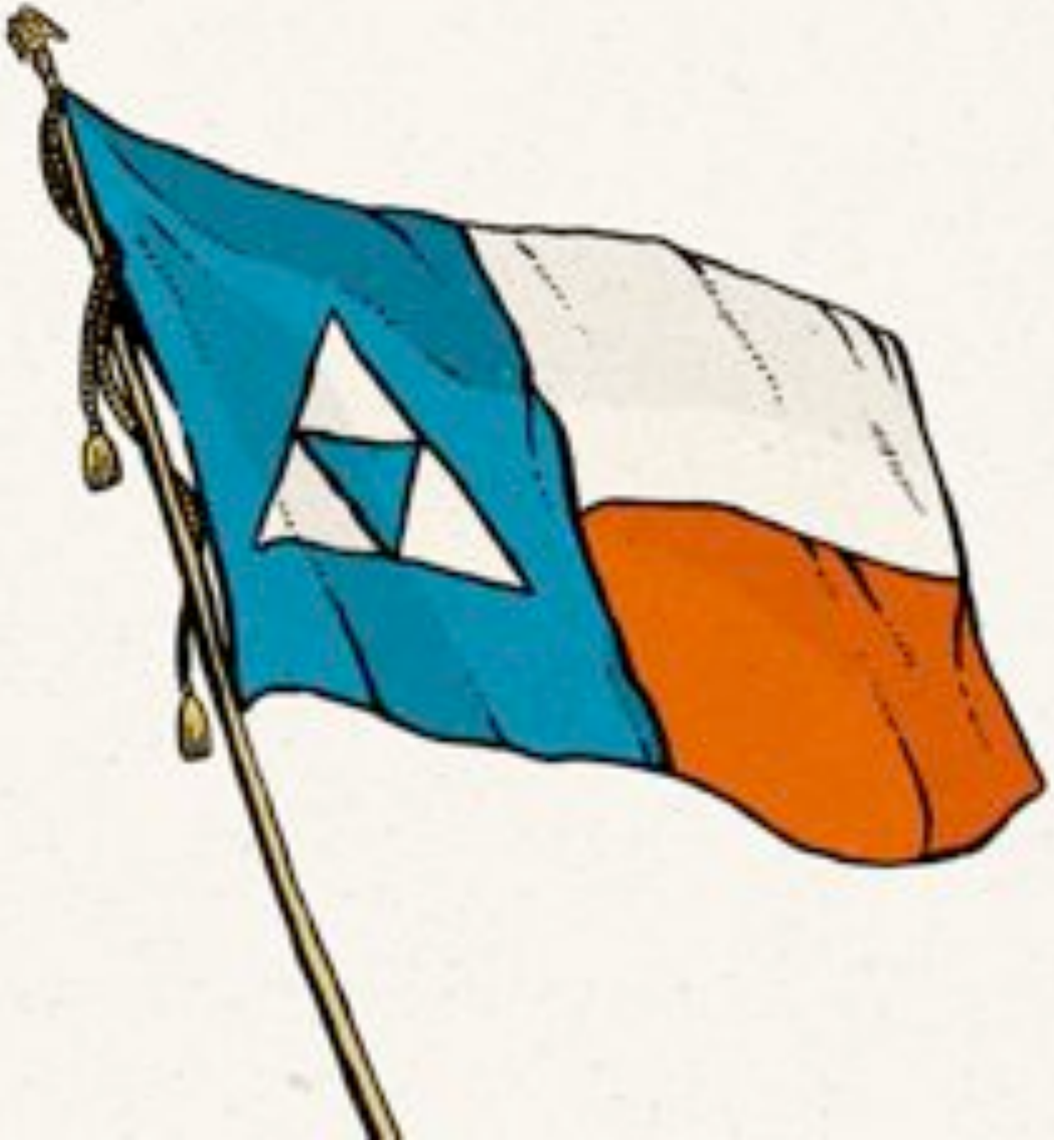
“Mo’ Pixels, Mo’ Problems”

Dealing with Responsive Images
with Dave Rupert @davatron5000



shoptalkshow.com

ATX
WEB SHOW

atxwebshow.com

a11yproject.com

Le menu

- Outline the need for responsive images
- Examine failed paths
- Look at our approach at Paravel
- Sweet hacks, bro

Le Problème

Like all Americans, websites are getting more and more obese.

