

/dev/world/2012



25-26 September
Rydges Bell City

Responsive web design

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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://earthhour.fr>
 - <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

<http://www.canalys.com/newsroom/smart-phones-overtake-client-pcs-2011>

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

OS	# clients	% clients	% traffic
iOS	8968	40.3	14
Mac OS X	3641	16.3	40
Android	3297	14.8	2
Windows 7	3219	14.5	36
Windows XP	565	2.5	5
Windows Vista	274	1.2	1
Linux	190	0.9	1
Blackberry OS	115	0.5	0
Windows Phone 7	80	0.4	0

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

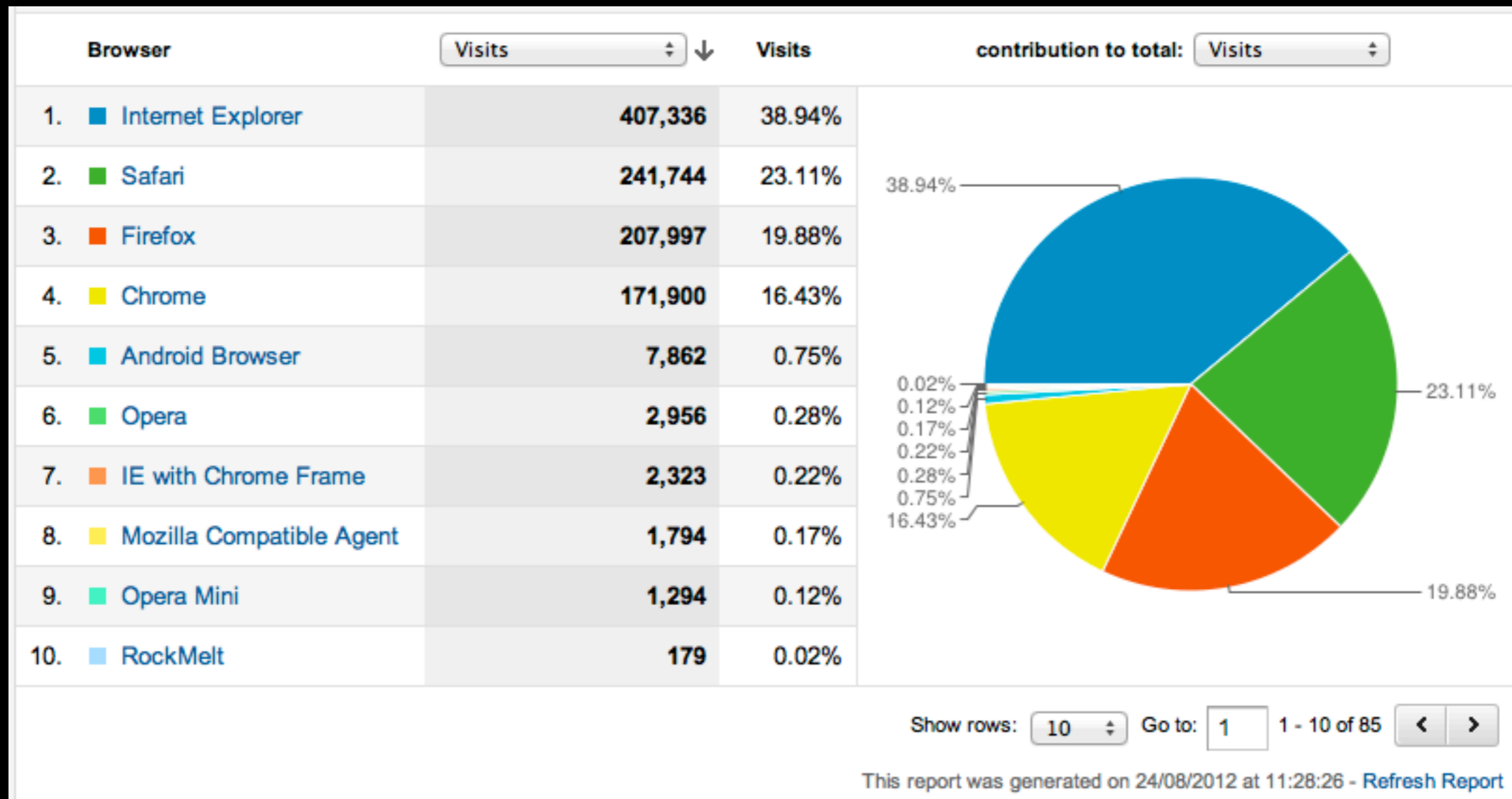
1807 different screen sizes

216 different mobile devices

Should you bother?

