

**PICTURES ARE WORTH A THOUSAND WORDS
...AND SOMETIMES 1,000MB.**

A CAUTIONARY TALE.

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...AND SOMETIMES 1,000MB.**

A CAUTIONARY TALE.





Supanova Perth



?





mopdonuts
MOP Donuts



greenhornswa



topdupdonuts
Top Dup Donuts



itshoodburger
Northbridge

...





mopdonuts
MOP Donuts



greenhornswa



topdupdonuts
Top Dup Donuts



itshoodburger
Northbridge

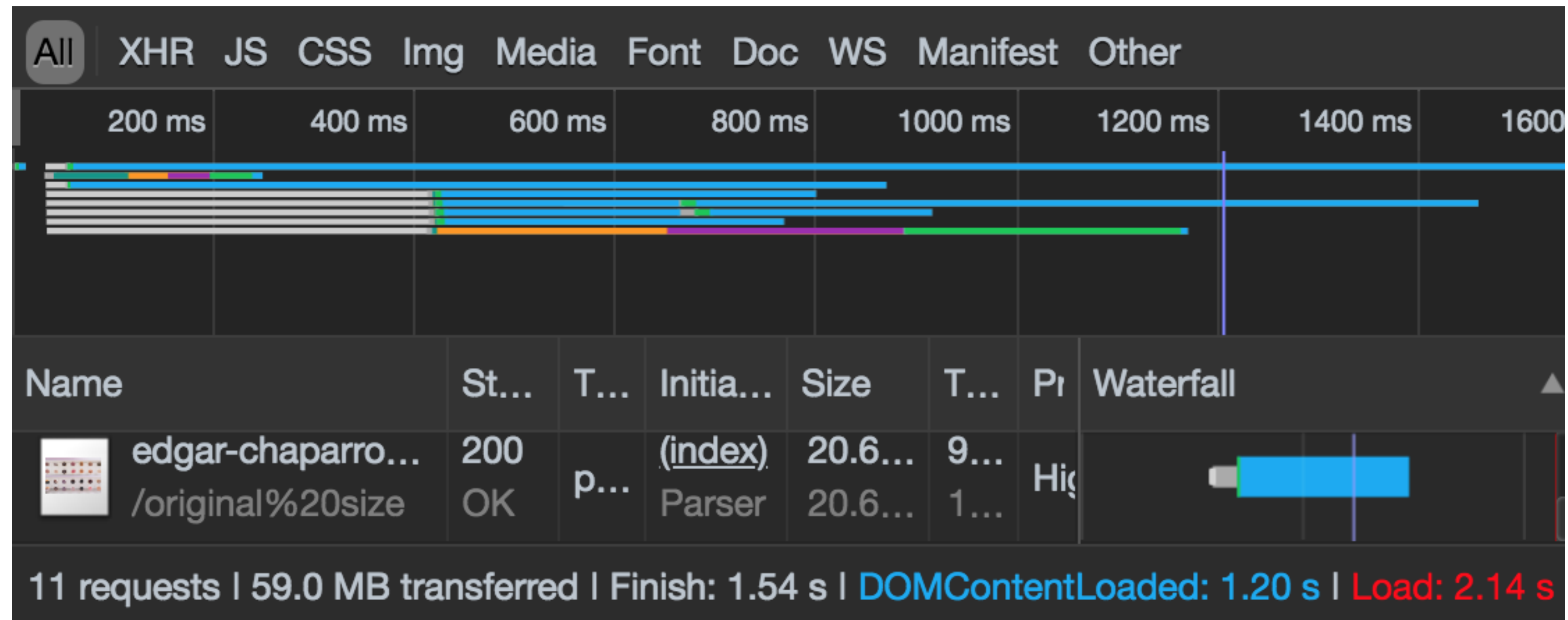
...





ANTON BALL
@antonjb

We made a mistake...

