

A Snapshot of the Mobile HTML5 Revolution

@jamespearce



The Pledge



Single device
Sedentary user
Declarative
Thin client
Documents

Multi device
Mobile* user
Imperative
Thick client
Applications

* or supine, or sedentary, or passive, or...



HTML



A badge for all these ways
the web is changing



HTML5 is a new version of HTML4, XHTML1, and DOM Level 2 HTML addressing many of the issues of those specifications while at the same time enhancing (X)HTML to more adequately address Web applications.

- WHATWG Wiki



WHATWG



What is an **Application**?



Consumption vs Creation?

Linkable?

User Experience?

Architecture?



Site

Web
sites

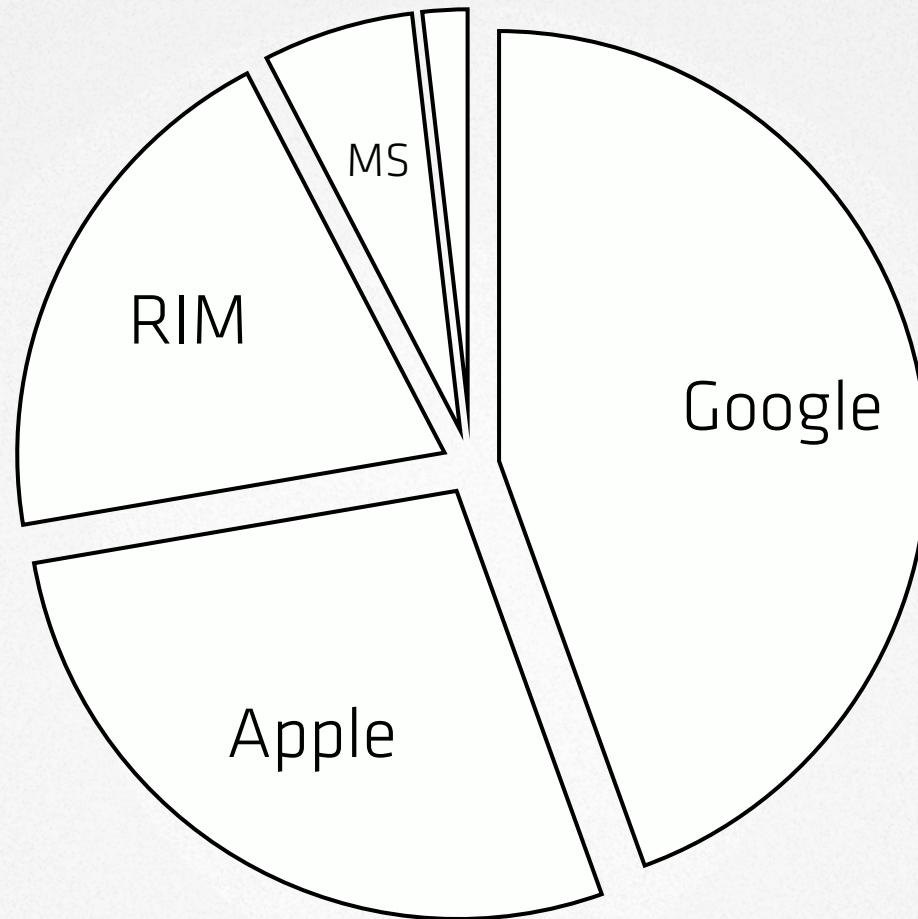
Web
apps

Native
apps

App

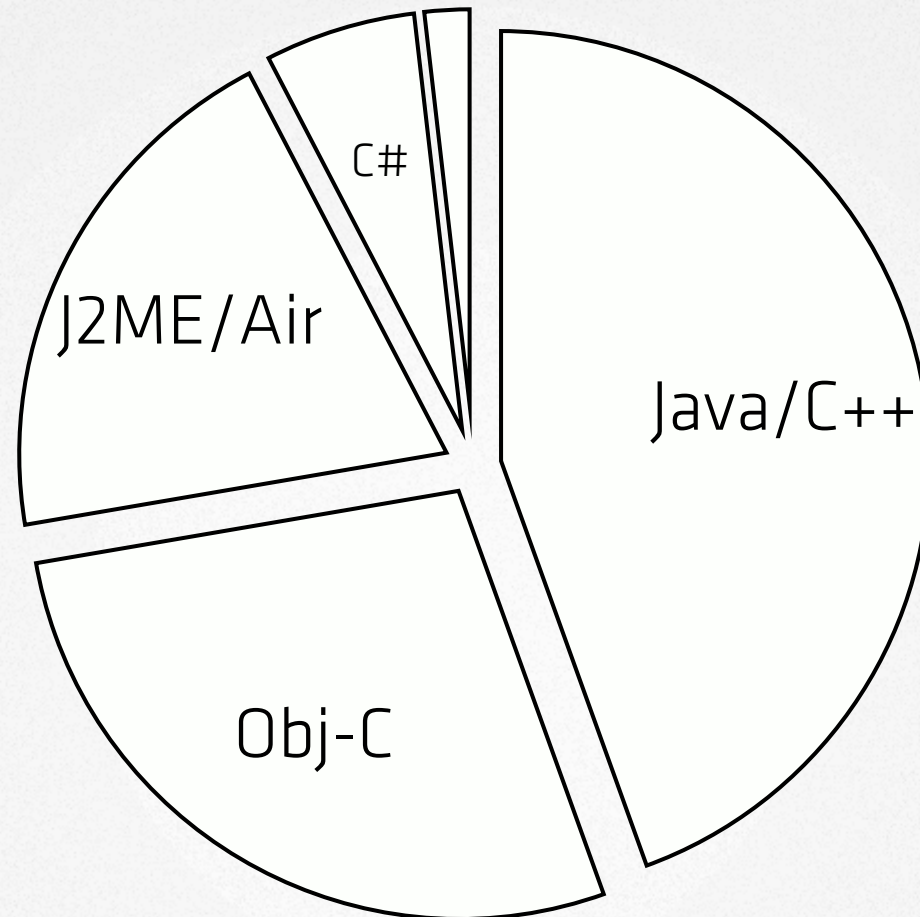
Nativeness





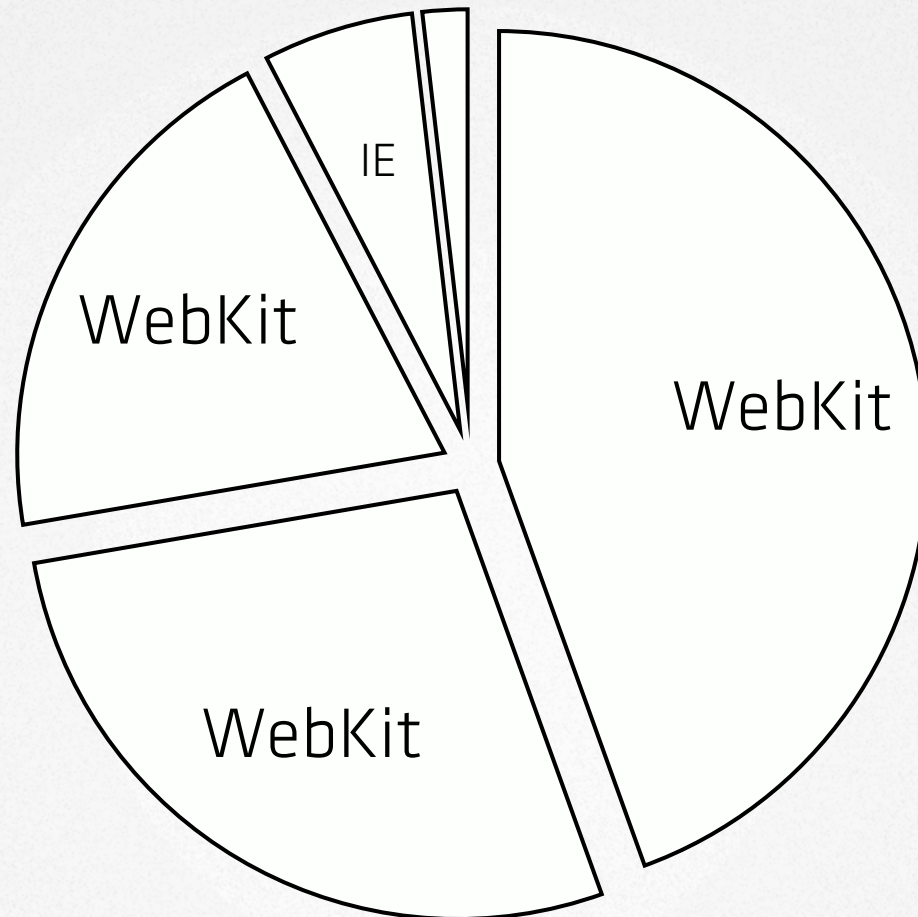
Top US Smartphone Platforms
August 2011, comScore MobiLens





Native programming languages you'll need
August 2011





Browser platforms to target
August 2011



There is **no** WebKit on Mobile

- @ppk



But at least we are using
one language,
one markup,
one style system

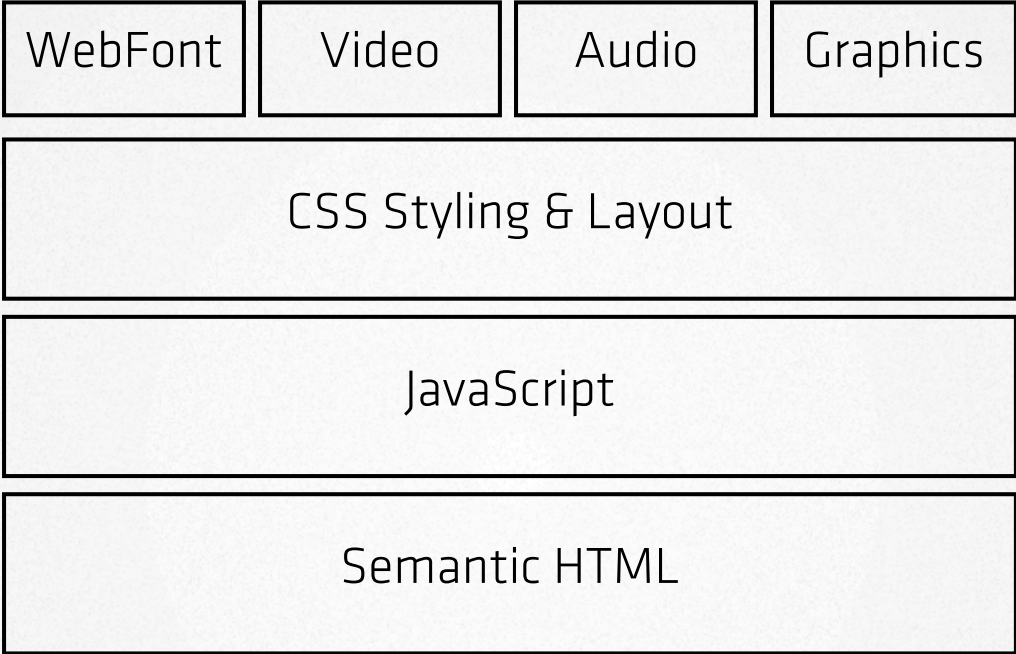


One Stack

HTML



- Camera
- Location
- Contacts
- SMS
- Orientation
- Gyro



- HTTP
- AJAX
- Events
- Sockets
- SSL





Carrier



3:10 PM



Quality Online Takeaways



Enter your postcode or town:

eg CV32 5QZ

Go!

or hit 'Go' for a demo



The Turn



	IE	Chrome	Safari	Firefox	iOS	BBX	Android
@font-face							
Canvas							
HTML5 Audio & Video							
rgba(), 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>

Web Storage - name/value pairs - Working Draft

Method of storing data locally like cookies, but for larger amounts of data (sessionStorage and localStorage, used to fall under HTML5).

