



# Agenda

- Introduction into Portal & Portlets
- Remote Portlets – WSRP
  - Concepts
  - Implementations
- Q&A



# Portal and Portlets



# Portal Principle

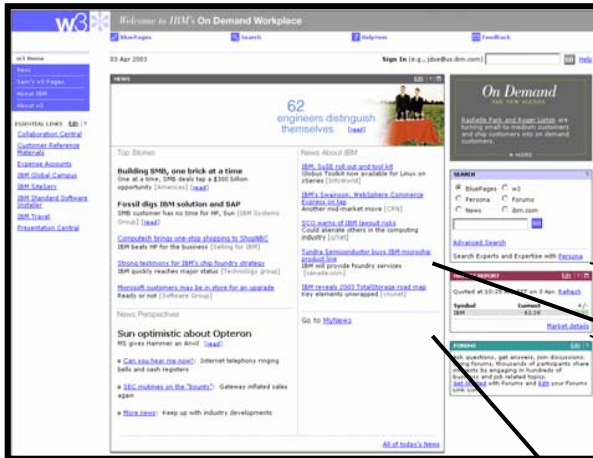
- Combines application user interfaces together into one unified presentation
- User registration
- Authentication and Authorization
- Pluggable portal components: Portlets
- Personalization based on profiles
- Customization of pages by users
- Search
- Content Management
- Administrators can either lock or open up areas of the page for end users to customize

The screenshot shows the IBM On Demand Workplace portal interface. A red arrow labeled "Navigation" points to the left-hand menu containing sections like "w3 Home", "News", "Sam's w3 Pages", and "About IBM". Another red arrow labeled "Login" points to the "Sign In" field at the top right. A third red arrow labeled "Portlets" points to the main content area, which includes a "NEWS" section with headlines like "Building SMB, one brick at a time", "Fossil digs IBM solution and SAP", and "Sun optimistic about Opteron". Other visible portlets include "On Demand THE NEW AGENDA", a "SEARCH" box, a "MARKET REPORT" for IBM, and a "FORUMS" section.

Portlets

# Portlets

Portal Page



Portlet Window

Decoration & Controls

**MARKET REPORT** Edit | ? | □

Quoted at 10:25 AM, EST on 3 Apr. [Refresh](#)

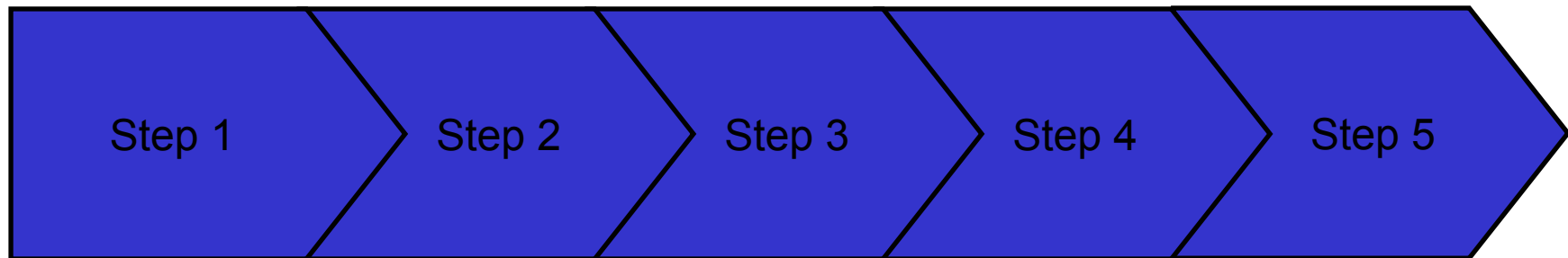
Symbol	Current	+/-
IBM	82.28	+0.82

[Market details](#)

Portlet Fragment



# How Portal Constructs Pages



**Portal servlet examines the request header**

Determines the device and user information

**Portal database and security settings are checked**

Determines what pages and portlets the user will see

**Layout system is called for the target markup**

JSP templates define the overall page, rows, columns and decorations

**Portlets are processed in two phases**

The first phase processes portlet messages and sends events to other portlets

**Portlets render themselves in the 2nd phase**

Portlets that support the target markup are included, others are omitted

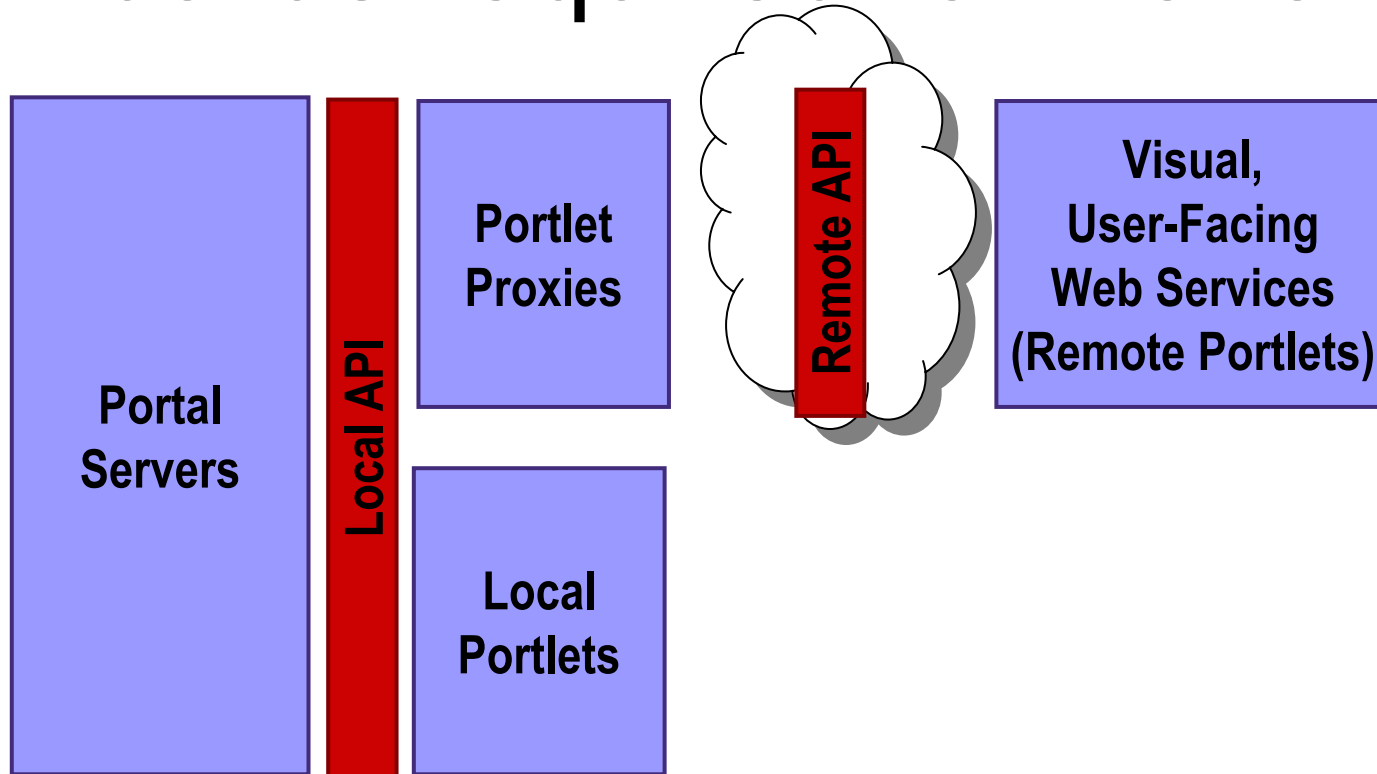


# Situation in the portal market before JSR168 and WSRP

- Different Portal Vendors have defined different APIs
  - Different APIs for local „components“  
(simple JSPs / Portlets / Channels / Modules / ...)
- No interoperability between local portlets and portal servers
- Application and Content Providers must implement different portlets for different portal servers
- Customers developing significant numbers of portlets are quickly locked into a particular portal solution
- No standardized, easy way to plug-n-play content and applications into portals exists



