

AJAX 301

Programming for the Enterprise
MVC Ajax Pattern using
Model-Glue and ajaxCFC

Southeast Ohio Macromedia User Group



Who's The Rob?

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What is AJAX?

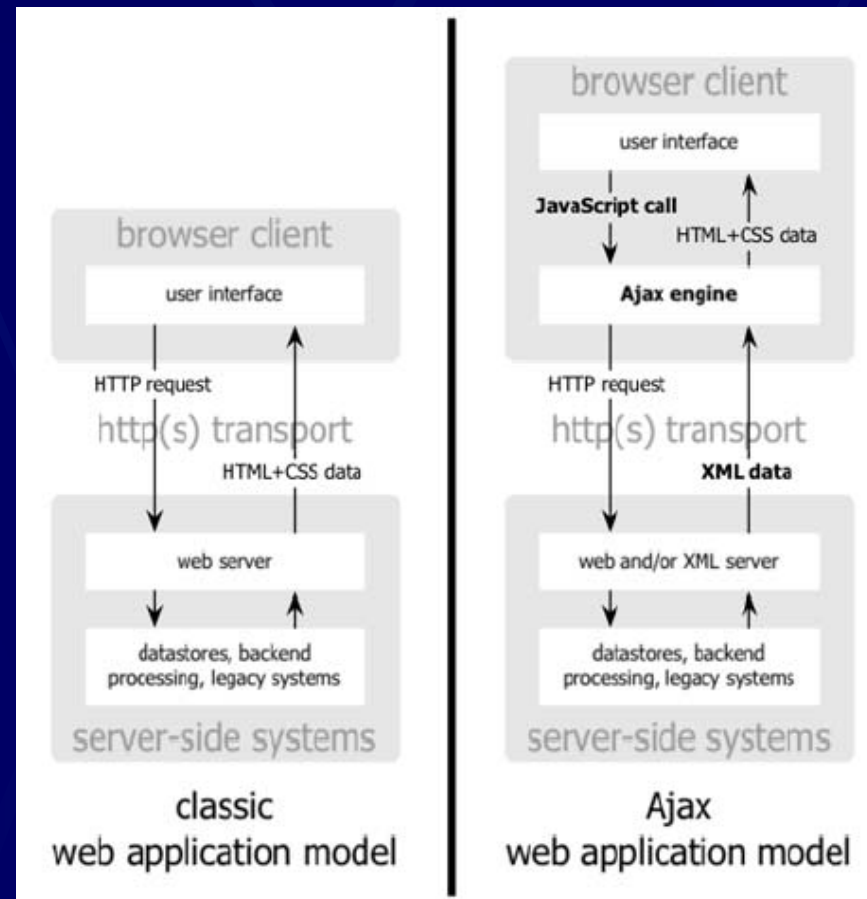
- Asynchronous JavaScript + XML
- Interacting with the server without refreshing the page
- Rich Internet Applications with JavaScript
- A geek marketing term
- Venture Capital Magnet

What is AJAX? (tech view)

- Asynchronous data retrieval using **XMLHttpRequest**
- Data interchange and manipulation using *_XML_* (or not)
- Dynamic display and interaction using Document Object Model (DOM)
- JavaScript binding everything together
- Flash Remoting for JavaScript? Not really, but close

Classic Vs. Ajax Web

No more single
request / response
restrictions



Potential Problems

- Breaks back button support
- URL's don't change as state changes
- SEO / Search Engine Indexing
- Cross Browser Issues can be a pain
- Cross-domain requests (SOA, WS)
- Viewable Source Code
- Client side business logic
- Server Load if not properly coded
- Concurrency

Security Concerns

- JavaScript applications are easily decoded and reengineered
- On-demand (server side) loading will not help if you load your entire application and business logic in the client's memory
- Obfuscation makes it more difficult, but can also generate bugs

Security Rules

- Don't trust user input
- Do not trust client side validation
- Do not trust server side AJAX validation
 - Will improve user experience
 - Will not reduce code, only increase it.
 - You still need to re-validate in the server side
- Do not assume every Ajax request is real
- Keep you business logic in the server

