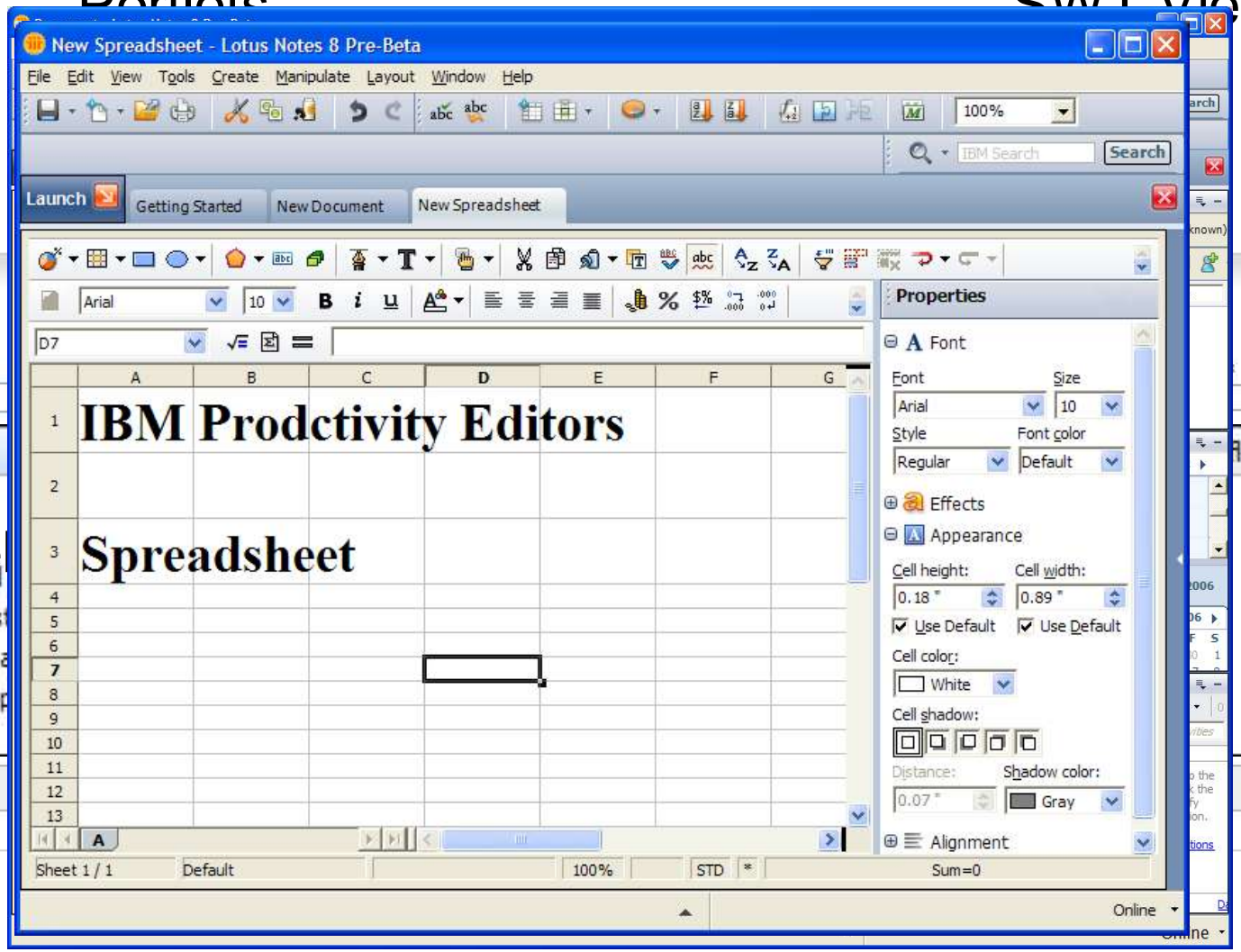
Portlets

SWT Views



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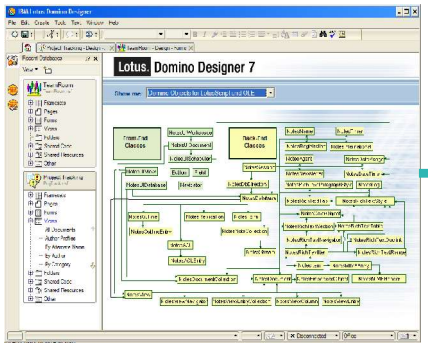
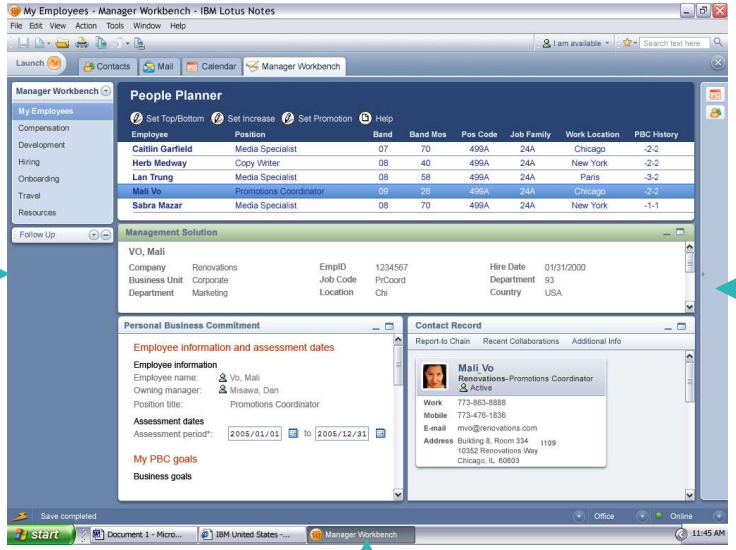
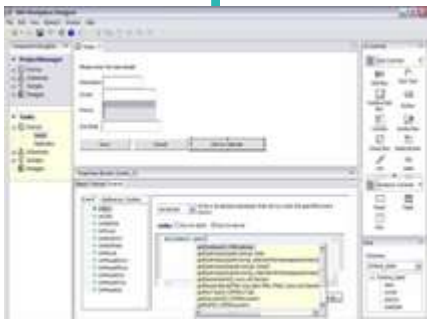
Components can be built with a variety of tools, and developer skills
Components can be built independently from assembly



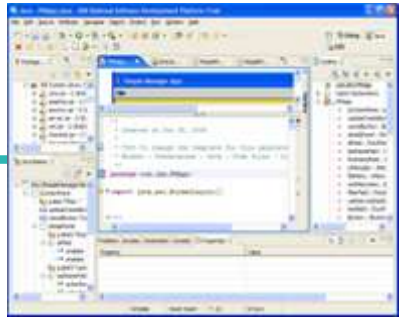
Notes applications built with Domino Designer



E-form built with Lotus Forms Designer



Collaborative components built with Workplace Designer



Eclipse component built with Rational RAD

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Agenda

- Introduction to composite applications
- Bringing Composite Applications to the desktop
- Developing Composite applications
- Sample Applications
- Questions and Answers

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Using the Portal Admin and Programming Model

- Use existing Portal Admin tools
  - Manage Pages/Portlets
  - Page Layout
  - Portlet Wiring
  - Page Inheritance
  - User access/roles
- Extend Portal applications with additional Properties
  - Custom Business Components
  - Pages
  - Portlets – both definition and entity

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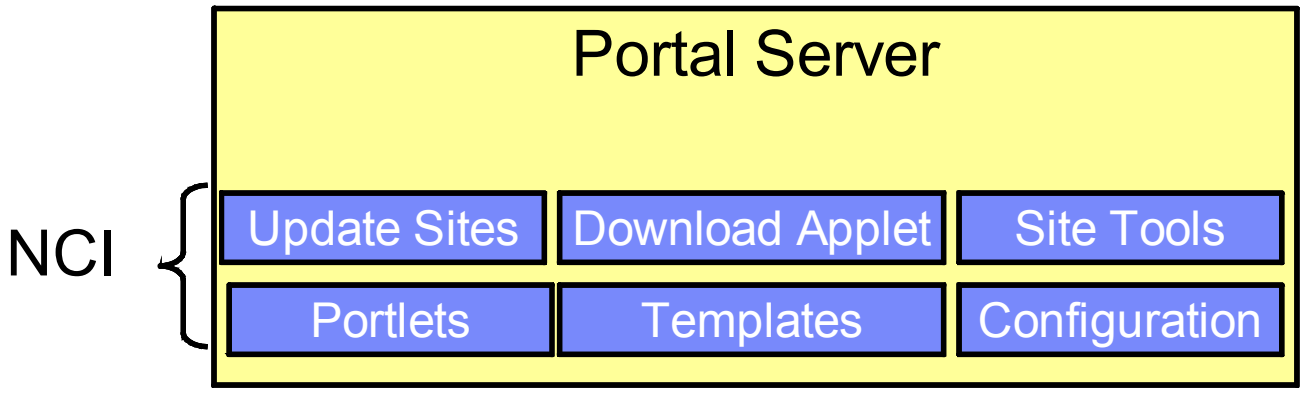
Installing the Network Client Installer on Portal

- Installs all necessary components onto the portal server for client side installation.



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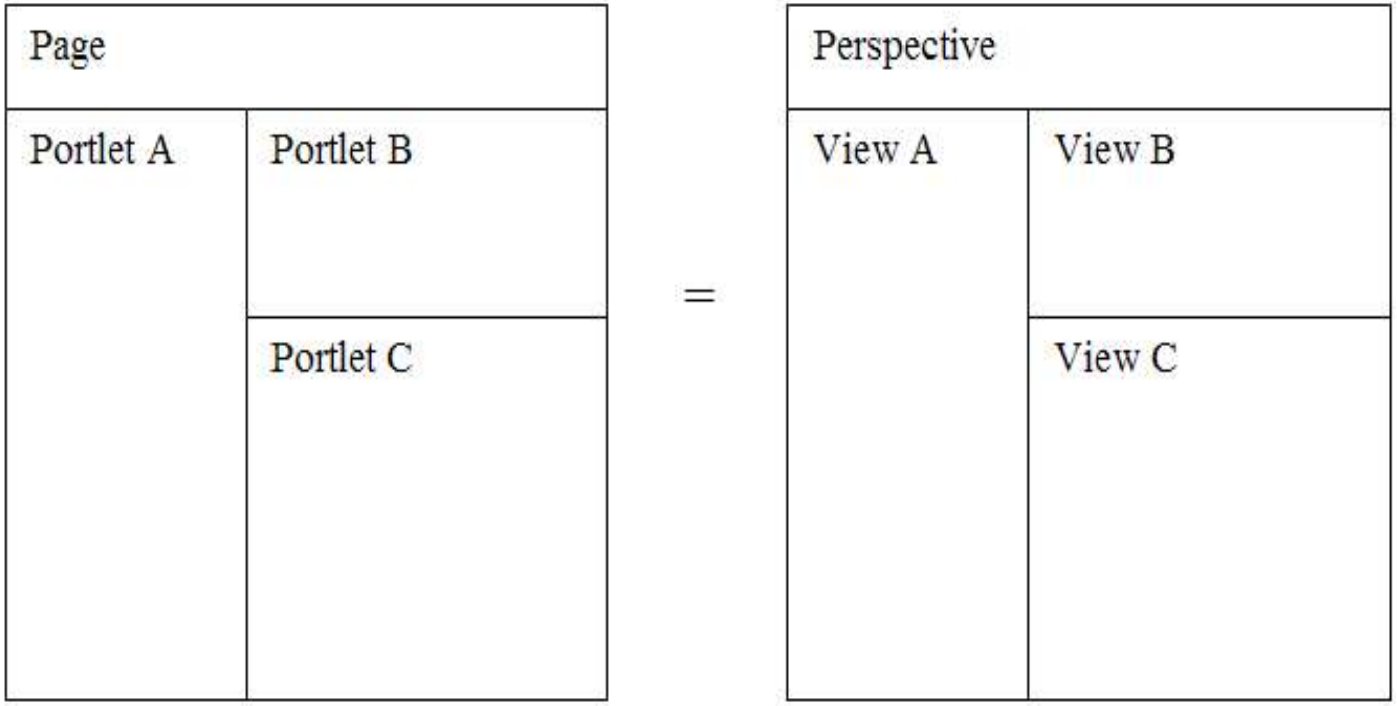
Portal to Rich Client Comparison

- Page = Perspective
- Portlet = SWT View



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Lotus Expeditor Technologies

- All components are ultimately SWT views
- Open Business Component framework
- Expeditor ships with the following view support
  - All SWT views
  - Portlet Viewer
    - JSR 168 Viewer
    - WSRP Viewer
  - WEB container – JSP's
  - Embedded Browser View