Resources: [Gecko reference](#) [Support library](#) [Simple demo](#)

	IE	Firefox	Safari	Opera
Two versions back	6.0	3.0	3.2	7.0
Previous version	7.0	3.5	4.0	8.0
Current	8.0	3.6	5.0	9.0
Near Future (early 2011)	8.0	4.0	5.0	10.0
Future (mid/late 2011)	9.0	5.0	6.0	11.0

Global user stats*

Support:	79.38%
Partial support:	1.8%
Total:	81.18%

HTC Nexus One



Beta Properties
Device Name
Streaming
Hardware
Video Player
Environment
DRM
Network Protocols
Web Browser
JavaVM
Audio Player
User Agent Strings

Device Name	Device Vendor	HTC
	Device Model	Nexus One
	Year Released	2010
Hardware		
	Mobile Device	True
	Screen Width	480
	Screen Height	800
	Screen Color Depth	8
	version	-
	Touch Screen	True
	Is EReader	False
	Is Games Console	False
	Is Mobile Phone	True
	Is Tablet	False
Environment		
	OS Symbian	False
	OS Linux	True
	OS Android	True
	OS Windows	False
	OS Rim	False
	OS Osx	False
	OS Proprietary	-
	OS Version	2.2
	Developer Platform	Android
	Developer Platform Version	-
	OS Bada	False

Streaming
Streaming
Streaming
Streaming
Streaming
Streaming
Video Play

MP4 H.264 Level 13 True
MP4 AAC LC True

- @font-face ✓
- Canvas ✓
- Canvas Text ✓
- HTML5 Audio ✓
- HTML5 Video ✓
- rgba() ✓
- 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 ✓
- localStorage ✓
- sessionStorage ✓
- SVG ✓
- SMIL ✓
- SVG Clipping ✓
- Inline SVG ✓
- Drag and Drop ✓
- hashchange ✓
- X-window Messaging ✓
- History Management ✓
- applicationCache ✓
- Touch events
- Web Sockets ✓
- Web Workers ✓
- Web SQL Database ✓
- WebGL ✓
- IndexedDB
- Input Types†
- Input Attributes‡