#sickburn

80% of page load times are because of the front end.

HTML, CSS, JavaScript, Images, Fonts, Flash?, etc.

1,427 kilobytes == average page weight in April 2013.

Up 143kb (11%) from January 2013.

872 kilobytes == images (~56 of them)

Up 79kb (9%) from January 2013.

~60% of page weight is images.

Source: HTTPArchive.org

Les Facteurs

What’s causing all this image bloat?

№1
Bad web performance

Websites keep getting fatter.

1,427 kilobytes == average page weight in April 2013

87,962 kilobytes == size of moto.oakley.com

$22 cost to view moto.oakley.com on Verizon's smallest plan

Performance matters...

500 millisecond delay

20% reduction in traffic

http://www.codinghorror.com/blog/2006/11/speed-still-matters.html

№2
Responsive Web Design

One website to rule them all.

72% of RWD sites send the same payload to mobile and desktop.

Only 6% were “much smaller”

http://www.guypo.com/?p=3374

“Blame the implementation, not the technique”

– Tim Kadlec

Expect RWD to add about ~10% to your page weight.

Unofficial findings from the
Dave Rupert Research Institute

№3
Retina Screens

LOL. YOUR JOB JUST GOT SOOOOoOO MUCH MORE DIFFICULT! LOLOLOLOL

— Steve Jobs, from the grave.

@1X
600×817
406KB

@2X
1200×1634
1057KB

LOL. I’m 3x!

Considérations

Different images at different breakpoints
Different images for different pixel densities
Different image formats
Art direction

Image formats

	Strengths	Weaknesses
GIF	Small graphics Animations	Colors & alpha
PNG	Small, medium, large images Alpha transparency	Large-ish
JPG	Photos Selective quality	Large
Data URI	Inline (no extra requests)	Legacy IE
WEBP	Small	Chrome/Opera only :(

Data URI

```
<img src="
yH5BAEAAAAALAAAAAABAAEAAAIBRAA7">

<style>
li {
  background:
    url(
yH5BAEAAAAALAAAAAABAAEAAAIBRAA7)
    no-repeat
    left center;
}
</style>
```

@2X
1200×1634
1057KB

WebP
1200×1634
133KB

Art direction use case

http://blog.cloudfour.com/a-framework-for-discussing-responsive-images-solutions/

Failed paths

What we’ve tried, what kinda works and what doesn’t.

“I’ll just use JavaScript!”

