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HTML5 and the dawn of rich mobile web applications
Everything I know about HTML5 I learned from

THE INCREDIBLES
IN THEATERS 11.5.04
How Mobile Rolls
2008
We must have an iPhone App!
**Can The One Have Fun?**
What a relief to have an urbane, cultivated, curious president who’s out and about, engaged in the world.

**Brainy Echidna Proves Looks Aren’t Everything**
The long-beaked echidna is one of the oldest, rarest, shiest, silliest-lookin...

**Smartphone Rises Fast From Gadget to Necessity**
The increasing popularity of BlackBerrys, iPhones and their kin...

**Neighbor, Can You Spare a Plum?**
The underground fruit economy is growing, based on two principles...
2010
We must have an Android App!
2011
omfg
Top U.S. Smartphone Platforms, 3 Month Average Ending December 2010
comScore MobiLens 2010
Top EU5 Smartphone Platforms,
3 Month Average Ending December 2010
comScore MobiLens 2010

launch red bird

you missed

launch another red bird, slightly softer

you hit an ice thing and knocked over a wood block
Device diversity
App Stores

Updates
The Promise of Web Technologies
The Web

Cross-platform
Familiar skills & tools
Decentralized
Easily updated
Indexed
Well-understood
...

Mobile: the next era of the web as we know it
The mobile web is not a 320px web
We CREATE beautiful websites, PUBLISH our best ideas, and SPEAK to a worldwide community. Find out more ABOUT us.

Happy Cog Hosting
is in LIMITED PUBLIC BETA for invited participants only.

Industrial-grade LAMP stack hosting. It's high-touch, white glove, VIP service for people who hate dealing with hosting. All for $799/month.

(press enter to continue)
Need to Talk?

If you need to speak to someone at Happy Cog before starting the Project Planner, send us your contact details and we’ll call you back pronto.

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Email *

Phone

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New York, NY 10016

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Founder & Executive Creative Director

Philadelphia
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Greg Hoy
President, Happy Cog East

San Francisco

Happy Cog carefully reviews every Project Planner we receive and follows up within two weeks (often much sooner) to determine next steps.

Get Started With Your Project Planner

To get started solving your web problems, download the Happy Cog Project Planner, complete it to the best of your ability, and e-mail it to the address shown inside the package.

Download the Planner »
The Web

Cross-platform
Familiar skills & tools
Decentralized
Easily updated
Indexed
Well-understood
...

But wait! Weren't we talking about apps?
Hypothesis:

Web technologies are a viable alternative to native development
The Web is Evolving...

- Documents
- Declarative HTML
- Templates
- URLs
- Request/Response
- Thin client

- Applications
- Programmatic DOM
- APIs
- Arguments
- Synchronization
- Thick client
this is uncanny
A New Mobile App Stack

Device Access
- Camera
- Location
- Contacts
- SMS
- Orientation
- Gyro

WebFonts  Video  Audio  Graphics

CSS Styling & Layout

Javascript

Semantic HTML

File Systems  DBs  App Cache

Worker Parallel Processing

x-App Messaging

Server & Services
- HTTP
- AJAX
- Events
- Sockets
- SSL
- More...
Rich Media & Styling
Full Resource Access
Parallel Processing
Inter-App Communication
Full Offline Capability
COMPLETE MODERN APP PLATFORM
Web technologies are a viable alternative to native development.
Caveats?

Performance

Browser support

Device access

Discoverability

Monetization

App ‘experience’

All less of an issue than you might think
Progressive enhancement
JS

CSS

app

progressive enhancement

doc

assumption

HTML

VS

app

assumption

HTML

JS

CSS
State of the Art:
Mobile HTML5
Environments

- NOKIA
- BlackBerry
- Apple
- Android
- HP
- Palm
- Microsoft
Browsers

WebKit

FOEs
HTML5 support

@font-face
Canvas
HTML5 Audio & Video
go(), hsla()
border-image:
border-radius:
box-shadow:
text-shadow:
opacity:
Multiple backgrounds
Flexible Box Model
CSS Animations
CSS Columns
CSS Gradients
CSS Reflections
CSS 2D Transforms
CSS 3D Transforms
CSS Transitions
Geolocation API
local/sessionStorage
SVG/SVG Clipping
SMIL
Inline SVG
Drag and Drop
hashchange
X-window Messaging
History Management
applicationCache
Web Sockets
Web Workers
Web SQL Database
WebGL
IndexedDB
Stay on top of diversity

Can I Use?
http://caniuse.com

Modernizr
http://modernizr.com

DeviceAtlas
http://deviceatlas.com
Enter The Framework
Why use a framework?

