INTRODUCTION TO RESPONSIVE WEB DESIGN

Philly Tech Week 2015 Dev Day
April 23rd, 2015

Photo Credit: http://bit.ly/1CV1ATG

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#introRWD

INTRODUCTIONS

SRIRACHA ROOSTER SAUCE

SONIC YOUTH

YOUR TURN

(NAME AND SPIRIT ANIMAL)

WHAT ARE WE GONNA COVER TODAY?

- Learn what is Responsive Web Design (RWD)
- Understand why RWD is critical in new sites
- Get hands-on with the building blocks of RWD
- Performance considerations
- Review tools for testing your responsive builds

HOW DID WE GET HERE?

Photo Credit: http://bit.ly/1CV1ATG

cingular
11:38 AM
The New York Times - Breaking News...
http://nytimes.com/
The New York Times
Democrats Take Control of Congress

MOBILE “SOLUTIONS”

- http://m.awesomesaucewebsite.com

- http://mobile.awesomesaucewebsite.com

MOBILE “SOLUTIONS”

- Without a CMS, two versions of content to update
- With a CMS, you had multiple sets of code to manage
- Trimmed down features to avoid repetition
- Users were forced onto mobile website
- Developers choose device to target

DEVICES HAVE MULTIPLIED

WEB

WEB
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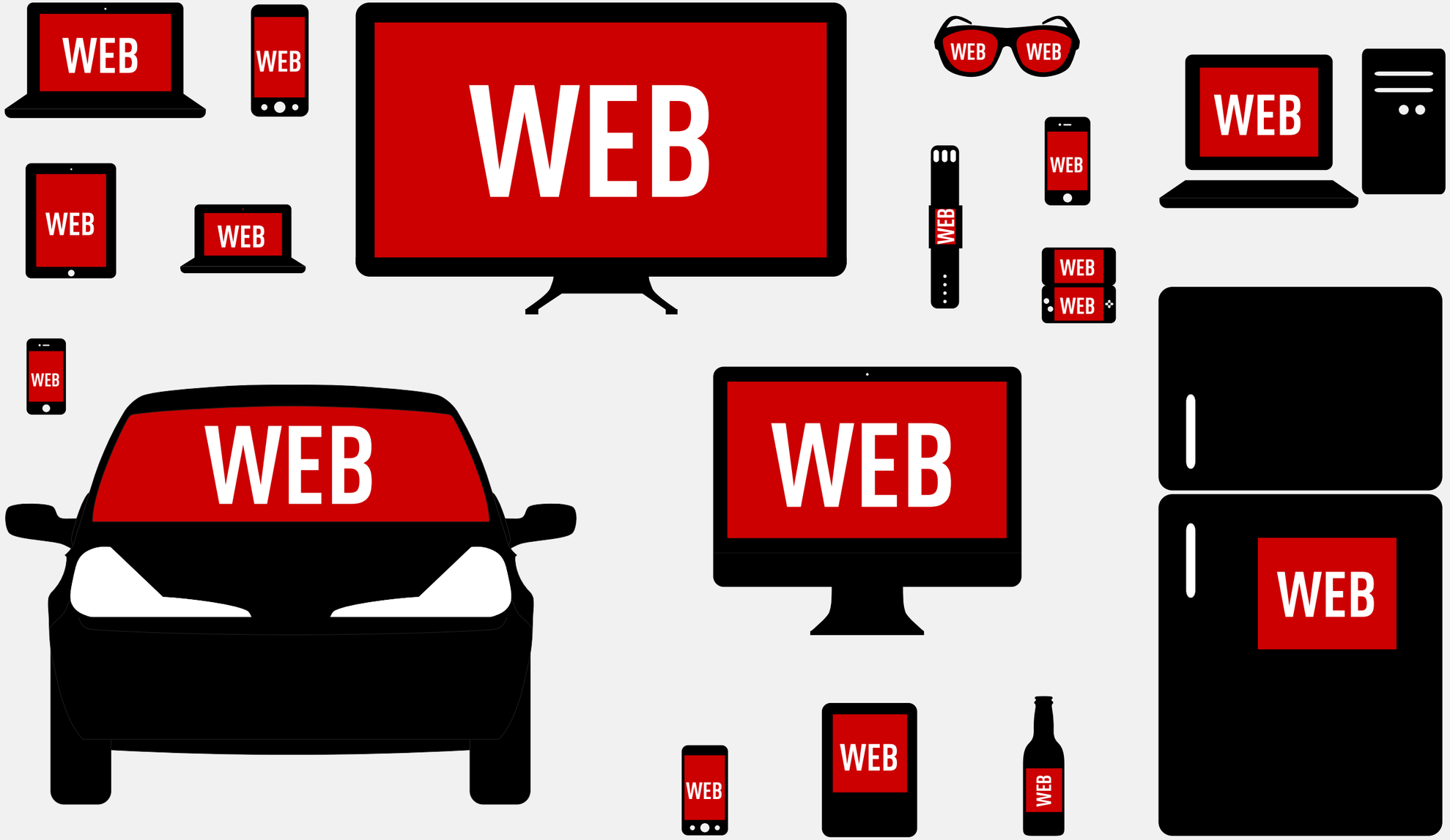
WEB


WEB

WEB

WHAT IS RESPONSIVE DESIGN?

The concept of Responsive Web Design was introduced by Ethan Marcotte in a 2010 article on the website A List Apart

http://bit.ly/Osf9I9

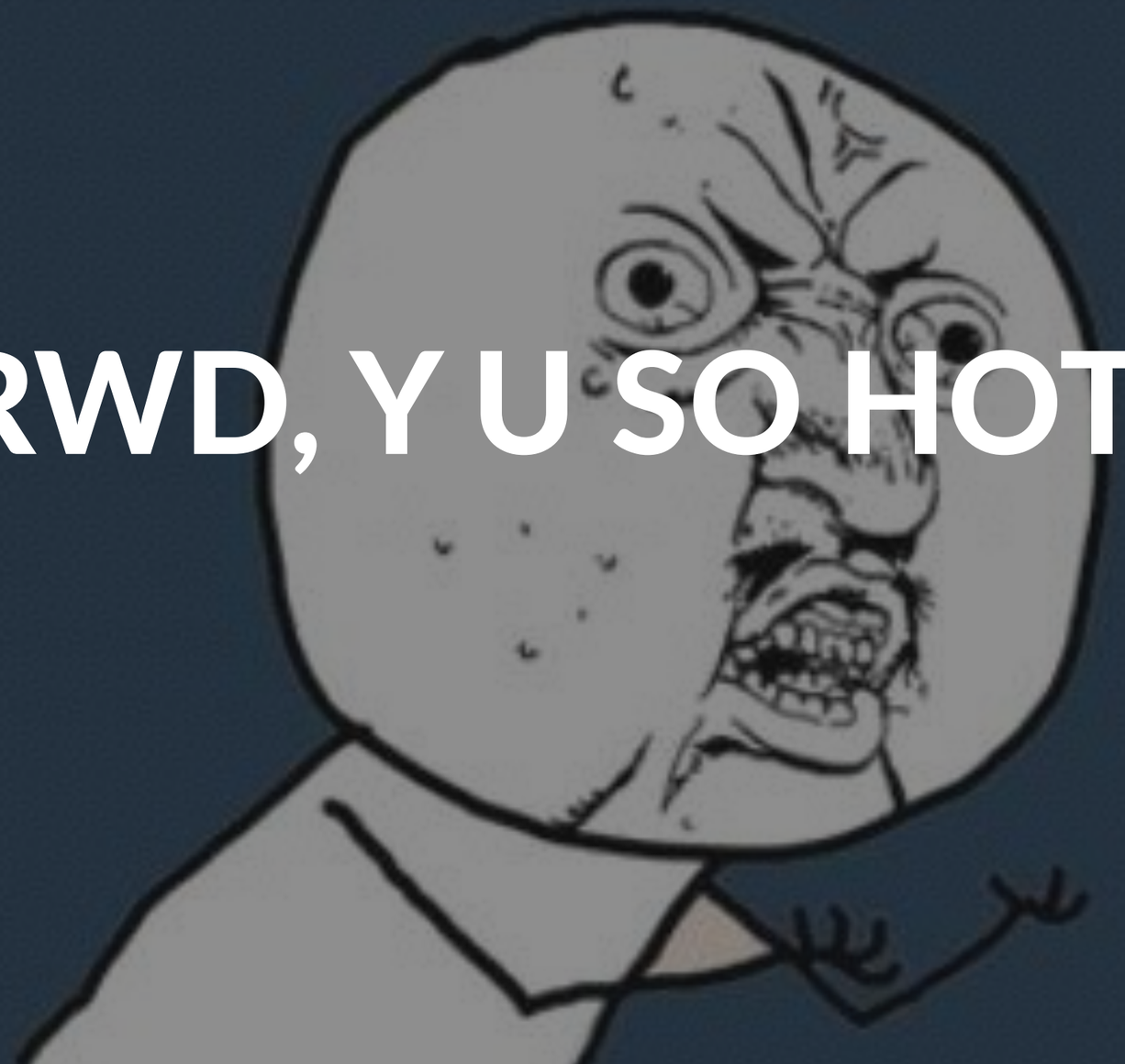
> “The control which designers know in the print medium, and often desire in the web medium, is simply a function of the limitation of the printed page. We should embrace the fact that the web doesn’t have the same constraints, and design for this flexibility. But first, we must 'accept the ebb and flow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

John Allsopp, “A Dao of Web Design” - *http://alistapart.com/article/dao*

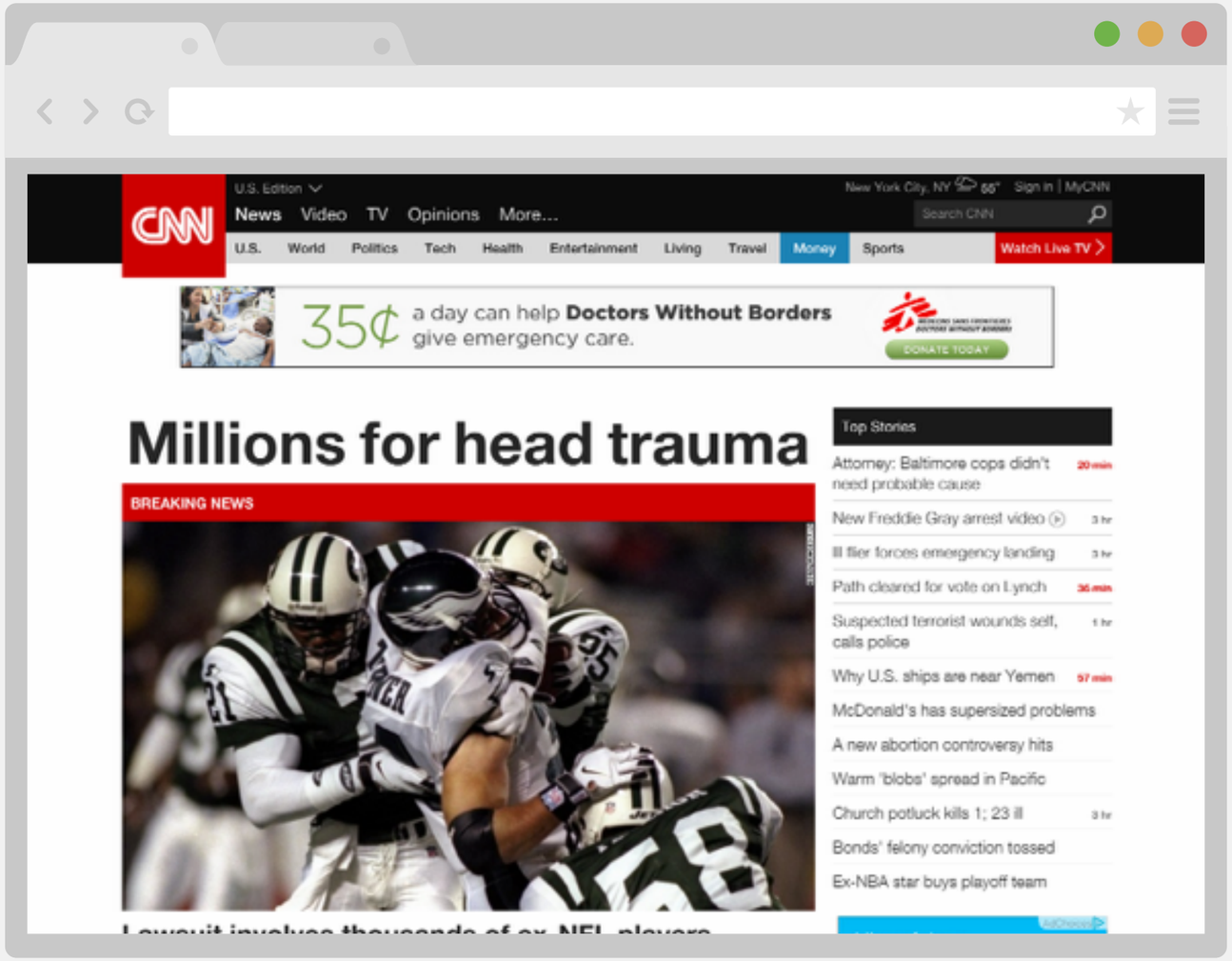
WHAT IS RESPONSIVE WEB DESIGN?

A collection of techniques for progressively enhancing a website that enables a quality user experience for different contexts

RWD, Y U SO HOT?