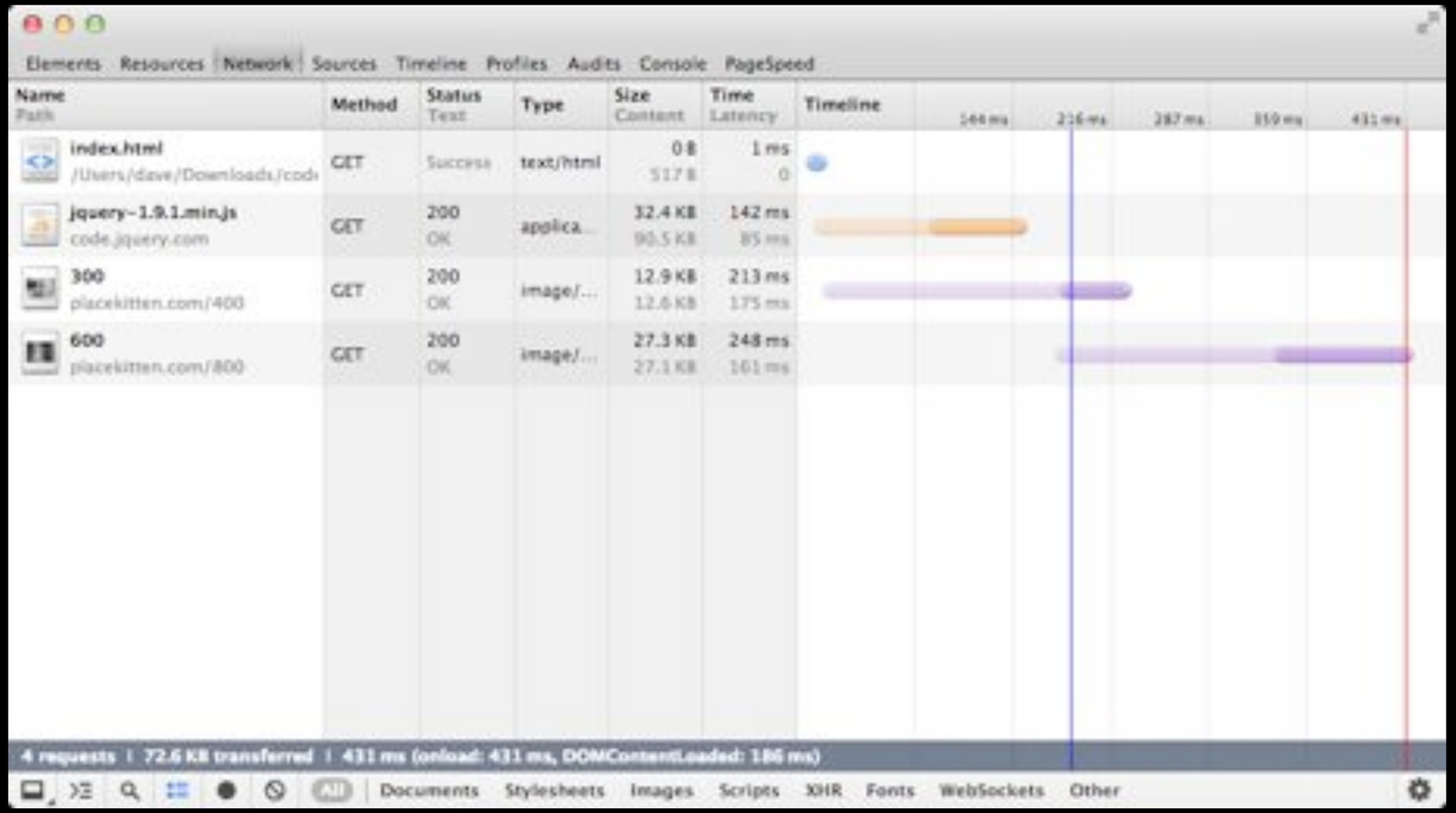
— Everyone Ever

```
<img alt="Pizza"
  src="pizza-mobile.jpg"
  data-desktop="pizza-desktop.jpg"
/>
```

