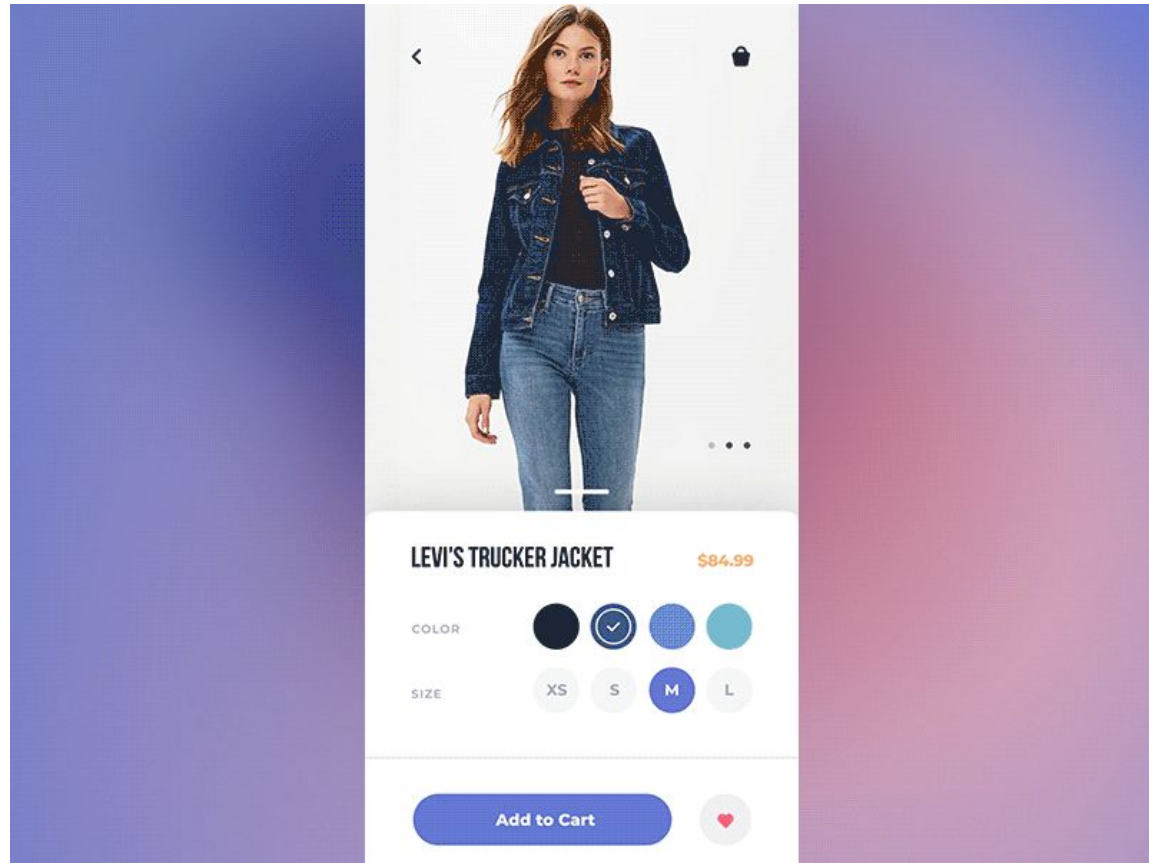


Week 8

Responsive Design

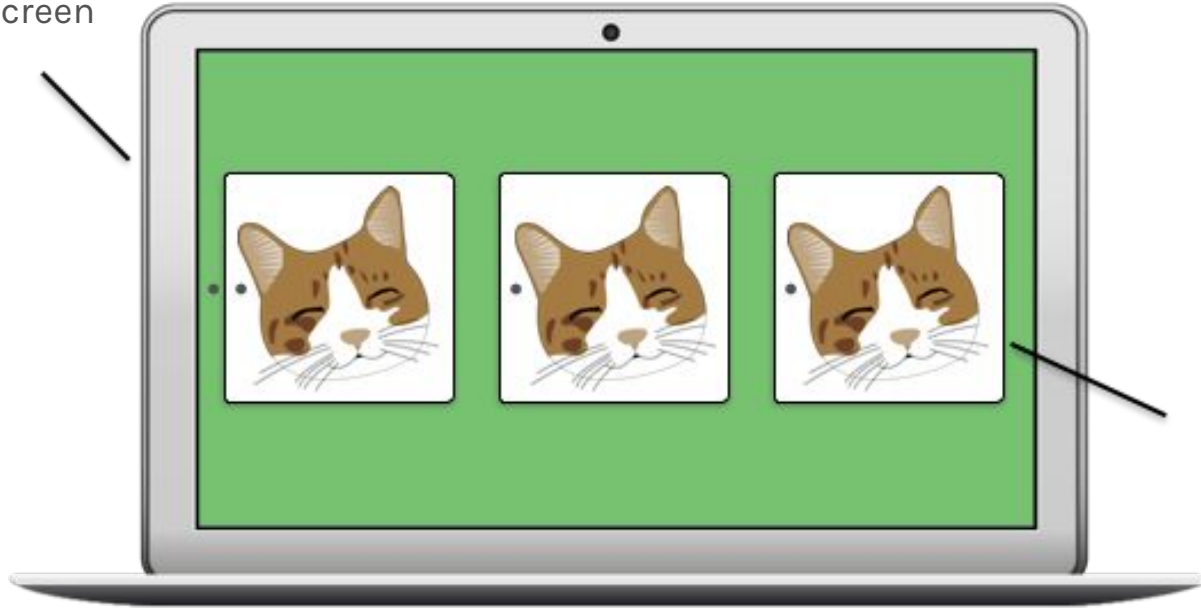
State of the Internet

- Nearly 3.5 billion people have access to the internet today
- Internet is accessible from all kinds of devices including:
 - Laptops and Desktops
 - Tablets
 - Smartphones
 - Game consoles
 - Smartwatches
 - Fridges
 - Microwaves
- We are in the post-PC era!



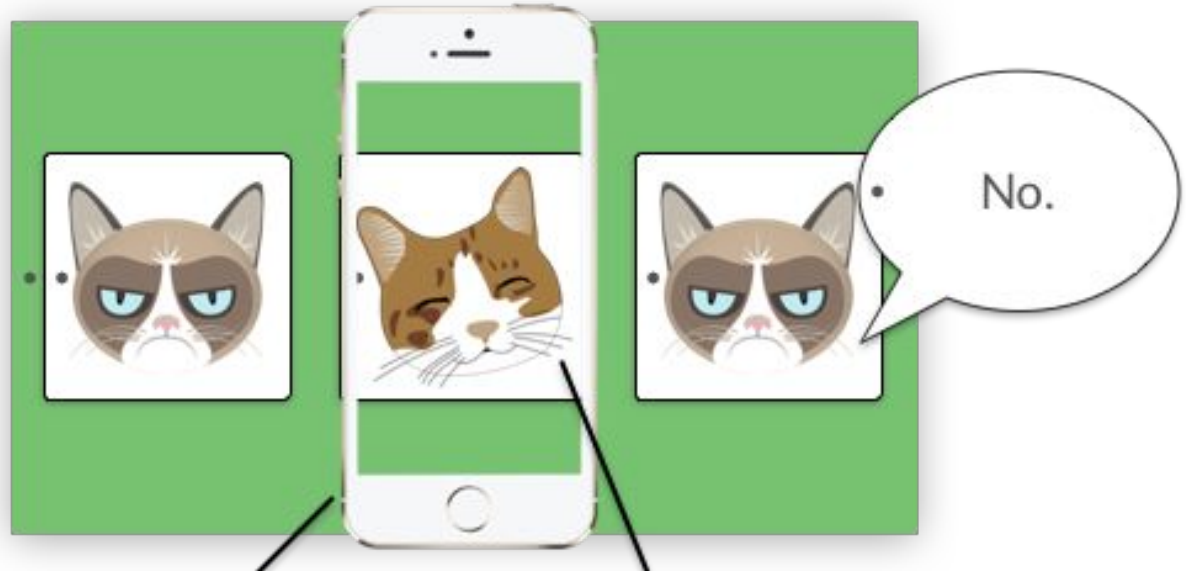
Why won't my site work on all devices?

1280px screen



300px box

Why won't my site work on all devices?



300px screen

300px box

Inspector Demo — What does my site look like on mobile, anyway?

Why won't my site work on all devices?

- Different devices come with different screen sizes and rendering engines
- Content designed for a laptop with a much bigger screen won't look the same on a tablet/mobile with a much smaller screen

What does this mean for **designers**?

