

Hell is other browsers - *Sartre*

# The Mobile Web

(or the masochist's guide to gleeful  
self-flagellation)

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<http://quirksmode.org>

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Full Frontal, 20 November 2009



# The Mobile Web

Mobile is the single most fascinating development on the Web in many years.

Problem is: we don't have the faintest idea what to do with it.

Yet.

# Mobile browsers

- Android WebKit
- Opera Mobile
- NetFront
- Safari
- MicroB
- Blackberry
- S60 WebKit
- IE Mobile
- Palm WebKit
- Iris
- Bolt
- Skyfire
- Obigo
- Fennec
- Teashark
- Ozone
- Opera Mini

You may groan now.

# Mobile browsers

- Android WebKit
- Opera Mobile
- NetFront
- Safari
- MicroB
- Blackberry
- S60 WebKit
- IE Mobile
- Palm WebKit

Default browsers

- Iris
- Bolt
- Skyfire
- Obigo
- Fennec
- Teashark
- Ozone
- Opera Mini

Non-default

# Mobile browsers

- Android WebKit
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- S60 WebKit
- IE Mobile
- Palm
- Iris
- Bolt
- Skyfire
- Obigo
- Fennec
- Teashark
- Ozone
- Opera Mini

These are all WebKit browsers.

# WebKit Mobile

There is no WebKit on Mobile.

There's iPhone Safari (2 and 3),  
and Android (1.0 and 1.5)  
and S60 WebKit (v3 and v5)  
and Iris, which was bought by Blackberry  
and Palm  
and Bolt, Ozone, Teashark, and a few more

These WebKits are *all different*.

# There is no WebKit on Mobile.

Exhibit A: <http://quirksmode.org/m>

S60v3	S60v5	iPhone 2.2	iPhone 3.1	Android 1.0	Android 1.5 / 1.6	Bolt 1.5	Iris 1.1.9	Ozone 0.9	Palm Pre 1.2.1
buggy	no	static	static	yes	yes	yes	yes	yes	static

...e original element when another element is placed after it.

yes	incorrect	incomplete	incorrect	incorrect	incomplete	yes	incorrect
-----	-----------	------------	-----------	-----------	------------	-----	-----------

...has as if it has absolute while scrolling. After scrolling has finished it's placed at the

...ute.

no	static	to be tested	yes	static	yes	yes	yes	yes
----	--------	--------------	-----	--------	-----	-----	-----	-----



# Mobile browsers

The main battle on mobile is now between “WebKit” and Opera.

WebKit is free, but that means everybody creates his own version.

Opera costs money (for vendors), but there's some central planning, and therefore less differences.

# Mobile browsers

- Blackberry browser is dead; they'll switch to WebKit instead
- Mozilla is very late to the game
- NetFront is not very good
- IE ... is IE (IE6, to be precise)
- The minor browsers are even worse

# Example

Compatibility  
QuirksBlog  
About

Book  
[pjk on JavaScript](#),  
contains all  
information a  
beginning  
JavaScripter  
needs.

HELL IS OTHER BROWSERS - SARTRE

The screenshot shows a table with columns for various browsers: MSN, IE 5.0, IE 5.5, IE 6, IE 7, FF 1, FF 1.5, FF 2, FF 3, FF 3.5, FF 4, FF 5, FF 6, FF 7, FF 8, FF 9, FF 10, FF 11, FF 12, FF 13, FF 14, FF 15, FF 16, FF 17, FF 18, FF 19, FF 20, FF 21, FF 22, FF 23, FF 24, FF 25, FF 26, FF 27, FF 28, FF 29, FF 30, FF 31, FF 32, FF 33, FF 34, FF 35, FF 36, FF 37, FF 38, FF 39, FF 40, FF 41, FF 42, FF 43, FF 44, FF 45, FF 46, FF 47, FF 48, FF 49, FF 50, FF 51, FF 52, FF 53, FF 54, FF 55, FF 56, FF 57, FF 58, FF 59, FF 60, FF 61, FF 62, FF 63, FF 64, FF 65, FF 66, FF 67, FF 68, FF 69, FF 70, FF 71, FF 72, FF 73, FF 74, FF 75, FF 76, FF 77, FF 78, FF 79, FF 80, FF 81, FF 82, FF 83, FF 84, FF 85, FF 86, FF 87, FF 88, FF 89, FF 90, FF 91, FF 92, FF 93, FF 94, FF 95, FF 96, FF 97, FF 98, FF 99, FF 100. The table contains compatibility data for features like 'blur', 'change', 'click', and 'focus'.

- o Compatibility  
This site contains  
the [Browser  
Compatibility  
Tables](#).
- o Blogs  
[QuirksBlog](#),  
[Elsewhere on the  
Net](#)

[quirksmode]  
[pjk]

QuirksMode.org is the prime source for browser compatibility information on the Internet. It is maintained by Peter-Paul Koch, [freelance front-end consultant, agent, and trainer](#) in Amsterdam, the Netherlands.