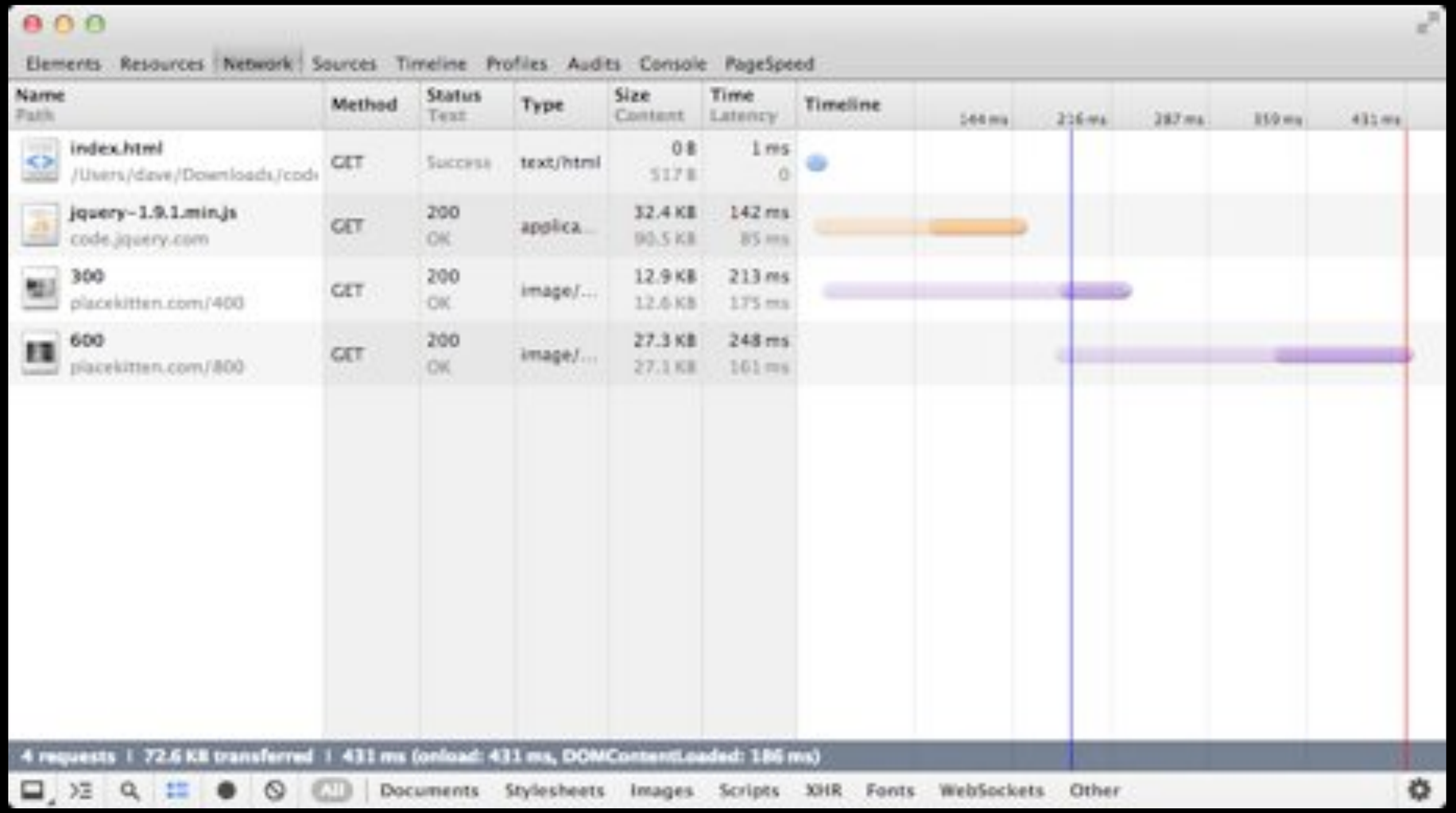
```
<script>
if($(window).width() > 960) {
  $('img').each(function(){
    $(this).attr(
     'src', $(this).data('desktop')
    );
  });
}
</script>
```

“Donezo.
I am so smart.”

— Javascript Wizards


Elements Resources Network Sources Timeline Profiles Audits Console PageSpeed
Name Path
Method
Status Text
Type
Size Content
Time Latency
Timeline
144 ms
216 ms
287 ms
359 ms
431 ms
index.html
/Users/dave/Downloads/cod
GET
Success
text/html
0 B
517 B
1 ms
0
jquery-1.9.1.min.js
code.jquery.com
GET
200
OK
applica...
32.4 KB
90.5 KB
142 ms
85 ms
300
placekitten.com/400
GET
200
OK
image/...
12.9 KB
12.6 KB
213 ms
175 ms
600
placekitten.com/800
GET
200
OK
image/...
27.3 KB
27.1 KB
248 ms
161 ms
4 requests | 72.6 KB transferred | 431 ms (onload: 431 ms, DOMContentLoaded: 186 ms)
All
Documents
Stylesheets
Images
Scripts
XHR
Fonts
WebSockets
Other

