W3C Widgets – the basics

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Hell is other browsers - Sartre
The mobile web

Four problems with making a website work well on a phone:
- Small memory
- Small display
- Flaky browsers
- Flaky connections
The mobile web

Four problems with making a website phone-compatible:
- Small memory
- Small display
- Flaky browsers
- Flaky connections
Flaky 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.
Flaky connections

This is a serious problem for the mobile web, especially when your site uses 200K of custom JavaScript plus a few libraries.

They have to be downloaded every time the user visits your site and caching isn't always reliable.
Flaky connections

Solution:
Put the core files on your mobile phone
so that you only need to download the data.
Flaky connections

W3C Widgets offer this solution:
- Local applications
- HTML/CSS/JavaScript
- Run in a browser (any browser)
- Can handle Ajax requests
W3C Widgets

Eventually, I'll be able to share a widget with a friend via Bluetooth, even if I use an Android and he uses a Nokia S60 or a HTC Windows Mobile or a Blackberry and It Just Works

and It Just Works
W3C Widgets

Wouldn't that be totally astoundingly absolutely inconceivably interoperable?
W3C Widgets

And hundreds of thousands of web developers *already know* how to create widgets.

It's just HTML/CSS/JavaScript, after all.
W3C Widgets

It Just Works

in the Vodafone Widget Manager for S60 phones.
W3C Widgets

It Just Works
S60

in the Opera/T-Mobile Widget Manager for (probably) Windows Mobile phones.
W3C Widgets

It Just Works
S60
Windows Mobile

in the Nokia Widget Runtime on S60
(as long as you add an info.plist file)
W3C Widgets

It Just Works
S60 (2x)
Windows Mobile

Otherwise, though, there's no support.

Yet.
(I asked Google nicely, though.)
W3C Widgets

We need:
- a browser (preferably a good one such as Opera Mobile, Android WebKit, or Safari)
- a way of associating .wgt files with this browser OR an installation mechanism
- JavaScript device APIs
JavaScript Device APIs are APIs that grant access to phone functionality:
- camera
- contact list
- text messages
- etc.
JavaScript Device APIs are necessary for a true mobile experience.

W3C widgets should be able to tie into phone functionality.
JavaScript Device APIs

- BONDI specification
  (not yet implemented)
- Phonegap library
  (Android, Blackberry, iPhone)
- Opera/T-Mobile widget manager
  (Windows Mobile)
- Adobe Air
If I receive a widget from someone and it uses device APIs how do I know it's not going to try to steal my contact list?
JavaScript Device APIs

Security

This problem will probably be solved by signed widgets and security levels.

On the lowest security levels, phone users will be prompted for every device API call the widget wants to perform. Higher levels do it automatically.
JavaScript Device APIs
Security

Unfortunately both JavaScript über-guru Douglas Crockford and Dojo library creator Alex Russell don't believe in this solution.

More research is necessary.
JavaScript's same-source policy is not implemented in widgets, because they have to be able to request data from any source.

This, too, requires more thought.
Before we continue this is totally new, untried technology. So don't take anyone's word for anything, especially when it concerns design and interface.
Practicalities

All the speakers here could be totally wrong,

and it might be YOU who figures out exactly why, how, and when to use W3C widgets.
Practicalities

- 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
- It Just Works.
Practicalities

widget object

The widget object contains some special methods and properties for widgets.

http://www.quirksmode.org/m/widgets.html
Practicalities
widget object

widget.identifier
0382742819384738353

What does this number mean?

I have no idea, either.
Practicalities

widget object

widget.setPreferenceForKey(value,key)
sets a preference that can be retrieved
by preferenceForKey(key)

The value,key order is totally absurd

And yes, you could also use cookies.
Practicalities

widget object

widget.getAttention() lights up the screen

Useful for applications that require the user to stare at them for a long time without taking action.
Practicalities

widget object

widgetmodechange event fires when the user docks or undocks the widget.

widget.addEventListener('widgetmodechange', yourFunction, false)
Practicalities

widget object

widget.widgetMode
- application: running on a phone
- widget: running on a desktop
- docked: docked/minimised
Practicalities
config.xml

<widget id="http://quirksmode.org/widget" dockable="true">  
  <widgetname>Test widget</widgetname>
  <icon>pix/myIcon.gif</icon>
  <width>200</width>
  <height>200</height>
  <security>
    <access>
      <host>quirksmode.org</host>
    </access>
  </security>
</widget>
Practicalities
config.xml

<widget id="http://quirksmode.org/widget" dockable="true">

Widget needs unique ID for updating purposes.

The dockable attribute says the widget may continue to run scripts in docked mode.
Practicalities

config.xml

<widgetname>Test widget</widgetname>
<icon>pix/myIcon.gif</icon>

Set name and (local) icon of widget.

Advise: keep name short, you've only got 60px of space.
Practicalities

config.xml

<width>200</width>
<height>200</height>

Set maximum width and height of widget. May not become larger than display, though.
Practicalities

config.xml

```xml
<security>
  <access>
    <host>quirksmode.org</host>
  </access>
</security>
```

The widget is allowed to download files from this/these host(s).
Warning: changed in Opera 10.
Practicalities
Writing and debugging

While creating a widget you can test in any browser.

It's just HTML/CSS/JavaScript, after all.
Practicalities
Writing and debugging

When you've zipped the widget and changed the extension to .wgt you can test in Opera.

(Ignore Opera 10 right now because of security changes.)
Practicalities
Writing and debugging

Finally, upload to mobile phone and test there.

This is a necessary step; unfortunately it's not possible to test widgets without a mobile phone. Desktop just isn't the same.
Practicalities
Writing and debugging
Use the SDK for the tricky bits.
You'll hear more about that later.
More information

Mobile research: http://quirksmode.org/m/

Yahoo! and Google presentations via http://quirksmode.org/blog/
Thank you for your attention
Questions?

Ask away.

Or ask me on Twitter
http://twitter.com/ppk
or on my site
http://quirksmode.org