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Breaking the Limits of JSR 168 Portlet Development

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TS-1941

Learn tips and techniques to build highly interactive portlets using the Java™ Portlet Specification (JSR 168)

Agenda

Building Rich Portlets with AJAX

Workarounds for
Contextual Wiring of Portlets

Contextual Wiring of AJAX Portlets

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Workarounds for
Contextual Wiring of Portlets

Contextual Wiring of AJAX Portlets

Web Applications Offer Rich UI

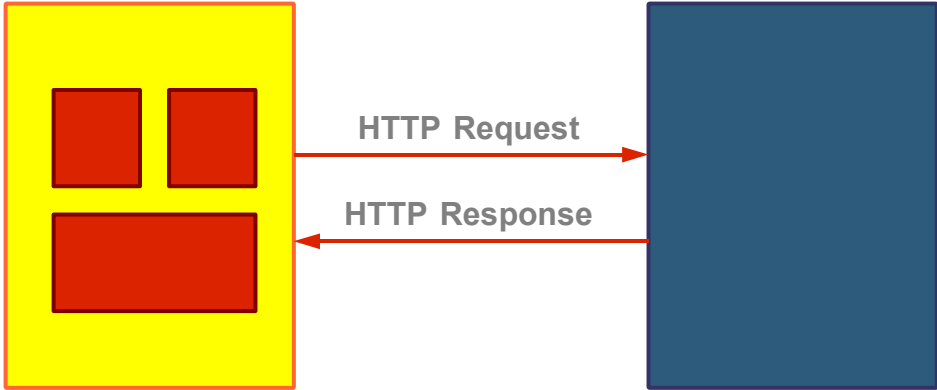
The collage illustrates various web application features:

- Google Suggest BETA:** Shows search suggestions for "portlet" with result counts (853,000, 441,000, 117,000).
- MapQuest:** Displays a street view of San Francisco with "BlockView Images" overlaid on the map.
- Flickr BETA:** Shows a user profile for Peter Moskovits with a "Namaste pmoskovi!" greeting, a notification system, and photo upload options.
- Notification System:** A "Hey! A new notification system!" message with a "DISMISS X" button.
- Printing/Printing News:** A section titled "Printing? Can it be true?" with a link to "set yourself up for printing" and a "Flickr News" section dated 09 Feb 06.

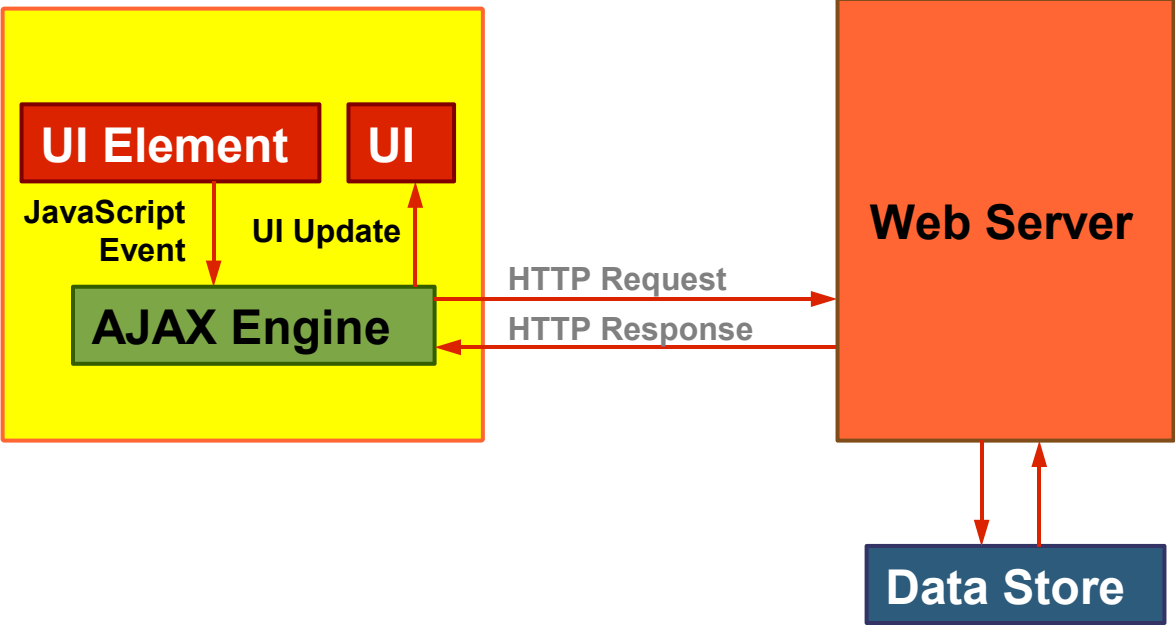
What's AJAX?