QuirksMode.org is the home of the [Browser Compatibility Tables](#), where you'll find hype-free assessments of the major browsers' CSS and JavaScript capabilities, as well as their adherence to the W3C standards.

- o Freelance  
I'm a [freelance  
front-end  
consultant, agent,  
and trainer](#). You  
can hire me or the  
freelancers I  
represent.



# QuirksMode - for all your browser quirks

quirksmode.org/



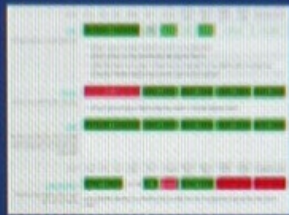
Google

HELL IS OTHER BROWSERS - Safari

[quirk(smode)]

ppi(

- Compatibility
- QuirksBlog
- About



QuirksMode.org is the primary source for browser compatibility information on the Internet. It is maintained by Peter-Paul Koch, [quirks@quirksmode.org](mailto:quirks@quirksmode.org), and Joris van Amerongen, the WebKit lead.

QuirksMode.org is the home of the [Browser Compatibility Tables](#), where you'll find hyper-linked browser entries of the major browsers' CSS and JavaScript capabilities, as well as their reference to the W3C standards.

**Book**  
[quirksmode.org](#) contains all information a beginning JavaScript needs.

**Compatibility**  
 This site contains the [Browser Compatibility Tables](#).

**Blog**  
[QuirksBlog](#)  
[quirksmode.org](#)

**Freebies**  
 This is [quirksmode.org](#). You can hire me as the developer. I respond.

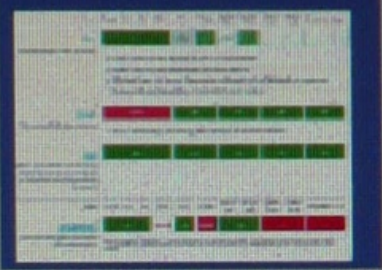
Safari iPhone 2.2  
 Zooms out and shows entire page.  
 Width about 900px





HELL IS OTHER BROW

[quir](smod



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QuirksBlog  
Browser-compat-  
Test

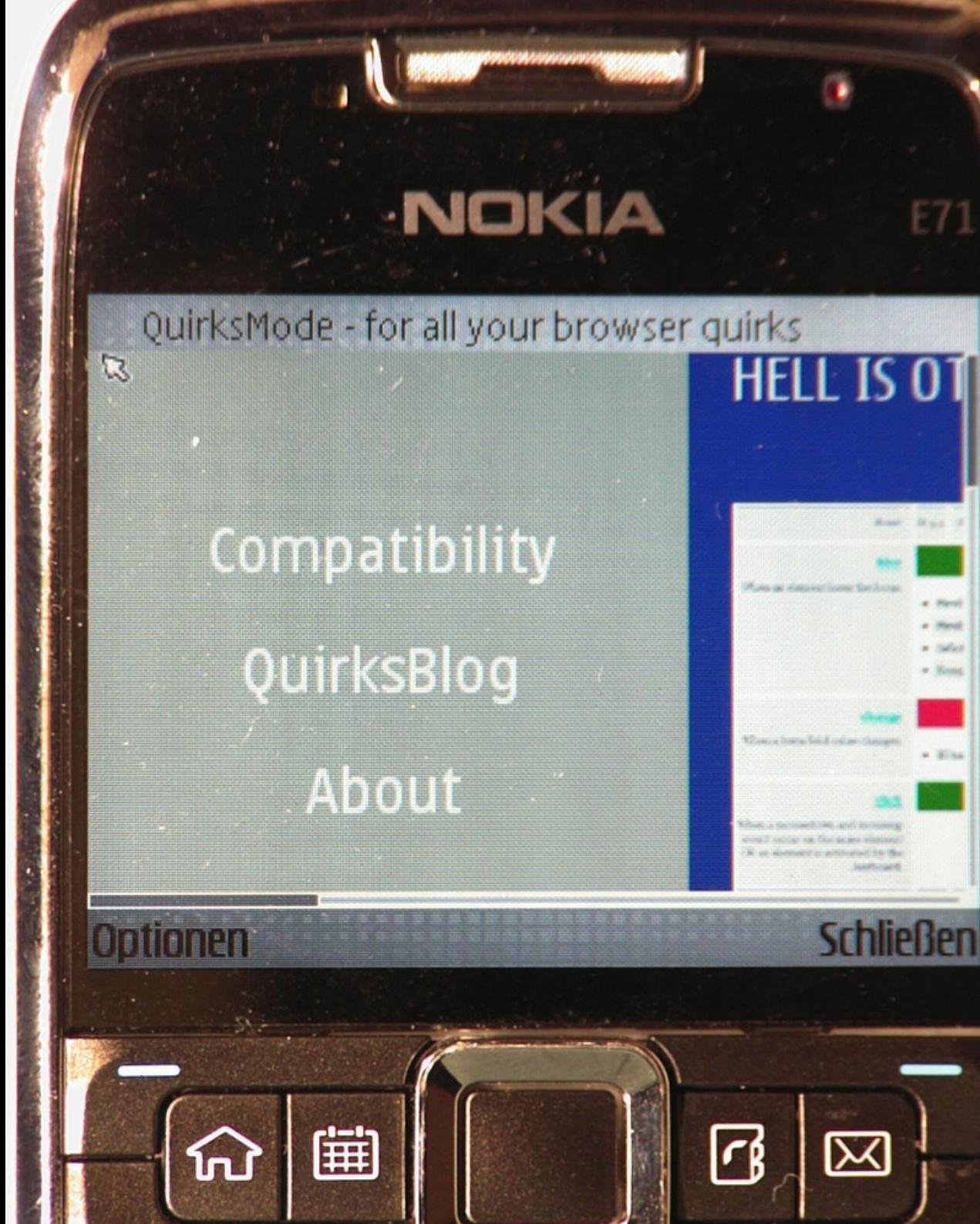
Freelance  
I'm a freelance  
front-end  
consultant, agent,  
and trainer. You  
can hire me or  
the freelancers I  
represent.