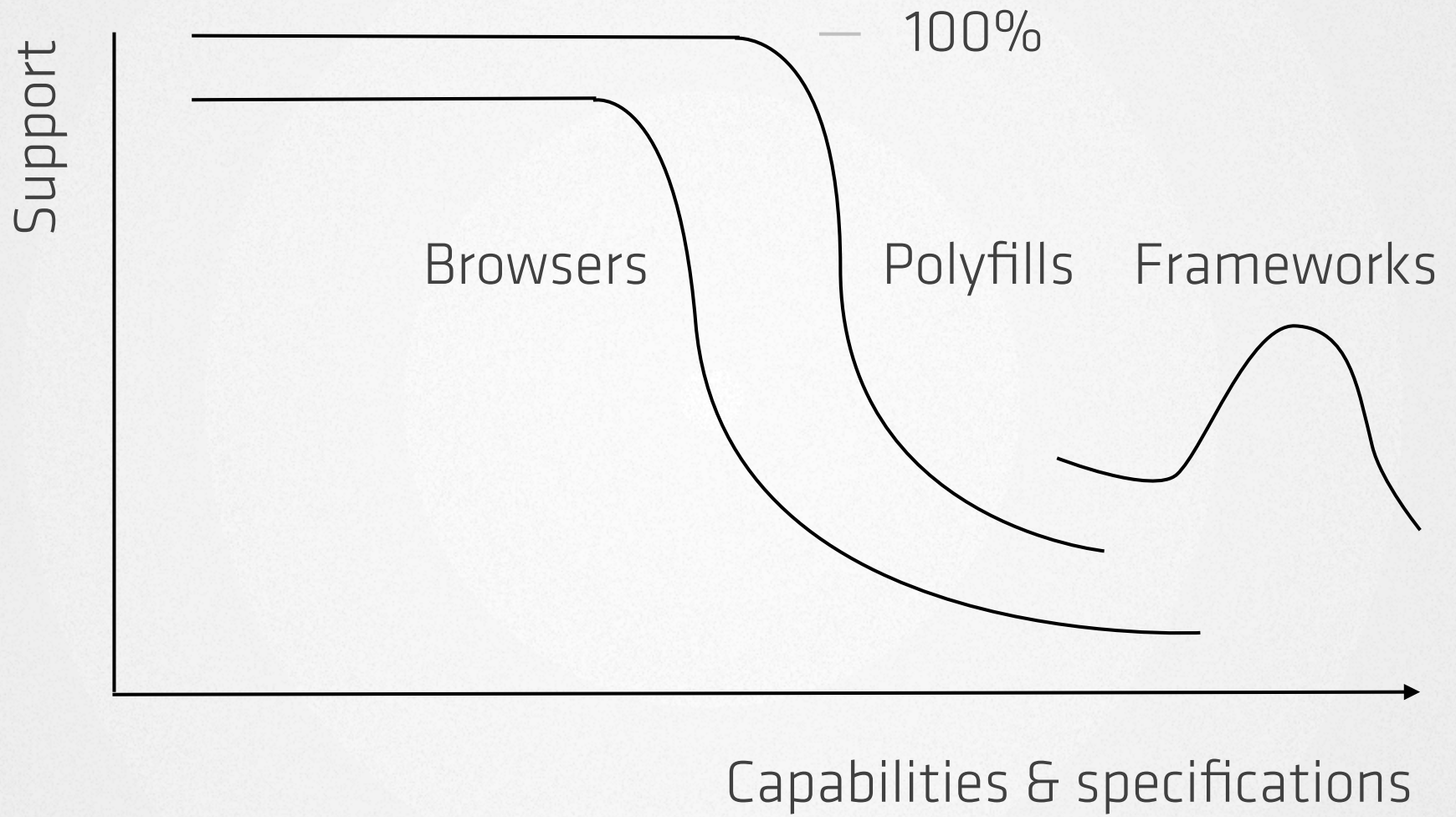
Support

100%

Browsers

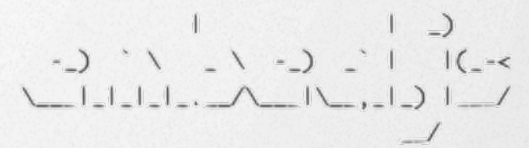
Capabilities & specifications





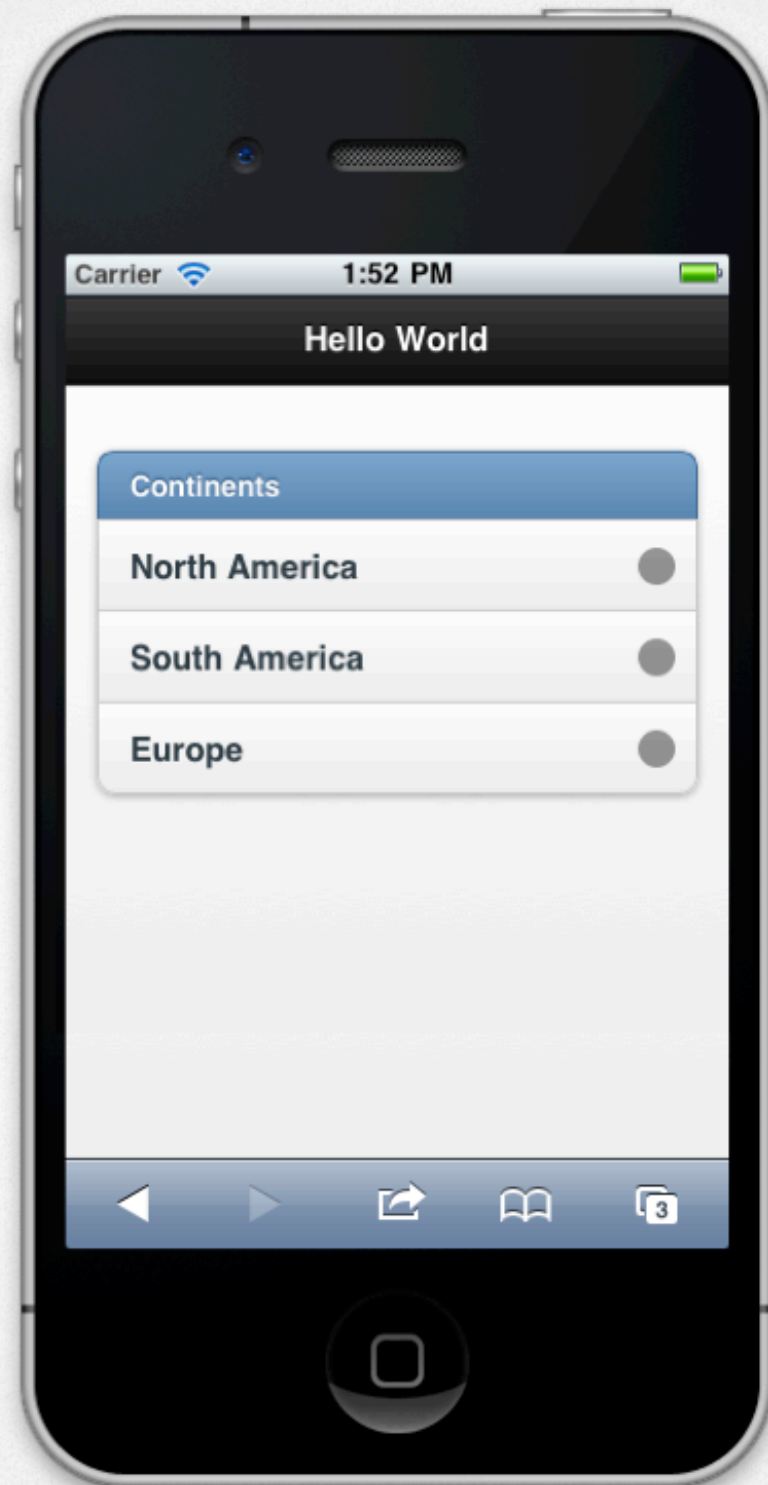


xui




```
<!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>
```



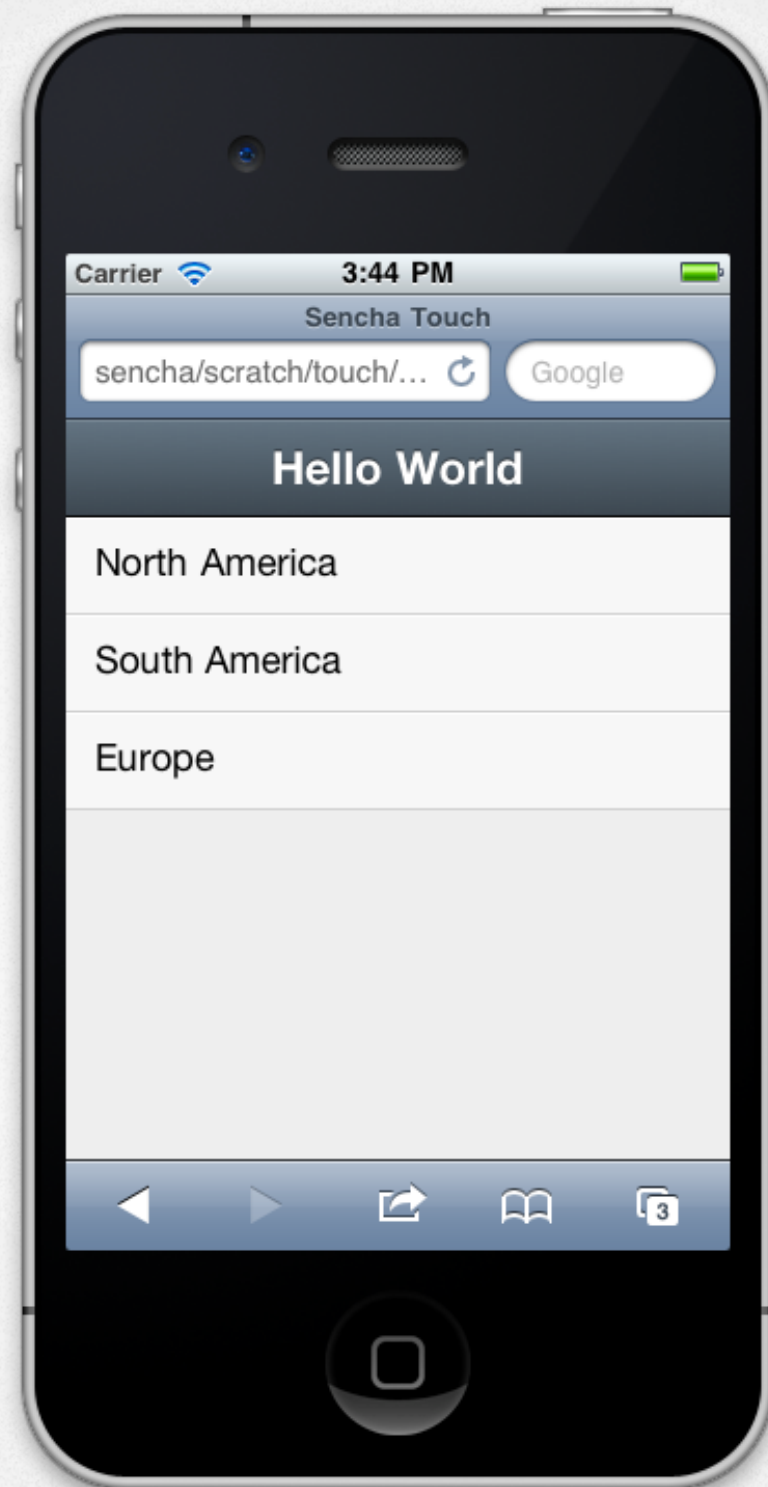


```
<!DOCTYPE html>
<html>
  <head>
    <title>Sencha Touch</title>
    <script src="st.js"></script>
    <link rel="stylesheet" href="st.css" />
    <script type="text/javascript" charset="utf-8">

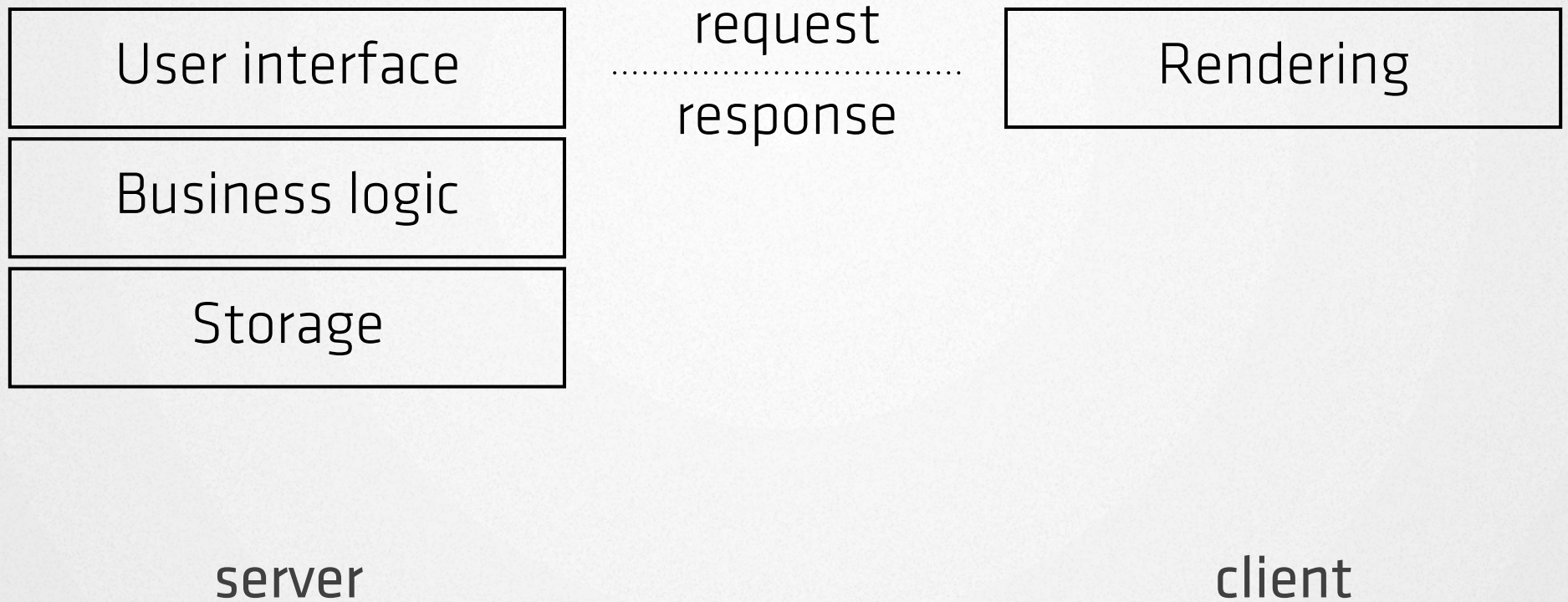
      new Ext.Application({
        launch: function() {
          var continents = new Ext.data.Store({
            model: Ext.regModel('', {fields: ['name', 'link']}),
            data: [
              {name: 'North America', link: 'na'},
              {name: 'South America', link: 'sa'},
              {name: 'Europe', link: 'eu'}
            ]
          });
          new Ext.Panel({
            fullscreen: true,
            dockedItems: [{
              xtype: 'toolbar', title: 'Hello World',
            }],
            items: [{
              xtype: 'list', store: continents, itemTpl: '{name}'
            }]
          });
        }
      });

    </script>
  </head><body></body>
</html>
```