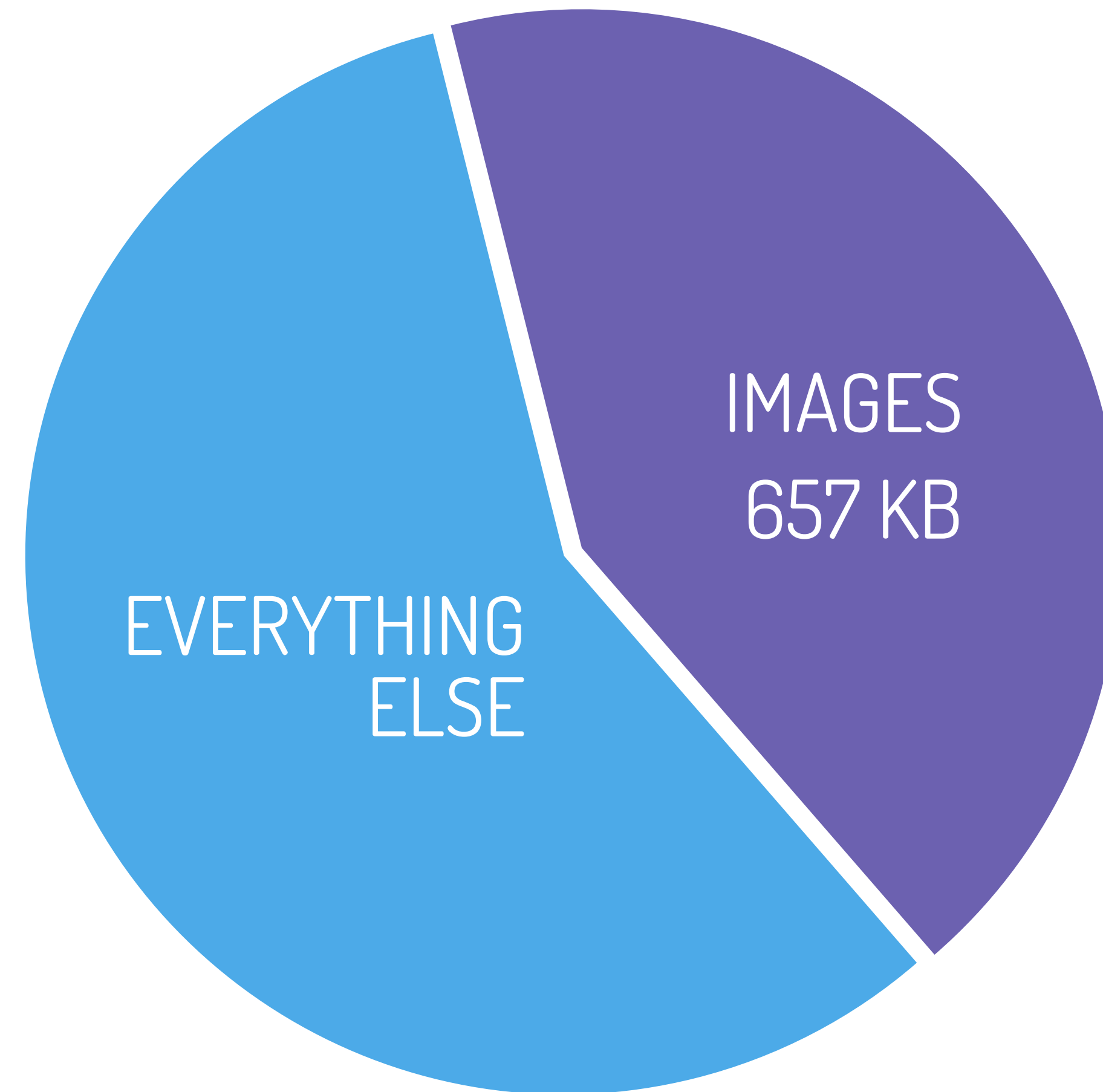


11 requests | 59.0 MB transferred





HTTP Archive



1544.7 KB



7.6mb/s

62 sec



11mb/s

42 sec



6.5mb/s

72 sec



Slow 3G

20 min



BBC has seen that they lose an additional 10% of users for every additional second it takes for their site to load

Rebuilding Pinterest pages for performance resulted in a 40% decrease in wait time, a 15% increase in SEO traffic and a 15% increase in conversion rate to signup.

Format

Resize

Compression

Automation

Our Process



DESIGN

Format

Exif	PNM	CD5	FITS	SGI	PLBM	AMF	PBM
TIFF	HDR	BAT	ECW	PGF	SID	DWF	FLIF
BMP	BAT	DGN	ILBM	IMG	XPS	DWG	VML
BPG	GIF	SVG	JPEG	PNG	WEBP	HPGL	ICO
PGM	XISF	HSF	PAM	PCX	HVIF	QCC	ODG
PPM	DEEP	TGA	JPEG XR	Nrrd	CGM	DXF	Xar





Can image
be vector?

NO

Does it need
transparency?

NO

Is the image
complex?

YES

SVG

YES

PNG

NO

YES

JPG

WEBP

<https://developers.google.com/speed/webp/>

WEBP

IE	Edge [*]	Firefox	Chrome	Safari	iOS Safari [*]	Opera Mini [*]	Chrome Android	UC for Android	Samsung Internet
			49						
			63						
			67						
		61	68	11.1	11.2				4
11	17	62	69	12	11.4	all	69	11.8	7.2
	18	63	70	TP	12				
		64	71						
			72						