Blackberry 9500  
(Storm)

Same, but with a  
few bugs.

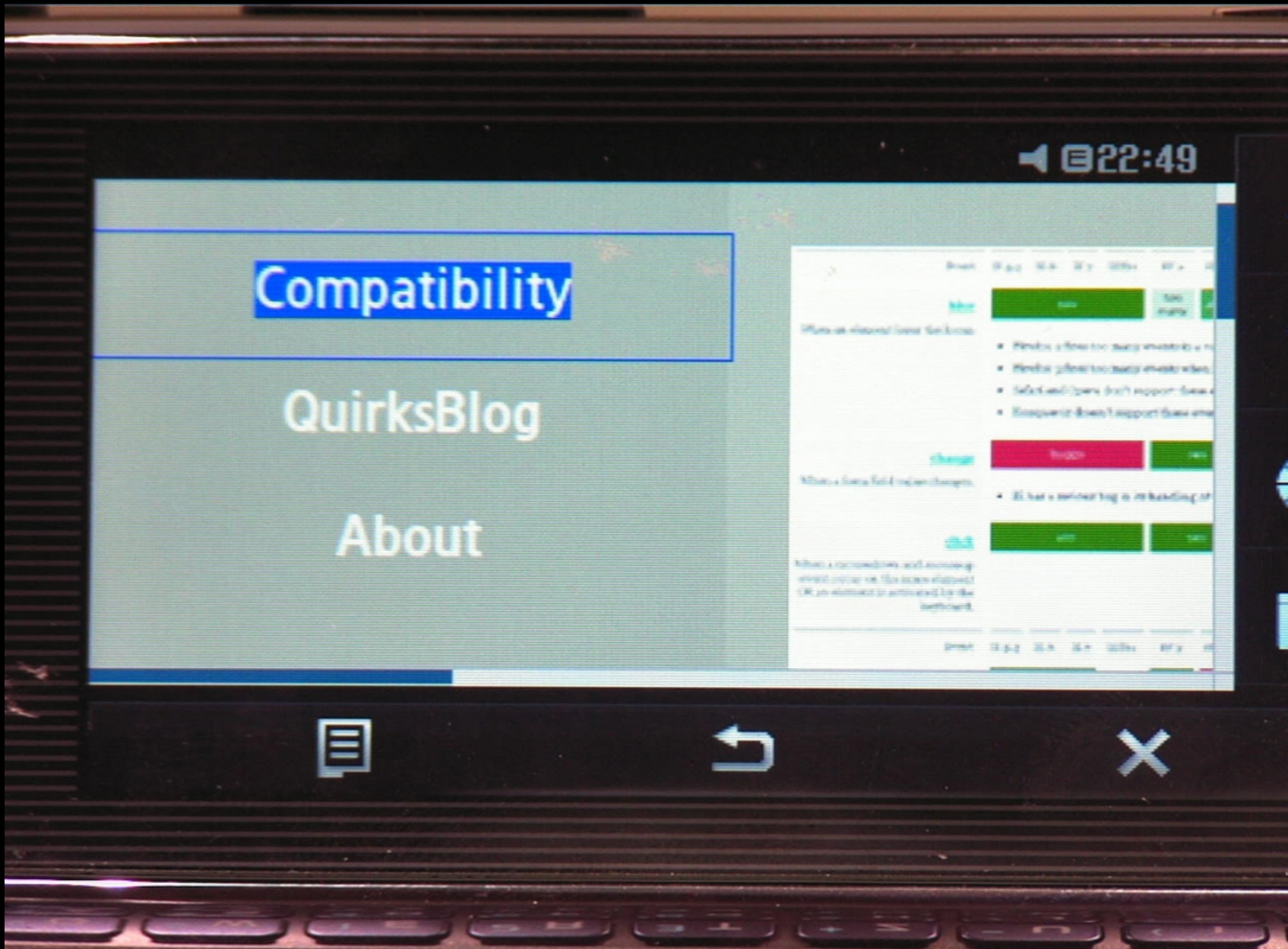


# S60v3 WebKit on Nokia E71





# NetFront 3.2 on Samsung F700 landscape



# Hell is other browsers - Sartre

Browser	IE 6.0	IE 7.0	IE 8.0	IE 9.0	FF 3.0	FF 3.5	FF 3.6	FF 3.7	Opera 9.5	Opera 10.5	Opera 11.5
<b>IE 6.0</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>IE 7.0</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>IE 8.0</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>IE 9.0</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>FF 3.0</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>FF 3.5</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>FF 3.6</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>FF 3.7</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Opera 9.5</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Opera 10.5</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Opera 11.5</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Compatibility

NetFront 3.2 on Samsung F700 portrait

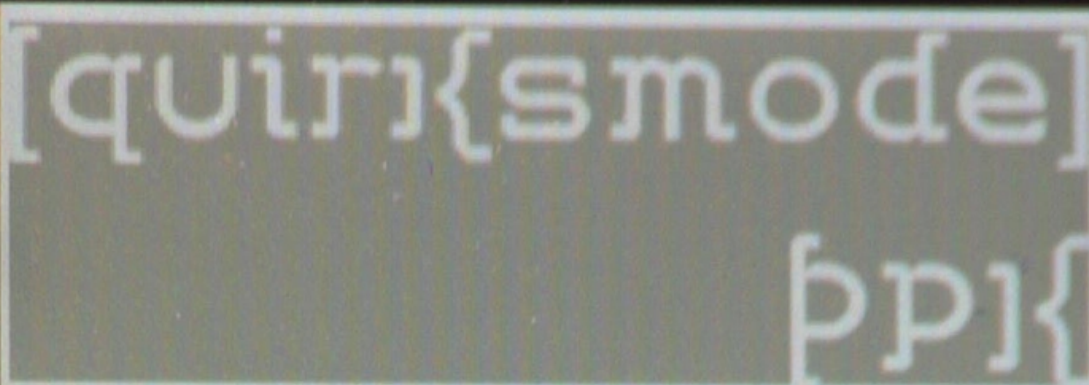
Yeah ... right ...

This is a mobile mode.

Site is squeezed into display.







## Hell is other browsers - Sartre

Browser	IE 6.0	IE 7.0	IE 8.0	Firefox	FF 1.5	FF 1.5.0.1	FF 1.5.0.2	FF 1.5.0.3	Opera 9.50	Opera 9.60	Android 2.0.1
<p><b>div</b></p> <p>When an element loses the focus.</p> <ul style="list-style-type: none"> <li>• Firefox 1.5.0.1 does not emit a number of events as we.</li> <li>• Firefox 1.5.0.2 does not emit when clicking the window.</li> <li>• Safari and Opera don't support <code>onmouseover</code> or <code>onmouseout</code> for <code>div</code> in all circumstances.</li> <li>• Konqueror doesn't support these events on the browser window.</li> </ul>	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