- Rich interaction model, based on:
 - JavaScript™ technology
 - DOM scripting
 - Asynchronous communication with the server
 - Markup interchange

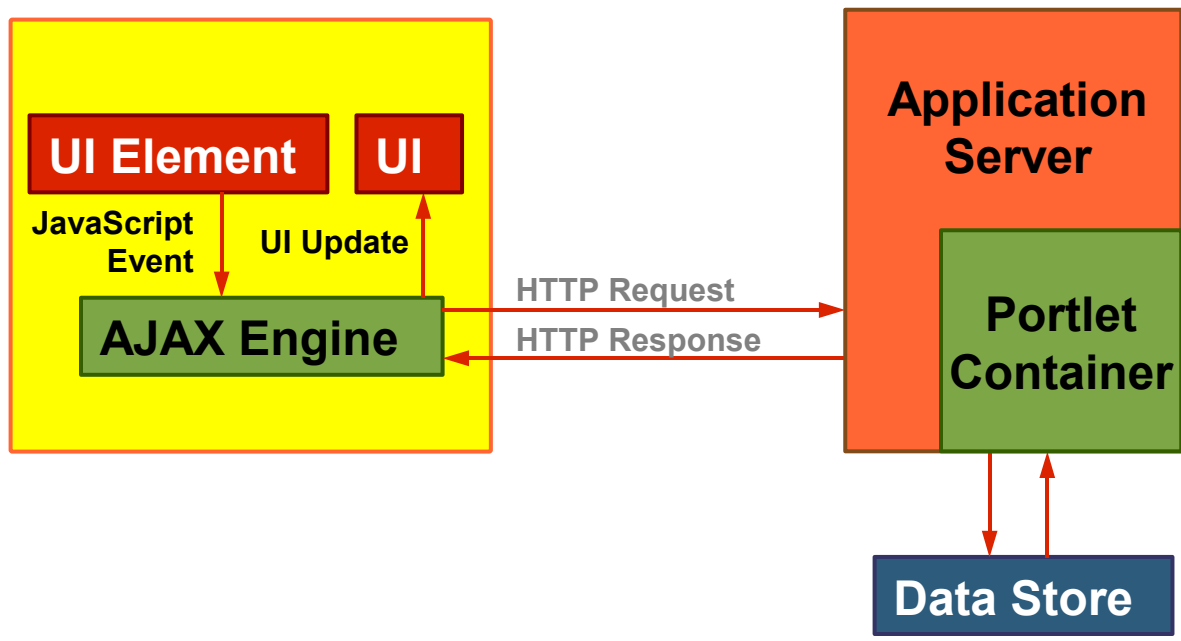
Classic Web Application Model



AJAX Web Application Model



How About Portlets?