<https://caniuse.com/#feat=webp>

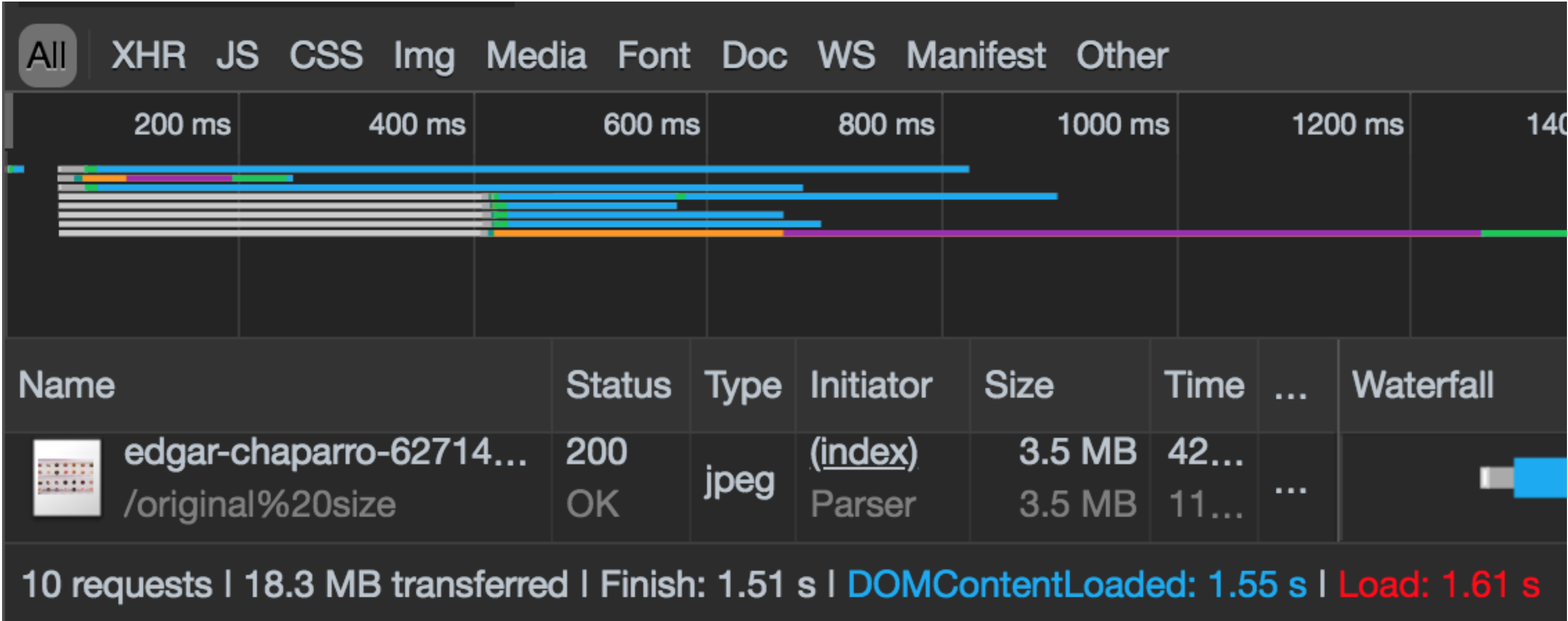


2.3MB
GIF

-85%

331KB
MP4

Progress



18.3 MB transferred



Size



```
<body>
  ▶<header class="jumbotron pt-0 px-0" style="height: 300px">...</header>
  ▼<main class="container">
    ▶<ul class="nav flex-column">...</ul>
    ▶<p>...</p>
    ▶<p>...</p>
    ▶<p>...</p>
    ▶<p>...</p>
    ▶<p>...</p>
    ▼<div class="row">
      ▼<div class="col mb-3">
        
        510 × 368 pixels (Natural: 5123 × 3697 pixels)
      ...
    </div> == $0
  </div>
  ▶<div class="row no-gutters">...</div>
</main>
▶<footer>...</footer>
  <script src="https://code.jquery.com/jquery-3.3.1.min.js" integrity="sha256-FgpCb/KJQlLNf0u91ta32o/NMZxltwRo8QtmkMRdAu8=" crossorigin="anonymous"></script>
</body>
</html>
```

510x368

5123x3697

SIPS

```
sips -Z 510 *.jpg
```


SIPS

```
sips -Z 510 *.jpg
```



<Picture />

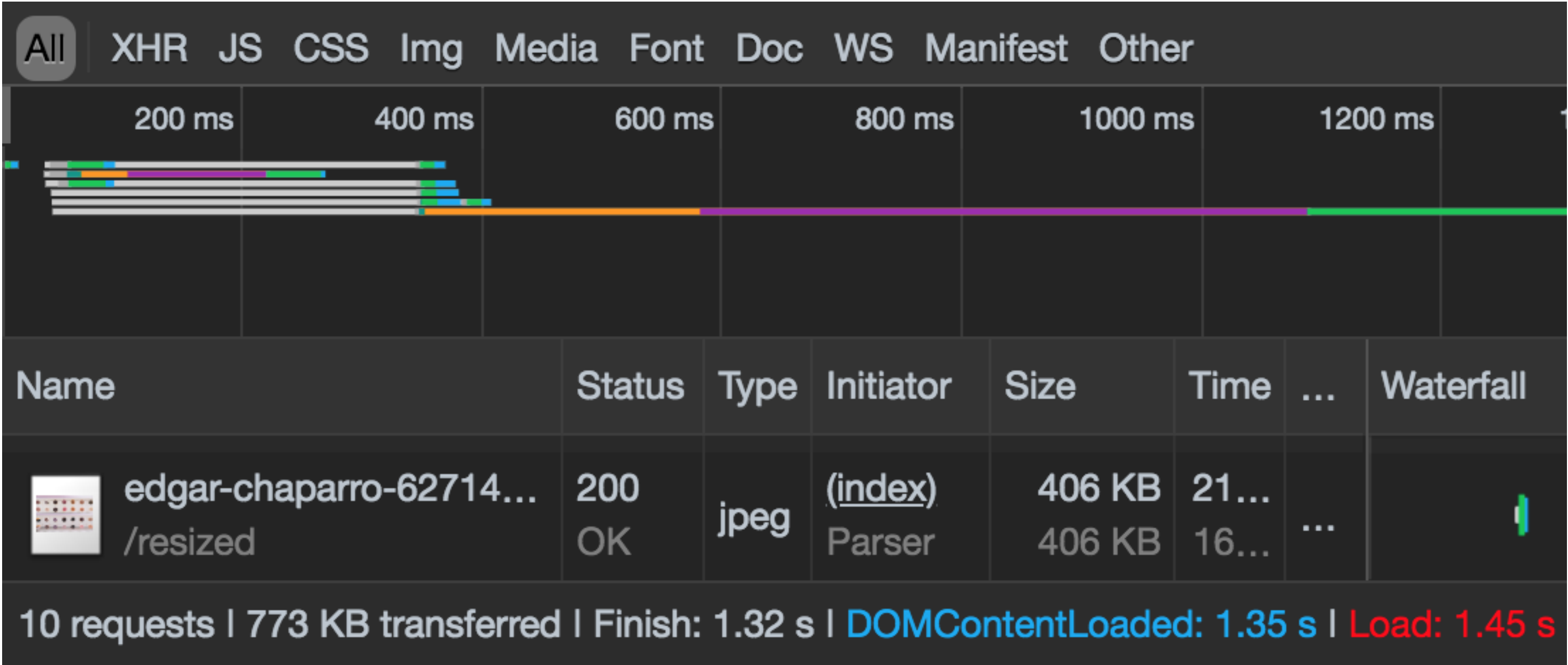
```
<picture>  
  <source media="(min-width: 60em)" type="image/webp" srcset="donut-large.webp" />  
  <source media="(min-width: 60em)" srcset="donut-large.jpg" />  
    
</picture>
```


