





developing for a mobile web

*To follow along...*

slides.scurker.com/gomobile



@scurker



gplus.to/scurker



scurker.com

Hello. *Bonjour*. Guten Tag.

Who am I?

## Jason Wilson

- Birmingham Native
- Front-end Engineer by Night
- 10+ years Experience on the Web
- Software Engineer by Day (at Daxko)

Mobile is GROWING...





In Q4 2010, mobile phone shipments overtook PC shipments.

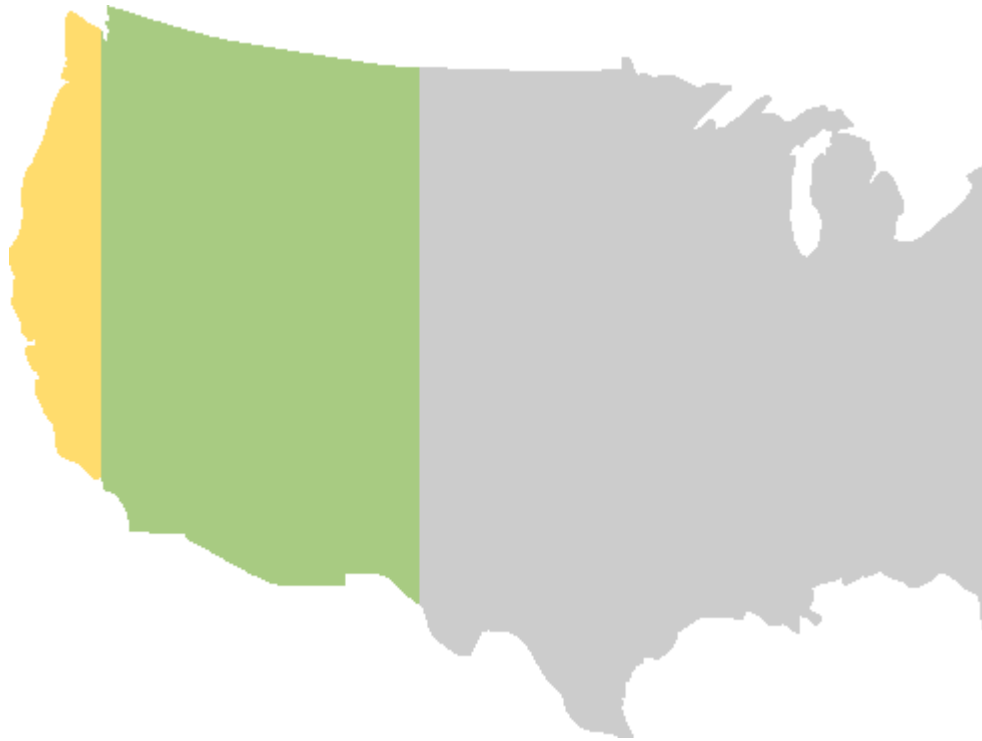
## According to Google...