Browsers

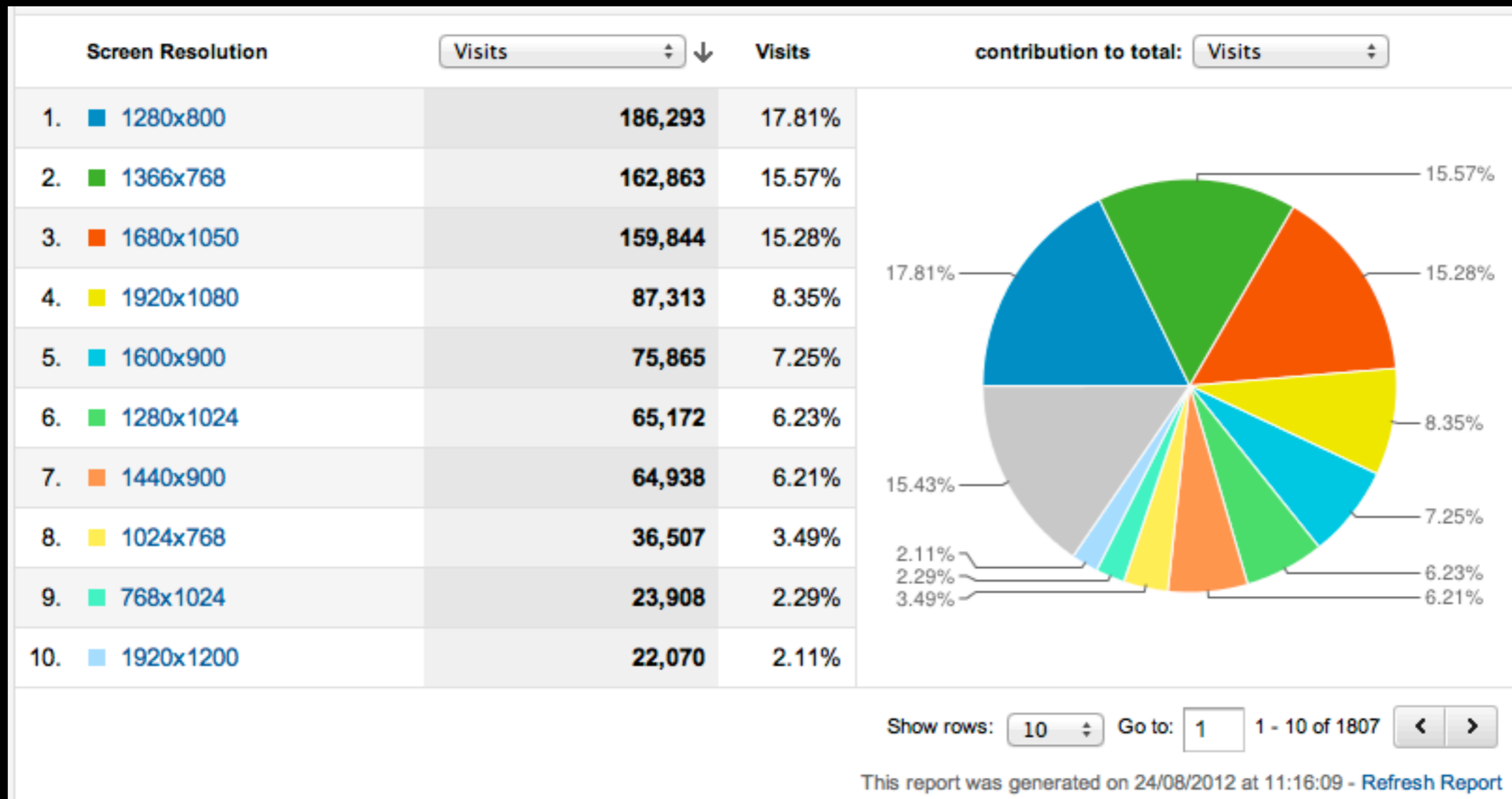
Google analytics - August 2012 - ANU landing pages



Should you bother?

Screen sizes

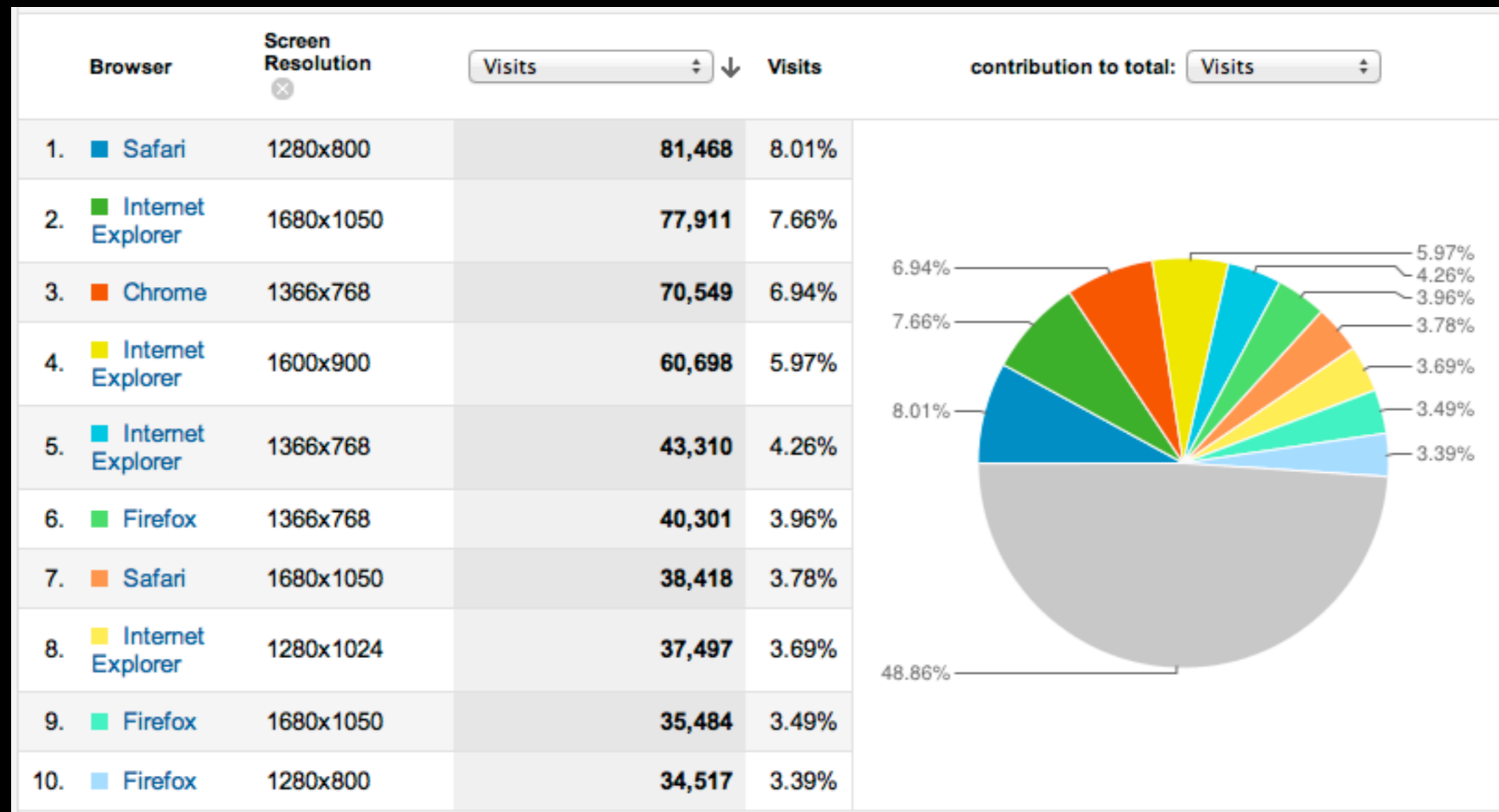
Google analytics - August 2012 - ANU landing pages



Should you bother?