WONK WONK.
DOUBLE DOWNLOAD


Elements Resources Network Sources Timeline Profiles Audits Console PageSpeed
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index.html
/Users/dave/Downloads/cod
GET
Success
text/html
0 B
517 B
1 ms
0
jquery-1.9.1.min.js
code.jquery.com
GET
200
OK
applica...
32.4 KB
90.5 KB
142 ms
85 ms
300
placekitten.com/400
GET
200
OK
image/...
12.9 KB
12.6 KB
213 ms
175 ms
600
placekitten.com/800
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200
OK
image/...
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All
Documents
Stylesheets
Images
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Other

16kb + 46kb = 62kb (Not ideal, but maybe okay)

@56 Images: 896kb + 2.576MB = 3.472MB

Other paths

spacer.gif

<base> Elements

Servers and cookies

Background-images

Network Detection

So, how?

The Paravellian® Approach

Use CSS and Web Fonts whenever possible
Use SVG and Icon Fonts whenever applicable
Picturefill raster graphics

CSS & Web Fonts

Articles Notes Info Search

Reorganization

Process is often shaped by how teams are organized.

In the context of designing for the multi-device web, the high level of

```
@media only screen and (-webkit-min-device-pixel-ratio: 1.5),
       only screen and (min--moz-device-pixel-ratio: 1.5),
       only screen and (min-resolution: 240dpi) {

    .pizza {
        background-image: url("pizza@2x.png");
        background-size: 400px 300px;
    }
}
```

SVG & Icon Fonts

SVG

Scalable Vector Graphics
Basically illustrator files

Ghostscript Tiger SVG: 67kb

```
<object data="pizza.svg" type="image/svg+xml">
  <img src="fallbackpizza.jpg" />
</object>
```

```
<img src="pizza.svg" alt="Pizza" />
```