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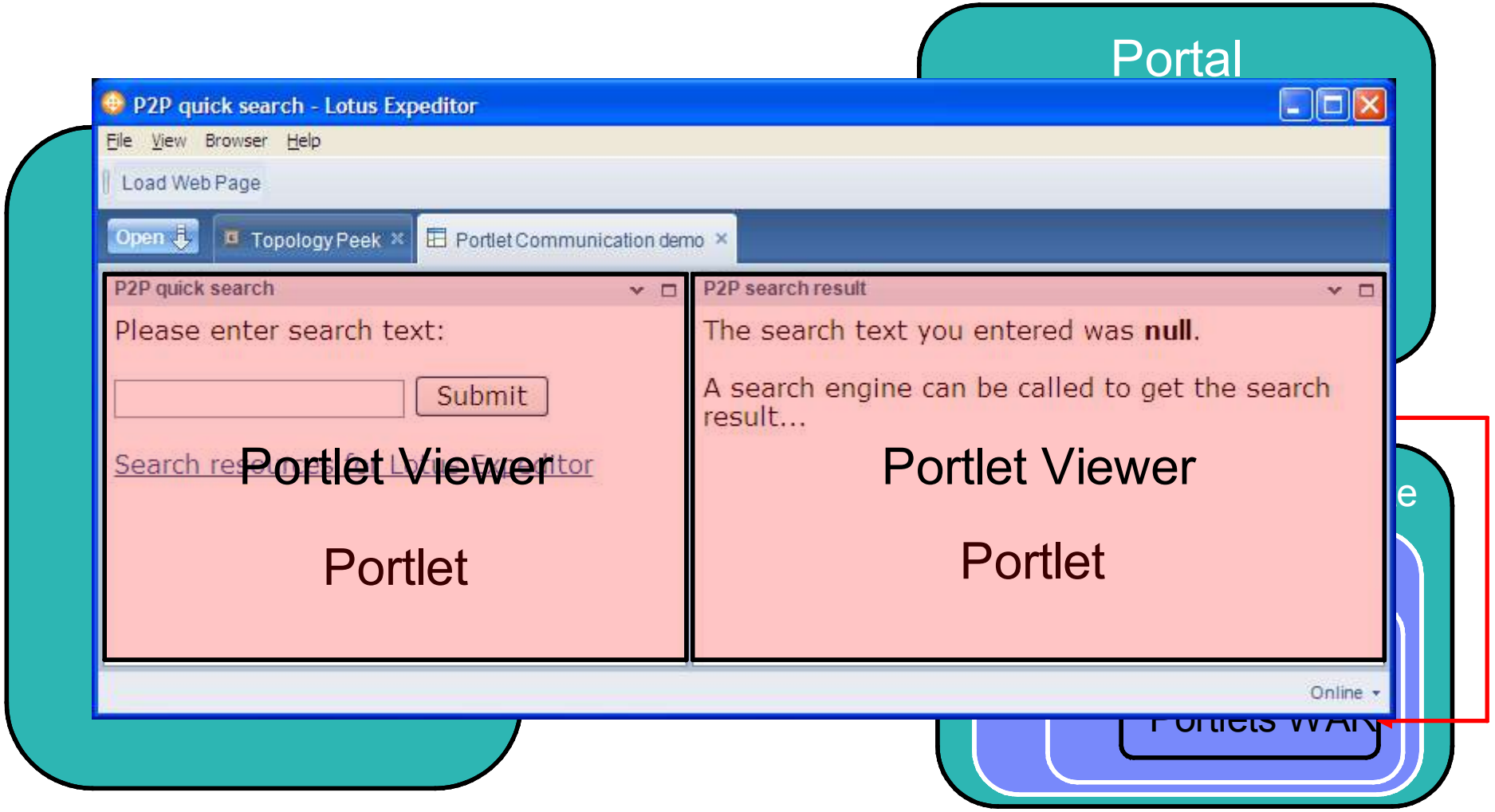
Portlets and Expeditor



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Composite Applications in the Lotus Expeditor

- A catalog of applications available locally
- Download of application description (CA XML)
- Persisting of CA XML for off-line use
  - Portal pages, navigation, meta-data
- Download of client specific code – Features/ plugins
- Data synchronization
- User interface – Navigating between pages, etc.

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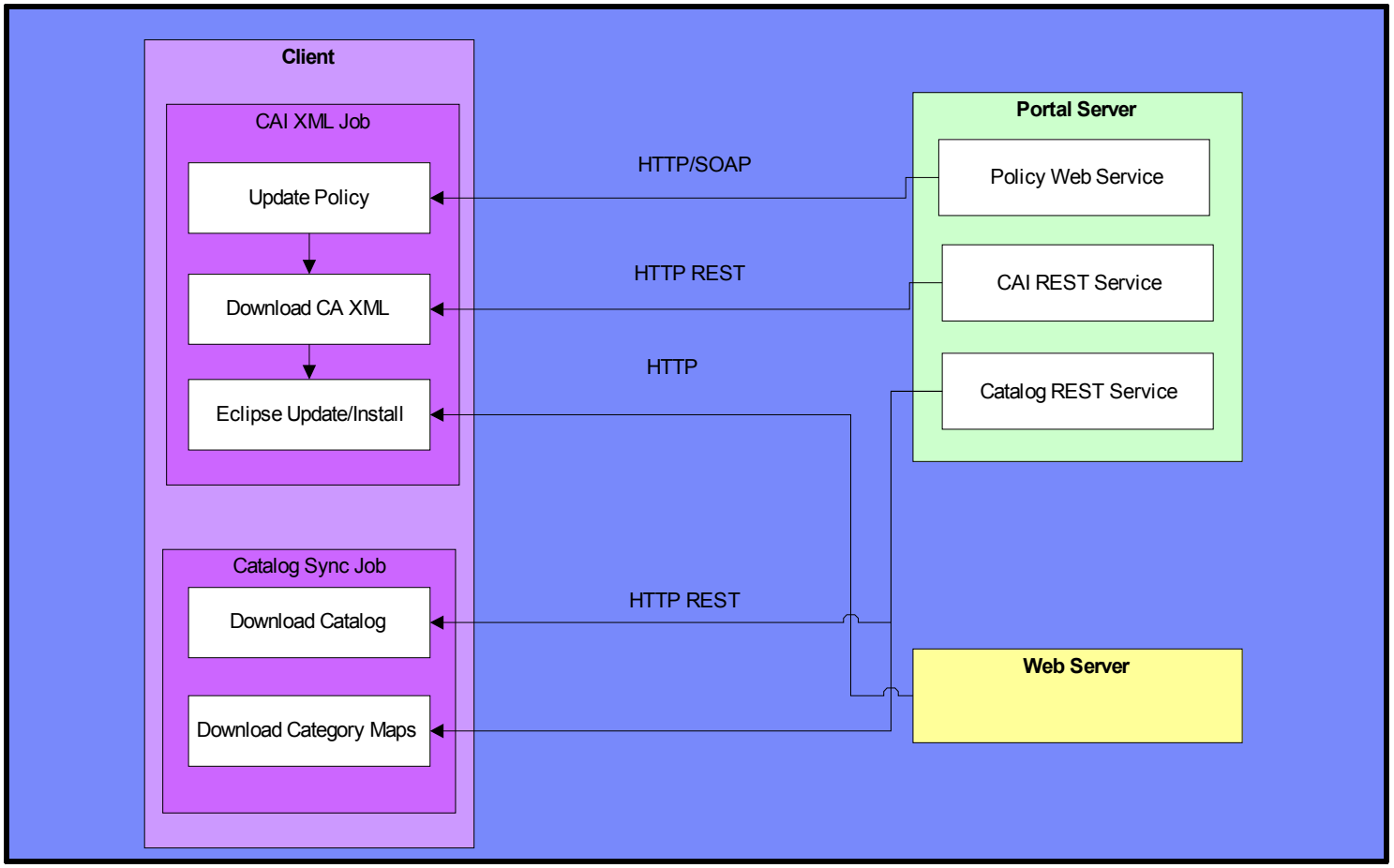
Connecting to Portal



Sample URL: http://localhost:10038/wps/catalogHandler?uri=urn:portal.app.catalog:application

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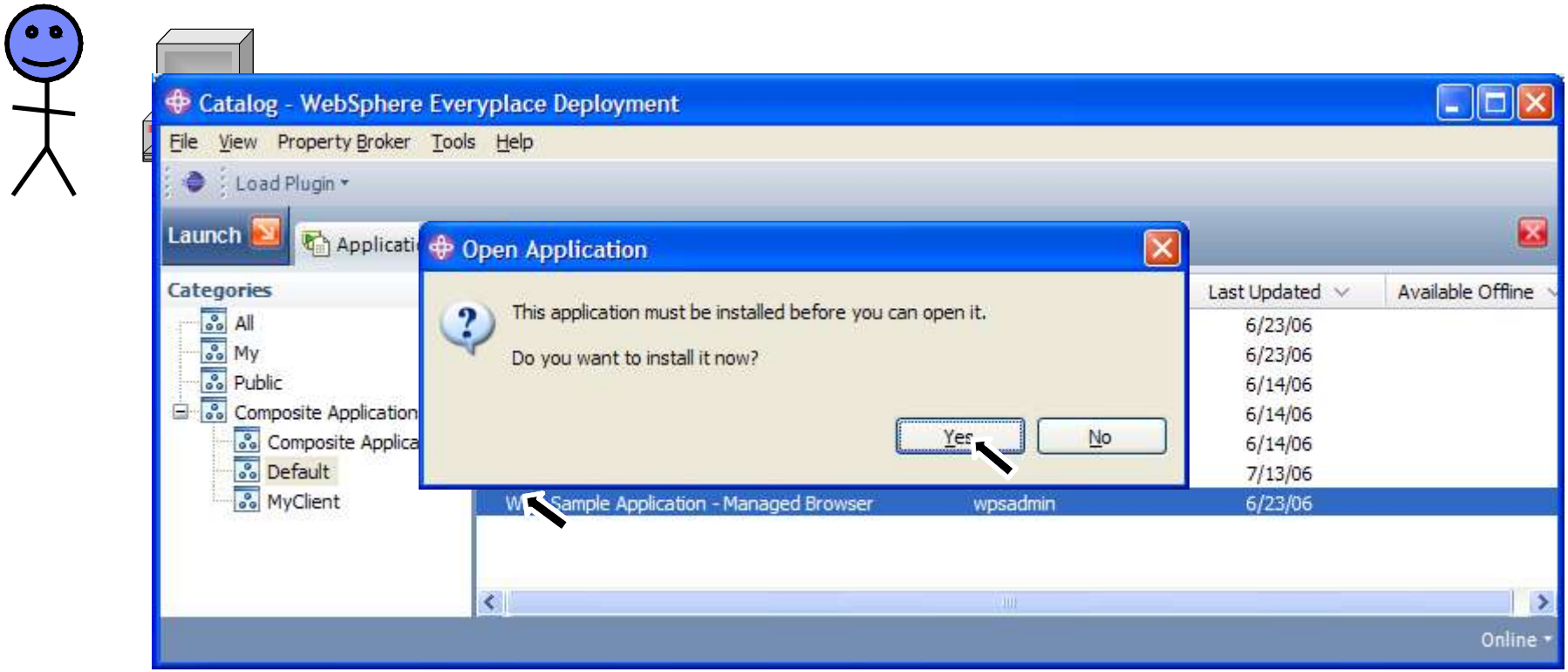
Installing a composite application from portal



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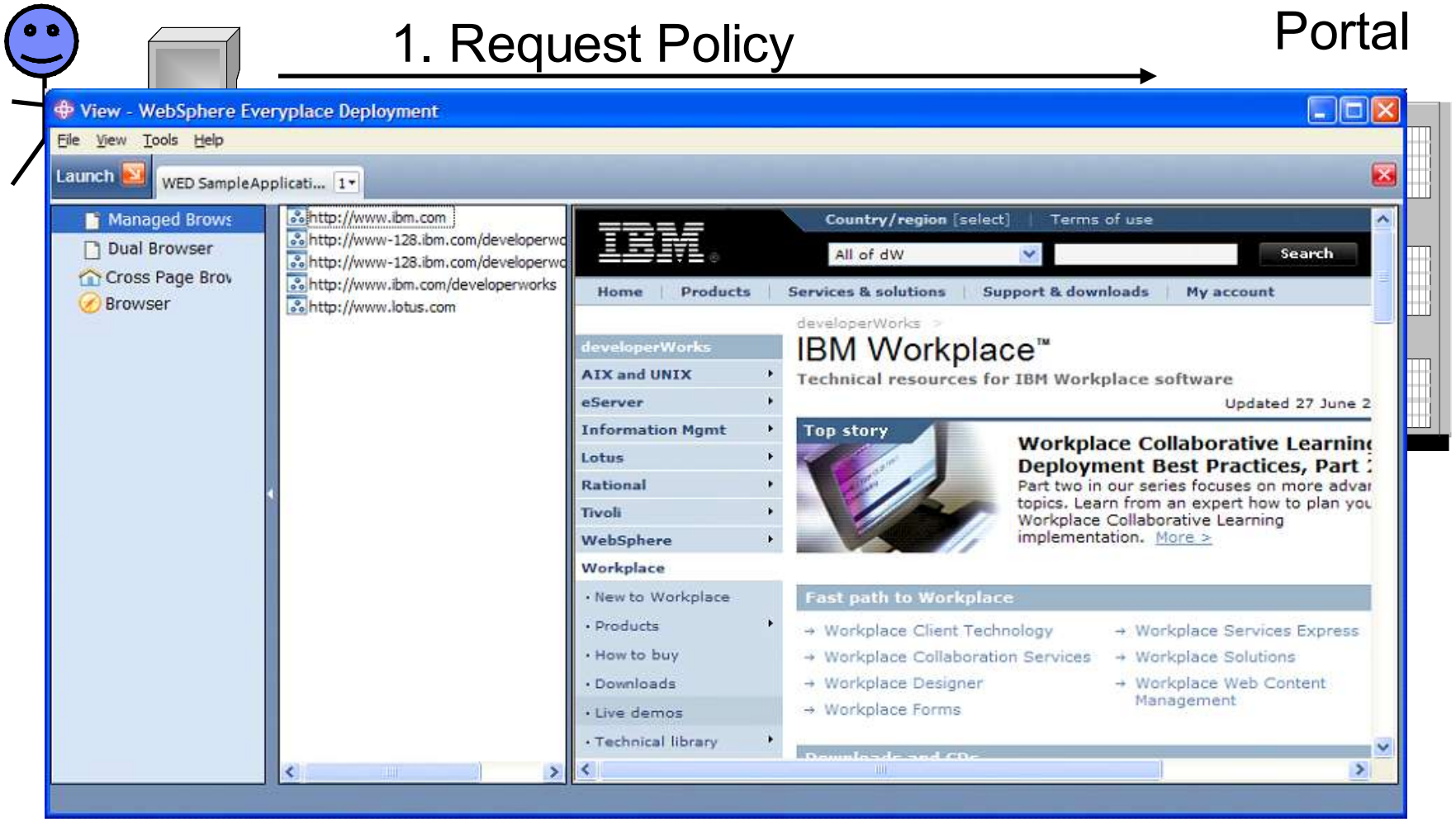
Installing a composite application from portal



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Agenda

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Many different options for applications

- Normal composite application with no off-line
- Locally running composite application – Portlets
  - Portlets run locally
  - Synchronize data
  - Offline supported
- SWT Application aggregated by portal
  - Synchronize data
  - Offline supported
- Custom business components (serialize/ deserialize)
- All Portlets/Views can communicate together!

