
Developing with HTML5

Lachlan Hunt

2007-08-03



WHATWG

The Web Hypertext Application Technology Working Group

WHATWG Goals

- Document real-world browser behaviour
 - Document and standardise useful extensions
 - Develop practical new features
 - Ensure backwards compatibility
 - Define robust error handling
-

Design Principles

- Foundation of Design and Development
 - Organised into 3 Categories
 - Compatibility
 - Utility
 - Interoperability
-

Design Principles: Compatibility

- Support Existing Content
 - Degrade Gracefully
 - Don't Reinvent the Wheel
 - Pave the Cowpaths
 - Evolution, not Revolution
-

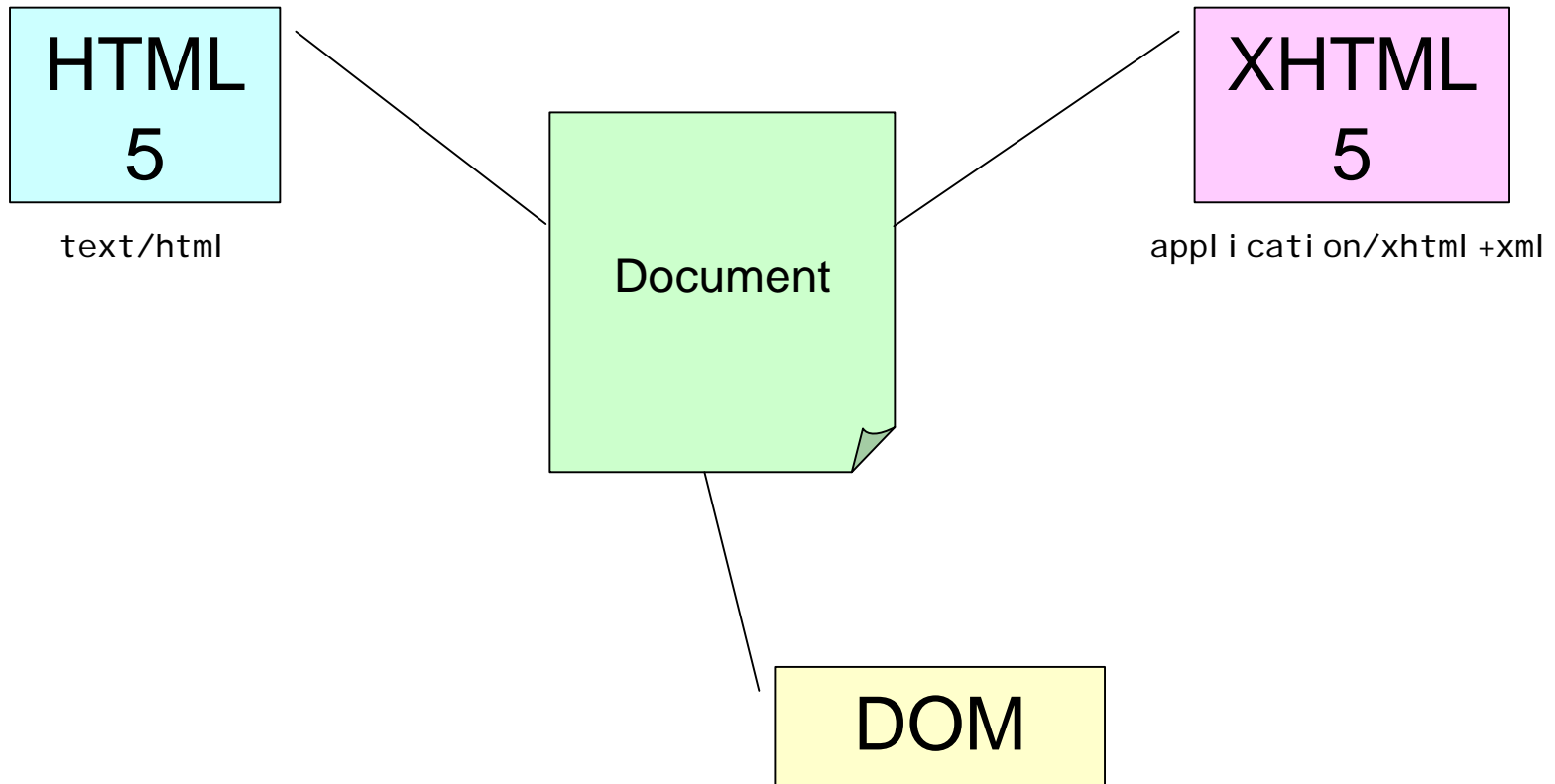
Design Principles: Utility

- Solve Real Problems
 - Priority of Constituencies
 - Media Independence
 - Universal Access
 - Support World Languages
 - Secure By Design
 - Separation of Concerns
-

Design Principles: Interoperability

- Well-Defined Behaviour
 - Avoid Needless Complexity
 - Handle Errors
-

Document Representations



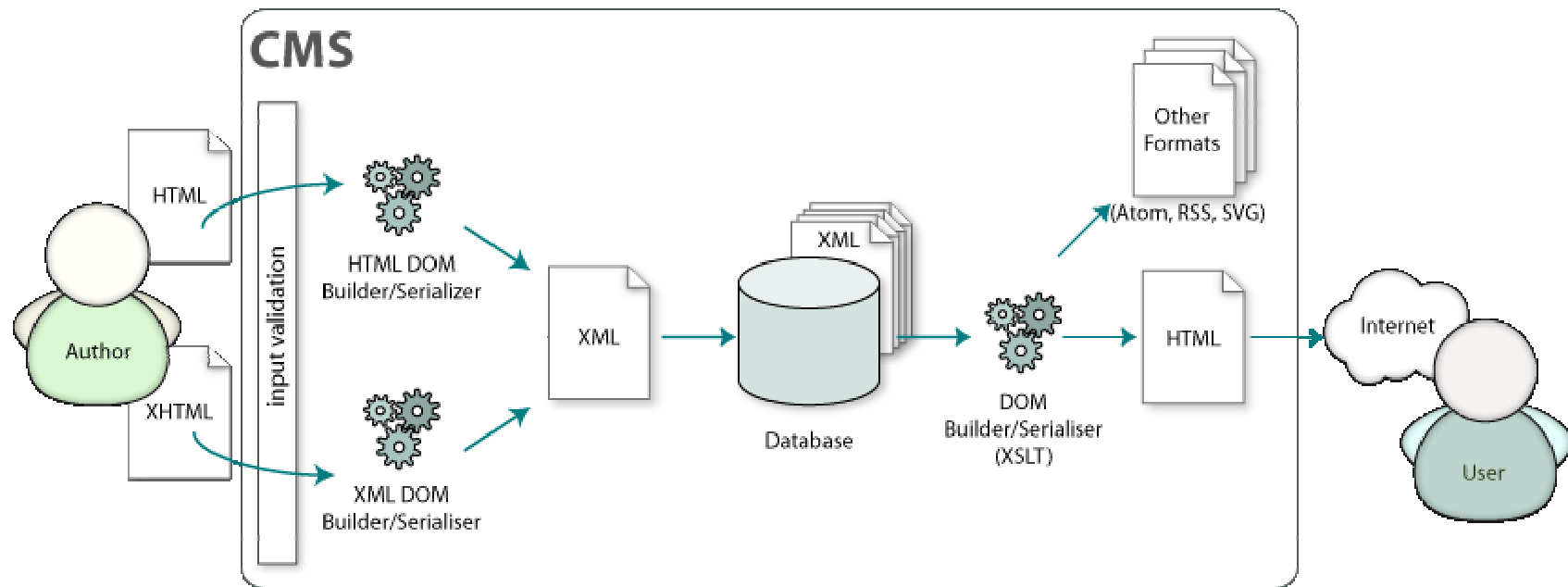
Benefits of HTML

- Backwards compatible with legacy UAs
 - Author familiarity
 - Lenient and forgiving syntax
 - No User-Hostile Yellow Screen of Death!
 - Convenient shorthand syntax
 - Can omit some tags and attribute values
-