# Standards required for Portals



- Portal Servers must provide support for local and remote portlets
- Need for a standard API for local portlets
  - Need for a standard, platform independent web services interface



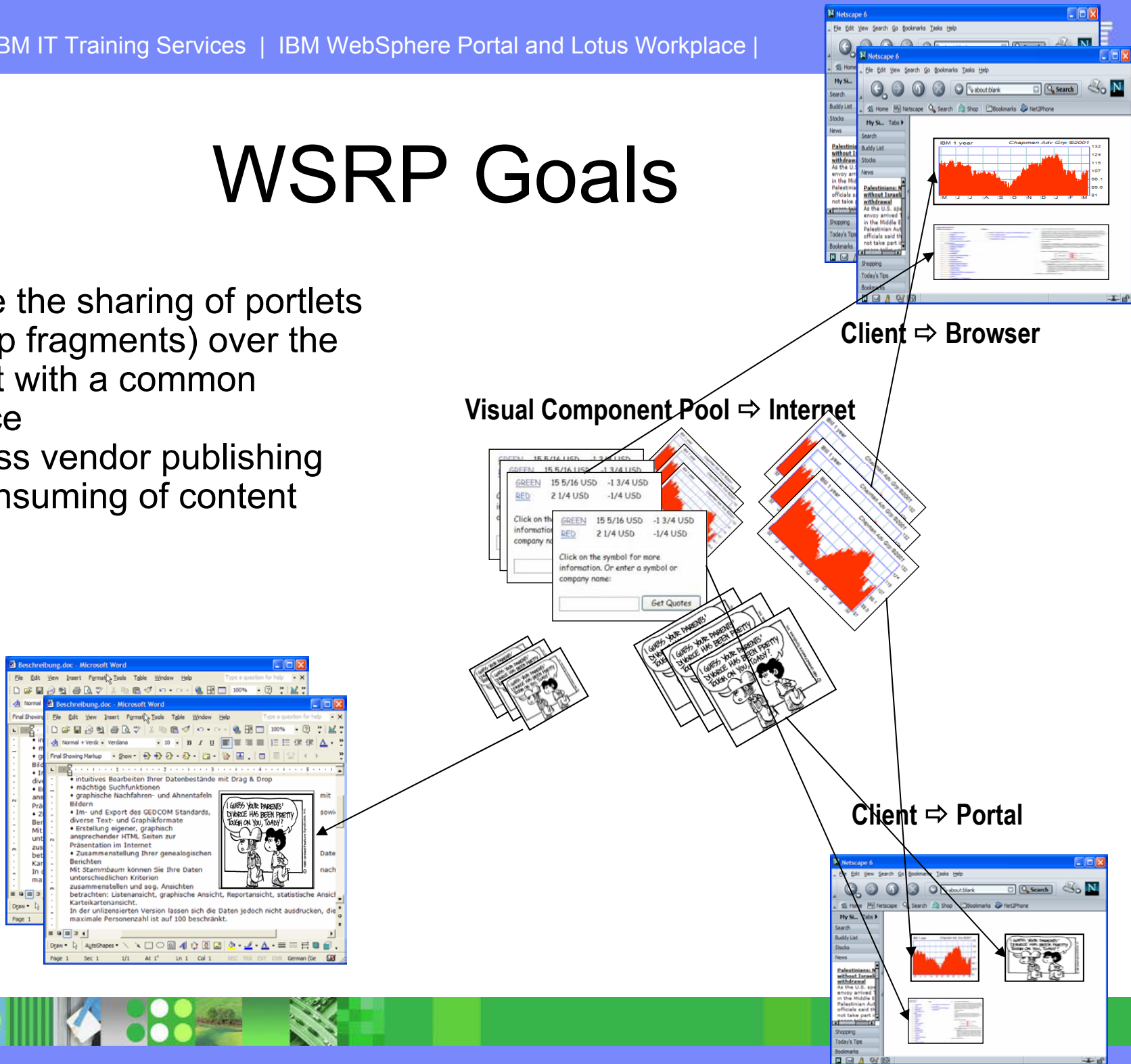
# Remote Portlet API – WSRP

(Web Services for Remote Portlets)



# WSRP Goals

- Enable the sharing of portlets (markup fragments) over the internet with a common interface  
=> Cross vendor publishing and consuming of content



# Companies involved in OASIS WSRP TC

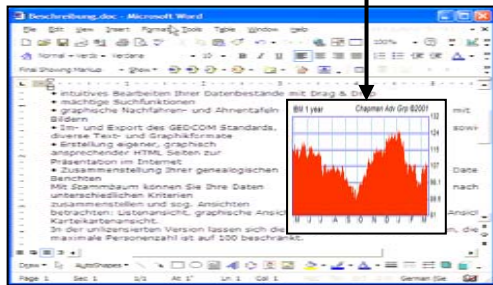
- SUN Microsystems
- Plumtree
- BEA
- **IBM**
- SAP Portals
- Novell
- Starbourne
- Stellent
- Oracle
- Microsoft
- Reed-Elsevier
- Fujitsu
- Factiva
- Capitol College
- Kinzan
- Bowstreet
- Moravia IT
- WebCollage
- U.S. Navy
- Tibco

# Data Oriented Web Services vs. WSRP Services

## Data service

100	100	100
101	101	101
96	96	96
100	100	100

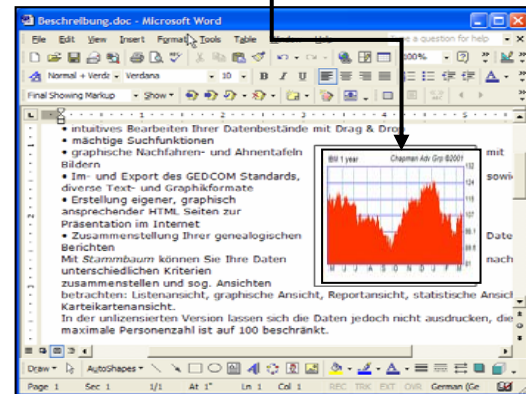
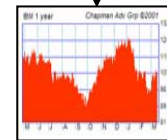
**Presentation Layer**



## WSRP Service

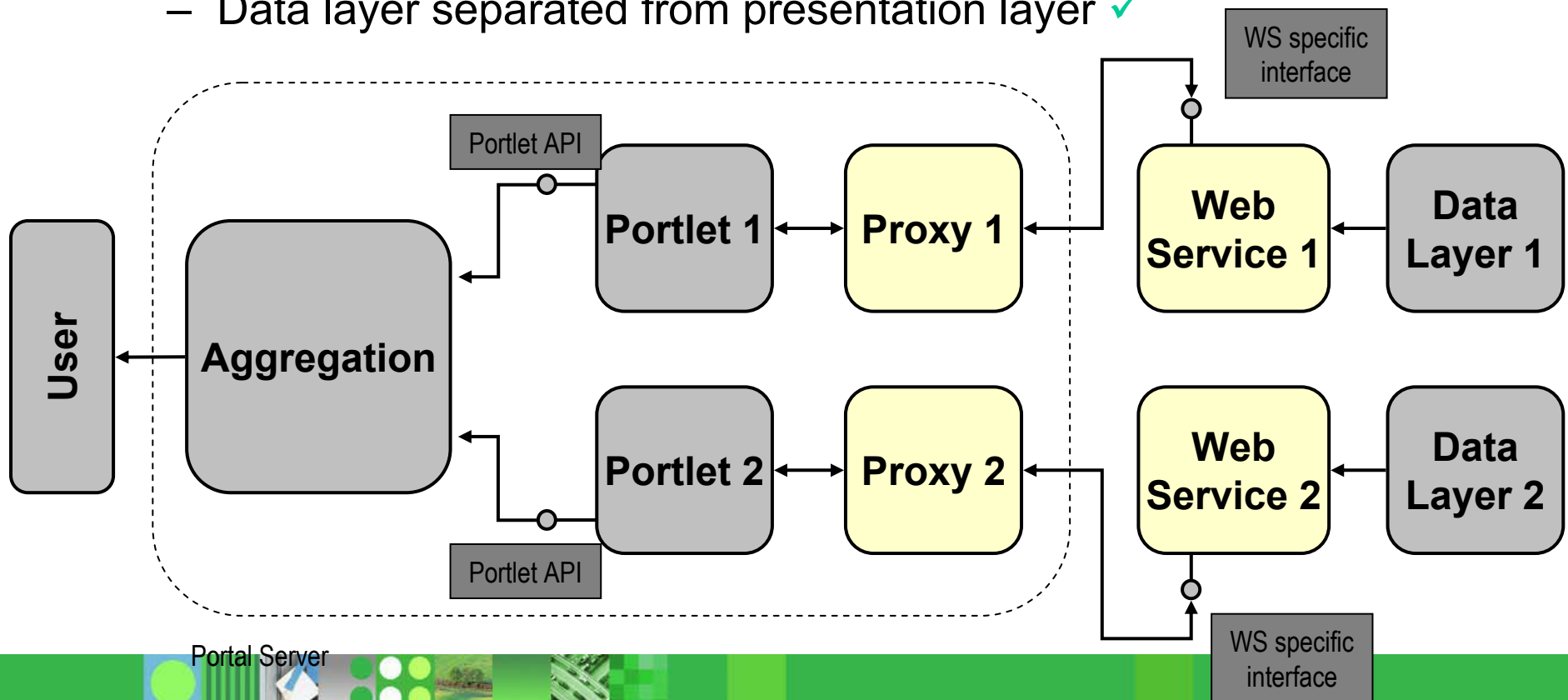
100	100	100
101	101	101
96	96	96
100	100	100