Browser / Screensize

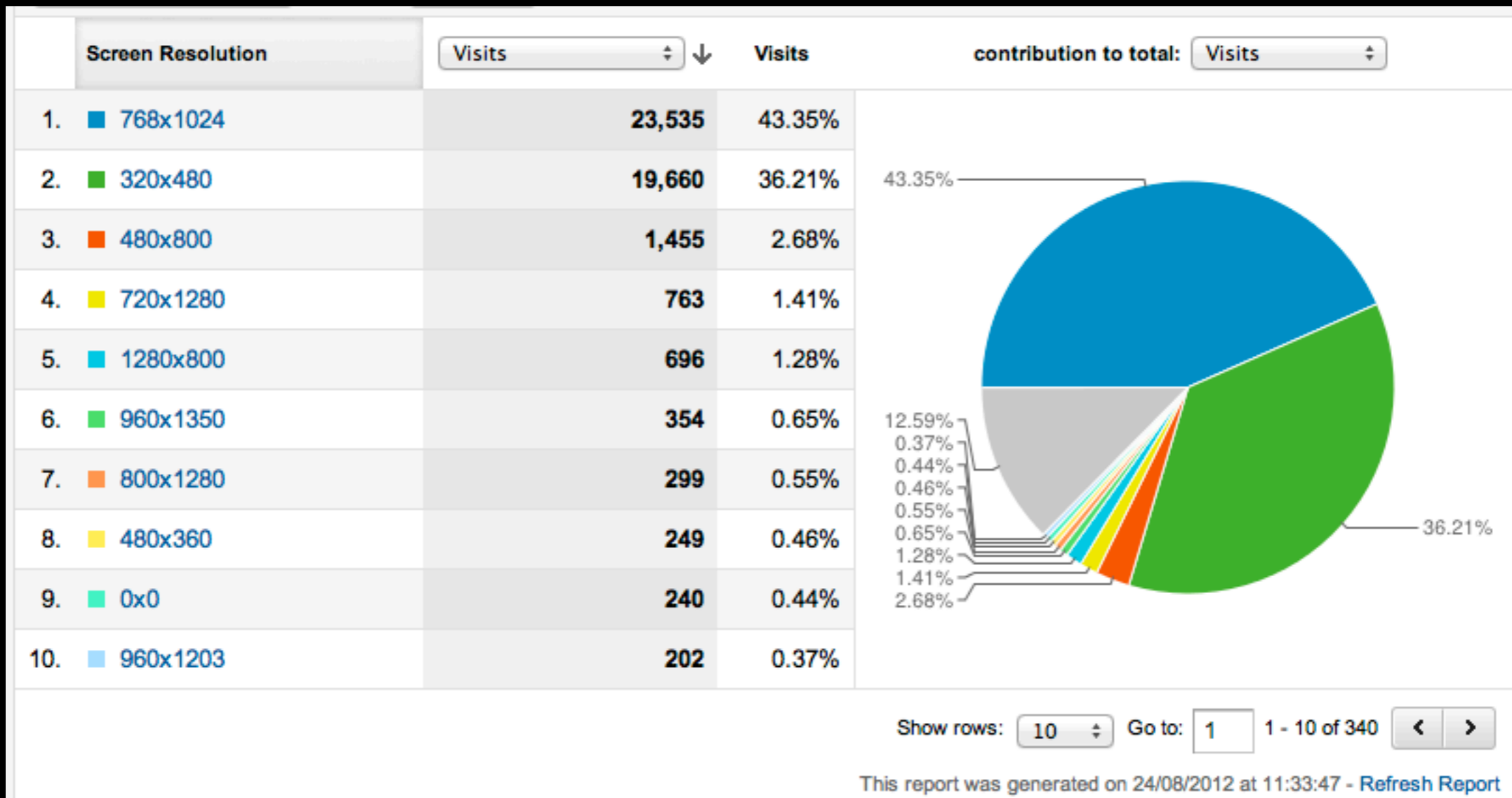
Google analytics - August 2012 - ANU landing pages



Should you bother?

Mobile screen size

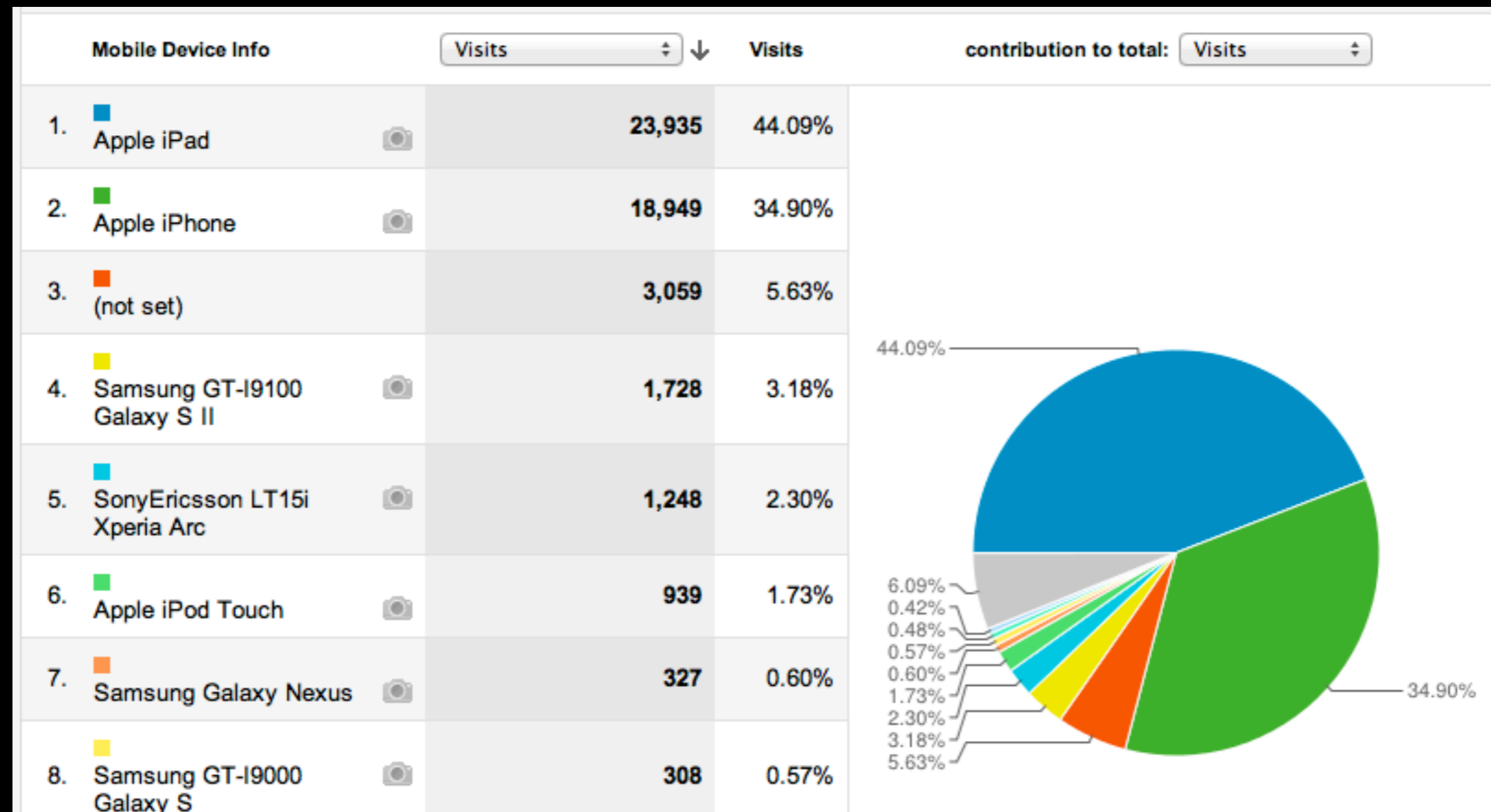
Google analytics - August 2012 - ANU landing pages