<Picture />

```
<picture>  
  <source media="(min-width: 60em)" type="image/webp" srcset="donut-large.webp" />  
  <source media="(min-width: 60em)" srcset="donut-large.jpg" />  
    
</picture>
```

IE	Edge [*]	Firefox	Chrome	Safari	iOS Safari [*]	Opera Mini [*]	Chrome Android	UC for Android	Samsung Internet
			49						
			63						
			67						
		61	68	11.1	11.2				4
11	17	62	69	12	11.4	all	69	11.8	7.2
	18	63	70	TP	12				
		64	71						
			72						

progress



773 KB transferred





Can image
be vector?

NO

Does it need
transparency?

NO

Is the image
complex?

YES

SVG

YES

PNG

NO

YES

JPG

RESIZE



Compression



Lossy vs. Lossless (Image) Compression



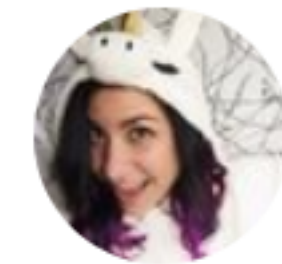
aaabbbjkwll

LOSSLESS

a3b2jkw12

LOSSY

aabjkw1



U|N|A

@Una



@dev_doodles



@una



DGD – Damn Good Donuts



PNGQuant

OptiPNG

TinyPNG

ImageMagick

MOZJPEG

Guetzli

SVGO

PNG Compressor

JPEGMini

PNGOut

PNGOptimizer

ImageOptim

PNGCrush

PunyPNG

Photoshop



Start with 100% quality



416KB
original

-42%

239KB
optimised

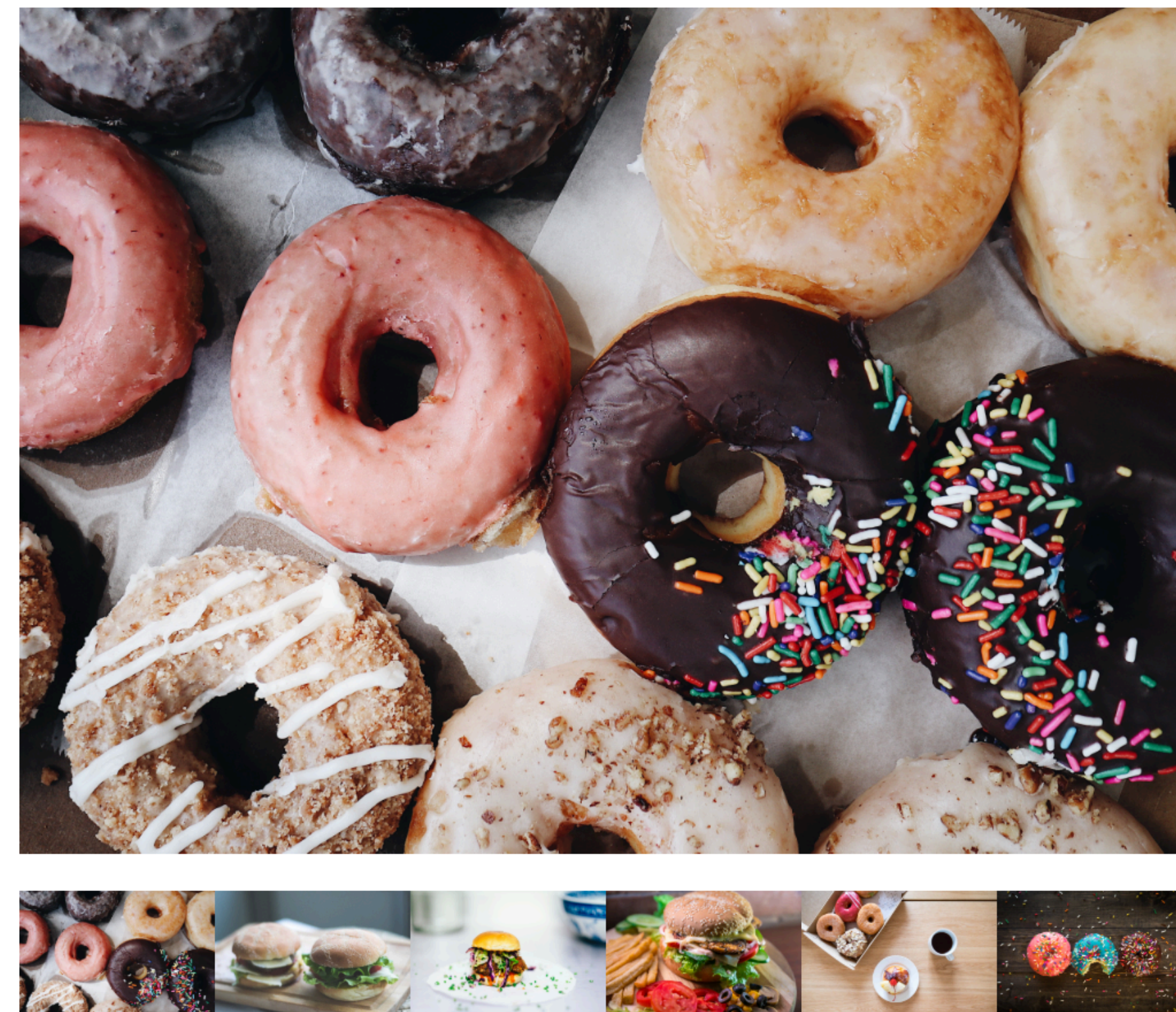


Compressed

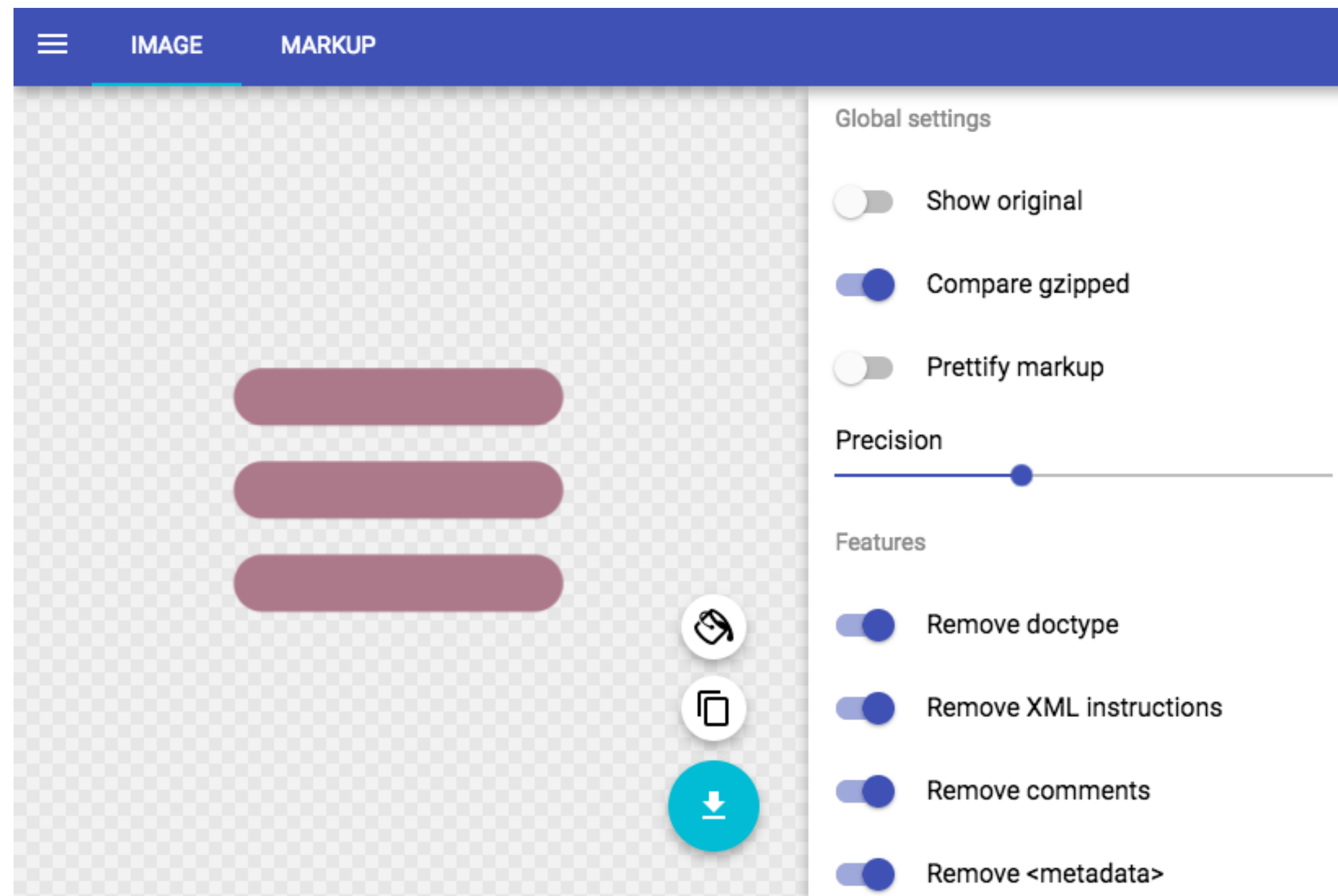


Original

Not all images are equal



SVGOMG



916B
original

-83%

148B
optimised

Guetzli

```
guetzli --quality 85 source/donut.jpg build/images/donut.jpg
```



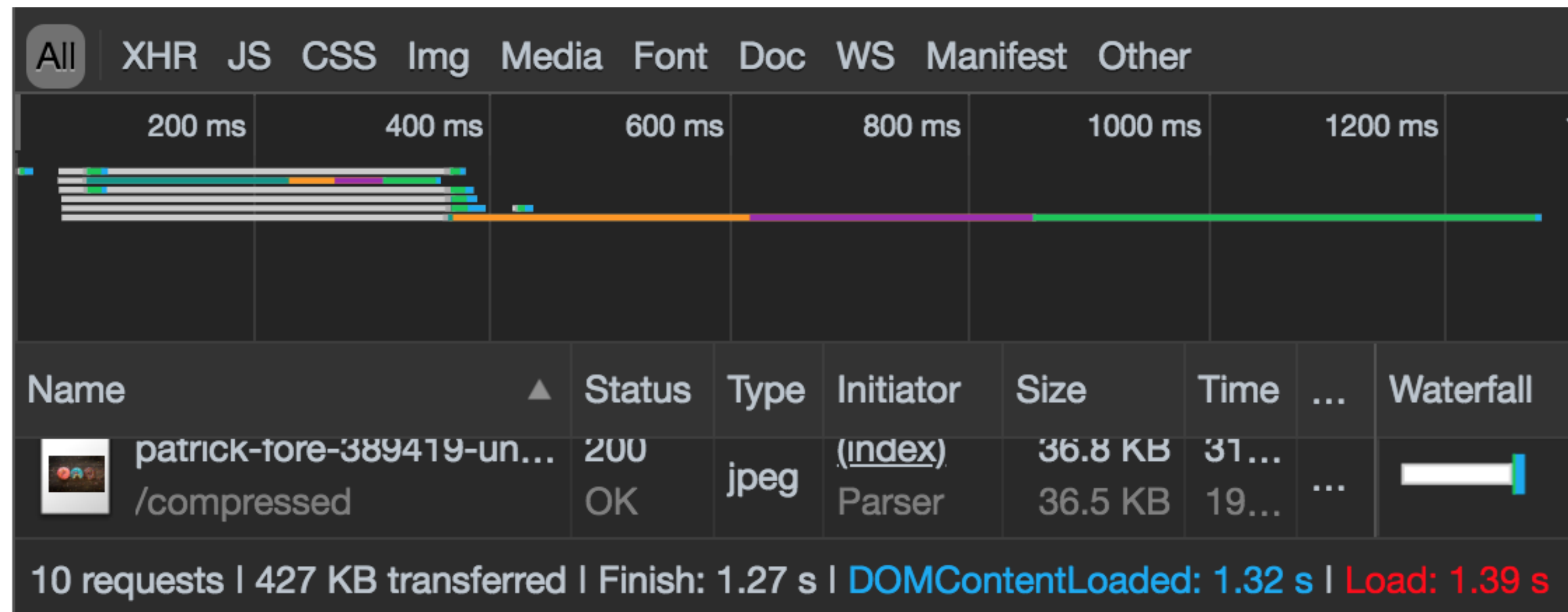
Guetzli



416KB
original

-54%

191KB
optimised



427 KB transferred





Can image
be vector?

NO

Does it need
transparency?

NO

Is the image
complex?