**Presentation Layer**



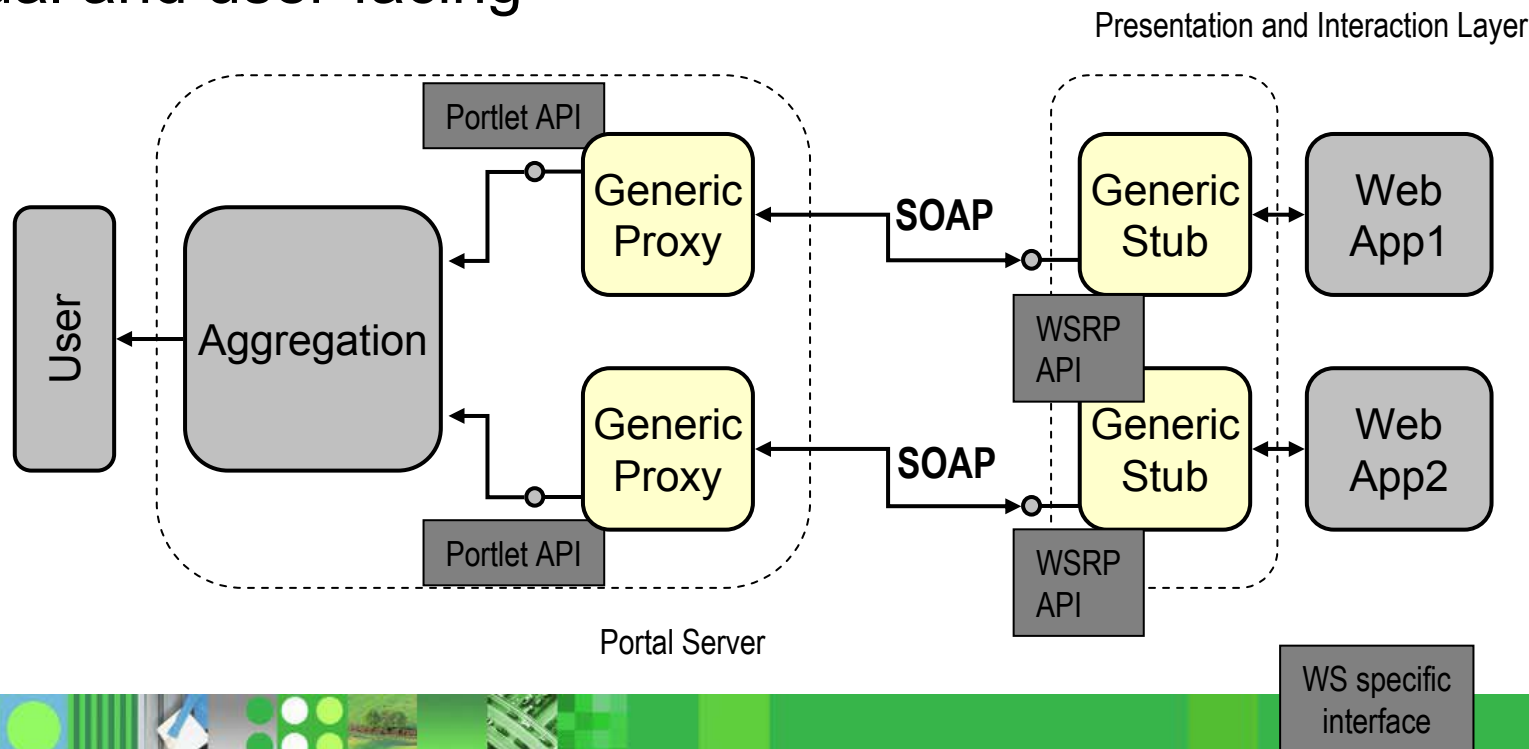
# „Traditional“ Web Service Usage Scenario

- Portlets using WebServices
  - Different WebServices expose different interfaces ✘
  - Specialized UI and proxy code required for each WS ✘
  - Local deployment of code is still necessary ✘
  - Data layer separated from presentation layer ✔



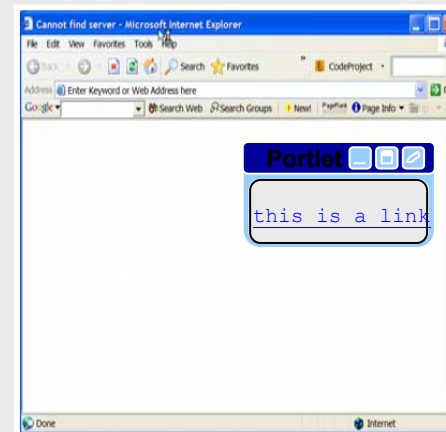
# WebServices for Remote Portlets (WSRP)

- All remote connections share a unified API ✓
- No coding required, proxy and stub are coded once or generated automatically ✓
- Stable and standardized transport mechanism (e.g. SOAP) ✓
- Visual and user-facing ✓

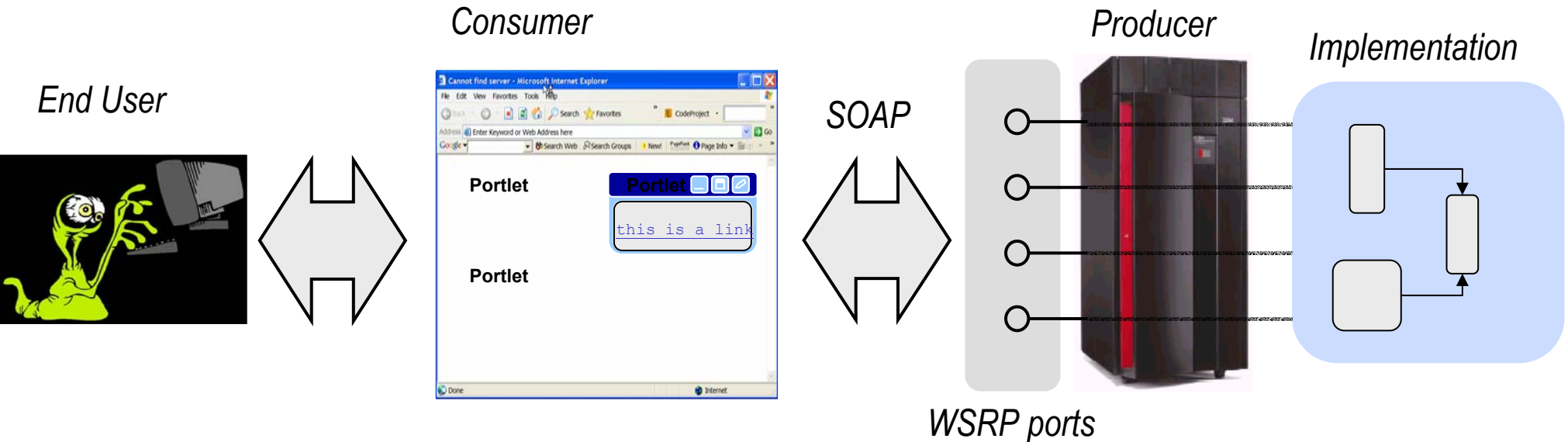


# Actors in a WSRP World

- **Producer:** Represents the service provider hosting the remote interactive Web service (for example, weather.com as a weather service provider)
- **Portlet:** A particular configuration of a component that renders its state in markup.
- **Consumer:** Represents the entity integrating the remote service into its Web application, oftentimes using a portal toolkit (for example, Yahoo Weather or a corporate portal)
- **End User:** Represents the person that comes to the Consumer's Web site to use the Producer's application in the Consumer's context