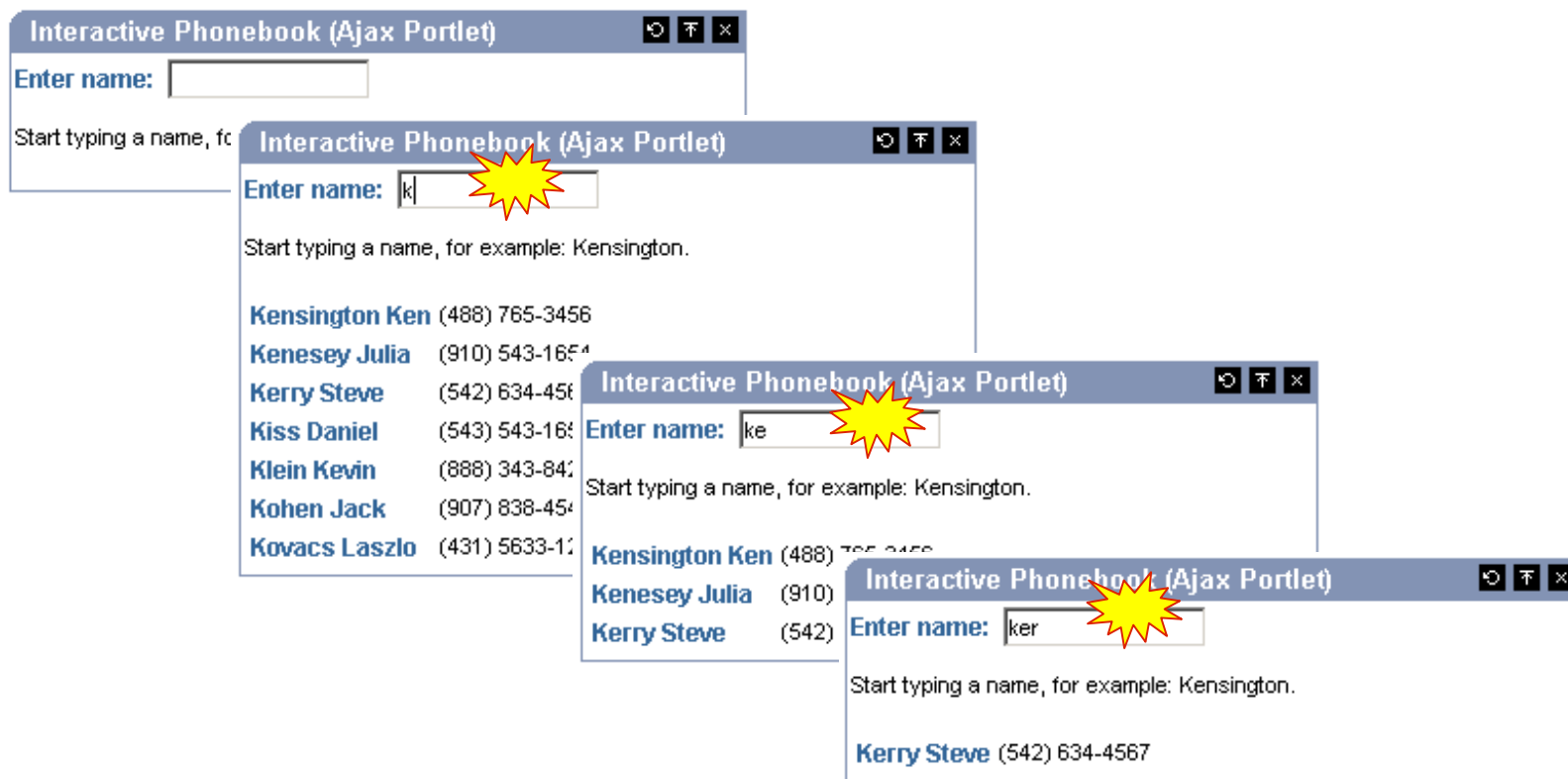


DEMO

A Simple Phone Book Portlet

Demo

A Simple Phone Book Portlet



Interactive Phonebook (Ajax Portlet)

Enter name:

Start typing a name, for example: Kensington.

Interactive Phonebook (Ajax Portlet)

Enter name:

Start typing a name, for example: Kensington.

- Kensington Ken** (488) 765-3456
- Kenesity Julia** (910) 543-1654
- Kerry Steve** (542) 634-4567
- Kiss Daniel** (543) 543-1654
- Klein Kevin** (888) 343-8432
- Kohen Jack** (907) 838-4567
- Kovacs Laszlo** (431) 5633-1234

Interactive Phonebook (Ajax Portlet)

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Interactive Phonebook (Ajax Portlet)

Enter name:

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What Does It Take to Build It?

1. Create input field—HTML
2. Catch typing event—JavaScript technology
3. Construct resource URL to the portlet—Portlet API
4. Create the XMLHttpRequest Object—JavaScript technology
5. Submit the XMLHttpRequest
6. Populate <DIV> with the response