Provide user interface components

Smooth browser inconsistencies

Mimic native or server paradigms

Create consistent application architectures

...and more
Strokes for folks

Sites & Documents  Applications
Declarative HTML  Programmatic DOM
Templates  APIs
URLs  Arguments
Request/Response  Synchronization
Thin client  Thick client

JQTouch  jQuery  Sencha
jQTouch

UI layer on top of jQuery
Declarative HTML
Library progressively enhances Browsers:
- iOS (iPhone/iPod)
- Android
- BlackBerry v6
- Most WebKit-based browsers

http://jQTouch.com
jQTouch

```html
<!DOCTYPE html>
<html>
  <head>
    <title>jQTouch</title>
    <script src="jq.js"></script>
    <script src="jqt.js"></script>
    <link rel="stylesheet" href="jqt.css" />
    <link rel="stylesheet" href="jqt-theme.css" />

    <script type="text/javascript" charset="utf-8">
      var jQT = new $.jQTouch({});
    </script>
  </head>
  <body>
    <div id="home">
      <div class="toolbar">
        <h1>Hello World</h1>
      </div>
      <ul class="rounded">
        <li class="arrow"><a href="/na.html">North America</a></li>
        <li class="arrow"><a href="/sa.html">South America</a></li>
        <li class="arrow"><a href="/eu.html">Europe</a></li>
        <li class="forward"><a href="/other.html">Other</a></li>
      </ul>
    </div>
  </body>
</html>
```

Scripts & stylesheets

CSS classes for semantics & config
jQuery Mobile (alpha)

UI layer on top of jQuery
Declarative HTML
Library progressively enhances
Browsers:
  - iOS (iPhone/iPad)
  - Android
  - BlackBerry v5+
  - Symbian v5, MeeGo, webOS

http://jquerymobile.com
jQuery Mobile

```html
<!DOCTYPE html>
<html>
  <head>
    <title>jQuery Mobile</title>
    <script src="jq.js"></script>
    <script src="jqm.js"></script>
    <link rel="stylesheet" href="jqm.css" />
  </head>
  <body>
    <div data-role="page" id="home">

      <div data-role="header">
        <h1>Hello World</h1>
      </div>

      <div data-role="content">
        <ul data-role="listview" data-inset="true">
          <li data-role="list-divider">Continents</li>
          <li><a href="/na.html">North America</a></li>
          <li><a href="/sa.html">South America</a></li>
          <li><a href="/eu.html">Europe</a></li>
        </ul>
      </div>
    </div>
  </body>
</html>
```
Sencha Touch

Self-contained library
Programmatic Javascript
Standalone MVC applications

Browsers:
- iOS (iPhone/iPad)
- Android
- BlackBerry v6 & QNX
- Bada, MeeGo & other WebKit
- Windows Phone 7*

http://sencha.com/touch

* to come
Sencha Touch

```html
<!DOCTYPE html>
<html>
<head>
    <title>Sencha Touch</title>
    <script src="st.js"></script>
    <link rel="stylesheet" href="st.css" />
    <script type="text/javascript" charset="utf-8">
        new Ext.Application({
            launch: function() {
                Ext.regModel('Continent', {fields: ['name', 'link']});

                var continents = new Ext.data.Store({model: 'Continent',
                    data: [
                        {name: 'North America', link: 'na'},
                        {name: 'South America', link: 'sa'},
                        {name: 'Europe', link: 'eu'}
                    ]
                });

                new Ext.Panel({
                    fullscreen: true,
                    dockedItems: [
                        {xtype: 'toolbar', title: 'Hello World',
                            items: []
                        },
                        {xtype: 'list', itemTpl: '{name}', store: continents
                    ]
                });
            }
        });
    </script>
</head><body></body>
</html>
```
What’s in a good framework?