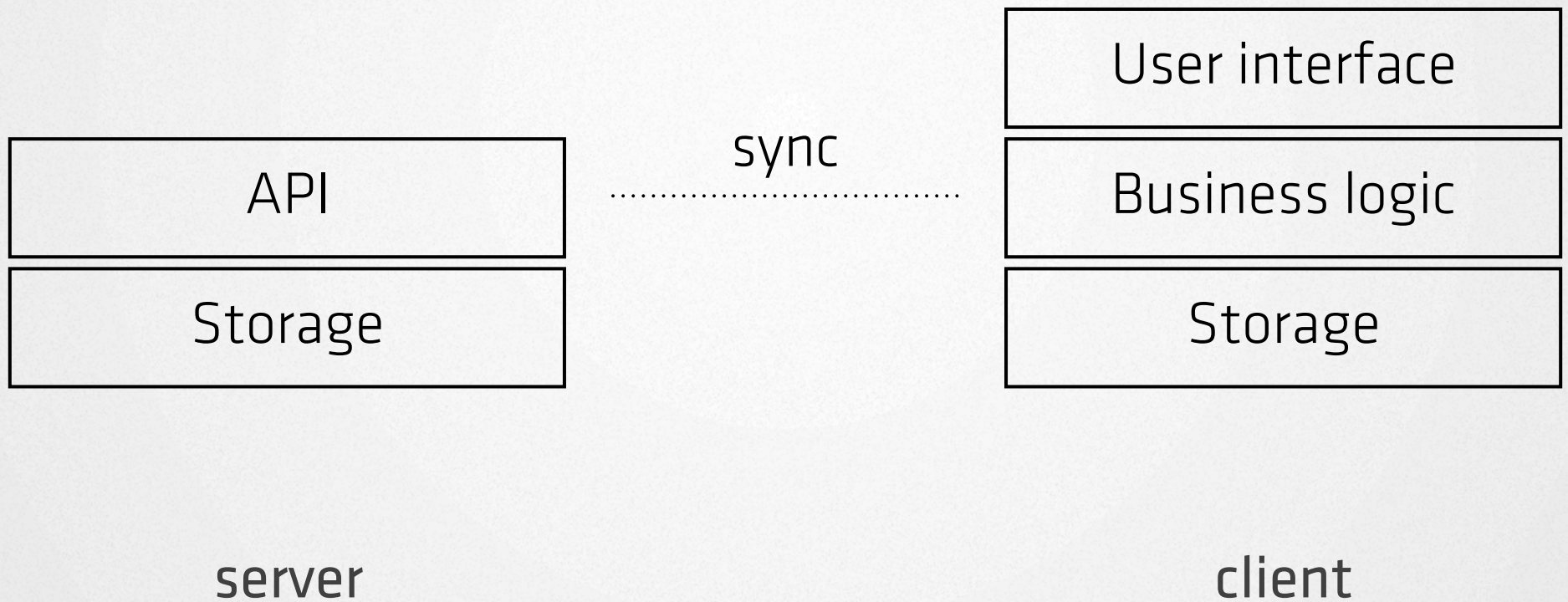




One Web stack



An Alternative Web Stack



But there is a
a place for both



The Boston Globe

bostonglobe.com


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BOSTON.COM CARS | JOBS | REAL ESTATE THURSDAY, OCTOBER 27, 2011 TEXT SIZE GET ACCESS

43° Rain WEATHER | TRAFFIC

The Boston Globe

NEWS METRO ARTS BUSINESS SPORTS OPINION LIFESTYLE MAGAZINE TODAY'S PAPER MY SAVED



PARAMOUNT PICTURES

EXCLUSIVE FRIDAY PREVIEW | MOVIE REVIEW

'Puss in Boots' soars into action

This film, which features the voice of Antonio Banderas, may not be enough to save 3-D technology, but man, does it look good.

- New films reunite Antonio Banderas with Pedro – and 'Puss'

MOVIE REVIEW

Elizabeth Olsen's haunting

Mass. economy continues to outpace US

Better-than-expected growth will help the state likely avoid another recession, but future growth could slow, according to a new report. 1 minute ago

- US economy expands on consumer spending
- Stocks surge on European debt deal, GDP growth

Probation official placed on leave amid hiring probe

Christopher Hoffman was suspended indefinitely with pay amid questions of whether he would be indicted as part of a patronage hiring scandal. 1 minute ago

"Fish mi... accepted pr... overlapping... taking acti..."

Carrier 1:52 PM

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The Boston Globe

OCTOBER 27, 2011

SECTIONS MY SAVED

Mass. economy continues to outpace US

Better-than-expected growth will help the state likely avoid another recession, but future growth could slow, according to a new report. 1 minute ago

- US economy expands on consumer spending
- Stocks surge on European debt deal, GDP growth

[\\$15 for \\$30 toward dinner](#) | [deals.boston.com/deal/3737/the-mockingbird-restaurant-and-martini-lounge-in-east-bridgewater?s_campaign=Deals_hp_Widget_TheMoc...](#)

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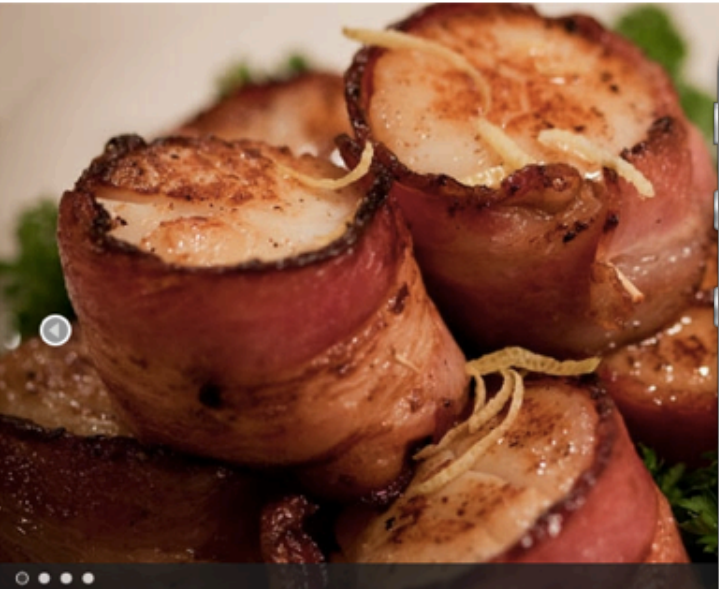
[BOSTON \(ALL\)](#) | Follow us on: [t](#) [f](#)

\$15 for \$30 toward dinner at The Mockingbird Restaurant & Martini Lounge in East Bridgewater

Value	Discount	You save
\$30	50%	\$15


The Deal is **ON**

\$15 | [BUY NOW!](#) | **ENDING:** **Wednesday 11/2, 11:59PM EDT**
 6 days 10 hours 5 mins 57 secs | **SHARE:** [✉](#)



AT&T | 7:36 PM | 60%

[Back](#) | **Boston Deals** | [Buy](#)



The Clam Box
\$5 for \$10 worth of famous fried clams and more at The Clam Box on Wollaston Beach in Quincy

Get this deal for **\$5**

[BUY NOW!](#)



But...

HTML5 apps can't match
native performance

(true, sometimes)



<http://vimeo.com/30296006>

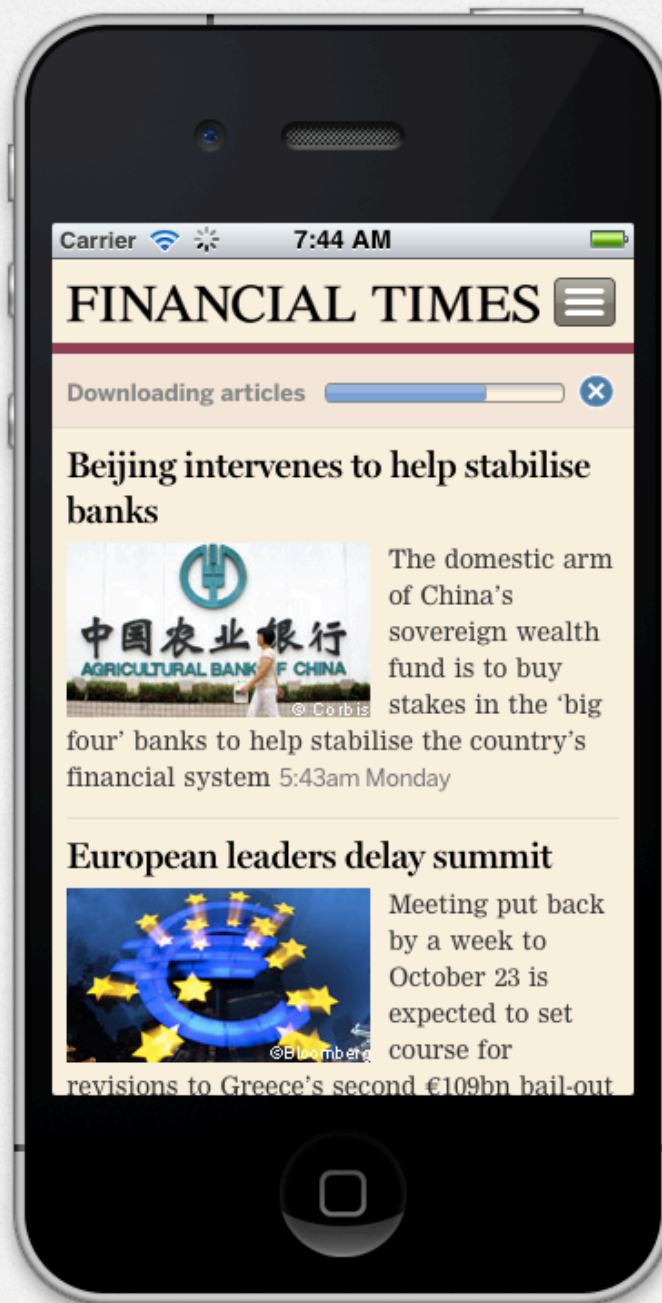
<http://vimeo.com/30324079>





Are HTML5 apps more
efficient to develop?

(yes, in theory, but it's early days)





Carrier   7:44 AM 

FINANCIAL TIMES

Downloading articles  

Beijing intervenes to help stabilise banks



The domestic arm of China's sovereign wealth fund is to buy stakes in the 'big four' banks to help stabilise the country's financial system 5:43am Monday

European leaders delay summit



Meeting put back by a week to October 23 is expected to set course for revisions to Greece's second €109bn bail-out



24 dev-months for iOS

<http://blog.cohen-rose.org/2011/10/over-air-2011-ft-web-app-weve-got.html>



12 further dev-months for Android & BlackBerry

<http://blog.cohen-rose.org/2011/10/over-air-2011-ft-web-app-weve-got.html>



...but more
engagement
than
the native app



Mobile HTML5
development
lacks good tooling

(yes)




```
<!DOCTYPE html>
<html manifest="app.manifest">
  <head>
    <title>Hello World</title>

    <script type="text/javascript">
    <link href="lib/touch

    <script type="text/javascript">
```

CACHE MANIFEST

```
app/app.js
lib/touch/sencha-touch.js
lib/touch/resources/css/sencha-touch.css
```

```
http://i.tinysrc.mobi/320/http://chuvachienes
http://i.tinysrc.mobi/320/http://www.unc.edu/
```