Agenda

Building Rich Portlets with AJAX

Workarounds for
Contextual Wiring of Portlets

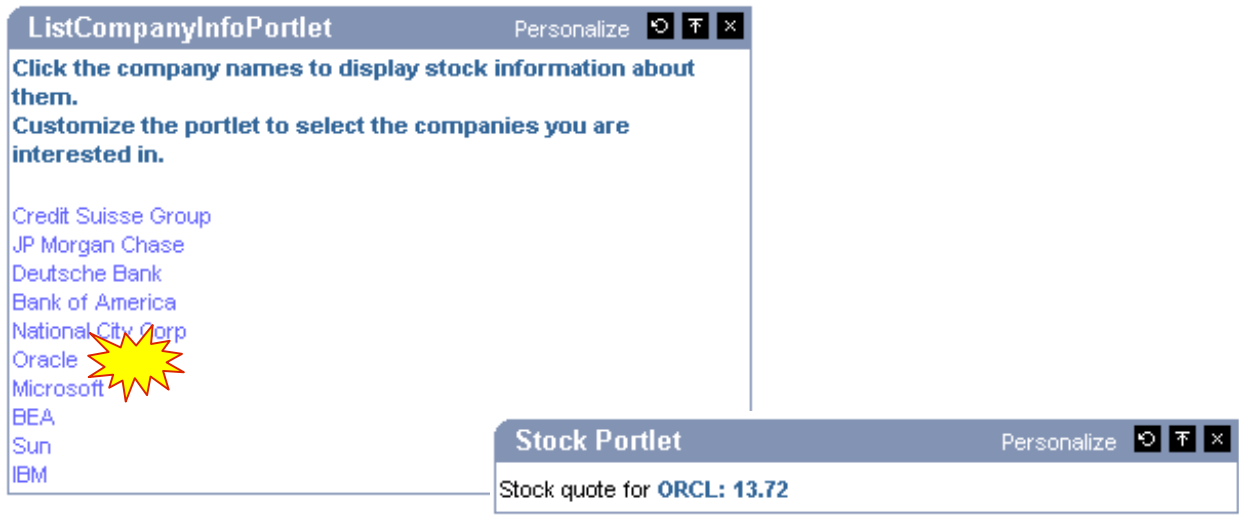
Contextual Wiring of AJAX Portlets

DEMO

Contextual Wiring of Portlets

Demo

Contextually Wired Stock Ticker Portlets



ListCompanyInfoPortlet Personalize [refresh] [up] [close]

Click the company names to display stock information about them.
Customize the portlet to select the companies you are interested in.

- Credit Suisse Group
- JP Morgan Chase
- Deutsche Bank
- Bank of America
- National City Corp
- Oracle
- Microsoft
- BEA
- Sun
- IBM

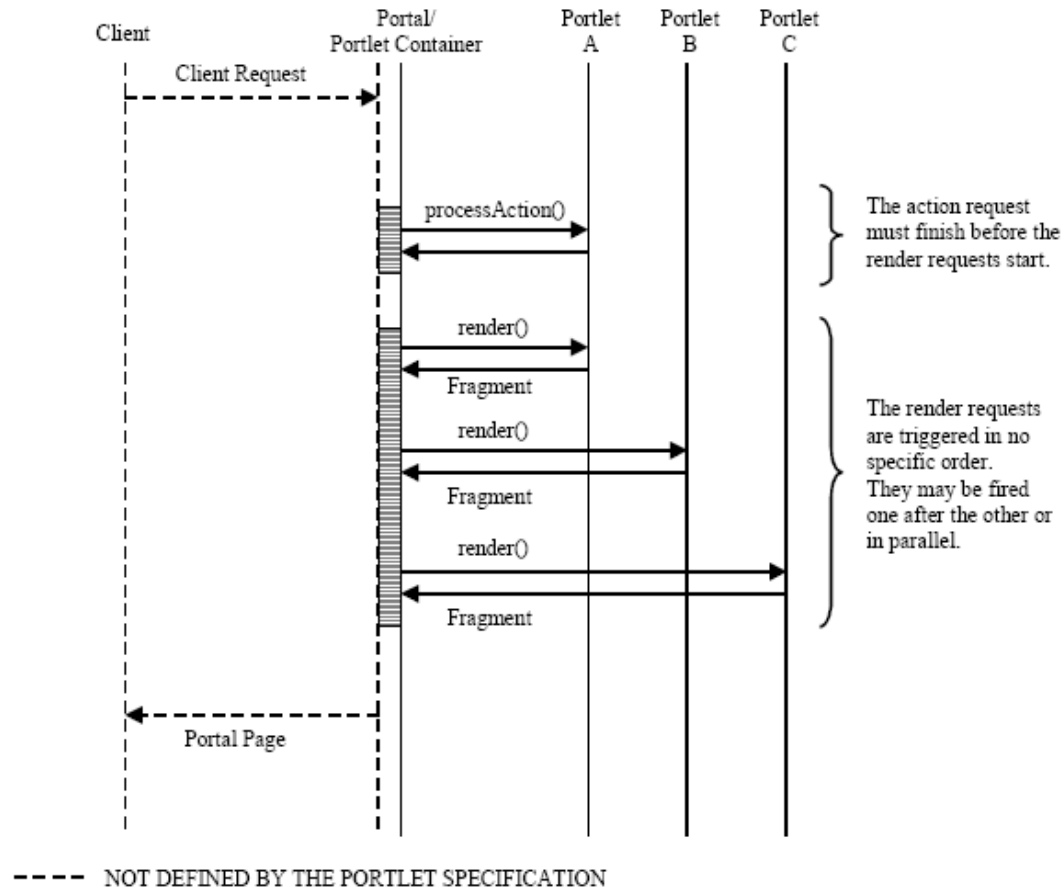
Stock Portlet Personalize [refresh] [up] [close]

Stock quote for **ORCL**: 13.72

Inter-Portlet Communication

- JSR 168 doesn't address inter-portlet communication
- Possible workarounds
 - PortletSession
 - PortletContext
 - Vendor-specific extensions

