jQuery on Rails *(the real ones)*

by Jonathan Sharp

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timeless design for new media

The Challenge

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- Rapid web based application development
- Support multiple server side technologies
- Easy integration of enterprise data
- Additionally Provide
  - Consistent user experience across all applications
  - Migrate existing applications
  - Low cost upgrades

The Scope

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- Multiple frameworks: Wicket, Struts, JSF, ColdFusion, Servlets
- Developers
  - 450+ developers (primarily Java)
  - Basic HTML, CSS & JS
  - Geographically dispersed
- Limited Human Factors resources

Outline

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- Multiple Frameworks
- Rapid Prototyping
- Enterprise Data

Audience Survey

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- jQuery Experience?
  - Beginner
  - Intermediate
  - Advanced

The Approaches

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- Server Side
  - Consolidate on a single server side framework
  - XML post processing
  - Client side library

Existing Tools

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- Existing Frameworks
  - ExtJS
  - Dojo
  - Prototype/Scriptaculous
  - jQuery
  - Tibco GI
  - GWT

Tool Evaluation Criteria

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- Developer interface API / education
- Legacy application migration
- Performance
- File size
- Licensing
- Browser support

The Developer Interface

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- We put a lot of emphasis on this
- Developer demographics / skill sets
- Application development workflow
  - Human Factors / Usability Studies
  - Implementation team

Jumping In

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- We selected jQuery
- Created a developer centric interface
- Just include & use - short learning curve
- Component driven

The Component

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- A component encompasses:
  - XHTML Markup
  - Behavior
  - Enterprise data
- Simple XHTML interface
- Advanced developer interface

Semantic Markup

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- Developers insert the following XHTML:

```
<div class="groupbox">
    <h2>My Groupbox Title</h2>
    <!-- Groupbox contents -->
</div>
```

Rendered Markup

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- Component renders:

```
<div class="groupbox">
    <div><div class="groupboxTitle">
        My Groupbox Title
    </div></div>
    <div class="groupboxContent">
        <!-- Groupbox contents -->
    </div>
    <div>...</div>
</div>
```

Alternate Markup Style

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- Developers insert the following XHTML:

```
<div class="groupbox"
     spk:title="My Groupbox Title">
     <!-- Groupbox contents -->
 </div>
```

The Architecture

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- Versioning
- Build Process
- Publishing Releases
- Technical Considerations
- Development Environment

Versioning

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- <Product Version>.<major>.<minor>
  - Example: 2.1.4, 2.2.4
- Major & Minor Releases
  - Major release requires an application change & may break backwards compatibility, url change
  - Minor releases are transparent to applications, no url change

URL Versioning

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- Minor release

  2.1.5 /product/2.1/product.js

  2.1.6 /product/2.1/product.js

- Major release

  2.2.3 /product/2.2/product.js

Build Process

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- Apache Ant build.xml
- JS Lint
- YUI Compressor (JS & CSS)
- PNG Crush

Technical Considerations

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- File size / load impact
  - JS pack vs. min
  - Caching
- XHTML Transitional doctype
- Require JavaScript to be enabled
  - Browser support: IE6+, FF2+, Safari

Development Environment

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- Firefox / Firebug
- IE & script debugging
- SVN for source versioning
- J2EE servlets for Ajax calls (WebLogic)

The Component

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- Identified by CSS class
  - `<div class="component"></div>`
- Component initializes on page load
  - Initialization may also occur by calling `Project.init('#id')`

Custom Attributes & Namespace

- Developed using namespaced attributes
  - `<div spk:attr="value">`
- HTML5 provides “data” attributes
  - `<div data-attr="value">`

Developer API & Interface

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- Basic
  - XHTML Only, no need to write JavaScript
- Advanced
  - Add additional behavior with JavaScript

Developer API & Interface

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- `<div id="gb" class="groupbox">`
-
```
$('#gb')
    .bind('groupboxExpand', function() {
        alert('Groupbox expanded!');
    });
```

Unobtrusive JavaScript

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- Behavioral separation
  - `<div onclick="..."></div>`
  - `<div id="component"></div>`
  - `$('#component').bind('click', function() {`
    `...`
    `});`
- Progressive rendering
  - `<div class="groupbox">`
    `<h1>Groupbox Title</h1>`
    `...`
    `</div>`

The Life of a Page

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- HTTP Request is made for page
  - Page requests /spike/2.1/spike.css
  - Page requests /spike/2.1/spike.js

The Event Cycle

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- jQuery `$(document).ready(callback)` is executed
  - Trigger user space “before” ready event
  - Component initialization
    - Transform the DOM
    - Add behaviors
  - Trigger user space ready event

Components In Action

- Application Template
- Groupbox
- Tooltip

Outline

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- Multiple Frameworks
- Rapid Prototyping
- Enterprise Data

Prototyping The UI

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- Increasing Productivity
  - Workflow
    - Requirements
    - Prototype interface
    - Implementation
- Cost of making changes is low
- Developers focus on areas of expertise

Prototyping The UI

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- Initial Human Factors prototype
  - Usability study / customer review
- Handoff to application team for implementation
- Reuse XHTML with Wicket, ColdFusion, etc.

Outline

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Enterprise Data

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- UI team develops JSON servlets that talk to XMF/ESB web services (SOA architecture)
- Application teams gain benefits without having to add JAR's or 3rd party components
- Client side becomes point of aggregation

Data Caching / Offline

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- Distribute data to the client
- Take advantage of tools such as Google Gears for client side caching
- Increases client side performance, distribution of load

Performance Tips

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- DOM Manipulation
  - Consider DOM DocumentFragment http://ejohn.org/blog/dom-documentfragments/
  - Cache Node References
  - Take advantage of the `jQuery.data()` function to solve expando issues
- `$('#myID').data('rows', row1,row2,...,n]);`

Performance Tips

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- Tune jQuery Selectors
- Late event binding
  - Bind click event using mouseover event
- Use event delegation

Dynamic Transformations

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- On DOM Insert / Update events
- Dynamically initialize components

The UI With Canvas

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- Move towards rendering components using Canvas
- MooTools - Mocha UI
  http://mochaui.com/demo/

Audience Response

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- Questions ?

Thank you!

Links & Additional Resources
`http://outwestmedia.com/TAE/`

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