AJAX Introduction

- **Examples of interactive Web application**
  - Yahoo Mail: https://mail.yahoo.com
  - Google suggest: http://www.google.com/webhp?complete=1
- Two modes of Web interaction (traditional vs AJAX)

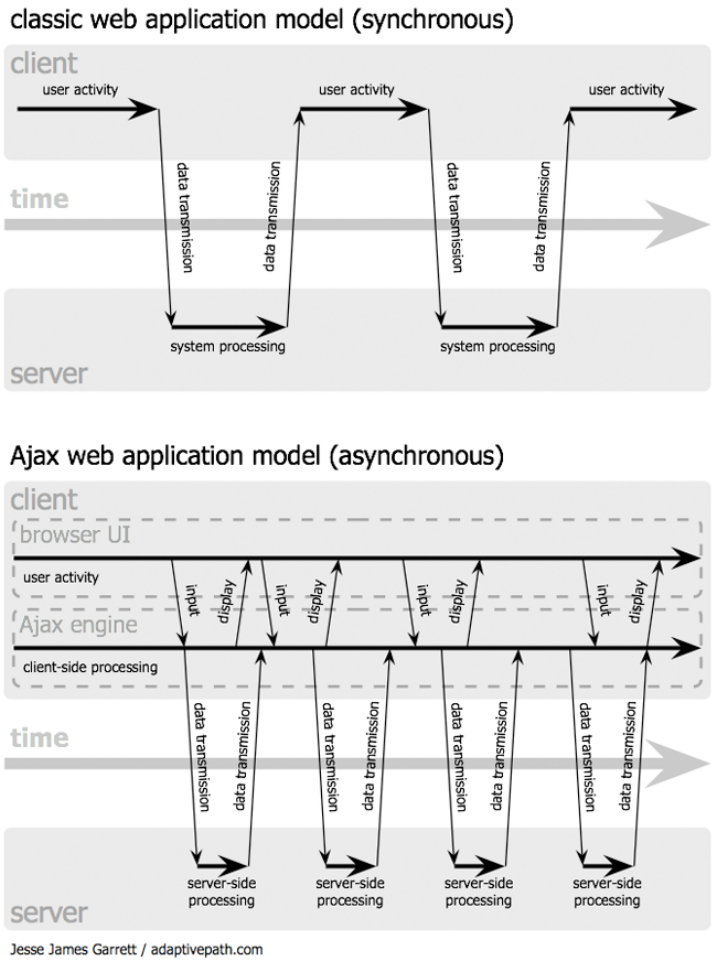

Figure 1: Traditional vs AJAX

- Traditional vs AJAX
  - Traditional
    - Form-based input
    - Press "submit" button and wait until the entire page reloads

        * Frequent interruptions and significant delay
    - AJAX
        * Immediate, "in-place" update of page content
        * More "desktop-application"-like feel

- Q: What does AJAX mean?
    - AJAX: Asynchronous JavaScript and XML
        * The term was coined by Jesse James Garrett in Feb 2005
        * http://www.adaptivepath.org/ideas/ajax-new-approach-web-applications/

- Q: What is needed to support this interaction?

- **Background-color change example**: http://oak.cs.ucla.edu/classes/cs144/examples/javascript.html
    - Q: What should the browser do for this demo page?
        * Monitor "clicks" on the page
        * When clicked, change the background color
    - Q: How is the sequence of execution determined?
        * *Event-driven programming*:
            · Control flow is driven by events not by the programmer
            · Examples of events: user presses a button, server sends a response, ...
        * Programmer specifies mapping from events to actions
            · "If this event happens, then take these actions": *callback functions*
    - Q: What mechanisms are needed to support this app?
        * Dynamic in-place page update mechanism

- Two key building blocks of AJAX applications
    1. JavaScript: *The* programming language for the Web
        - Allows running complex code inside a browser to make the page "dynamic"
    2. Document Object Model (DOM)
        - Tree-based representation of HTML document
        - JavaScript program can manipulate different parts of of the DOM to make changes on the page

    - JavaScript program can monitor “events” on the DOM, like clicking on certain part of the page
- Topics of our next study