CNN


U.S. Edition
New York City, NY 55°
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Search CNN
U.S. World Politics Tech Health Entertainment Living Travel Money Sports
Watch Live TV
35¢ a day can help Doctors Without Borders give emergency care.
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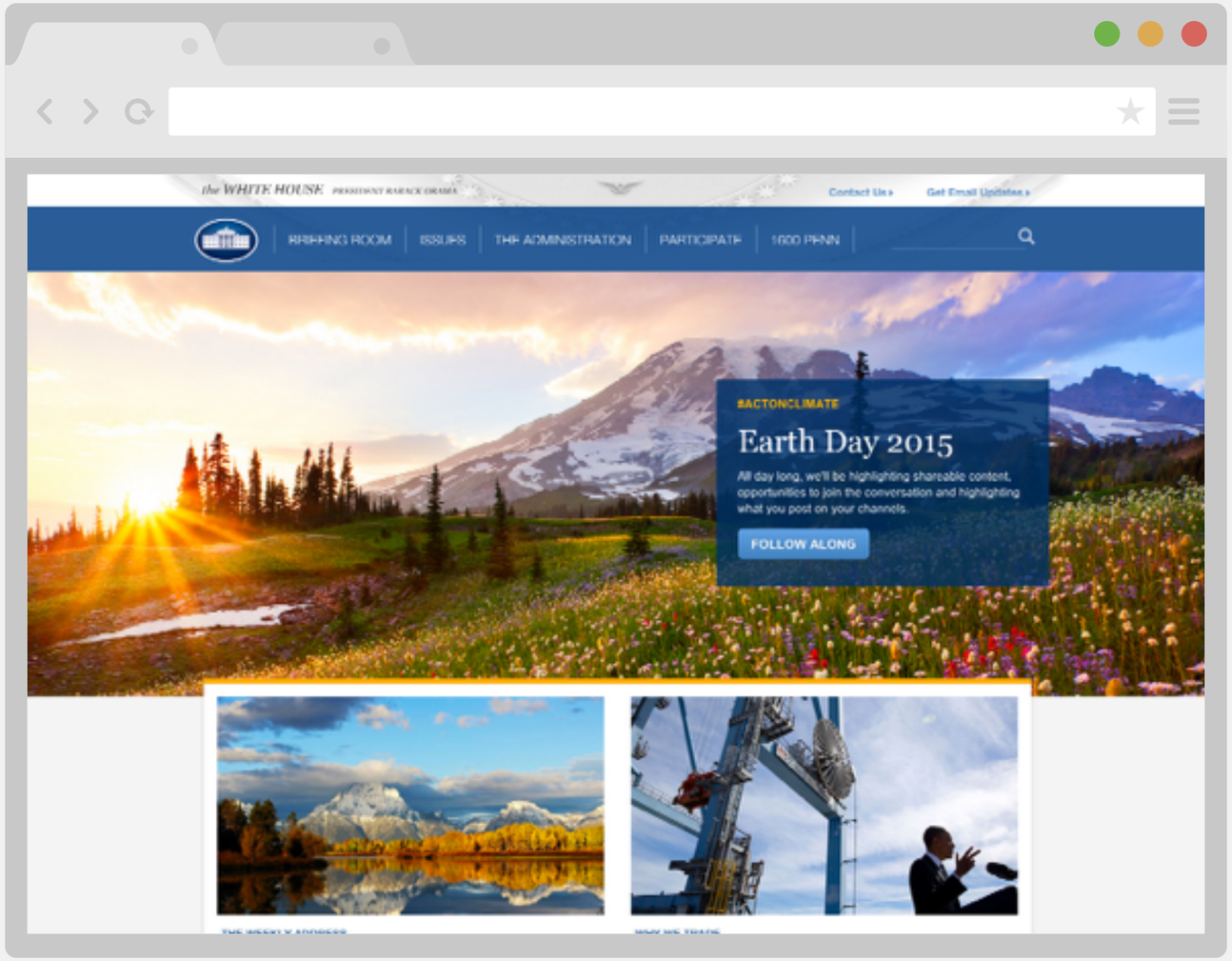
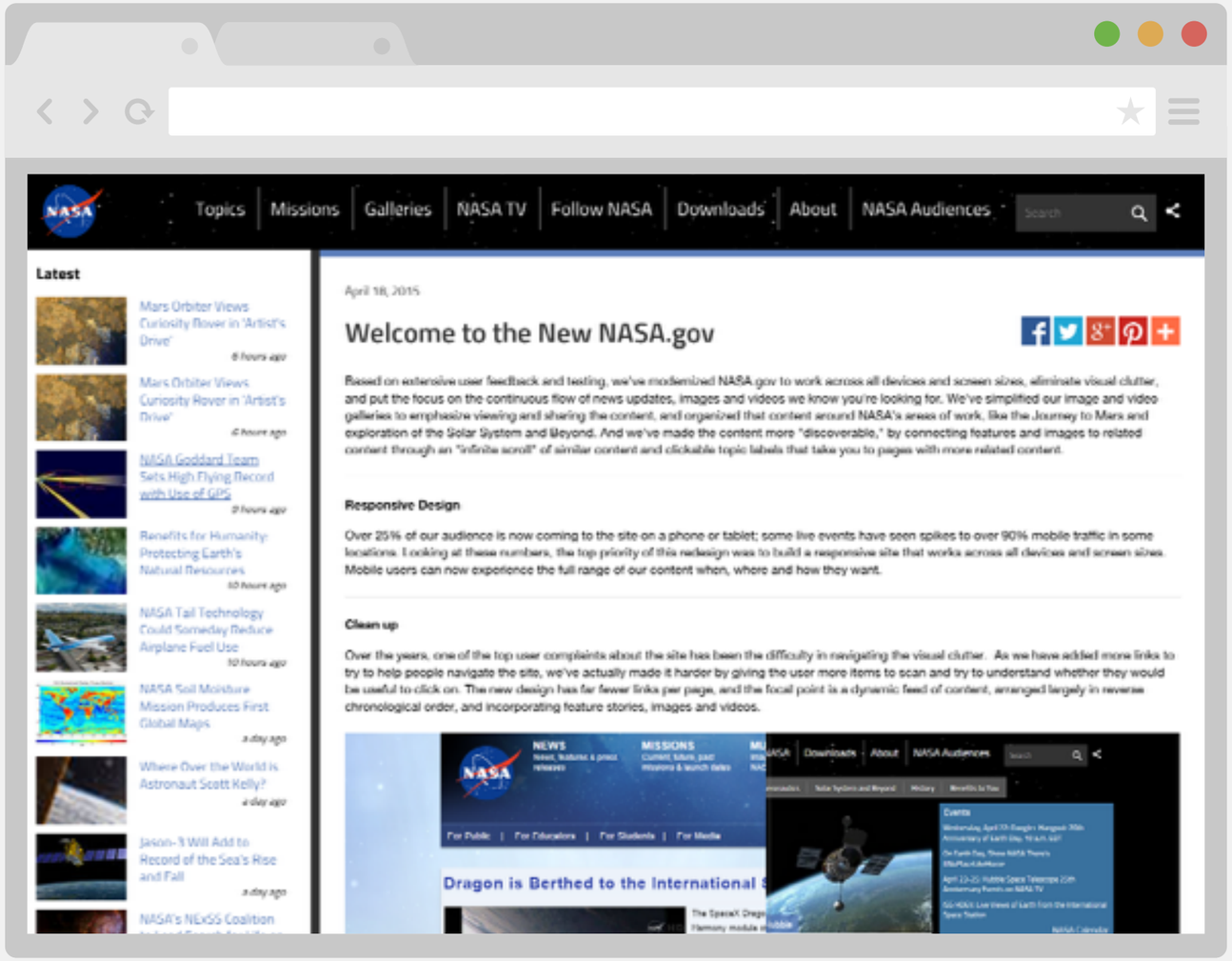
Millions for head trauma
BREAKING NEWS
Top Stories
Attorney: Baltimore cops didn't need probable cause 20 min
New Freddie Gray arrest video 3 hr
Ill flier forces emergency landing 3 hr
Path cleared for vote on Lynch 36 min
Suspected terrorist wounds self, calls police 1 hr
Why U.S. ships are near Yemen 57 min
McDonald's has supersized problems
A new abortion controversy hits
Warm 'blobs' spread in Pacific
Church potluck kills 1; 23 ill 3 hr
Bonds' felony conviction tossed
Ex-NBA star buys playoff team

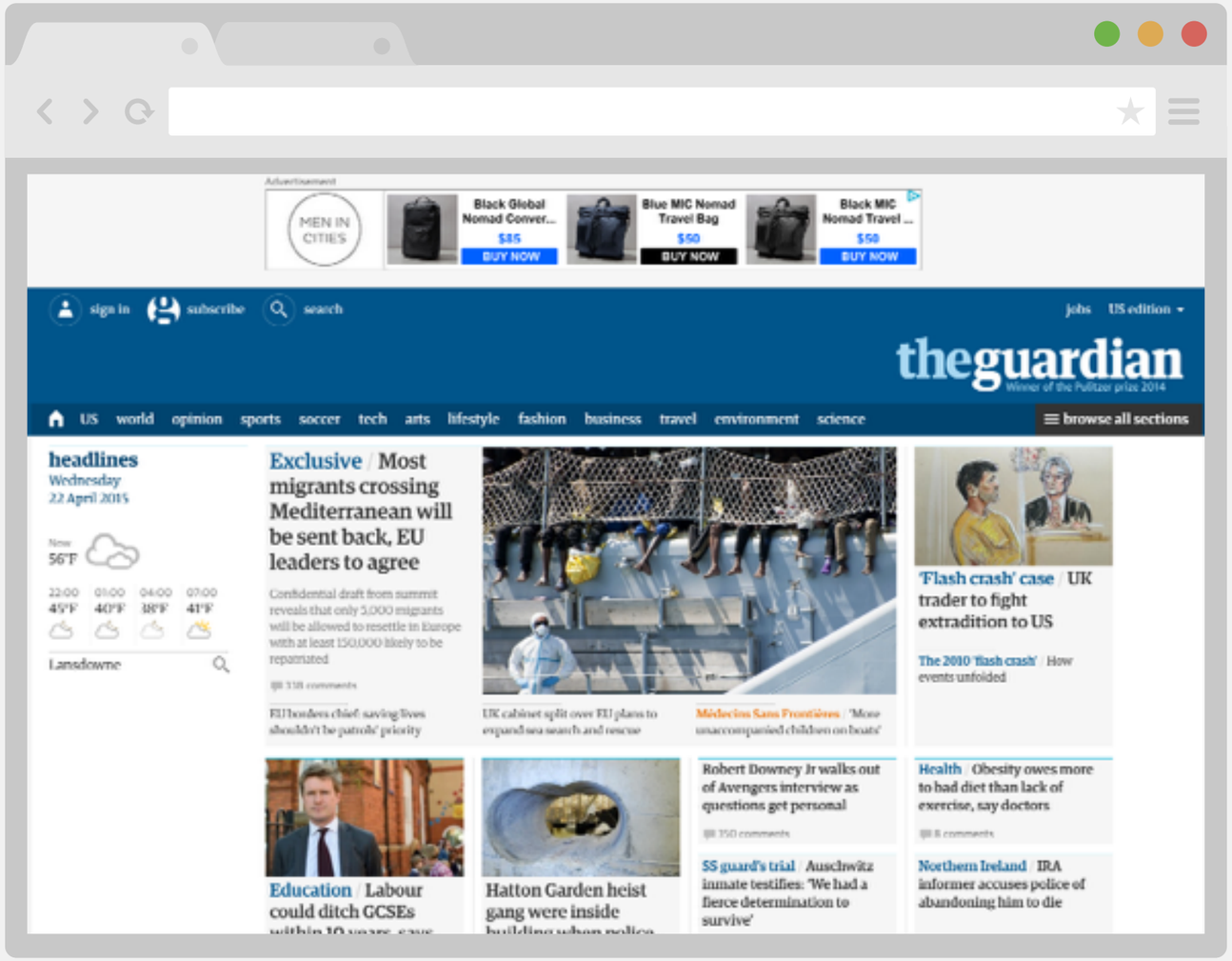
THE WHITE HOUSE



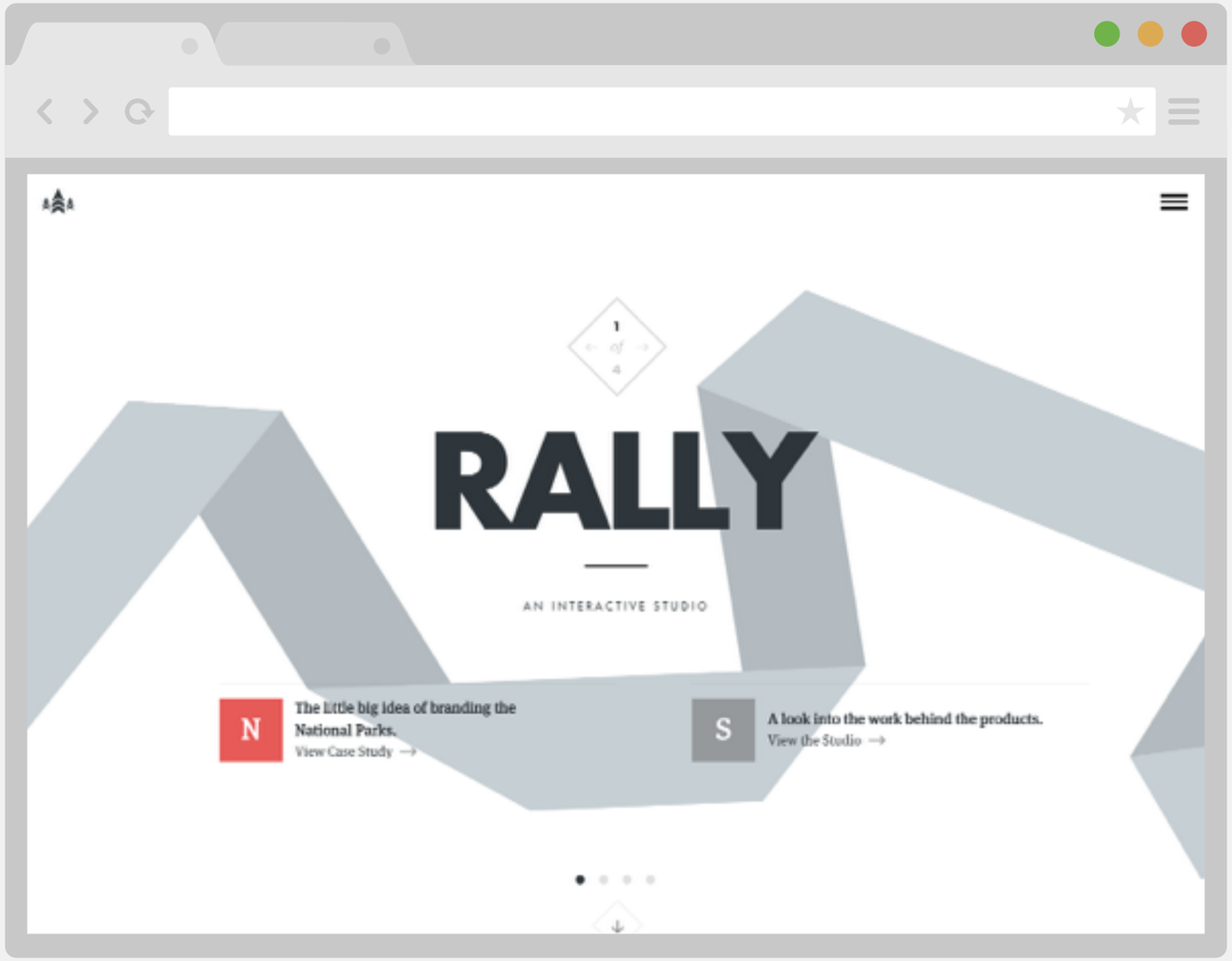
NASA


Topics
Missions
Galleries
NASA TV
Follow NASA
Downloads
About
NASA Audiences
Latest
Mars Orbiter Views Curiosity Rover in 'Artist's Drive'
Mars Orbiter Views Curiosity Rover in 'Artist's Drive'
NASA Goddard Team Sets High Flying Record with Use of GPS
Benefits for Humanity: Protecting Earth's Natural Resources
NASA Tail Technology Could Someday Reduce Airplane Fuel Use
NASA Soil Moisture Mission Produces First Global Maps
Where Over the World is Astronaut Scott Kelly?
Jason-3 Will Add to Record of the Sea's Rise and Fall
NASA's NExSS Coalition
April 18, 2015
Welcome to the New NASA.gov
Based on extensive user feedback and testing, we've modernized NASA.gov to work across all devices and screen sizes, eliminate visual clutter, and put the focus on the continuous flow of news updates, images and videos we know you're looking for. We've simplified our image and video galleries to emphasize viewing and sharing the content, and organized that content around NASA's areas of work, like the Journey to Mars and exploration of the Solar System and Beyond. And we've made the content more "discoverable," by connecting features and images to related content through an "infinite scroll" of similar content and clickable topic labels that take you to pages with more related content.
Responsive Design
Over 25% of our audience is now coming to the site on a phone or tablet; some live events have seen spikes to over 90% mobile traffic in some locations. Looking at these numbers, the top priority of this redesign was to build a responsive site that works across all devices and screen sizes. Mobile users can now experience the full range of our content when, where and how they want.
Clean up
Over the years, one of the top user complaints about the site has been the difficulty in navigating the visual clutter. As we have added more links to try to help people navigate the site, we've actually made it harder by giving the user more items to scan and try to understand whether they would be useful to click on. The new design has far fewer links per page, and the focal point is a dynamic feed of content, arranged largely in reverse chronological order, and incorporating feature stories, images and videos.
NEWS
MISSIONS
Dragon is Berthed to the International

THE GUARDIAN



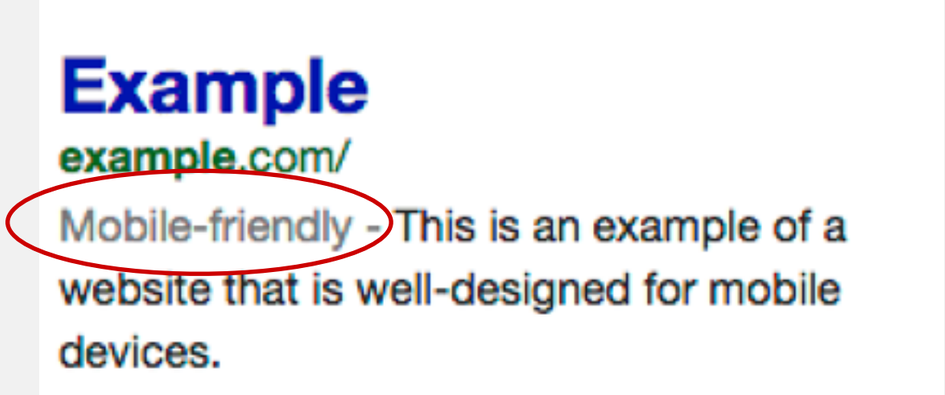
RALLY INTERACTIVE



RWD, Y U SO HOT?