We need to make sure our websites work on **all devices
& browsers**

Responsive Web Design

- “Designing websites for multiple screen sizes and devices, so that there is an optimal experience for every user at every possible size.”
- Responsive design deals with:
 - Browser compatibility
 - Screen resolutions
 - Mobile compatibility
- We will be exploring each of these aspects today

Issue 1: Browser Compatibility

Browser Compatibility

- The ability of a website to function “as expected” on any web browser (including IE)
- Browsers have different rendering engines, which is the component that displays the HTML and CSS onto the screen
 - As a result, each browser interprets your code differently

Dotted Border Differences



IE7



IE8



IE10 PP2



Chrome 15.x



FF 4



FF 6



Safari 5.1



Opera 11.50

Vendor Prefixes

```
#container-3 {  
  display: none;  
  background-color: white;  
  width: 100%;  
  -webkit-transition: opacity 0.3s;  
  -moz-transition: opacity 0.3s;  
  -o-transition: opacity 0.3s;  
  transition: opacity 0.3s;  
}
```

Can I use transform ? Settings

6 results found

#

CSS3 2D Transforms - WD

Method of transforming an element including rotating, scaling, etc.
Includes support for `transform` as well as `transform-origin` properties.







Global 94.1%
unprefixed: 81.92%
U.S.A. 97.22%
unprefixed: 94.01%

Current aligned

Usage relative

Date relative

Show all

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			49						
			58			9.3		4.4 	
	 14	52	59			10.2		4.4.4 	
 11	 15	54	60	10.1	46	10.3	all	56	59
	 16	55	61	11	47	11			

Vendor Prefixes — Limitations

- Commonly use vendor prefixes for simple things (linear gradients, transitions, etc.)
- Instead of vendor prefixes, major browsers are moving away from prefixes and toward @supports or feature queries.
 - Not really in the scope of this class, but feel free to research on your own!

Issue 2: Screen Resolutions

Screen Res, y'all

- Resolution: how many pixels your screen can display horizontally and vertically
 - whatismyscreenresolution.com
- Not all users will view your website on devices with the same screen resolution
 - 13" Macbook Pro vs 15" Macbook Pro
- Changing the size of your browser window also affects how your website looks

Screen Res, y'all

- Use containers to make your content fit a certain size
 - Using a container size of ~1024x768 is ideal:
 - All screen resolutions greater than or equal the size of the container will have a good viewing experience

Lower Screen Resolutions: **Use CSS Media Queries**

Issue 3: Mobile Compatibility

Designing for Mobile

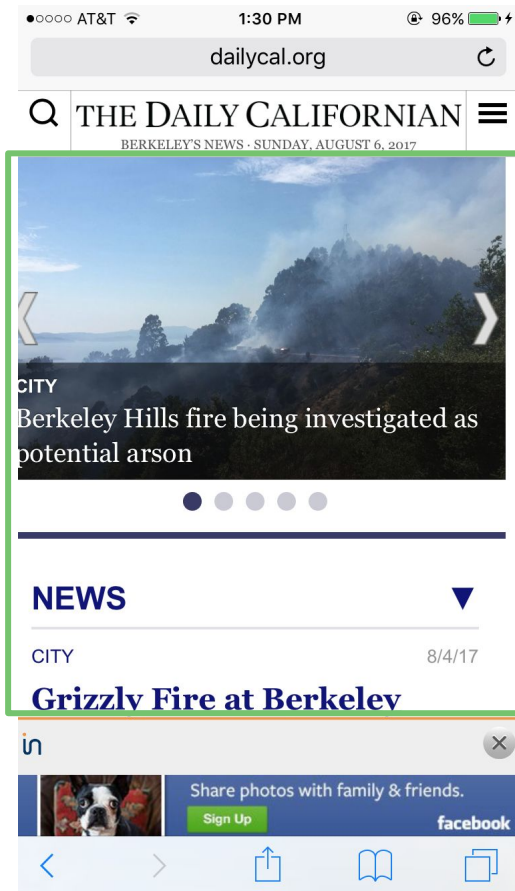
- User interfaces for mobile websites are quite different than those for desktop
- They differ in three main ways:
 - Screen size
 - Touchscreen capabilities
 - Performance

Mobile vs Desktop

	Mobile	Desktop
Screen Size	3.5" - 5.5"	11" - 30"
Input Method	Touchscreen	Mouse/trackpad
Performance	Relatively slow	Relatively fast

