/dev/world/2012

25-26 September
Rydges Bell City
Responsive web design

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&
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The Australian National University
Outline

• What is responsive web design?
• Some example sites
• Why bother? - client breakdown - network and analytics for ANU.
• ANU ‘website’ setup
• Implementing
  • Design
  • CSS
  • Javascript
  • Other useful things
  • What about IE?
• Further reading
What is responsive web design?

- Designing a website in a manner that helps the layout to change according to the user’s screen size
- Regardless of the browser or device
Example sites

- http://foodsense.is
- http://www.anderssonwise.com
- http://www.bostonglobe.com
- http://www.stpaulsschool.org.uk
- http://asuonline.asu.edu

and many more at...
- http://designmodo.com/responsive-design-examples/
AUC?

5 of the 37 AUC members have a responsive website:

- Deakin
- La Trobe
- Melbourne
- Otago
- Southern Cross Uni
Why bother?

Total annual shipments of smart phones exceeded PCs + tablets for the first time in 2011

488 million smart phones shipped in 2011

415 million PCs and tablets

Why bother?

“Mobile phones will overtake PCs as the most common Web access devices worldwide by 2013, according to a new forecast by research firm Gartner. That's an even more aggressive outlook than Morgan Stanley's projection that the mobile Web will outstrip the desktop Web in five years.”

Mark Walsh, “Gartner: Mobile To Outpace Desktop Web By 2013”

http://www.mediapost.com/publications/article/120590
Why bother?

We can quarantine the mobile experience on separate subdomains, spaces distinct and separate from “the non-iPhone website.” But what’s next? An iPad website? An N90 website? Can we really continue to commit to supporting each new user agent with its own bespoke experience?

Ethan Marcotte, “Responsive Web Design”

http://www.alistapart.com/articles/responsive-web-design/
Why bother?

The control which designers know in the print medium, and often desire in the web medium, is simply a function of the limitation of the printed page. We should embrace the fact that the web doesn’t have the same constraints, and design for this flexibility. But first, we must “accept the ebb and flow of things.”

John Allsopp, “A Dao of Web Design”

http://www.alistapart.com/articles/dao/
Should you bother?
Check your network stats

ANU wireless usage, 1st week in September 2012

<table>
<thead>
<tr>
<th>OS</th>
<th># clients</th>
<th>% clients</th>
<th>% traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>iOS</td>
<td>8968</td>
<td>40.3</td>
<td>14</td>
</tr>
<tr>
<td>Mac OS X</td>
<td>3641</td>
<td>16.3</td>
<td>40</td>
</tr>
<tr>
<td>Android</td>
<td>3297</td>
<td>14.8</td>
<td>2</td>
</tr>
<tr>
<td>Windows 7</td>
<td>3219</td>
<td>14.5</td>
<td>36</td>
</tr>
<tr>
<td>Windows XP</td>
<td>565</td>
<td>2.5</td>
<td>5</td>
</tr>
<tr>
<td>Windows Vista</td>
<td>274</td>
<td>1.2</td>
<td>1</td>
</tr>
<tr>
<td>Linux</td>
<td>190</td>
<td>0.9</td>
<td>1</td>
</tr>
<tr>
<td>Blackberry OS</td>
<td>115</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>Windows Phone 7</td>
<td>80</td>
<td>0.4</td>
<td>0</td>
</tr>
</tbody>
</table>
Should you bother?
Check your web analytics

For August 2012, on the main ANU landing pages:

1,046,160 visits
54,288 mobile (5%)
4 main browsers fairly evenly split
1807 different screen sizes
216 different mobile devices
Should you bother?