Should you bother?

Mobile device

Google analytics - August 2012 - ANU landing pages



The ANU 'website'

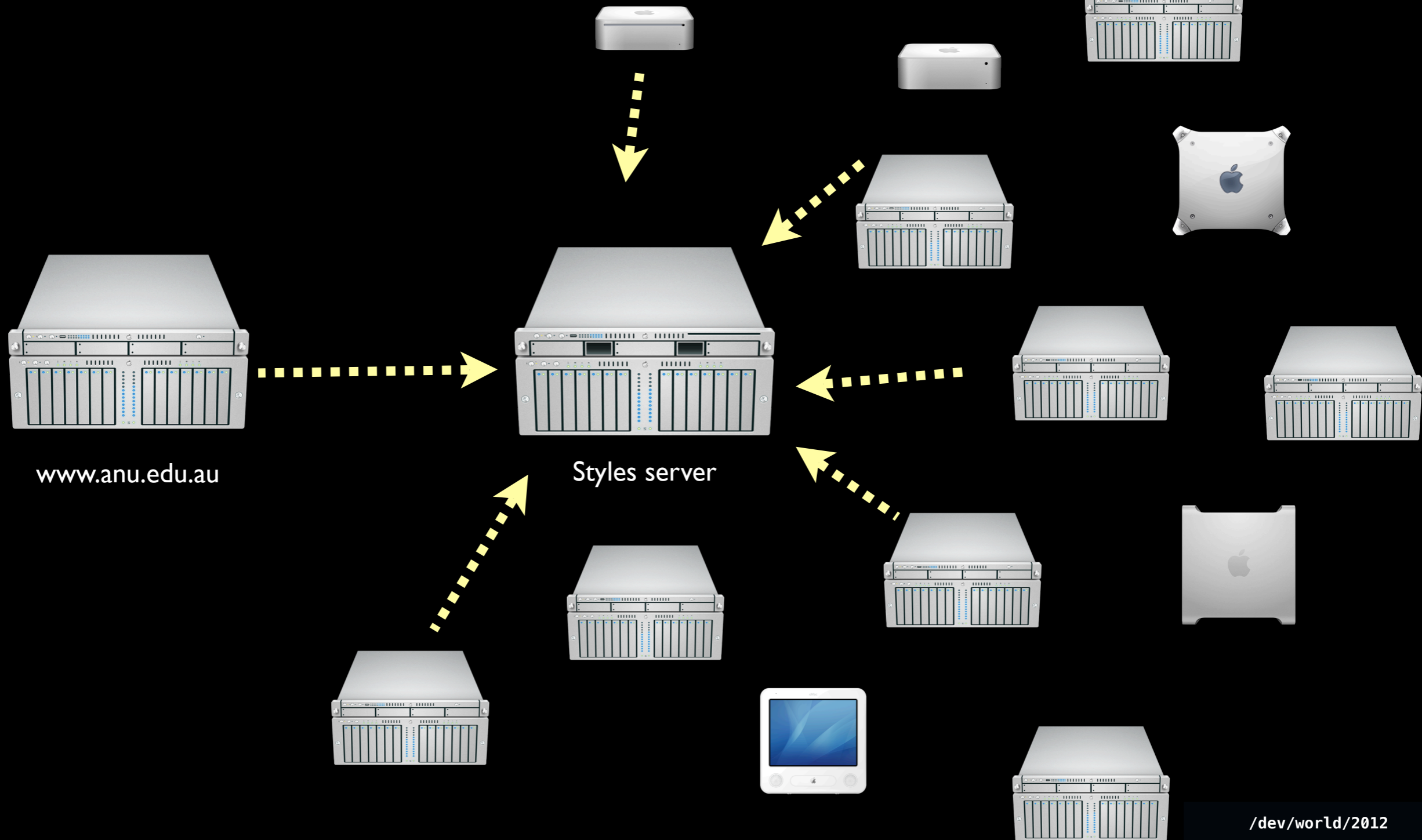
The screenshot shows the Australian National University (ANU) website homepage. At the top, there are navigation links for 'EXPLORE ANU', 'A-Z INDEX', a search bar, and 'WEB', 'CONTACTS', 'MAP' with a 'GO' button. The ANU logo and name are prominently displayed. Below the logo is a horizontal menu with 'HOME', 'STUDENTS', 'RESEARCH', 'EDUCATION', 'ABOUT ANU', and 'STAFF'. The main content area features a large image of Professor Peter Doherty with the letters 'ANU' overlaid. To the right of the image is a news article titled 'Sentinel chickens: what birds can tell us about our health and world', with a sub-headline 'Nobel Prize-winning scientist Professor Peter Doherty discusses how birds have contributed to cutting-edge medical research.' and a 'read more' link. Below the article is a pagination bar with numbers 1 through 8 and a '1' icon. On the left side, there is a sidebar with 'Academic areas' and a list of links: 'Programs & courses', 'Business & government', 'Journalists & media', 'Library', 'Alumni', 'Giving to ANU', 'Reconciliation', and 'Job opportunities'. Below these links are social media icons for Twitter, Facebook, YouTube, and YouTube. The middle section contains 'EVENTS' with a list of upcoming events: '18th Annual Lions Oratory Competition' (5 Sep), 'Positioning policy research in Asia and the Pacific: Asia and the Pacific Policy Society's Inaugural Conference' (7 Sep), 'Sentinel chickens: what birds can tell us about our health and world' (10 Sep), and 'Global artificial photosynthesis for a sustainable world: overcoming scientific and public policy challenges' (12 Sep). To the right of the events are 'NEWS' and 'VISION' sections. The 'NEWS' section features an image of a boat on water and a headline 'Exhibition captures a slice of island life' with a sub-headline 'A new exhibition at ANU portrays the culture and landscapes of the Trobriand Islands in Papua New Guinea.' and a 'more news' link. The 'VISION' section features an image of Bob Carr speaking and a headline 'Bob Carr gives the 2012 ST Lee Lecture on Asia and the Pacific' with a 'more vision' link. Below the 'VISION' section is a 'FROM THE VC'S DESK' section with a headline 'Reports of cuts to research grants' and a 'more from the VC' link. At the bottom of the page, there is a footer with the text 'Updated: 3 September 2012 / Responsible Officer: Director Marketing / Page Contact: Contact ANU' and a link 'about this site'. In the bottom right corner, there are two small circular icons, one green with a plus sign and one red with an X.