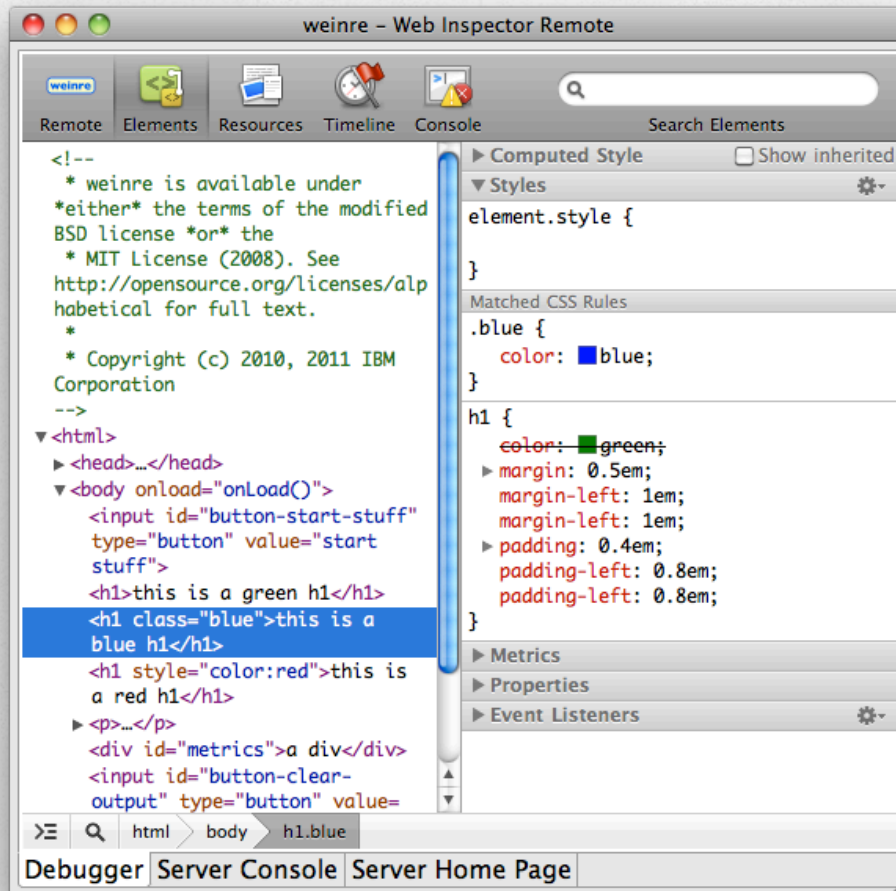
NETWORK:

*

<http://github.com/jamesgpearce/confess>



Weinre



HTML5 apps
can't be monetized,
can't be distributed

(not a technology problem)



Compromise

Web sites

Web apps

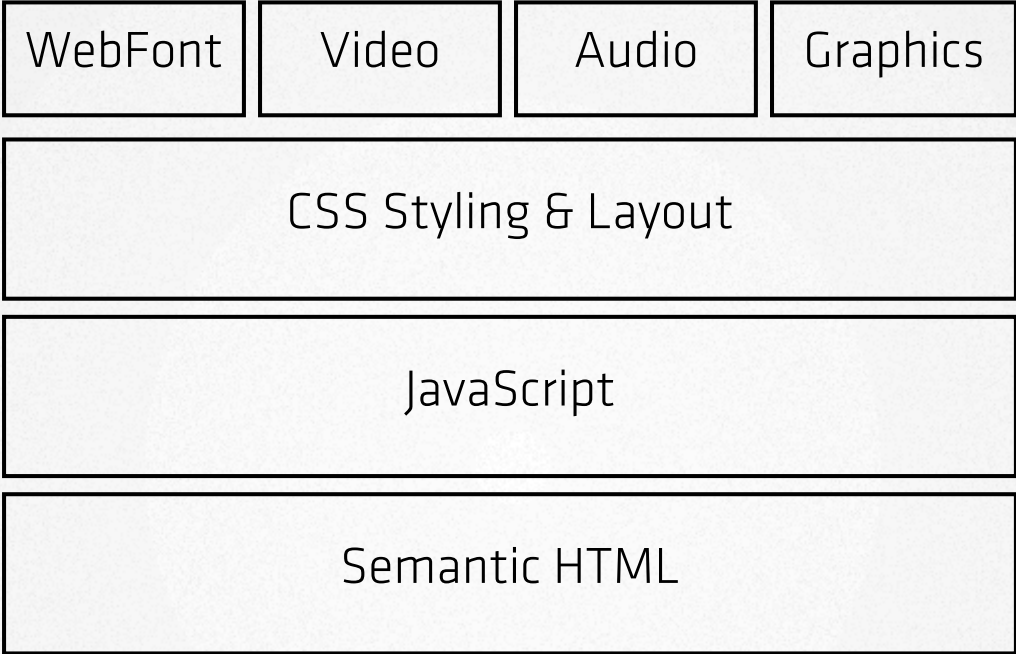
Hybrid apps

Native apps

Nativeness



- Camera
- Location
- Contacts
- SMS
- Orientation
- Gyro



- HTTP
- AJAX
- Events
- Sockets
- SSL



Camera

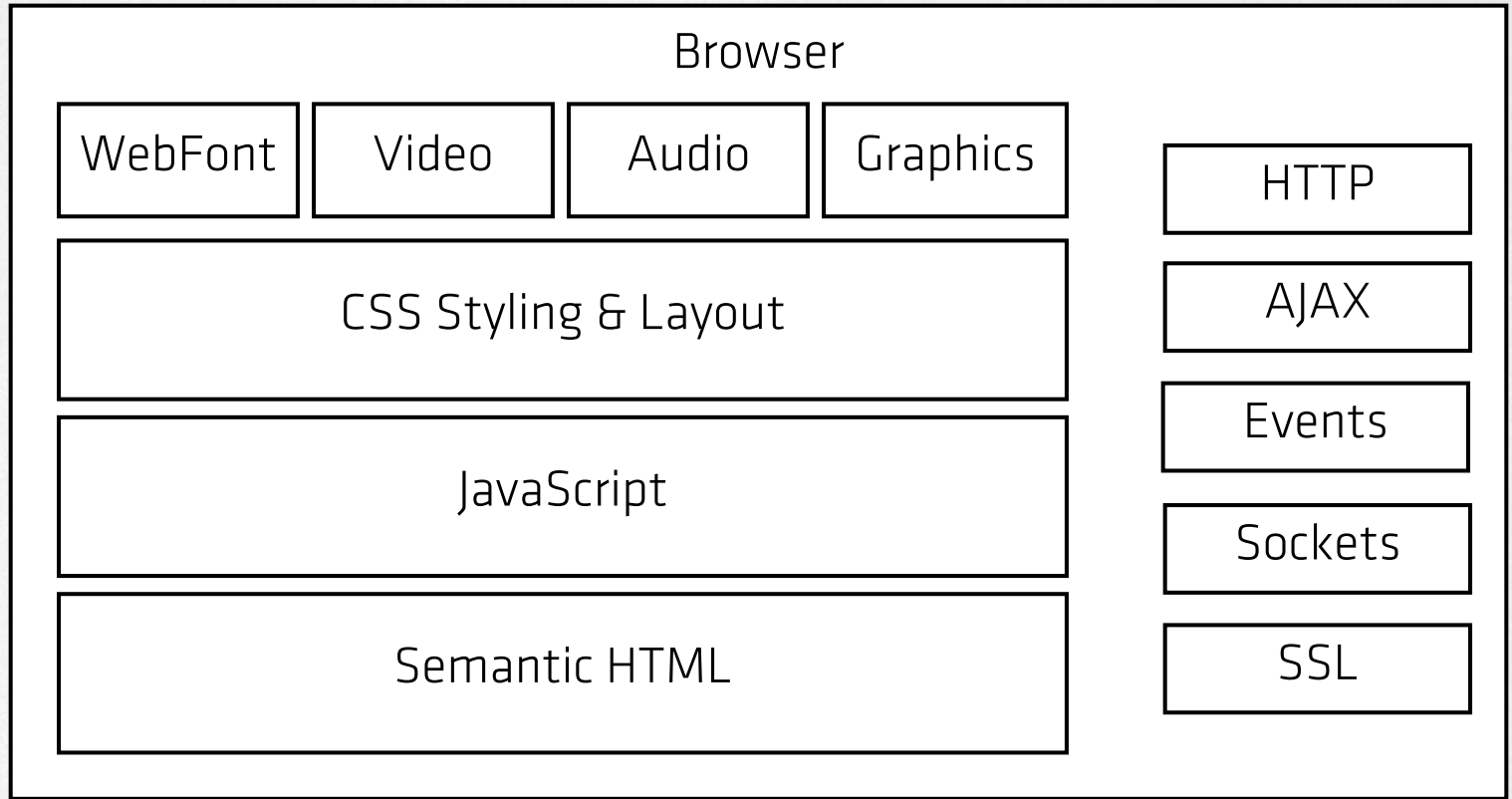
Location

Contacts

SMS

Orientation

Gyro



File Systems
Databases
App Caches

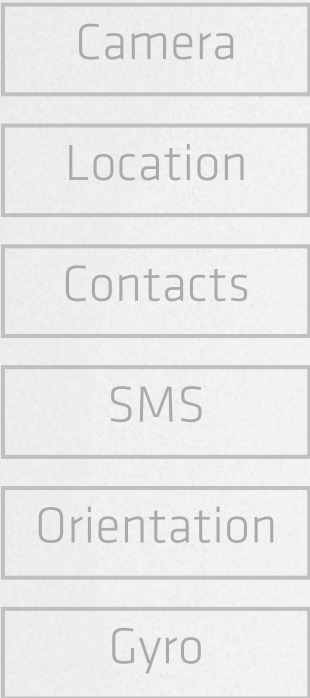
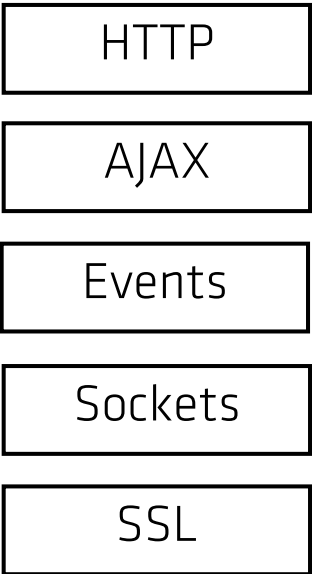
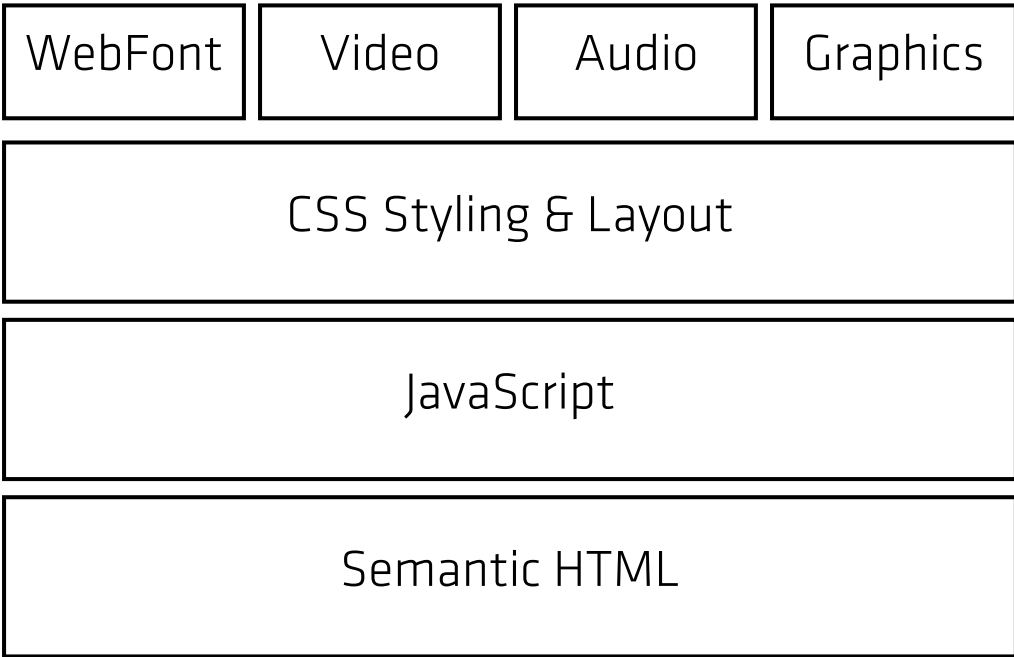
Workers &
Parallel
Processing

