

AJAX, Impact and State of Affairs

Arjen Wassink

Consultant for Quintor

The AJAX Experience Conference (10-12 May)

JavaOne Conference (16-19 May)

Contents

- What is AJAX?
- The AJAX web architecture.
- AJAX toolkit availability.
- Demo: The AJAX web architecture in practice.
- Round up

What is AJAX?

(Aynchronous JavaScript And XML)

Applications providing an

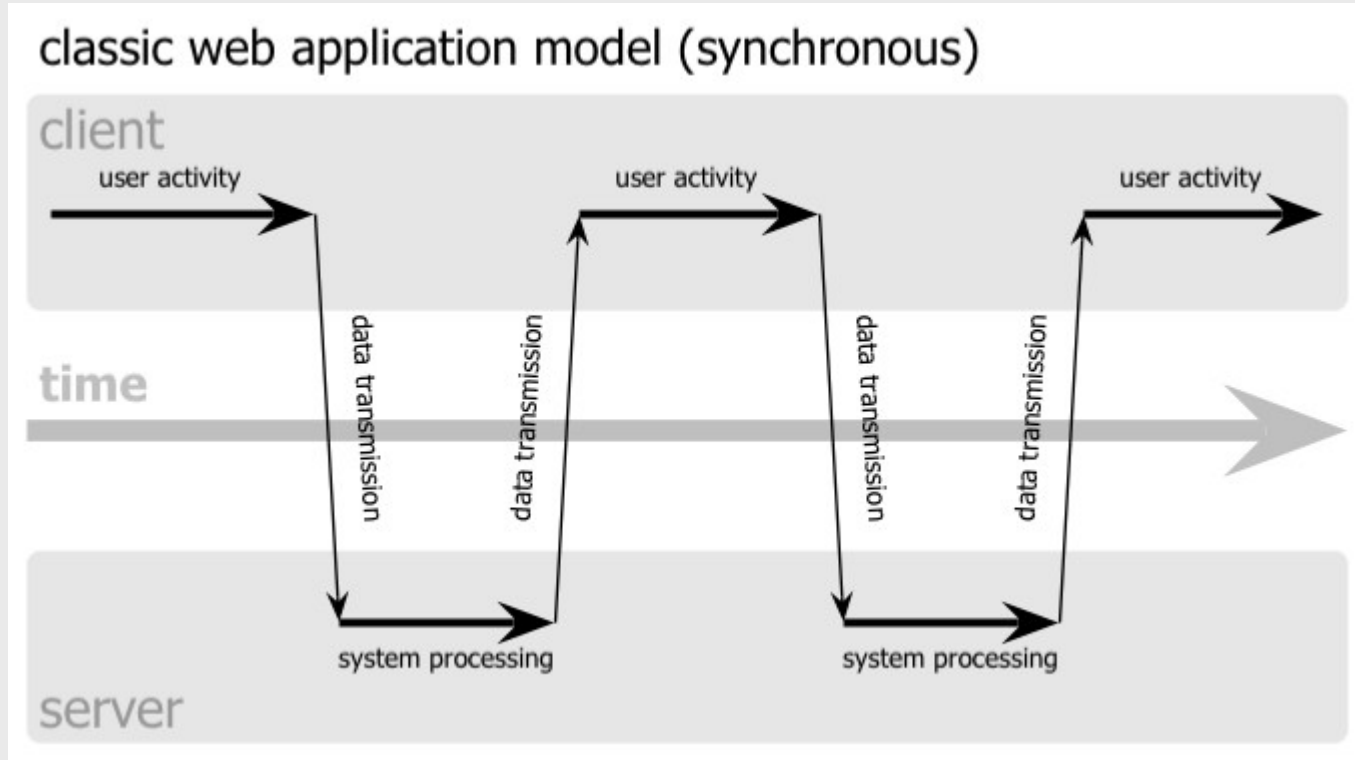
- **interactive user experience**
by means of
- **native browser support**
(no plug-in)

Statement at The Ajax Experience conference of Jesse James Garrett, the father of AJAX.

The Interactive User Experience

- No page (re-)loading. Ultimately only a single page is loaded for the application. (parts of the application can be loaded on the fly)
- Data is loaded asynchronously.
- Immediate response upon user input.