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What is a business component?

- Custom code that can serialize its data on Portal and deserialize the data on the client
- Metadata that is specific to the user of the application
- The Portal Topology is a shipping example
  - Contains all of the pages, portlets, points of variability in UI
- A simple extension point on the client

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Business Component Extension

Extension:

Plugin ID: com.ibm.portal.app

Point ID: BusinessComponents

Package: com.ibm.portal.app.component

Interface: Deserializable

Method:

public void deserializeApplicationInstance(String objectdata, Map context);

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This specific sample application

- Placeholder portlet created for each SWT view
- Portlets mapped to custom SWT view
- Same WSDL file used in WAR file and Eclipse Plugin
- Application Template was created
  - Page hierarchy, Pages, layout, Portlet Wires, etc.
- Application instance was created from template
- Application then shows in the portal catalog

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Key Technologies Exploited:

- The Composite Application Infrastructure to deploy an SWT based application
- Declarative wiring through Property Broker on the portal and client
- Dynamic provisioning with no restart - Open the application from the CAI Portal Catalog and it will be downloaded/provisioned and then launched.
- Reading Portlet preferences from the SWT view - 4 additional URL's are set by the portal admin and shown in the selector.
- Drag and Drop with Property Broker Property Values - Drag and Drop URL's between the selector views
- Click to Action - Right click C2A menu shows compatible Actions with selected Property.
- Cross Page wiring - clicking the lower URL selector launches a different page.

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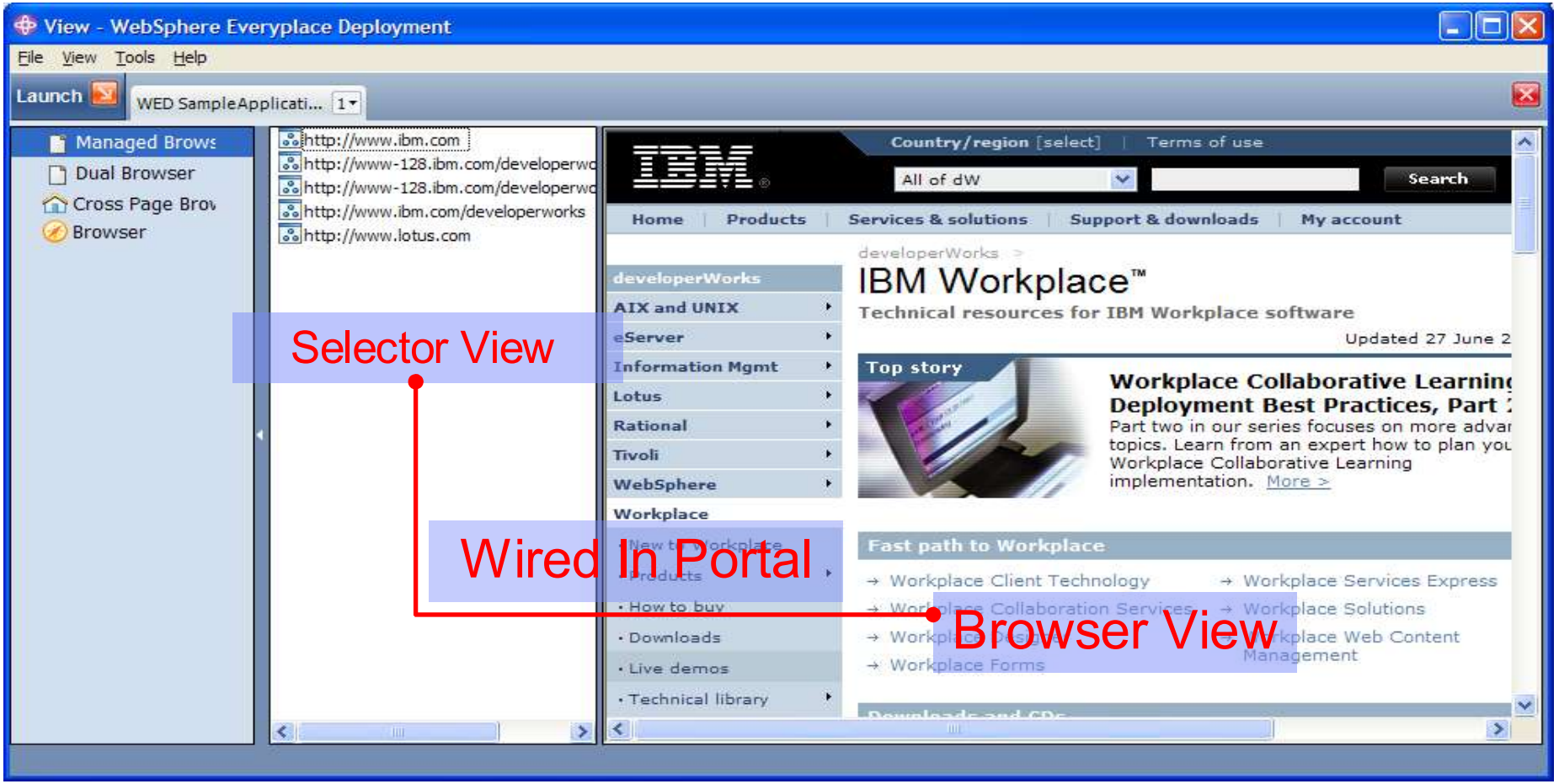
Sample Screen Shot



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Screen Shot – Portlet to SWT View

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How do you develop this kind of sample?

1. Create your portlet in RAD
   - You can optionally use a place holder portlet
   - Creating a specific portlet gives you a direct mapping between the client and server components
   - All portlet metadata can be declared inside of the portlet
     - Feature ID, view ID, etc.
2. Create your Property Broker WSDL file
3. Bundle your portlets into a single WAR file.
4. Deploy your WAR file to the portal server

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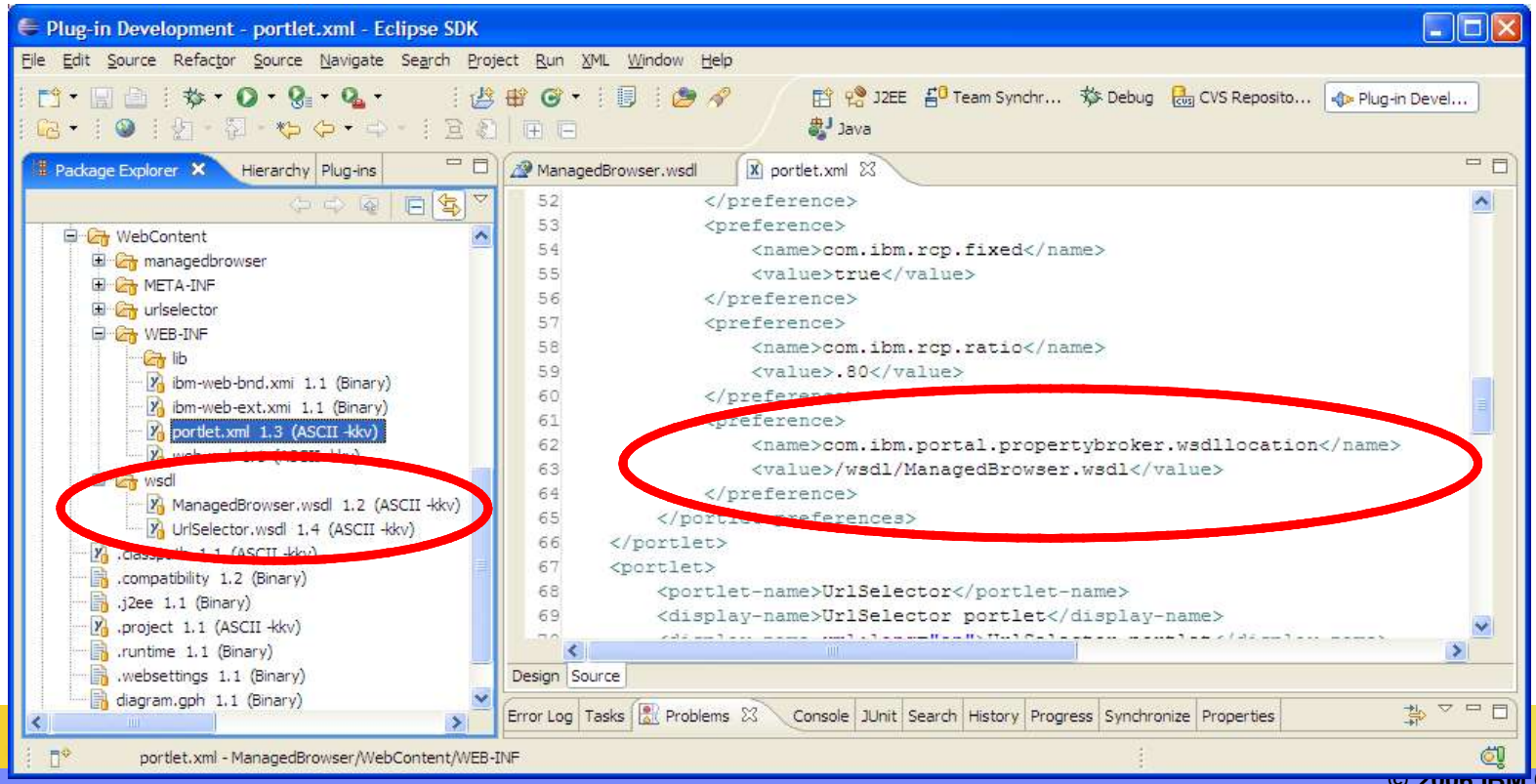
Creating your portlets

- This sample has no portal code – using the sample RAD portlets from the portlet wizard.
- Create the WSDL files for the Actions and Properties
- Update your portlet.xml with the WSDL location in the portlet preferences



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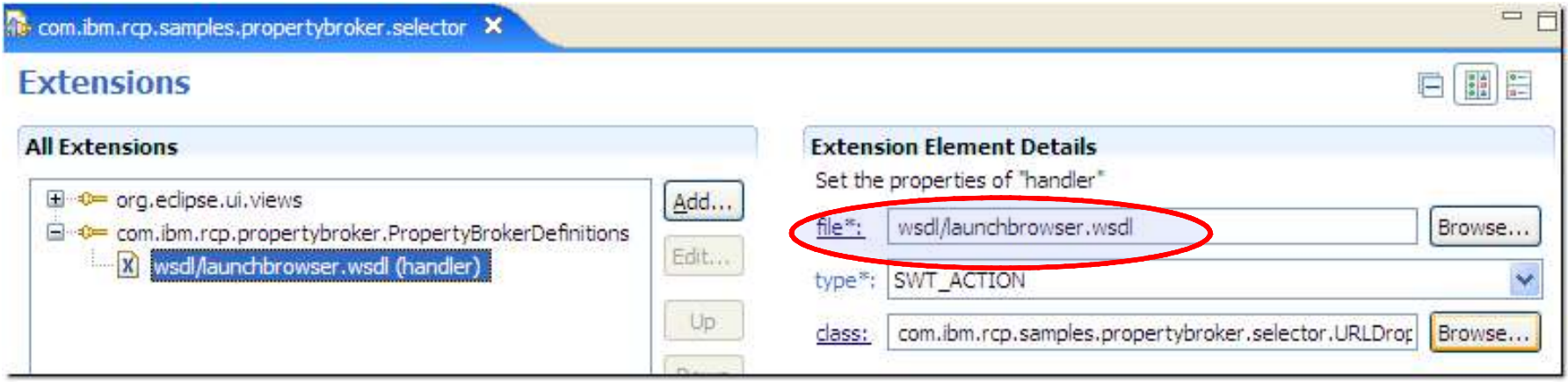
How do you develop this kind of sample? (cont)

1. Create your Eclipse based view
2. Use the same WSDL file in portal and create the client side extension
3. Code your view to publish properties
4. Code your action to update your view on property changes
5. Deploy your Features and plugins to an HTTP site



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Selector View Publishes Selected URL

```
PropertyValue value = PropertyFactory.createPropertyValue(prop, selection);

SWTHelper.changedProperties(new PropertyValue[]{value}, this);
```


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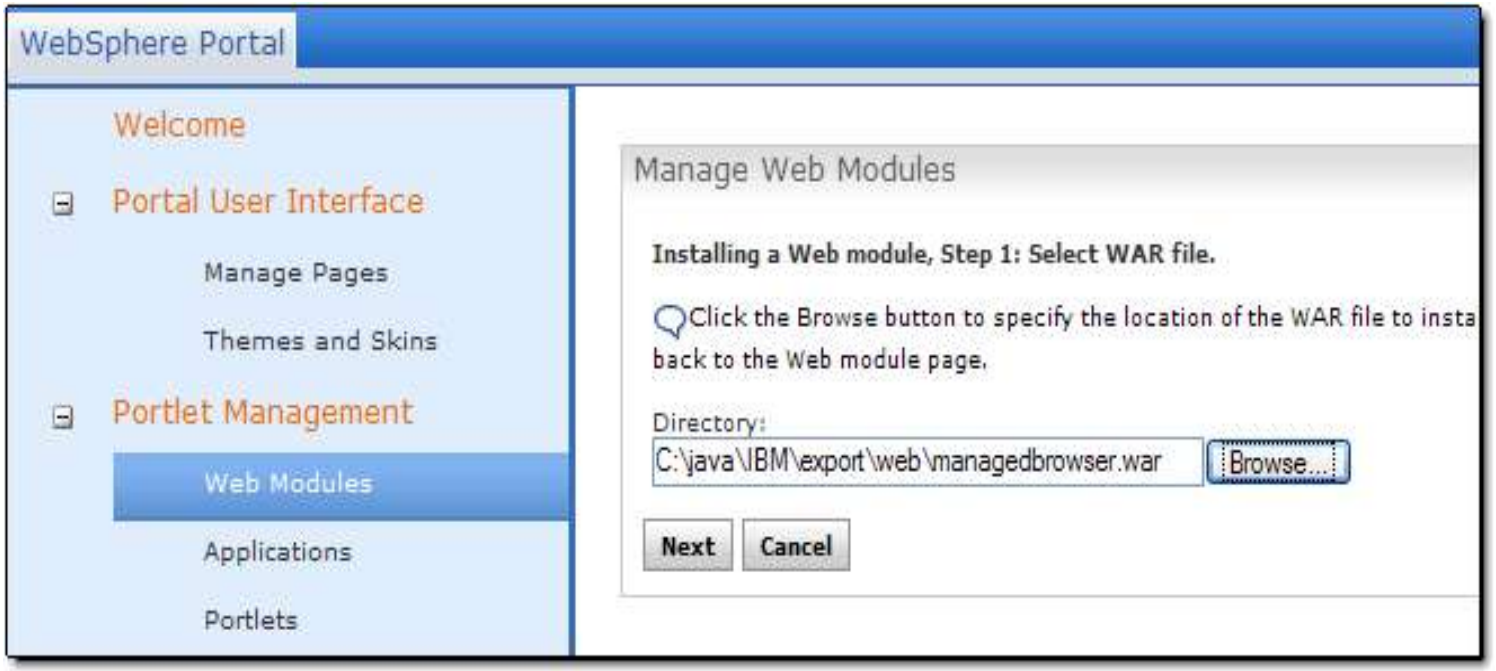
Deploying your sample to the Portal Server