**85%** of mobile devices will be web enabled by next year.

**59%** visit a local store after searching for it on the mobile web.

**30%** of restaurant searches are from mobile devices.

# Mobile Phones in the US



83%

own a cellphone

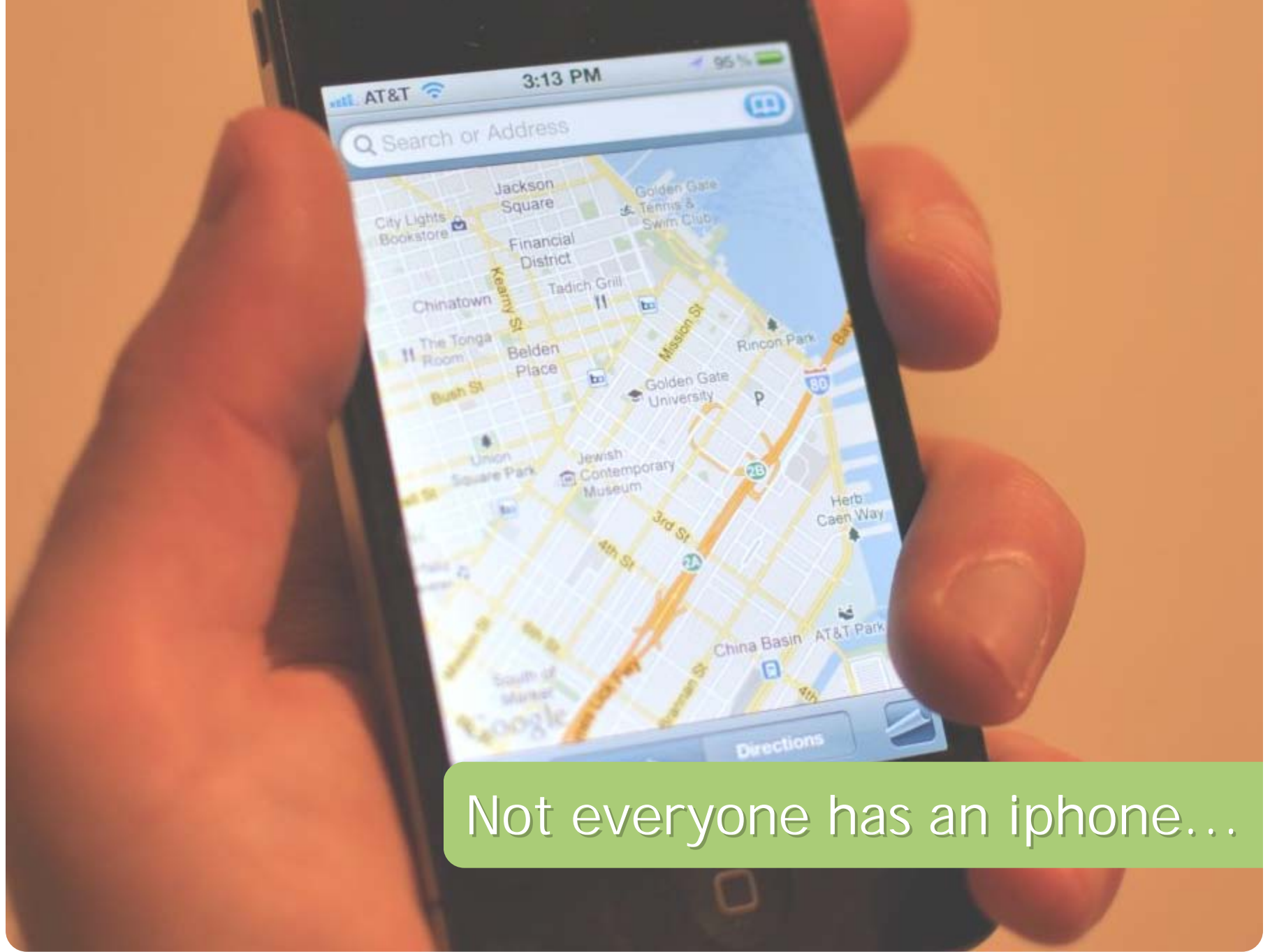
35%

own a smartphone

8.3%

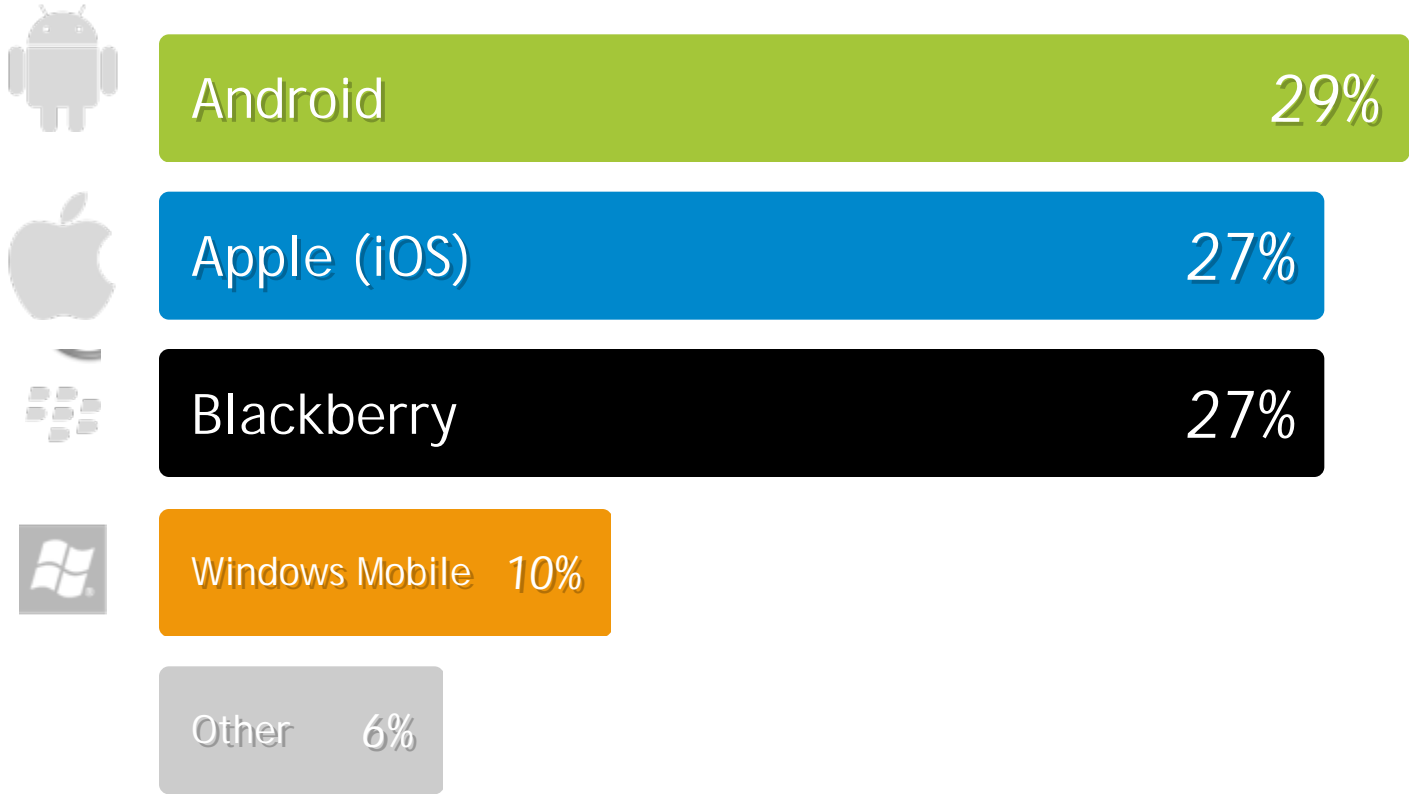
primary device for online



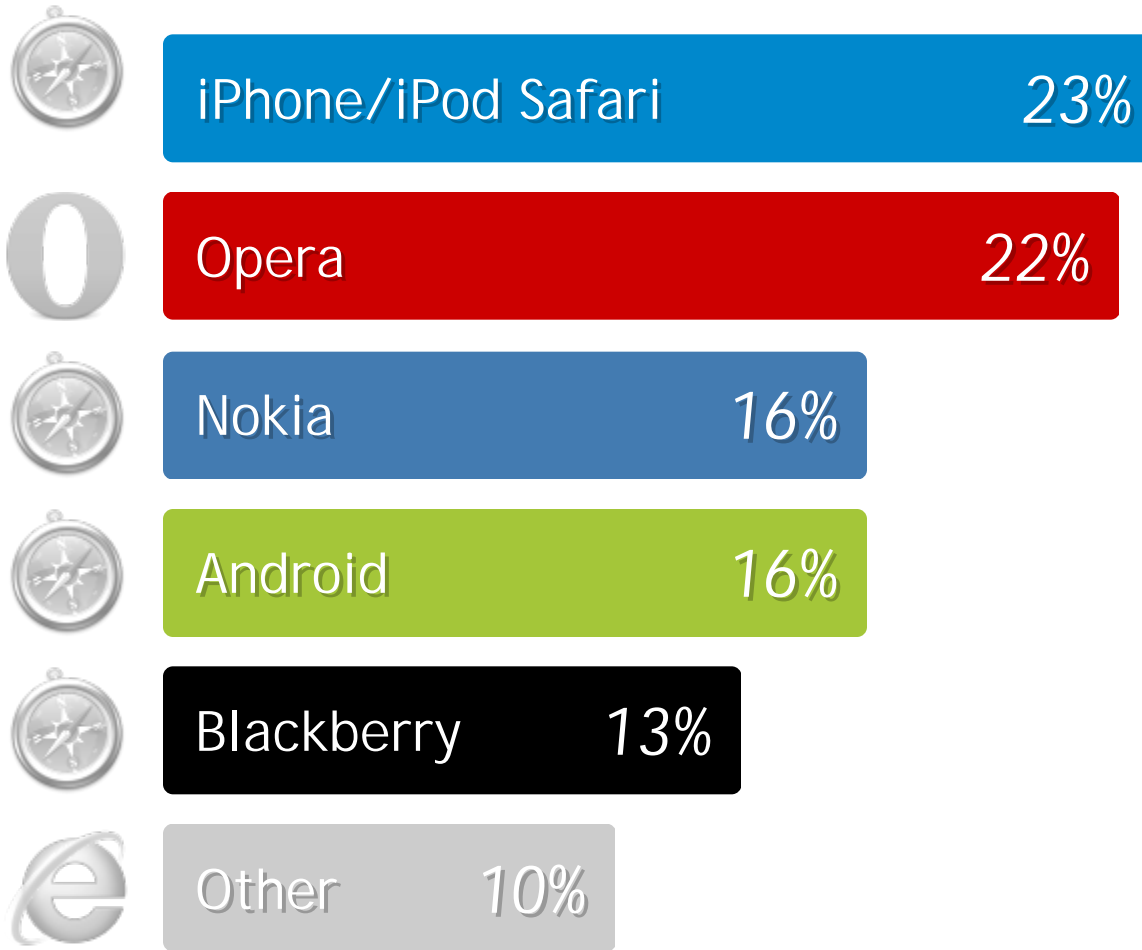


Not everyone has an iphone...

# Mobile Marketshare (OS)



# Mobile Marketshare (Browsing)



# Is Webkit the new IE?



# Browser Matchup





webkit rendering engine  
excellent standards support  
HTML5, CSS3, SVG, Geolocation...  
used by many hardware vendors  
Apple, Blackberry, Google, Nokia...  
used in many mobile OSs  
iOS, Android, webOS, Symbian...

## Opera Mini

O

presto rendering engine  
minimal features - renders on server  
good standards support  
HTML5, CSS3, SVG, Geolocation...  
used in many mobile OSs  
iOS, Android, Blackberry, Symbian, Windows Mobile...

## Opera Mobile

**O** presto rendering engine  
good standards support  
HTML5, CSS3, SVG, Geolocation...  
used in some mobile OSs  
Android, Symbian, Windows Mobile...





trident rendering engine

Currently a mix between IE7-8 trident

varying standards support

HTML5\*, CSS3\*, SVG\*

\*IE9 coming soon - 7.5 Mango

# Consumers and Mobile

- 57% of users had a problem accessing a site from mobile.
- 46% of users are unlikely to return to a mobile site they had trouble accessing.
- 34% of users would visit a competitor's mobile site instead.



## Rethinking Mobile Design

Not just the desktop anymore...



# Our normal approach...



Mobile Site

...or even...



Mobile Site

# But perhaps it should be...?



Mobile Site



Desktop Site

# Mobile First

- Focussing on content
- Prioritize on the necessary
- Only use what is needed

...a better user experience!