Portlet Life Cycle



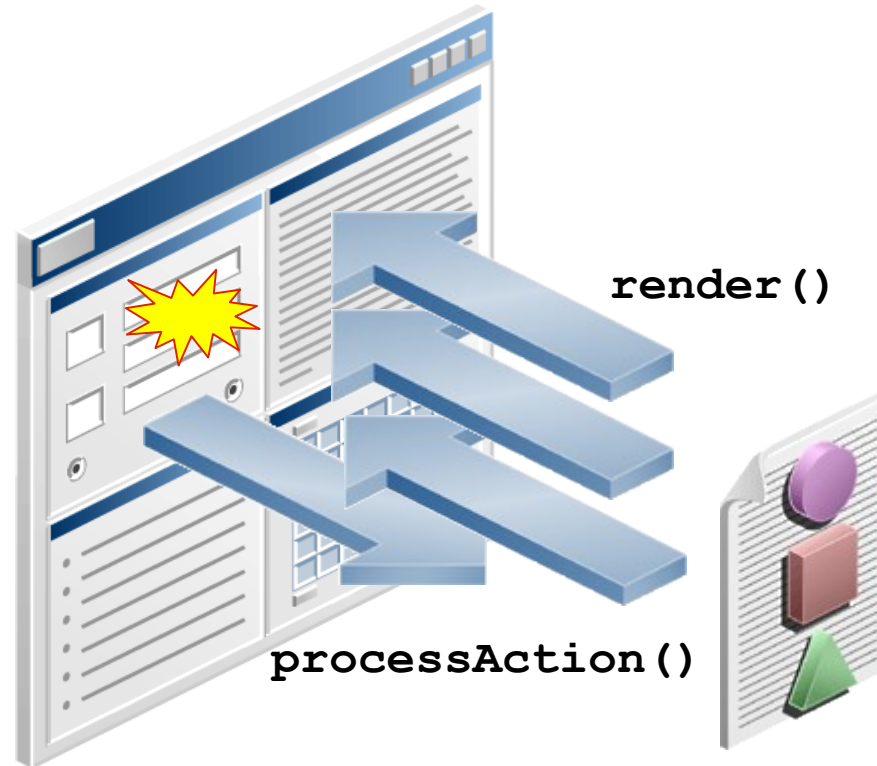
Source: JSR 168: Portlet Specification

Inter-Portlet Communication and the Portlet Life Cycle



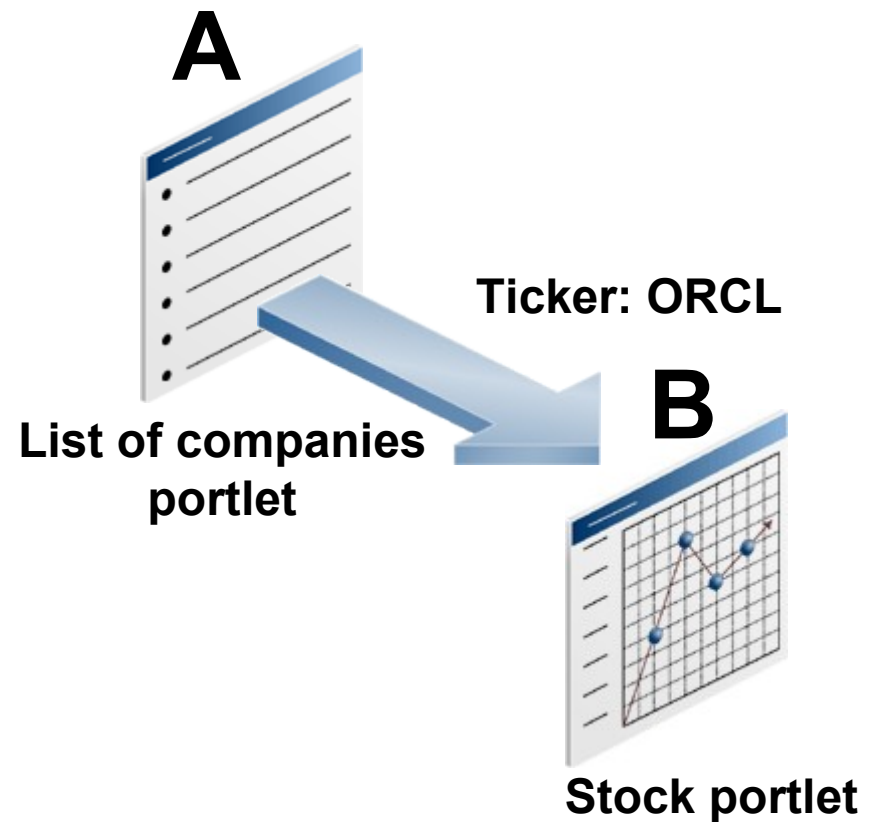
`render ()` invoked in no specific order

Inter-Portlet Communication and the Portlet Life Cycle



Inter-Portlet Communication and the Portlet Life Cycle

1. User clicks the link in portlet A
2. The link invokes `processAction()` on portlet A—blocking operation: writing ticker
3. The `render()` method is invoked on Portlet A and portlet B—parallel: portlet B reads the ticker