# WSRP Architecture



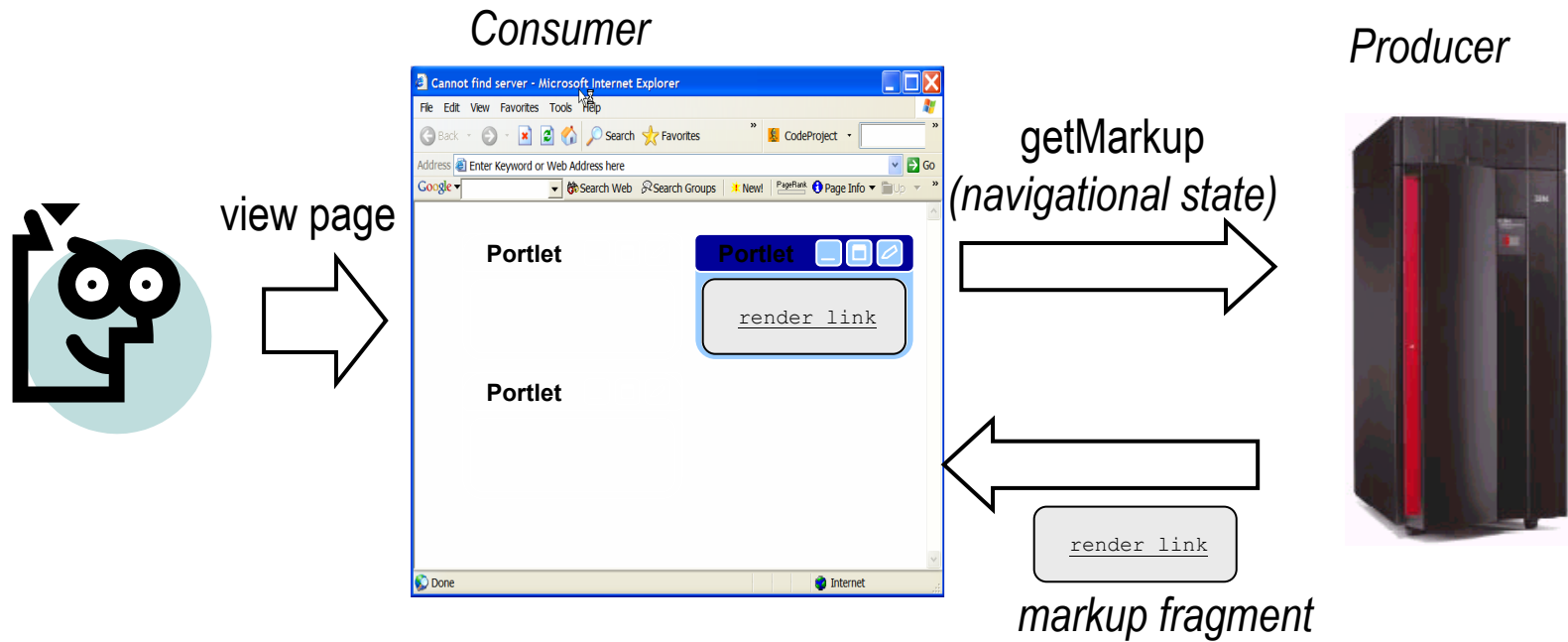
- The Consumer is a WebService Client that communicates with the Producer via the **four WSRP interfaces** (ports)
  - Service Description
  - Registration (optional)
  - Markup
  - Portlet Management (optional)

# WSRP Interfaces

- Markup (mandatory)
  - Enables end user interaction with the Producer via the Consumer, while still staying embedded in the Consumer application through `getMarkup` and `performBlockingInteraction` operations
- Service Description (mandatory)
  - Enables Consumers to query Producers for its entities through `getServiceDescription` operation
- Portlet Management (optional)
  - Enables the Consumer to create and customize portlet instances through `clonePortlet` / `destroyPortlets` and `get/setPortletProperties` operations.
- Registration: (optional)
  - Enable the Consumers to register with Producers through `register`, `modifyRegistration`, and `deregister` operations



