

*Ajax*

Freedom of Choice

***Freedom of choice is what  
you got,  
Freedom from choice is what  
you want.***

--devo

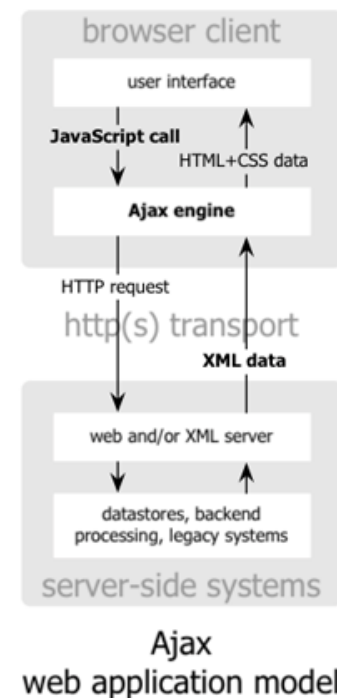
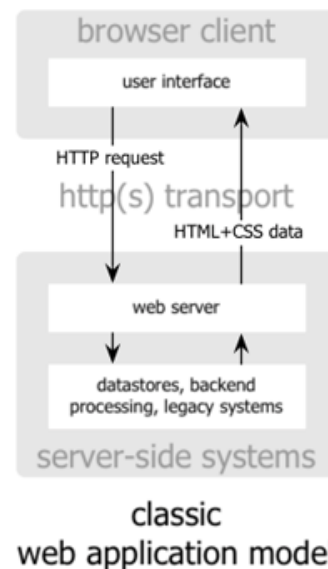
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# Browser Communications

- The standard way, one set of http request per page draw
- Make changes, submit, get a new page
- The Ajax way, continuing communication why the server
- Make a change, send it to the server, update the page
- Web application now act like desktop applications



## What is Ajax?

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- A programming technique for communicating with the server from within a web page.
- XMLHttpRequest() the only object you need to know, really?
- Ajax has come to mean a whole world of client / server application programming
- HTML, DOM, DHTML, CSS, XML, JSON, Comet and more

# XMLHttpRequest

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- “The name of the object is [XMLHttpRequest](#) for compatibility with the Web, though each component of this name is potentially misleading. “  
– W3C Draft Spec
- Methods
  - open(method, url, [optional] async = true, [optional] user, [optional] password)
  - send([optional] body)
- Members
  - onreadystatechange = function <registers the call back function>
  - readyState
    - 0=UNINITIALIZED
    - 1=LOADING (open called)
    - 2=LOADED (send called)
    - 3=INTERACTIVE(Running sever side, downloading )
    - 4=COMPLETED
  - responseText (in text format)
  - responseXML (parsed in DOM format)
  - status (http status #)

## **Asynchronous – Call me back**

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- Callbacks are the key to Ajax
- The browser (except IE8) will only make 2 connections at a time

## JavaScript? Isn't this a Java Users Group

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- Javascript (ECMAScript) != Java
- Apples and Oranges
- Why is it even called Javascript?
- **You must product javascript code to use Ajax.** You might not write it though
- Any server side language can be on the backend, but we are a JUG

## The X is optional

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- You don't have to use xml, you can't use SOAP (unless you want to write your own soap library in Javascript)
- Requests are HTTP methods - GET, POST, PUT, DELETE – Only POST and PUT send data
- The response can be any data format
  - XML - REST webservices, jax-RPC, freeform xml
  - JSON (Javascript native format) – freeform, REST, JSON-RPC, JSONP (cross site scripting)
  - HTML

# Firebug Is your Friend

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- Seeing what is being passed is indispensable
- Firebug lets you see the data of every request
- Firebug lets you put breakpoints in your JS code
- Watch variables
- Inspect and edit the DOM
- Look at your styles
- demo

# Client Side Toolkits

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- Prototype
- Script.aculo.us
- YUI
- JQuery
- Dojo
- Sarissa
- Ext
- SWFObject

# Server Side libraries

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- Parsing and Marshalling libraries
  - Jax-RS
  - Jaxb
  - JSON
  - Jackson
  - Jabsorb

# Client / Server Toolkit

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- GWT
- IceFaces
- Dojo Faces
- JSF 2.0

# Performance

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- Major goal of Ajax is to allow more UI with fewer page reloads
- Initial load of js library – Who's your user?
- Simultaneous call problems
- Multiple calls
- Compress data – obfuscate
- You know how fast your server is, you may not know how fast the clients are or the connection speed

# Comet

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- Long polls
- Browser still makes the call, but it always leaves a connection open
- Publish / Subscribe pattern