

Mar, 7th, 2012  
London, UK

**MOBILE HTML**



# MOBILE, HTML5 & THE CROSS-PLATFORM PROMISE

**Max Firtman @firt**  
*mobile+web developer*

# who am I?

mobile+web developer



mobilexweb.com



NOKIA Developer  
Certified Trainer



where?



where?

buenos aires ~ argentina



# where?

**buenos aires ~ argentina**



**patagonia**

**football**

**meat & wine**

**tango**

# speaker





# books



Image from my house

*Reaching Users on iPhone, Android,  
BlackBerry, Symbian, and more*



*Programming the*

# Mobile Web



O'REILLY®

*Maximiliano Firtman*

*Using HTML5 to Design Web Apps for Tablets and Smartphones*



# jQuery Mobile

*Up and Running*

O'REILLY®

*Maximiliano Firtman*



*Using the Latest Today*



# Mobile HTML5

O'REILLY®

*Estelle Weyl  
& Maximiliano Firtman*

coming soon...  
also by @estellevw

# MOBILE HTML



beta, of course

0 0 0  
[Like](#) [+1](#) [Tweet](#)

## Trying to understand HTML5 compatibility on mobile and tablet browsers

Feature	Safari on iOS	Android Browser		BlackBerry Browser		Internet Explorer	Opera		Firefox	webOS Browser	Symbian Browser
	iPhone, iPad	Phones (1.0-2.3)	Tablets (3.0+)	Phones	Tablet	Windows Phone	Mobile	Mini	Android		Nokia phones
Version tested											
Minimum version tested	3.2	1.5	3.0	5.0	1.0	9	11	5	6	1.4	^3
<b>Application Cache</b> <u>W3C API</u> Offline package installation.	✓	✓ 2.1+	✓	✓ 6.0+	✓		✓		✓	✓	
<b>Web storage</b> <u>W3C API</u> Persistent and session storage.	✓	✓ 2.0+	✓	✓ 6.0+	✓	✓	✓		✓	✓	
<b>Web SQL storage</b> <u>W3C API (no active)</u> Persistent SQLite storage.	✓	✓ 2.0+	✓	✓ 6.0+	✓		✓			✓	
<b>Geolocation</b> <u>W3C API</u> Geolocation & tracking using GPS, cells or Wi-Fi.	✓	✓ 2.0+	✓	✓ 6.0+	✓	✓	✓		✓	✓	
<b>Multimedia</b> <u>W3C API</u> Video & Audio Players	✓	✓ 2.3+	✓	✓ 7.0+	✓	✓	✓		✓	✓	
<b>Server-Sent Events</b> <u>W3C API</u> EventSource pattern to maintain the connection to the server open	✓ 4.1+						✓		✓		
<b>Web Sockets</b> <u>W3C API</u> Newbidirectional protocol over HTTP	✓ 4.2+			✓ 6.1+	✓		✓		✓		

Do not program conditionals per platform or version. Always use feature detection.

This list is in progress. New tests, new features, more specificity of each feature and more mobile browsers soon!

If you want to help on the test, [contact me](#).

by [firt](#) | [Updates on Twitter](#) | [Blog](#)

[www.mobilehtml5.org](http://www.mobilehtml5.org)

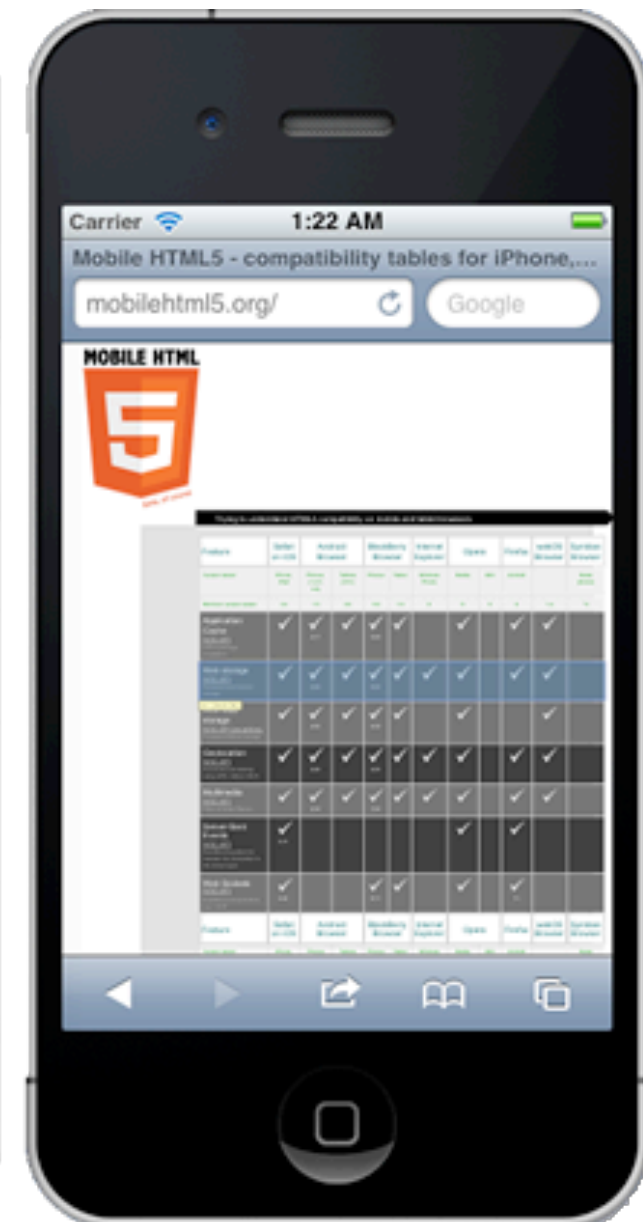
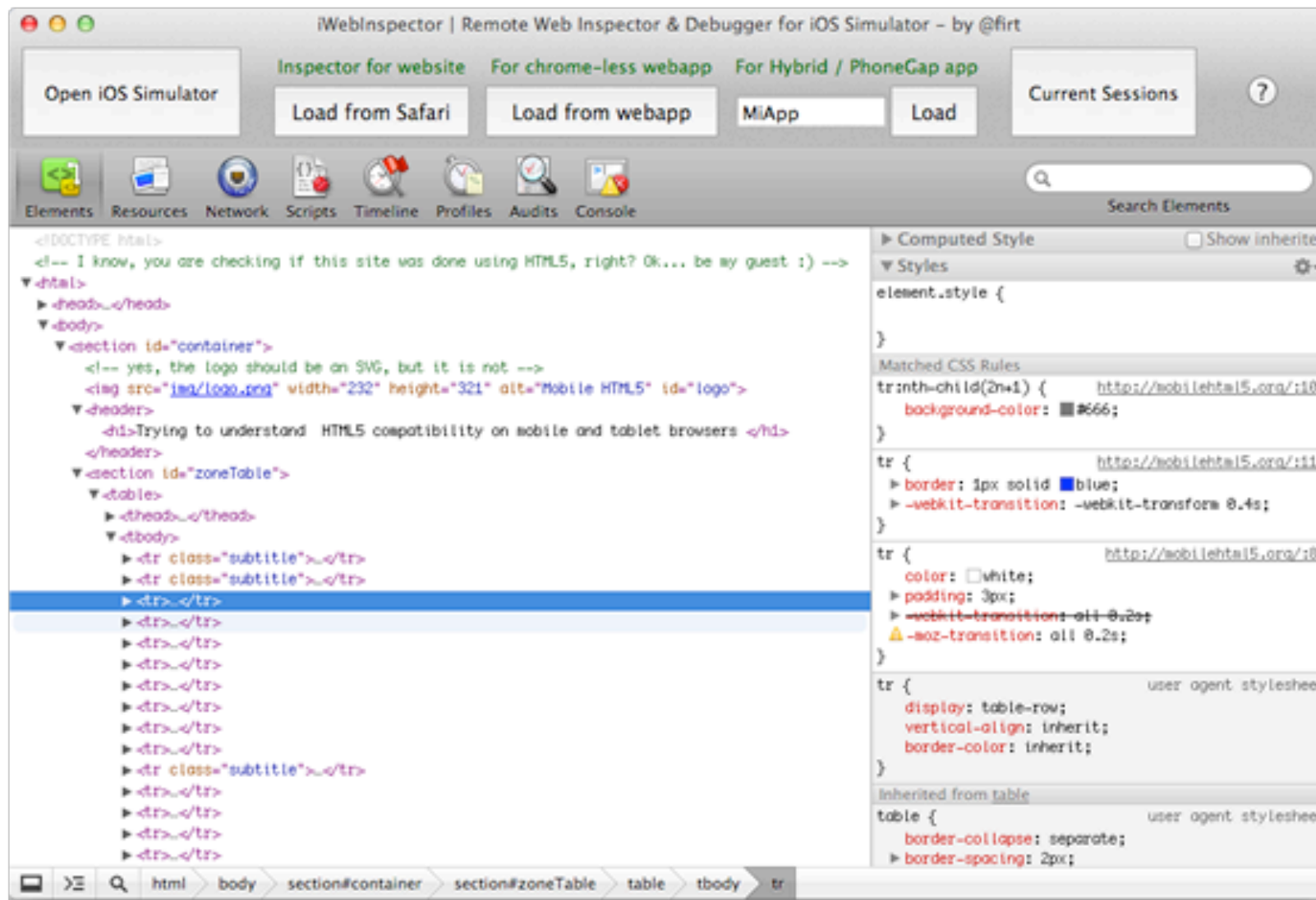




# iWebInspector.com

by @firt

Web debugging tool for iOS Simulator



**mobile...**

# mobile

# mobile

- ▶ absolutely personal

# mobile

- ▶ absolutely personal
- ▶ +5 billions

# mobile

- ▶ absolutely personal
- ▶ +5 billions
- ▶ make us focus

# mobile

- ▶ absolutely personal
- ▶ +5 billions
- ▶ make us focus
- ▶ read our context...

# mobile

- ▶ absolutely personal
- ▶ +5 billions
- ▶ make us focus
- ▶ read our context...
- ▶ ... always...



# mobile

- ▶ absolutely personal
- ▶ +5 billions
- ▶ make us focus
- ▶ read our context...
- ▶ ... always...
- ▶ ... and everywhere.