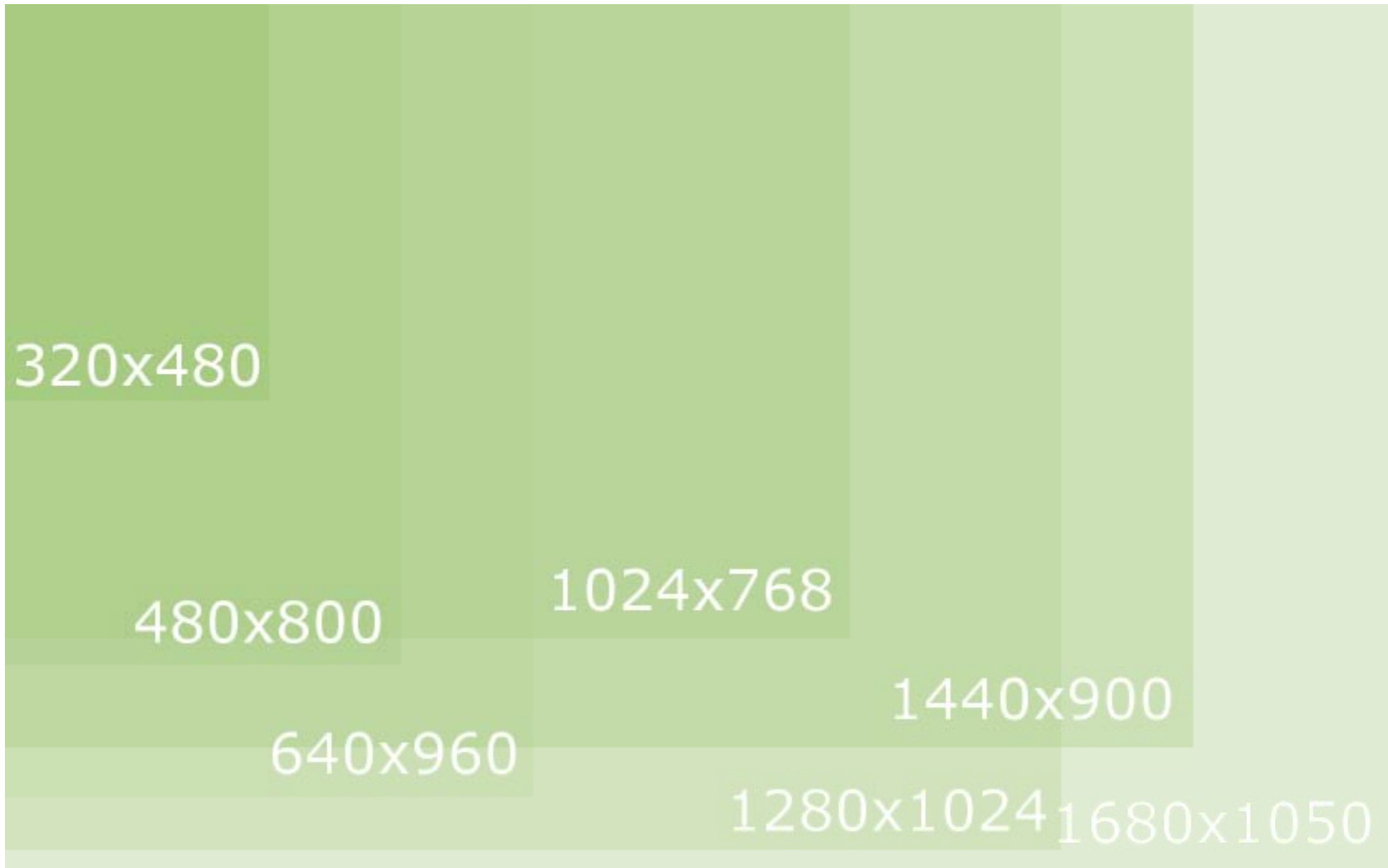
# The Problem Today...



← fixed layouts →

The diagram consists of a large, empty rectangular box with a gray border. To the left of the box, there is a vertical gray bar. Inside the box, the text "← fixed layouts →" is centered horizontally. The arrows point from the text towards the left and right edges of the box, suggesting a fixed width or layout constraint.

# How do we tackle this?



# Responsive Design

Rather than quarantining our content into disparate, device-specific experiences, we can use media queries to progressively enhance our work within different viewing contexts.

~ *Ethan Marcotte*



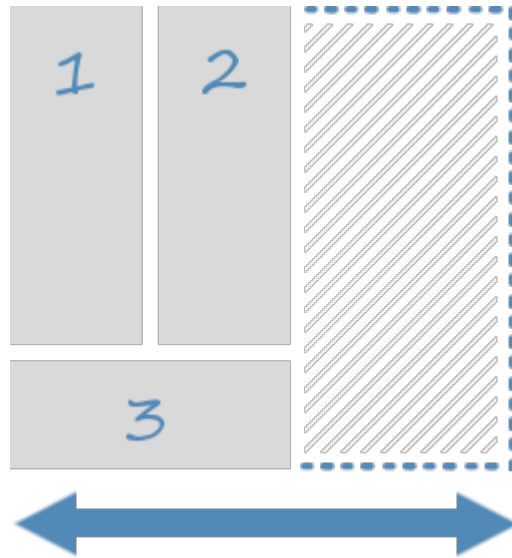
# It's not about the device...



# One Site, Many Devices



# Responsive design is...



Flexible

Fluid

Adaptable

Say Hello to Media Queries!



# Inline Media Queries

```
@media screen and (min-width: 801px) {  
  #content {  
    max-width: 980px;  
  }  
}  
  
@media screen and (min-width: 320px)  
              and (max-width: 480px) {  
  #sidebar {  
    display: none;  
  }  
}
```

# Seperate Stylesheets

```
<link rel="stylesheet"  
  media="screen and (min-width: 321px) and (max-width: 800px)"  
  href="link/to/my/stylesheet.css"></link>  
  
<link rel="stylesheet"  
  media="screen and (min-width: 801px)"  
  href="link/to/my/stylesheet.css"></link>
```

# Available Features

- min-width
- max-width
- min-height
- max-height

Applies rules according to the size of the viewport. To get the device size, use device-width/height instead.

```
@media screen
  and (min-width: 480px)
  and (max-width: 800px) { ... }
```

# Available Features

- orientation

Portrait rule applies when the height is greater than the width, otherwise landscape is used.

```
@media screen and (orientation: portrait) { ... }  
@media screen and (orientation: landscape) { ... }
```