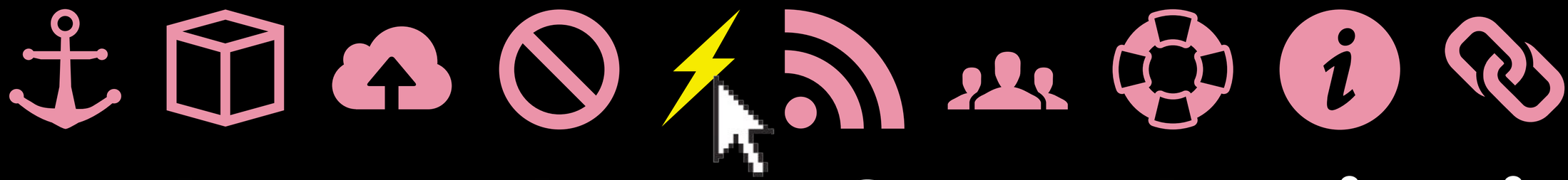
SVG support

9+ 3.0+ 3.2+

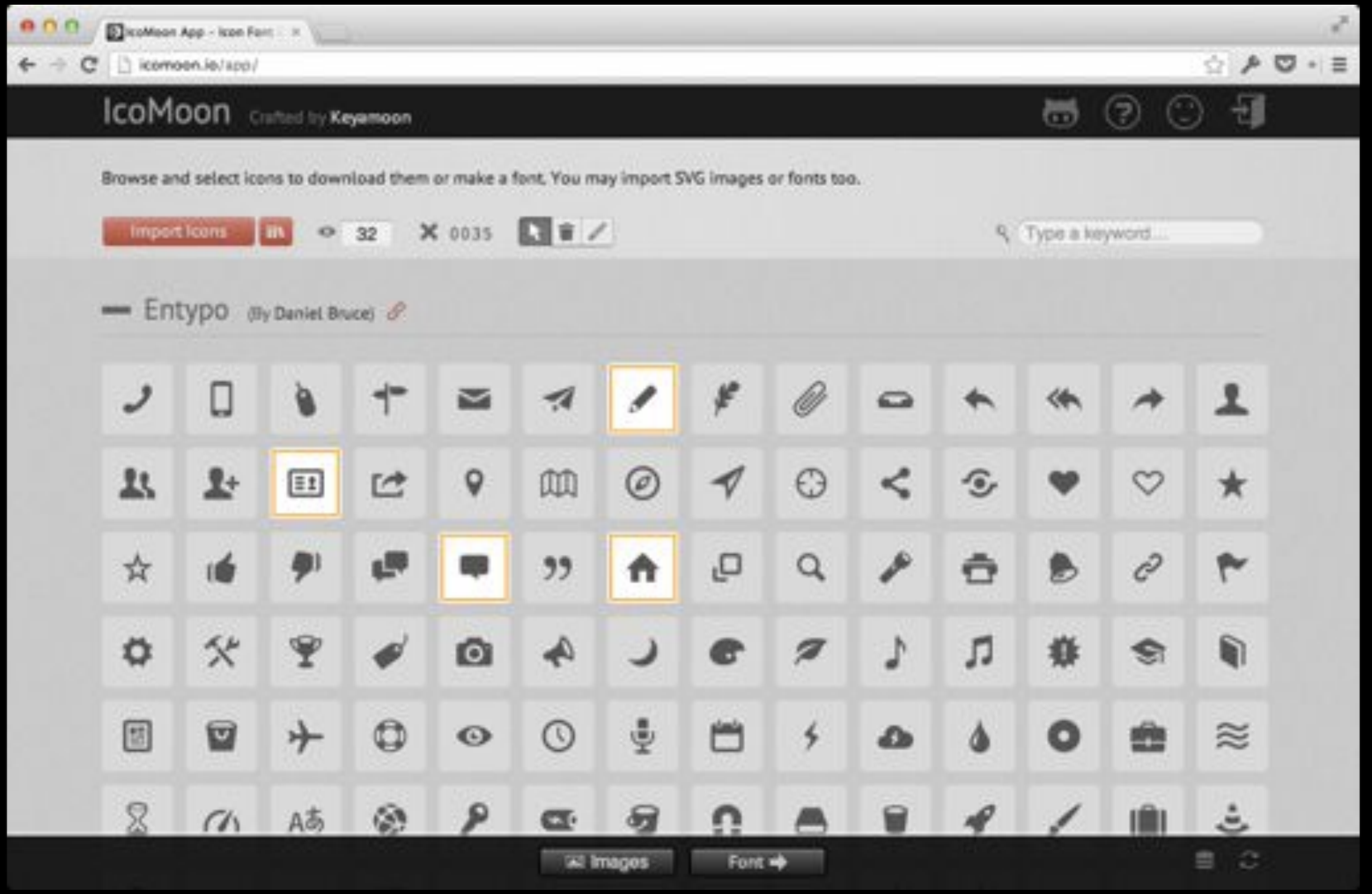
Source: caniuse.com

Icon Fonts

Tiny monochrome vector packs.



a b c d e f g h i j


IcoMoon App - Icon Font
icomoon.io/app/
IcoMoon
Crafted by Keyamoon
Browse and select icons to download them or make a font. You may import SVG images or fonts too.
Import Icons
32
0035
Type a keyword...
Entypo
(By Daniel Bruce)
Images
Font

Icon font support

8+

Source: caniuse.com

Quest for a native solution

#HOTDRAMA

February 2012 - #WHATWG IRC

Hi! We need a solution for responsive images. We have some ideas and we'd like to help.

I don't see what the big deal is, can't you just use Javascript?

:(

Go form a community group.

... trots off to form community group

May, 10th 2012 - WHATWG Email List

We made a thing. It’s called @srcset. We want it.

Great! I’ll approve it this instant. Thanks best friend ;)

Uhhhh... wut?

Apple’s thing is easier vis à vis better.

Also, you need use cases, burden of proof of developer sentiment, and a bunch of stuff not required for Apple.

Also, community groups aren’t a real thing we consider. You should have been emailing the mailing list, ya dummy.

:(

End scene.