**everybody  
wants  
mobile**



**then... what is the  
problem?**



**mobile is a  
minefield**



Photo by World of Good (Flickr)

**Malvinas / Falklands Islands**



Exit Only

Enter Here

Stay Right

Clearance 6'6"

Exit Only

Welcome to 99 Summer Street

Central Parking System

Pull Ahead

Exit Only

Central Parking System

EXIT ONLY

Leave Ignition Key Only

Leave Ignition Key Only

Please stay in the lane

lots of questions

Photo by wayneandwax (Flickr)





we need to learn





lots of platforms



# mobile web appears







**native**  
**vs**  
**web**

**but it's different**

# but it's different

- ▶ slower networks

# but it's different

- ▶ slower networks
- ▶ higher latency

# but it's different

- ▶ slower networks
- ▶ higher latency
- ▶ slower hardware

# but it's different

- ▶ slower networks
- ▶ higher latency
- ▶ slower hardware
- ▶ different browsing experience

# but it's different

- ▶ slower networks
- ▶ higher latency
- ▶ slower hardware
- ▶ different browsing experience
- ▶ different context

# but it's different

- ▶ slower networks
- ▶ higher latency
- ▶ slower hardware
- ▶ different browsing experience
- ▶ different context
- ▶ different behaviors



# but it's different

- ▶ slower networks
- ▶ higher latency
- ▶ slower hardware
- ▶ different browsing experience
- ▶ different context
- ▶ different behaviors
- ▶ different possible networks

# mobile browsers

# mobile browsers

- ▶ too many

# mobile browsers

- ▶ too many
- ▶ (some) too limited

# mobile browsers

- ▶ too many
- ▶ (some) too limited
- ▶ (some) too innovative

# mobile browsers

- ▶ too many
- ▶ (some) too limited
- ▶ (some) too innovative
- ▶ (some) proxy based

# mobile browsers

- ▶ too many
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- ▶ (some) too innovative
- ▶ (some) proxy based
- ▶ (most) without documentation

# mobile browsers

- ▶ too many
- ▶ (some) too limited
- ▶ (some) too innovative
- ▶ (some) proxy based
- ▶ (most) without documentation
- ▶ (most) without a *name*



# mobile browsers

- ▶ too many
- ▶ (some) too limited
- ▶ (some) too innovative
- ▶ (some) proxy based
- ▶ (most) without documentation
- ▶ (most) without a *name*
- ▶ (most) without debugging tools

# mobile browsers

# mobile browsers

- ▶ (some) focus-based

# mobile browsers

- ▶ (some) focus-based
- ▶ (some) cursor-based

# mobile browsers

- ▶ (some) focus-based
- ▶ (some) cursor-based
- ▶ (some) touch-based

# mobile browsers

- ▶ (some) focus-based
- ▶ (some) cursor-based
- ▶ (some) touch-based
- ▶ (some) multitouch-based

# mobile browsers

- ▶ (some) focus-based
- ▶ (some) cursor-based
- ▶ (some) touch-based
- ▶ (some) multitouch-based
- ▶ (some) with zooming support

# mobile browsers

- ▶ (some) focus-based
- ▶ (some) cursor-based
- ▶ (some) touch-based
- ▶ (some) multitouch-based
- ▶ (some) with zooming support
- ▶ (most) unknown for web devs



**some are known**

# some are known

- ▶ **Safari** (on iOS)
- ▶ **Opera Mobile** (on Android & Symbian)
- ▶ **Firefox** (on Android)
- ▶ **Chrome** (on Android)
- ▶ **Internet Explorer** (on Windows Phone)

**some are unknown**

# some are unknown

- ▶ Nokia Browser (on Symbian, S40 & Meego 1.2)
- ▶ BlackBerry Browser
- ▶ Android Browser
- ▶ webOS Browser
- ▶ Amazon Silk
- ▶ Bada Browser
- ▶ Opera Mini
- ▶ NetFront
- ▶ Phantom
- ▶ ...

**they are on tablets too!**

# they are on tablets too!

- ▶ Safari
- ▶ Android Browser
- ▶ webOS Browser
- ▶ BlackBerry Browser
- ▶ Opera Mini
- ▶ Firefox
- ▶ Chrome

**and with different  
versions...**

**and there are  
pseudo-browsers...**



**and we can also  
create native apps  
-such as phoneygap-**



# native code vs javascript



**browser**  
**VS**  
**installed apps**  
**& stores**

**what is native?**

**what is a webapp?**

**standards?**





Photo by Ben Millett (Flickr)



# HTML





**Are you  
sure?**

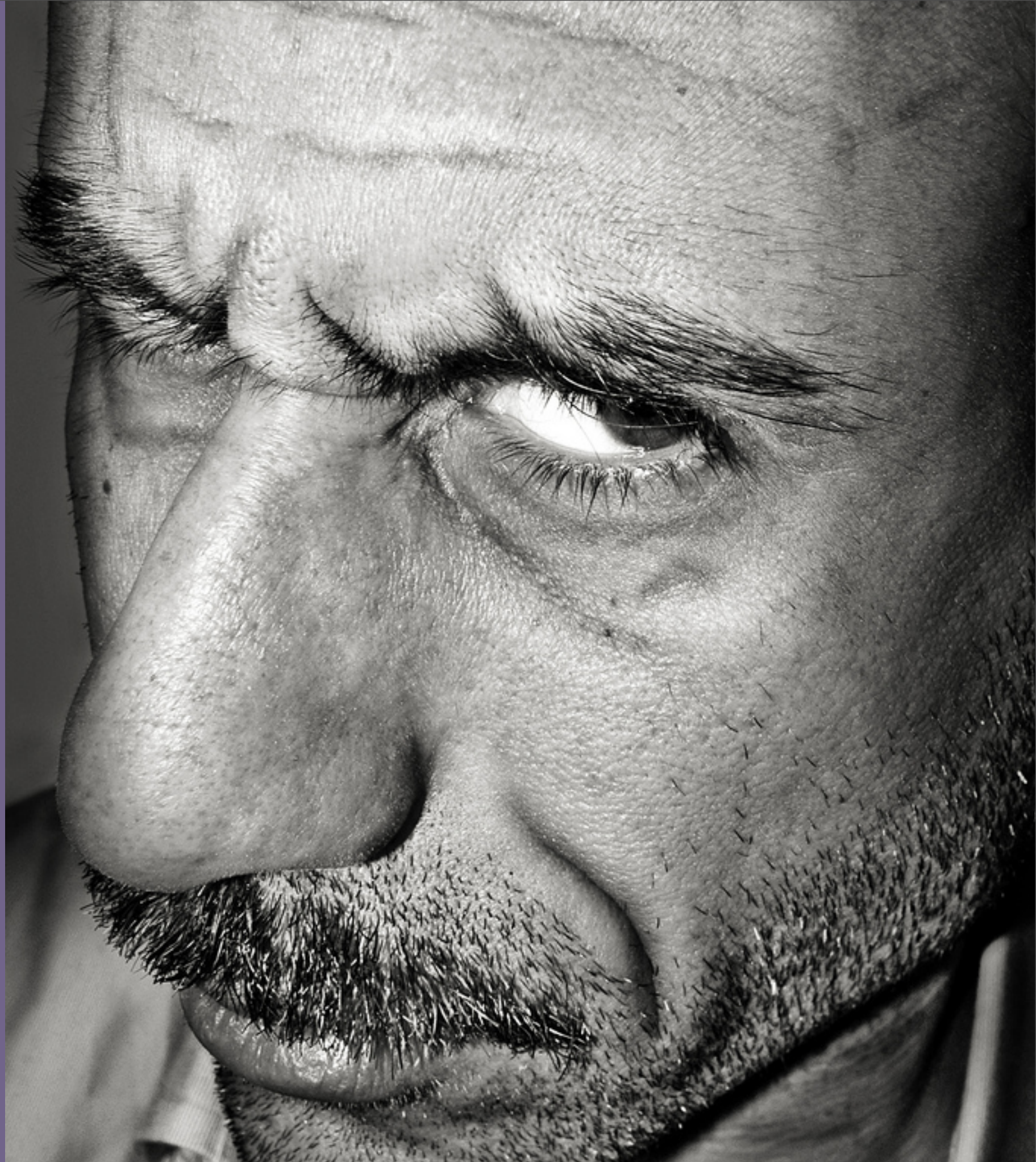


Photo by Ricky David (Flickr)



**HTML**

**What is**



**?**

# html5

# html5

- ▶ w3c standards (all in draft)

# html5

- ▶ w3c standards (all in draft)
- ▶ some are other w3c standards

# html5

- ▶ w3c standards (all in draft)
- ▶ some are other w3c standards
- ▶ de-facto standards

# html5

- ▶ w3c standards (all in draft)
- ▶ some are other w3c standards
- ▶ de-facto standards
- ▶ w3c ex-standards

# html5

- ▶ w3c standards (all in draft)
- ▶ some are other w3c standards
- ▶ de-facto standards
- ▶ w3c ex-standards
- ▶ everything "new" on the web



**html version 5?**

**why mobile html5?**

**typeof html5 !== boolean**

**some features safe**

**some features only on  
few platforms**



**some features  
experimental**

**some features with  
prefixes**



Internet Explorer 9



webOS



and what about  
capabilities today?

