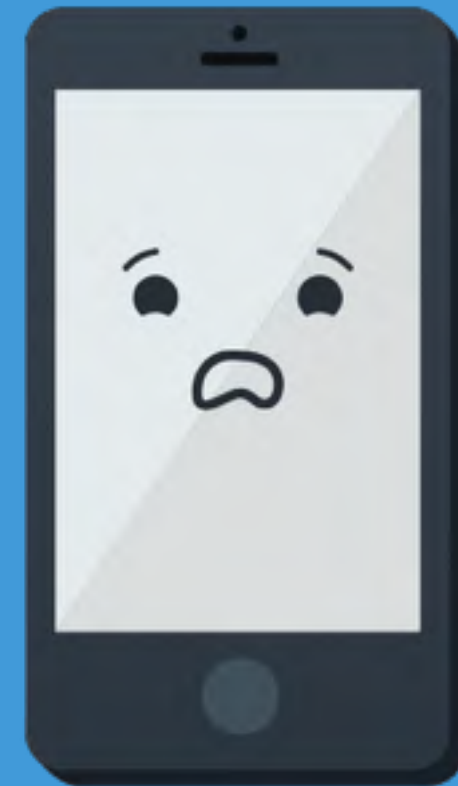


Evaluating and Fixing Website Performance



Erik Runyon
@erunyon

#hewebperf
October 19, 2020

<about/>

Erik Runyon

Technical Director

Marketing Communications

The University of Notre Dame

@erunyon

ErikRunyon.com

#hewebperf



@erunyon

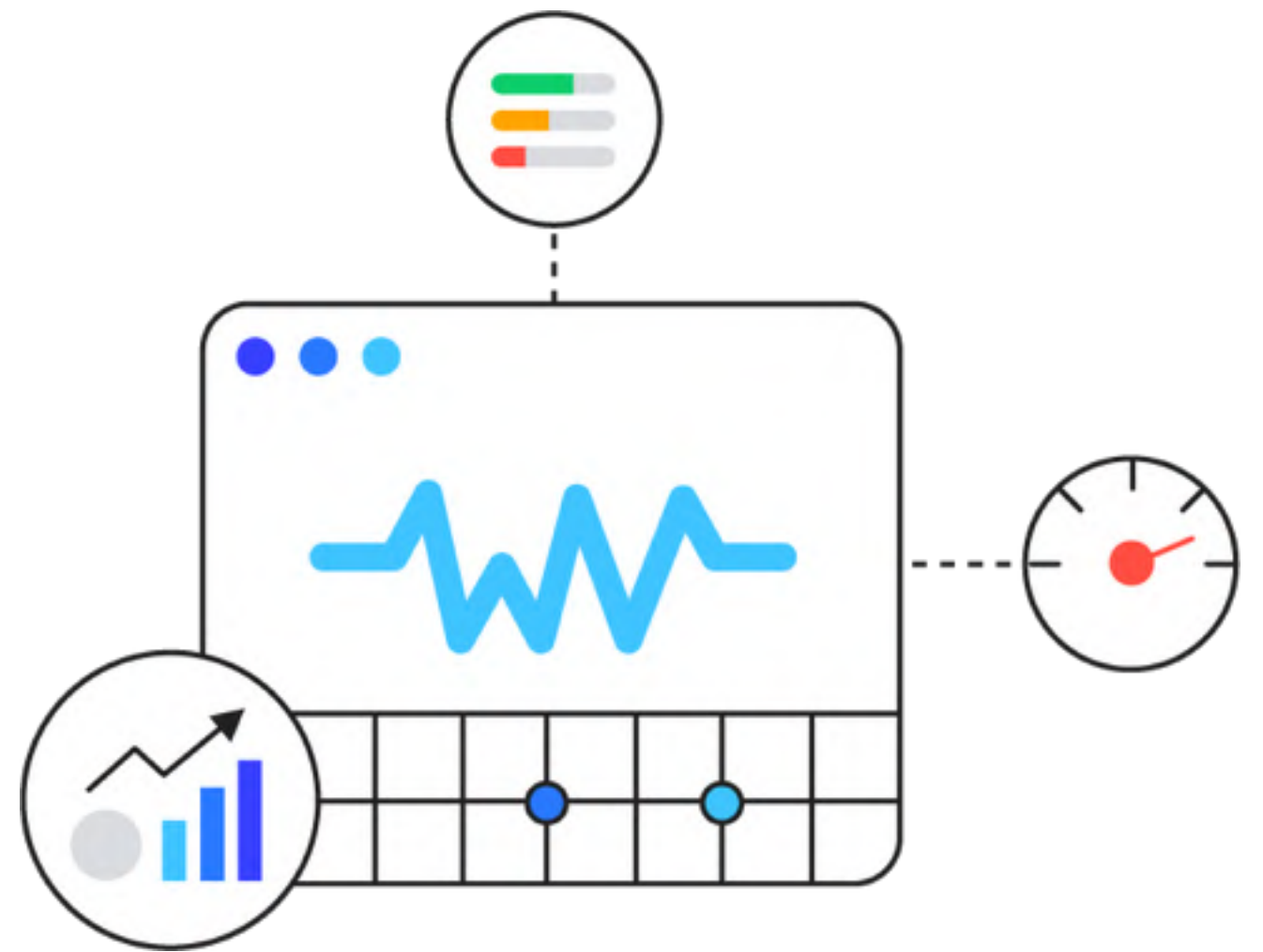
#HEWebPerf

The Tools

Google Lighthouse and Dev Tools



Core Web Vitals



Largest Contentful Paint

(Loading)