# General Interaction Flow – Initial Page Load

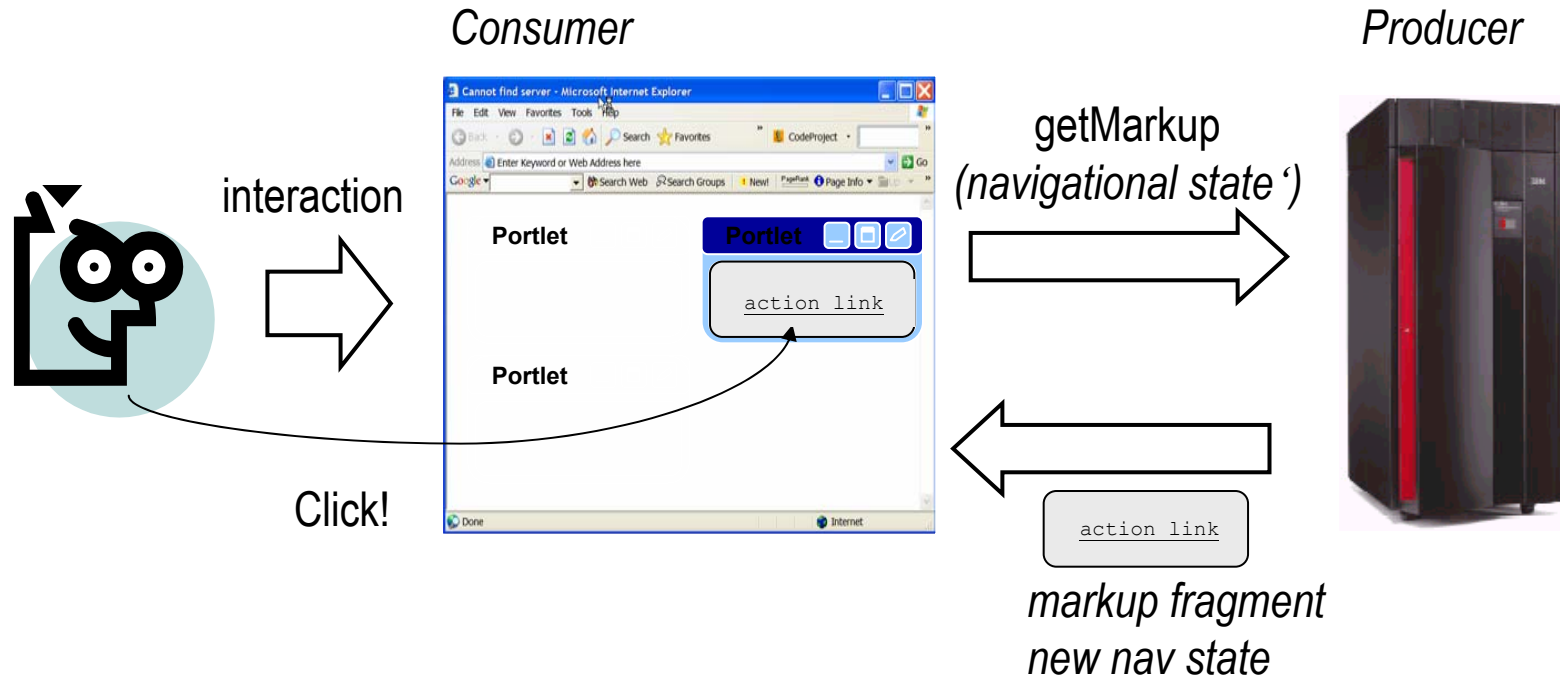


HTTP

WSRP



# General Interaction Flow – Render New Fragment



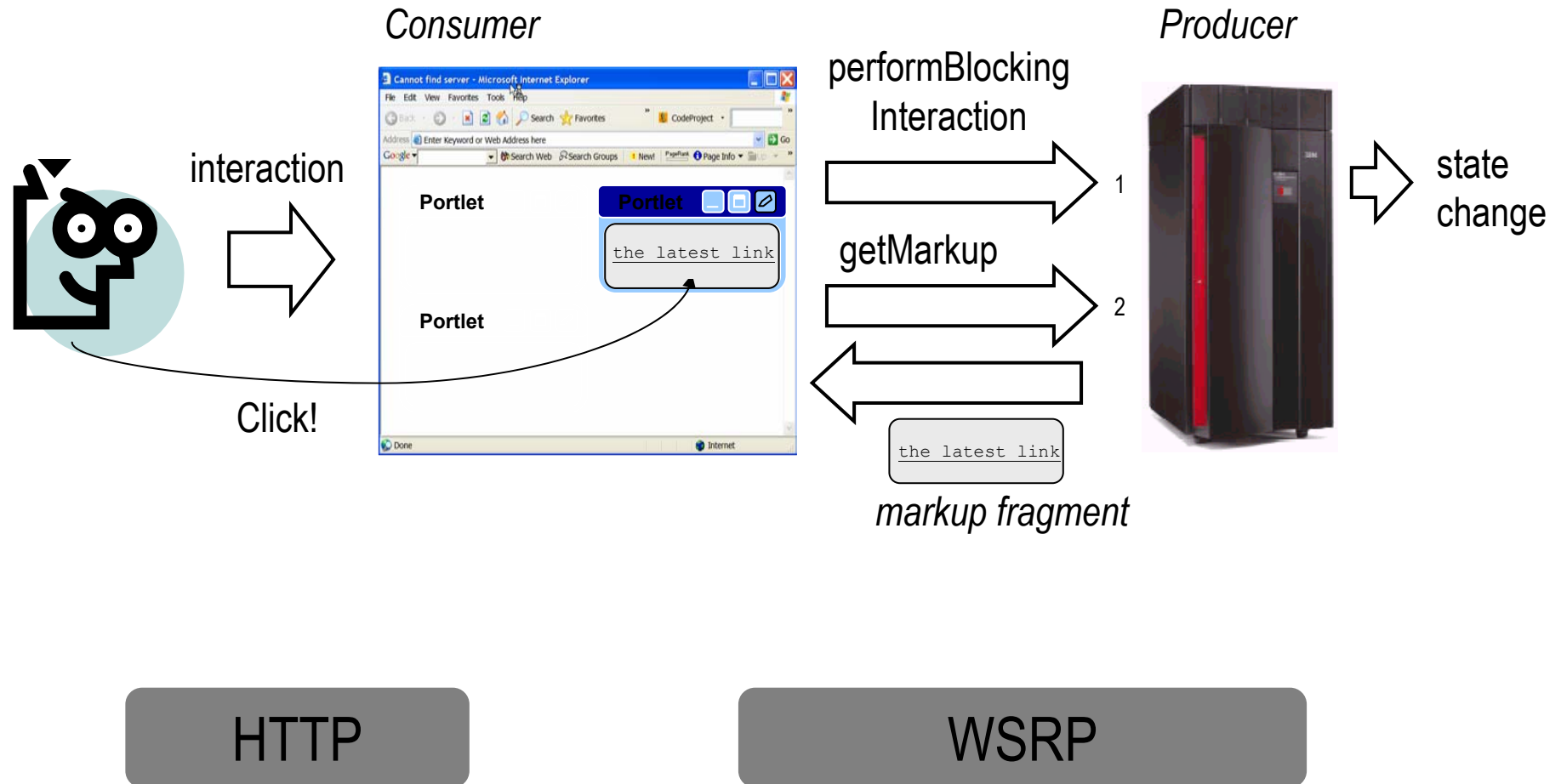
HTTP

WSRP

- The interaction only modifies **navigational state**



# General Interaction Flow – Submit Data



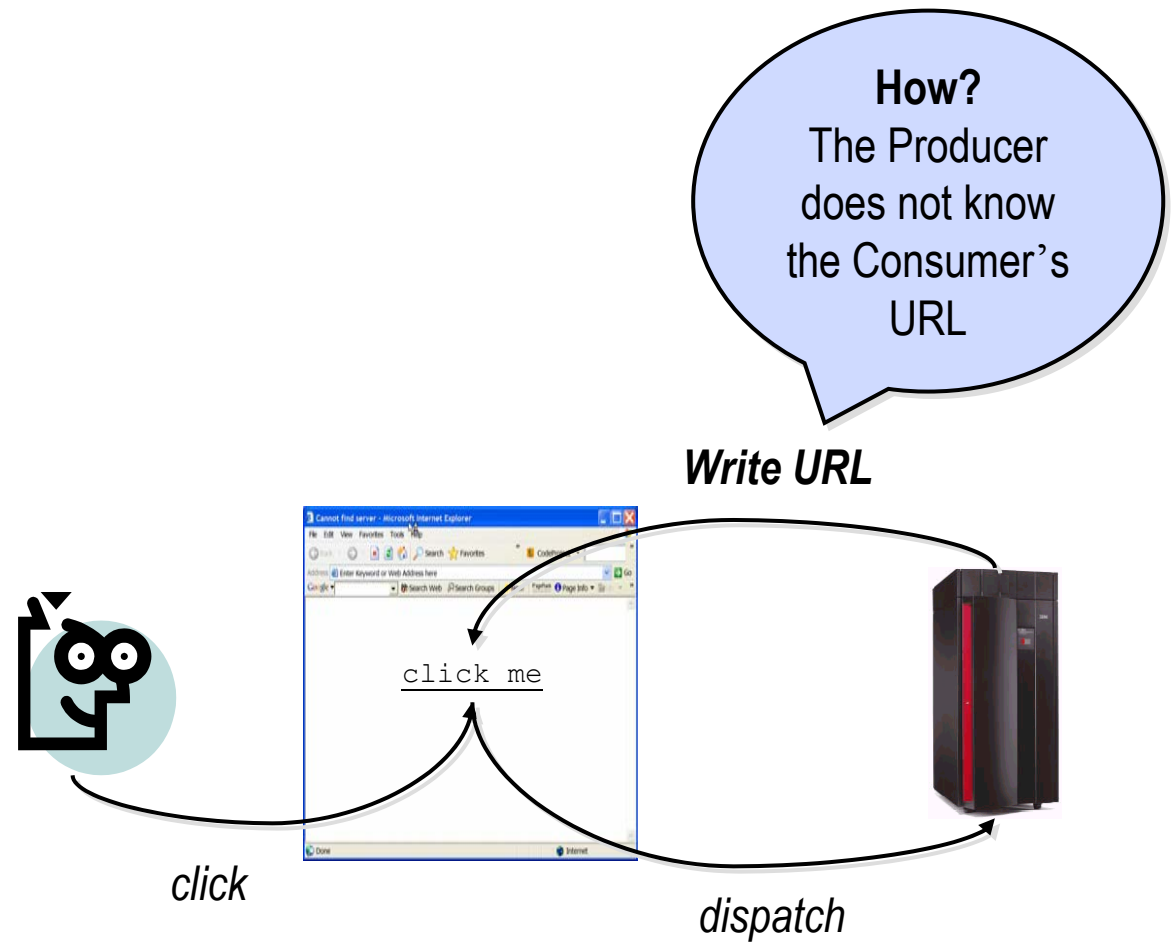
- The interaction modifies **any type of state**