# MOBILE HTML



beta, of course

0 0 0  
[Like](#) [+1](#) [Tweet](#)

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<b>Multimedia</b> <u>W3C API</u> Video & Audio Players	✓	✓ 2.3+	✓	✓ 7.0+	✓	✓	✓		✓	✓	
<b>Server-Sent Events</b> <u>W3C API</u> EventSource pattern to maintain the connection to the server open	✓ 4.1+						✓		✓		
<b>Web Sockets</b> <u>W3C API</u> Newbidirectional protocol over HTTP	✓ 4.2+			✓ 6.1+	✓		✓		✓		

[www.mobilehtml5.org](http://www.mobilehtml5.org)



**piece of cake!**

**a small website**

**we need to forget  
and learn**

# forget about

# forget about

- ▶ pixels

# forget about

- ▶ pixels
- ▶ desktop frameworks (ok, not always)

# forget about

- ▶ pixels
- ▶ desktop frameworks (ok, not always)
- ▶ always connected



# forget about

- ▶ pixels
- ▶ desktop frameworks (ok, not always)
- ▶ always connected
- ▶ unlimited power

# forget about

- ▶ pixels
- ▶ desktop frameworks (ok, not always)
- ▶ always connected
- ▶ unlimited power
- ▶ everyone see the same

# forget about

- ▶ pixels
- ▶ desktop frameworks (ok, not always)
- ▶ always connected
- ▶ unlimited power
- ▶ everyone see the same
- ▶ emulate native ui exactly

# forget about

- ▶ pixels
- ▶ desktop frameworks (ok, not always)
- ▶ always connected
- ▶ unlimited power
- ▶ everyone see the same
- ▶ emulate native ui exactly
- ▶ device conditionals

# forget about

- ▶ pixels
- ▶ desktop frameworks (ok, not always)
- ▶ always connected
- ▶ unlimited power
- ▶ everyone see the same
- ▶ emulate native ui exactly
- ▶ device conditionals
- ▶ suppose

# learn about



# learn about

- ▶ server-side detection

# learn about

- ▶ server-side detection
- ▶ progressive enhancement

# learn about

- ▶ server-side detection
- ▶ progressive enhancement
- ▶ responsive design

# learn about

- ▶ server-side detection
- ▶ progressive enhancement
- ▶ responsive design
- ▶ mobile usability

# learn about

- ▶ server-side detection
- ▶ progressive enhancement
- ▶ responsive design
- ▶ mobile usability
- ▶ best experience for each context

# learn about

- ▶ server-side detection
- ▶ progressive enhancement
- ▶ responsive design
- ▶ mobile usability
- ▶ best experience for each context
- ▶ performance



# learn about

- ▶ server-side detection
- ▶ progressive enhancement
- ▶ responsive design
- ▶ mobile usability
- ▶ best experience for each context
- ▶ performance
- ▶ did I say performance?

# learn about

- ▶ server-side detection
- ▶ progressive enhancement
- ▶ responsive design
- ▶ mobile usability
- ▶ best experience for each context
- ▶ performance
- ▶ did I say performance?
- ▶ gain user loyalty

# learn about

# learn about

- ▶ the viewport

# learn about

- ▶ the viewport
- ▶ target density (pixel ratio)

# learn about

- ▶ the viewport
- ▶ target density (pixel ratio)
- ▶ how background code works



# learn about

- ▶ the viewport
- ▶ target density (pixel ratio)
- ▶ how background code works
- ▶ data URI - inlining content

**let's start with some  
definitions**

# mobile web

# mobile web

*from a developer's perspective it's using HTML, CSS and JavaScript to develop mobile apps*

# mobile web

*from a developer's perspective* it's using **HTML, CSS and JavaScript** to develop mobile apps

(browser or installed)

# webapp

# webapp

- ▶ browser-based experience



# webapp

- ▶ browser-based experience
- ▶ a full-screen app on the browser

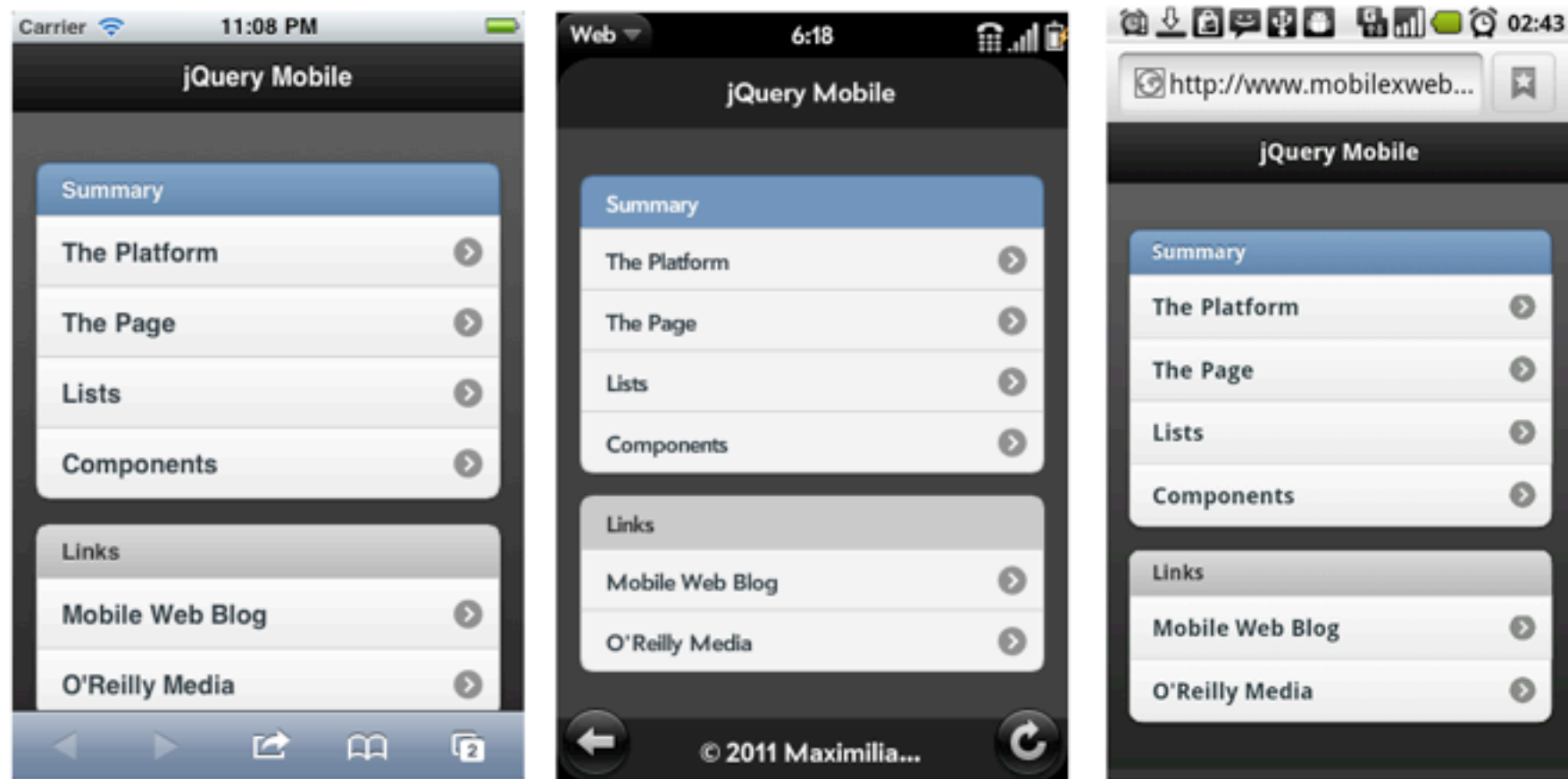
# webapp

- ▶ browser-based experience
- ▶ a full-screen app on the browser
- ▶ a native web / hybrid app

# debugging, profiling and testing



# emulators



[www.mobilexweb.com/emulators](http://www.mobilexweb.com/emulators)



# friends

lots of them

and with different devices



# virtual labs

real devices on real networks



[www.perfectomobile.com](http://www.perfectomobile.com)

[www.deviceanywhere.com](http://www.deviceanywhere.com)



# device libraries

server-side device detection



[scientiamobile.com](http://scientiamobile.com)



[deviceatlas.com](http://deviceatlas.com)





# debugging tools

## Remote Web Inspector

- BlackBerry Smartphones 7
- BlackBerry PlayBook
- Google Chrome for Android 4
- Opera Mobile

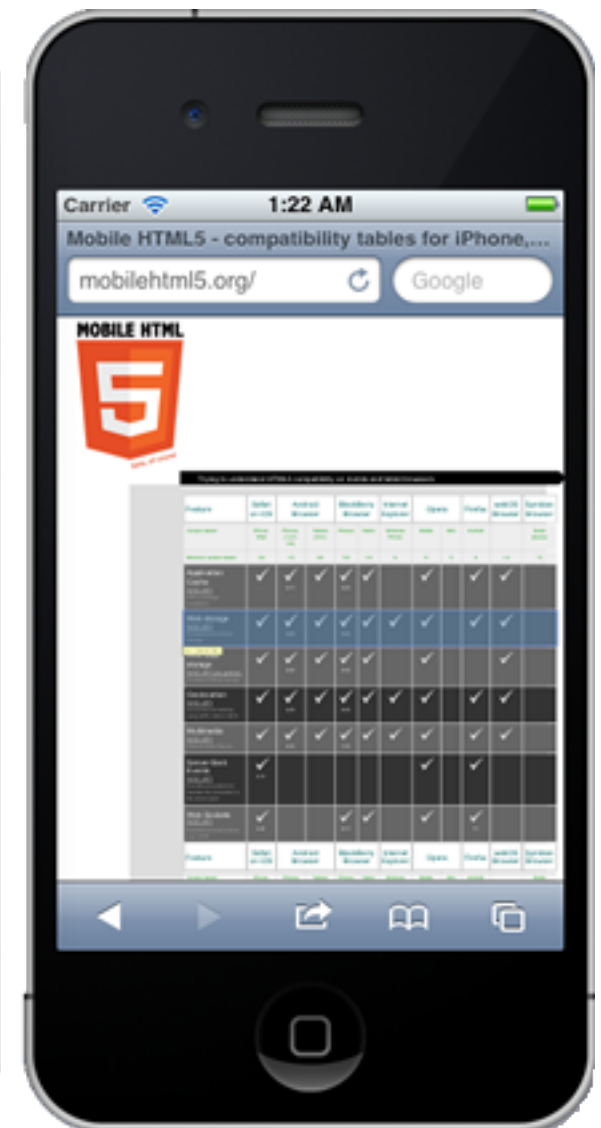
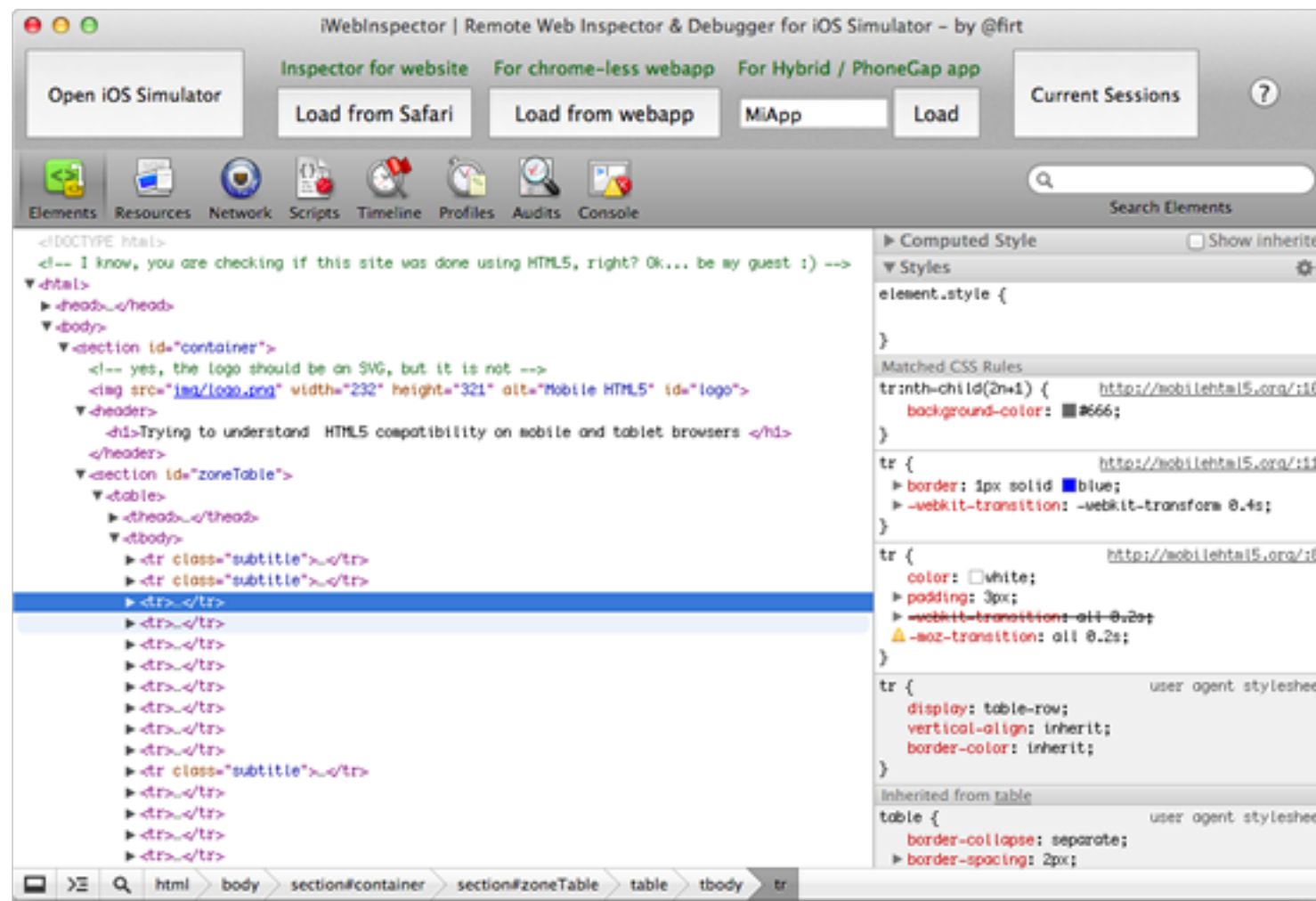