Benefits of XHTML

- Strict XML Syntax
 - Integrate directly with other XML vocabularies
 - SVG, MathML
 - Use XML Processing
-

Using HTML and XHTML Together

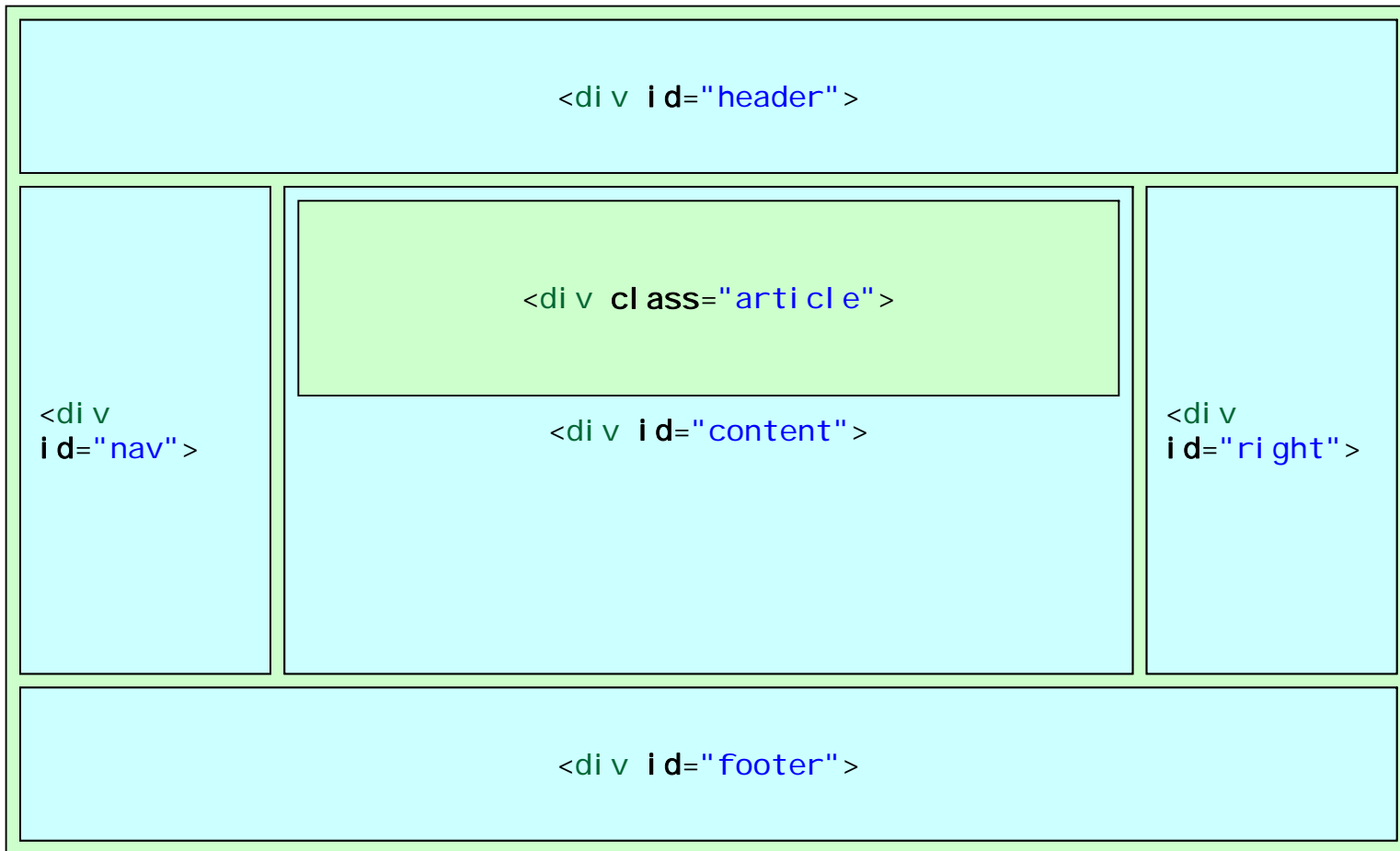


Overview of Enhancements

- Structure and Semantics
 - Embedded Content and Multimedia
 - DOM APIs
 - Forms
 - Repetition Model
-