Browsers

Google analytics - August 2012 - ANU landing pages

<table>
<thead>
<tr>
<th>Browser</th>
<th>Visits</th>
<th>% Contribution to Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Explorer</td>
<td>407,336</td>
<td>38.94%</td>
</tr>
<tr>
<td>Safari</td>
<td>241,744</td>
<td>23.11%</td>
</tr>
<tr>
<td>Firefox</td>
<td>207,997</td>
<td>19.88%</td>
</tr>
<tr>
<td>Chrome</td>
<td>171,900</td>
<td>16.43%</td>
</tr>
<tr>
<td>Android Browser</td>
<td>7,862</td>
<td>0.75%</td>
</tr>
<tr>
<td>Opera</td>
<td>2,956</td>
<td>0.28%</td>
</tr>
<tr>
<td>IE with Chrome Frame</td>
<td>2,323</td>
<td>0.22%</td>
</tr>
<tr>
<td>Mozilla Compatible Agent</td>
<td>1,794</td>
<td>0.17%</td>
</tr>
<tr>
<td>Opera Mini</td>
<td>1,294</td>
<td>0.12%</td>
</tr>
<tr>
<td>RockMelt</td>
<td>179</td>
<td>0.02%</td>
</tr>
</tbody>
</table>

Pie chart showing the distribution of browser usage in August 2012.
Should you bother?

Screen sizes

Google analytics - August 2012 - ANU landing pages

<table>
<thead>
<tr>
<th>Screen Resolution</th>
<th>Visits</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1280x800</td>
<td>186,293</td>
<td>17.81%</td>
</tr>
<tr>
<td>1366x768</td>
<td>162,863</td>
<td>15.57%</td>
</tr>
<tr>
<td>1680x1050</td>
<td>159,844</td>
<td>15.28%</td>
</tr>
<tr>
<td>1920x1080</td>
<td>87,313</td>
<td>8.35%</td>
</tr>
<tr>
<td>1600x900</td>
<td>75,865</td>
<td>7.25%</td>
</tr>
<tr>
<td>1280x1024</td>
<td>65,172</td>
<td>6.23%</td>
</tr>
<tr>
<td>1440x900</td>
<td>64,938</td>
<td>6.21%</td>
</tr>
<tr>
<td>1024x768</td>
<td>36,507</td>
<td>3.49%</td>
</tr>
<tr>
<td>768x1024</td>
<td>23,908</td>
<td>2.29%</td>
</tr>
<tr>
<td>1920x1200</td>
<td>22,070</td>
<td>2.11%</td>
</tr>
</tbody>
</table>

This report was generated on 24/08/2012 at 11:16:09 - Refresh Report
Should you bother?

Browser / Screen size

Google analytics - August 2012 - ANU landing pages

<table>
<thead>
<tr>
<th>Browser</th>
<th>Screen Resolution</th>
<th>Visits</th>
<th>Contribution to total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safari</td>
<td>1280x800</td>
<td>81,468</td>
<td>8.01%</td>
</tr>
<tr>
<td>Internet Explorer</td>
<td>1680x1050</td>
<td>77,911</td>
<td>7.66%</td>
</tr>
<tr>
<td>Chrome</td>
<td>1366x768</td>
<td>70,549</td>
<td>6.94%</td>
</tr>
<tr>
<td>Internet Explorer</td>
<td>1600x900</td>
<td>60,698</td>
<td>5.97%</td>
</tr>
<tr>
<td>Internet Explorer</td>
<td>1366x768</td>
<td>43,310</td>
<td>4.26%</td>
</tr>
<tr>
<td>Firefox</td>
<td>1366x768</td>
<td>40,301</td>
<td>3.96%</td>
</tr>
<tr>
<td>Safari</td>
<td>1680x1050</td>
<td>38,418</td>
<td>3.78%</td>
</tr>
<tr>
<td>Internet Explorer</td>
<td>1280x1024</td>
<td>37,497</td>
<td>3.69%</td>
</tr>
<tr>
<td>Firefox</td>
<td>1680x1050</td>
<td>35,484</td>
<td>3.49%</td>
</tr>
<tr>
<td>Firefox</td>
<td>1280x800</td>
<td>34,517</td>
<td>3.39%</td>
</tr>
</tbody>
</table>
Should you bother?