# debugging tools



**iWebInspector**  
by @firt

Web debugging tool for iOS Simulator

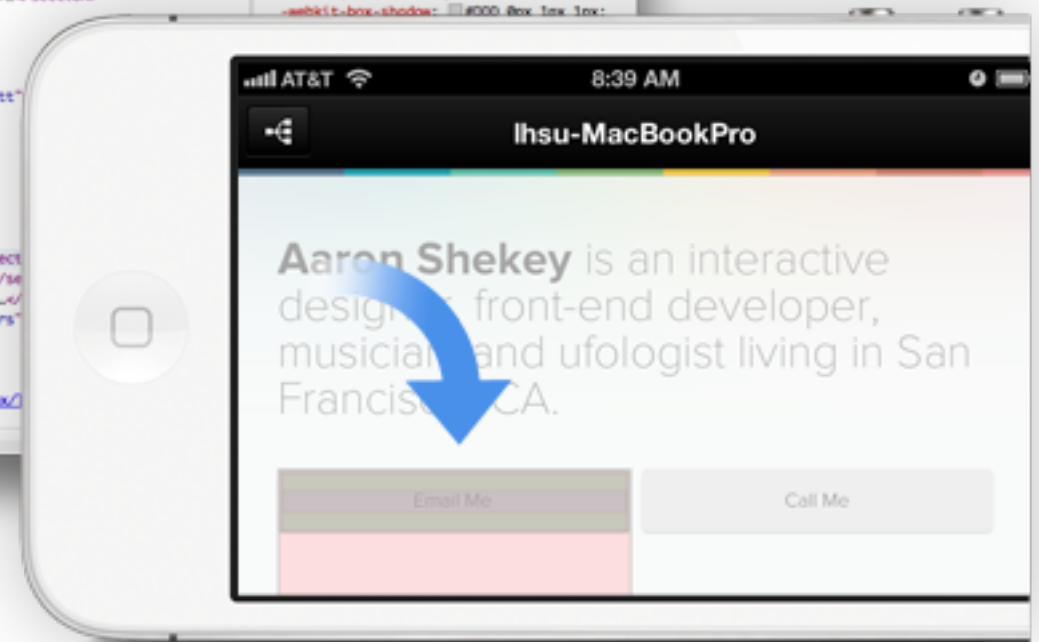
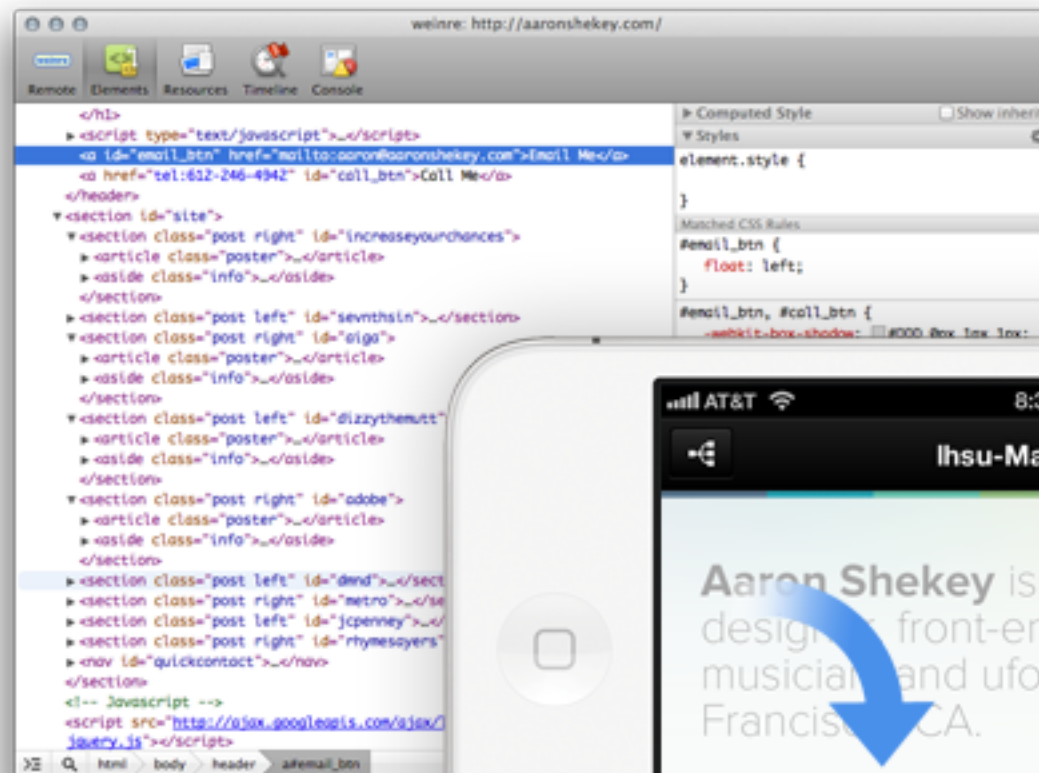


[iwebinspector.com](http://iwebinspector.com)



# debugging tools

## Adobe Shadow

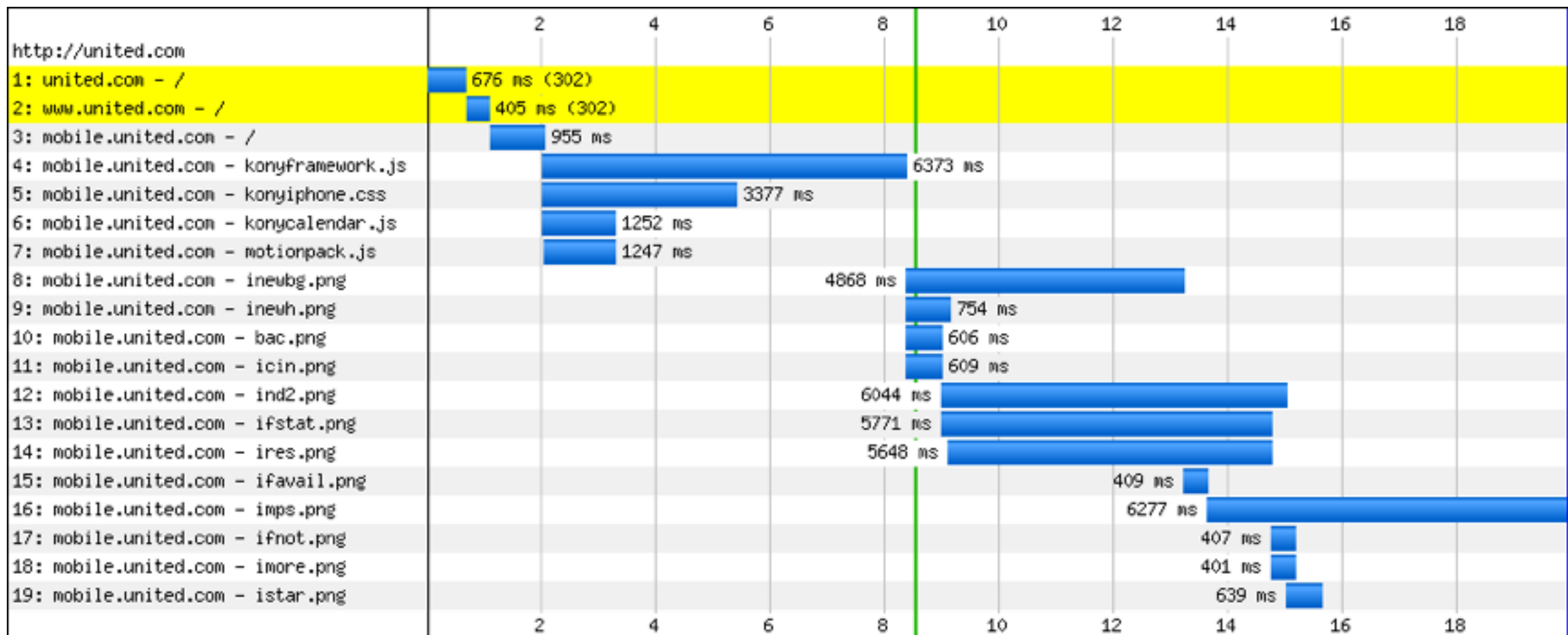


[adobe.com/go/shadow](http://adobe.com/go/shadow)



# performance tools

just starting...