- Google says so because they know…
  - 67% of visitors are more likely to frequent and purchase from a mobile-friendly site
  - Broken social links discourage engagement
  - Prompting for app downloads with interstitials = bad

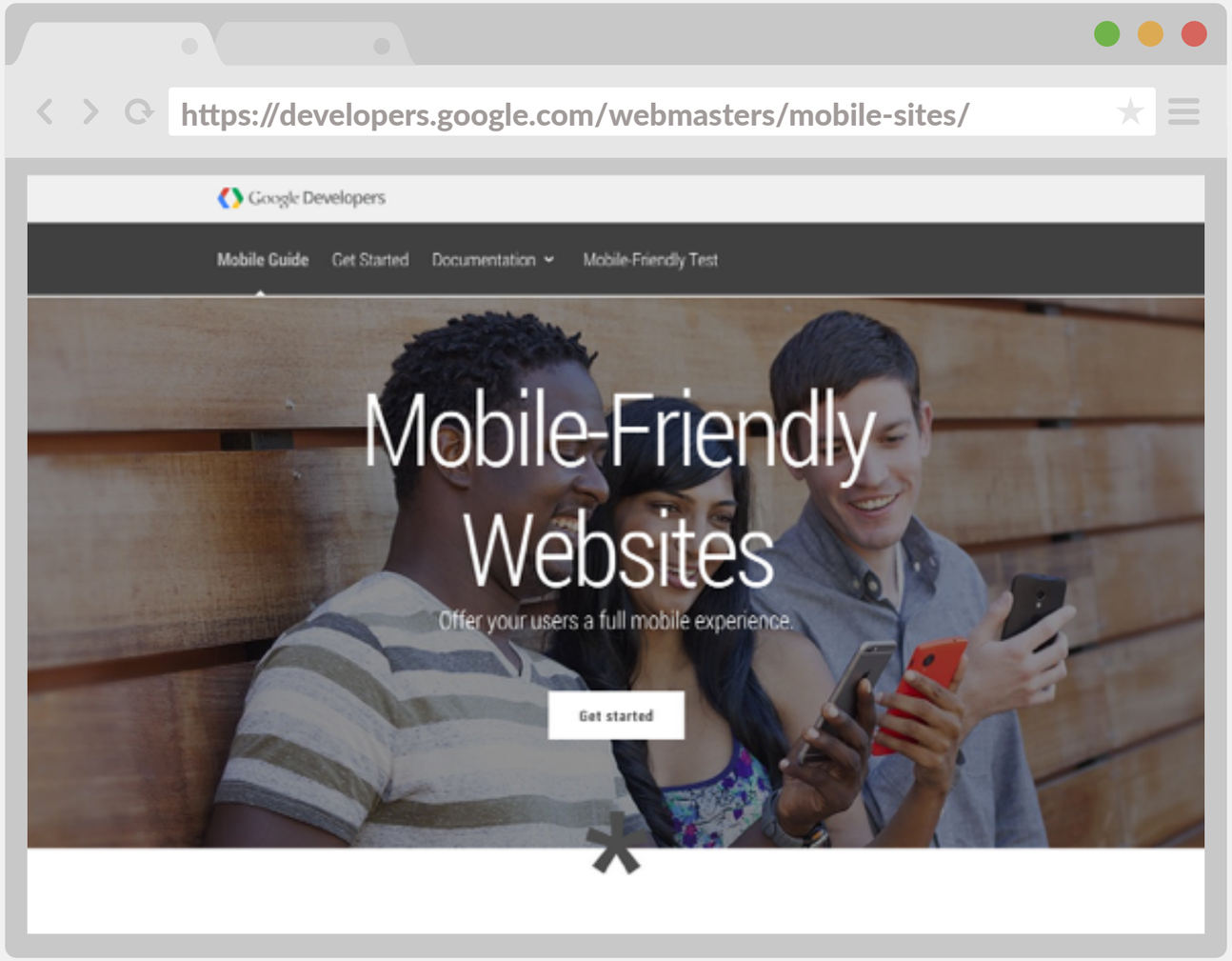
RWD, Y U SO HOT?


Example
example.com/
Mobile-friendly - This is an example of a website that is well-designed for mobile devices.

NEW GOOGLE CRITERIA

- Avoids software that is not common on mobile devices, like Flash
- Uses text that is readable without zooming
- Sizes content to the screen so users don’t have to scroll horizontally or zoom
- Places links far enough apart so that the correct one can be easily tapped

NEW GOOGLE CRITERIA



TODAY'S PROJECT

TODAY'S PROJECT

Explore the elements of Responsive Web Design by taking an existing page layout and converting it to a fluid responsive layout

TODAY'S PROJECT

TODAY'S PROJECT

- **Web Browser** (Chrome or Firefox)
- **Development Toolkit** (Inspector or Firebug)
- **Text Editor** (Sublime Text 2 - www.sublimetext.com/2)

https://github.com/o3world/intro-rwd-workshop

<hands-on> ... 10 minutes

- Download the project files from https://github.com/o3world/intro-rwd-workshop

- Make sure you have Sublime Text 2 or another text editor installed

RESPONSIVE BUILDING BLOCKS

RESPONSIVE BUILDING BLOCKS

- Flexible Grid Layout
- Fluid Media (images and video)
- Media Queries

RESPONSIVE BUILDING BLOCKS

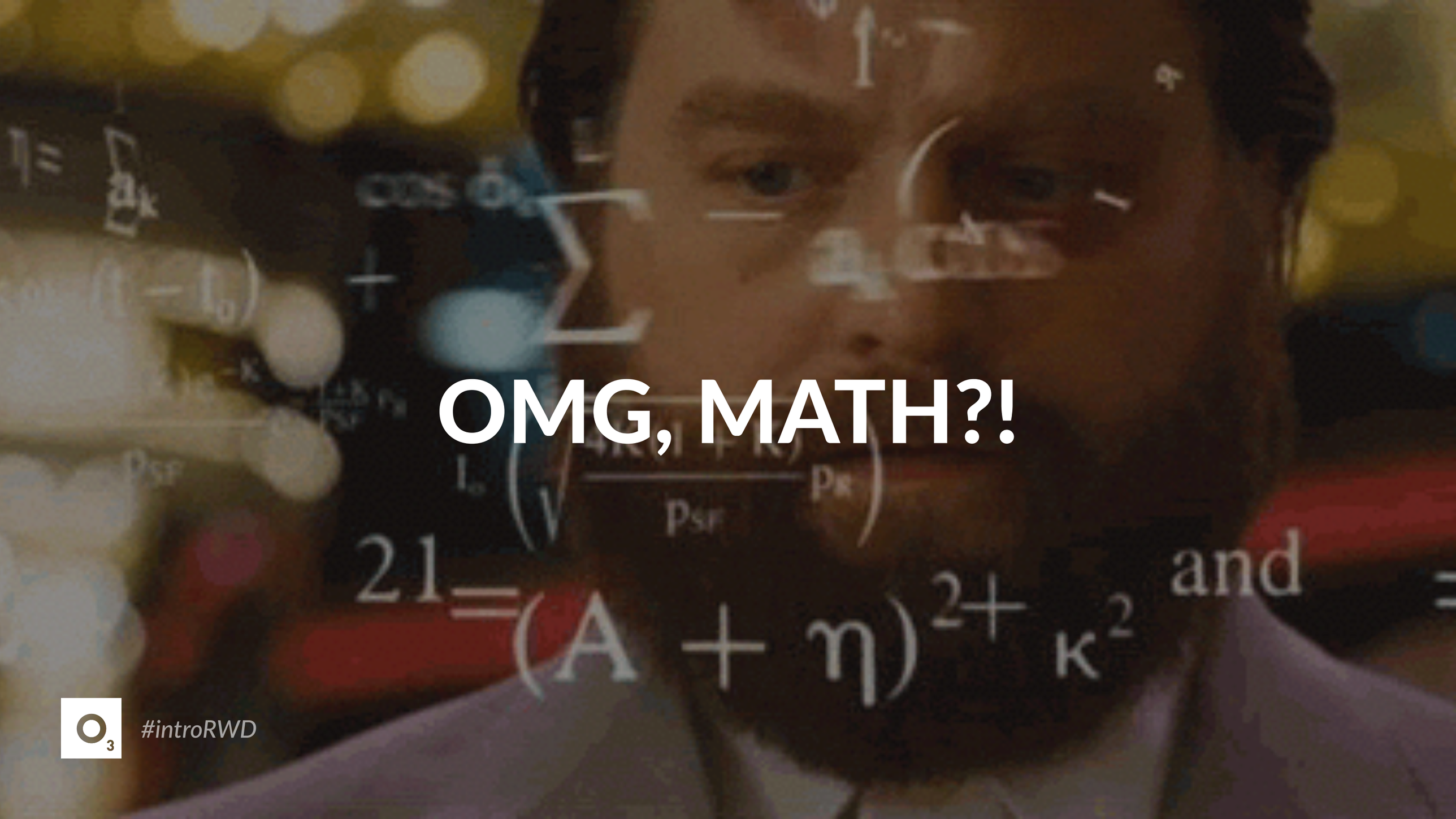
- Flexible Grid Layout
- Fluid Media (images and video)
- Media Queries

FLEXIBLE GRID LAYOUT

FIXED GRID LAYOUT SAMPLE

FLEXIBLE GRID LAYOUT

- Eliminate pixel-based measurements for widths, margins, and paddings in CSS
- Still respecting the ratios of content areas in our design



OMG, MATH?!

target / context = result

target / context = result

The target is the desired width for the current element in pixels

target / context = result

The context is the width of the container of the current element (target) in pixels

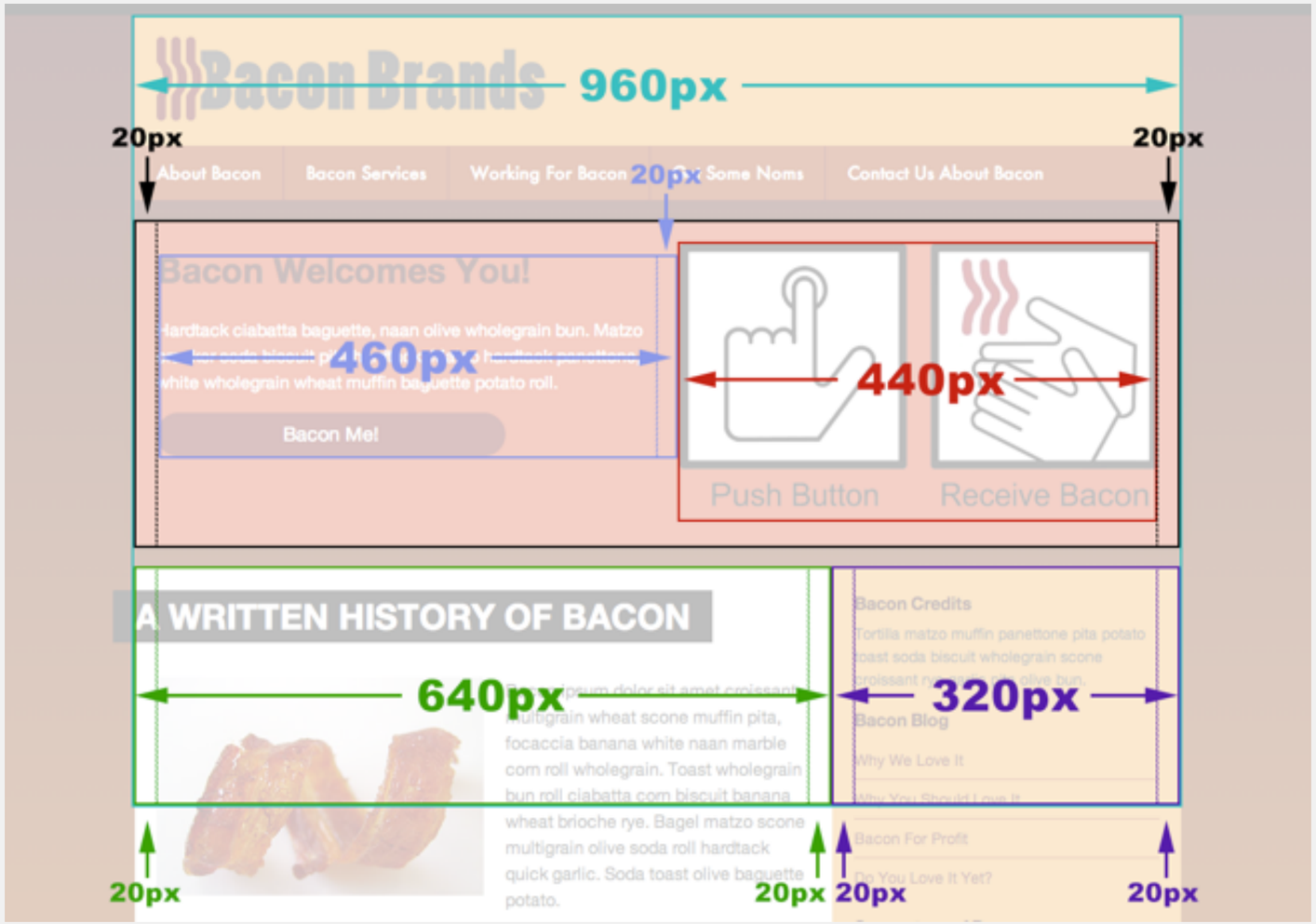
target / context = result

The result is the percentage equivalent that will now represent the elements width in our CSS

FLEXIBLE GRID LAYOUT

```
/*
 * Main Content
 *
 ***********************************************************/

.container-content { margin: 20px 0; background-color: #fff; }

main { float: left; padding: 20px; width: 640px; }

main img { margin-right: 20px; margin-bottom: 10px; float: left; }


/*
 * Complementary Content
 *
 ***********************************************************/

aside { float: left; padding: 20px; width: 320px; background: #f2a950; }

aside p { font-size: .875em; }

.list-links li { border-top: 1px solid #a6370f; padding: 5px 0; list-style: none; }

.list-links li:first-child { border-top: none; }

.list-links a { font-size: .875em; color: #731010; }
```