1. Constructing the Link

```

<%
PortletURL[] portalPageURL = new PortletURL[10];
while (sqrs.next())
{
    portalPageURL[i]= renderResponse.createActionURL();
    portalPageURL[i].setParameter
        ("quote",SelectReportPortlet.COMPANY[i][1]);
%>
    <a href="<%=portalPageURL[i] %>">
        <%=SelectReportPortlet.COMPANY[i][0] %>
    </a>
<%
    i++;
}
%>

```

2. The `processAction()` method

```
String quoteAction = request.getParameter("quote");
if (quoteAction != null) {
    PortletSession pSession = request.getPortletSession();

    pSession.setAttribute
        ("sQuote",
         quoteAction,
         PortletSession.APPLICATION_SCOPE);
}
```

3. Reading the Session Variable

```
<%  
.  
.  
.  
PortletSession pSession =  
    renderRequest.getPortletSession();  
String stock = (String)pSession.getAttribute  
    ("sQuote", PortletSession.APPLICATION_SCOPE);  
.  
.  
.  
%>
```

Agenda

Building Rich Portlets with AJAX

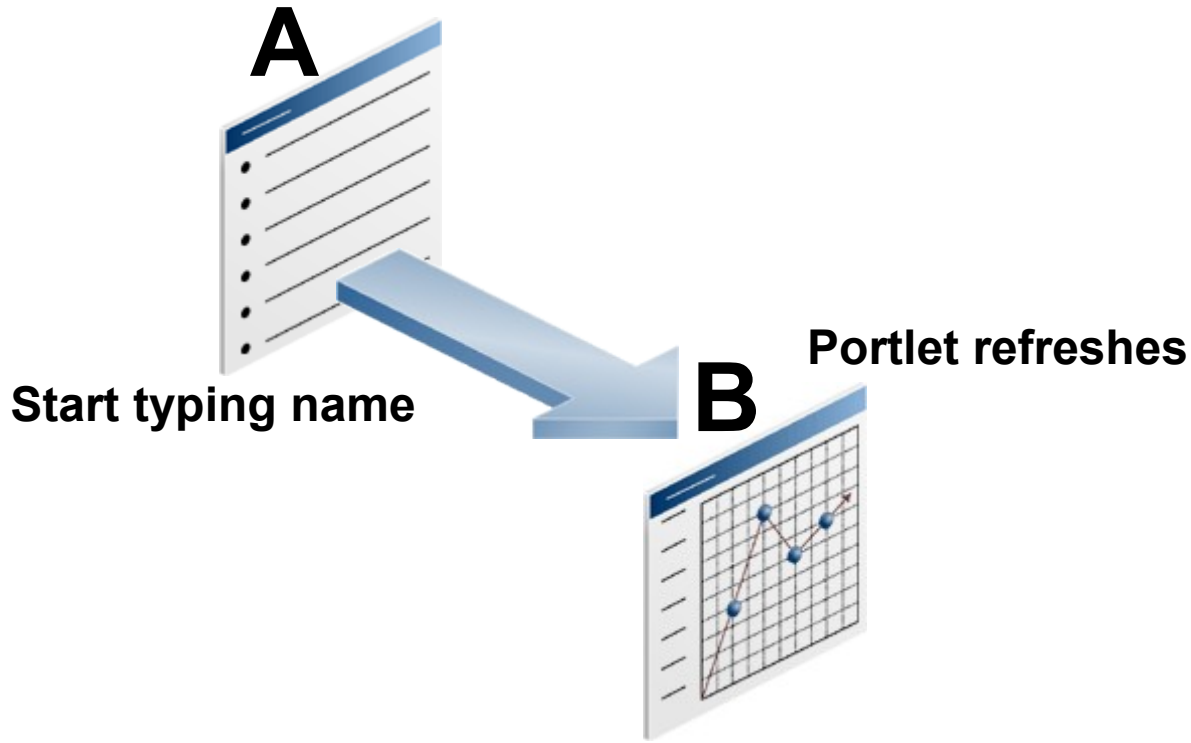
Workarounds for
Contextual Wiring of Portlets

Contextual Wiring of AJAX Portlets

Inter-Portlet Communication and the Portlet Life Cycle

- The portlet standard doesn't address inter-portlet communication
- Traditional workarounds lack rich interaction
 - The entire portal page refreshes

Inter-Portlet Communication and the Portlet Life Cycle






DEMO

- Contextually wired portlets—using AJAX
- Separating the query from the display




Demo:

Separating the Query From the Display




Phone Book Personalize   


Enter name:

Start typing a name, for example: Kensington.