<http://stevesouders.com/mobileperf/>

**users hate  
developers**



The image shows a stack of white papers, each featuring a large, bold black question mark. The papers are slightly offset, creating a sense of depth. In the center of the top-most paper, the word "why?" is written in a bright yellow, sans-serif font with a subtle drop shadow.

why?











mobile  
web  
is slow



Picture from Simon Howden [freedigitalphotos.net](http://freedigitalphotos.net)

# web performance optimization

# wpo mobile

# wpo mobile

- ▶ do mobile semantic html5



# wpo mobile

- ▶ do mobile semantic html5
- ▶ do not redirect

# wpo mobile

- ▶ do mobile semantic html5
- ▶ do not redirect
- ▶ apply known wpo techniques

# wpo mobile

- ▶ do mobile semantic html5
- ▶ do not redirect
- ▶ apply known wpo techniques
- ▶ reduce http requests

# wpo mobile

- ▶ do mobile semantic html5
- ▶ do not redirect
- ▶ apply known wpo techniques
- ▶ reduce http requests
- ▶ use only semantic images

# wpo mobile

- ▶ do mobile semantic html5
- ▶ do not redirect
- ▶ apply known wpo techniques
- ▶ reduce http requests
- ▶ use only semantic images
- ▶ defer

# wpo mobile

- ▶ do mobile semantic html5
- ▶ do not redirect
- ▶ apply known wpo techniques
- ▶ reduce http requests
- ▶ use only semantic images
- ▶ defer
- ▶ internal is better?

# wpo mobile

- ▶ do mobile semantic html5
- ▶ do not redirect
- ▶ apply known wpo techniques
- ▶ reduce http requests
- ▶ use only semantic images
- ▶ defer
- ▶ internal is better?
- ▶ touch instead of click



what can we do  
today?

# mobile html5 capabilities

offline & data storage

advanced javascript apis

geolocation

hardware: motion, camera

drawing apis

animations and transitions

phone integration: calls, contacts

touch and gesture events

# native web apps



**architecture**



UI

**HTML**  
  
.elements  
.canvas  
.svg  
.webgl

**CSS**  
  
.basic & adv  
.transforms  
.transitions  
.animations

  
PhoneGap  
.notification  
.events

 Sencha  
 jQuery  
mobile framework.





# Logic

**HTML**  
.web workers  
.touch events

**JS**

**jQuery**  
write less, do more.  
...

# UI

**HTML**  
.elements  
.canvas  
.svg  
.webgl

**CSS**  
.basic & adv  
.transforms  
.transitions  
.animations

**PhoneGap**  
.notification  
.events

**Sencha**  
**jQuery**  
mobile framework.



## Data

**HTML5**  
.  
web storage  
.sql storage  
.indexeddb  
.web sockets  
.server-sent events



.local files  
.remote http  
.xhr 2



.file api  
.contacts api

## Logic

**HTML5**  
.  
web workers  
.touch events



## UI

**HTML5**  
.  
elements  
.canvas  
.svg  
.webgl

**CSS3**  
.  
basic & adv  
.transforms  
.transitions  
.animations



.notification  
.events



## Device



.geolocation  
.motion  
.multimedia



PhoneGap

.accelerometer  
.camera  
.compass  
.network info



plugins

## Data



.web storage  
.sql storage  
.indexeddb  
.web sockets  
.server-sent events



.local files  
.remote http  
.xhr 2



PhoneGap

.file api  
.contacts api

## Logic



.web workers  
.touch events



jQuery  
*write less, do more.*

...

## UI



.elements  
.canvas  
.svg  
.webgl



.basic & adv  
.transforms  
.transitions  
.animations



PhoneGap

.notification  
.events



## Device



.geolocation  
.motion  
.multimedia



PhoneGap

.accelerometer  
.camera  
.compass  
.network info



plugins

## Data



.web storage  
.sql storage  
.indexeddb  
.web sockets  
.server-sent events



.local files  
.remote http  
.xhr 2



PhoneGap

.file api  
.contacts api

## Logic



.web workers  
.touch events



## UI



.elements  
.canvas  
.svg  
.webgl



.basic & adv  
.transforms  
.transitions  
.animations



PhoneGap

.notification  
.events



per platform

Meta data



Native code

PhoneGap  
Plugins



Compilation



Stores

# Device

**HTML5** .geolocation  
.motion  
.multimedia

**PhoneGap** .accelerometer  
.camera  
.compass  
.network info

**plugins**

# Data

**HTML5** .web storage  
.sql storage  
.indexeddb  
.web sockets  
.server-sent events

**AJAX** .local files  
.remote http  
.xhr 2

**PhoneGap** .file api  
.contacts api

# Logic

**HTML5** .web workers  
.touch events

**JS**

**jQuery**  
write less, do more.  
...

# UI

**HTML5** .elements  
.canvas  
.svg  
.webgl

**CSS3** .basic & adv  
.transforms  
.transitions  
.animations

**PhoneGap** .notification  
.events

**Sencha**  
**jQuery**  
mobile framework.



per platform



let's see some code

# new semantic tags

# new semantic tags

- ▶ section, article, header, footer, nav



# new semantic tags

- ▶ section, article, header, footer, nav
- ▶ time, mark, ...

# new semantic tags

- ▶ section, article, header, footer, nav
- ▶ time, mark, ...
- ▶ works on every mobile browser

# new form controls



HTML5



2.2+ (b)



5.0+ (adv)



Internet Explorer 9

9.0 (basic)



10+ (med)



6.0+ (med)

# new form controls

- ▶ variable support

W3C



---

HTML5

2.2+ (b)

5.0+ (adv)

9.0 (basic)

10+ (med)

6.0+ (med)

# new form controls

- ▶ variable support
- ▶ basic=different virtual keyboard

W3C



---

HTML5

2.2+ (b)

5.0+ (adv)

9.0 (basic)

10+ (med)

6.0+ (med)

# new form controls

- ▶ variable support
- ▶ basic=different virtual keyboard
- ▶ medium=new date, number, range

W3C



---

HTML5

2.2+ (b)

5.0+ (adv)

9.0 (basic)

10+ (med)

6.0+ (med)

# new form controls

- ▶ variable support
- ▶ basic=different virtual keyboard
- ▶ medium=new date, number, range
- ▶ advanced=datalist

W3C



---

HTML5

2.2+ (b)

5.0+ (adv)

9.0 (basic)

10+ (med)

6.0+ (med)

# new form controls

- ▶ variable support
- ▶ basic=different virtual keyboard
- ▶ medium=new date, number, range
- ▶ advanced=datalist
- ▶ (some) allows validation and css3 pseudo-classes

W3C



---

HTML5

2.2+ (b)

5.0+ (adv)

9.0 (basic)

10+ (med)

6.0+ (med)



# new form controls

# new form controls

- ▶ `<input type=""`

# new form controls

- ▶ `<input type="`
- ▶ `date`

# new form controls

- ▶ `<input type="`
  - ▶ `date`
  - ▶ `range`

# new form controls

- ▶ `<input type="`
  - ▶ `date`
  - ▶ `range`
  - ▶ `datetime`

# new form controls

- ▶ `<input type="`
  - ▶ `date`
  - ▶ `range`
  - ▶ `datetime`
  - ▶ `email`

# new form controls

- ▶ `<input type="`
  - ▶ `date`
  - ▶ `range`
  - ▶ `datetime`
  - ▶ `email`
  - ▶ `url`

# new form controls

- ▶ `<input type="`
  - ▶ `date`
  - ▶ `range`
  - ▶ `datetime`
  - ▶ `email`
  - ▶ `url`
  - ▶ `tel`



# new form controls

- ▶ `<input type="`
  - ▶ `date`
  - ▶ `range`
  - ▶ `datetime`
  - ▶ `email`
  - ▶ `url`
  - ▶ `tel`
  - ▶ `number`

# new form validation



HTML5



4.0+



5.0+



Internet Explorer 9

9.0 (basic)



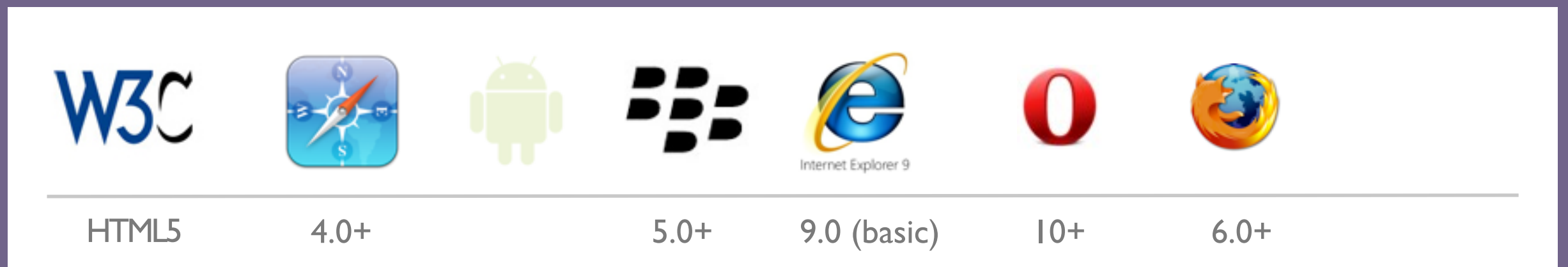
10+



6.0+

# new form validation

- ▶ by type



# new form validation

- ▶ by type
- ▶ `<input required>`

W3C



---

HTML5

4.0+

5.0+

9.0 (basic)

10+

6.0+

# new form validation

- ▶ by type
- ▶ `<input required>`
- ▶ `:valid`, `:invalid`, `:required` pseudo-classes