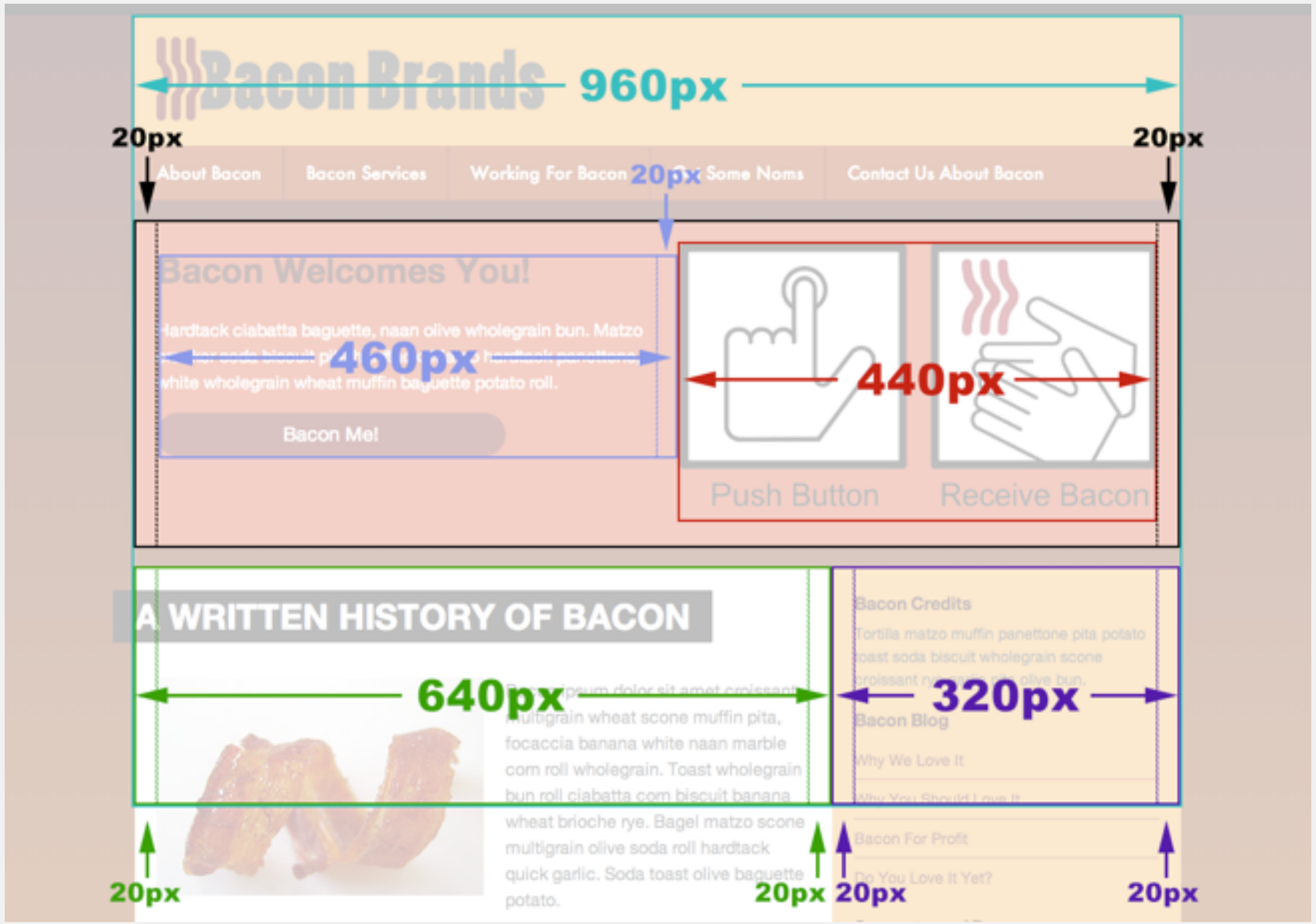
FLEXIBLE GRID LAYOUT



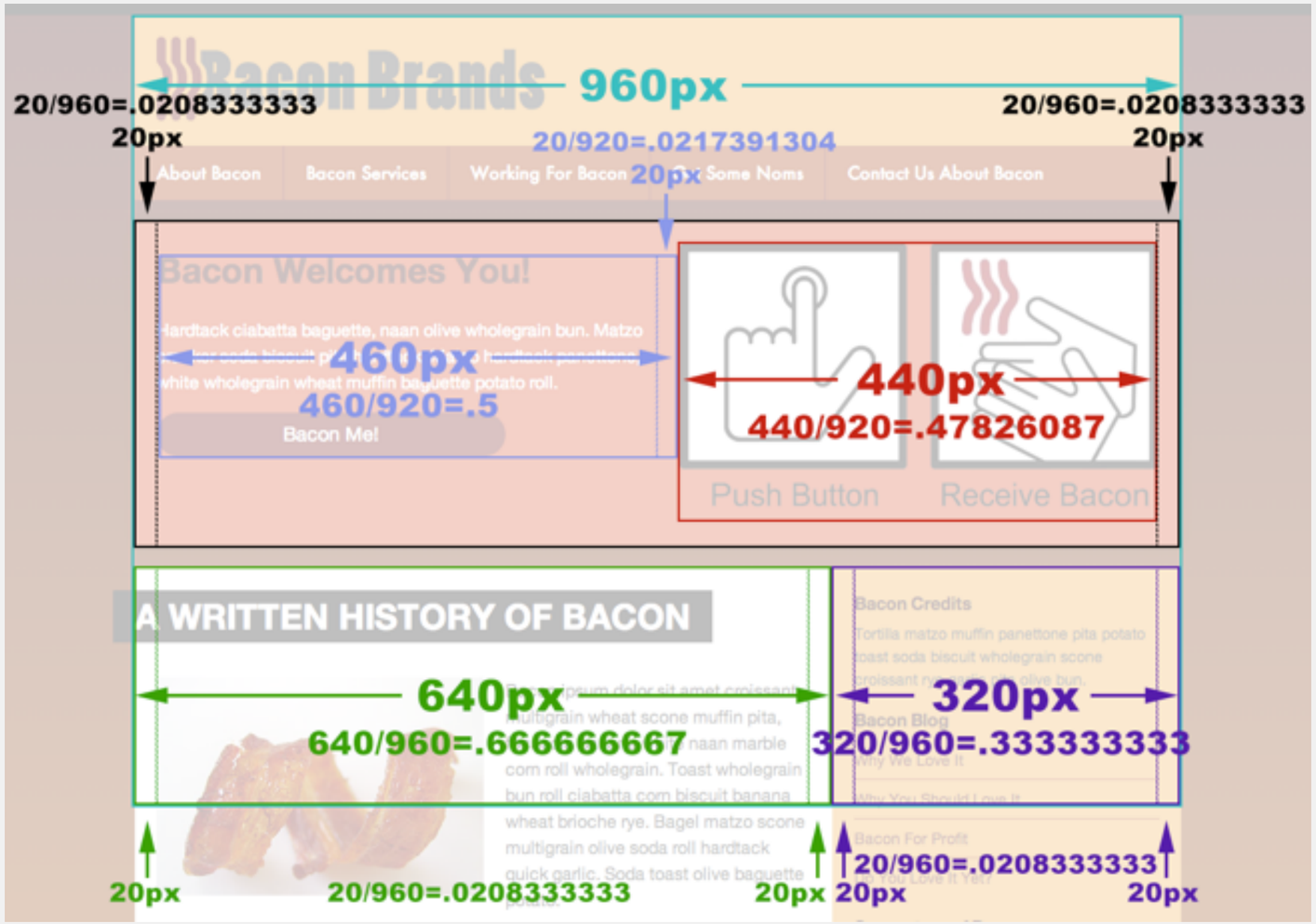
FLEXIBLE GRID LAYOUT

```
/*
 * Global Selectors
 *
 ***************************************************************/

*,
*:before,
*:after {
    -moz-box-sizing: border-box;
    -webkit-box-sizing: border-box;
    box-sizing: border-box; }
```

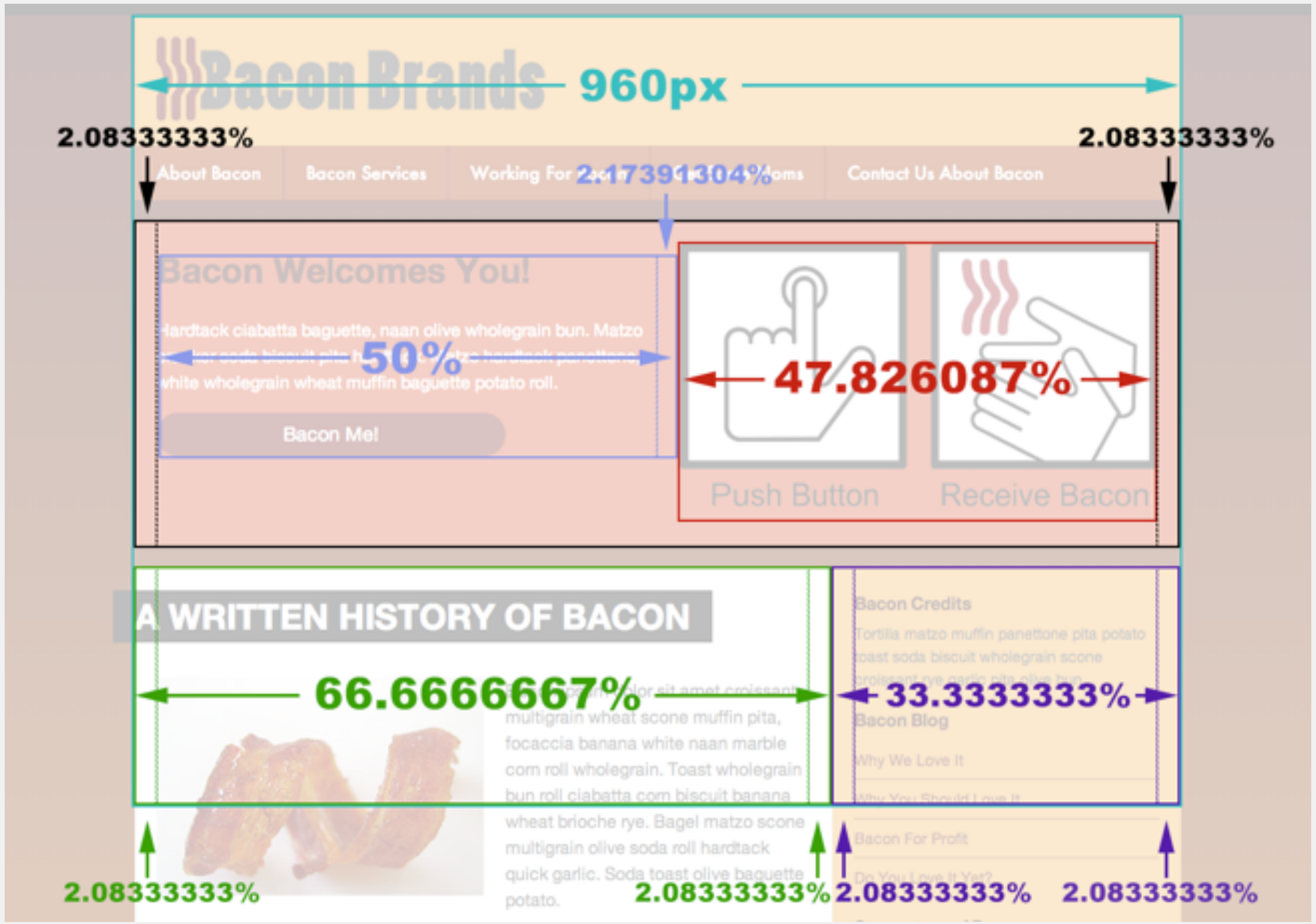
FLEXIBLE GRID LAYOUT



FLEXIBLE GRID LAYOUT



FLEXIBLE GRID LAYOUT



FLEXIBLE GRID LAYOUT

```
/*
 * Main Content
 *
 ***********************************************************/

.container-content { margin: 20px 0; background-color: #fff; }

main { float: left; padding: 20px 2.08333333%; /* 20/960 */ width: 66.6666667%; /* 640/960 */ }

main img { margin-right: 3.125%; /* 20/640 */ margin-bottom: 10px; float: left; }


/*
 * Complementary Content
 *
 ***********************************************************/

aside { float: left; padding: 20px 2.08333333%; /* 20/960 */ width: 33.3333333%; /* 320/960 */ background: #f2a950; }

aside p { font-size: .875em; }

.list-links li { border-top: 1px solid #a6370f; padding: 5px 0; list-style: none; }

.list-links li:first-child { border-top: none; }

.list-links a { font-size: .875em; color: #731010; }
```

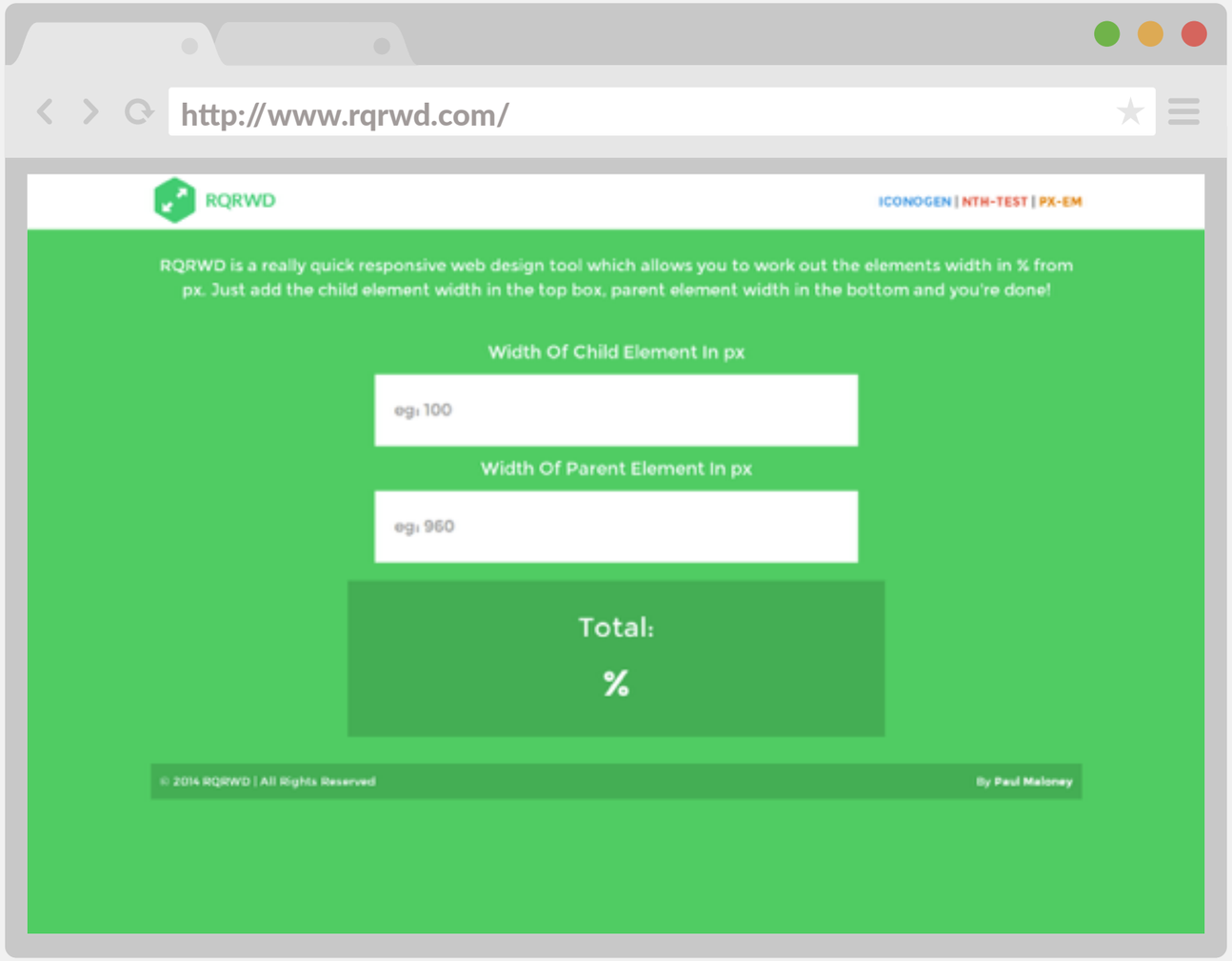
FLEXIBLE GRID LAYOUT

```
h4, .h4 {
    margin-bottom: .6em; font-size: 1.125em; color: #a6370f; }

h5, .h5 {
    margin-bottom: .4em; color: #400a0a; }


.container-site {
    margin: 0 auto;
    width: 960px; }


.btn {
    display: inline-block; margin: 0 auto 1em auto; border-radius: 20px; padding: 0 30px; max-width: 320px; width: 100%;
background-color: #731010; line-height: 40px; text-align: center; text-decoration: none; font-size: 1.125em; color: white; -
webkit-transition: background-color 0.2s linear; }
```

```
h4, .h4 {
    margin-bottom: .6em; font-size: 1.125em; color: #a6370f; }

h5, .h5 {
    margin-bottom: .4em; color: #400a0a; }


.container-site {
    margin: 0 auto;
    max-width: 960px; /* container */ }


.btn {
    display: inline-block; margin: 0 auto 1em auto; border-radius: 20px; padding: 0 30px; max-width: 320px; width: 100%;
background-color: #731010; line-height: 40px; text-align: center; text-decoration: none; font-size: 1.125em; color: white; -
webkit-transition: background-color 0.2s linear; }
```

FLEXIBLE GRID LAYOUT SAMPLE

REALLY QUICK RESPONSIVE WEB DESIGN



<hands-on> ... 20 minutes

- Update the layout of the Fixed Width Example to use percentages instead of pixels
- Change the fixed width of the container to use a max-width.