Search Results Personalize   

Start typing a name in the Phone Book portlet. This portlet displays the results.

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Phone Book Personalize   

Enter name: 

Start typing a name, for example: Kensington.

Search Results Personalize   

Start typing a name in the Phone Book portlet. This portlet displays the results.

- Kerry Steve** (542) 634-4567

Creating Two Portlets Wired Through AJAX

1. **Portlet A:** Create input field—HTML
2. **Portlet A:** Catch typing event—JavaScript technology
3. **Portlet A:** Construct resource URL to the portlet—Portlet API
4. **Portlet A:** Create the XMLHttpRequest Object—JavaScript technology
5. **Portlet A:** Submit the XMLHttpRequest
6. **Portlet B:** Populate <DIV> with the response

Populating the <DIV> Tag with the Response

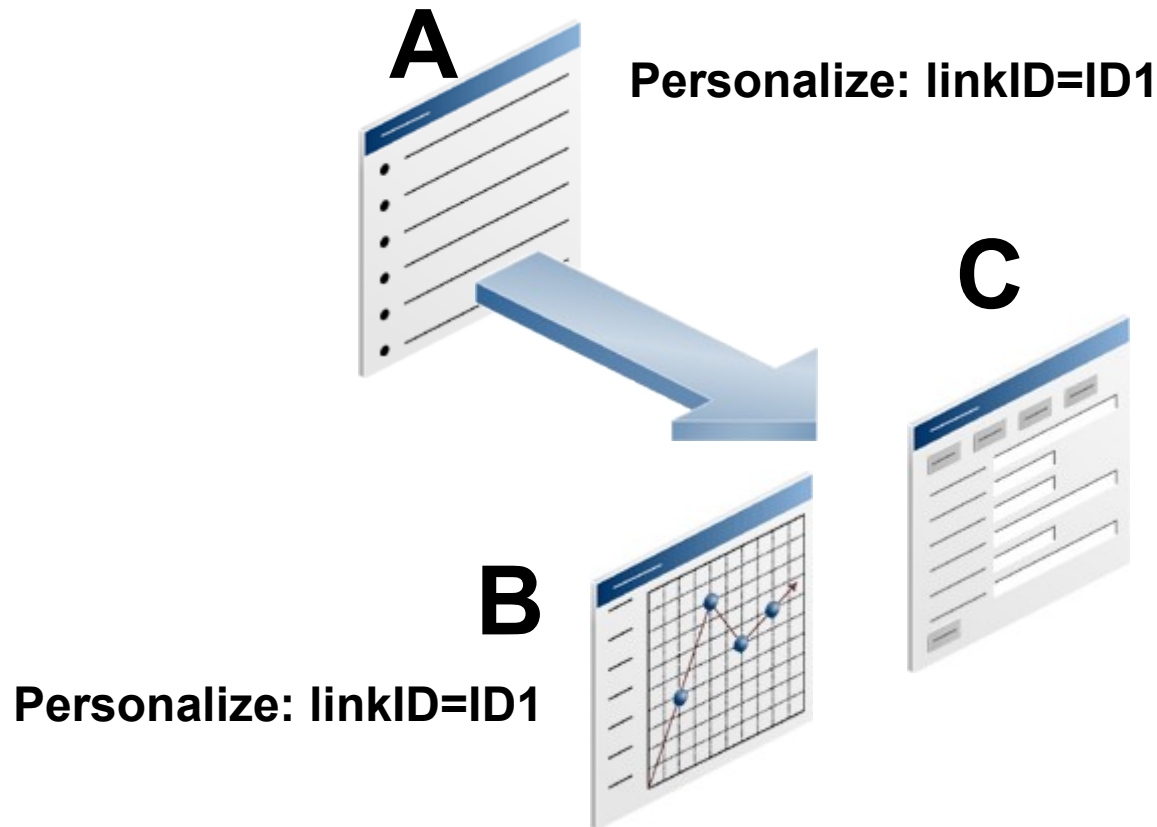
Portlet A

```
function updatePage() {  
    document.getElementById("results").innerHTML =  
        response[0].replace(/\n/g, "");  
}
```