# Important elements of WSRP

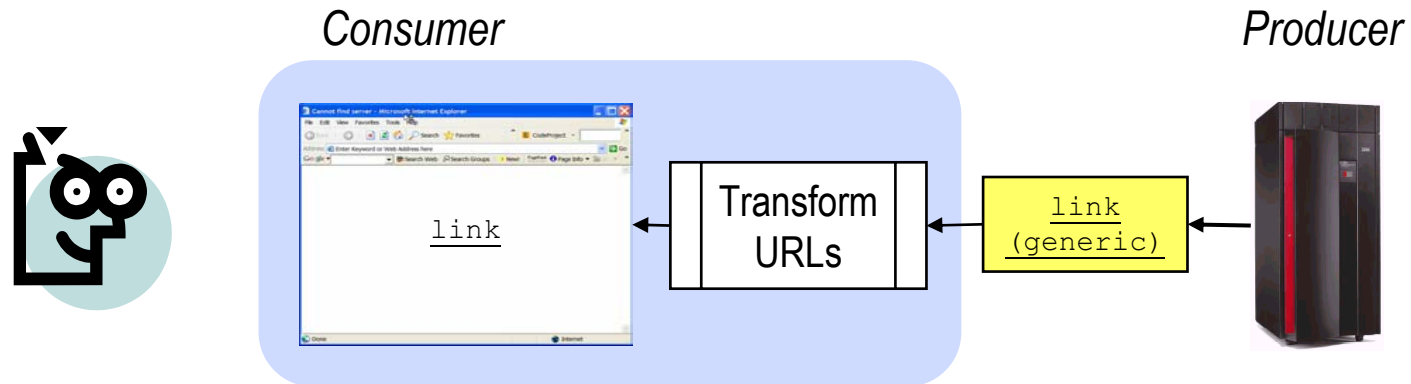
- Modes and Window States
  - View, edit, help, preview
  - Normal, minimized, maximized
- Session Handling
  - Lifecycle
  - Optimizations
  - Scopes
- Markup fragment rules
  - HTML, XHTML, ...
  - CSS styles
- Persistent State Handling
  - Producer side state
  - Delegated state
- **URL writing rules**
  - **Consumer URL rewriting**
  - **Producer URL writing**
- Portlet Instance Creation
  - Explicit
  - Clone on write
- Resource Proxying
- Caching
  - Validation and expiry based caching scheme
- Context transferred between Consumer and Producer
  - User information
  - Device information
  - ...

# URL Rewriting

- URLs in the markup returned by the Producer are **written by the Producer**
- URLs in the markup the end-user perceives must **point to the Consumer**
- The Consumer then dispatches the requests issued by the end-user to the Producer



# URL Rewriting – Consumer Rewriting



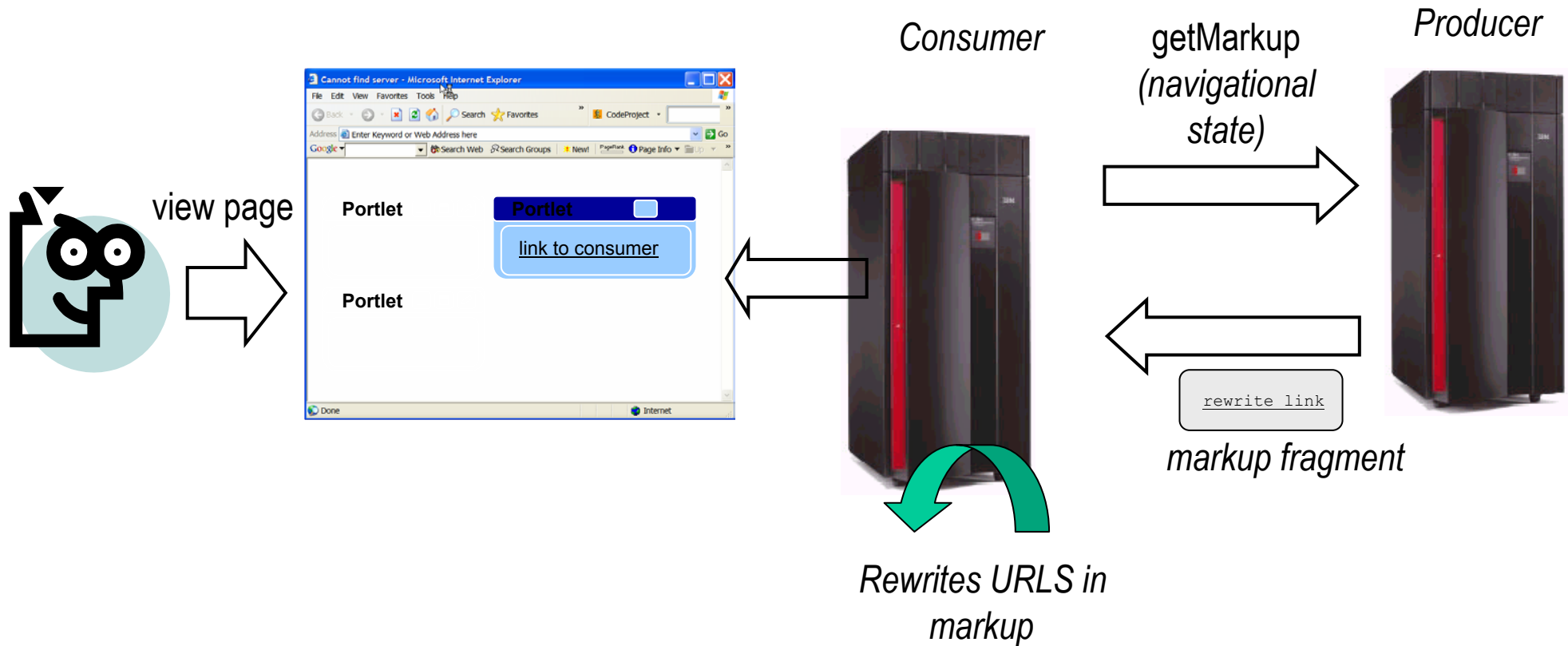
- URLs in the markup returned by the Producer are **written by the Producer**
- URLs in the markup the end-user perceives must **point to the Consumer**
- The Consumer then dispatches the requests issued by the end-user to the Producer

- Example

```
wsrp-rewrite?Render&
wsrp-navigationalState=1&
wsrp_mode=view&.../wsrp-rewrite
```

- Advantages
  - Static content on the Producer is possible
- Disadvantages
  - Involves computing effort at the Consumer

# Consumer URL Rewriting

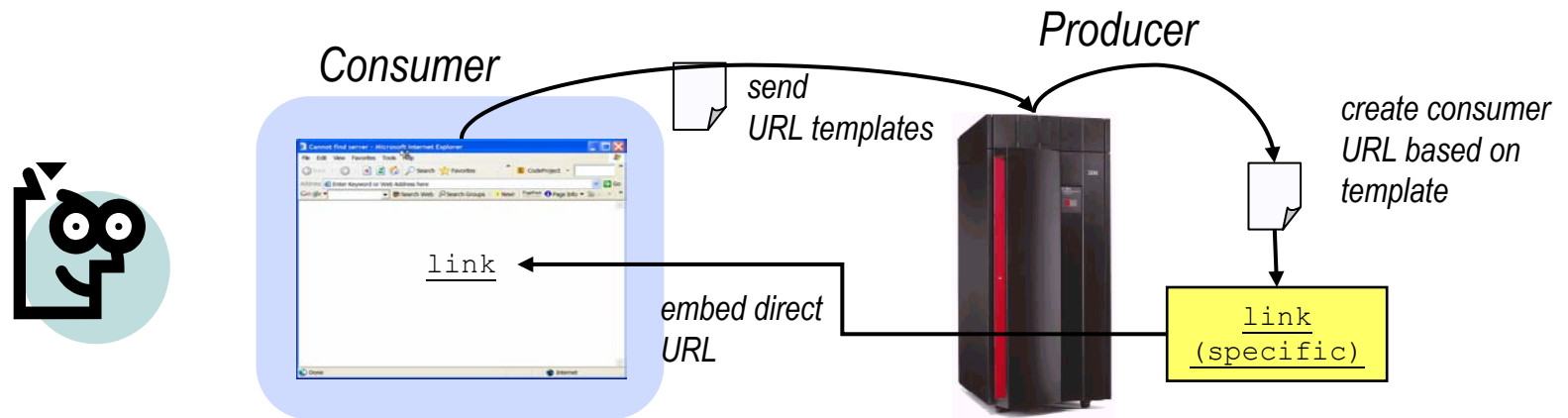


HTTP

WSRP



# URL Rewriting – Producer Rewriting



- The Consumer send templates containing placeholders for real data to the Producer
- The Producer fills in these placeholders
- The Consumer embeds the URLs without modification