Structure and Semantics

Structure



Dates and Times

- Microformats datetime-design-pattern

- `<abbr class="datetime" title="2007-08-02T23:30Z">`
Fri, Aug 03 2007 at 09:30
`</abbr>`

- Misusing the `abbr` element

- Accessibility Issues

Dates and Times

- The `time` Element

- `<time datetime="2007-08-02T23:30Z">`
Fri, Aug 03 2007 at 09:30
`</time>`

- Solves Accessibility Issue

- Can be used in Microformats like hCalendar

Meter

- Representing scalar measurements or fractional values
 - Useful for:
 - User Ratings (e.g. YouTube Videos)
 - Search Result Relevance
 - Disk Quota Usage
-

Using Meter

Rating: 

- `<meter>60%</meter>`
- `<meter>3/5</meter>`
- `<meter>6 blocks used
(out of 10 total)</meter>`
- `<meter value="0.6">Medium</meter>`

Progress

- Show completion progress of a task
 - Progress bars are widely used in other applications
 - Works with scripted applications
 - Useful for:
 - Indicate loading progress of an AJAX application
 - Show user progress through a series of forms
 - Making impatient users wait
-

Using Progress



- `<progress>Step 3 of 6</progress>`
- `<progress>50% Complete</progress>`
- `<progress value="0.5">`
 Half way!
`</progress>`

M

- Marked or Highlighted text
 - Not to be confused with ``
 - Indicates point of interest or relevance
 - Useful for:
 - Highlighting relevant code in a code sample
 - Highlighting search keywords in a document (e.g. in Google Cache)
-

Using M

The highlighted part below is where the error lies:

```
var i: Integer;  
begin  
    i := 1.1;  
end.
```

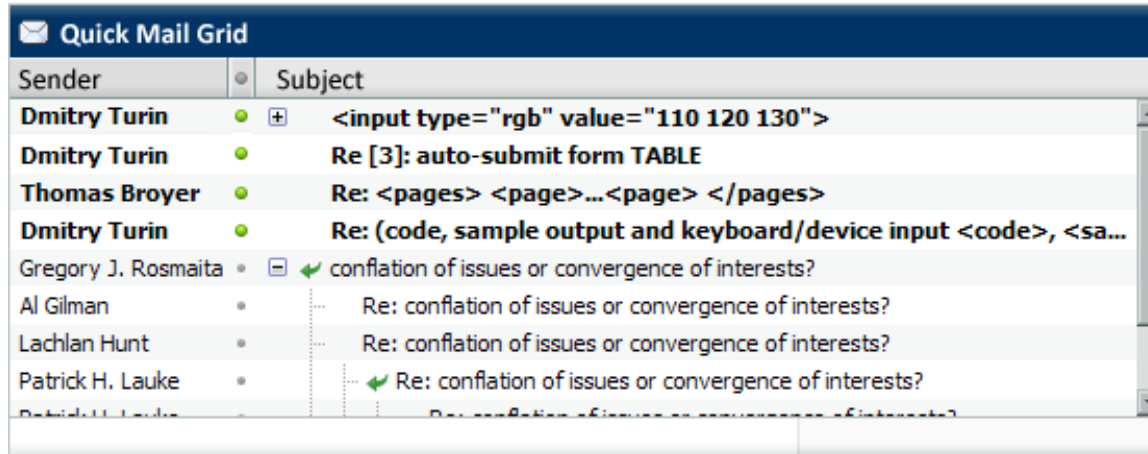
- The highlighted part below is where the error lies:

```
var i: Integer;  
begin  
    i := 1.1;  
end.
```

Datagrid

- Interactive tree, list or tabular data
 - Extensive DOM API
 - Allows User Input
 - Editing
 - Sorting
 - Useful for:
 - File or folder lists
 - Web mail applications
-

Using Datagrid



Sender	Subject
Dmitry Turin	<input type="rgb" value="110 120 130">
Dmitry Turin	Re [3]: auto-submit form TABLE
Thomas Broyer	Re: <pages> <page>...<page> </pages>
Dmitry Turin	Re: (code, sample output and keyboard/device input <code>, <sa...
Gregory J. Rosmaita	conflation of issues or convergence of interests?
Al Gilman	Re: conflation of issues or convergence of interests?
Lachlan Hunt	Re: conflation of issues or convergence of interests?
Patrick H. Lauke	Re: conflation of issues or convergence of interests?
Patrick H. Lauke	Re: conflation of issues or convergence of interests?