W3C



---

HTML5

4.0+

5.0+

9.0 (basic)

10+

6.0+

# offline installation



HTML5



3.0+



2.1+



6.0+



Internet Explorer 9



Mobile 11+



5.0+

# offline installation

- ▶ Install a package on the device

W3C

HTML5



3.0+



2.1+



6.0+



Internet Explorer 9



Mobile 11+



5.0+

# offline installation

- ▶ Install a package on the device
- ▶ Complex to debug / reload

W3C

HTML5



3.0+



2.1+



6.0+



Internet Explorer 9



Mobile 11+



5.0+



# offline installation

- ▶ Install a package on the device
- ▶ Complex to debug / reload
- ▶ Buggy on some platforms

W3C



HTML5

3.0+

2.1+

6.0+

Mobile 11+

5.0+

# offline installation

- ▶ Install a package on the device
- ▶ Complex to debug / reload
- ▶ Buggy on some platforms
- ▶ online / offline events

W3C

HTML5



3.0+



2.1+



6.0+



Internet Explorer 9



Mobile 11+



5.0+

# offline installation

- ▶ Install a package on the device
- ▶ Complex to debug / reload
- ▶ Buggy on some platforms
- ▶ online / offline events
- ▶ on iOS can be mixed with icons and full-screen webapp metatags

W3C



HTML5

3.0+

2.1+

6.0+

Mobile 11+

5.0+

# geolocation



Internet Explorer 9



webOS

Geolocation

2.0+

2.0+

6.0+

9.0+

Mobile 11+

5.0+

# geolocation

- ▶ GPS, A-GPS, Wi-Fi, cells

W3C



webOS

Geolocation

2.0+

2.0+

6.0+

9.0+

Mobile 11+

5.0+

# geolocation

- ▶ GPS, A-GPS, Wi-Fi, cells
- ▶ (some) force GPS "highAccuracy"

W3C



webOS

Geolocation

2.0+

2.0+

6.0+

9.0+

Mobile 11+

5.0+

# geolocation

- ▶ GPS, A-GPS, Wi-Fi, cells
- ▶ (some) force GPS "highAccuracy"
- ▶ (some) heading

W3C



webOS

Geolocation

2.0+

2.0+

6.0+

9.0+

Mobile 11+

5.0+

# geolocation

- ▶ GPS, A-GPS, Wi-Fi, cells
- ▶ (some) force GPS "highAccuracy"
- ▶ (some) heading
- ▶ once or movement

W3C



webOS

Geolocation

2.0+

2.0+

6.0+








9.0+

Mobile 11+

5.0+










# offline web storage

				 <small>Internet Explorer 9</small>			webOS
Web Storage	2.0+	2.0+	6.0+	9.0+	Mobile 11+	5.0+	








# offline web storage

- ▶ persistent and session storage

				 <small>Internet Explorer 9</small>			webOS
Web Storage	2.0+	2.0+	6.0+	9.0+	Mobile 11+	5.0+	








# offline web storage

- ▶ persistent and session storage
- ▶ key/value (strings)

				 <small>Internet Explorer 9</small>			webOS
Web Storage	2.0+	2.0+	6.0+	9.0+	Mobile 11+	5.0+	

# offline web storage

- ▶ persistent and session storage
- ▶ key/value (strings)
- ▶ (some) allow object storage

				 <small>Internet Explorer 9</small>			webOS
Web Storage	2.0+	2.0+	6.0+	9.0+	Mobile 11+	5.0+	

# offline web storage

- ▶ persistent and session storage
- ▶ key/value (strings)
- ▶ (some) allow object storage
- ▶ limit space, non-standard ~5Mb

W3C



webOS

Web Storage

2.0+

2.0+

6.0+

9.0+

Mobile 11+

5.0+

# offline web storage

- ▶ persistent and session storage
- ▶ key/value (strings)
- ▶ (some) allow object storage
- ▶ limit space, non-standard ~5Mb
- ▶ be careful with private browsing

W3C



webOS

Web Storage

2.0+

2.0+

6.0+

9.0+

Mobile 11+

5.0+

# offline sql storage

W3C



webOS

---

deprecated

2.2+

2.0+

6.0+

Mobile II+

# offline sql storage

- ▶ persistent and session storage

W3C



webOS

deprecated

2.2+

2.0+

6.0+

Mobile 11+



# offline sql storage

- ▶ persistent and session storage
- ▶ key/value (strings)

W3C



webOS

---

deprecated

2.2+

2.0+

6.0+

Mobile 11+

# offline sql storage

- ▶ persistent and session storage
- ▶ key/value (strings)
- ▶ (some) allow object storage

W3C



webOS

deprecated

2.2+

2.0+

6.0+

Mobile 11+

# offline sql storage

- ▶ persistent and session storage
- ▶ key/value (strings)
- ▶ (some) allow object storage
- ▶ limit space, non-standard ~5Mb

W3C



webOS

deprecated

2.2+

2.0+

6.0+

Mobile 11+

# offline sql storage

- ▶ persistent and session storage
- ▶ key/value (strings)
- ▶ (some) allow object storage
- ▶ limit space, non-standard ~5Mb
- ▶ be careful with private browsing

W3C



webOS

deprecated

2.2+

2.0+

6.0+

Mobile 11+

# multimedia API

W3C



webOS

Web Storage

3.0+

2.3+

7.0+








9.0+

Mobile 11+

5.0+








# multimedia API

- ▶ audio and video tags

				 <small>Internet Explorer 9</small>			webOS
Web Storage	3.0+	2.3+	7.0+	9.0+	Mobile 11+	5.0+	








# multimedia API

- ▶ audio and video tags
- ▶ javascript api & events

				 <small>Internet Explorer 9</small>			webOS
Web Storage	3.0+	2.3+	7.0+	9.0+	Mobile 11+	5.0+	

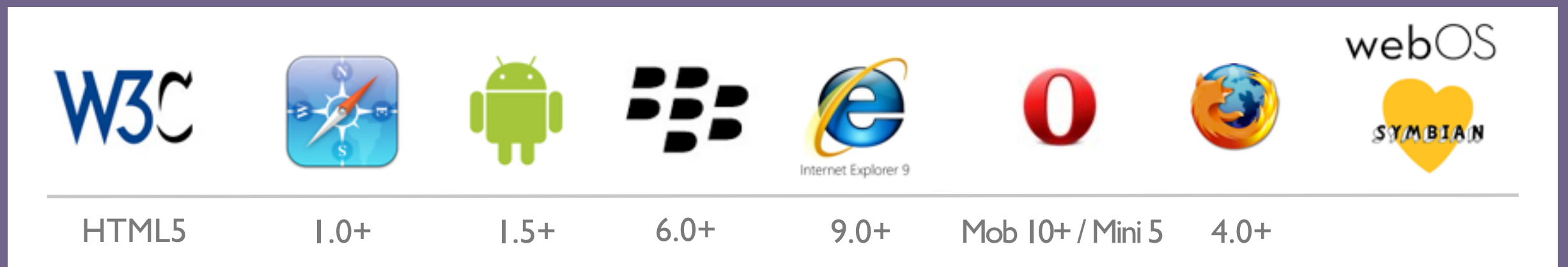
# multimedia API

- ▶ audio and video tags
- ▶ javascript api & events
- ▶ codecs nightmare

				 <small>Internet Explorer 9</small>			webOS
Web Storage	3.0+	2.3+	7.0+	9.0+	Mobile 11+	5.0+	

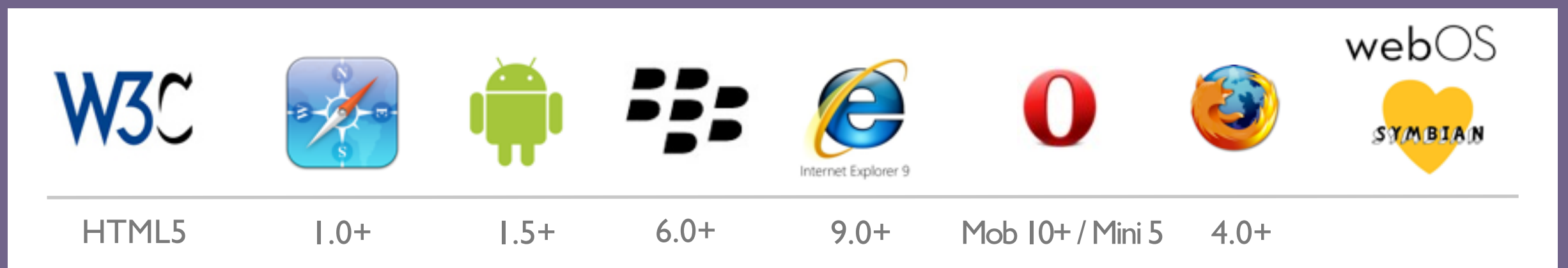


# 2d drawing api (canvas)



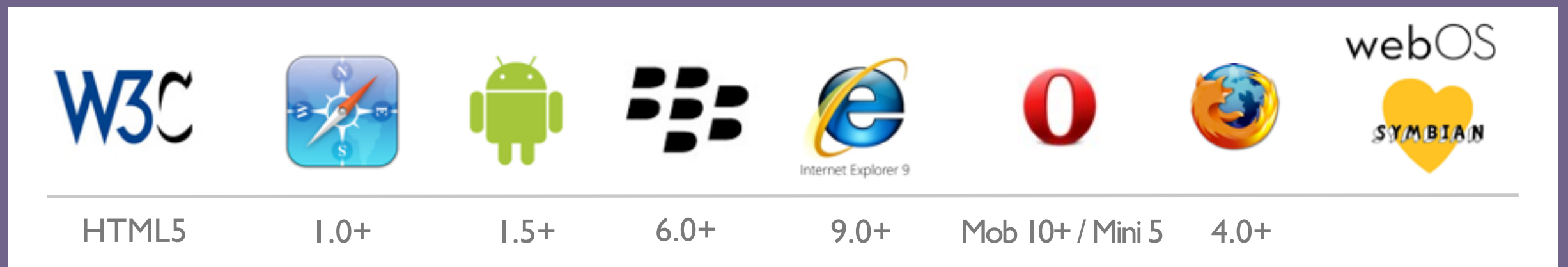
# 2d drawing api (canvas)