- Install your WAR file as a WEB Module



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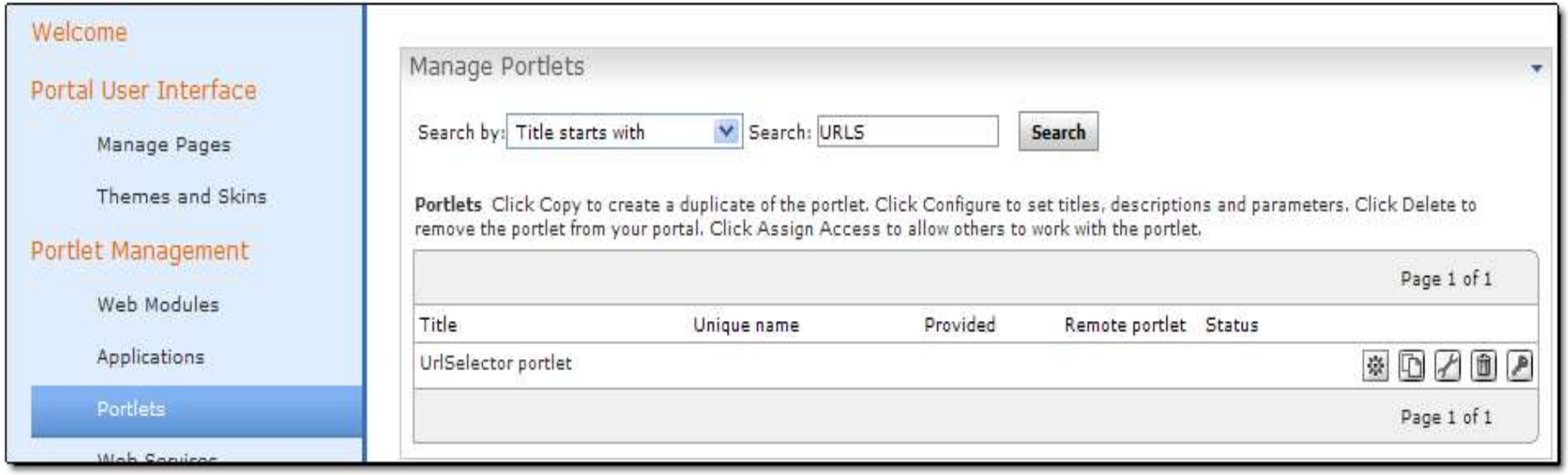
Deploying your sample to the Portal Server

- Verify the portlets were installed under Portlets



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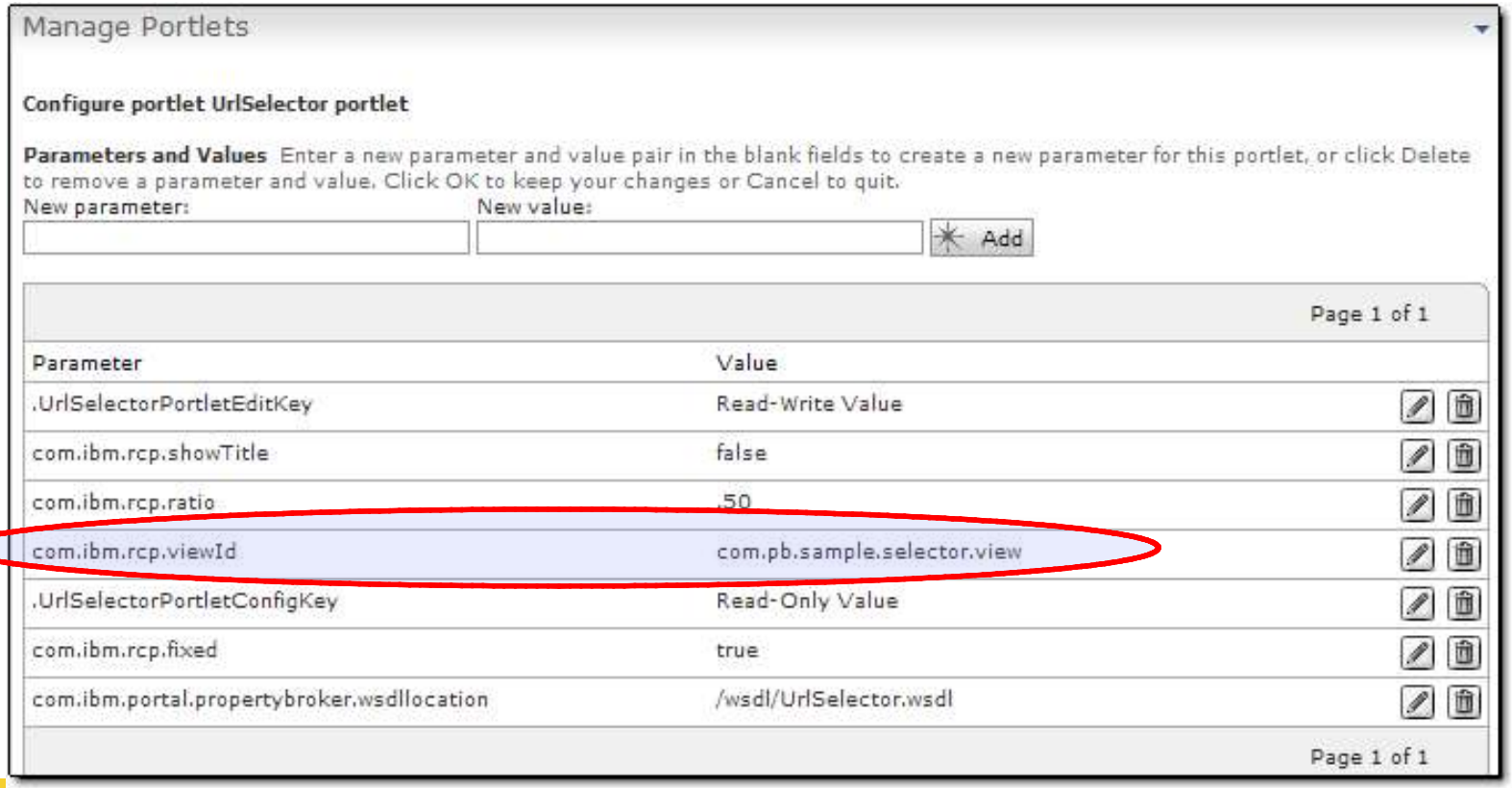
Deploying your sample to the Portal Server

- Concrete parameters were set in RAD



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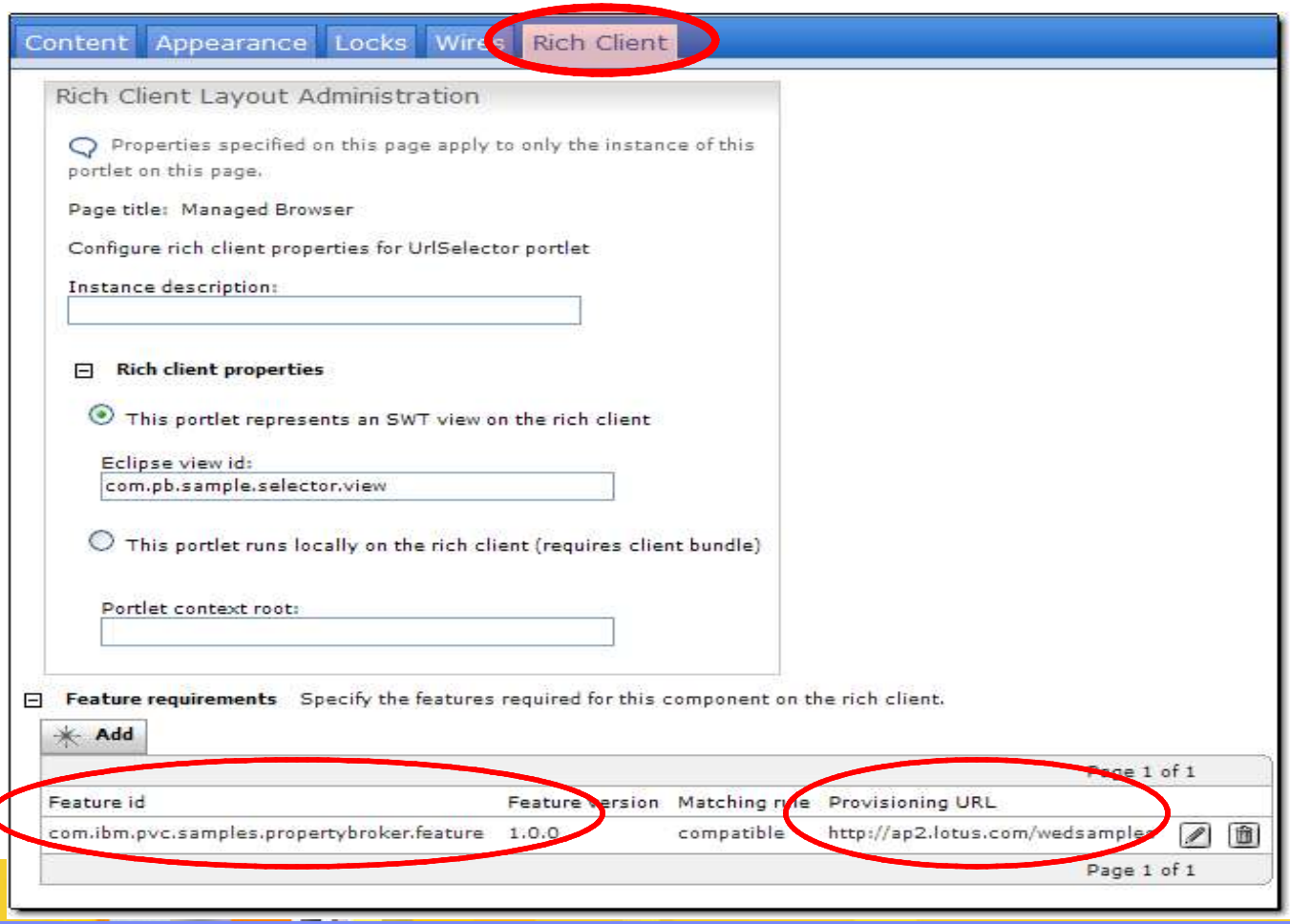
Deploying your sample to the Portal Server

- Use the Rich Client Layout Admin portlet
- Set the icon, features, etc.