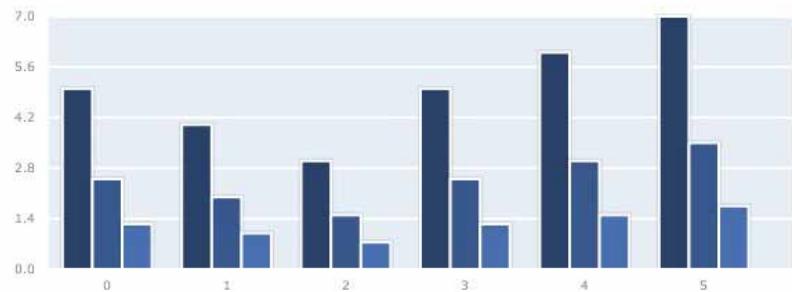
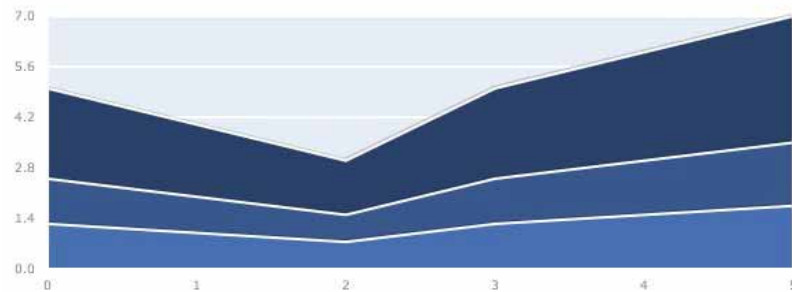
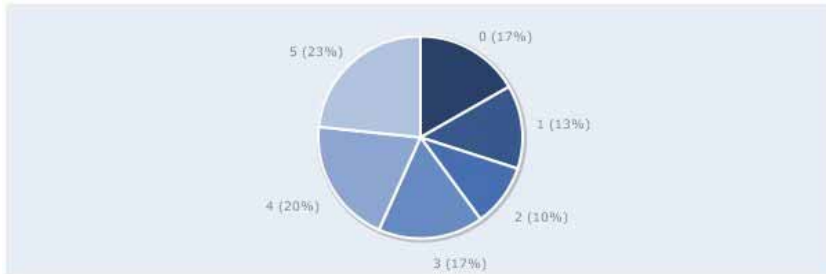
- `<datagrid>`
 `<table>`
 `<!-- Insert tabular data here... -->`
 `</table>`
`</datagrid>`