Do not expose business logic

- Most important aspect for Enterprise Applications
- Ajax uses JavaScript, but it does not have to reside in the client
- Use remote calls only as a transport layer
- Transport state and instructions, not raw data
- MVC
 - Model must remain on the sever
 - View or presentation layer is managed with DOM
 - Controller layer simply requests commands and dynamically evaluates them

The Magic Functions

- Traditionally you would use DOM
 - Cross browser hell
 - createNode is a pain
- innerHTML
 - For modifying content
- eval()
 - Dynamic expression evaluation

What to transport

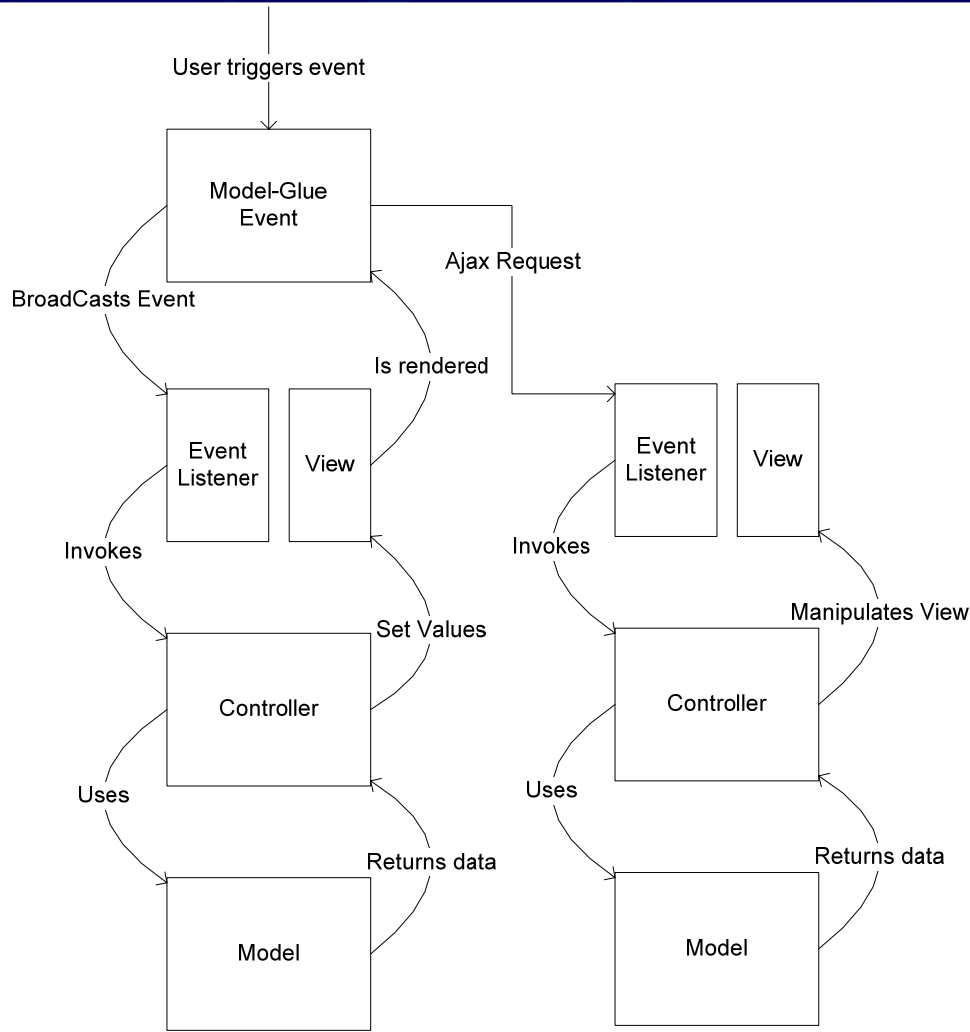
● Data

- XML
- WDDX
- JSON (JavaScript Object Notation)
- JavaScript Objects

● Instructions

- JavaScript instructions to be dynamically evaluated using `eval()`

MVC Pattern Data Flow



AJAX Frameworks

- Many people opt for AJAX frameworks.
- Provides many advantages
 - Sync / Async
 - Serialization
 - Multithread
 - Error handling
 - Logging
 - Security, encryption, obfuscation
- Disadvantages : NONE!
 - Weight
 - Loads more than you need