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



Implementation

- A lot of design
- Some CSS 3
- Some Javascript
- Testing
- Testing
- ...Testing

Implementation

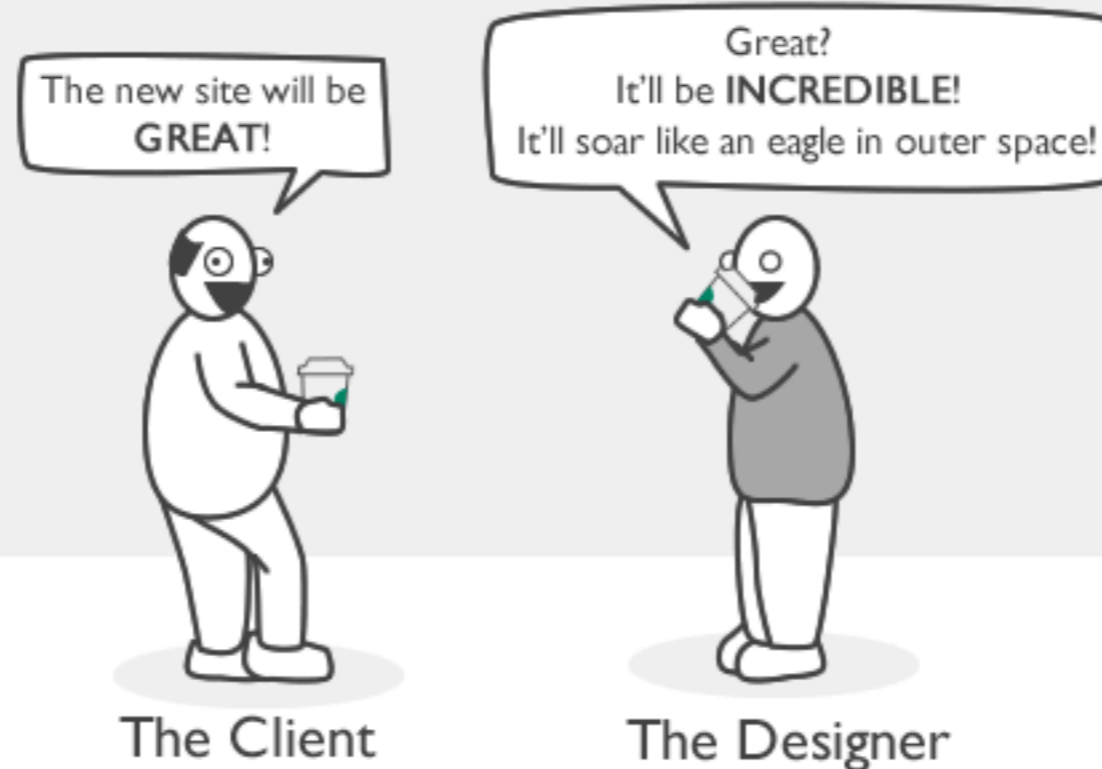
Design first

- 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.



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Implementation

Design first

Explore → click to page
A-Z → click to page

Social Media icons
0000

320x480 640x480 1024x768 1280x1024

Home icons

0000 0000 0000 0000

Title
News Vision
Event Event

Title
News Vision
Event Event

Title
News Vision
Event Event

Title
News Vision
Event Event

Notes:
Drop column #1
Events column = float right

320 Gw row on single line
640 Gw row 3 per line

Gateways PH
All Home Page

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

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

* VEG Blog

updated offer

About

Implementation

CSS

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

Implementation

CSS

Before:

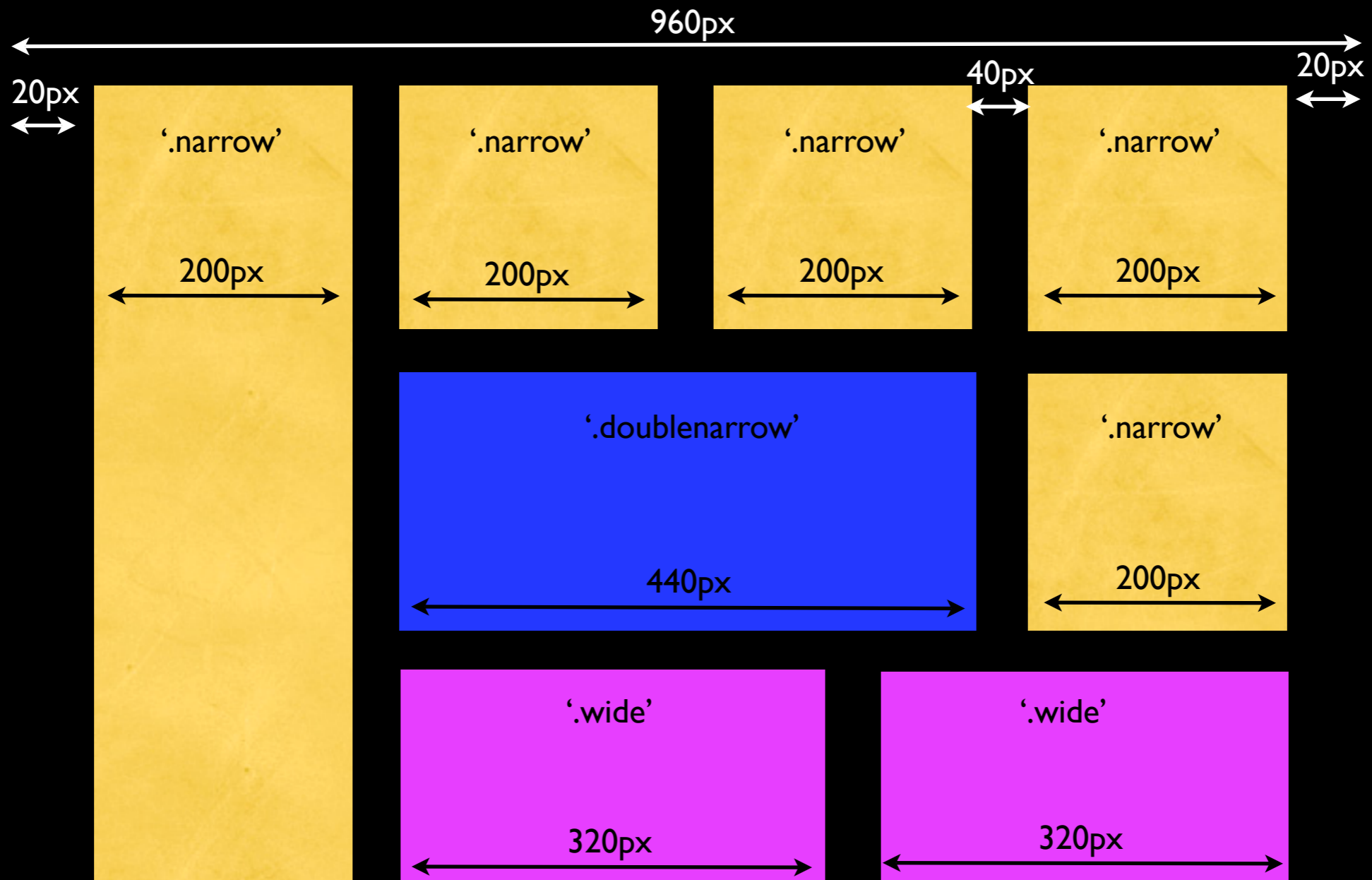
```
#body {  
  display : block;  
  width : 960px;  
  margin-left : auto;  
  margin-right : auto;  
}
```

After:

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

Implementation

Grids...



Implementation

CSS

Before:

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

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

After:

```
.narrow {  
  width : 20.8333%; /* 200 / 960 */  
  float : left;  
  margin : 20px 02.0833% 20px  
           02.0833%;  
}
```

```
.wide {  
  width : 33.3333%; /* 320 / 960 */  
  float : left;  
  margin : 20px 02.0833% 20px  
           02.0833%;  
}
```

Implementation

CSS

Make all images 100% of their parent:

```
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) {  
    ...  
}
```

Implementation

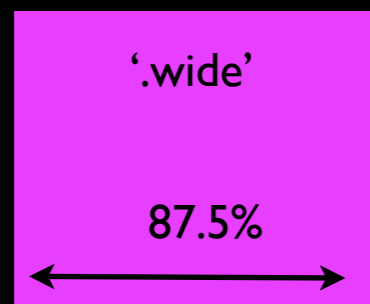
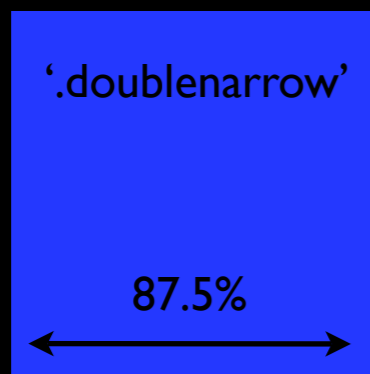
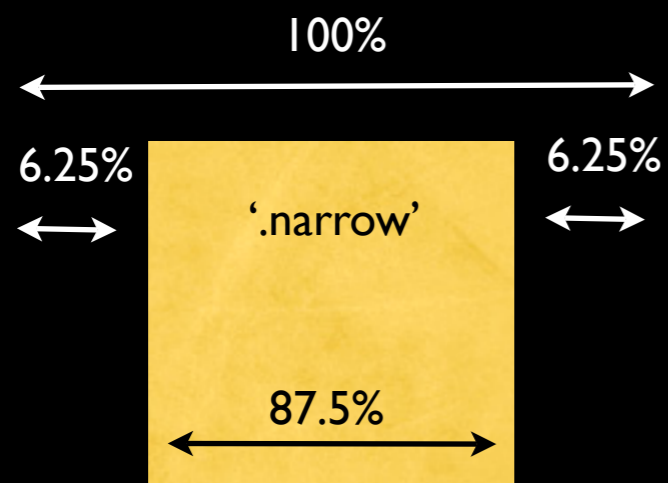
CSS - @media

```
@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%; }  
}
```