@srcset

Based on the CSS4 image-set() value
Proposed by Apple® on May 10th, 2012

```
<img alt="The Breakfast Combo"
     src="banner.jpeg"
     srcset="banner-HD.jpeg 2x,
             banner-phone.jpeg 100w,
             banner-phone-HD.jpeg 100w 2x">
```

Strengths

Just an attribute

Strong “2x” syntax

Weaknesses

Comma delimited values

Faux-media query microsyntax

Non-intuitive px-based “w” and “h” units

Browser determination

Polyfill causes the double download

Dave Rupert
@davatron5000

Follow

<img srcset="blah, blah, blah, garbage, garbage"/> /cc @w3c @whatwg

9:24 AM - 15 May 2012

14 RETWEETS **6** FAVORITES

<Picture>

Proposed by the Responsive Images Community Group
on May 11th, 2012

```
<picture alt="Pizza">
  <source srcset="small-1.jpg 1x, small-2.jpg 2x">
  <source media="(min-width: 18em)" srcset="med-1.jpg 1x, med-2.jpg 2x">
  <source media="(min-width: 45em)" srcset="large-1.jpg 1x, large-2.jpg 2x">
  <img src="small-1.jpg" alt="Pizza">
</picture>
```

Strengths

Audio/Video element syntax
Media-query based
Supports non-pixel values
Supports art direction
Uses @srcset's "2x" powers
Fallbacks for unsupported types

Weaknesses

Verbose
"Hard to implement"*

** Citation needed*

Picturefill

Start using the picture element today!

https://github.com/scottjehl/picturefill

```
<div data-picture data-alt="A delicious pizza">
    <div data-src="small.jpg"></div>
    <div data-src="medium.jpg"     data-media="(min-width: 400px)"></div>
    <div data-src="large.jpg"      data-media="(min-width: 800px)"></div>
    <div data-src="extralarge.jpg" data-media="(min-width: 1000px)"></div>

    <!-- Fallback content for non-JS browsers.
   Same img src as the initial, unqualified source element. -->
    <noscript>
        <img src="external/imgs/small.jpg" alt="A delicious pizza">
    </noscript>
</div>
```

“Got any sweet hacks, brahski?”

— Surfer dudes

Server side

Sencha.io Src

WordPress.com Photon

Adaptive Images

```
<img
  src='http://src.sencha.io/http://sencha.com/files/u.jpg'
  alt='My smaller image'
/>
```

Strengths

One image tag

Legacy sites

Weaknesses

Blackbox

What if these services shut down?

What if you switch platforms?

1.5x Hack

For Medium Importance images

@1X
600×817
406KB

@1.5X
900×1226
835KB

@2X
1200×1634
1057KB

Strengths

One image

Weaknesses

Penalizes small screen users

Compressive Images

The following is some black effin’ magic.
Put on your robes and wizard hat...

@1X
600×817
406KB

@1.5X
900×1226
835KB

@0%
1200×1634
55KB

Strengths

One image

Weaknesses

Memory intensive, esp. on phones

Save as... pixelated

Clown Car

Crafted by Estelle Weyl

```
<img src="pizza.svg" alt="Pizza" />
```

```
<svg xmlns="http://www.w3.org/2000/svg" viewBox="0 0 300 329" preserveAspectRatio="xMidYMid meet">
 <title>Clown Car Technique</title>
 <style>
  svg {
    background-size: 100% 100%;
    background-repeat: no-repeat;
  }
 @media screen and (max-width: 400px) {
  svg {background-image: url(pizza/small.png);}
 }
 @media screen and (min-width: 401px) and (max-width: 700px) {
  svg {background-image: url(pizza/medium.png);}
 }
 @media screen and (min-width: 701px) and (max-width: 1000px) {
  svg {background-image: url(pizza/big.png);}
 }
 @media screen and (min-width: 1001px) {
  svg {background-image: url(pizza/huge.png);}
 }
 </style>
</svg>
```

Strengths

Simple

Weaknesses

Create an SVG for every image

Media query based image selection... sounds familiar...

Media query based image selection... sounds familiar...

Picturefill

Lots o’ options

Above all, use your brain and pick
what’s best for your project.

“Thanks!”

Dave Rupert
@davatron5000
github.com/davatron5000