User Interaction: AJAX Basics

Assoc. Professor Donald J. Patterson
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Follow up from last class

Data Presentation

- HTML
- XHTML
- XML

Data Transport

- JSON
• AJAX
  • “Asynchronous Javascript and XML”
    • although XML can be replaced with any data format
  • Developed to support “rich clients”
  • One of the big enablers of Web 2.0
Consider a spreadsheet, once can
- Edit data in place
- Changes are updated in real-time
- Dependencies across the document
- Feedback from the mouse and cursor
- Cells highlight
- Overall a pretty rich user interface experience
AJAX

“Rich Client”
- Rich
  - In the U/I sense
  - “Spread-sheet” like
- Client
  - Lives in a networked world

AJAX in action: Crane
• Desktop/Laptop World
• Desktop World
Cloud Computing World

AJAX in action: Crane

Thursday, October 17, 13
• Cloud Computing World
• Network induces variable delays, always worse than local

NETWORK
INTRODUCES DELAYS
ALWAYS WORSE THAN LOCAL
ABSOLUTE DELAY
DELAY IS VARIABLE

FUNCTION ON LOCK

SERIALIZATION

STEPS: DISTANCE = LATE/UP

VARABILITY!
Building a rich client is harder than building a web page
rich client
rich client
Why have so many non-rich web pages been successful?
What limits our ability to create rich web clients?
• Sovereign Application vs.
• Transient Application
I am typing the most important document of my life
What can we do to overcome network latency?
• Asynchronousness
What does this enable?
• Defining principles of AJAX

1. Browser hosts an application, not content
2. Server delivers data not content
3. User interaction with the application can be fluid and continuous
4. This is real coding
1. Browser hosts an application, not content

- Static Web model
  - every page is new content

  vs

- Real-time Web model
  - download a program at first
  - every page is new data

- Some server functionality is moved to browser
  - example, the shopping basket is in the client
1. Browser hosts an application, not content

**HTML**

**HTML**

**HTML**

**HTML**
• Browser hosts an application, not content
2. Server delivers data not content

Web 1.0
2. Server delivers data not content

Web 2.0
2. Server delivers data not content
3. User interaction with the application can be fluid and continuous

- Typically when a page is submitting data, the user is in limbo
  - Use the shopping cart example
  - Google Suggest
- Sovereign versus Transient Applications
4. This is real coding

- jQuery (http://jquery.com)
- Angularjs (http://angularjs.org/)
- Backbonejs (http://backbonejs.org/)
- emberjs (http://emberjs.com)
- Prototype (http://www.prototypejs.org/)
- ExtJS (http://www.extjs.com/)
  - very good for prebuilt themes and controls, but not very customizable
- YUI (http://developer.yahoo.com/yui/)
- MooTools (http://mootools.net/) - very compact, much smaller than the others
- Dojo (http://dojotoolkit.org/)
• Some good resources

• http://www.ibm.com/developerworks/views/xml/libraryview.jsp?search_by=XML+processing+in+Ajax