Mobile screen size

Google analytics - August 2012 - ANU landing pages

<table>
<thead>
<tr>
<th>Screen Resolution</th>
<th>Visits</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>768x1024</td>
<td>23,535</td>
<td>43.35%</td>
</tr>
<tr>
<td>320x480</td>
<td>19,660</td>
<td>36.21%</td>
</tr>
<tr>
<td>480x800</td>
<td>1,455</td>
<td>2.68%</td>
</tr>
<tr>
<td>720x1280</td>
<td>763</td>
<td>1.41%</td>
</tr>
<tr>
<td>1280x800</td>
<td>696</td>
<td>1.28%</td>
</tr>
<tr>
<td>960x1350</td>
<td>354</td>
<td>0.65%</td>
</tr>
<tr>
<td>800x1280</td>
<td>299</td>
<td>0.55%</td>
</tr>
<tr>
<td>480x360</td>
<td>249</td>
<td>0.46%</td>
</tr>
<tr>
<td>0x0</td>
<td>240</td>
<td>0.44%</td>
</tr>
<tr>
<td>960x1203</td>
<td>202</td>
<td>0.37%</td>
</tr>
</tbody>
</table>

Contribution to total: 43.35% (768x1024) 36.21% (320x480)

This report was generated on 24/08/2012 at 11:33:47 - Refresh Report
Should you bother?

Mobile device

Google analytics - August 2012 - ANU landing pages

<table>
<thead>
<tr>
<th>Mobile Device Info</th>
<th>Visits</th>
<th>contribution to total:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Apple iPad</td>
<td>23,935</td>
<td>44.09%</td>
</tr>
<tr>
<td>2. Apple iPhone</td>
<td>18,949</td>
<td>34.90%</td>
</tr>
<tr>
<td>(not set)</td>
<td>3,059</td>
<td>5.63%</td>
</tr>
<tr>
<td>4. Samsung GT-I9100 Galaxy S II</td>
<td>1,728</td>
<td>3.18%</td>
</tr>
<tr>
<td>5. SonyEricsson LT15i Xperia Arc</td>
<td>1,248</td>
<td>2.30%</td>
</tr>
<tr>
<td>6. Apple iPod Touch</td>
<td>939</td>
<td>1.73%</td>
</tr>
<tr>
<td>7. Samsung Galaxy Nexus</td>
<td>327</td>
<td>0.60%</td>
</tr>
<tr>
<td>8. Samsung GT-I9000 Galaxy S</td>
<td>308</td>
<td>0.57%</td>
</tr>
</tbody>
</table>
The ANU ‘website’
The ANU ‘website’

- 1200? websites
- ~ 400 websites that we care about
- 263 IP addresses == physical servers?
- 378 web publishers that we know about
- More than 12 different brands of CMS

We want to make a large number of them responsive
ANU css

www.anu.edu.au

Styles server

/dev/world/2012
Implementation

• A lot of design
• Some CSS 3
• Some Javascript
• Testing
• Testing
• ...Testing
Implementation
Design first

• http://theoatmeal.com/comics/design_hell

Everything is cool in the beginning.
The client communicates their needs. You set expectations.
Enthusiasm and excitement all ‘round.

The new site will be GREAT!

Great?
It'll be INCREDIBLE!
It'll soar like an eagle in outer space!

The Client

The Designer
Implementation

Design first

Maintain 960px grid
Convert px to % fluid
except "-wrap"

Notes:
Drop column #1
Events column = float right
320: GW raw on single line
640: GW raw 3 per line
Implementation

CSS

- use % for all widths
- everything is expressed as the width of its parent container
Implementation

CSS

Before:

```css
#body {
  display: block;
  width: 960px;
  margin-left: auto;
  margin-right: auto;
}
```

After:

```css
#body {
  display: block;
  width: 100%;
  margin-left: auto;
  margin-right: auto;
}
```
Implementation

Grids...

960px

20px

200px

200px

200px

200px

40px

20px

20px

440px

320px

320px
Implementation

CSS

**Before:**

```css
.narrow {
  width: 200px;
  float: left;
  margin: 20px;
}

.wide {
  width: 320px;
  float: left;
  margin: 20px;
}
```

**After:**

```css
.narrow {
  width: 20.8333%; /* 200 / 960 */
  float: left;
  margin: 20px 0 2.0833% 20px 0 2.0833%;
}

.wide {
  width: 33.3333%; /* 320 / 960 */
  float: left;
  margin: 20px 0 2.0833% 20px 0 2.0833%;
}
```
Implementation

CSS

Make all images 100% of their parent:

```css
img, embed, object, video {
  max-width: 100%;
  height: auto;
  width: auto;
}
```
Implementation