- **Template**

```
http://www.Consumer.com/path/{wsrp-urType}?mode={wsrp-mode}&...
```

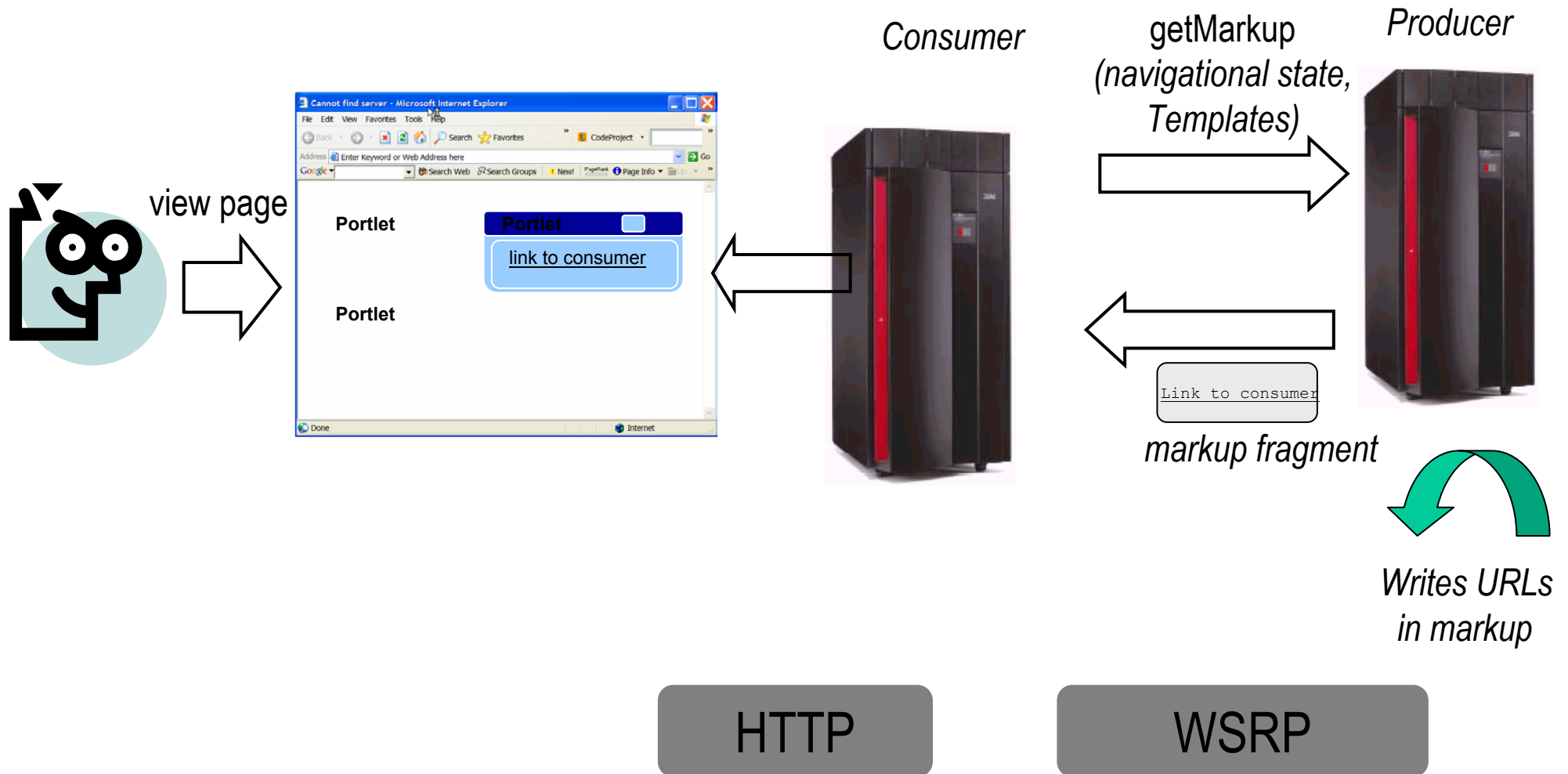
- **Advantages**

- No effort on the Consumer, efficient

- **Disadvantages**

- No static content
- Templates must be communicated (bandwidth consumption)

# Producer URL Writing



# WSRP v1.0 Achievements (Highlights)

- Plug&Play interoperability between Content Providers and Portal Vendors
- Extensibility to allow for custom optimization
- Interoperable across a variety of WS stacks (Axis, .NET, JAX-RPC RI,...)
- Alignment with JSR168 (*Portlet API*)
- Markup retrieval, interaction processing, caching, resource proxying
- *(security relies on the underlying stack, e.g. WS-security, SSL)*
- **Implementable on today's WS stacks!**



# What will be in WSRP > v1.0

- Directory support (e.g. UDDI)
- Cross Producer Coordination (eventing)
- Enhanced Caching
- Attachments
- Additional markup types (e.g. VoiceXML, WML, cHTML, ...)
- ...
- Tighter alignment with upcoming WS initiatives (GRID, WS-Roadmap, etc)
- ...

# WSRP Implementations



# Apache WSRP4J Project



- See <http://ws.apache.org/wsrp4j>
  - Initiation by IBM
- Producer
  - JSR168 based
  - Allows the community to provide WSRP services by simply implementing JSR168 Portlets
    - Take any JSR168 compliant portlet (application) and provide it as a (group of) WSRP portlet(s)
- Consumer(s)
  - SwingConsumer
    - Swing based application (kind of standalone portal) that can invoke and display WSRP portlets / applications
  - JSR168 based ProxyPortlet
    - Can be plugged into JSR168 containers and allow them to act as Consumers

# IBM WebSphere Portal Server

## *WSRP Tech Preview*

- **WebSphere Portal 5.0.2**

- Producer

- Provide Portlets (JSR 168 and IBM API portlets) as WSRP services
- Optionally use access control to the provided portlets
- Authentication for the remote invocation based on basic auth or SSL client auth

- Consumer

- Manage WSRP producers (add, modify, delete producers)
- Integrate WSRP portlets from producers and use them like local JSR 168 portlets (adding to pages, access control, etc.)

- No admin UI included

- All WSRP specific administration is XMLAccess script based
- UI will be available via download



# IBM WebSphere Portal Server *WSRP Production Level*

- WP 5.0.2.1
  - Same as 5.0.2 but now **production level** code
  - Admin UI available via download
- In WP 5.1
  - Admin UI included
  - Various internal enhancements
- WSRP in WP > 5.1
  - UDDI support
    - Producer
      - Publish WSRP producer and portlets to UDDI
    - Consumer
      - Find WSRP producer or WSRP portlets in UDDI and integrate them with a few mouse clicks
  - And?
    - Depending on customer's needs – so please give feedback ☺



# Other Vendors

- Other various vendors shipped or will ship WSRP Producers and / or Consumers that are interoperable with IBM Producer / Consumer



(This picture is only meant to fill this slide and is not related to the quality of other vendors' products)

# Tooling

- IBM published a free WSRP Conformance Test Suite
  - Accessible via Alphaworks  
(<http://alphaworks.ibm.com/tech/wsrptk>)
- Use portlet development tooling
  - No WSRP specific tools necessary



# WebServices for Remote Portlets (WSRP)

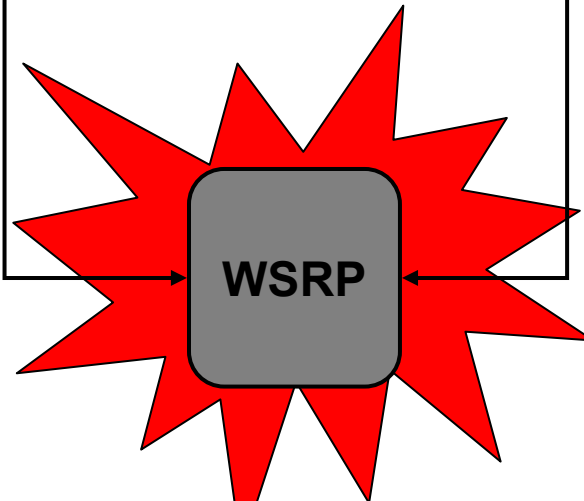
- powerful infrastructure
- user management
- database
- etc .....