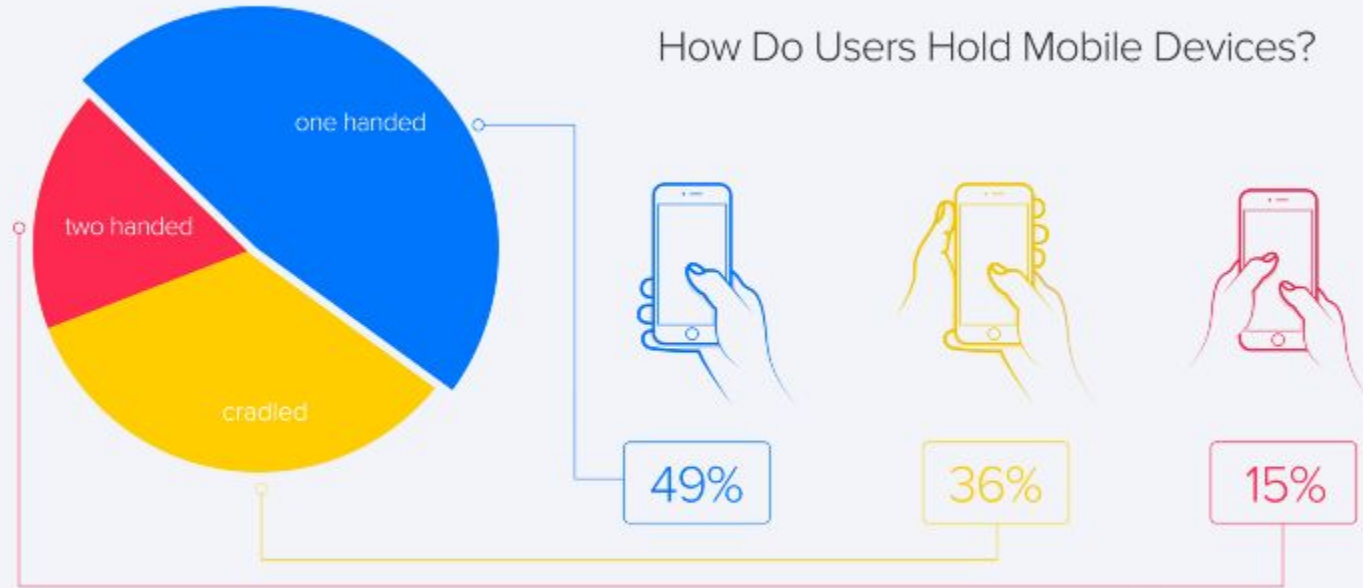
Screen Size

- Screen size is much, much smaller than on desktop:
 - Focus on the content and tuck everything else away
- Due to the restricted space, most UIs should stack elements vertically
 - Helps maximize the width and emphasis on each element



- Restrict your use of position: fixed elements
 - They reduce space for content
- Top bar and ad at the bottom are fixed, leaving less space for content

How Do Users Hold Mobile Devices?



Statistics from uxatters.com

@dward 

We mostly use our mobile phones one-handed

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Reachability

Left-Handed & Right- Handed Example

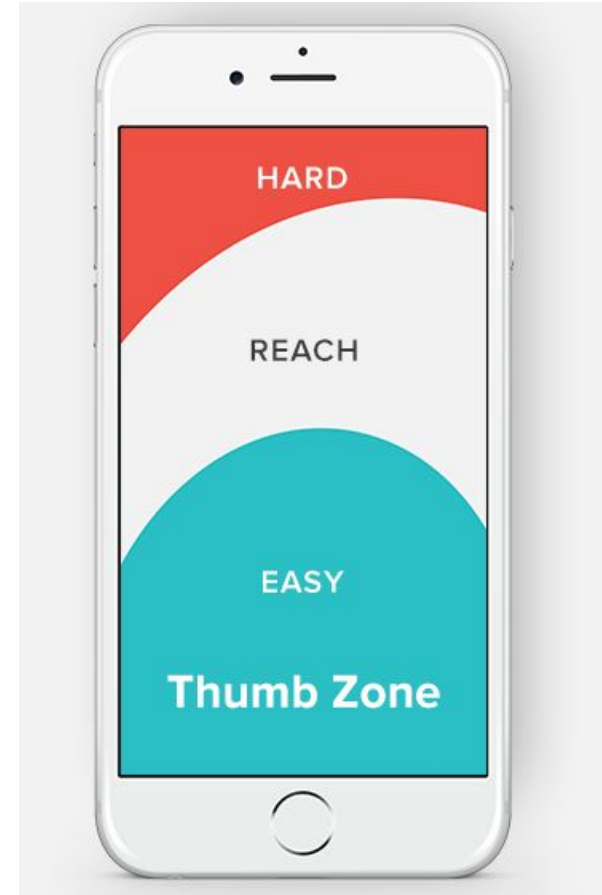
- Good
- Medium
- Out of Reach (OW)