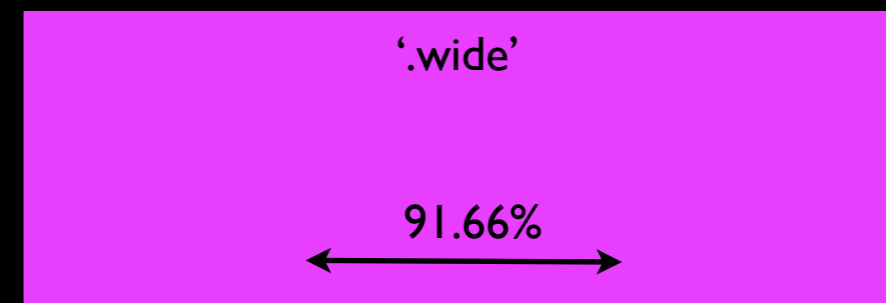
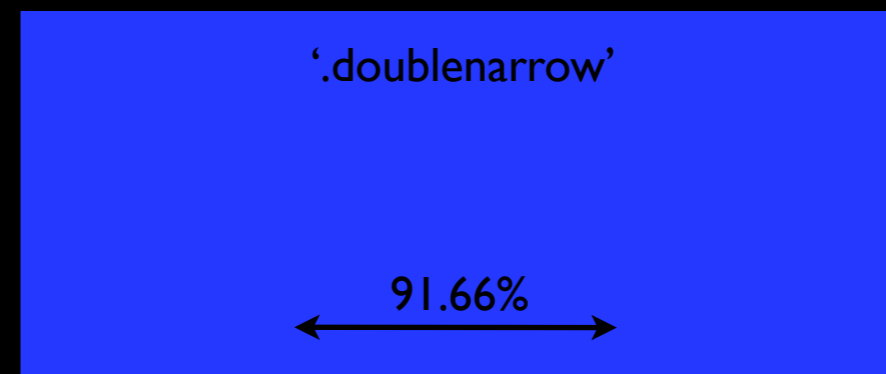
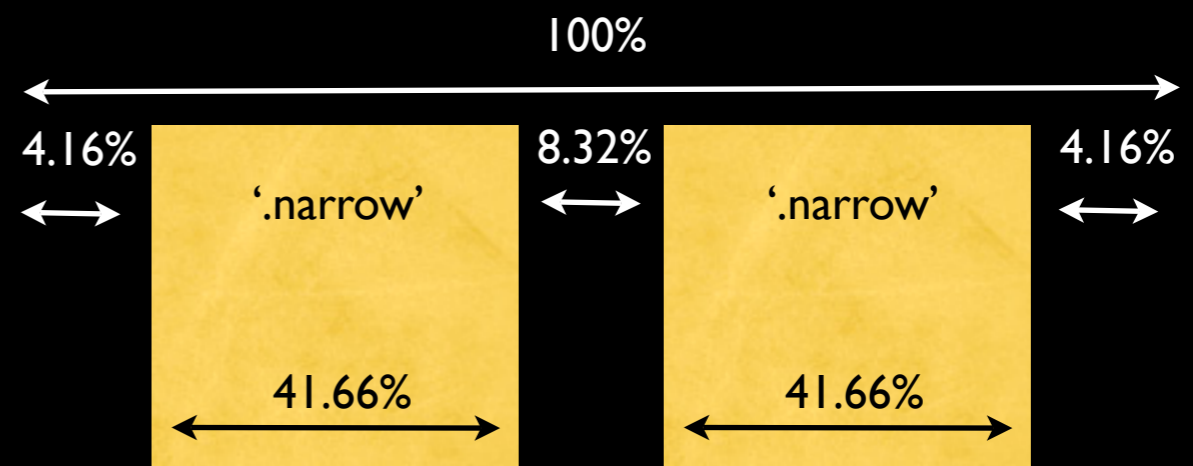
```
@media only screen and (min-width: 480px) and (max-  
width: 599px) {  
  .narrow      { width : 41.6666%;  
                margin-left : 04.1666%;  
                margin-right : 04.1666%; }  
  .wide       { width : 91.6666%;  
                margin-left : 04.1666%;  
                margin-right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

Implementation

Up to 479px



Up to 599px



Quick demo

<http://www-acep.anu.edu.au/ver4/>

Implementation

Javascript...

jQuery!!!

Implementation

Javascript...

Run a function whenever you change breakpoint:

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

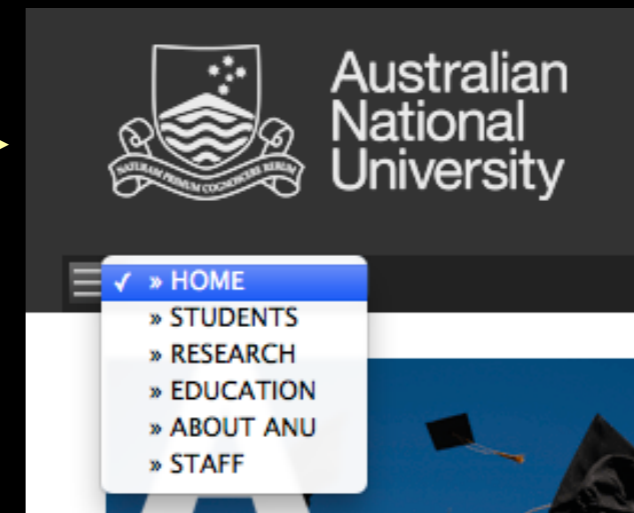
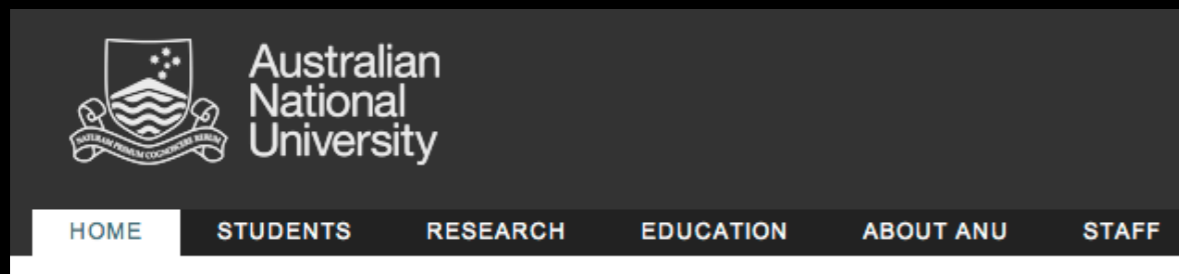
$(window).resize(function() {
    newpagewidth = $('body').width();
    if (pagewidth < 960 && newpagewidth >= 960) {
        changeUpTo960();
    } else if (pagewidth >= 960 && newpagewidth < 960) {
        changeDownTo600();
    }
    pagewidth = newpagewidth;
});
```

Implementation

Navigation

<https://github.com/samuelcotterall/touchdown>

```
<ul id="gw2select">  
  <li><a class="gw-select" href="http://www-acep.anu.edu.au/new/">HOME</a></li>  
  <li><a href="http://students.anu.edu.au/">STUDENTS</a></li>  
  <li><a href="http://www-acep.anu.edu.au/research/">RESEARCH</a></li>  
  ...  
</ul>
```



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Implementation

Navigation

OUR UNIVERSITY	
Home	
Campus	»
Profile	»
Strategy & reviews	»
Structure & governance	»
Leadership	»
Alliances & partnerships	»
Principal dates	»