- ▶ great support



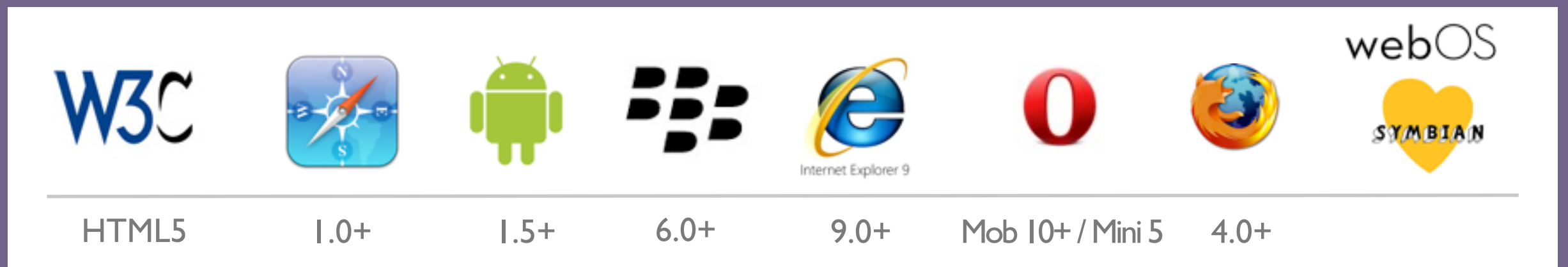
# 2d drawing api (canvas)

- ▶ great support
- ▶ javascript-based drawing



# 2d drawing api (canvas)

- ▶ great support
- ▶ javascript-based drawing
- ▶ (some) allows data URI export



# svg



SVG



2.2+



3.0+



4.7+



9.0+



Mob 10+ / Mini 5



4.0+



# svg

- ▶ old standard

W3C



SVG

2.2+

3.0+

4.7+

9.0+

Mob 10+ / Mini 5

4.0+

# svg

- ▶ old standard
- ▶ scalable vector graphics

W3C



SVG

2.2+

3.0+

4.7+

9.0+

Mob 10+ / Mini 5

4.0+

# svg

- ▶ old standard
- ▶ scalable vector graphics
- ▶ (some) allows inline `<svg>` tag

W3C



SVG

2.2+

3.0+

4.7+

9.0+

Mob 10+ / Mini 5

4.0+



# svg

- ▶ old standard
- ▶ scalable vector graphics
- ▶ (some) allows inline `<svg>` tag
- ▶ (some) allows svg as background



SVG



2.2+



3.0+



4.7+



9.0+



Mob 10+ / Mini 5



4.0+



# svg

- ▶ old standard
- ▶ scalable vector graphics
- ▶ (some) allows inline `<svg>` tag
- ▶ (some) allows svg as background
- ▶ (some) allows svg as font



SVG



2.2+



3.0+



4.7+



9.0+



Mob 10+ / Mini 5



4.0+



# motion sensors



---

DeviceOrientation

4.2+

3.0+

4.7+ (basic)

6.0+ (moz)

# motion sensors

- ▶ accelerometer / gyroscope / magnetometer

W3C



DeviceOrientation

4.2+

3.0+

4.7+ (basic)

6.0+ (moz)

# motion sensors

- ▶ accelerometer / gyroscope / magnetometer
- ▶ `onorientationchange`

W3C



DeviceOrientation

4.2+

3.0+

4.7+ (basic)

6.0+ (moz)

# motion sensors

- ▶ accelerometer / gyroscope / magnetometer
- ▶ `onorientationchange`
- ▶ `window.orientation`

W3C



DeviceOrientation

4.2+

3.0+

4.7+ (basic)

6.0+ (moz)

# motion sensors

- ▶ accelerometer / gyroscope / magnetometer
- ▶ `onorientationchange`
- ▶ `window.orientation`
- ▶ games, visual effects, pressure detection?

W3C



DeviceOrientation

4.2+

3.0+

4.7+ (basic)








6.0+ (moz)

# motion sensors

- ▶ accelerometer / gyroscope / magnetometer
- ▶ `onorientationchange`
- ▶ `window.orientation`
- ▶ games, visual effects, pressure detection?

[mobilexweb.com/samples/ball.html](http://mobilexweb.com/samples/ball.html)

[mobilexweb.com/samples/pressure.html](http://mobilexweb.com/samples/pressure.html)

						
DeviceOrientation	4.2+	3.0+	4.7+ (basic)			6.0+ (moz)



# touch events

W3C



Touch events

3.0+

2.1+

6.1+

6.0+

# touch events

- ▶ iOS specification

W3C



Touch events

3.0+

2.1+

6.1+

6.0+

# touch events

- ▶ iOS specification
- ▶ some differences between implementations

W3C



---

Touch events

3.0+

2.1+

6.1+

6.0+

# touch events

- ▶ iOS specification
- ▶ some differences between implementations
- ▶ (some) multi-touch

W3C



Touch events

3.0+

2.1+

6.1+

6.0+

# touch events

- ▶ iOS specification
- ▶ some differences between implementations
- ▶ (some) multi-touch
- ▶ touchstart, touchmove, touchend, touchcancel

W3C



---

Touch events

3.0+

2.1+

6.1+

6.0+

# touch events

- ▶ iOS specification
- ▶ some differences between implementations
- ▶ (some) multi-touch
- ▶ touchstart, touchmove, touchend, touchcancel
- ▶ (some) touchenter, touchleave

W3C



---

Touch events

3.0+

2.1+

6.1+

6.0+

# css3 basic



CSS 3



1.0+



1.0+



6.0+



Internet Explorer 9

9.0+



10+



6.0+



Anna+

# css3 basic

- ▶ basic new styling

W3C



CSS 3

1.0+

1.0+

6.0+

9.0+

10+

6.0+

Anna+



# css3 basic

- ▶ basic new styling
- ▶ rounded borders, opacity



CSS 3



1.0+



1.0+



6.0+



9.0+



10+



6.0+



Anna+

# css3 basic

- ▶ basic new styling
- ▶ rounded borders, opacity
- ▶ (some) still requires prefix



CSS 3



1.0+



1.0+



6.0+



9.0+



10+



6.0+



Anna+

# css3 basic

- ▶ basic new styling
- ▶ rounded borders, opacity
- ▶ (some) still requires prefix
- ▶ -webkit, -o, -moz, -ms

W3C



CSS 3

1.0+

1.0+

6.0+

9.0+

10+

6.0+

Anna+

# css3 transforms



CSS 3



2.0+



2.0+



6.0+



Internet Explorer 9

9.0+



11+



6.0+



Anna+

# css3 transforms

- ▶ basic 2d transforms



CSS 3



2.0+



2.0+



6.0+



Internet Explorer 9

9.0+



11+



6.0+



Anna+

# css3 transforms

- ▶ basic 2d transforms
- ▶ -webkit, -o, -moz, -ms

W3C



CSS 3

2.0+

2.0+

6.0+

9.0+

11+

6.0+

Anna+

# css3 transforms

- ▶ basic 2d transforms
- ▶ -webkit, -o, -moz, -ms
- ▶ rotate, scale, skew, translate

W3C



CSS 3

2.0+

2.0+

6.0+

9.0+

11+

6.0+

Anna+

# css3 transforms

- ▶ basic 2d transforms
- ▶ -webkit, -o, -moz, -ms
- ▶ rotate, scale, skew, translate
- ▶ (some) matrix

W3C



CSS 3

2.0+

2.0+

6.0+

9.0+

11+

6.0+

Anna+



# css3 transforms

- ▶ basic 2d transforms
- ▶ -webkit, -o, -moz, -ms
- ▶ rotate, scale, skew, translate
- ▶ (some) matrix
- ▶ (some) 3d transforms