<p><b>change</b></p> <p>When a form field has a change.</p> <ul style="list-style-type: none"> <li>• IE has a minor bug in its handling of the event in the above set rules.</li> </ul>	Fail	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
<p><b>click</b></p> <p>When a mousebutton and mouseup event occur on the same element OR an element is activated by the keyboard.</p>	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
<p><b>onmouseover</b></p> <p>When the user right-clicks to get the context menu.</p> <p>Preventing the default (e.g. preventing the context menu from appearing) is the visible goal of this event.</p>	Pass	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail



Opera Mobile 9.5  
on HTC Touch  
Diamond  
(Win Mob 6.1)  
in *mobile mode*.  
  
Totally different.





**font-weight: 700**

*font-style: italic*

According to JavaScript the `fontStyle` of the previous line is italic

text-decoration: underline

TEXT-TRANSFORM : UPPERCASE

FONT-VARIANT : SMALL-CAPS

color: blue

letter-spacing: 0.3em

word-spacing: 1em    word-spacing:  
1em

font-size: 150%

Opera Mobile 9.5  
on HTC Touch  
Diamond  
(Win Mob 6.1)  
in *desktop mode*.

Basic CSS.



## Basic font CSS - mobile

I want to be sure mobile browsers support this CSS because I often use it in my test cases.

**font-weight: 700**

*font-style: italic*

According to JavaScript the fontStyle of the previous line is italic

text-decoration: underline

TEXT-TRANSFORM: UPPERCASE

font-variant: small-caps

color: blue

letter-spacing: 0.3em

word-spacing: 1em word-spacing: 1em

font-size: 150%



Opera Mobile 9.5  
on HTC Touch  
Diamond  
(Win Mob 6.1)  
in *mobile mode*.