Breakpoints

• up to 479px - phone portrait
• up to 599px - phone landscape
• up to 959px - tablet portrait
• over 960px - tablet landscape, laptop, desktop
Implementation

CSS - @media

@media only screen and (max-width: 479px) {
    ...
}

@media only screen and (min-width: 480px) and (max-width: 599px) {
    ...
}

/dev/world/2012
Implementation

CSS - @media

@media only screen and (max-width: 479px) {
    .narrow
        { width: 87.5000%;
            margin-left: 06.2500%;
            margin-right: 06.2500%; }
    .wide
        { width: 87.5000%;
            margin-left: 06.2500%;
            margin-right: 06.2500%; }
}

@media only screen and (min-width: 480px) and (max-width: 599px) {
    .narrow
        { width: 41.6666%;
            margin-left: 04.1666%;
            margin-right: 04.1666%; }
    .wide
        { width: 91.6666%;
            margin-left: 04.1666%;
            margin-right: 04.1666%; }
}

AUC
Implementation

Up to 479px

- `.narrow`
  - 87.5%
  - 6.25%

- `.doublearrow`
  - 87.5%

- `.wide`
  - 87.5%

Up to 599px

- `.narrow`
  - 41.66%
  - 4.16%

- `.doublearrow`
  - 91.66%

- `.wide`
  - 91.66%
Quick demo

Implementation

Javascript...

jQuery!!!
Implementation
Javascript...

Run a function whenever you change breakpoint:

```
pagewidth = $('body').width();

$(window).resize(function() {
  newpagewidth = $('body').width();
  if (pagewidth < 960 && newpagewidth >= 960) {
    changeUpTo960();
  } else if (pagewidth >= 960 && newpagewidth < 960) {
    changeDownTo600();
  }
  pagewidth = newpagewidth;
});
```
Implementation

Navigation

https://github.com/samuelcotterall/touchdown
Implementation

Navigation

About ANU

ANU Open Day - Saturday 25 August, 9am-4pm

The Australian National University (ANU) is a celebrated place of
Implementation

Navigation

• CSS display:block and display:none
• jQuery - show() and hide()
Implementation

Navigation

• Or... just float everything left
Implementation

Navigation

• There are many other options... e.g.

Implementation

Other useful stuff

In your html file:

```html
<meta name="viewport" content="initial-scale=1.0, width=device-width"/>
```

But see also:

https://github.com/scottjehl/iOS-Orientationchange-Fix
Implementation

What about IE?

• IE 6-8 has no @media support
• http://modernizr.com
• https://github.com/scottjehl/Respond
• But only if on the same domain name
• IE 9 & 10 will work with @media.

Hurrah.
Testing

• Test all the things!
• Testing on 1 Android is not enough
• Android has many OS versions, each manufacturer may include a custom browser
• There is a browser called Dolphin. It’s popular apparently. Who knew!
Further reading

- A Dao of Web Design (John Allsopp) http://www.alistapart.com/articles/dao/
- Responsive Web Design (Ethan Marcotte) http://www.alistapart.com/articles/responsive-web-design/
- Responsive Web Design http://www.sitepoint.com/responsive-web-design/#fbid=nmtfiP3zMHv
- There Is No Mobile Web (Jeremy Keith) http://goo.gl/pFCX7
- For a Future-Friendly Web http://goo.gl/BGcHn
- Structured Content First (Stephen Hay) http://goo.gl/Hl6RE
- Pragmatic responsive design http://goo.gl/d2daW
- Responsive by default http://goo.gl/lIiL35
- A Richer Canvas http://goo.gl/lWDxC
- Responsive Advertising http://goo.gl/MGhGo
- A Responsive Design Approach for Complex, Multicolumn Data Tables http://goo.gl/n8S1q
- Responsive Data Table Roundup http://goo.gl/3GVox
- Debugging CSS Media Queries http://goo.gl/5eawl
- Convert a Menu to a Dropdown for Small Screens http://goo.gl/KDE9t
- http://bradfrostweb.com/blog/web/complex-navigation-patterns-for-responsive-design/
Questions?

matt.gray@anu.edu.au

I am over 35, I don’t understand Twitter or Facebook