# Available Features

- min-device-pixel-ratio
- max-device-pixel-ratio

\* Not an official CSS3 recommendation and should currently be appended with the vendor prefixes (-webkit, -moz). Currently only iPhone 4, but other devices may be supported in the future.

```
@media screen and (min-device-pixel-ratio:2),  
       screen and (-webkit-min-device-pixel-ratio:2) { ... }
```

# Media Queries & Browser Compatibility



iOS 3.2+ / Android 2.1+ / Blackberry 6+



Opera Mini 5+ / Opera Mobile 10+



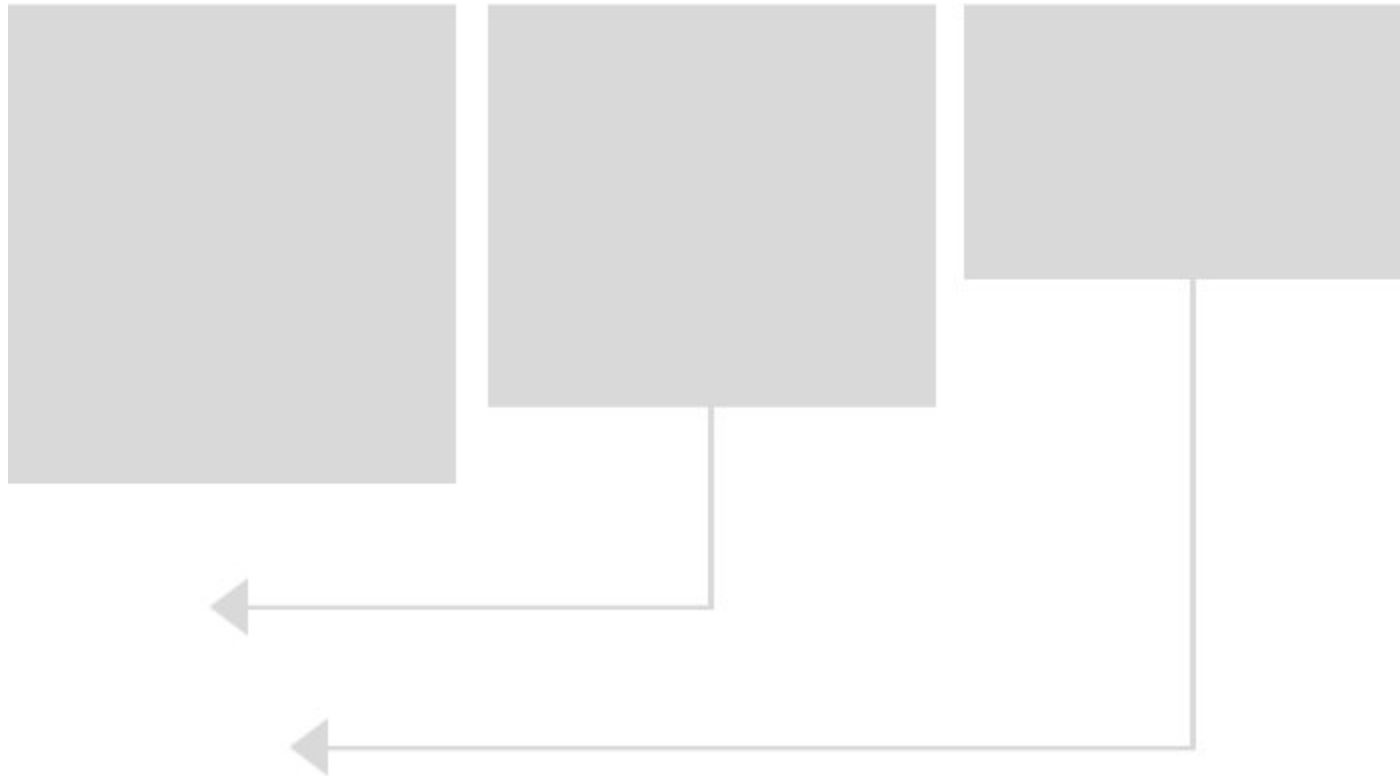