W3C



CSS 3

2.0+

2.0+

6.0+

9.0+

11+

6.0+

Anna+

# css3 transitions



CSS 3



2.0+



2.0+



6.0+



10+



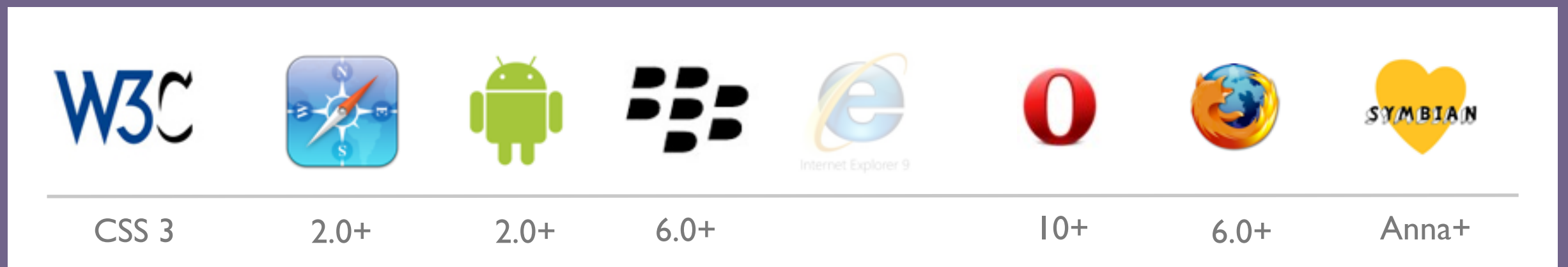
6.0+



Anna+

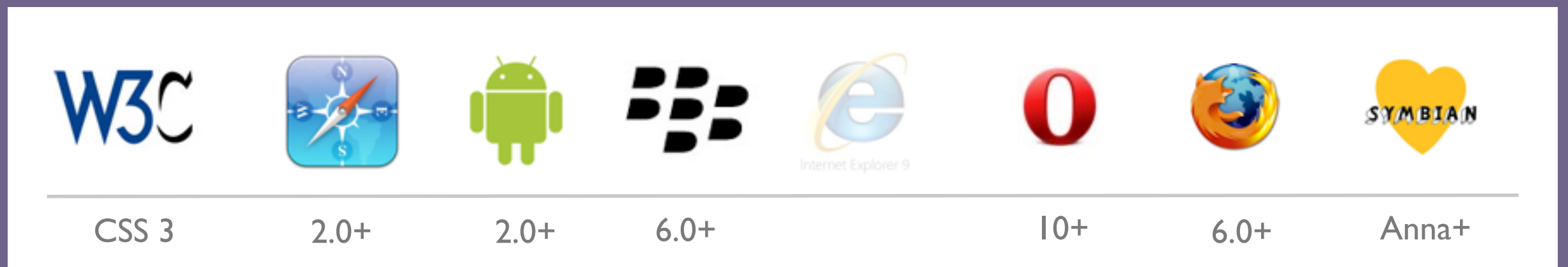
# css3 transitions

- ▶ basic animations between 2 states



# css3 transitions

- ▶ basic animations between 2 states
- ▶ prefix



# css3 animations



CSS 3



2.2+



2.0+



6.0+



Internet Explorer 9



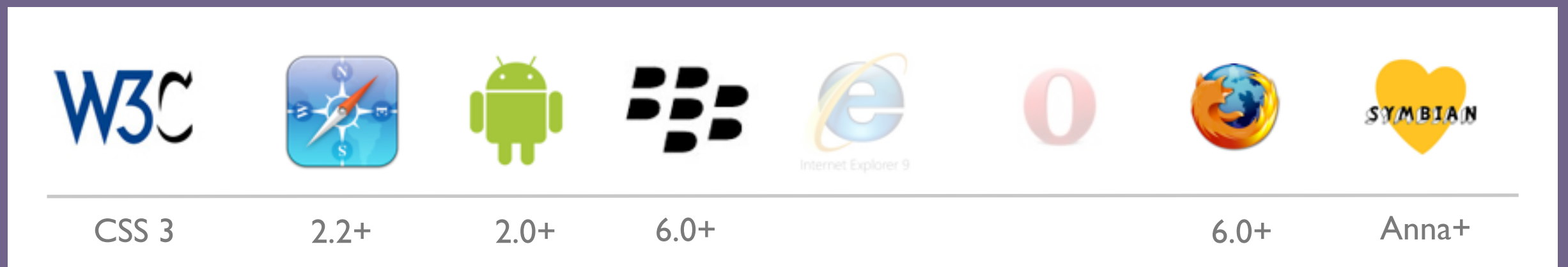
6.0+



Anna+

# css3 animations

- ▶ keyframe animations



# css3 animations

- ▶ keyframe animations
- ▶ attribute prefix and keyframe prefix



CSS 3



2.2+



2.0+



6.0+



Internet Explorer 9



6.0+



Anna+

# css3 animations

- ▶ keyframe animations
- ▶ attribute prefix and keyframe prefix
- ▶ duplication :S



CSS 3



2.2+



2.0+



6.0+



Internet Explorer 9



6.0+



Anna+



# server-sent events



Internet Explorer 9



---

Server-Sent events








4.1+

Mobile 11+

6.0+

# server-sent events

- ▶ EventSource

				 <small>Internet Explorer 9</small>		
Server-Sent events	4.1+				Mobile 11+	6.0+

# server-sent events

- ▶ EventSource
- ▶ reduce AJAX/Comet solutions

W3C



---

Server-Sent events

4.1+

Mobile 11+

6.0+

# server-sent events

- ▶ EventSource
- ▶ reduce AJAX/Comet solutions
- ▶ be careful with proxies/3g connections

W3C



---

Server-Sent events

4.1+

Mobile 11+

6.0+

# web sockets



web sockets

4.2+

6.1+

Mobile 11+

6.0+

# web sockets

- ▶ Evolution of bi-directional communication

W3C



web sockets

4.2+

6.1+

Mobile 11+

6.0+

# web sockets

- ▶ Evolution of bi-directional communication
- ▶ reduce AJAX/Comet solutions

W3C



---

web sockets

4.2+

6.1+

Mobile 11+

6.0+

# web sockets

- ▶ Evolution of bi-directional communication
- ▶ reduce AJAX/Comet solutions
- ▶ be careful with proxies/3g connections

W3C



---

web sockets

4.2+

6.1+

Mobile 11+

6.0+



# web sockets

- ▶ Evolution of bi-directional communication
- ▶ reduce AJAX/Comet solutions
- ▶ be careful with proxies/3g connections
- ▶ special server

W3C



---

web sockets

4.2+

6.1+

Mobile 11+

6.0+

# web sockets

- ▶ Evolution of bi-directional communication
- ▶ reduce AJAX/Comet solutions
- ▶ be careful with proxies/3g connections
- ▶ special server
- ▶ standard changed months ago

W3C



---

web sockets

4.2+

6.1+

Mobile 11+

6.0+

# web workers



---

web workers

6.0+

Mobile 11+

6.0+

# web workers

- ▶ threading in JavaScript

W3C



Internet Explorer 9



---

web workers

6.0+

Mobile 11+

6.0+

# web workers

- ▶ threading in JavaScript
- ▶ important for performance

W3C



---

web workers

6.0+

Mobile 11+

6.0+

# web workers

- ▶ threading in JavaScript
- ▶ important for performance
- ▶ worker without DOM manipulation

W3C



---

web workers

6.0+

Mobile 11+

6.0+

what is just  
starting...?

# apis starting to appear



# apis starting to appear

- ▶ XMLHttpRequest 2 - Android 3.0

# apis starting to appear

- ▶ XMLHttpRequest 2 - Android 3.0
- ▶ Navigation Timing API - Internet Explorer 9.0

# apis starting to appear

- ▶ XMLHttpRequest 2 - Android 3.0
- ▶ Navigation Timing API - Internet Explorer 9.0
- ▶ Notifications API - Firefox 6.0

# apis starting to appear

- ▶ XMLHttpRequest 2 - Android 3.0
- ▶ Navigation Timing API - Internet Explorer 9.0
- ▶ Notifications API - Firefox 6.0
- ▶ Network Information API - Android 2.2+

# apis starting to appear

- ▶ XMLHttpRequest 2 - Android 3.0
- ▶ Navigation Timing API - Internet Explorer 9.0
- ▶ Notifications API - Firefox 6.0
- ▶ Network Information API - Android 2.2+
- ▶ File API and FileReader API - Android 3.0

# apis starting to appear

- ▶ XMLHttpRequest 2 - Android 3.0
- ▶ Navigation Timing API - Internet Explorer 9.0
- ▶ Notifications API - Firefox 6.0
- ▶ Network Information API - Android 2.2+
- ▶ File API and FileReader API - Android 3.0
- ▶ CORS (cross-domain AJAX) - Android 2.2+, iOS 3.2+

# apis starting to appear

- ▶ XMLHttpRequest 2 - Android 3.0
- ▶ Navigation Timing API - Internet Explorer 9.0
- ▶ Notifications API - Firefox 6.0
- ▶ Network Information API - Android 2.2+
- ▶ File API and FileReader API - Android 3.0
- ▶ CORS (cross-domain AJAX) - Android 2.2+, iOS 3.2+
- ▶ Media Camera API - Android 3.0

# apis starting to appear

- ▶ XMLHttpRequest 2 - Android 3.0
- ▶ Navigation Timing API - Internet Explorer 9.0
- ▶ Notifications API - Firefox 6.0
- ▶ Network Information API - Android 2.2+
- ▶ File API and FileReader API - Android 3.0
- ▶ CORS (cross-domain AJAX) - Android 2.2+, iOS 3.2+
- ▶ Media Camera API - Android 3.0
- ▶ IndexedDB - Firefox 6.0



and what to expect  
in the future?

for later this year...

# for later this year...

- ▶ Augmented Reality on the web

# for later this year...

- ▶ Augmented Reality on the web
- ▶ Camera API

# for later this year...

- ▶ Augmented Reality on the web
- ▶ Camera API
- ▶ Idle detection

# for later this year...

- ▶ Augmented Reality on the web
- ▶ Camera API
- ▶ Idle detection
- ▶ Speech detection

# for later this year...

- ▶ Augmented Reality on the web
- ▶ Camera API
- ▶ Idle detection
- ▶ Speech detection
- ▶ More 3D Drawing API (aka WebGL)

# for later this year...

- ▶ Augmented Reality on the web
- ▶ Camera API
- ▶ Idle detection
- ▶ Speech detection
- ▶ More 3D Drawing API (aka WebGL)
- ▶ Native integration API



# for later this year...

- ▶ Augmented Reality on the web
- ▶ Camera API
- ▶ Idle detection
- ▶ Speech detection
- ▶ More 3D Drawing API (aka WebGL)
- ▶ Native integration API
- ▶ Contacts and Calendar API

# for later this year...

- ▶ Augmented Reality on the web
- ▶ Camera API
- ▶ Idle detection
- ▶ Speech detection
- ▶ More 3D Drawing API (aka WebGL)
- ▶ Native integration API
- ▶ Contacts and Calendar API
- ▶ Messaging API

# for later this year...

- ▶ Augmented Reality on the web
- ▶ Camera API
- ▶ Idle detection
- ▶ Speech detection
- ▶ More 3D Drawing API (aka WebGL)
- ▶ Native integration API
- ▶ Contacts and Calendar API
- ▶ Messaging API
- ▶ Orientation Lock

# for later this year...

- ▶ Augmented Reality on the web
- ▶ Camera API
- ▶ Idle detection
- ▶ Speech detection
- ▶ More 3D Drawing API (aka WebGL)
- ▶ Native integration API
- ▶ Contacts and Calendar API
- ▶ Messaging API
- ▶ Orientation Lock
- ▶ More debugging tools


# how to embrace differences



A close-up photograph of several sliced onion rings. The rings are arranged in a slightly overlapping pattern, showing the characteristic concentric layers of the onion. The color is a vibrant purple-pink. The central core of each ring is visible, showing a small, yellowish-brown center. The text 'progressive enhancement' is overlaid in the upper center of the image.

# progressive enhancement





**can we create a  
multiplatform html5  
mobile app?**

**some last advices**



**DANGER**  
OVERHEAD CATENARY  
WIRES ARE ALIVE

# GOVERNMENT CENTER

TO B.C., CLEVELAND CIRCLE, RIVERSIDE, HEATH VIA PARK

UND

NO SMOKING

1  
2  
0  
0

**DON'T BE  
AVERAGE.**

GOOD BANKING IS GOOD CITIZENSHIP. Citizens Bank

www.the.citizensbank.com

-1083 + 0-





performance,  
performance

**good practices**

NO  
PARKING





# don't be fanatic



photo by Kurt Christensen  
(flickr)



# be multiplatform



be **FUTURE** ☆ **FRIENDLY**



**futurefriendly.ly**

# thank you!

See you now 11.30 5th floor  
O'Reilly booth  
Book signing

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twitter: @firt  
[www.mobilexweb.com](http://www.mobilexweb.com)