Cross-App
Messaging



Native Wrapper

WebView



JUST ONE MORE...

LATEST | RANDOM



THE THING IN THE DISTANCE



F.A.N / TWO MINUTES



THE LIGHT



SEA OF TREES



WHOMADEWHO - KEEP ME IN MY PLANE



NIRVANA BABY, SPENCER ELDEN



LEVIATHAN, A WORK IN PROGRESS



A LIFE IN THE DAY
A FILM BY JOHN MAYER

"A LIFE IN THE DAY"



GSA



TAME IMPALA - SOLITUDE IS BLISS



BILLY CASH - LIVE IN VEGAS



TOXIC GARBAGE ISLAND EPISODE 1



Native app stores
have a **dirty secret**



LATEST: Five die in stampede in Nairobi after blast at rally by groups opposed to new constitution

TOP STORIES

 Thousands flee Kyrgyzstan unrest	 Gunmen attack Iraqi central bank	 Five killed in Kenyan rally crush	 Arab chief meets Hamas in Gaza
---	---	--	--

AMERICAS

 US urges quicker BP oil strategy	 Hunt for missing after US floods	 American teenage sailor rescued	 Cuba frees paraplegic dissident
---	---	--	---

TECHNOLOGY

 'Threat' to porn site visitors	 Adobe fixes 'critical' Flash flaw	 Japan unfurls solar sail in space	 ITV HD viewers miss England goal
--	---	---	---

FEATURES AND ANALYSIS

 What future for US-backed Plan Colombia?	 Aboard the Victoria Falls Express	 The prudent US-UK diplomacy of...	 Iranian views: A year on
---	--	--	--

Page last updated at 11:51 CST, Sunday, 13 June 2010

Thousands flee Kyrgyzstan unrest



Escalating ethnic violence in Kyrgyzstan has prompted tens of thousands of ethnic Uzbeks to flee the country.

A third day of fighting in the south of the country has claimed nearly 100 lives, officials say.

Witnesses speak of Kyrgyz men shooting ethnic Uzbeks and setting property alight; a BBC correspondent in the city of Osh has heard heavy gunfire.

On Saturday the interim government gave security forces shoot-to-kill powers.

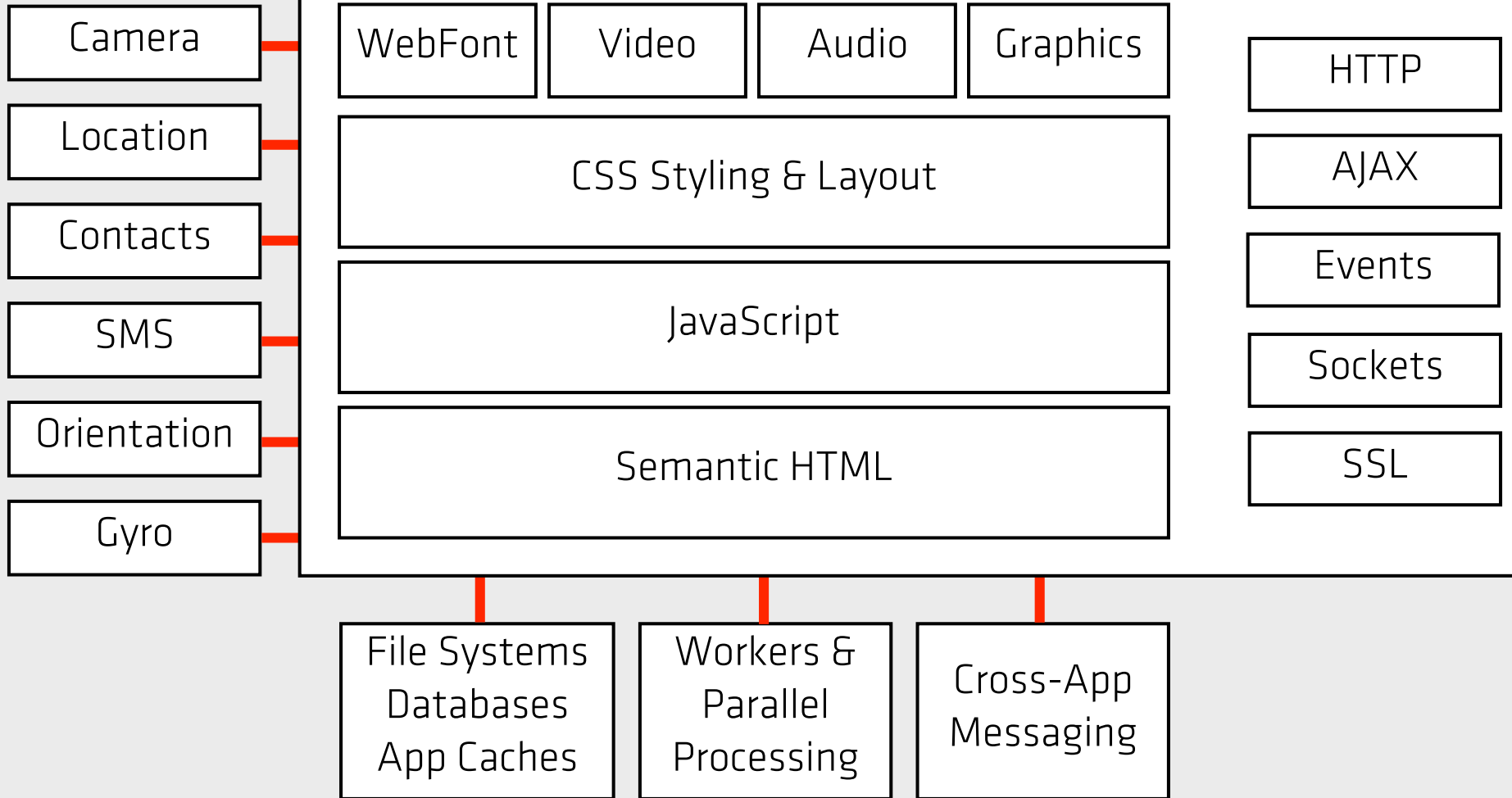
HTML5 apps
can't access
device functionality

(goddamn it)



Native Wrapper

WebView



Hybrid apps
- the ultimate polyfill



PhoneGap^H^H^H

Apache Callback

AppMobi

NimbleKit



Recent browser updates



iOS 5

Input types
contenteditable
position:fixed
classList
XHR2
Script defer & async
Inline SVG
Web Workers



```
overflow: scroll;  
-webkit-overflow-scrolling: touch;
```