RESPONSIVE BUILDING BLOCKS

- Flexible Grid Layout
- Fluid Media (images and video)
- Media Queries

FLUID MEDIA

(IMAGES AND VIDEO)

NOT-SO FLUID IMAGES

FLUID MEDIA (IMAGES)

```
<!-- hero banner -->
<div class="banner cf" role="banner">

    <div class="hero-desc">
        <h1>Bacon Welcomes You!</h1>
        <p>Hardtack ciabatta baguette, naan olive wholegrain bun. Matzo cracker soda biscuit pita hardtack. Matzo
hardtack panettone, white wholegrain wheat muffin baguette potato roll.</p>
        <a href="#link" class="btn" title="Bacon Me Now!">Bacon Me!</a>
    </div>

    <div class="hero-img">
        <img src="images/banner.png" alt="Push Button... Receive Bacon" width="439" height="255" />
    </div>
</div>
```

FLUID MEDIA (IMAGES)

```
/*
 * Global Selectors
 *
 ***********************************************************************/

*,
*:before,
*:after {
    -moz-box-sizing: border-box;
    -webkit-box-sizing: border-box;
    box-sizing: border-box; }

html {
    background: -webkit-linear-gradient(top, #400a0a 0%, #d96b0b 100%) no-repeat; }

body {
    border-top: 10px solid #000;
    font-family: "Helvetica Neue", Helvetica, Arial, sans-serif;
    font-size: 1em; }

a {
    color: #a6370f;
    text-decoration: none; }

a:hover, a:active {
    text-decoration: underline; }

img {
    max-width: 100%; }

body { }
```

FLUID IMAGES

FLUID MEDIA

(IMAGES AND VIDEO)

NOT-SO FLUID VIDEO

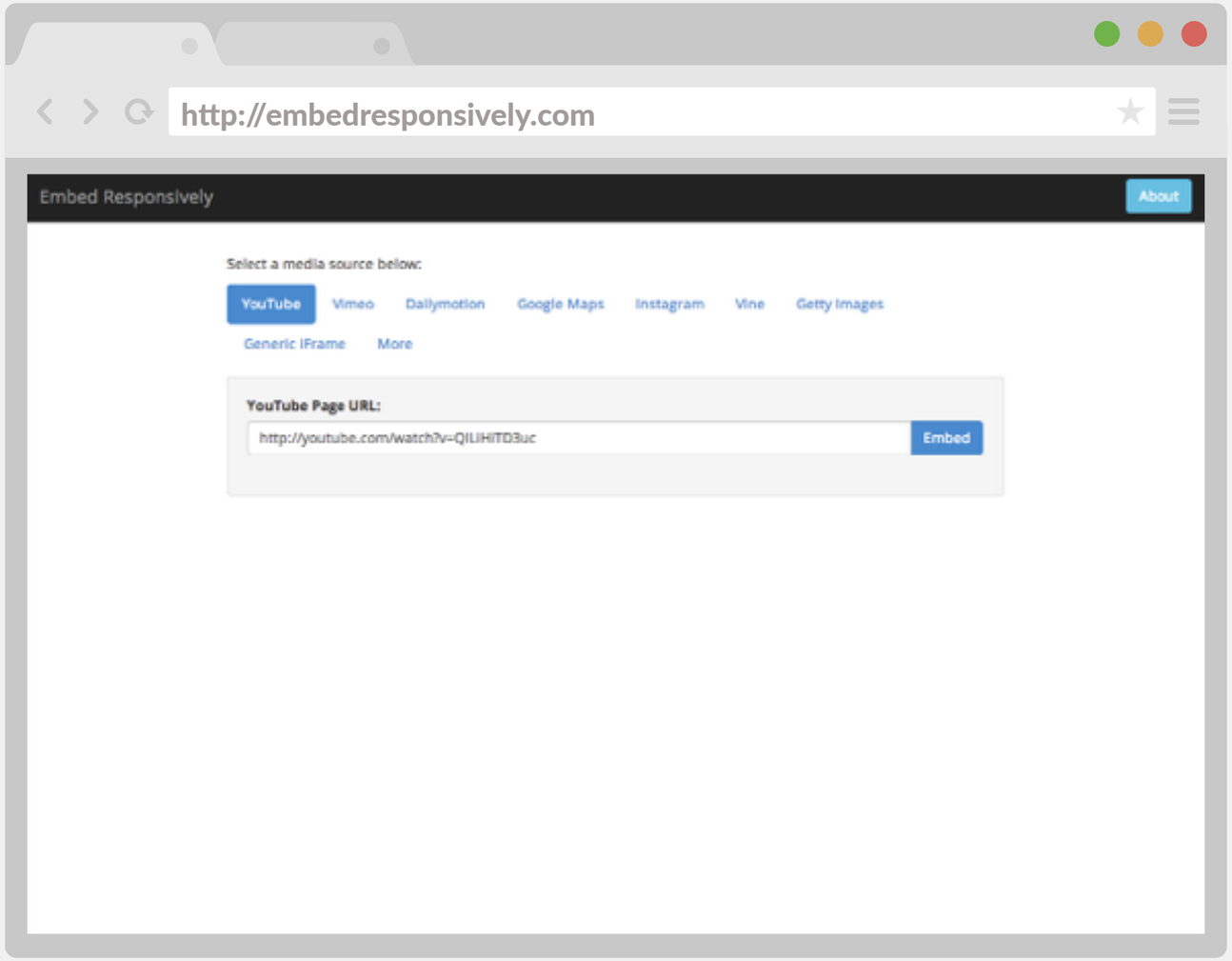
FLUID MEDIA (VIDEO)

```
<!-- main content -->
<main id="main" role="main">

    <h2>A Written History of Bacon</h2>
    <img src="images/placebacon.png" alt="Bacon Pic" />
    <p>Bacon ipsum dolor sit amet croissant multigrain wheat scone muffin pita, focaccia banana white naan
marble corn roll wholegrain. Toast wholegrain bun roll ciabatta corn biscuit banana wheat brioche rye. Bagel matzo scone
multigrain olive soda roll hardtack quick garlic. Soda toast olive baguette potato.</p>
    <p>Mauris suscipit eleifend nulla, ac porttitor augue viverra eget. Etiam porta auctor consequat. Duis vel
neque sodales, adipiscing arcu in, tincidunt ante. Duis tempus ipsum nec nibh eleifend, vel dignissim augue viverra.</p>
    <h3>Rich, Delicious History</h3>
    <p>Focaccia pumpernickel cracker, roll brioche scone croissant bagel bun olive naan hardtack tortilla.
Crumpet croissant ciabatta matzo sourdough multigrain muffin wheat. Corn cracker roll bagel wholegrain matzo.</p>
    <h4>Roll That Beautiful Bacon Footage</h4>
    <p>Sourdough potato crumpet rye garlic pita olive bun wholegrain bagel lavash corn. Crumpet roll biscuit
bagel marble matzo. </p>

    <!-- video embed -->
    <iframe width="420" height="315" src="http://www.youtube.com/embed/CaK9bjLy3v4?rel=0" frameborder="0"
allowfullscreen></iframe>
</main>
```

FLUID MEDIA (VIDEO)

```
/*
 * Global Selectors
 *
 ***********************************************************/

*,
*:before,
*:after {
    -moz-box-sizing: border-box;
    -webkit-box-sizing: border-box;
    box-sizing: border-box; }

html {
    background: -webkit-linear-gradient(top, #400a0a 0%, #d96b0b 100%) no-repeat; }

body {
    border-top: 10px solid #000;
    font-family: "Helvetica Neue", Helvetica, Arial, sans-serif;
    font-size: 1em; }

a {
    color: #a6370f;
    text-decoration: none; }

a:hover, a:active {
    text-decoration: underline; }

img,
iframe {
    max-width: 100%; }

body { }
```

EMBED RESPONSIVELY



http://alistapart.com/article/creating-intrinsic-ratios-for-video

FLUID VIDEO LAYOUT

<hands-on> ... 15 minutes

- Make your images fluid
- Update the video code so it is fluid

RESPONSIVE BUILDING BLOCKS

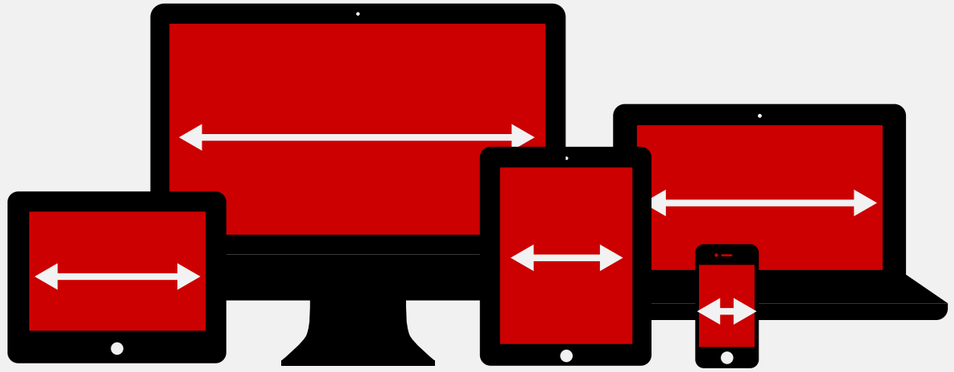
- Flexible Grid Layout
- Fluid Media (images and video)
- Media Queries

MEDIA QUERIES

BORKED LAYOUT IS BORKED

MEDIA QUERIES

Allow you to specify “breakpoints” where new CSS rules should be applied



MEDIA QUERY SAMPLE

MEDIA QUERIES

- **Element Size** (Margin/Padding/Width/Height)
- **Position** (Floats)
- **Typography** (Font/Text Treatments)
- **Show/Hide Elements**
- **and SO much more…**

MEDIA QUERIES

FEATURE NAME	DEFINITION
width	Width of the display area.*
height	Height of the display area.*
device-width	Width of the device's rendering surface.*
device-height	Height of the device's rendering surface.*
orientation	Accepts portrait and landscape values.*
resolution	Tests the density of the pixels in the device.*

**has min- and max- prefixes*

MEDIA QUERIES

FEATURE NAME	DEFINITION
aspect-ratio	Ratio of display area's width over height.*
device-aspect-ratio	Ratio of device's rendering surface width over height.*
color	Number of bits per color component of the device.*
color-index	Number of entries in the color lookup table.*
monochrome	Number of bits per color component of the device.*
scan	Measures whether TV is progressive or scan process.
grid	Tests if a grid-based display like feature phone.

**has min- and max- prefixes*

MEDIA QUERIES

FEATURE NAME	DEFINITION
width	Width of the display area.*
height	Height of the display area.*
device-width	Width of the device's rendering surface.*
device-height	Height of the device's rendering surface.*
orientation	Accepts portrait and landscape values.*
resolution	Tests the density of the pixels in the device.*

**has min- and max- prefixes*

@media screen and (min-width: 768px) { ... }

Defines the type of media you want to target. Most popular are screen and print.

@media screen and (min-width: 768px) and (orientation: portrait) { … }

This format combined with the “and” allows you to chain multiple queries together

MEDIA QUERY WIDTH

(MOBILE FIRST BUILD)

- Thinking Mobile First...

- Create a base treatment that will work universally (outside your media queries)
- Keeping your CSS DRY (don't repeat yourself)
- Duplicated CSS adds to the file size and slows download.

MEDIA QUERIES

```
/*
 * Social List
 *
 ***************************************************/

.list-social {
    font-size: 0; }
.list-social li {
    display: inline-block; margin-left: 5px; }
.list-social li:first-child {
    margin-left: 0; }
.list-social a {
    display: block; border-radius: 18px; width: 35px; height: 35px; background: #a6370f url( '../images/sprite-ui.png' ) no-
repeat 0 0; -webkit-transition: background-color 0.2s linear; }
.list-social a:hover {
    background-color: #d96b0b; }

.list-social .social-twitter { /* default position */ }
.list-social .social-facebook { background-position: 0 -35px; }
.list-social .social-email { background-position: 0 -70px; }

/*
 * Media Query Builds
 *
 ***************************************************/

@media screen and (min-width: 480px) {

}

@media screen and (min-width: 768px) {

}

@media screen and (min-width: 960px) {

}

@media screen and (min-width: 1200px) {

}
```

MEDIA QUERIES

MEDIA QUERIES

```
/*
 * Media Query Builds
 *
 ************************************************************/

@media screen and (min-width: 480px) {

    /* looking good! */
}

@media screen and (min-width: 768px) {

    /*
     * Main Content
     *
     ************************************************************/

    main img { margin-right: 3.125%; /* 20/640 */ float: left; }


    /*
     * Complementary Content
     *
     ************************************************************/

     aside { padding-right: 0; padding-left: 0; }

     .callout { float: left; padding: 2.60416667%; /* 20/768 */ width: 33.3333333% /* 256/768 */ }

    /*
     * Footer
     *
     ************************************************************/

    .span6col { float: left; width: 50%; /* 480/960 */ }

    .container-social { text-align: left; }

    .container-legal { text-align: right; }
}

@media screen and (min-width: 960px) {
```

MEDIA QUERY WIDTH

(LOOKING BETTER… WHAT ABOUT HEIGHT?)

MEDIA QUERIES

```
@media screen and (min-height: 500px) and (max-height: 700px) and (max-width: 959px) {

    /*
     * Banner
     *
     ***********************************************************/

    .hero-img img { max-width: 250px; }
}
```

MEDIA QUERY HEIGHT

(ALL BETTER)

<hands-on> … 20 minutes

- Ignoring the navigation, add width-based Media Queries to your CSS to optimize the layout to different screen sizes
- Experiment with height-based Media Queries

BORKED MEDIA QUERY NAVIGATION

MEDIA QUERIES

```
/*
 * Media Query Builds
 *
 ************************************************************/

@media screen and (min-width: 480px) {

    /* looking good! */
}

@media screen and (min-width: 768px) {

    /*
     * Primary Nav
     *
     ************************************************************/

    .list-nav { display: table; }
    .list-nav li {
        float: none; display: table-cell; border-left: 1px solid #731010; border-bottom: none; width: auto; }
    .list-nav li:first-child {
        border-left: none; }

    .odd { border-right: none; }


    /*
     * Main Content
     *
     ************************************************************/

    main img { margin-right: 3.125%; /* 20/640 */ float: left; }
```