Reachability has physical limits

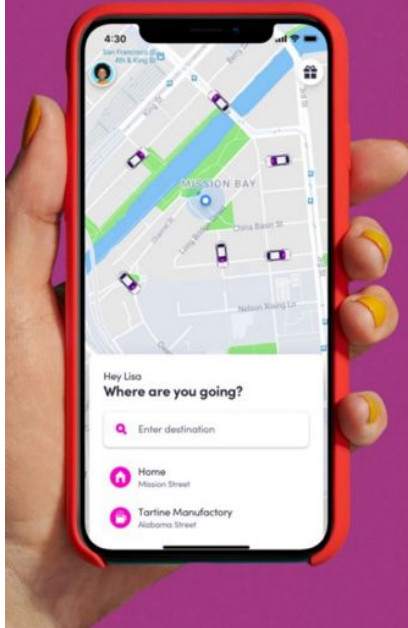
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Touch Screen

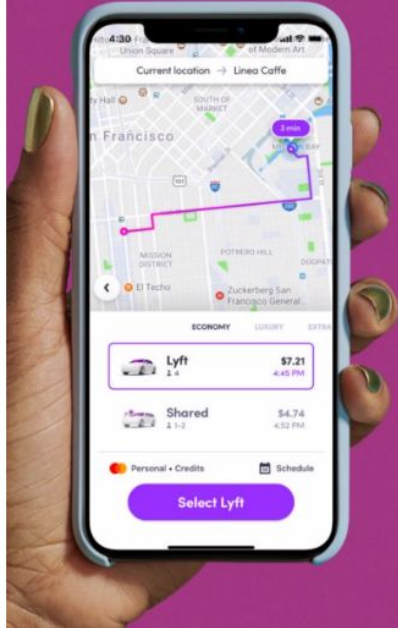
- Thumbs are less precise than cursors
 - Add padding to accommodate for the size of people's thumbs
- Commonly used buttons should be placed at the bottom of the screen: Improves reachability



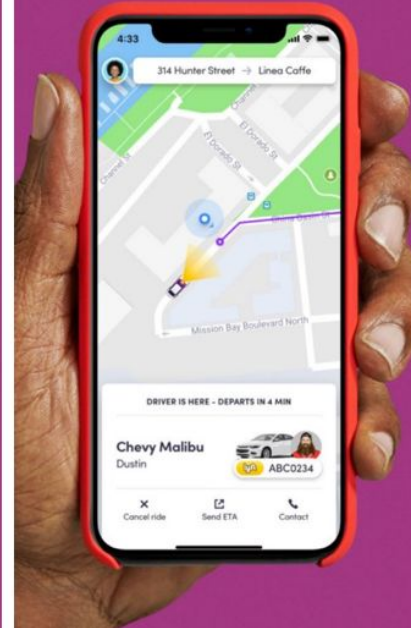
Choose your
destination



See your cost
up front



Get a ride
in minutes

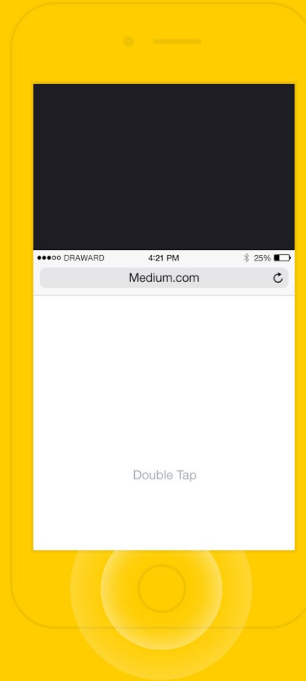


Lyft — Effective mobile reachability

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EXAMPLE

iOS Reachability Solution



477px
Of Useful Space

@draward 

Performance

- Rendering performance on mobile is roughly half that of desktop
 - This causes mobile websites to be slow
- Minimize heavy JavaScript front-end manipulation
- Minimize use of transitions, animations, hover effects, etc.
- Mobile UIs should be as simple as “click and scroll”