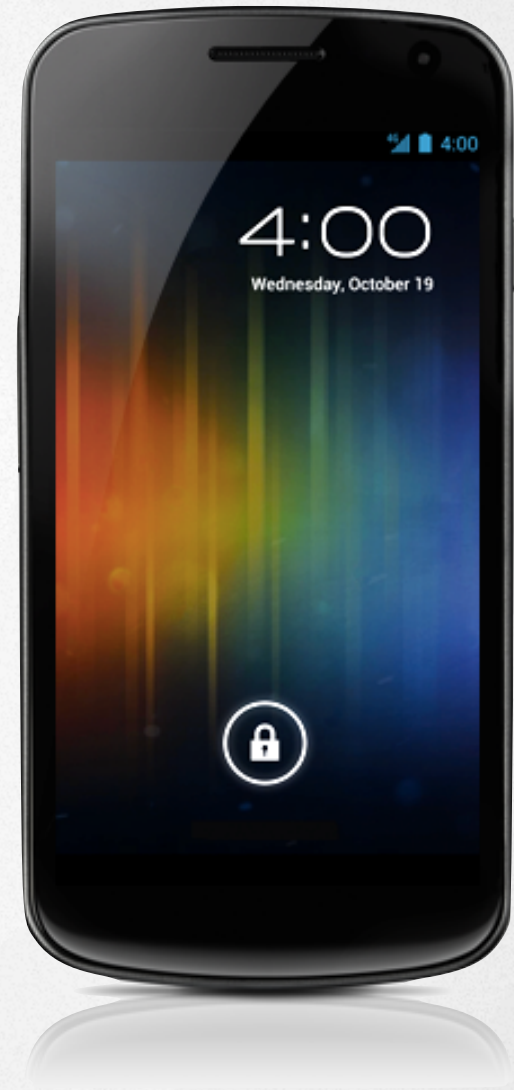


<http://jamesgpearce.github.com/compios5/>

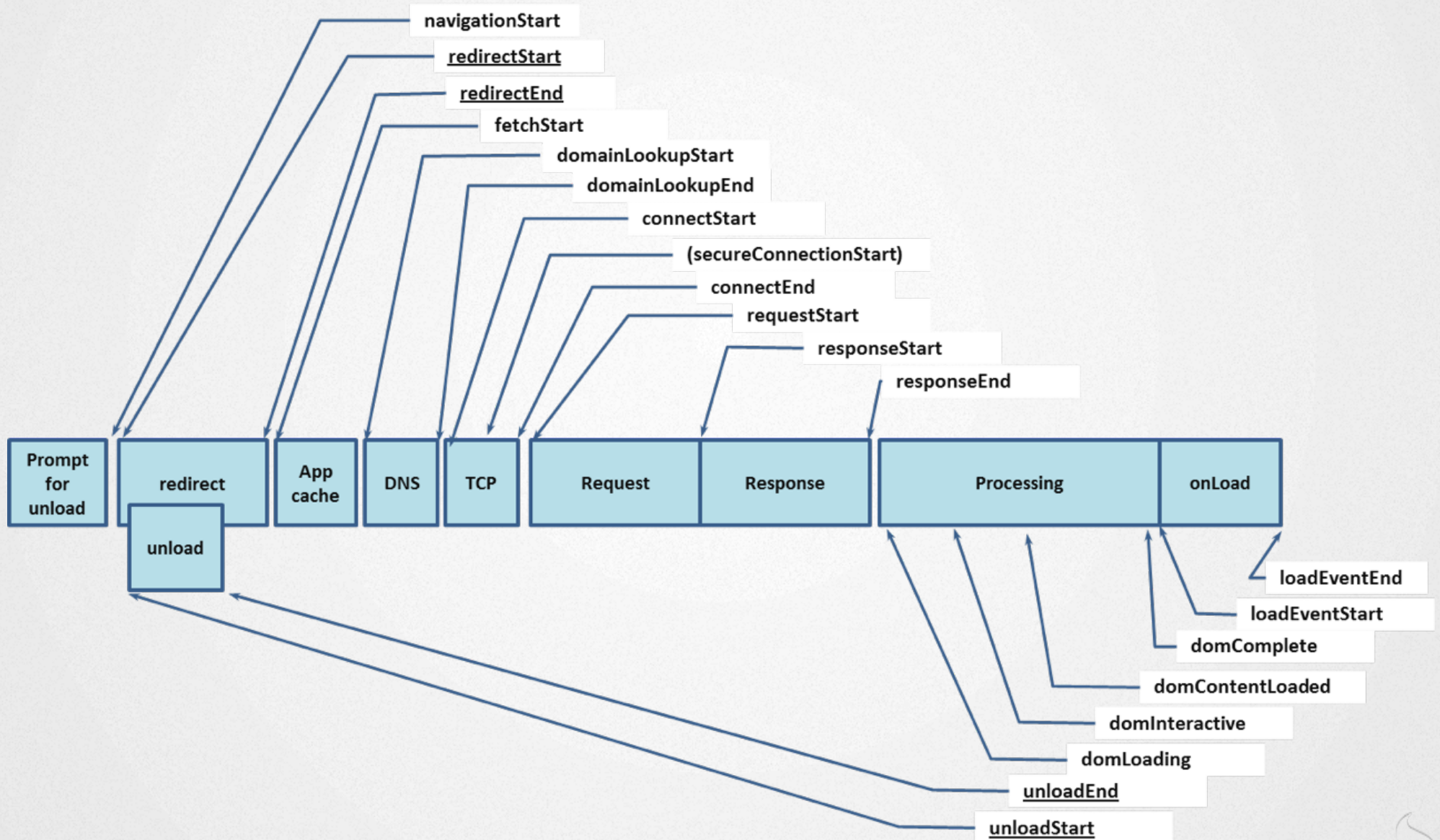


Android 4

SVG at all
CSS3 3D transforms
classList
XHR2
Script defer & async
<details> & <summary>
File reader
Device orientation
Navigation timing



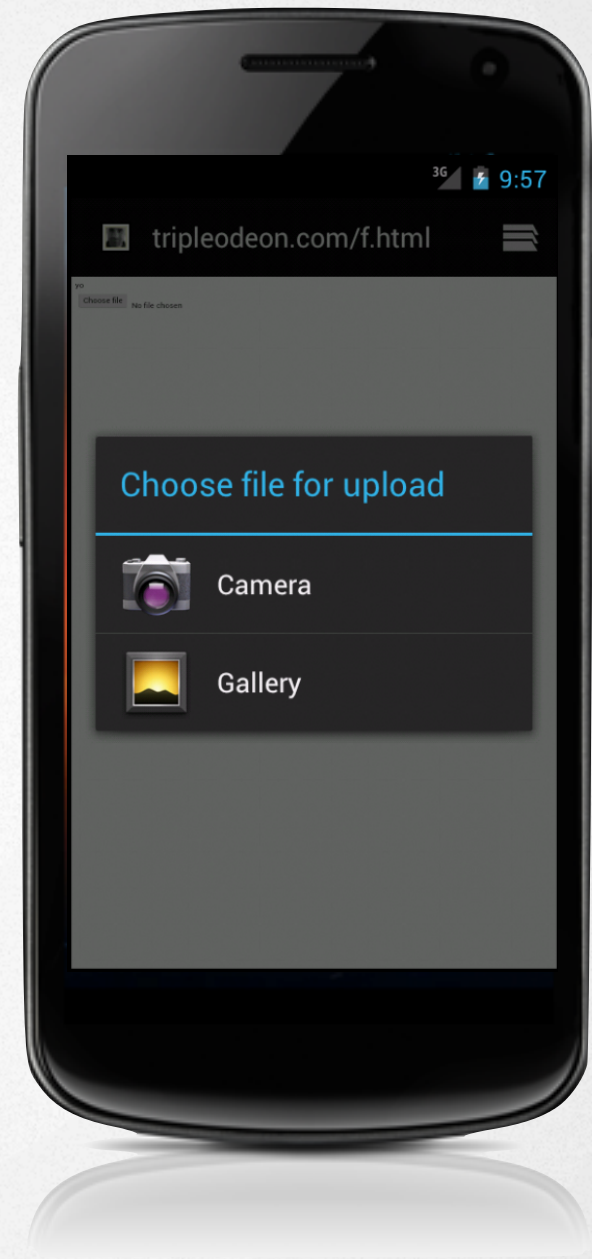
window.performance




```
<input type="file" id="picker"  
  accept="image/*"  
  capture="camera"  
>
```

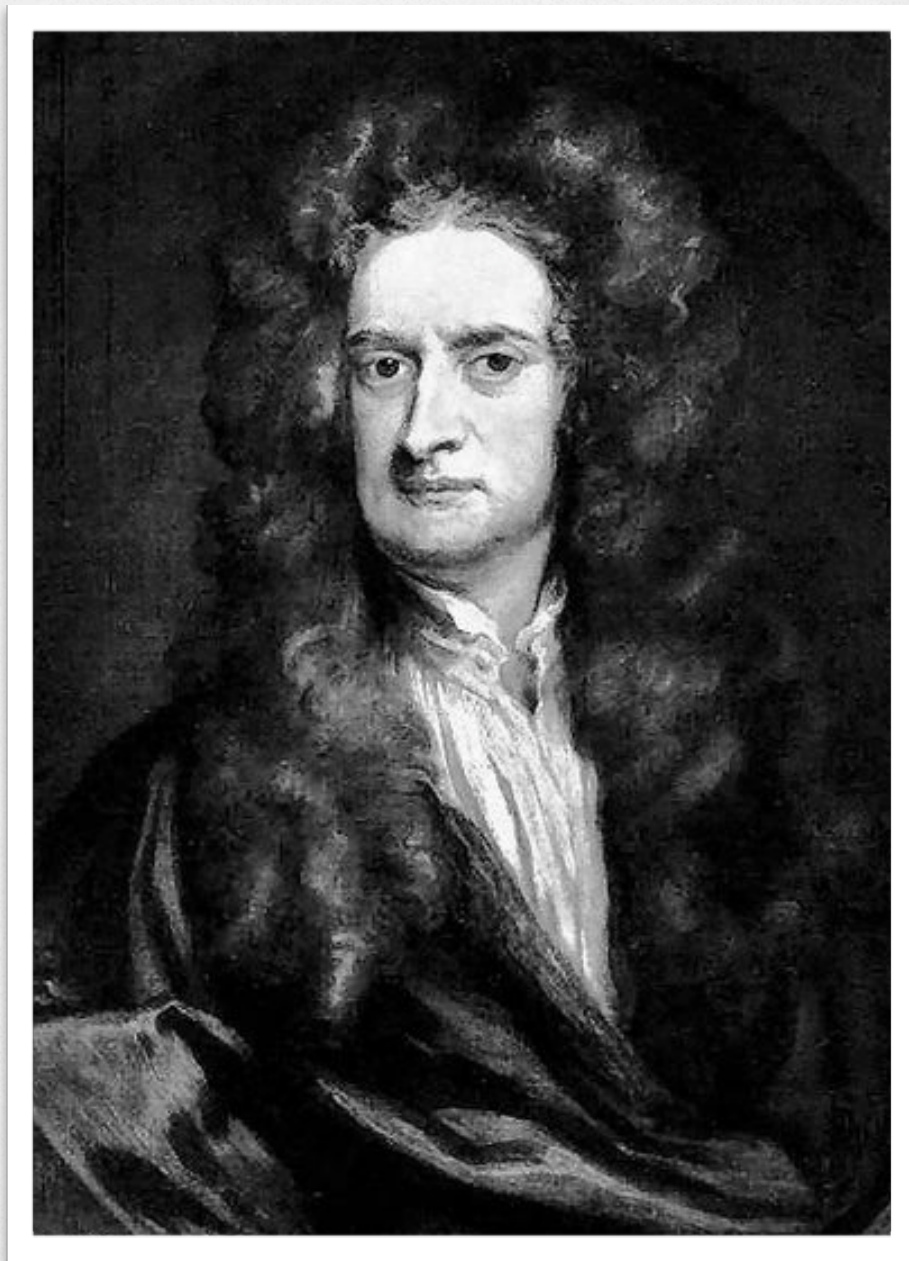
```
// camcorder  
// microphone  
// filesystem
```

```
var image = picker.files[0];
```