Basic CSS.



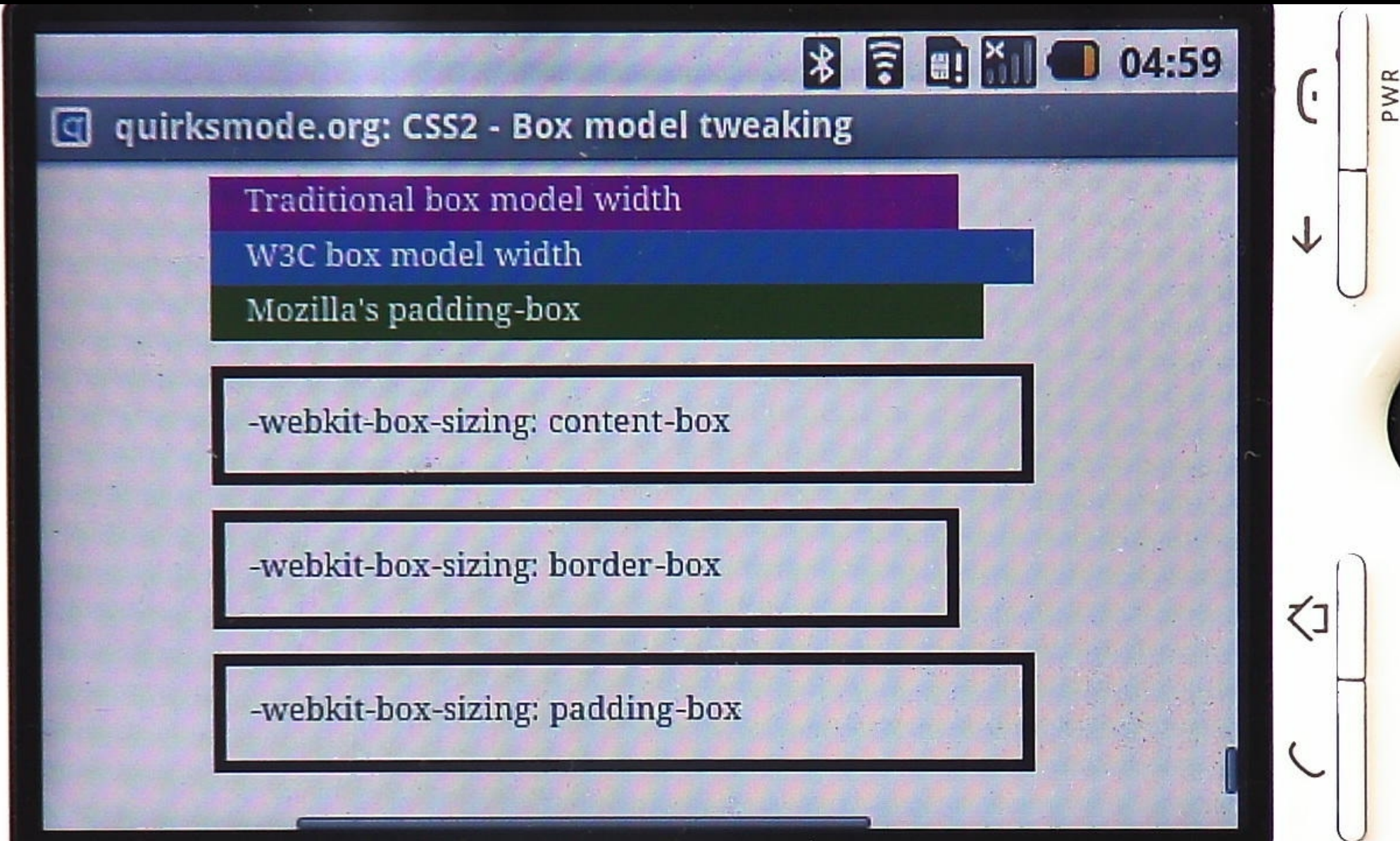


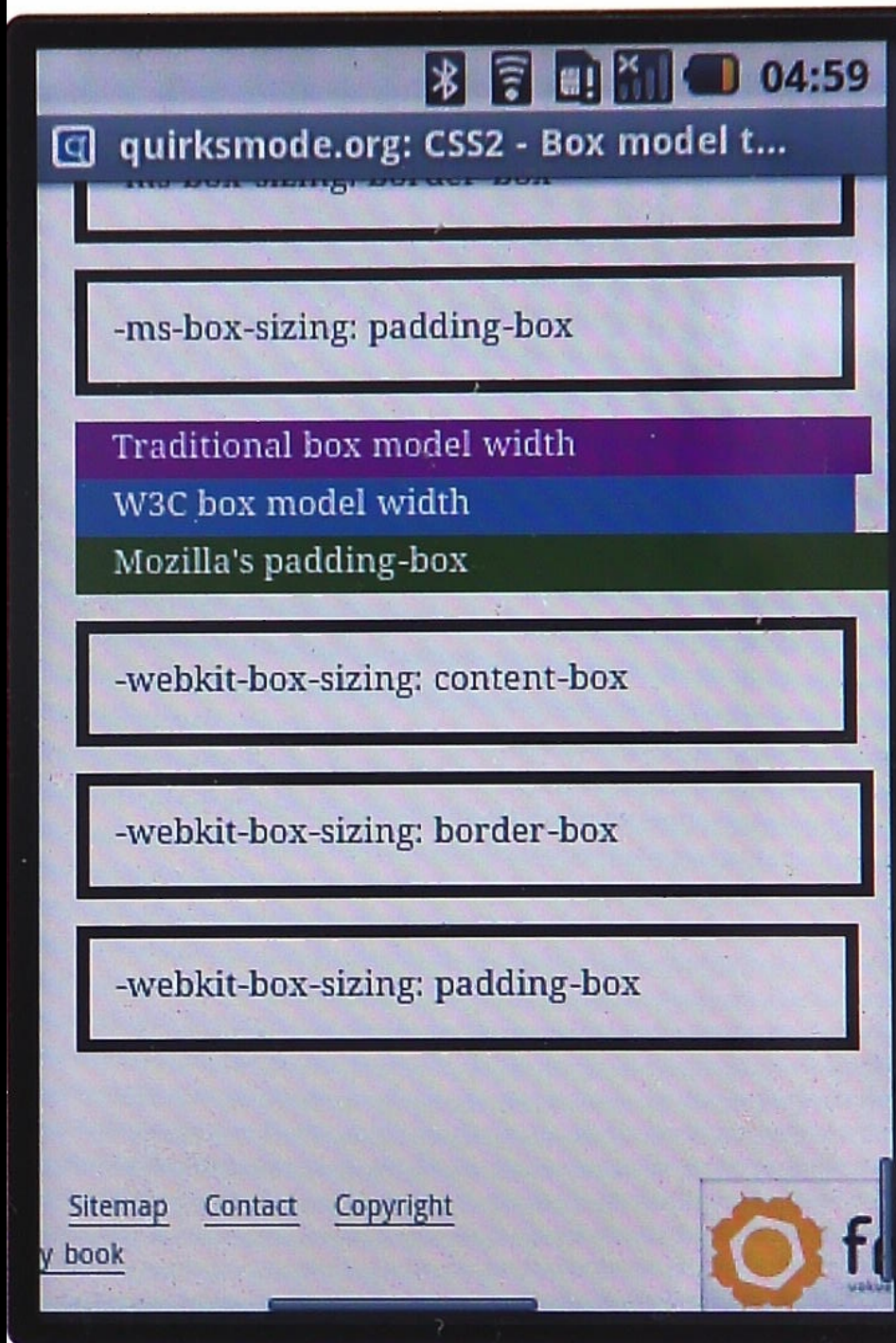
# Android 1.5 landscape mode



HTC

Pioneer





Android 1.5  
portrait, in mobile  
mode.

The 300px wide  
box is smaller than  
the 330px wide  
box.



# Media queries

```
div.sidebar {  
  width: 300px;  
  float: right;  
}
```

```
@media all and (max-width: 400px) {  
  div.sidebar {  
    width: auto;  
    float: none;  
  }  
}
```

# Media queries

- max-width and min-width
- max-device-width and min-device-width
- orientation (portrait or landscape)
- aspect-ratio  
(2/3, 3/4, 4/5, 3/5, 10/16, 80/99)
- dpi (96 for desktop)  
Phones may have up to 200



# Media queries

```
body {  
  font-size: 0.8em;  
}
```

```
@media all and  
  (min-resolution: 150dpi) {  
  body{  
    font-size: 2em;  
  }  
}
```

# JavaScript

The good news:

- Modern mobile browsers support JavaScript.
- Their compatibility with the various standards is ... decent (in general)

# JavaScript

The bad news:

- Performance is still a huge problem.
- Partly caused by small memory.
- Partly caused by lousy implementations.