Solution: Mobile-First Design

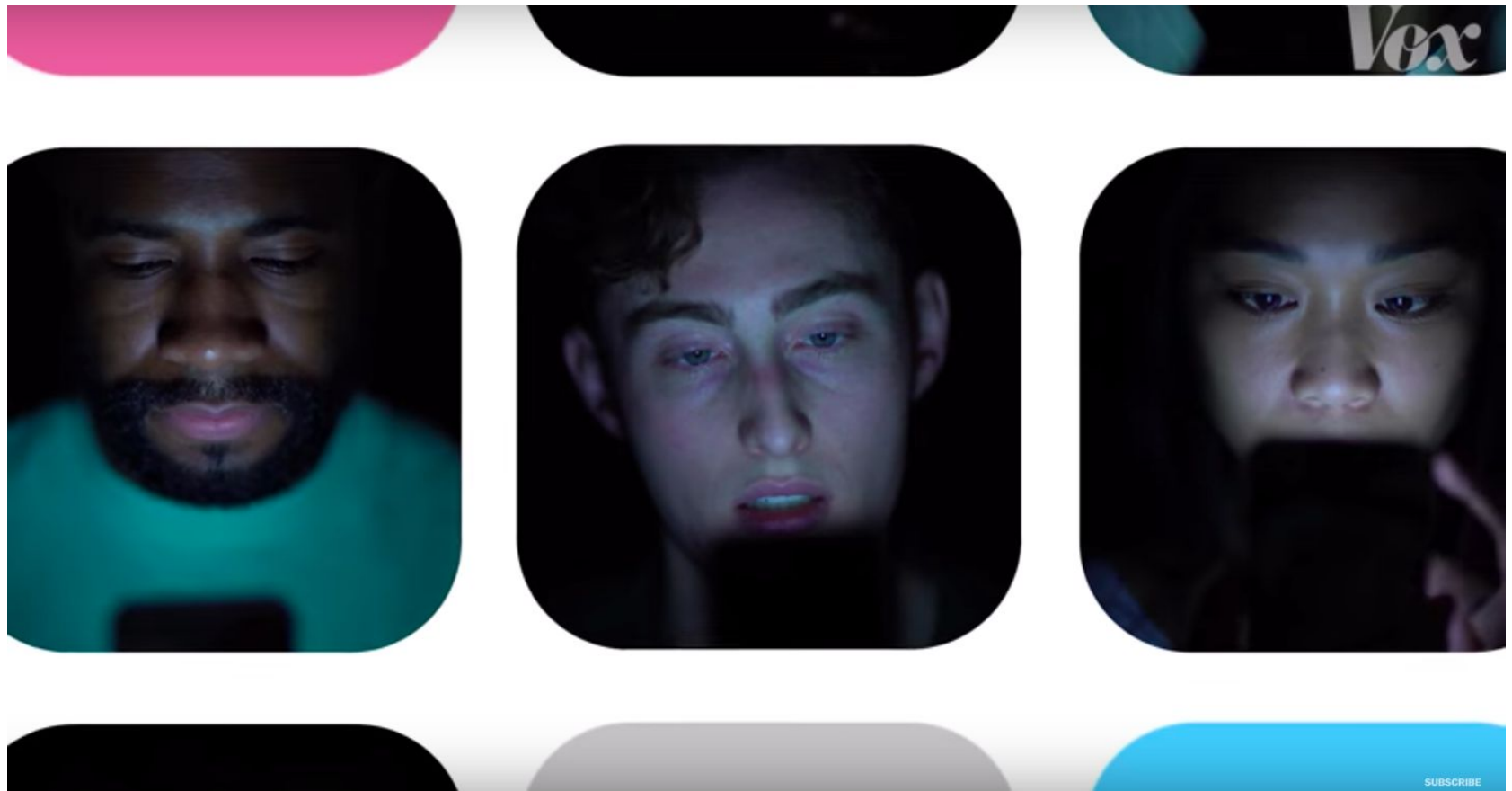
Performance

- It's harder to squash things down fit more things in smaller space than opening things up and adding more things to fill a larger space
- Design for mobile first, then design for larger screens
 - forces you think about what is important (visual hierarchy!)
- Convention != Quality
 - Remember Lyft vs Uber and Apple HIG

Review

- Designing for variation is important
- Make sure your websites work on all browsers
 - Add prefixes if necessary
- Make sure your websites work WELL on all devices
 - Use media queries and containers
 - Mobile-first design

Short Video Break



It's not you. Phones are designed to be addicting. Vox

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