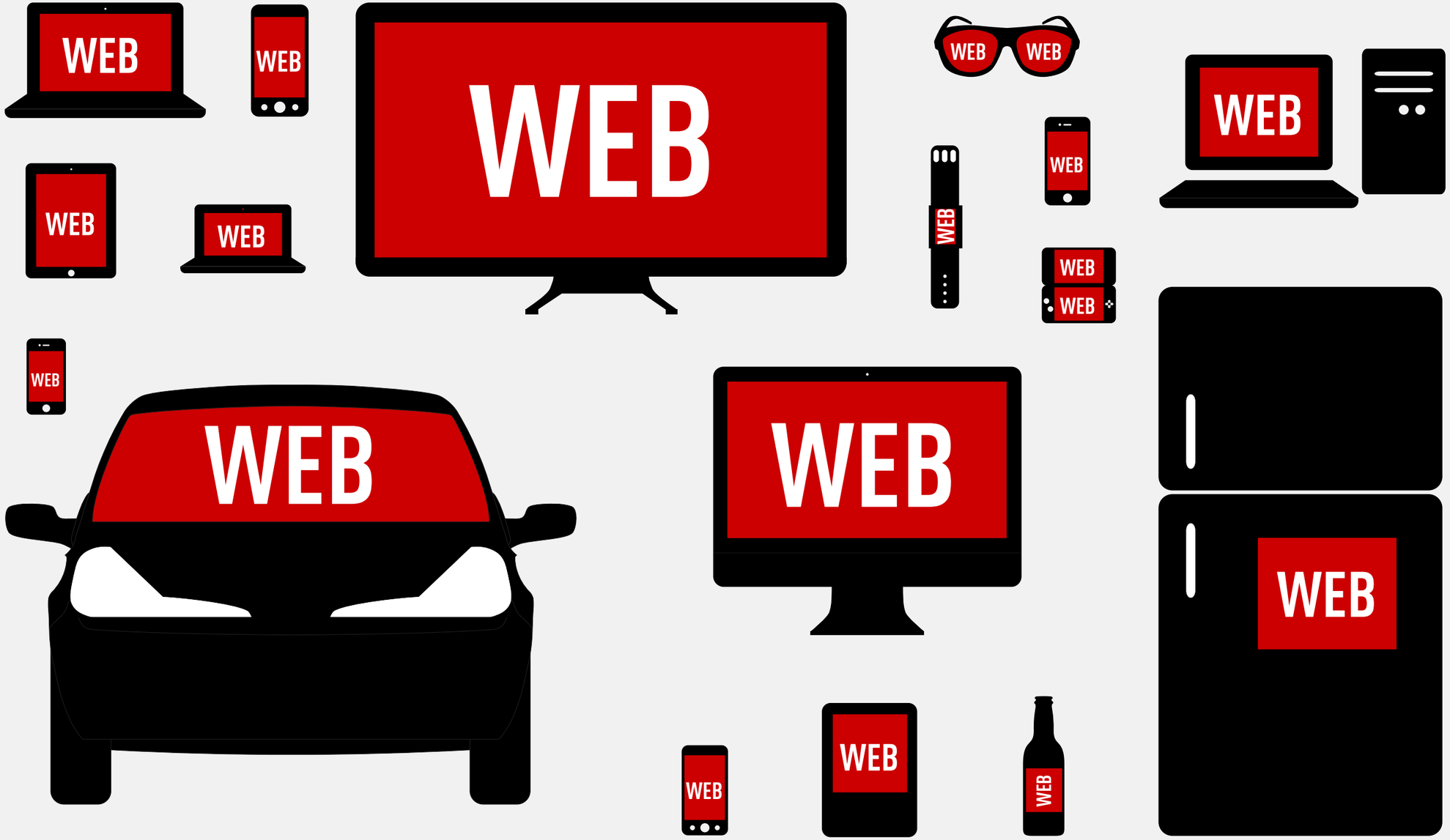
MEDIA QUERY NAVIGATION

<hands-on> ... 10 minutes

- Update the header navigation to display optimally for different screen sizes

BREAKPOINTS

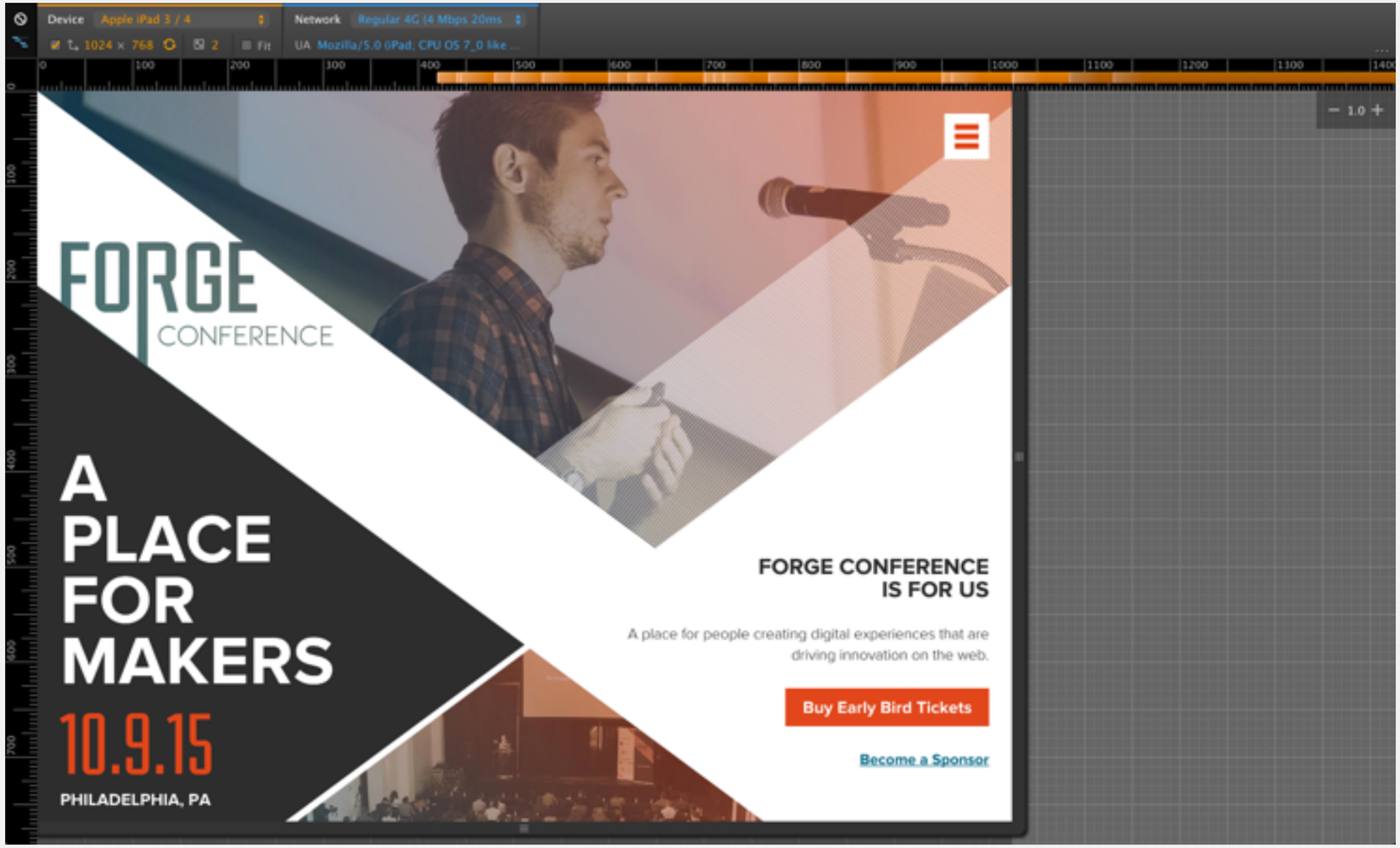
(A NOTE ABOUT SELECTING THEM)


WEB

MEDIA QUERIES

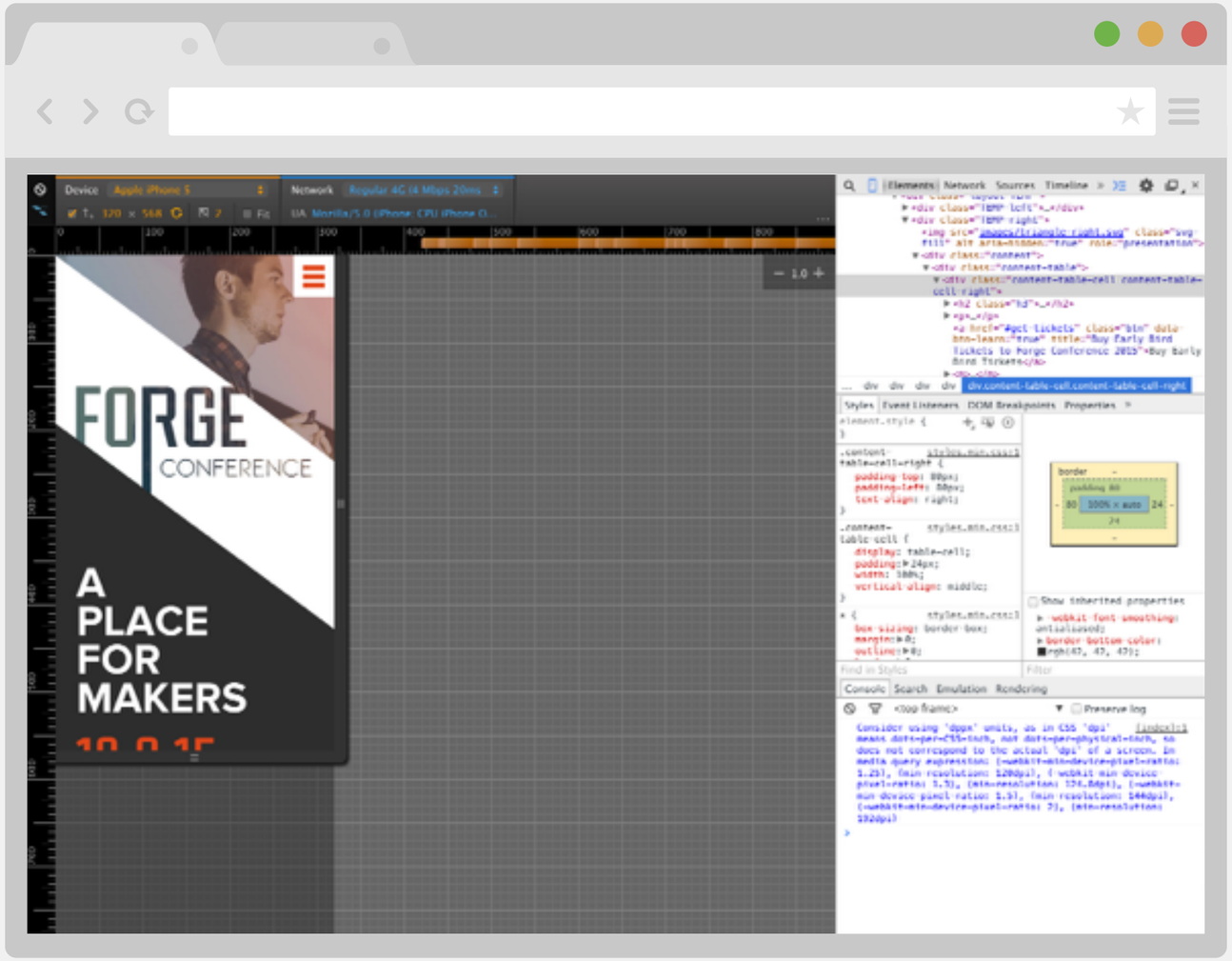
- Test your design, don’t rely on common device sizes!
- Find the breakpoints in each of your designs
- When the layout breaks, add a Media Query and adjust.

