

Ajax Introduction

MIS 4530

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What is AJAX?

- Asynchronous Javascript and XML
 - Not all AJAX apps involve XML
- Combination of technologies
 - XHTML, CSS, DOM
 - XML, XSLT, XMLHttpRequest, JavaScript
 - Some server scripting language
- A method for building more responsive and interactive applications

AJAX Components

XHTML and CSS

Ajax applies these familiar Web standards for styling the look and feel of a page and to markup those areas on a page that will be targeted for data updates.

DOM (document object model)

Ajax uses the DOM to manipulate dynamic page views for data and to walkthrough documents to “cherrypick” data. The DOM enables certain pieces of an Ajax page to be transformed and updated with data.

XML, JSON (Javascript Object Notation), HTML, or plain text

Ajax can use any of these standards to provide structure to the data it passes to and from a page.

XMLHttpRequest object

The heavy lifter for Ajax: It’s a javascript object embedded in most modern browsers that sets up data request/response pipelines between client and server.

Javascript

Lightweight programming language that Ajax uses for instructions to bind all of the components together.

Why AJAX?

- Want to make your applications more interactive
- Want to incorporate data from external Web Services
- Don't want your users to have to download a plugin

Client vs. Server Scripting

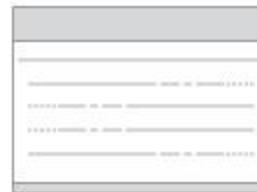
- Client scripting
 - Web browser does all the work
- Server Scripting
 - Web server does all the work
- AJAX leverages both client and server side scripting

How AJAX Works

TRADITIONAL WEB INTERACTION



1. User Request



2. Screen Reload



3. Data Update

AJAX WEB INTERACTION



1. User Request



2. Data Update

Example

- Basic
- Google Search
- AjaxDaddy.com

AJAX Web Interaction

- What you don't see
- Data reload happens in the background
- JavaScript queries the server to get the proper data without you knowing it
- Page updates without a screen "reload"

Potential Problems

- Javascript MUST be enabled
- Back button doesn't always work
- Pages can be difficult to bookmark
- Search engines may not be able to index all portions of an AJAX site
- Cross browser differences in how XML is dealt with

Some AJAX examples

- [Google Calendar](#)
- [Flickr](#)
- [Rojo](#)
- [Meebo](#)
- [Backpack](#)

Basic AJAX Components

- **Server-side Component**
 - Communicates with the database, or web service
 - Can be written in any server-side language (PHP, ASP, Coldfusion, etc)
- **Client-side Component**
 - Written in Javascript, often uses XMLHttpRequest
 - Accesses the server side page in the background

Hidden Frame Method

- Communication with server takes place in a frame that user can't see
- Back and Forward buttons still work
- If something goes wrong user receives no notification

XMLHttp Method

- Code is cleaner and easier to read
- Able to determine if there is a failure
- No browser history, Back and Forward buttons break

Potential Uses for AJAX

- Error checking in Forms
- AutoSuggest
- Drag and Drop objects functionality
- Dynamically move view around on image or map
- Preload content you want to show later
- Apply limits to search results and get new results quickly

Ajax Libraries

- jQuery – Open source library that makes AJAX programming easier
- Short video of jQuery use