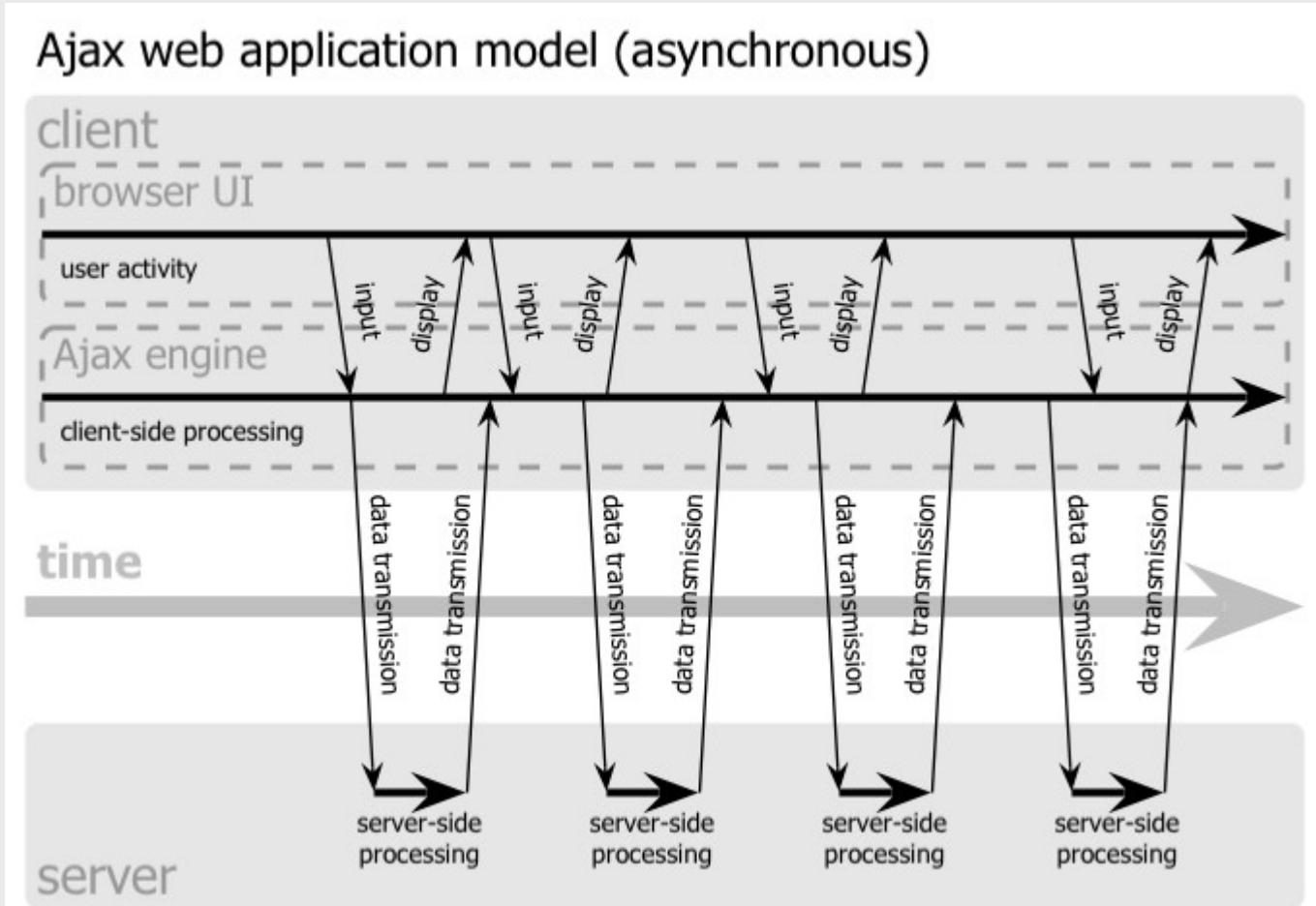
The Interactive User Experience



(Ajax: A New Approach to Web Applications by Jesse James Garrett)

Page navigation is executed at the server side. The user must wait for the next page to be able to interact again.

The Interactive User Experience



(Ajax: A New Approach to Web Applications by Jesse James Garrett)

The native Browser Technologies

- DHTML makes it possible to change the displayed page without reloading.
- JavaScript provides the necessary programming environment.
- The XMLHttpRequest API (XHR) provides multi-threading.
 - This prevents the browser from locking user interaction.