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Deploying your sample to the Portal Server

- Create an Application under Templates
- Create your page and layout your portlets

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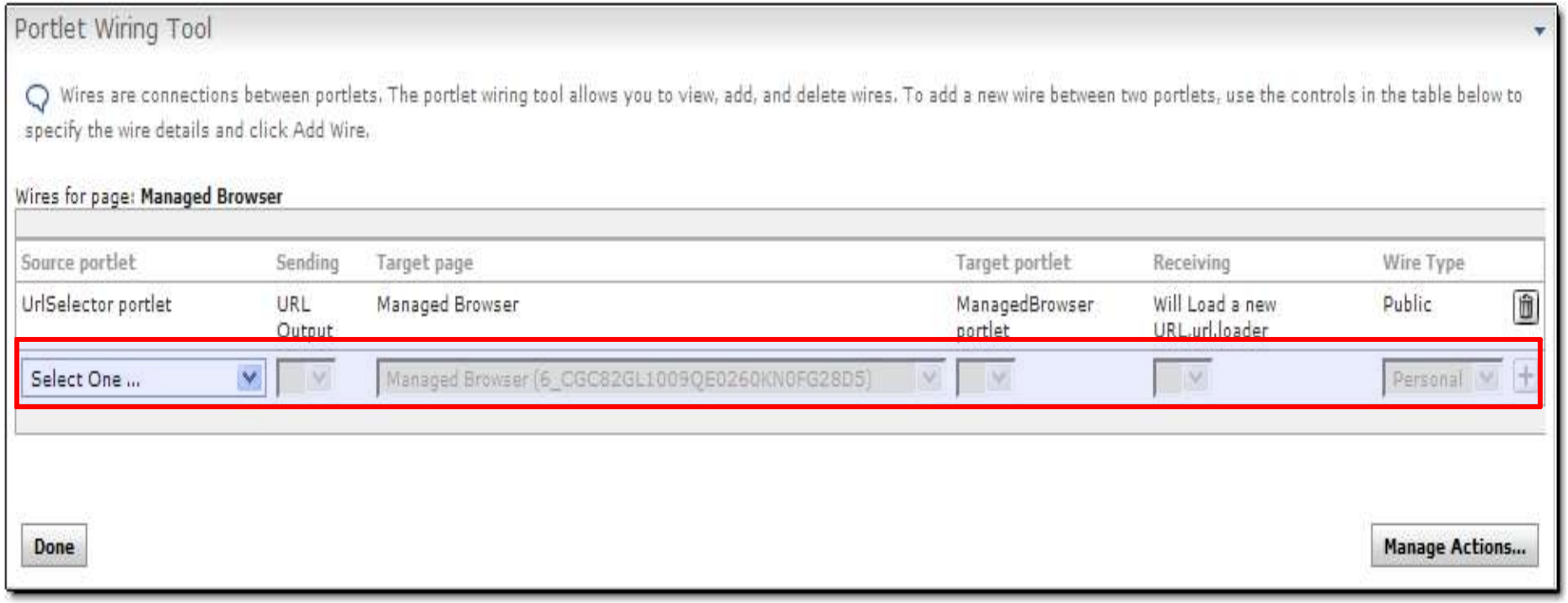
Deploying your sample to the Portal Server

- Create wires between your portlets
- These wires will be used on the client



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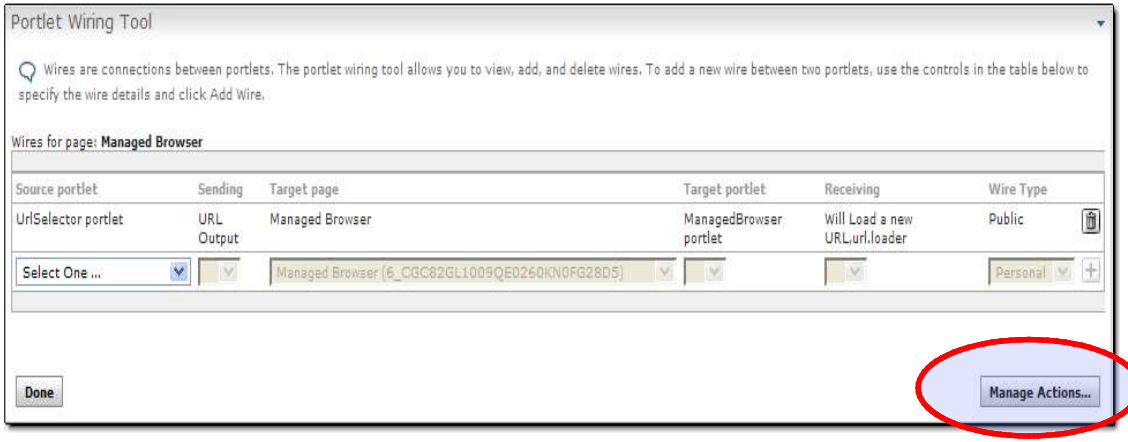
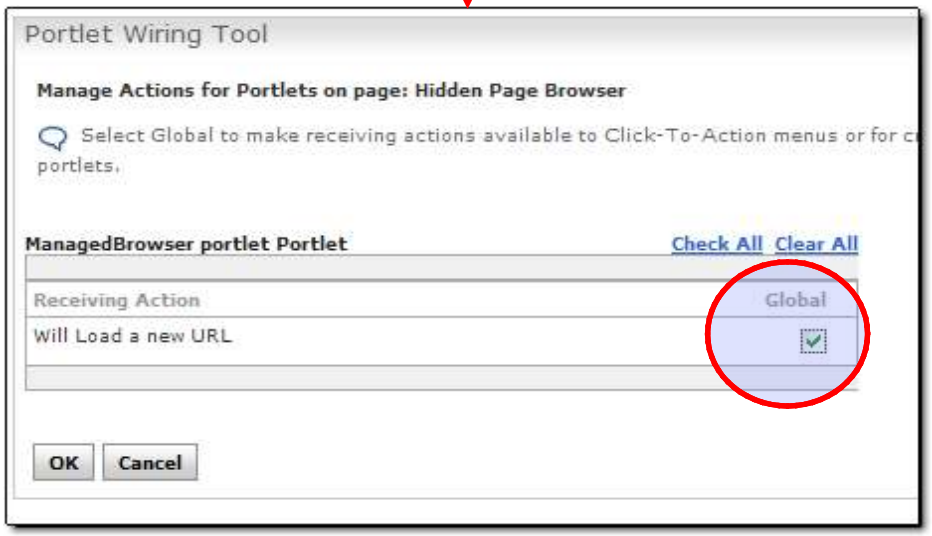
Deploying your sample to the Portal Server

- For cross page wires you need to make your actions Global





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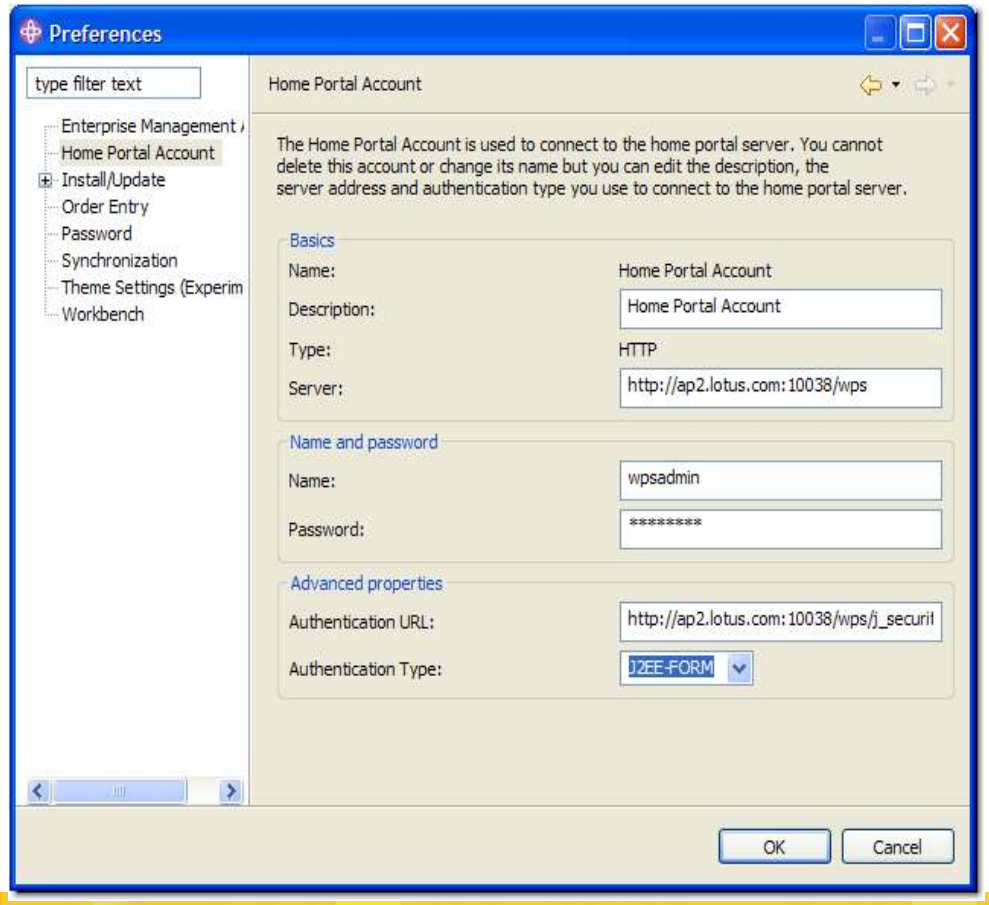
Configuring the Lotus Expeditor client

- Use the preference screen to set the Portal Account connection information



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Agenda

- Introduction to composite applications
- Bringing Composite Applications to the desktop
- Developing Composite applications
- Sample Applications
- Questions and Answers

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IBM® Lotus® Expeditor 6.1

Network client installer

Lotus software

e business on demand software

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Agenda

- NCI Overview
- Web details
- Portal Details
- Download Applet

- Portlets
- Workbench Admin
- Downloads
- Rich Client Layout
- Policy Type Editor for Eclipse Preferences
- Rich Client Managed Browser
- WSRP

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Network client installer

- Installs server infrastructure to allow Expeditor clients to be downloaded and installed over the network
- Two supported environments
  - Web server only
    - Used to enable remote client installation
  - Portal server with web server
    - Used for Portal Managed Client

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Web details

- Static content on the web server to enable remote client installation.
- On web server: (under /Expeditor)
  - Client update site (/Expeditor/updates)
  - Client installers (/Expeditor/install)
  - Download applet (/Expeditor/applet)
  - Archives(/Expeditor/applet)
- Default Install directory
  - Windows®
    - \Program Files\IBM\Lotus\Expeditor\NCI
  - Linux®
    - /opt/IBM/Lotus/Expeditor/NCI
- Under install directory
  - Tools (/bin)
    - Site.xml updater
    - Archive Creator
  - Note: Due to licensing issues, the tools cannot use the jvm that is placed in the _java directory by the install process, so they are run with a .bat or .sh script that depends on JAVA_HOME being set.

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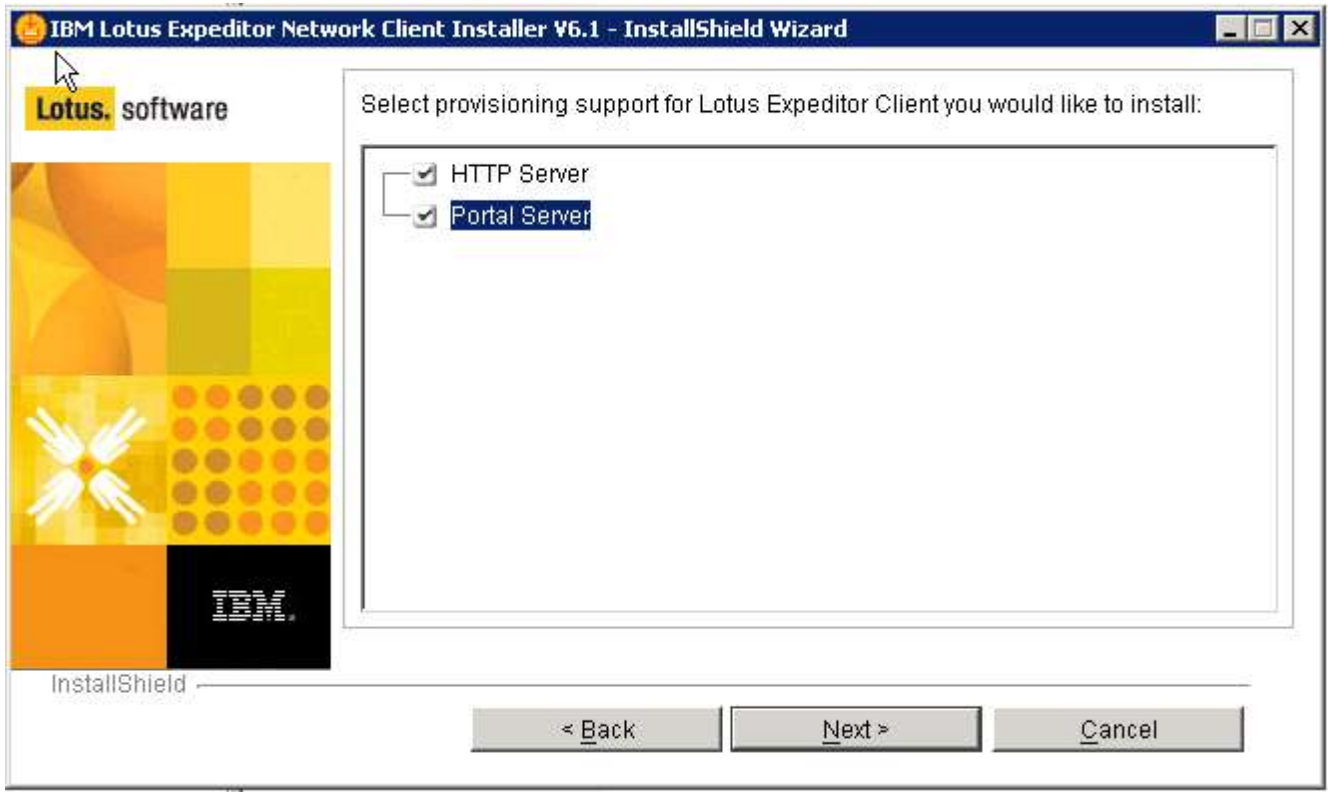
Select environment