- simple still efficient
- interoperable
- tool support
- standard!!

powerful infrastructure

simple communication



- pluggable
- user-facing
- efficient



Thank you for your attention!

Q & A



# Backup



# Producer – Provide Portlets

Step1

## Manage My Portlets

Search on:

Click!

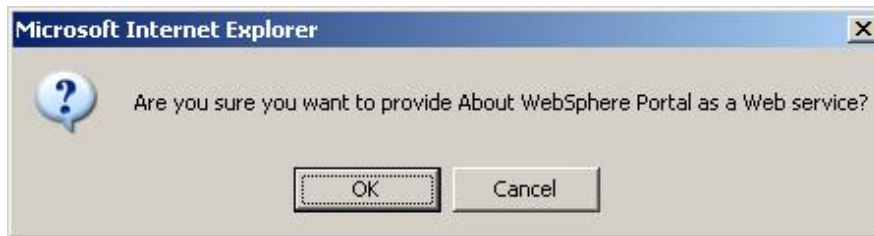
**Portlets** Click Copy to create a duplicate of the portlet. Click Configure to set titles, descriptions and parameters. Click Delete to remove the portlet from your portal. Click Assign Access to allow others to work with the portlet.

Showing 1 - 10 of 40 Page 1 of 4 Jump to page: 1

Title	Provided	Remote portlet	Status
Install Portlets			
Themes and Skins			
Edit Layout			
Page Properties			
Manage Pages			
Organize Favorites			
FrequentUsers			
About WebSphere Portal			
Credential Vault			
Global Settings			

Showing 1 - 10 of 40 Page 1 of 4 Jump to page: 1

Step2



# Consumer – Browse Providers

Manage Web Services + / ? -

Search on:  
All available v

[Search](#)

**Producer** Click New Producer to create a new Producer. Click Edit to edit the properties of the Producer. Click Delete to remove the Producer. Click Assign access to allow others to work with the Producer.

[\\* New](#)

Showing 1 - 5 of 5 Page 1 of 1		
Title	Description	In use
Sun via local 8087		✓ <span style="float: right;"><a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Assign</a></span>
local wsrp4j via local 8081		✓ <span style="float: right;"><a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Assign</a></span>
BEA via local 8085		✓ <span style="float: right;"><a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Assign</a></span>
Citrix via local 8083		✓ <span style="float: right;"><a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Assign</a></span>
WPS via local 8086		✓ <span style="float: right;"><a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Assign</a></span>

Showing 1 - 5 of 5 Page 1 of 1

# Consumer – Add New Provider

Manage Web Services

**New Producer**

Title:

Description:

URL to WSDL service definitions:

Registration handle:

Advanced options  
[I want to enter registration properties for this Producer.](#)  
[I want to specify the user attributes that should be passed to this Producer.](#)

# Consumer – Consume WSRP Services (1)

Portlet Manager

**Consume Web Service, Step 1: Choose provider.**

Choose a provider from the list below to view services to consume. Or, search for a provider and choose one from the search results to view services.

Search on:  
All available

**Search**

**Web Service Providers**

Showing 1 - 5 of 5 Page 1 of 1

Title	Description
<a href="#">Sun via local 8087</a>	
<a href="#">local wsrp4j via local 8081</a>	
<a href="#">BEA via local 8085</a>	
<a href="#">Citrix via local 8083</a>	
<a href="#">WPS via local 8086</a>	

Showing 1 - 5 of 5 Page 1 of 1

**Cancel**

Click!

# Consumer – Consume WSRP Services (2)

Portlet Manager

**Consume Web Service, Step 2: Choose Web service.**

Choose a Web service from this provider to consume. Or, search for a service within this provider and choose one from the search results to consume.

Search on:

[Web Service Providers](#) ▶ **Citrix via local 8083**

Showing 1 - 10 of 11 Page 1 of 2 Jump to page:

Select	Title	Group (Portlet Application)	Description
<input type="checkbox"/>	Citrix: Graph	Citrix via local 8083	The Portlet displays a graph image which the user can modify by selecting the "Left" and "Right" buttons.
<input type="checkbox"/>	Citrix: Shared Session A	Citrix via local 8083	The Portlet displays a form which when submitted initializes shared session state data accessed by Portlet 2b.
<input type="checkbox"/>	Citrix: Shared Session B	Citrix via local 8083	The Portlet accesses shared session state data initialized by Portlet 2a.
<input type="checkbox"/>	Citrix: Session	Citrix via local 8083	The Portlet displays the number of times the Portlet has been rendered during the session.
<input type="checkbox"/>	Citrix: HTML From	Citrix via local 8083	The Portlet prompts the user to enter their nickname and age using a secure connection if enabled.
<input type="checkbox"/>	Citrix: JavaScript	Citrix via local 8083	The Portlet displays a JavaScript GBP/EUR Currency Convertor.
<input type="checkbox"/>	Citrix: Browser details	Citrix via local 8083	The Portlet displays the web browser details when invoked by the user.
<input type="checkbox"/>	Citrix: CSS	Citrix via local 8083	The Portlet displays Portlet Cascading Style Sheet properties.
<input type="checkbox"/>	Citrix: Cache	Citrix via local 8083	The Portlet displays the date and time cached for a period of time specified by the user.
<input type="checkbox"/>	Citrix: ExamplePortlet	Citrix via local 8083	Example Portlet

Showing 1 - 10 of 11 Page 1 of 2 Jump to page:

# WSRP in Action - Sample

IBM WebSphere Portal - Mozilla

IBM WebSphere Portal

WebSphere Portal

WSRP Demo

RP:[BEA: My Task List]

<input type="checkbox"/> Subject	Status	Due Date
<input type="checkbox"/> WSRP Interop Demo	In-Process	None
<input type="checkbox"/> WSRP concall	In-Process	None
<input type="checkbox"/> New Task	In-Process	None

RP:[Oracle: Form Submission Portlet]

This portlet shows how to post and process information from HTML forms.

Name :

Age :

No values have been submitted yet.

RP:[Citrix: Graph]

Portlet Generated Images (Portlet 1)

Press a button to alter the graph:

RP:[Oracle: CSS Portlet]

**This is a portlet section header - uses style "portlet-section-header"**

This is a portlet section sub-header - uses style "portlet-section-subheader"

This is a portlet section body - uses style "portlet-section-body"

This is regular text with in the portlet body - uses style "portlet-font"

This is a table heading - uses style "portlet-table-header"	Heading 1	Heading 2	Heading 3
This is a table sub-heading - uses style "portlet-table-subheader"	Sub-heading 1	Sub-heading 2	
This is table body text - uses style "portlet-table-body"	Table body text	Table body text	Table body text

**A Sample Form**

This is a form label - uses style "portlet-form-label"

This is text for a form field - uses style "portlet-form-field-label"

RP:[Citrix: Shared Session A]

Portlet Scope and Group Scope (Portlet 2a)

RP:[Citrix: Shared Session B]

Portlet Scope and Group Scope (Portlet 2b)

RP:[Apache wsrp4j: Test Portlet]