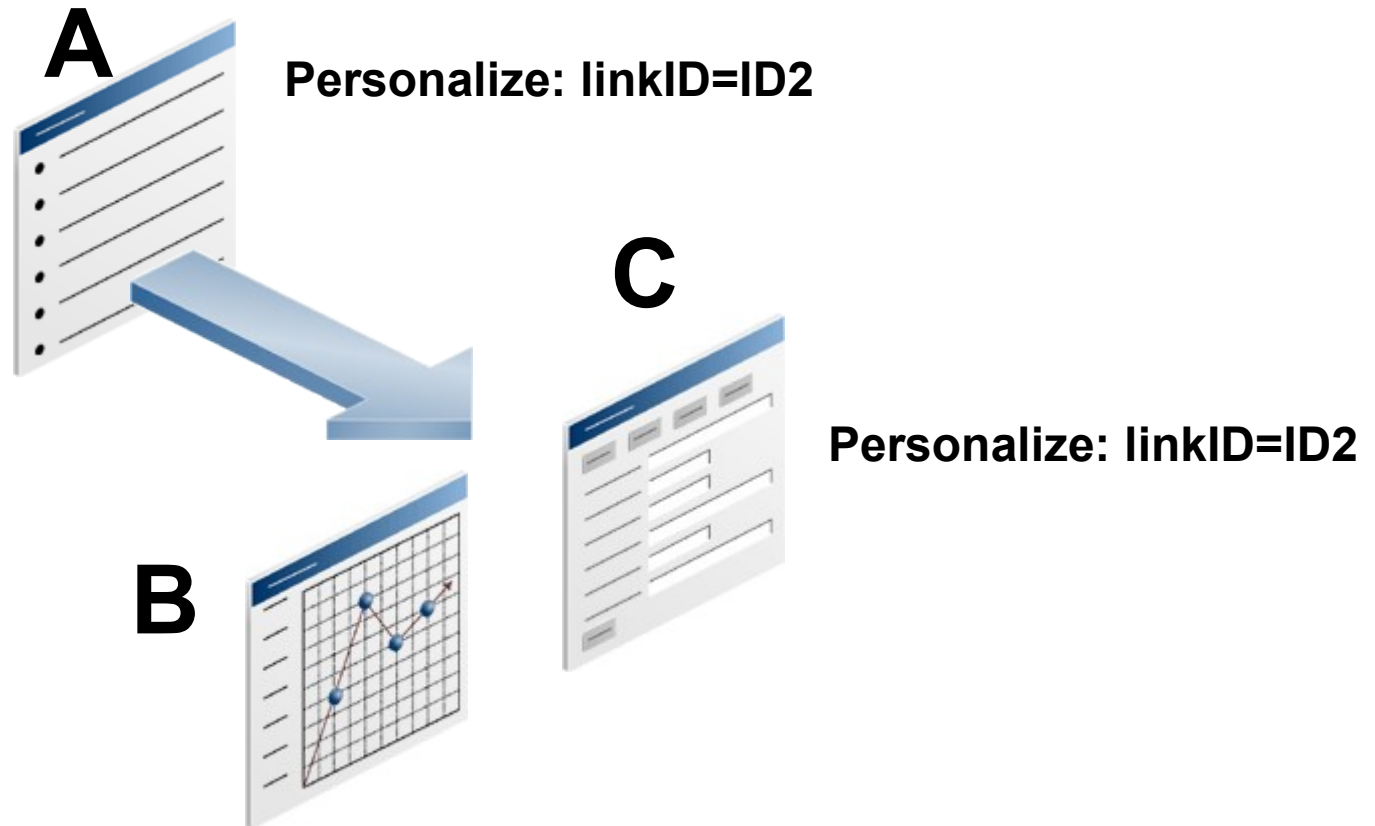
Portlet B

```
<div id="results">
```

Runtime Wiring



Runtime Wiring



DEMO

Run Time Portlet Wiring

Wiring Two Portlets

Design Time vs. Run Time

Design Time vs. Run Time Wiring

Hard Coded Wiring

Dynamic Wiring

Developer

Page Designer/Business U.

Run Time Wiring

1. User personalizes **Portlet A**
Preference store: `linkID=IDx`
2. User personalizes **Portlet B**
Preference store: `linkID=IDx`

Populating the <DIV> Tag with the Response

Design Time Wiring

Portlet A

```
function updatePage() {  
    document.getElementById("results").innerHTML =  
        response[0].replace(/\n/g, "");  
}
```

Portlet B

```
<div id="results">
```

Populating the <DIV> Tag with the Response

Run Time Wiring

Portlet A

```
function updatePage() {
    document.getElementById("detailAddress
        <%=prefs.getValue("linkID", "")%>").innerHTML =
        response[0].replace(/\n/g, "");
}
```

Portlet B

```
<div id='detailAddress
    <%=prefs.getValue("linkID", "")%>'>
</div>
```

Summary

- Inter-portlet communication can be achieved with well known workarounds
- Portlet interaction can be improved with AJAX
- Use AJAX for visual inter-portlet communication
- Portlet wiring can be exposed to the site administrator or end user

For More Information

- TS-4489 Introduction to AJAX
- TS-3627 What Comes Next in the Portlet Specification V 2.0 With JSR 286
- BOF-2832 Portlet Best Practices
- <http://otn.oracle.com>

Q&A



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