MEDIA QUERIES



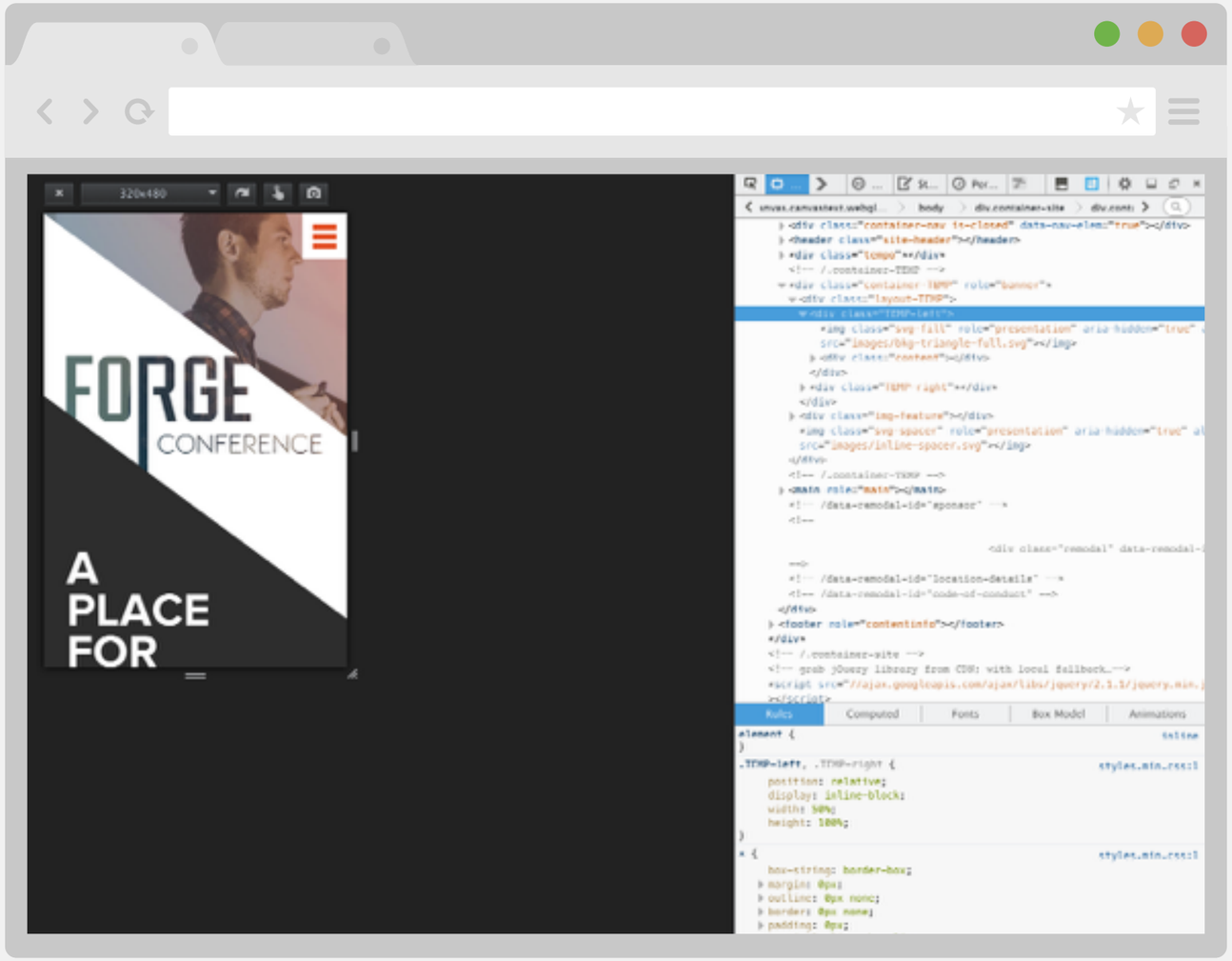
CHROME INSPECTOR DEVICE MODE

CHROME INSPECTOR DEVICE MODE

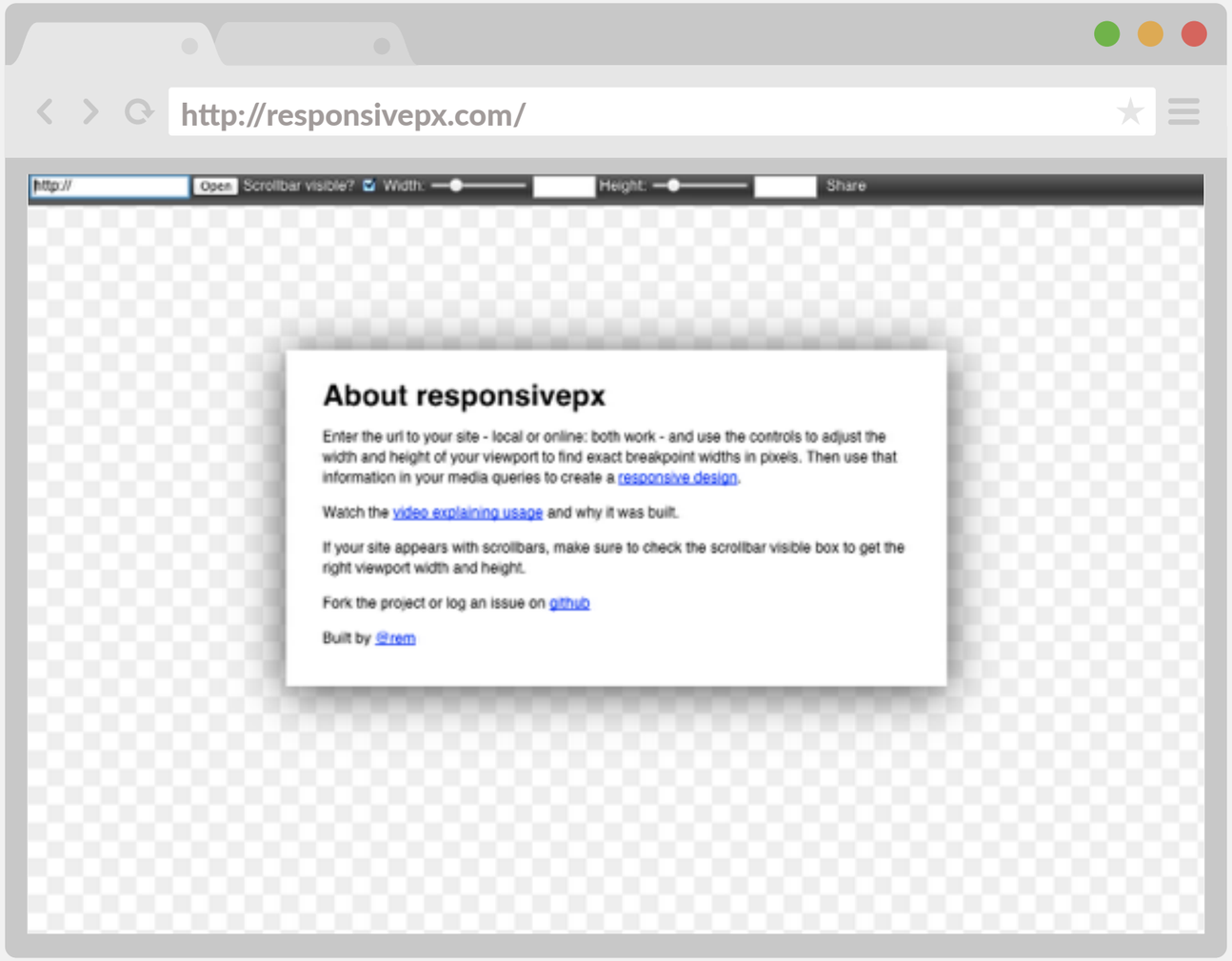


FIREFOX RESPONSIVE DESIGN MODE

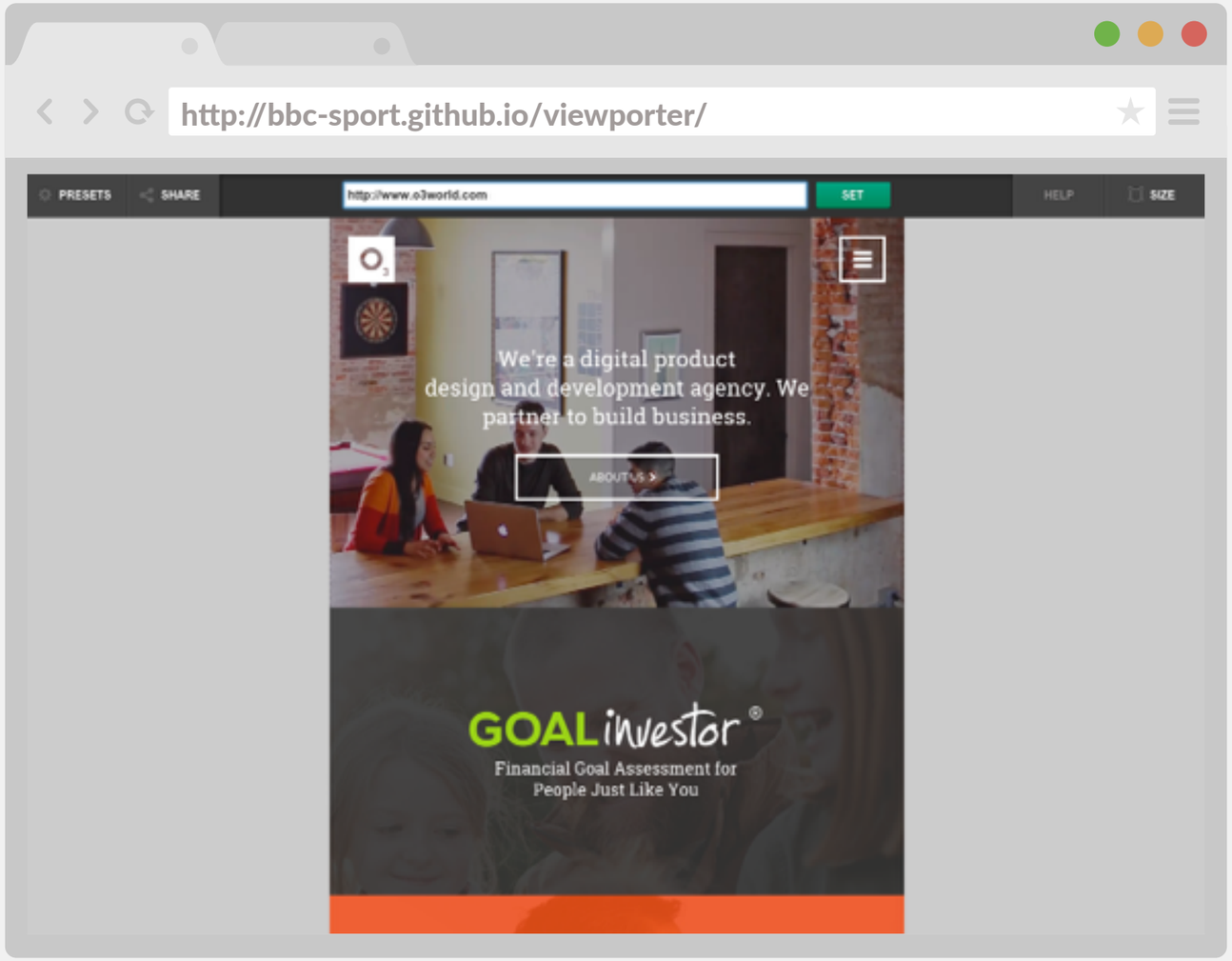
FIREFOX RESPONSIVE DESIGN MODE



RESPONSIVEPX



VIEWPORTER


http://bbc-sport.github.io/viewporter/
PRESETS
SHARE
http://www.o3world.com
SET
HELP
SIZE
We're a digital product design and development agency. We partner to build business.
ABOUT US >
GOALinvestor®
Financial Goal Assessment for People Just Like You

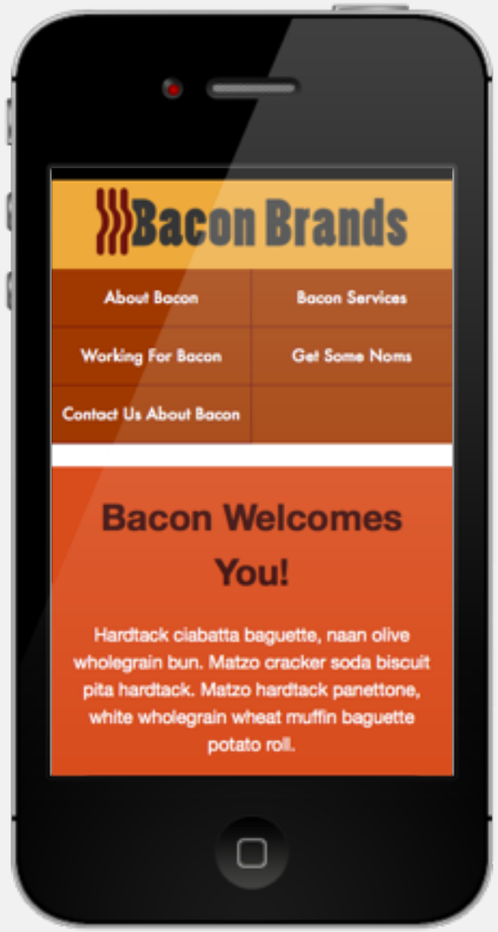
THE VIEWPORT

MOBILE VIEWPORT

(WHAT THE HELL?!)

http://rwd-workshop.o3dev.com/index-5-3.html

MOBILE VIEWPORT



MOBILE VIEWPORT

<meta name="viewport" content="" />

MEDIA QUERIES

CONTENT OPTION
initial-scale
width
maximum-scale
user-scalable

MEDIA QUERIES

CONTENT OPTION
initial-scale
width
maximum-scale
user-scalable

MOBILE VIEWPORT

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

The initial-scale=1.0 property normalizes the browser's zoom level. The width=device-width property sets the width of the browser's viewport the same as the width of the device's screen.

MOBILE VIEWPORT

```html
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="utf-8" />

        <title>RWD Workshop | Index 1</title>

        <meta name="description" content="We're making responsive interwebs!" />
        <meta name="author" content="Philly Tech Week" />

        <!-- force IE to latest rendering engine for each version; chrome frame reference -->
        <meta http-equiv="X-UA-Compatible" content="IE=edge,chrome=1" />

        <!-- mobile settings -->
        <meta name="viewport" content="width=device-width, initial-scale=1.0" />

        <link rel="stylesheet" href="css/styles-4.css" />

        <!-- build custom modernizr library for feature detection -->
        <script type="text/javascript" src="js/modernizr-2.7.1.min.js"></script>

        <!-- google universal analytics -->
        <script>
            (function(i,s,o,g,r,a,m){i['GoogleAnalyticsObject']=r;i[r]=i[r]||function(){
            (i[r].q=i[r].q||[]).push(arguments)},i[r].l=1*new Date();a=s.createElement(o),
            m=s.getElementsByTagName(o)[0];a.async=1;a.src=g;m.parentNode.insertBefore(a,m)
            })(window,document,'script','//www.google-analytics.com/analytics.js','ga');

            ga('create', 'UA-XXXXXXXX-X', 'DOMAIN.com');
            ga('send', 'pageview');
        </script>
    </head>
```

MOBILE VIEWPORT

(WHEW! MUCH BETTER)

http://rwd-workshop.o3dev.com/index-6.html

RESPONSIVE BUILDING BLOCKS

- Flexible Grid Layout
- Fluid Media (images and video)
- Media Queries

RETINA MEDIA QUERIES

NON-RETINA IMAGES

(IT'S SO FUZZY)

http://rwd-workshop.o3dev.com/index-6.html

RETINA MEDIA QUERIES

RETINA MEDIA QUERIES

```
@media
(-webkit-min-device-pixel-ratio: 2),
(min-resolution: 192dpi) {

    /* retina CSS */
}
```

RETINA MEDIA QUERIES

```
/*
 * Social List
 *
 ***************************************************************/

.list-social {
    font-size: 0; }
.list-social li {
    display: inline-block; margin-left: 5px; }
.list-social li:first-child {
    margin-left: 0; }
.list-social a {
    display: block; border-radius: 18px; width: 35px; height: 35px; background: #a6370f url( '../images/sprite-ui.png' ) no-
repeat 0 0; -webkit-transition: background-color 0.2s linear; }
.list-social a:hover {
    background-color: #d96b0b; }

.list-social .social-twitter { /* default position */ }
.list-social .social-facebook { background-position: 0 -35px; }
.list-social .social-email { background-position: 0 -70px; }
```

```
@media
(-webkit-min-device-pixel-ratio: 2),
(min-resolution: 192dpi) {

    /*
     * Social List
     *
     ***************************************************************/

    .list-social a {
        background-image: url( '../images/sprite-ui@2x.png' ); background-size: 35px 105px; }
}
```

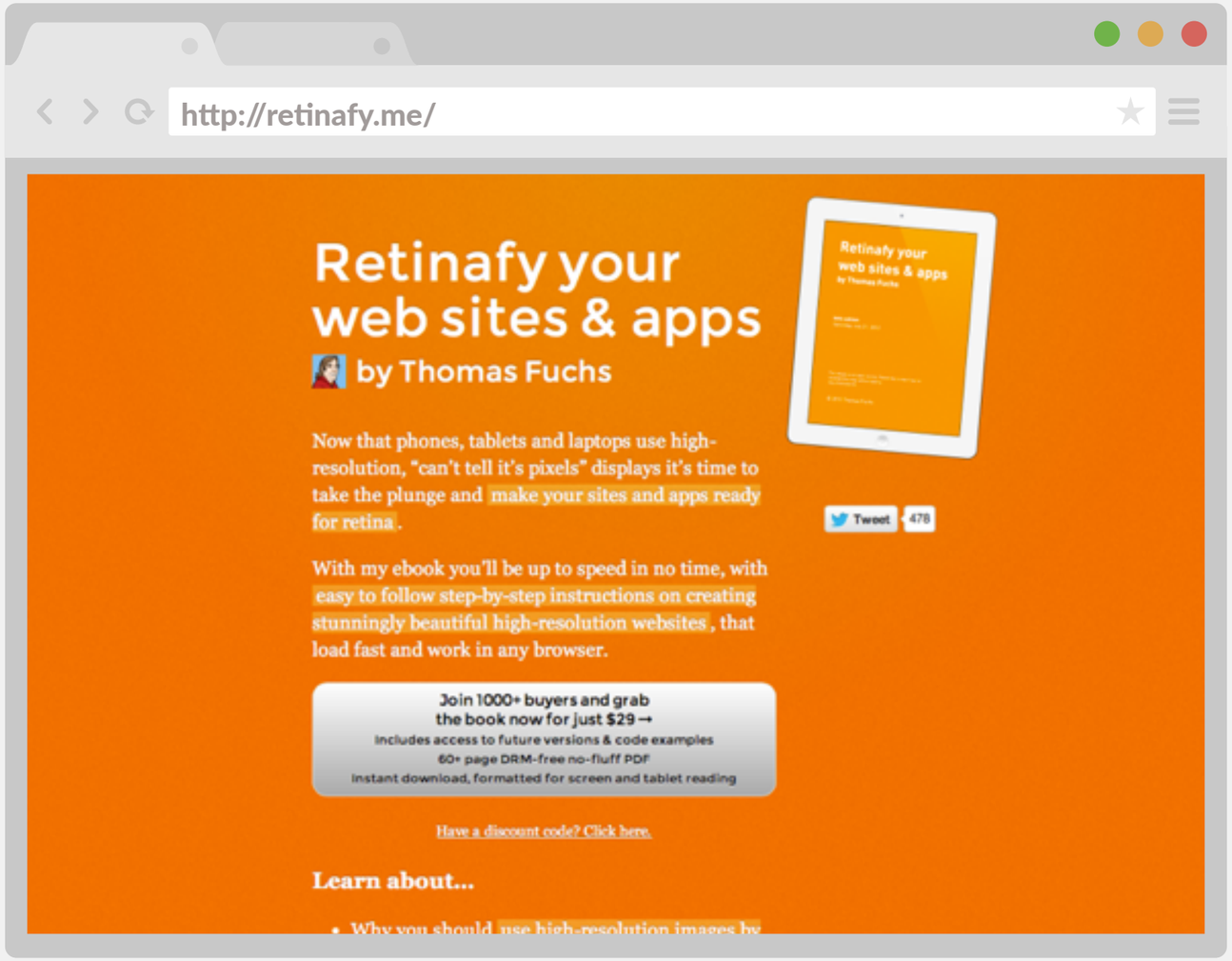
RETINAFIED!

http://rwd-workshop.o3dev.com/index-7.html

<hands-on> ... 10 minutes

- Add Retina Media Queries to your CSS and test in the Chrome Inspector

RETINAFY.ME


http://retinafy.me/
Retinafy your web sites & apps
by Thomas Fuchs
Now that phones, tablets and laptops use high-resolution, "can't tell it's pixels" displays it's time to take the plunge and make your sites and apps ready for retina.
With my ebook you'll be up to speed in no time, with easy to follow step-by-step instructions on creating stunningly beautiful high-resolution websites, that load fast and work in any browser.
Join 1000+ buyers and grab the book now for just $29 →
Includes access to future versions & code examples
60+ page DRM-free no-fluff PDF
Instant download, formatted for screen and tablet reading
Have a discount code? Click here.
Learn about...
Tweet
478

RETINA MEDIA QUERIES

- High resolution displays are everywhere now… not just mobile devices
- Requires even more thought in the planning and delivery of visual assets
- Important because you're talking about an impact on how your site performs wherever it is being viewed

FULL RESPONSIVE BUILD

PERFORMANCE BEST PRACTICES

PERFORMANCE BEST PRACTICES

- **HTTP Requests -** as few as possible
- **Combine and Minify -** both for CSS and JavaScript
- **3rd Party Plugins -** pay to play
- **Image Format & Compression -** use the right format & REALLY compress them
- **CSS Sprites -** combine UI elements into as few as possible
- **CSS Image Downloads -** it might not be displayed, but make sure the user isn't getting hit

PERFORMANCE BEST PRACTICES

- Determining if your images are downloading when not displayed is critical - especially when considering Responsive Web Design
- There’s a lot of circumstances when images may still be downloaded

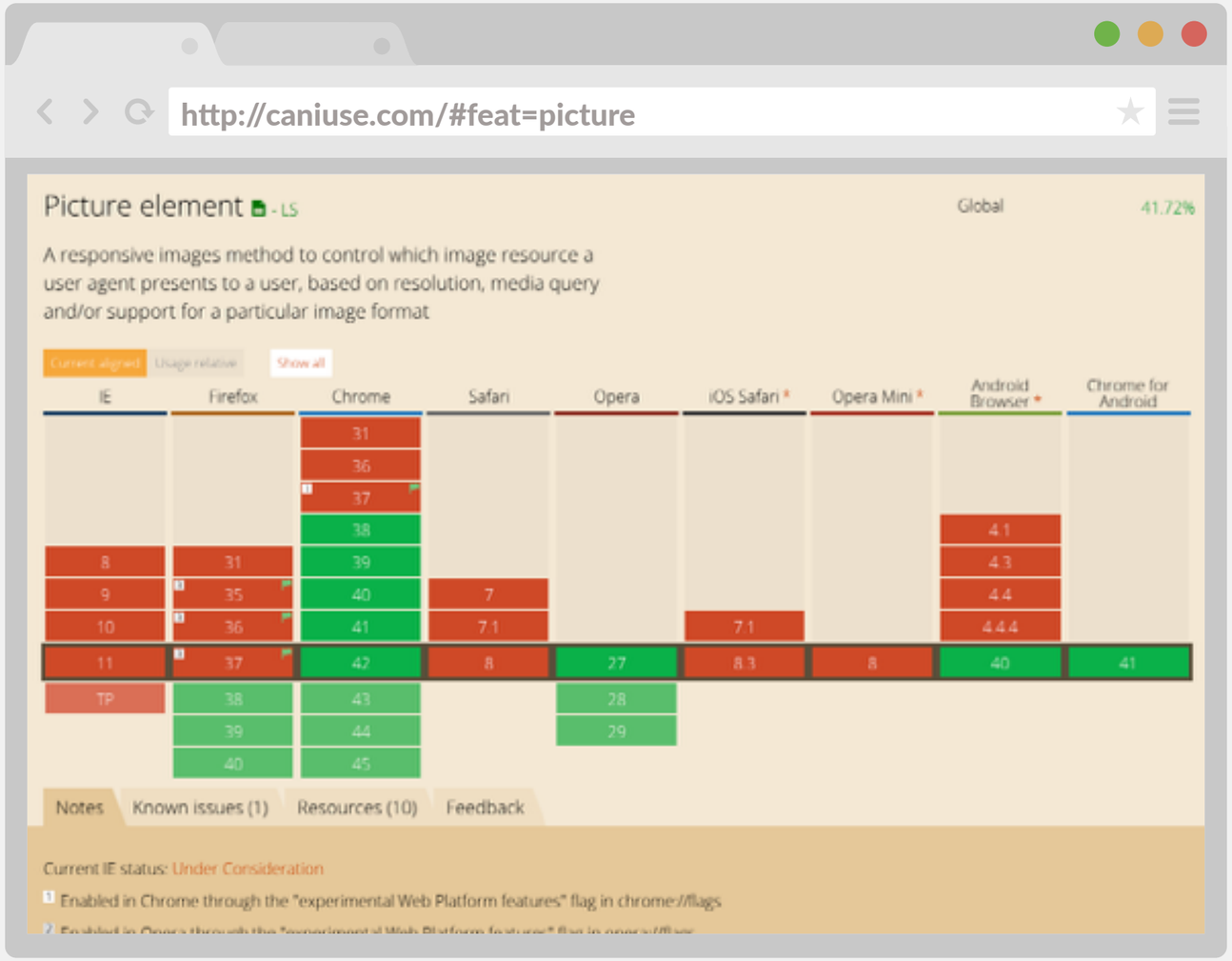
PERFORMANCE BEST PRACTICES

- **Inline images** (appearing in an <img /> in the HTML) **ALWAYS download despite CSS "display: none;"**
- A container set to "display: none;" with a CSS background image will download

RICG
RESPONSIVE IMAGES COMMUNITY GROUP

- The “picture” element is starting to make official appearances in modern browsers!
- Allows the declaration of multiple sources for an image.
- Paired with Media Queries, it gives you control over under what conditions a certain image is served to the user

PERFORMANCE BEST PRACTICES



PERFORMANCE BEST PRACTICES

http://scottjehl.github.io/picturefill/

Picturefill

A responsive image polyfill

Download | Getting Started | Examples | API | Browser Support | Contributing

The picture element and associated features are W3C standard HTML features that allow web developers to deliver an appropriate image to every user depending on a variety of conditions like screen size, viewport size, screen resolution, and more. Picturefill is a JavaScript file (or a *polyfill* to be more specific) that enables support for the `picture` element and associated features in browsers that do not yet support them, so you can start using them today!