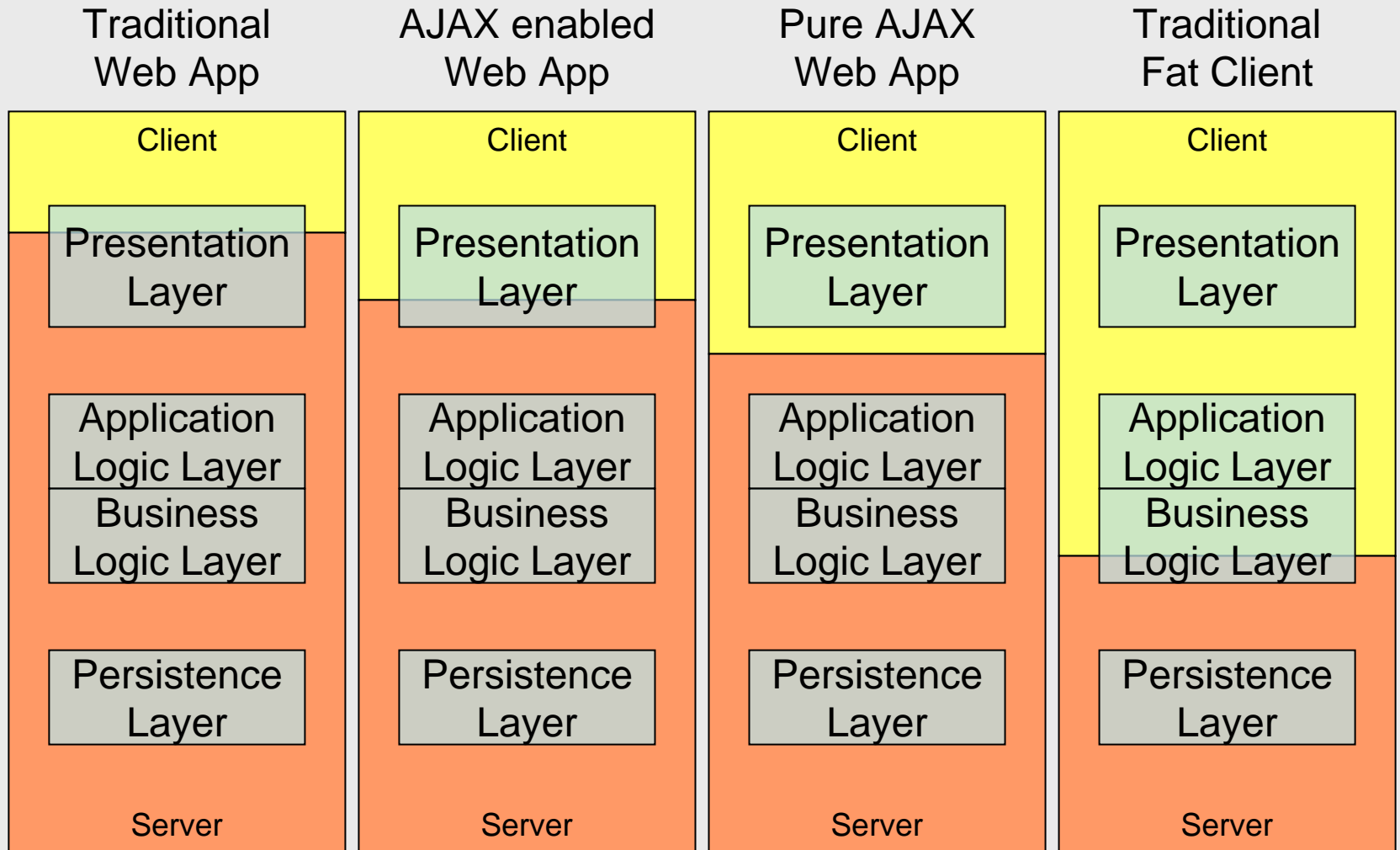
The AJAX Web Architecture

Demo: Pure AJAX Web Application

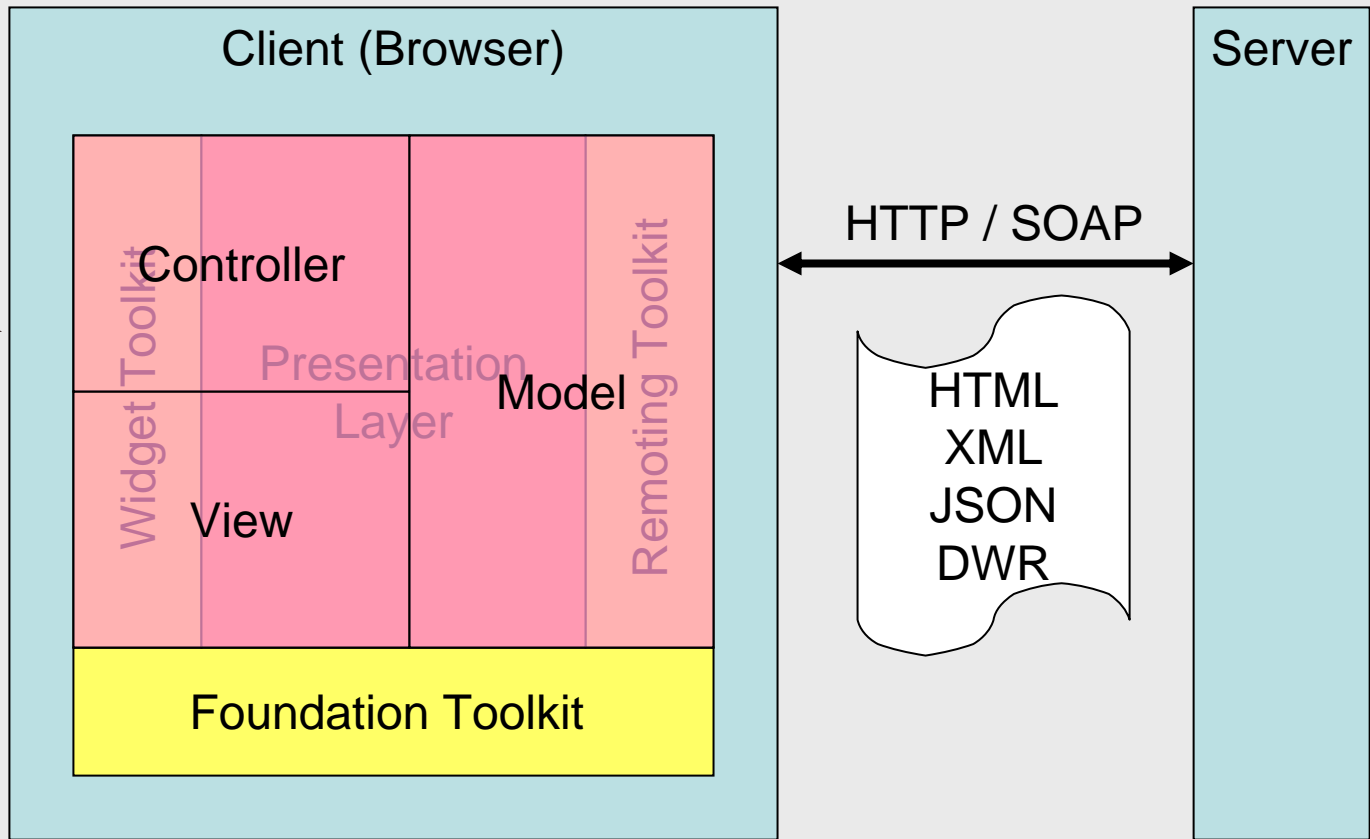
Web applications without server-side rendering?

Yes it is possible!

Relocation of the Presentation Logic



Focusing on the pure AJAX Web Application: The Presentation Layer Architecture



Toolkit Availability

- There are several established toolkits.
- There is a hose of new toolkits, and probably more to come...



Toolkits selected for Review

Three toolkits that provide a foundation, widgets and remoting

- BackBase
- TIBCO General Interface
- Dojo

One toolkit that provides remoting to Java

- DWR

All these toolkits were prominently present at The AJAX Experience.

BackBase (www.backbase.com)

- Commercial Product
- Browsers: Internet Explorer, Firefox, Mozilla
- UI is defined in Backbase XML (BXML).
 - Backbase engine renders the BXML to the browser DOM
 - Using BXML is way different than building with widgets
- Eclipse plug-in for syntax highlighting and code completion on BXML
- Good debugging facilities
- Difficult to extend with good custom components
- XML data binding

BackBase (www.backbase.com)