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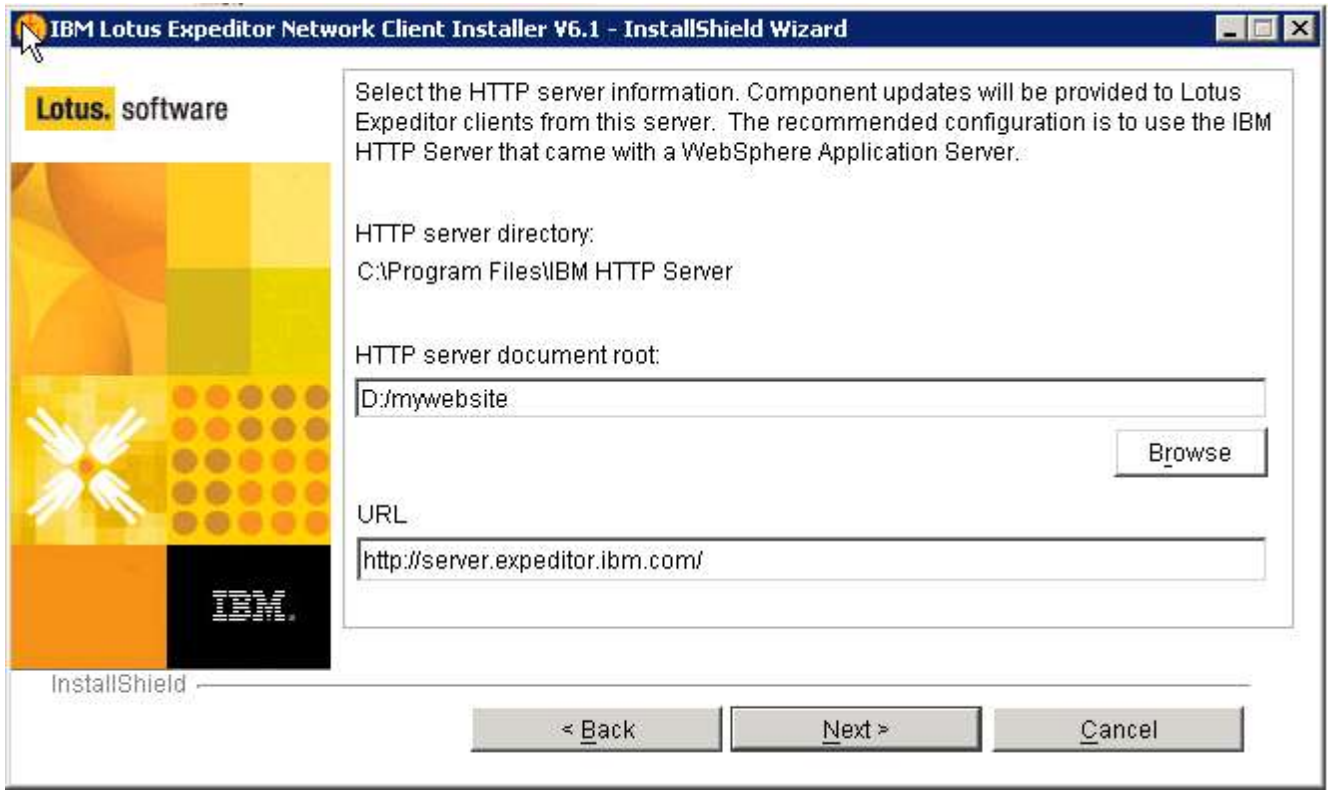
Setup for HTTP Server



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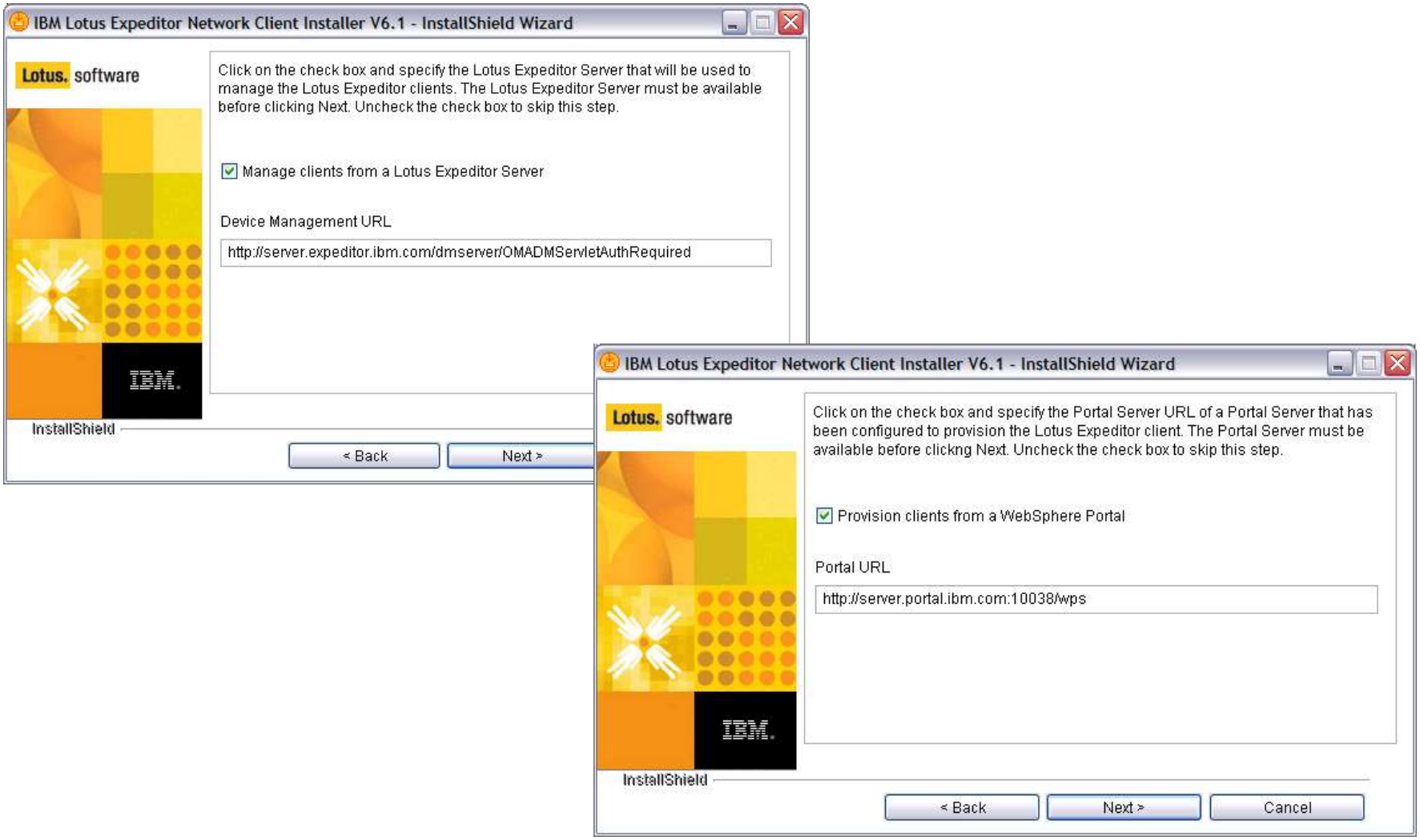
Set client management options



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Download applet

- Installed as part of the Web portion
- Uses a Java™ applet in the browser to perform client provisioning
  - Allows download of a .zip file in case there are problems running java in the browser

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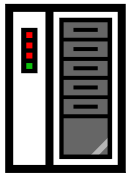
Client provisioning and NCI

- CD or Web installation

/desktop/install/setupwin32.exe
/desktop/install/deploy/*user.xml
/desktop/updates/

1. Launch installer
2. Installer reads appropriate manifest (user.xml or multiuser.xml)
3. Features and plug-ins are installed on the client from the /updates directory on the CD.



/Expeditor/applet/index.html
/Expeditor/install/setupwin32.exe
/Expeditor/install/deploy/*user.xml
/Expeditor/updates/

1. Access download applet.
2. Applet copies:
   - Installer
   - Manifest files (modified to access web server)
   - Options files
3. Applet launches installer
4. Installer reads appropriate manifest file (user.xml or multiuser.xml)
5. Features and plug-ins are installed on the client from the web server.

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Download client from the Website

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Launches client installation after download

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Section

Portal managed client

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Network client installer: Portal managed clients

- Installs a set of portlets that allows the Expeditor client to be managed for the Portal server.
  - Workbench Administration
    - The Workbench Administration portlet enables WebSphere Portal to manage items contributed to the various portions of the Lotus Expeditor workbench. These portlets provide a way to make user role based contributions to the workbench.
  - Downloads Portlet
    - Allows an end user to initiate installation of the Expeditor client platform from the portal server.
  - Rich Client Layout Administration
    - Extension to the Portal page customizer that is used to manage the client runtime common rich client-specific metadata.
  - Policy Type Editor for Eclipse Preferences
    - Extension to the Resource Policies portlet through which Eclipse preferences for portal administered client can be managed.
  - Rich Client Managed Browser
    - Used by the administrator to define and configure instances of the Managed browser. The browser may be used to aggregate local (running in the web container) or remote web applications within a portal-defined perspective.
  - WSRP (Web Services for Remote Portlets) Rich Client Viewer Enablement portlet
    - Proxy portlet for a WSRP portlet that stores the WSRP metadata

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Portal

- Installs portal content for Portal Managed Clients operations
  - Portlets
    - Workbench Administration
    - Downloads
    - Rich Client Layout
    - Policy type editor for eclipse preferences
    - Managed browser
    - WSRP
  - Application Template
  - MyClient application page

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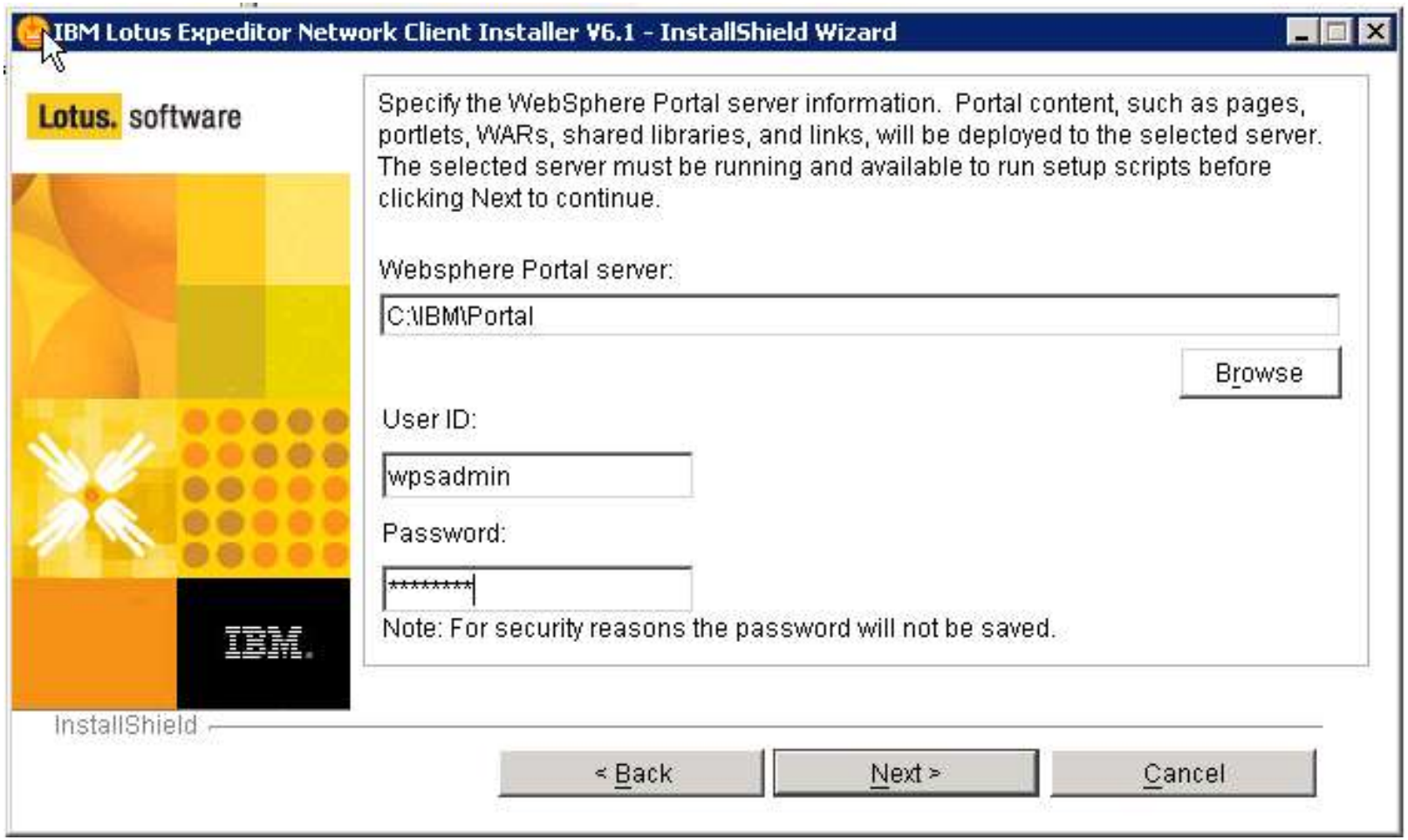
Setup for portal managed client



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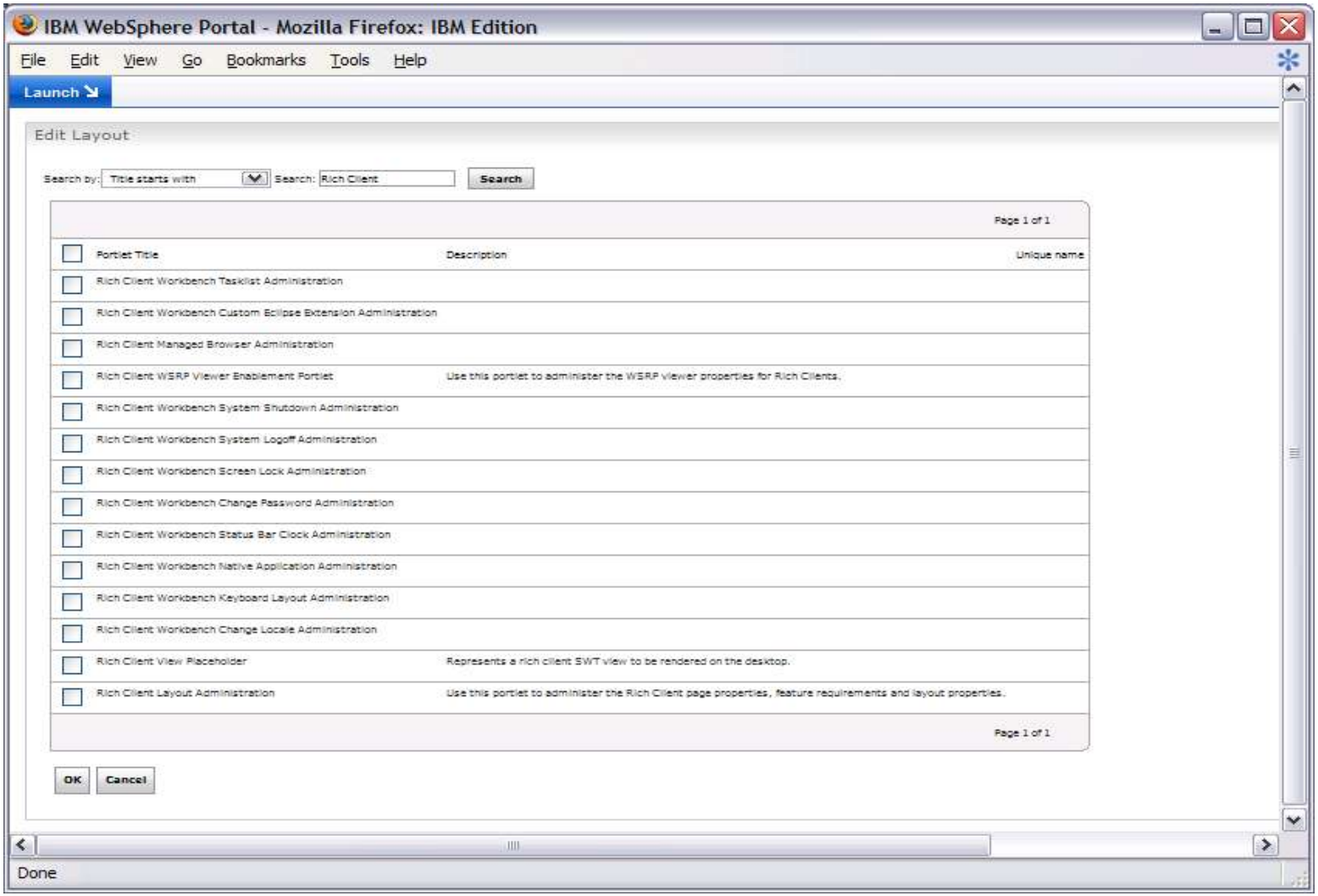
Workbench administration