Picturefill is developed and maintained by filament group, with help from the members of the Responsive Issues Community Group and the developer community at large. For Picturefill version 2, a special thanks goes to Shawn Jansepar for all his work on polyfilling the new spec.

Contributing, Bug Reports, and More Information

For more information on the development of Picturefill, and how you can file bugs or contribute fixes, check out the the code project site on Github: Picturefill on Github.

Downloading Picturefill

Picturefill Version 2.3.1 (latest stable version)

For native `picture` element support, you'll want Picturefill version 2. These downloads include the matchMedia

PERFORMANCE BEST PRACTICES

```
<!-- cotnent region -->
<div class="container-content cf">

    <!-- main content -->
    <main id="main" role="main">

        <h2>A Written History of Bacon</h2>
        <picture>
            <!--[if IE 9]><video style="display: none;"><![endif]-->
            <source srcset="images/placebacon-pf.png, images/placebacon-pf@2x.png 2x" media="(min-width: 960px)"/>
            <source srcset="images/placebacon-pf-tablet.png, images/placebacon-pf-tablet@2x.png 2x" media="(min-width: 768px)"/>
            <!--[if IE 9]></video><![endif]-->
            <img srcset="images/placebacon-pf.png, images/placebacon-pf@2x.png 2x" alt="Bacon Pic">
        </picture>
        <p>Bacon ipsum dolor sit amet croissant multigrain wheat scone muffin pita, focaccia banana white naan marble corn roll wholegrain. Toast
bun roll ciabatta corn biscuit banana wheat brioche rye. Bagel matzo scone multigrain olive soda roll hardtack quick garlic. Soda toast olive baguette

        <p>Mauris suscipit eleifend nulla, ac porttitor augue viverra eget. Etiam porta auctor consequat. Duis vel neque sodales, adipiscing arcu in,
nte. Duis tempus ipsum nec nibh eleifend, vel dignissim augue viverra.</p>
        <h3>Rich, Delicious History</h3>
        <p>Focaccia pumpernickel cracker, roll brioche scone croissant bagel bun olive naan hardtack tortilla. Crumpet croissant ciabatta matzo
ultigrain muffin wheat. Corn cracker roll bagel wholegrain matzo.</p>
        <h4>Roll That Beautiful Bacon Footage</h4>
        <p>Sourdough potato crumpet rye garlic pita olive bun wholegrain bagel lavash corn. Crumpet roll biscuit bagel marble matzo. </p>
```

http://scottjehl.github.io/picturefill/

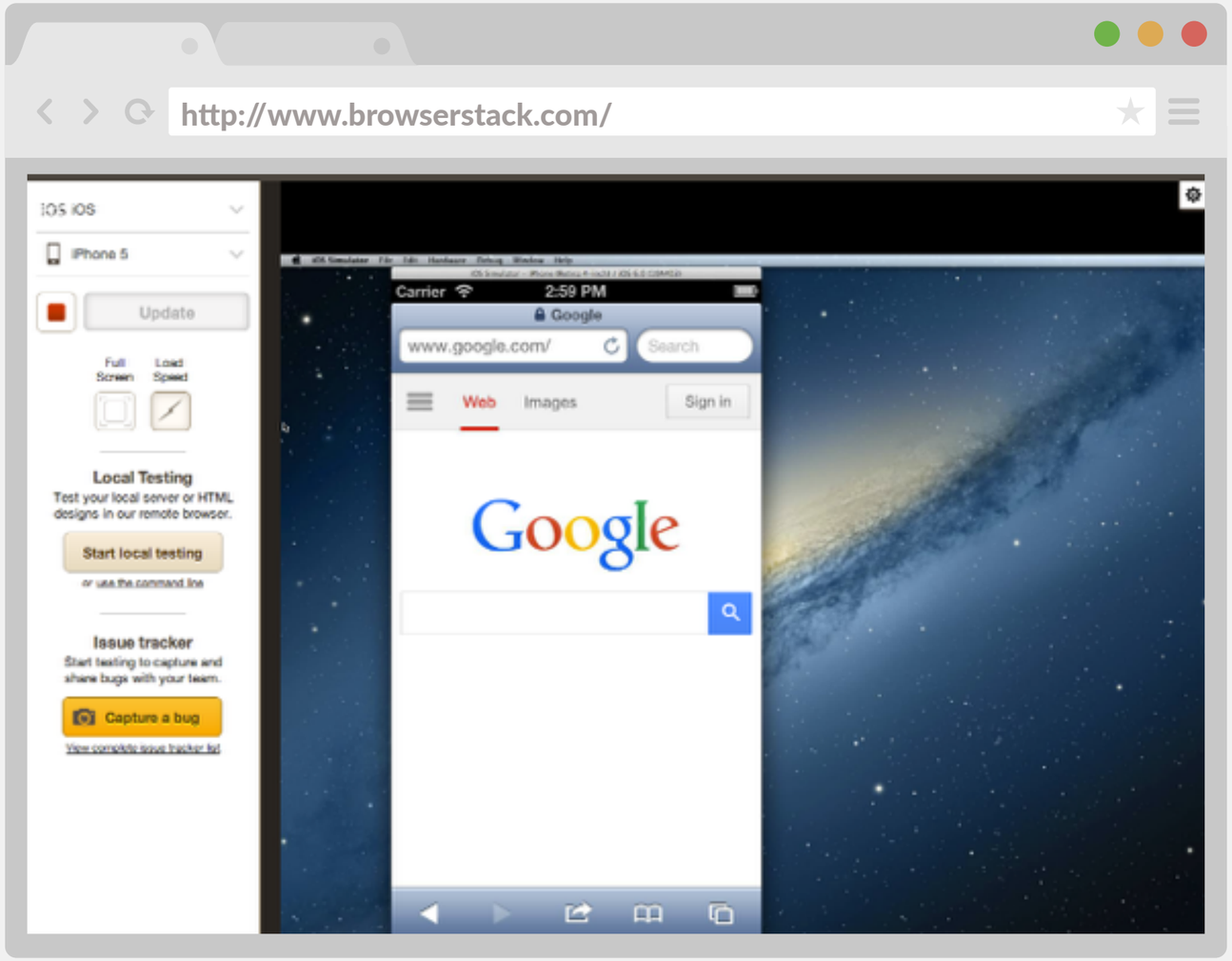
IMAGES MANAGED

<hands-on> ... 10 minutes

- Experiment with the picture fill to reduce page load by displaying only appropriately sized images
- Test in the Chrome Inspector to see which are downloading

TESTING TOOLS

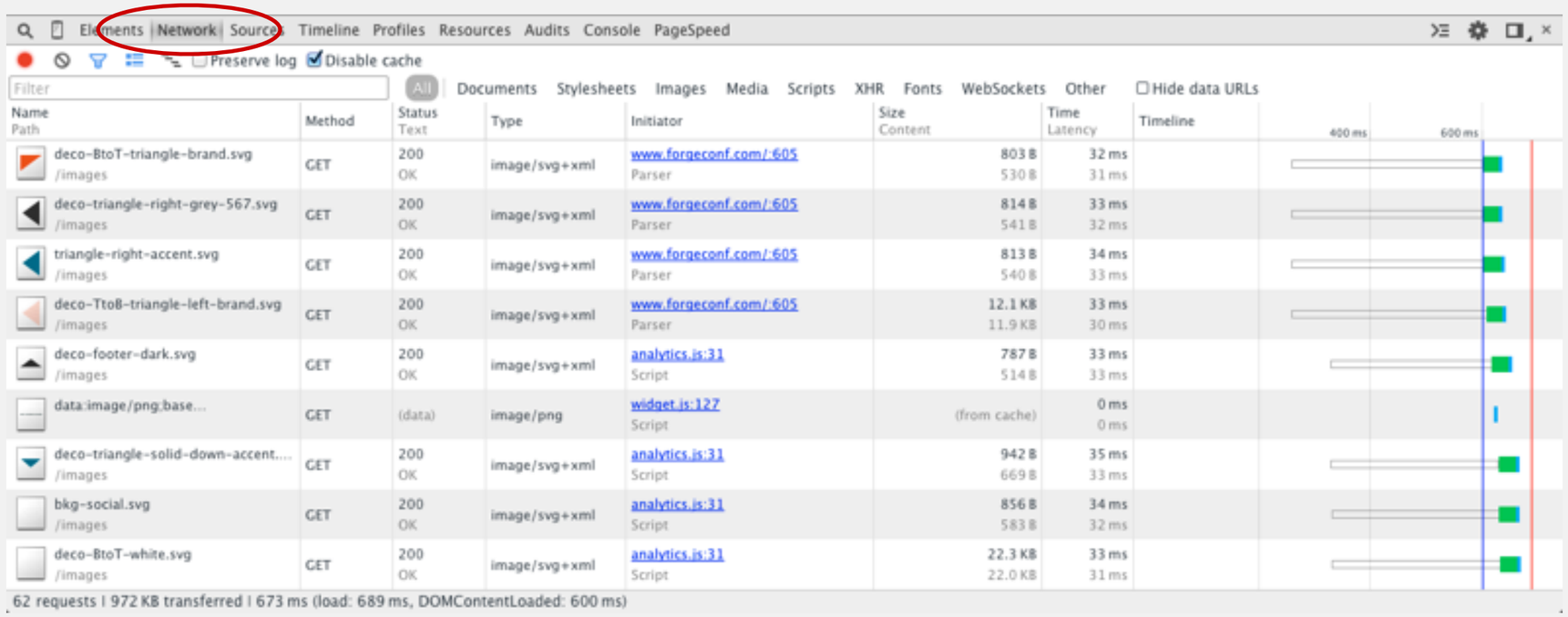
BROWSERSTACK



TESTING TOOLS

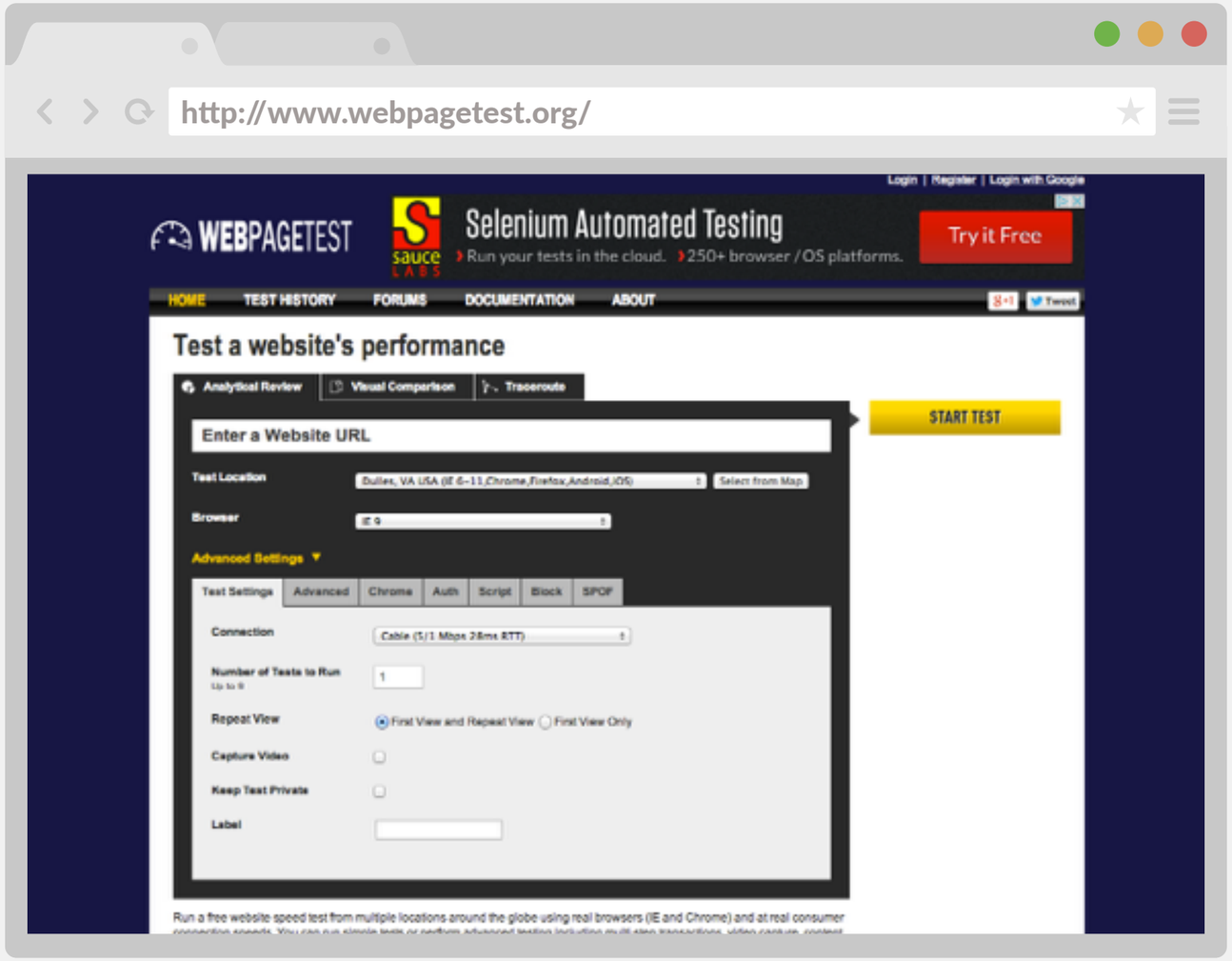
- **iOS Simulator Application** (http://apple.co/1aT20TK)
- **Android SDK** (http://bit.ly/IKeIqs)

CHROME DEVELOPER TOOLS NETWORK INSPECTOR



http://bit.ly/HH1zLC

WEBPAGETEST.ORG



SUMMARY

SUMMARY

Responsive Web design is not just about fluid screen presentations and resizable images…

…it’s a whole new way of thinking about the web

SUMMARY

- A responsive website starts with it’s content
- Content can be mobile only or desktop only, but it should be made by informed decisions of usage
- Design a hierarchy for content and a layout will emerge

RESOURCES

A BOOK APART - RESPONSIVE WEB DESIGN

A BOOK APART - RESPONSIVE WEB DESIGN

THIS IS RESPONSIVE

QUESTIONS?

INTRODUCTION TO RESPONSIVE WEB DESIGN

Philly Tech Week 2015 Dev Day

BRIAN CRUMLEY

Lead Front-End Developer

@briancrumley

JAY FORBES

Development Supervisor

@jayforbesiii