IE Mobile 9+

# Responsive Images, Embeds



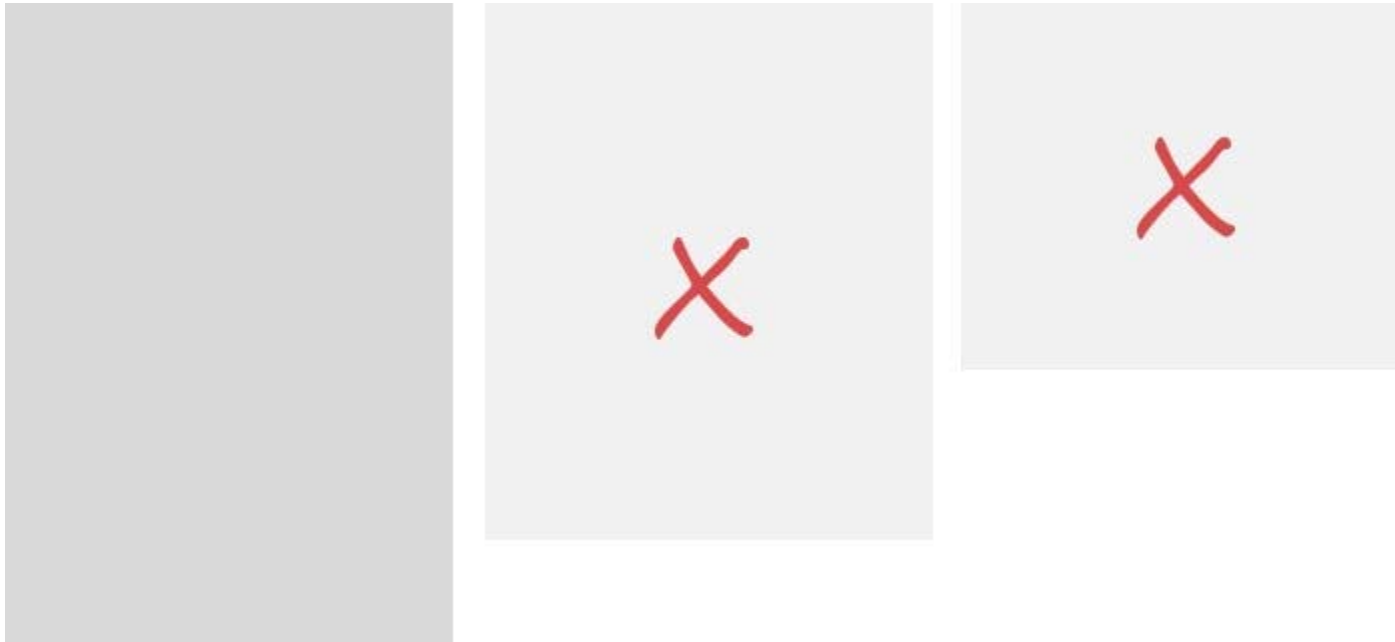
```
img, object {  
  max-width: 100%;  
}
```

# Content Stacking





# Hiding Content



Was this content really necessary in the first place?

# Hiding Content

```
@media screen and (max-width: 800px) {  
  #column1, #column2 {  
    width: 45%;  
  }  
  
  #column3 {  
    display: none;  
  }  
}  
  
@media screen and (max-width: 480px) {  
  #column1 {  
    width: 90%;  
  }  
  
  #column2 {  
    display: none;  
  }  
}
```