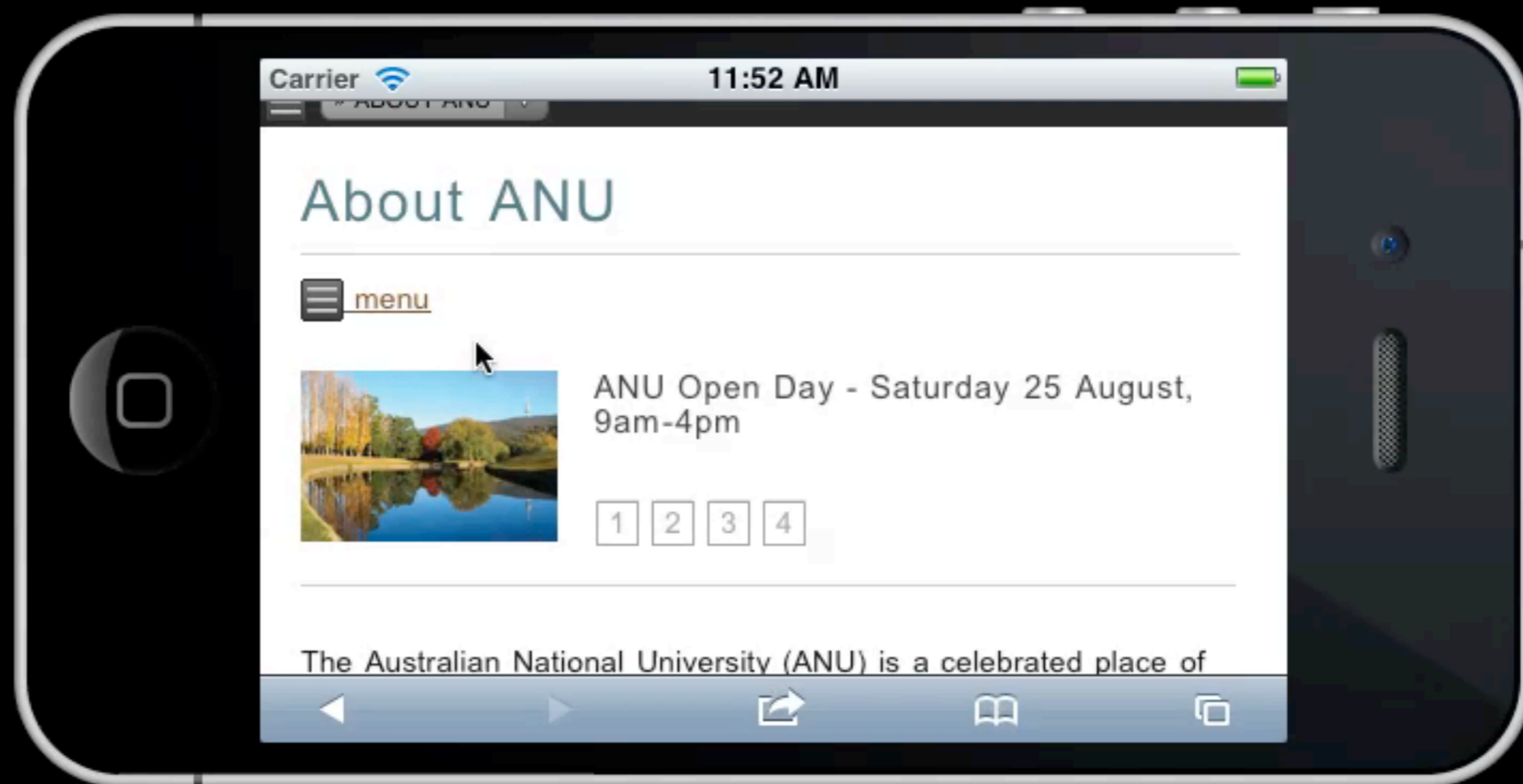
- » Profile
 - People
 - History
 - Timeline
 - Nobel Prize winners
 - Chancellors & Vice-Chancellors
 - Honorary graduates
 - Coat of arms, motto & mace
 - Annual reports
 - Finances
 - 2010 finances (consolidated)
 - Abridged financial results
- » Strategy & reviews
 - ANU by 2020
 - VC's introduction
 - Overarching aims
 - Core objectives
 - Research
 - Education
 - Policy
 - Building blocks
 - World-class staff
 - Inspired students
 - Engaged alumni
 - National outreach
 - International outreach
 - Embedded access & equity
 - High-quality infrastructure
 - Effective organisation
 - Broad resource base
 - Financial repositioning
- Academic
 - Academic Board
 - CCE review
- Administration
 - Library & Scholarly Information Services
 - CAP Administration
 - DRSS Student Services
 - DRSS Student Administration
 - Research Services
 - Finance & Business Services

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Implementation

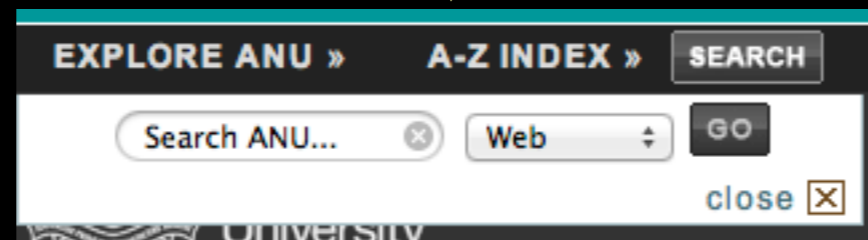
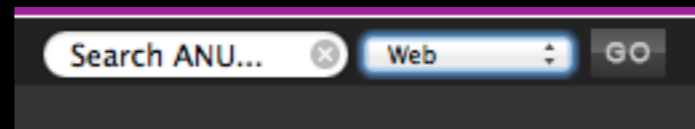
Navigation



Implementation

Navigation

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



Implementation



Navigation

- Or... just float everything left

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Implementation

Navigation

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

<http://webdesign.tutsplus.com/tutorials/site-elements/big-menus-small-screens-responsive-multi-level-navigation/>

Implementation

Other useful stuff

In your html file:

```
<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

- **Responsive Web Design eBook** - <http://www.abookapart.com/products/responsive-web-design>
- 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/HI6RE>
- Pragmatic responsive design <http://goo.gl/d2daW>
- Responsive by default <http://goo.gl/liL35>
- A Richer Canvas <http://goo.gl/IWDxC>
- Responsive Advertising <http://goo.gl/MGhGo>
- You Say Responsive, I Say Adaptive <http://goo.gl/tA1zJ>
- 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>
- Mobile Content: If in Doubt, Leave It Out <http://www.useit.com/alertbox/mobile-writing.html>
- <http://bradfrostweb.com/blog/web/complex-navigation-patterns-for-responsive-design/>
- The ultimate responsive web design roundup
<http://www.webdesignerdepot.com/2011/09/the-ultimate-responsive-web-design-roundup/>

Questions?

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