YES

SVG

YES

PNG

NO

YES

JPG

COMPRESS

RESIZE



59MB
original

-99%



427KB
optimised

Automation

~~Automating~~ Format

Automating Size

Width  250px

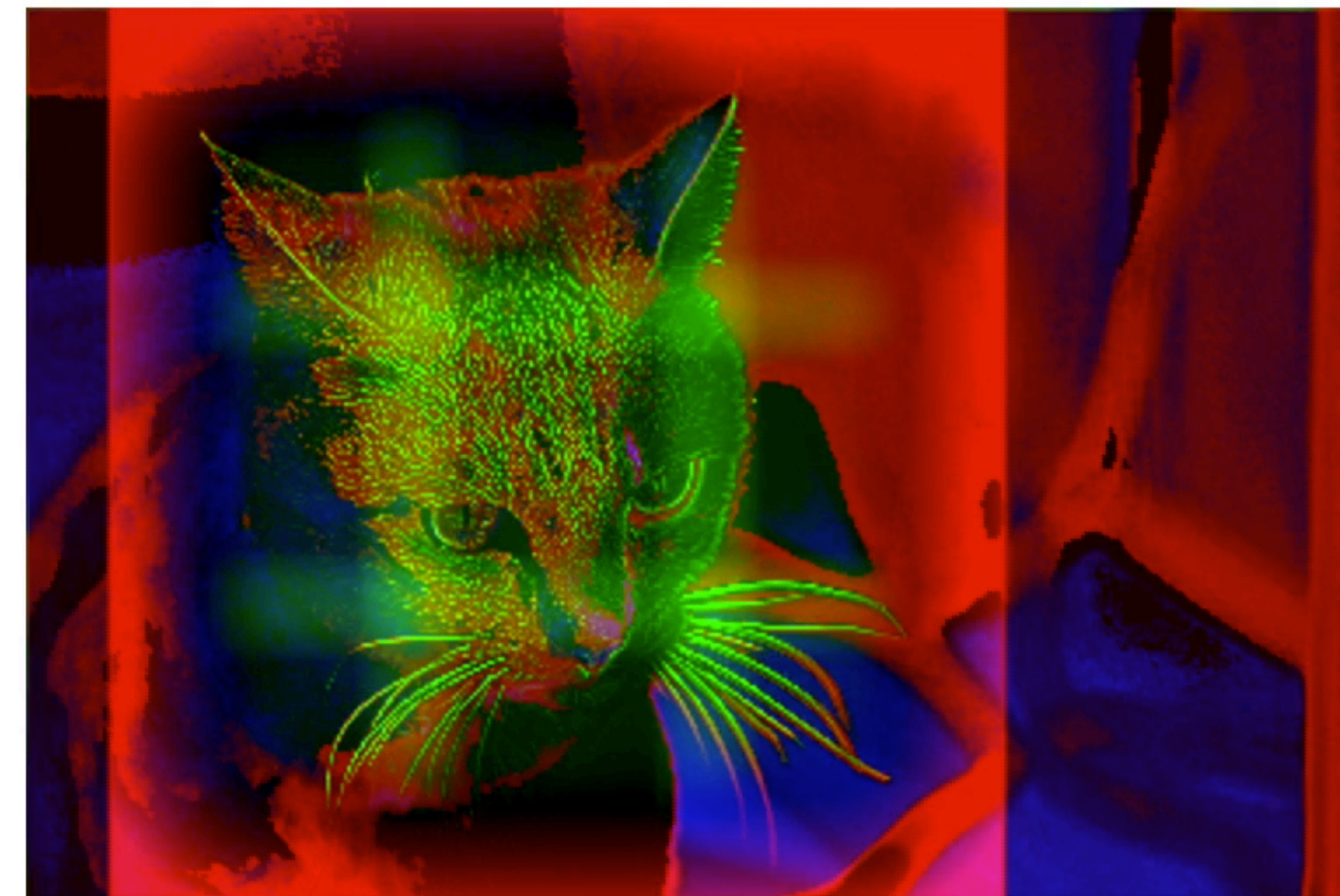
Height  250px

minScale  1.0

Rule of thirds ☒

Face Detection

- ☒ Off
- ☐ Use [jquery.facedetection](#)
- ☐ Use [tracking.js](#)
- ☐ Use [opencv.js](#)



All Crops

Score: 24666, 40x0

Automating Compression


```
const imagemin = require("imagemin");
const imageminMozjpeg = require("imagemin-mozjpeg");
const imageminPngquant = require("imagemin-pngquant");

(async () => {
  const files = await imagemin(["images/*.{jpg,png}"], "build/images", {
    plugins: [
      imageminMozjpeg({ quality: 85 }),
      imageminPngquant({ quality: "75-85" })
    ]
  });

  console.log("Image buffer - save or process");
})();
```

```
const imagemin = require("imagemin");
const imageminWebp = require("imagemin-webp");

(async () => {
  const files = await imagemin(["images/*.{jpg,png}"], "build/images", {
    plugins: [imageminWebp({ quality: 85 })]
  });

  console.log("Image buffer - save or process");