ColdFusion Frameworks

- Fusebox
- Mach II
- Model Glue
- SAM
- TheHUB

ColdFusion AJAX Libraries

- ajaxCFC
 - OOP, CF extends objects, Design Patterns
 - Built-in error handling, security, debugging
 - Capability to integrate with Model Glue (soon Mach II)
- CFAjax
 - First Ajax CF Framework
- JSMX
 - Client side library only
- Simple Remote Scripting (SRS)
 - Uses iframes

Model Glue

- An Implicit Invocation framework simplifying use of the Model View Controller design pattern in ColdFusion applications.
- A framework encouraging clear separation of Model, View, and Controller
- Written by [Joe Rinehart](#)
- Released under the Lesser GPL, meaning that it's free to download, use, and alter.

ajaxCFC

- AjaxCFC is a Coldfusion/JavaScript framework meant to speed up ajax application development and deployment by providing developers seamless integration between JavaScript and ColdFusion, and providing built-in functions, such as security and debugging, to quickly adapt to any type of environment and helping to overcome cross-browser compatibility problems.
- Programming with ajaxCFC involves extending components and creating your own ajax façades.
- Intergration with Model-Glue, one of the most popular MVC frameworks widely used by the ColdFusion community.
- Works with ColdFusion MX 6.0, 6,1, 7.0 and Blue Dragon.
- Automatically handles complex object transmitted from the client to the server and vice versa.
- Licensed under the Apache License Version 2.0, by Rob Gonda.

Simple echo example

```
<link rel="STYLESHEET" type="text/css" href="../style/style.css" />
<script type='text/javascript'>_ajaxConfig = {'_cfscriptLocation':'echoTest.cfc', '_jsscriptFolder':'../js'};</script>
<script type='text/javascript' src='../js/ajax.js'></script>

<script type="text/javascript">
    function doEcho()    {

        // get value from input
        var str = $('#echoInput').value;

        // reset input value
        $('#echoInput').value='';

        // focus input again
        $('#echoInput').focus();

        // send data to CF
        DWREngine._execute(_ajaxConfig._cfscriptLocation, null, 'echo', str, doEchoResult);
    }

    // call back function
    function doEchoResult (r) {
        // appends response to div
        $('#echoScreen').innerHTML = r + '<BR>' + $('#echoScreen').innerHTML ;
    }

</script>
```

Model Glue Ajax Echo

```
<script type='text/javascript'>_ajaxConfig = {'_cfscriptLocation':'index.cfm', '_jsscriptFolder':'views/js'};</script>
<script language="JavaScript" src="views/js/ajax.js"></script>
<script language="JavaScript">
    function ajax(f, a) {
        DWREngine._execute(_ajaxConfig._cfscriptLocation, null, f, a, evaluator);
    }

    // call back function
    function evaluator (r) {
        eval(r);
    }
</script>
```

```
<cfset echoResponse = viewstate.getValue("echoResponse") />

// reset input value
$('#echoInput').value='';

// focus input again
$('#echoInput').focus();

$('#echoScreen').innerHTML = '<cfoutput>#JSStringFormat(echoResponse)#</cfoutput>' + '<BR>' + $('#echoScreen').innerHTML ;
```

... configuration file

```
<!-- Public Events -->
<event-handler name="ShowHome" access="public">
  <views>
    <include name="js" template="javascript.cfm" />
    <include name="body" template="mainContent.cfm" />
  </views>
  <results>
    <result do="Layout" />
  </results>
</event-handler>

<event-handler name="doEcho" access="public">
  <broadcasts>
    <message name="doEcho" />
  </broadcasts>
  <views>
    <include name="script" template="doEcho.cfm" />
  </views>
  <results>
    <result do="AjaxLayout" />
  </results>
</event-handler>
```

Switch to Live Demos

- Simple Echo
- Model Glue Echo
- Model Glue Ajax / XMLSockets Contact Manager

Thank You

- Questions / Comments?
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