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"
xmlns:b="http://www.backbase.com/b" xmlns:s="http://www.backbase.com/s">
<head>
  <title>Example 01 - My First BXML Page</title>
  <script type="text/javascript" src="/backbase/3_0/bpc/boot.js"></script>
</head>
<body onload="bpc.boot('/backbase/3_0/');">
  <xmp b:backbase="true">
    <b:infopane style="border: 1px solid #DDDDDD;">
      <b:infonav b:action="select-deselect"
        style="background-color: #EEEEEE;">Click to open.</b:infonav>
      <b:infoview style="background-color: #CCCCCC;">
        Hello <strong>World!</strong>
      </b:infoview>
    </b:infopane>
  </xmp>
</body>
</html>
```

TIBCO General Interface (power.tibco.com)

- Commercial Product
- Browsers: Internet Explorer only (Firefox announced)
- UI is defined by widgets in GI XML files.
 - GI engine renders the XML to the browser DOM
 - JavaScript API to manipulate the widgets from code
- WYSIWYG drag 'n drop builder tool, build within its own toolkit. (Seen later at the demo)
- Difficult to extend due to proprietary, obfuscated parts of the API.
- XML data binding
- Java like extensions to JavaScript

TIBCO General Interface

```
<html>
<!-- Proprietary and confidential. Use, modification, and distribution
subject to written license. Copyright (c) 2001-2006, TIBCO Software,
Inc. -->
<head>
  <title>TIBCO(R) General Interface</title>
</head>

<body BGCOLOR="#9898a5" SCROLL="no" RIGHTMARGIN="0" BOTTOMMARGIN="0"
  LEFTMARGIN="0" TOPMARGIN="0" style="padding:0px;">
  <div id="jsxbodydiv" style="position:absolute;left:0px;top:0px;
    width:100%;height:100%;z-index:1;">
    <div id="JSXWINDOW" style="width:100%;height:100%;">
      <script language="JavaScript" src="JSX/js/JSX30.js?jsxapppath=
        JSXAPPS/31sample-dialogs"></script>

    </div>
  </div>
</body>
</html>
```

TIBCO General Interface

```
<serialization xmlns="urn:tibco.com/v3.0">
  <unicode></unicode>
  <name><![CDATA[Block (100pct)]]></name>
  <icon><![CDATA[]]></icon>
  <description><![CDATA[Simple block, relatively positioned with overflow=scroll.]]>
</description>
  <onBeforeDeserialize><![CDATA[]]></onBeforeDeserialize>
  <onAfterDeserialize><![CDATA[]]></onAfterDeserialize>
  <objects>
    <object type="jsx3.gui.Block">
      <variants jsxoverflow="1"/>
      <strings jsxname="block" jsxwidth="100%" jsxheight="100%"
        jsxrelativeposition="1"/>
      <children>
      </children>
    </object>
  </objects>
</serialization>
```

Dojo Toolkit (www.dojotoolkit.org)

- Open Source software under AFL en BSD license.
 - IBM sponsors Dojo.
- Browsers: Internet Explorer, Firefox, Mozilla and more
- UI is defined by `dojoType` attributes on HTML tags.
 - Dojo engine renders actual tags based on the `dojoType`
 - JavaScript API to manipulate the widgets from code
- Eclipse Ajax Toolkit Framework contains support for Dojo. <http://www.alphaworks.ibm.com/tech/ajaxtk>
- Difficult to extend due to inheritance implementation and one-on-one relation to DOM.
- Firm extensions to JavaScript

Dojo Toolkit

```
<html>
<head><title>Pane Widgets Demo</title></head>
<body>
<div class="section">
<script type="text/javascript" src="dojo.js"></script>
<script type="text/javascript">
    dojo.require("dojo.widget.SlideShow");
</script>

</div>
</body>
</html>
```

Direct Web Remoting (DWR)

- Open Source software under ASL license.
- Browsers: Internet Explorer, Firefox, Mozilla and more
- Provides a remoting toolkit for exposing JavaBeans as JavaScript. (It generates JavaScript proxies to the server side JavaBeans)
- Support for, and supported within the Spring framework.
- Offers a framework for reverse AJAX.

Demo: Bookmark Manager

A pure AJAX application in practice

- Server-side business logic implemented in Java.
- JavaBeans are accessed from the client via DWR.
- Rest of presentation layer is implemented in TIBCO General Interface.

Round-up

- Internet -> have a look at BackBase
- Intranet -> have a look at TIBCO General Interface
- In both cases -> have a look at Dojo if a steep learning curve is not an obstacle.
- DWR is an easy way to expose JavaBeans to JavaScript
- Have a look on the Internet for other toolkits.
- Note that toolkits change and improve rapidly.

Round-up

Pure AJAX applications: The way to go forward?

Depends on the ease of development.

Today JavaScript development takes way more time than Java development, due to the type unsafe programming language and debugging pain.

Thank you for your attention!

Questions?

a.wassink@quintor.nl