- Layouts & components
- Theming & icons
- Orientation & animation
- Touch events & scroller
- Data package
- MVC framework
Components

Lists
- Nested, Grouped, Sortable
Carousel
Picker
Overlay
Slider
Forms & fields
Toolbars & buttons
HTML5
- Audio
- Video
- GeoLocation
Theming

Use CSS3 & SASS
- Flexible themes
- Highly optimized
# Forms

## Personal Info

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name*</td>
<td>Johnny Appleseed</td>
</tr>
<tr>
<td>Password</td>
<td></td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:you@domain.com">you@domain.com</a></td>
</tr>
<tr>
<td>URL</td>
<td><a href="http://google.com">http://google.com</a></td>
</tr>
<tr>
<td>Cool</td>
<td></td>
</tr>
<tr>
<td>Birthday</td>
<td></td>
</tr>
<tr>
<td>Rank</td>
<td>Master</td>
</tr>
<tr>
<td>Bio</td>
<td></td>
</tr>
</tbody>
</table>

## Date Picker

<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>1</td>
<td>1991</td>
</tr>
<tr>
<td>February</td>
<td>2</td>
<td>1993</td>
</tr>
</tbody>
</table>

## Switch

<table>
<thead>
<tr>
<th>Value</th>
<th>Enable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Scrolling

Momentum/bounce physics

Hardware accelerated

Throughout all components:
- Lists
- Carousel
- Pickers
Touch Events

Built on native events

Abstracted for performance

Additional events
- Tap
- Double tap
- Tap and hold
- Swipe
- Rotate
- Drag & drop
Data Package

Models, Stores, and Proxies
- Associations
- Validation
- Local & server storage

Easily consume web services
- JSON/P
- XML
- YQL
“The Kitchen Sink”

http://sencha.com/x/5e
Implementing Mobile Web Sites | Apps
Evolving sites for mobile

Views

Controllers

Models

HTML, CSS...
Evolving sites for mobile

Switcher

Desktop

Mobile

Controllers

Models

HTML, CSS...
class ApplicationController < ActionController::Base
  has_mobile_fu
end

*.mobile.erb

is_mobile_device?
in_mobile_view?

https://github.com/brendanlim/mobile-fu
Smart detection & user choice

“Switch to our desktop site”
Hi! I'm a server! Who are you?

I'm a browser. I'd like to see this article.

Oh boy! I can help! Let me get it for you! Whoa! You're a smartphone browser?

Yeah.

Cool! Hey, I've got this new mobile version of my site! Check it out!

Sure, but this is just your mobile site's main page. Where's the article I wanted?

What article? The one I--

Hi! I'm a server!
Thematic consistency

http://mysite.com/posts/123

http://mysite.mobi/posts/123
Mobile switching

http://tinyurl.com/mobswi1  http://tinyurl.com/mobswi2
Then to an app...

Switchers

Desktop

Mobile

REST

Controllers

Models

JSON

Desktop

Mobile

REST

Controllers

Models
Thematic consistency

http://mysite.com/posts/123

http://mysite.com/#!/posts/123
The stack of the present

User interface
Business logic
Storage

req/res

Rendering
The stack of the future

Security
Storage

User interface
Business logic
Storage

sync

The return of the thick client!
Do we have time for some code?
Brand consistency
Getting help from the cloud

http://i.tinysrc.mobi/

http://mysite.com/myimage.png

http://tinysrc.net/
Mobile devices are different

Geolocation
Telephony
Camera
Messaging

And mobile users are different too!
Going Hybrid
A platform that allows you to author native applications with web technologies and get access to device APIs

http://phonegap.com
Full API list:

Accelerometer  File
Camera  Geolocation
Compass  Media
Contacts  Network
Device  Notification
Events  Storage

http://docs.phonegap.com

http://www.sencha.com/learn/
  Tutorial:Sencha_Touch_PhoneGap
PhoneGap Build

PhoneGap/build

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A word about app stores

(pssst: they’re an admission of defeat)
Doing mobile right

Everyone loves apps - but native development sucks

This is the year of the mobile web - but caveats apply

Web technologies *are* a viable alternative to native apps
Apps vs Web technology built with
James Pearce

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