Embedded Content and Multimedia

Canvas

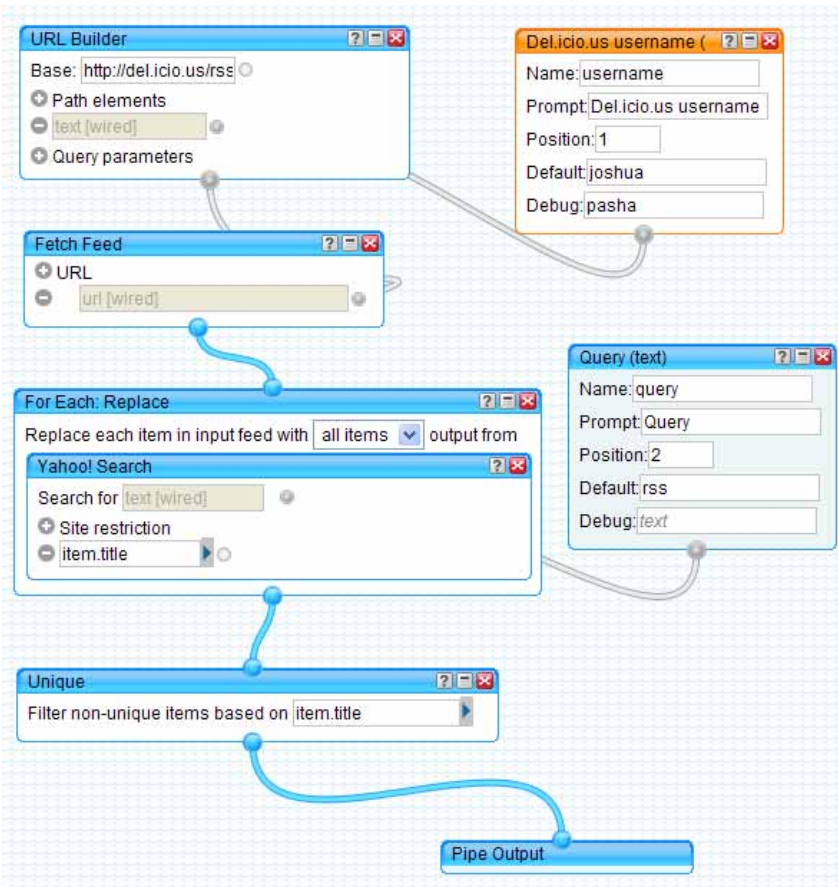
- Dynamic and interactive graphics
 - Draw images using 2D drawing API
 - Lines, curves, shapes, fills, etc.
 - Useful for:
 - Graphs
 - Applications
 - Games and Puzzles
 - And more...
-

Canvas Examples: Graphs



- PlotKit
- <http://www.liquidx.net/plotkit/>
- JavaScript library
- Draws graphs from any data source, such as a table

Canvas Examples: Applications



- Yahoo! Pipes
- <http://pipes.yahoo.com/>
- Interactive, drag and drop interface

Canvas Examples: Applications



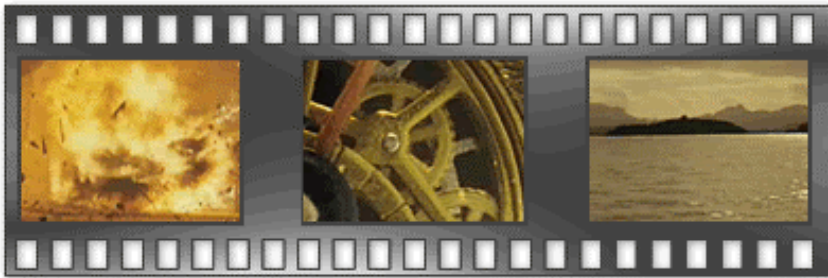
- CanvasPaint
- <http://canvaspaint.org/>
- Clone of MS Paint built with Canvas
- Could be used to build a Shared Whiteboard application

Canvas Examples: Games



- Canvex
- <http://canvex.lazyilluminati.com/>
- Experimental First-Person Shooter Game
- 3D Graphics

Video and Audio



- Videos have become very popular
- Currently difficult to embed videos in HTML
- Flash has become the de facto standard
- Adding native support to browsers