})();
```



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YES

SVG

YES

PNG

NO

YES

JPG

COMPRESS

WEBP

RESIZE





Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8

Bandwidth Saved: 3 MB



<https://www.domfee.com/img/fastly-io/img-1.io.jpg?width=822&quality=75>

File	File Size	Dimensions	Format
Edge Image	72.73 KB	822x617	JPEG
Origin Image	3.08 MB	4000x3000	JPEG

Dimensions: 822x616

Quality: 75%

Format:
Original Format

☐ Auto WebP

Crop:None

BG:

Trim:None

Pad:None

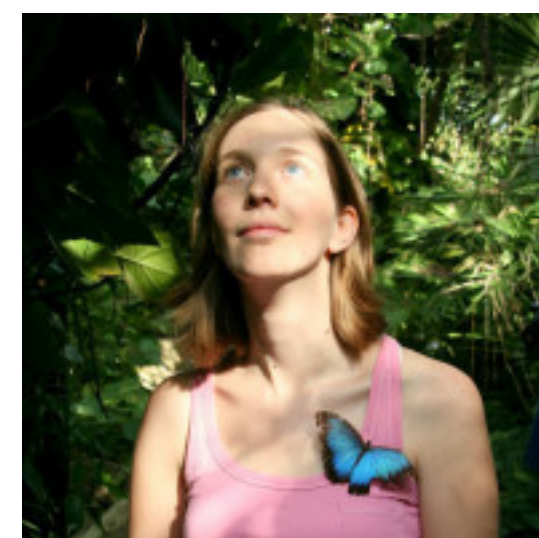
Orientation:Auto

DPR:None

Example Images




```
<picture>
  <source
    media="(min-width: 60em)"
    srcset="//fastly-io/img-1.io.jpg?auto=webp&crop=16:9&width=598&quality=75"
  />
  <source
    media="(min-width: 40em)"
    srcset="//fastly-io/img-1.io.jpg?auto=webp&crop=16:9&width=402&quality=75"
  />
  
</picture>
```

https://cloudinary.com/documentation/image_transformations#face_detection_based_cropping

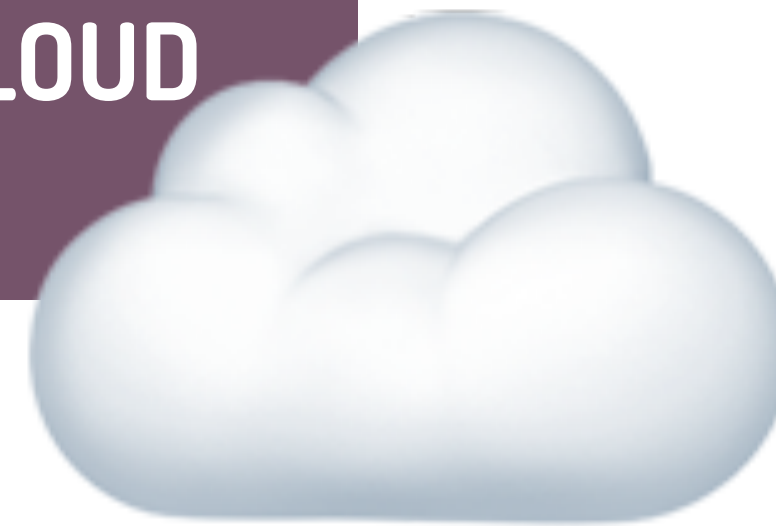




https://cloudinary.com/documentation/image_transformations#effects_with_face_detection