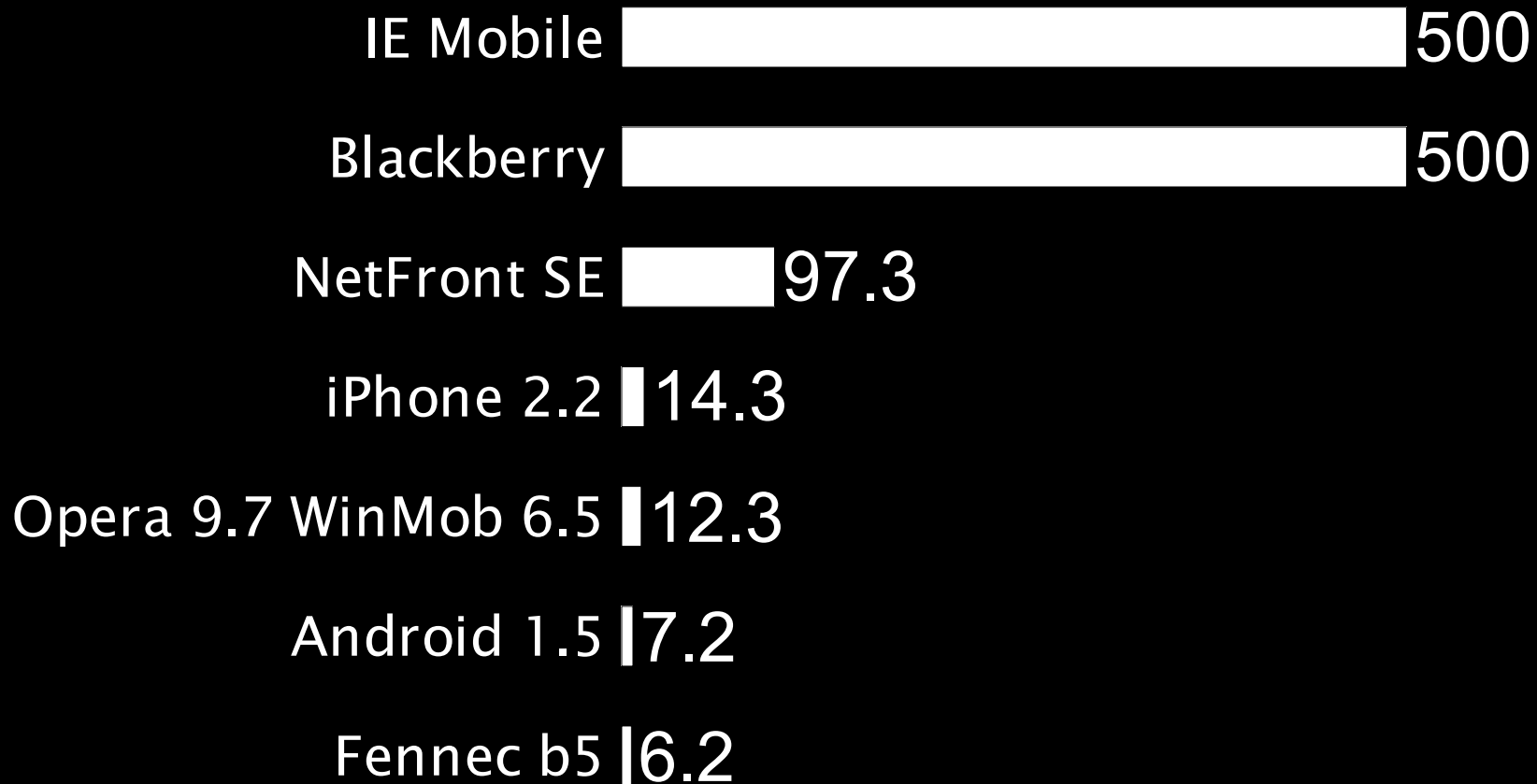
# JavaScript performance

Generate 250 lists with 20 list items each and add them to the document.