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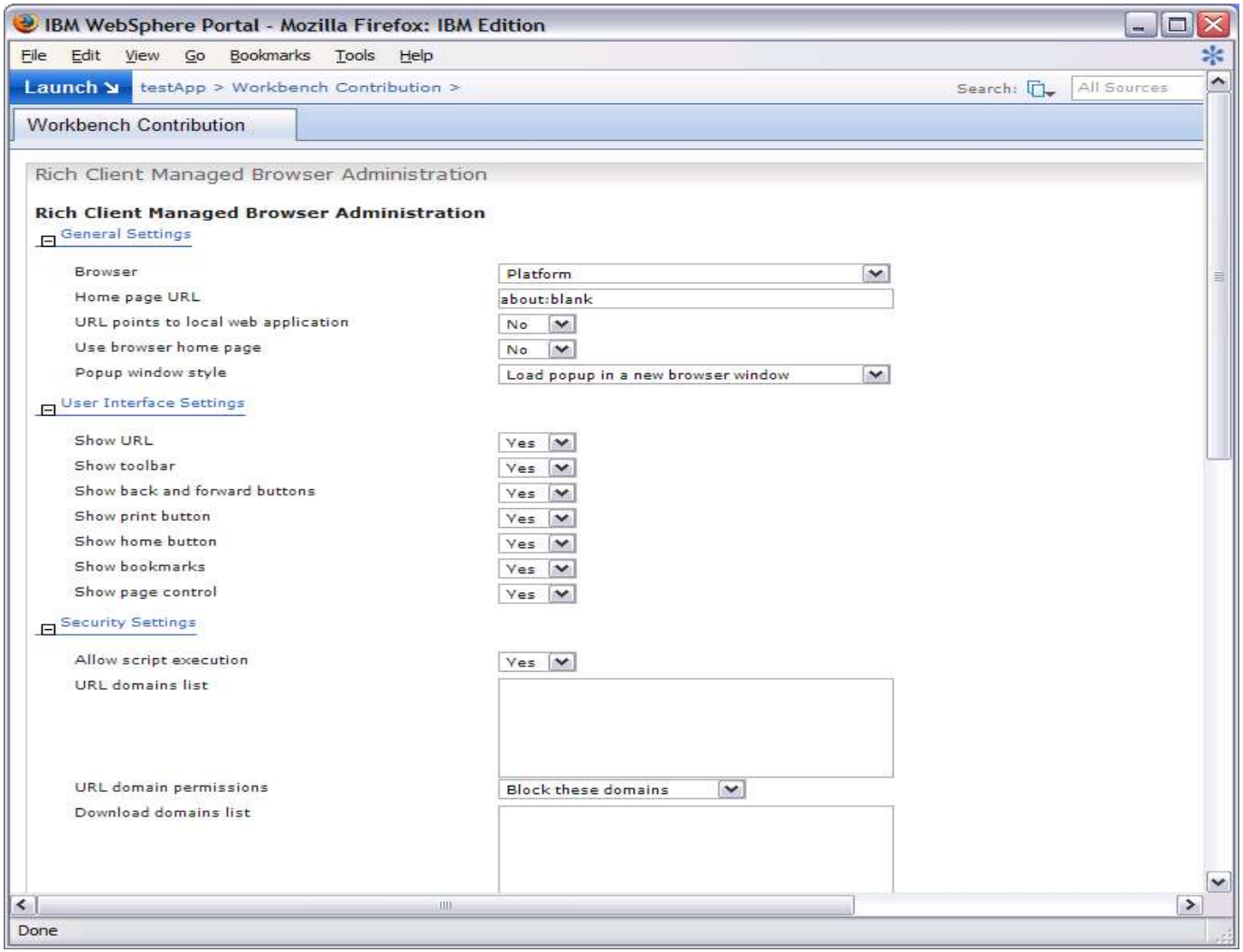
Managed browser



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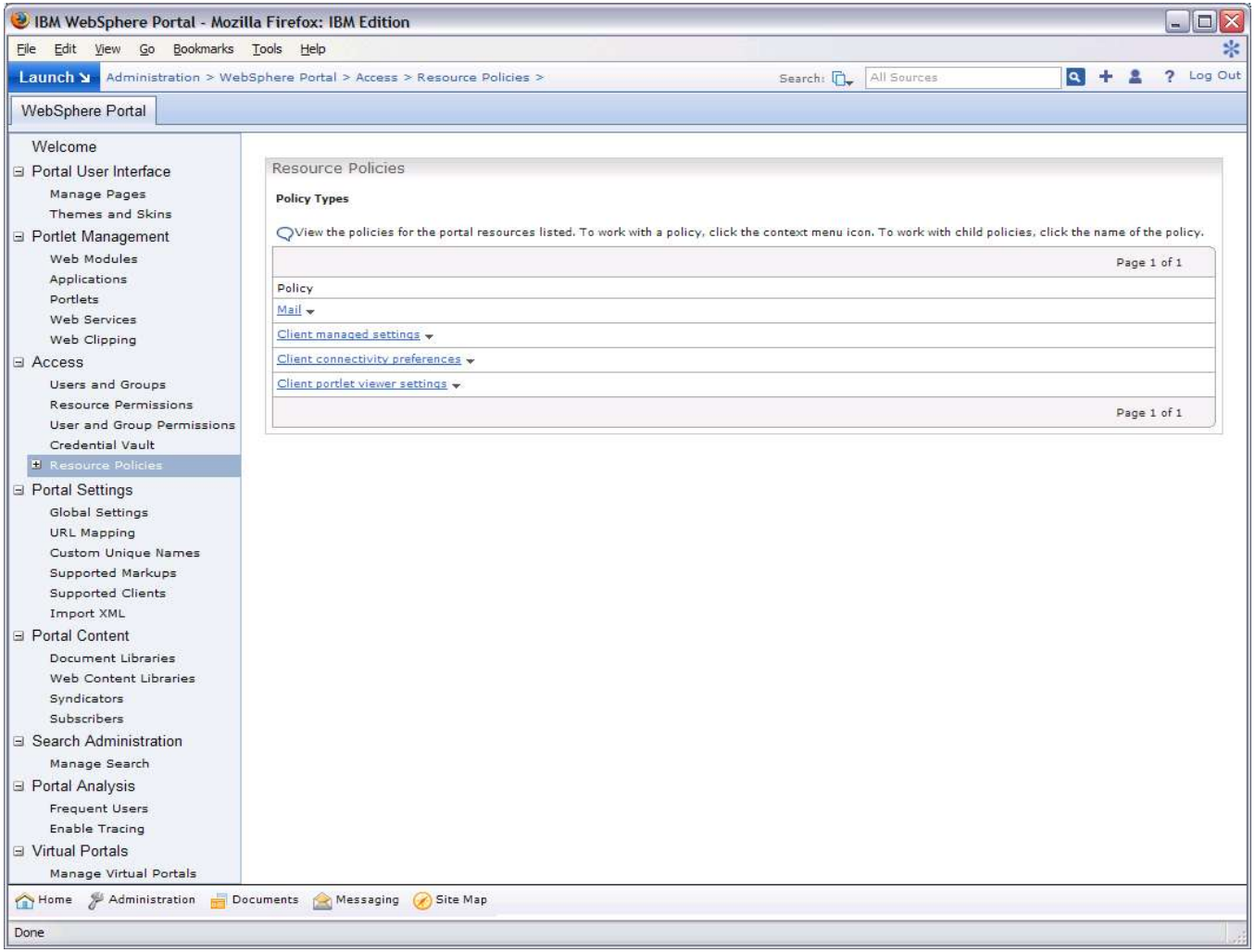
Policy Type editor for Eclipse preferences



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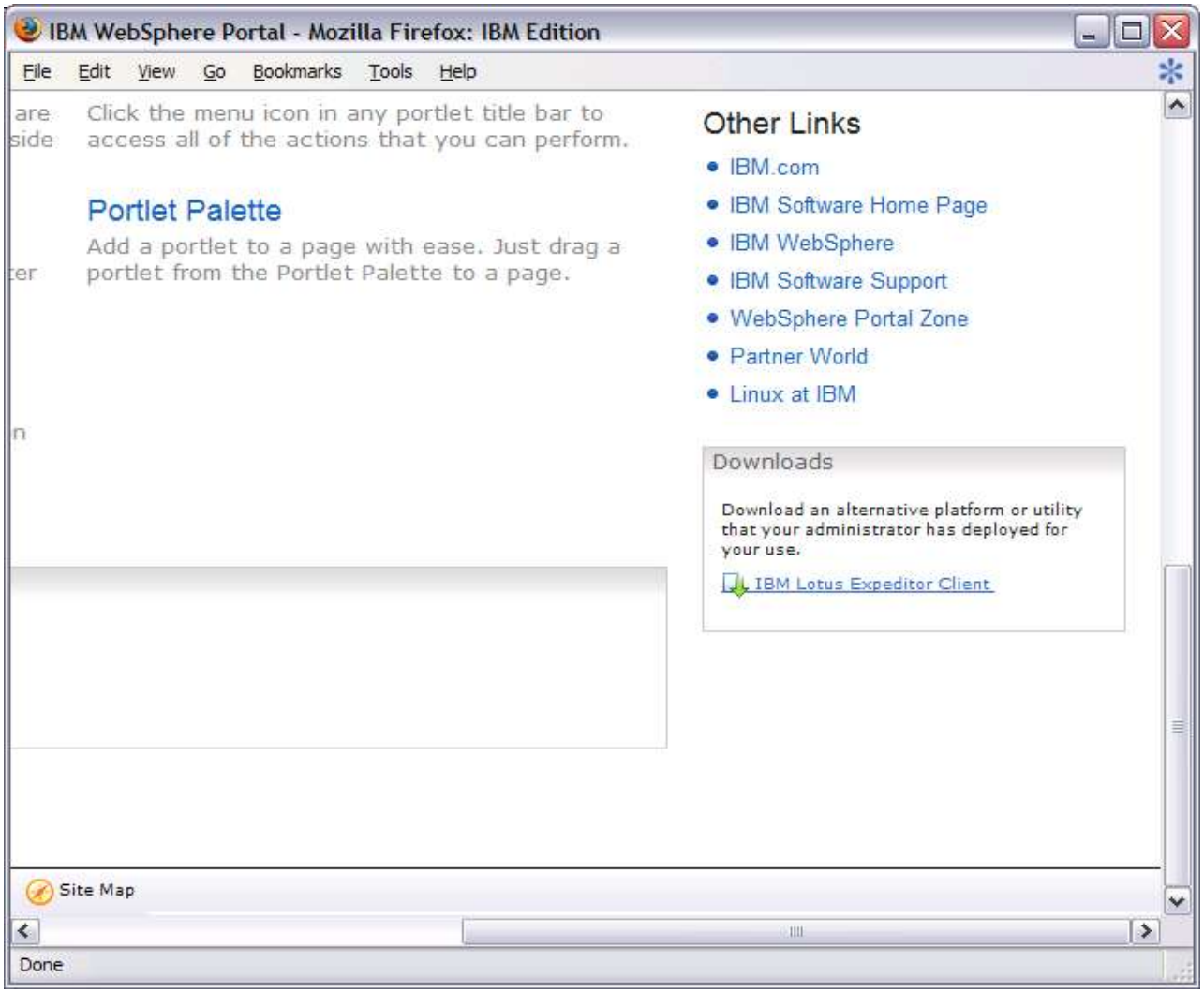
Downloads