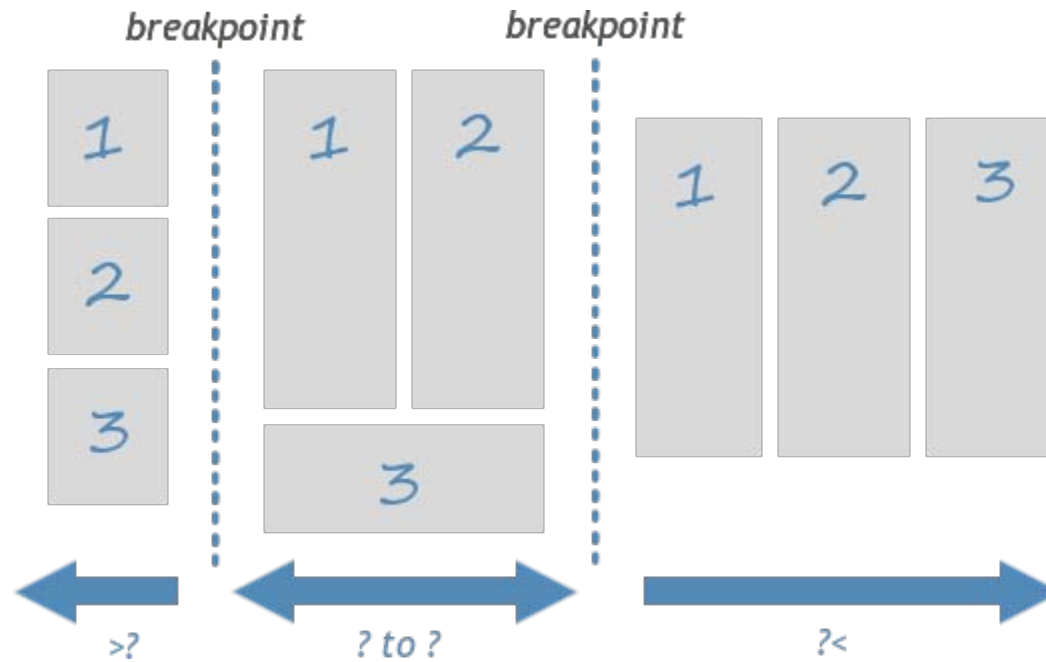
# Controlling the Viewport

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

## Possible options:

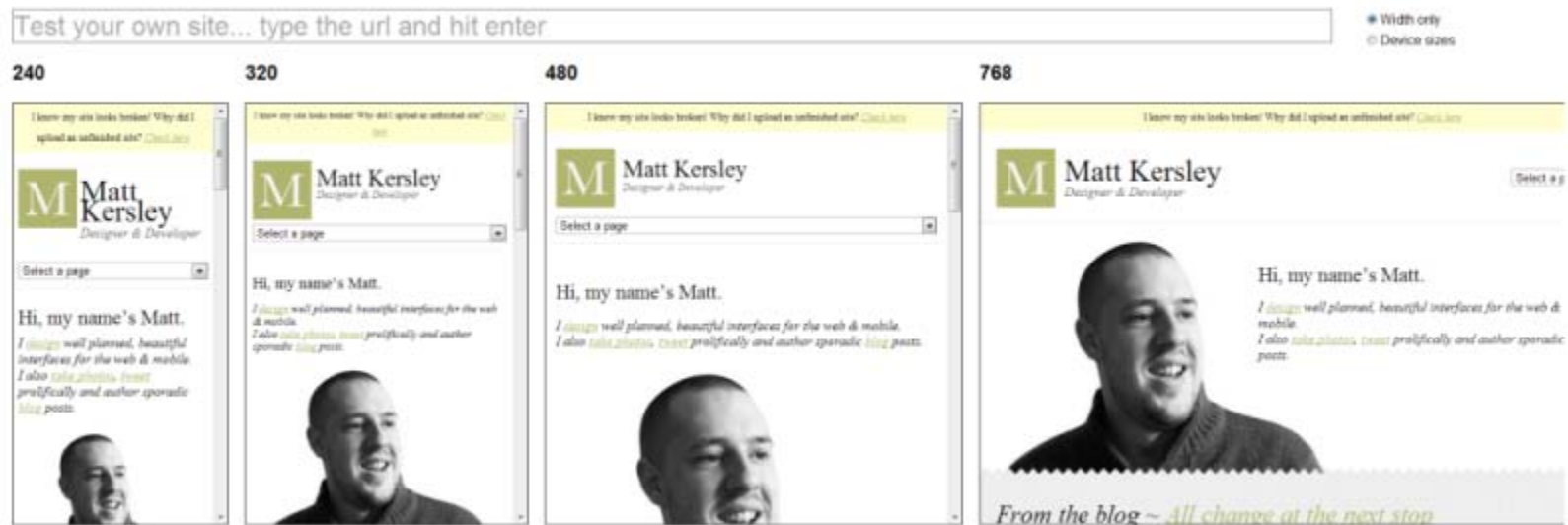
- width (pixel width or device-width)
- height (pixel height or device-height)
- initial-scale
- minimum-scale
- maximum-scale
- user-scalable (yes or no)

# There is no silver bullet...



# Responsive Testing

<http://mattkersley.com/responsive/>  
(<http://mattkersley.com/responsive/>)



# Responsive Examples

- Clean Air Commute Challenge  
(<http://clearairchallenge.com>)
- Food Sense  
(<http://foodsense.is/>)
- ash personal training  
(<http://www.ashpt.co.uk/>)

# Responsive Guidelines

1. Mobile first!

# Responsive Guidelines

1. Mobile first!
2. Think "relative", not static.

← relative to viewport →



Remember, many devices!



# Responsive Guidelines

1. Mobile first!
2. Think "relative", not static
3. Progressively enhance using CSS/Javascript

# Responsive Guidelines

1. Mobile first!
2. Think "relative", not static
3. Progressively enhance using CSS/Javascript
4. Avoid sending unnecessary data

we're only halfway there...

# Touch

# Touch Events

Available on...



## touchstart

- When a finger touches the surface.

## touchmove

- When an event moves on the surface.

## touchend

- When an event ends on the surface.

# Touch Events

Listen to events...

```
document.addEventListener('touchstart', function(e) { ... });  
document.addEventListener('touchmove', function(e) { ... });  
document.addEventListener('touchend', function(e) { ... });
```



## Available event properties:

- `event.touches` - all touches
- `event.targetTouches` - all touches for target element
- `event.changedTouches` - all touches in current event

## touchmove & touchend

- `event.scale` - scale relative to two fingers
- `event.rotate` - delta rotation of an event

## Available touch properties:

- identifier - touch identifier
- touch.pageX / touch.pageY - page coordinates
- touch.screenX / touch.screenY - screen coordinates
- event.target - target element

# Touch Events

This Presentation uses Touch Events:

```
onTouchStart: function(e) {  
  if(e.touches.length == 1) {  
    touchStartX = e.touches[0].pageX;  
  }  
}
```

# Touch Events

```
onTouchEnd: function(e) {  
    var change = touchStartX - e.changedTouches[0].pageX,  
        delta = 175;  
  
    if(change < -delta) {  
        this.previous();  
    } else if(change > delta) {  
        this.next();  
    }  
    touchStartX = 0;  
}
```

(view on your iPhone or Android device to see)