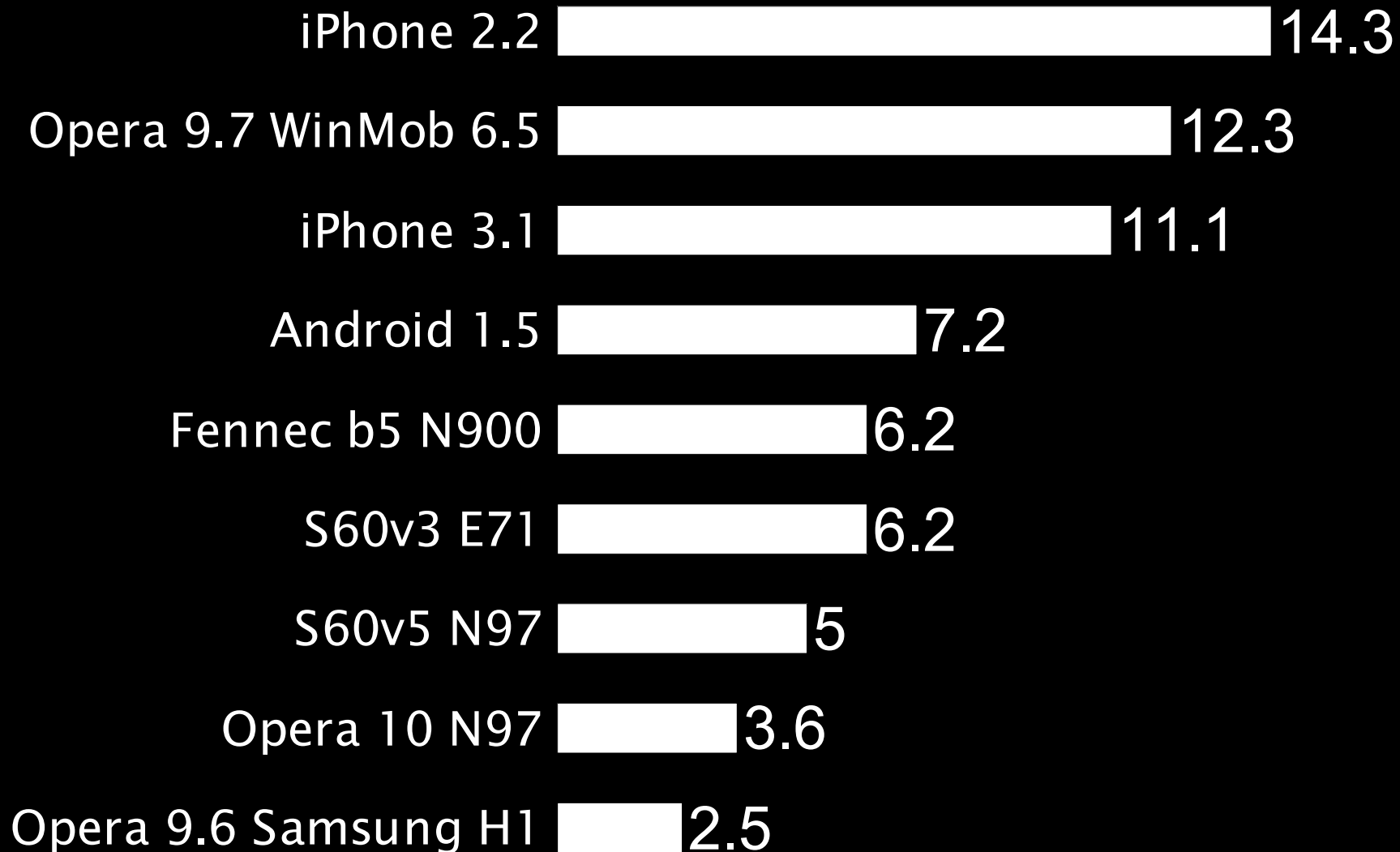
How long does this take?

Significant differences.

# JavaScript performance



# JavaScript performance



# JavaScript performance

Don't use iframes!

They're performance hogs.

That's a problem in several test suites.

They just don't run on mobile phones.

# Connections

If the guy next to you is downloading a few movies

your network connection will slow down regardless of how good it's supposed to be.

I don't see this problem disappearing any time soon.



# Connections

Besides, connections can suddenly and inexplicably disappear.

online/offline events

Currently implemented wrongly (except by Firefox.)

# Connections

Even if they work, connections are a problem on the mobile web, especially when your site uses 200K of custom JavaScript plus a few libraries.

These assets have to be downloaded every time the user visits your site and caching isn't always reliable.

# Connections

Solution:

Put the core files on your mobile phone so that you only need to download the data. Saves a lot of network traffic.

Apps do that. Websites don't.

Enter W3C Widgets.

# W3C Widgets

W3C Widgets are local applications written in HTML, CSS, and JavaScript.

They run in a browser (mainly Opera right now).

They can do Ajax requests for more data.

# Creating W3C Widgets

- Create 1 HTML page with the CSS, JavaScript, and images you need.
- Add an icon and a config.xml
- Zip the lot
- Change extension to .wgt
- Upload to a widget-capable phone
- It Just Works

# W3C Widgets

Besides...

If I have a W3C Widget on my S60 phone  
and you have a Windows Mobile phone  
I can send the widget via Bluetooth  
and It Just Works

(Really; I've done it)

# W3C Widgets

Right now W3C Widgets work in:

- S60 phones with Vodafone Widget Manager
- any phone with Opera Mobile 9.51+
- Windows Mobile 6.5 phones (well, almost)

# W3C Widgets

In the future they might work in:

- Blackberry (first steps taken)
- Nokia Maemo?
- Palm Pre? (logical extension of webOS)
- Android??

Not on the iPhone, though.

#appleisevil



# W3C Widgets

## Problems with W3C Widgets:

- Animations. JavaScript gets better and better, but animations remain a weak spot relative to other languages
- Access to phone functionality such as geolocation, the address book, the camera, and the file system

# Device APIs

## Context!

In order to serve the mobile context we need to access phone functionality from W3C Widgets.

Enter JavaScript device APIs

```
device.phone.call(  
device.addressBook.entries['mom'].number)
```

# Device APIs

- JIL (Vodafone, China Mobile)
- W3C Device API Working Group (just started)
- BONDI
- PhoneGap (iPhone, Android, Blackberry); temporary solution

# Device API Security

Besides, there's a security problem.

If someone sends me a widget via  
Bluetooth,  
how am I going to know it isn't going to  
steal my address book?

Serious problem. No real solution yet.

# W3C Widgets

Still, I believe these problems are solvable.

I believe W3C Widgets are the future of the mobile web.

So let's get to work.

Thank you!  
Questions?

<http://quirksmode.org>

<http://twitter.com/ppk>