Using Video



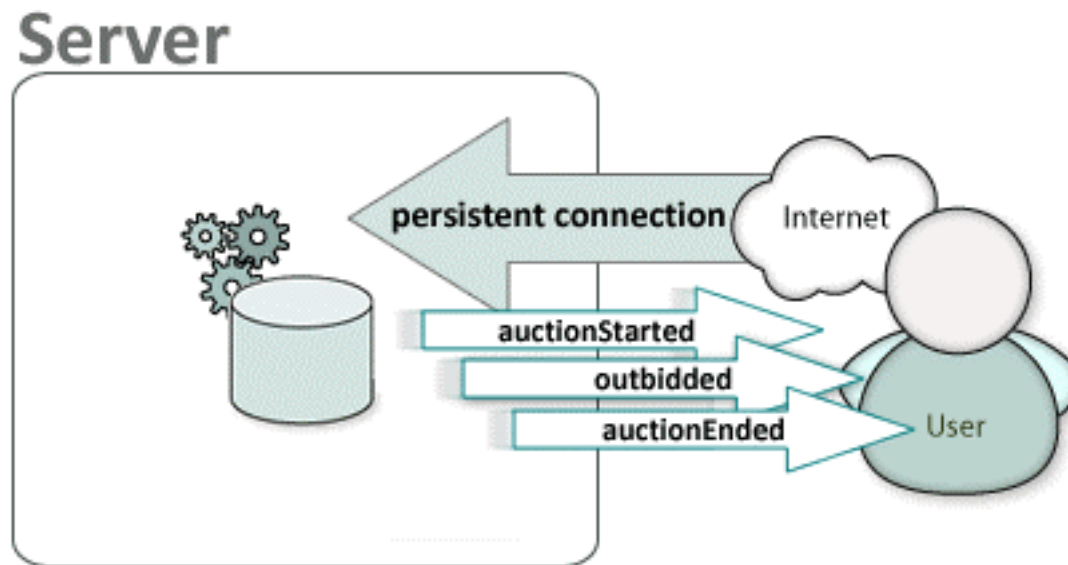
- `<video src="movie.ogg" id="video">... </video>`
- `<button onclick="video.play();" > Play </button>`

DOM APIs

Server-Sent Events

- Allows immediate update notification from server to client
 - Send any arbitrary data to the client, intended to be processed by a script
 - Update content without reloading page
 - Useful for:
 - Real-time chat or gaming
 - Stock ticker updates
-

Server-Sent Events



Forms

Form Controls

- HTML 4 controls are too limited
 - Several new types added
-

Form Controls: Dates and Times

The image shows a date and time picker control. At the top, there are two input fields: the first contains '2007-03-07' and the second contains '13:15'. To the right of these fields is a dropdown menu set to 'UTC'. Below these fields is a calendar for the month of March 2007. The calendar shows a grid of days from Monday to Sunday. The date '7' is highlighted with a mouse cursor. At the bottom of the calendar, there are two buttons: 'Today' and 'None'.

- `<input type="datetime" >`
- `<input type="date" >`
- `<input type="time" >`
- And more...

Form Controls: Numbers

- `<input type="number">`
- `<input type="range">`

Form Controls: Email and URIs

lachlan.hunt@lachy.id.au

http://lachy.id.au

<http://lachy.id.au/>

Lachlan Hunt: Web Development Guru

<http://lachy.id.au/log/>

Lachy's Log

- `<input type="email" >`
- `<input type="url" >`

Form Controls: Combo Boxes

Title: Dr

Mr
Mrs
Miss
Ms

- `<input list="title-list">`
`<datalist id="title-list">`
 `<option value="...">`
`</datalist>`

Form Validation

- New attributes to describe validity constraints for the expected input
 - required, pattern, min, max, etc.
 - New DOM APIs allow scripts to detect and deal with user input errors more easily
-

Repetition Model

Repetition Model

- Allows client side processing to repeat sections based on templates
 - Traditionally required scripts or server side interaction to add additional sections
 - Useful for:
 - Adding multiple players to a game
 - Adding multiple, alternative contact details (e.g. home phone, work phone, mobile phone, etc.)
-

Using the Repetition Model

```
<tr id="member" repeat="template" repeat-start="2">  
  <td><input type="text" name="member[member].rank"></td>  
  <td><input type="text" name="member[member].name"></td>  
  <td><button type="remove">Remove</button></td>  
</tr>
```

```
<tr repeat-template="member" repeat="1">  
  <td><input type="text" name="member1.rank"></td>  
  <td><input type="text" name="member1.name"></td>  
  <td><button type="remove">Remove</button></td>  
</tr>
```

```
<tr id="member" repeat="template" repeat-start="2">  
  <td><input type="text" name="member[member].rank"></td>  
  <td><input type="text" name="member[member].name"></td>  
  <td><button type="remove">Remove</button></td>  
</tr>
```

```
<button type="add" template="member">Add Team Member</button>
```

Any Questions or Comments?

Lachlan Hunt

<http://lachy.id.au/>

<http://whatwg.org/>

<http://www.w3.org/html/>