## Touch Support

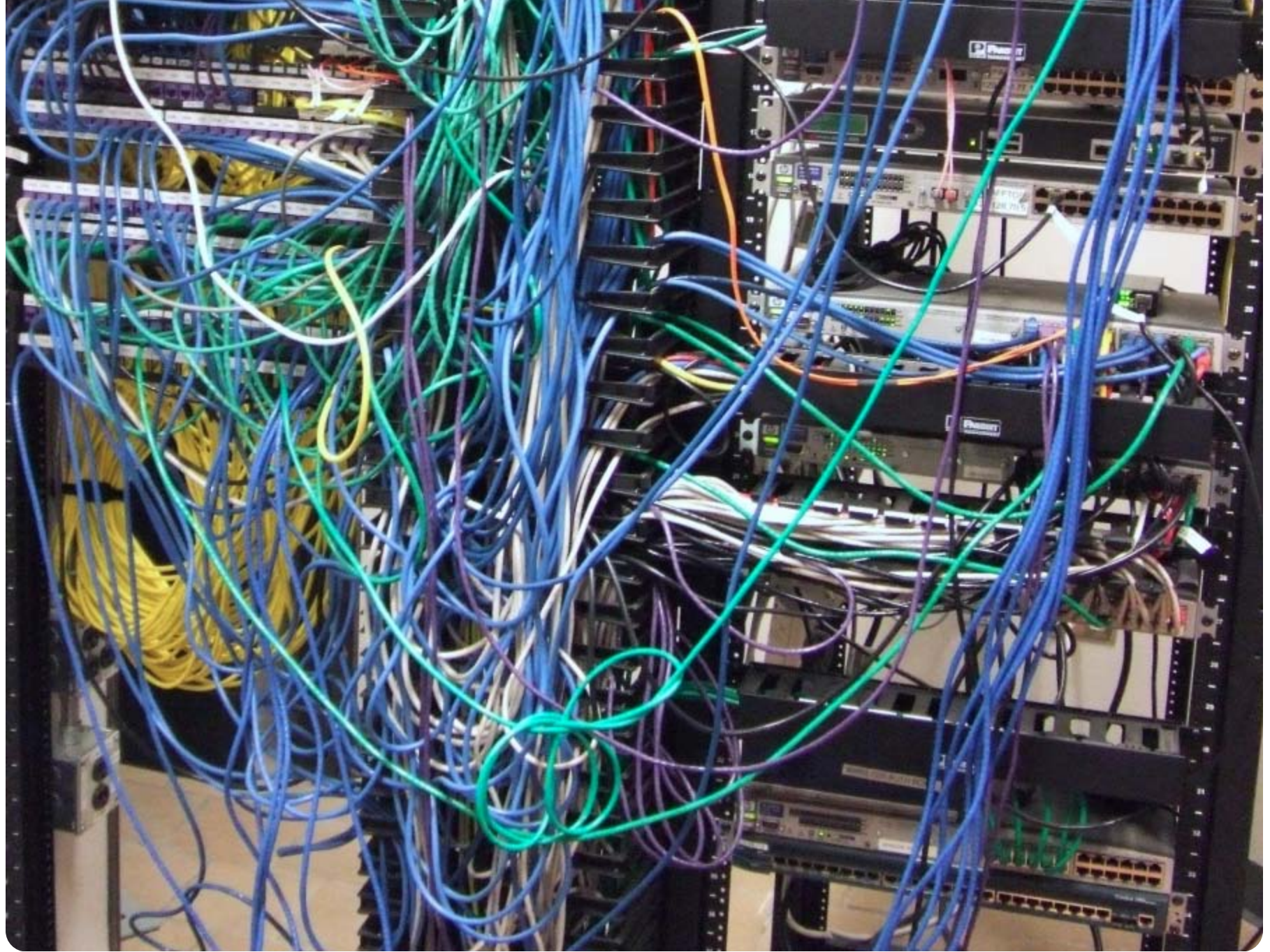
- Remember, touch support is limited to Android and Apple devices
- Provide fallback for devices that don't support touch
- <https://dvcs.w3.org/hg/webevents/raw-file/tip/touchevents.html>  
(<https://dvcs.w3.org/hg/webevents/raw-file/tip/touchevents.html>)

## iOS Safari Developer Docs

- <http://developer.apple.com/library/safari/documentation/AppleApplications/Reference/SafariWebContent/HandlingEvents/HandlingEvents.html>  
(<http://developer.apple.com/library/safari/documentation/AppleApplications/Reference/SafariWebContent/HandlingEvents/HandlingEvents.html>)

## Additional resources

- <http://www.quirksmode.org/mobile/tableTouch.html>  
(<http://www.quirksmode.org/mobile/tableTouch.html>)



# Application Cache

```
<html manifest="manifest.mf">  
  ...  
</html>
```

Remember to serve your manifest files with `text/cache-manifest` !



# Application Cache

```
CACHE MANIFEST
# timestamp 2011-01-11 00:00:00
css/styleSheet.css
js/javascript.js
images/myimage.png
```

- Files are stored in the cache until:
  - The manifest file is updated
  - The user clears their storage data
  - The cache is forcibly updated

Don't cache the manifest files!

# Application Cache

## Why use application cache?

- Site can still be accessible in offline mode.
- Loads resources from the phone instead of the network
- Only downloads resources that have changed
- <http://www.w3.org/TR/html5/offline.html>  
(<http://www.w3.org/TR/html5/offline.html>)

## Other Tips

- Use CSS transitions instead of javascript animations
  - these are sometimes hardware accelerated.
- Take advantage of CSS sprite sheets.
- Simplify!

# Testing

## Opera

<http://www.opera.com/developer/tools/mobile/>  
(<http://www.opera.com/developer/tools/mobile/>)

## Android

<http://developer.android.com/sdk/index.html>  
(<http://developer.android.com/sdk/index.html>)

## Apple

## Blackberry

<http://us.blackberry.com/developers/resources/simulators.jsp>  
(<http://us.blackberry.com/developers/resources/simulators.jsp>)

## Microsoft

<http://www.microsoft.com/visualstudio/en-us/products/2010-editions/windows-phone-developer-tools>  
(<http://www.microsoft.com/visualstudio/en-us/products/2010-editions/windows-phone-developer-tools>)

## WebOS

[https://developer.palm.com/content/resources/develop/sdk\\_pdk\\_download.html](https://developer.palm.com/content/resources/develop/sdk_pdk_download.html)  
([https://developer.palm.com/content/resources/develop/sdk\\_pdk\\_download.html](https://developer.palm.com/content/resources/develop/sdk_pdk_download.html))

# Resources

- [Responsive Web Design ~ Ethan Marcotte](http://www.abookapart.com/products/responsive-web-design)  
(<http://www.abookapart.com/products/responsive-web-design>)
- [mediaqueri.es](http://mediaqueri.es/)  
(<http://mediaqueri.es/>)
- [Quirksmode Mobile Compatability](http://quirksmode.org/mobile/)  
(<http://quirksmode.org/mobile/>)
- [When can I use...](http://caniuse.com/)  
(<http://caniuse.com/>)



Remember...

Mobile first!

One site, many devices

Be fluid and adaptable

Progressively enhance your design

Thanks for listening!  
Questions?



@scurker



gplus.to/scurker



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