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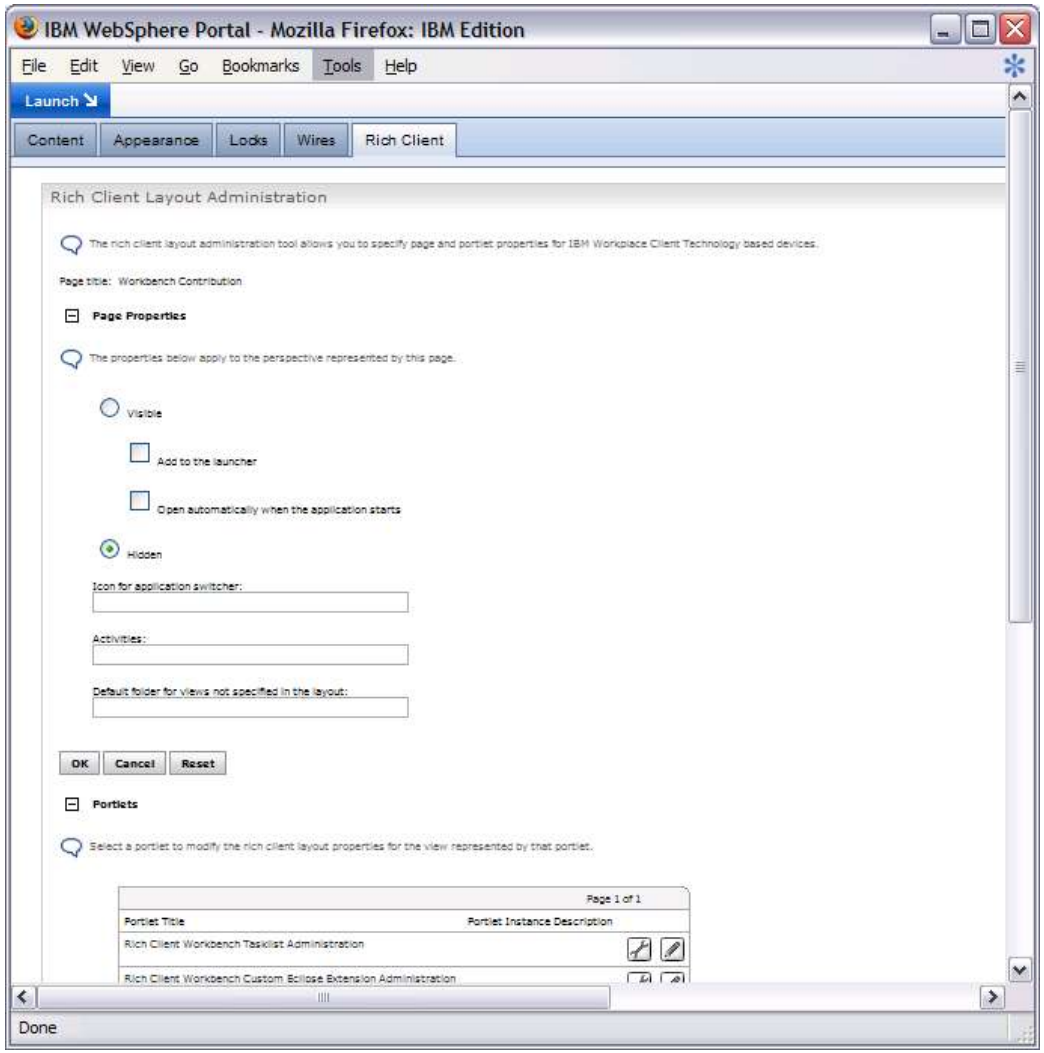
Rich Client layout



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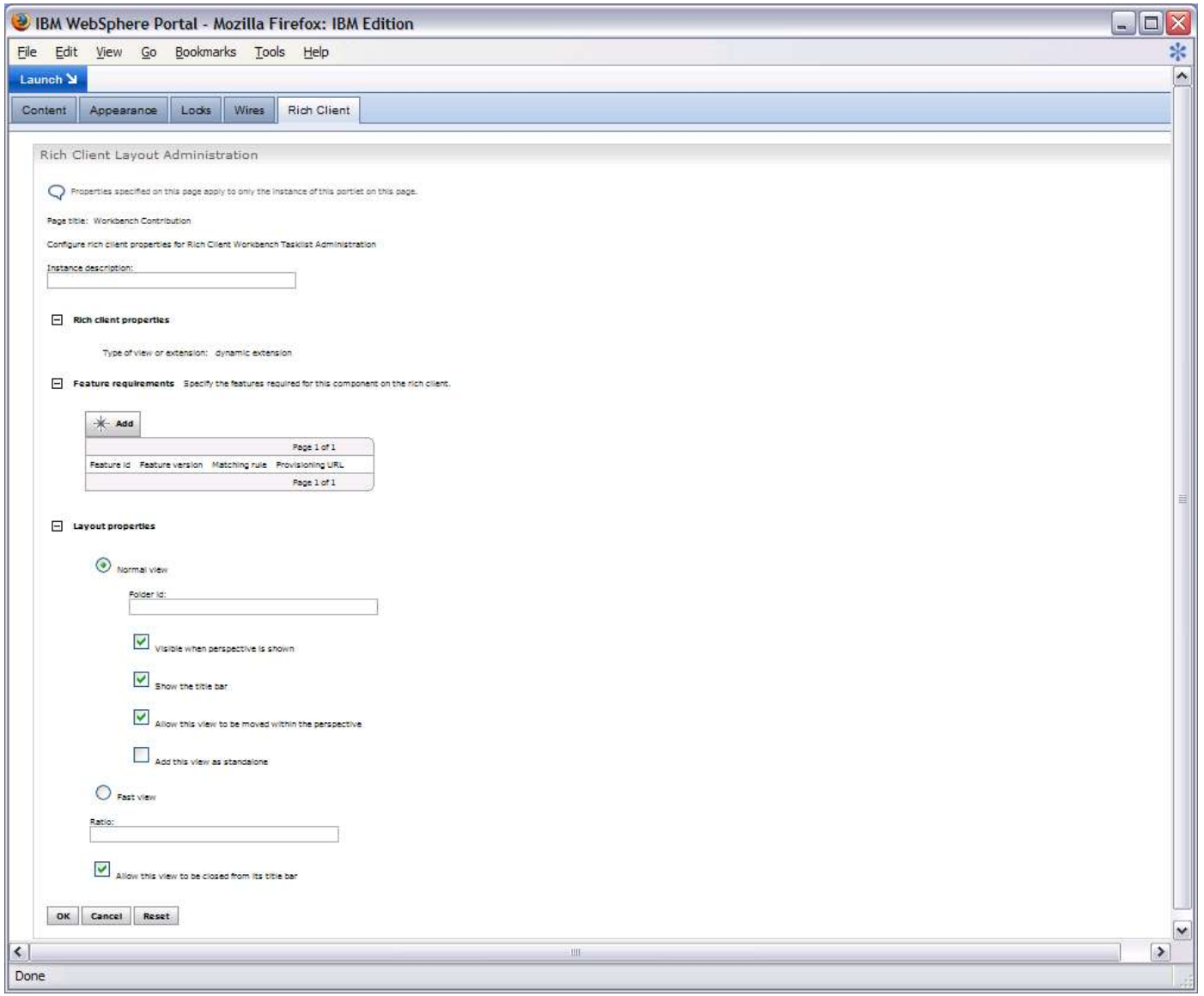

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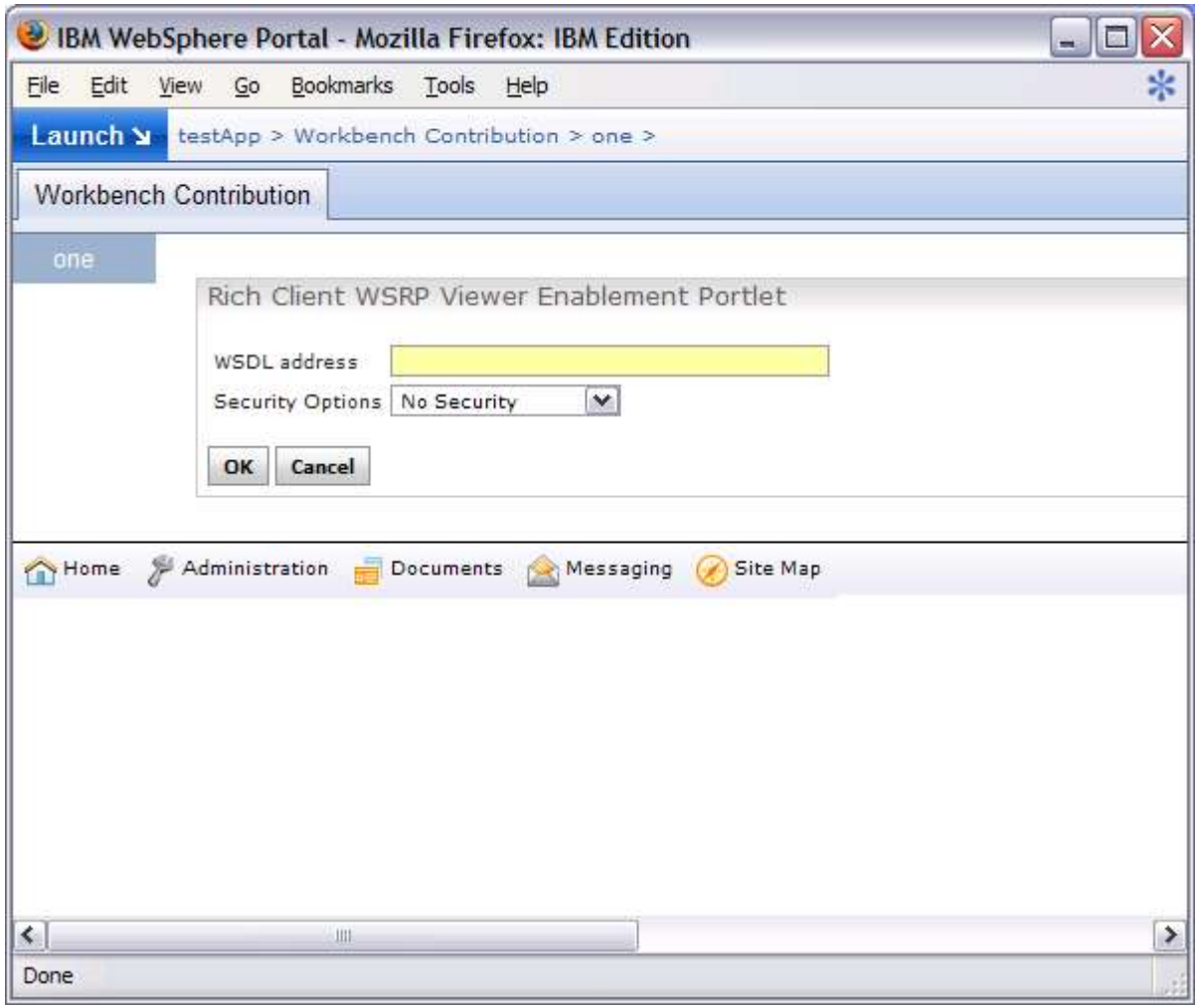
WSRP (Web Services for Remote Portlets)



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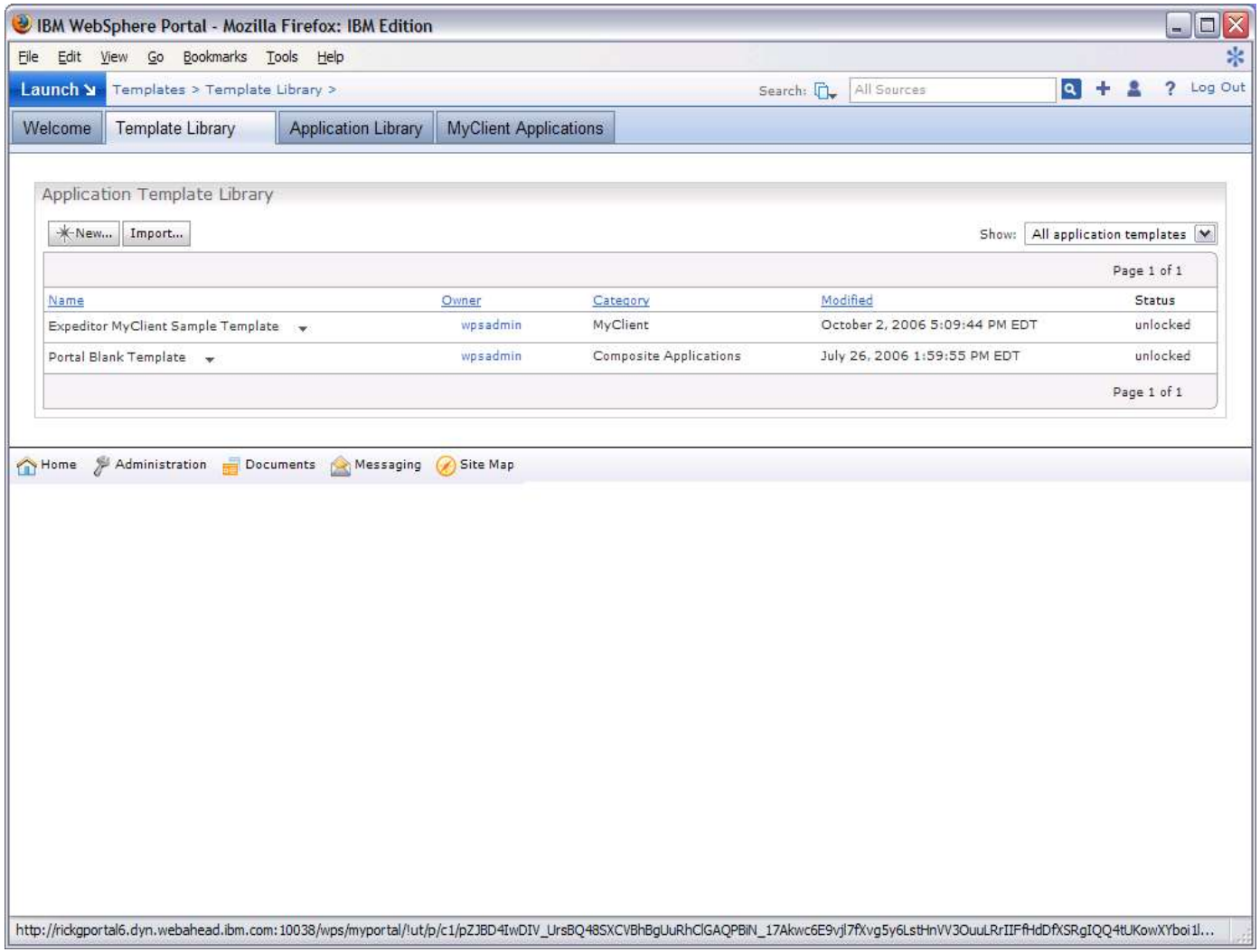
Application Template and MyClient page



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