The Prestige



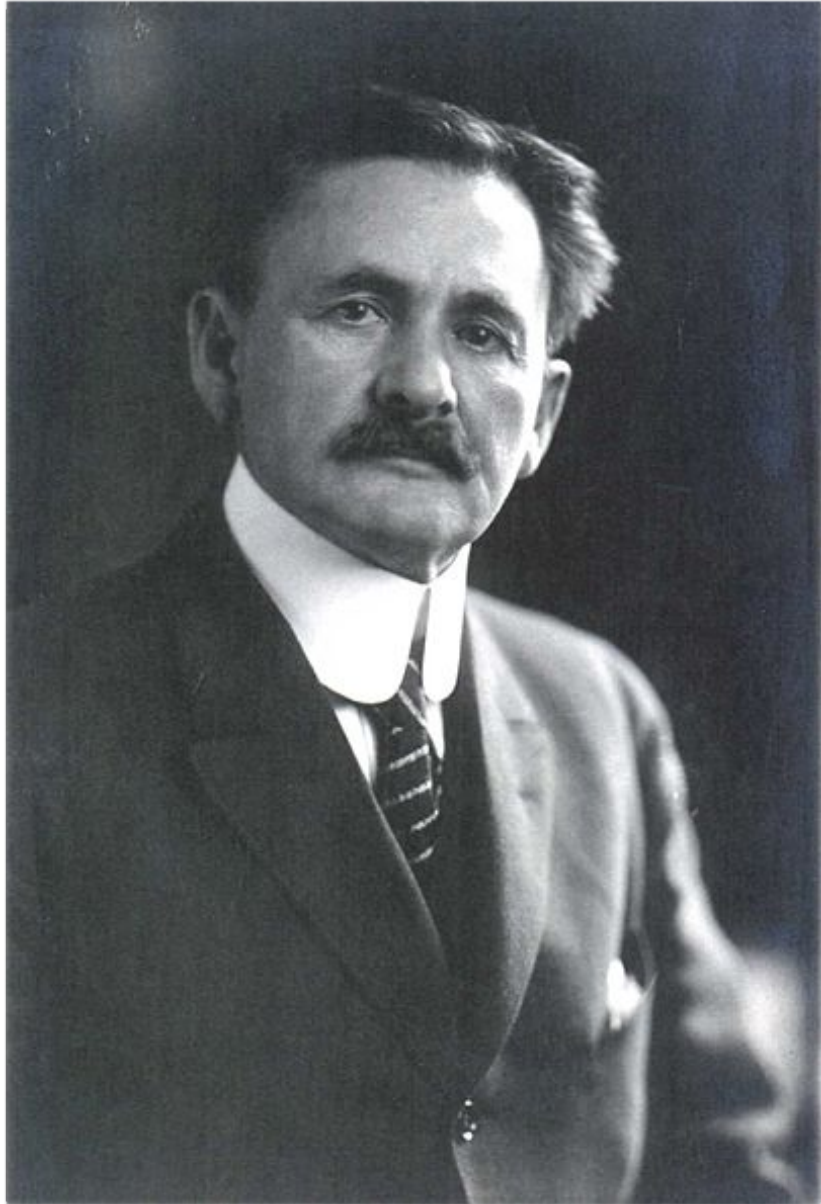


Sir Isaac Newton

Three Laws of Motion

(the universe works as we might expect it to)





Albert Michelson

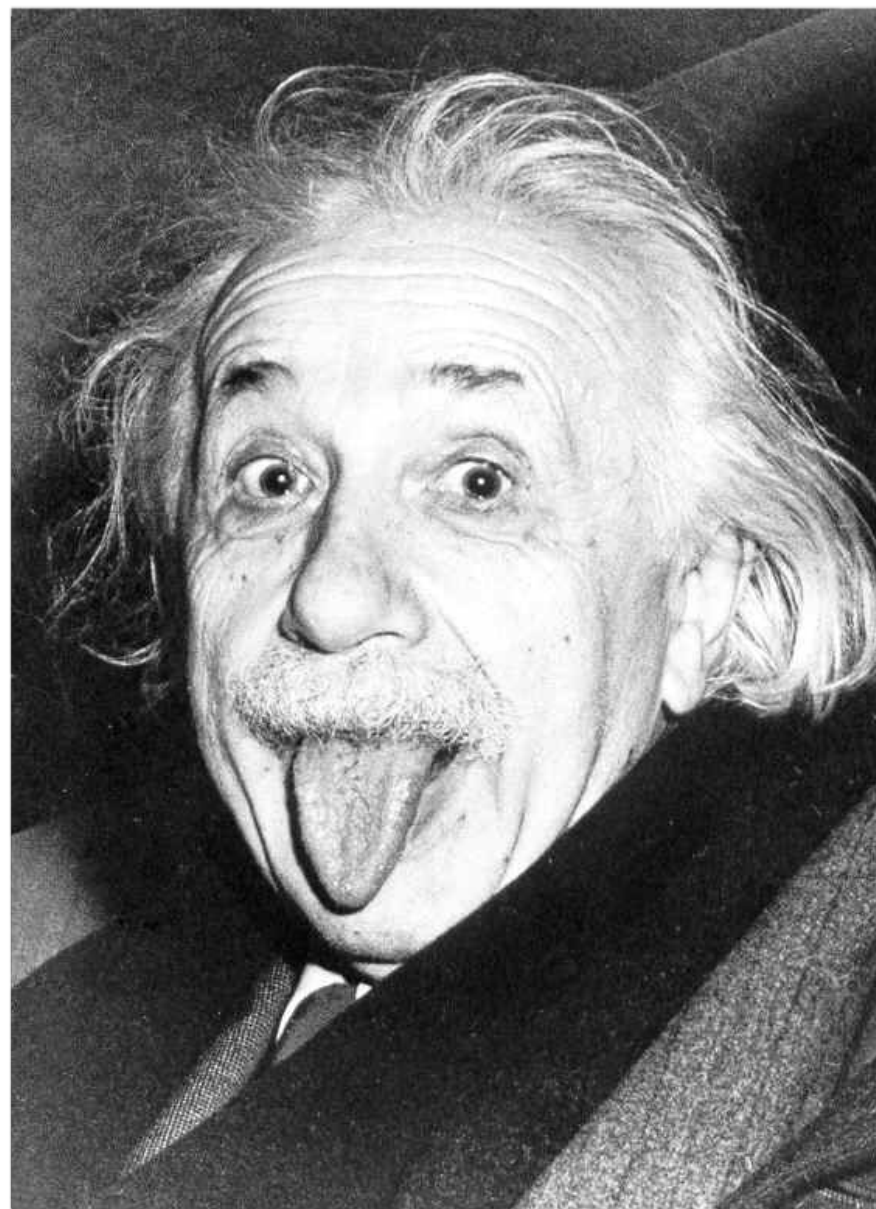


Edward Morley

Light Travels at a Constant Speed

(the universe doesn't work as we thought it would)





Relativistic Mechanics

Classical Mechanics

Quantum Mechanics

Exploration



Familiarity



Exploration



The Web Today
is like
Physics in 1900



Mobile
is our Michelson-Morley
Experiment



Apps or Sites?
Responsive Design?
Browser diversity?
Mobile Context?
One Web?

(an inability to answer these questions does
not constitute an excuse not to innovate)



What does the web look
like when you have...



Camera
Microphone
Contacts
Calendar
Messaging
Telephony
NFC
?





Device APIs Working Group

Media Capture (HTML)

Battery status

Contacts

Messaging (SMS, MMS...)

Network Information API

Audio Volume

Beep

Gallery

Systems info and events

Tasks

Media Capture (API)

Application Registration

Calendar

Feature Permissions

Sensor API

Vibration API

Menu API

Permissions for APIs





Device APIs

Accelerometer

Orientation

Camera

DeviceStatus

Filesystem

Messaging

Geolocation

PIM

Contacts

Calendar

Tasks

DeviceInteraction

APDU (SmartCard)

Bluetooth

Crypto

DLNA

Server Push

Sensor

Telephony





Telephony

Messaging

Contacts

Clock

Camera

Filesystem

Calculator

Device Status

Settings

Accelerometer

Mouse Lock

Maps



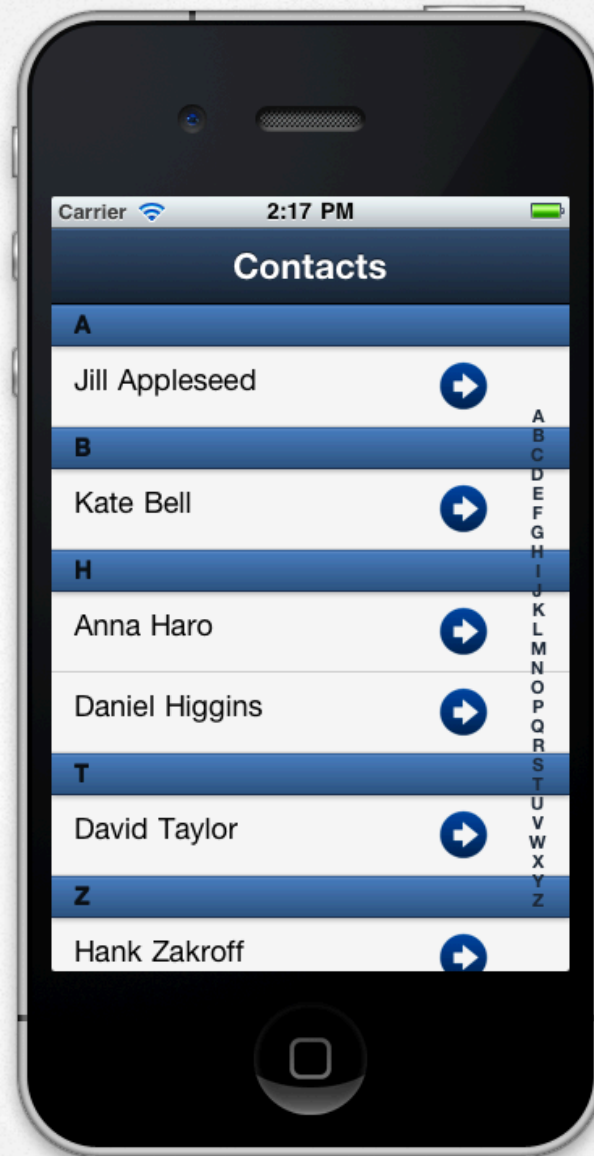
The mobile web becomes
more than a 320px web



```
window.addEventListener(  
  'appointmentdue',  
  function(appt) {  
    if (device.near(WORK)) {  
      siri.remind(  
        contacts.get('Peter'),  
        calendar.getDetails(appt)  
      );  
    }  
  },  
  false  
);
```

(PS: This code does not work. Yet)





Mobile device APIs are
the web's next
great leap forward



HTML





James Pearce

@jamespearce