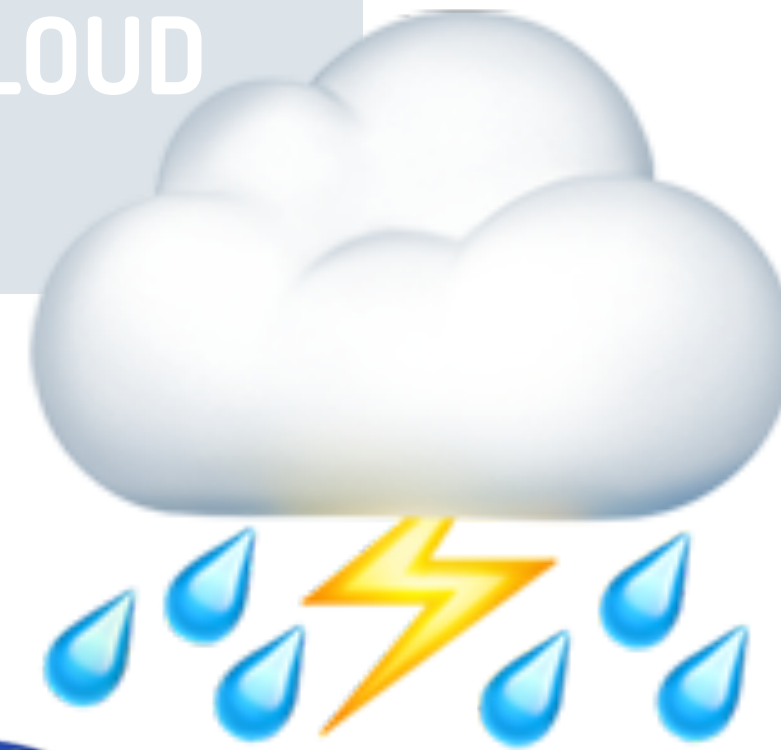


THE CLOUD





THE CLOUD

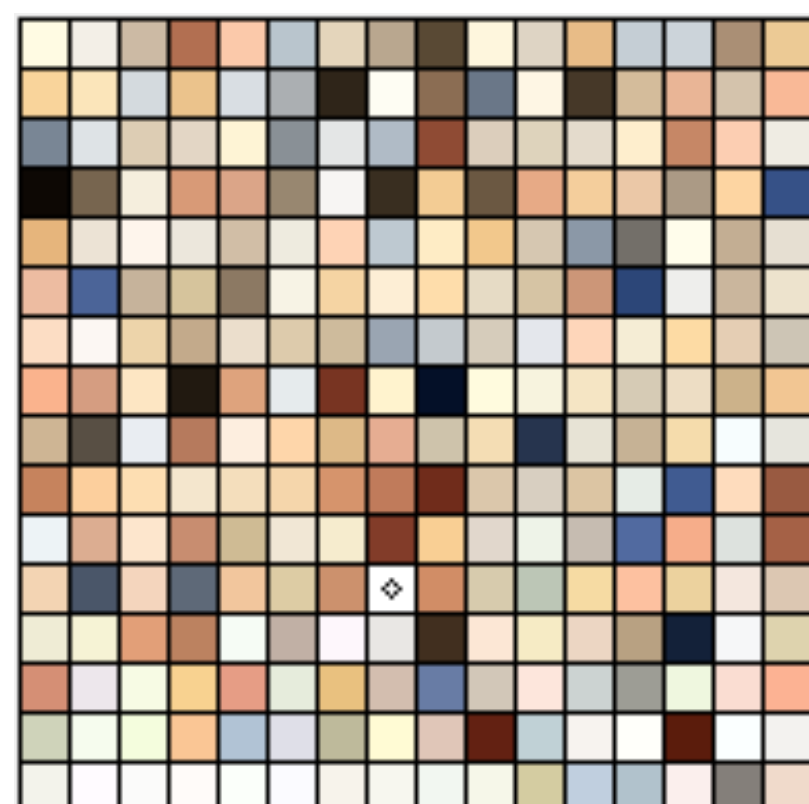


BONUS TIPS



197KB
original

-62%



73KB
indexed

Perceived speed



1:1

16:9

4:3

```
.intrinsic {  
  display: block;  
  position: relative;  
  height: 0;  
  width: 100%;  
  padding-top: 100%;  
  background-color: #aabdcd;  
}
```

```
.intrinsic-item {  
  position: absolute;  
  top: 0;  
  left: 0;  
  width: 100%;  
  height: 100%;  
}
```

```
.intrinsic.intrinsic--4x3 {  
  padding-top: 75%;  
}
```





Become a member

Better Burgers Better Life...

Medium

Sign in

Get started





actual size



Primitive
SQIP

Lazy Loading

Lazy Loading

```

```

Lazy Loading

```

```

Lazy Loading



`chrome://flags/#enable-lazy-image-loading`

This adds resources

Don't use images

Pure CSS Francine



Diana Smith

@cyanharlow



FOLDED

TO RECAP

1. Select best format
2. Use right size
3. Compress
4. Automate
5. Perceived performance
6. Don't use images (if you don't have to)



<https://images.guide/>

Addy Osmani

THANK YOU

@antonjb