LCP

Largest Contentful Paint



First Input Delay

(Interactivity)

FID

First Input Delay



Cumulative Layout Shift

(Visual Stability)

CLS

Cumulative Layout Shift





6'6"

6'6"

6'0"

6'0"

5'6"

5'6"

5'0"

5'0"

4'6"

4'6"

4'0"

4'0"

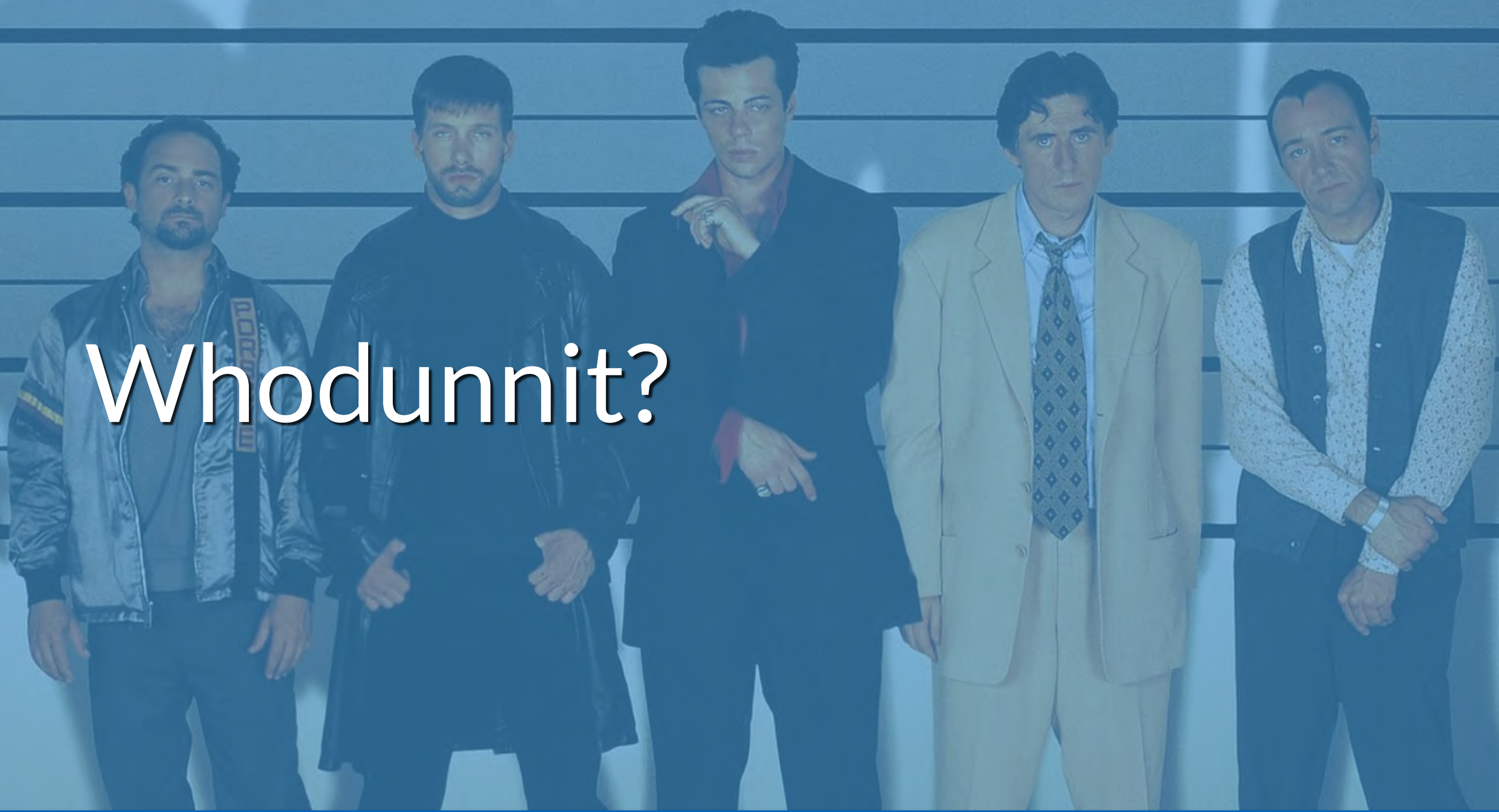
3'6"

3'6"

3'0"

3'0"

Whodunnit?





The Server





Compression

Gzip/Brotli



HTTP/2



Caching



TTFB

Time to First Byte



The Front-end



Images



Custom fonts

Hero Videos

AKA Full width background videos
AKA WHEEEE just bought a drone!!!

Selectively display the video

1. Mobile?
2. Reduced motion?
3. Save data?
4. Slow connection?



Javascript

Frameworks/tag managers/
trackers/embeds



Let's get started...



The Results

Changes since recording

1. Converted woff to woff2
2. Converted footer logo: 556kb -> 7kb
3. Added width/height to lazy-loaded images
4. Removed four trackers
5. Removed Foundation javascript



It's the

JavaScript

that kills you

WebPageTest

	First Byte	Start Render	Speed Index	Document Complete	Size
sjsu.edu	1.7s	3.6s	3.9s	~20-84s	44 MB
heweb-sjsu.netlify.app	0.5s	1.6s	1.6s	3.5s	1,108 KB

sjsu.edu



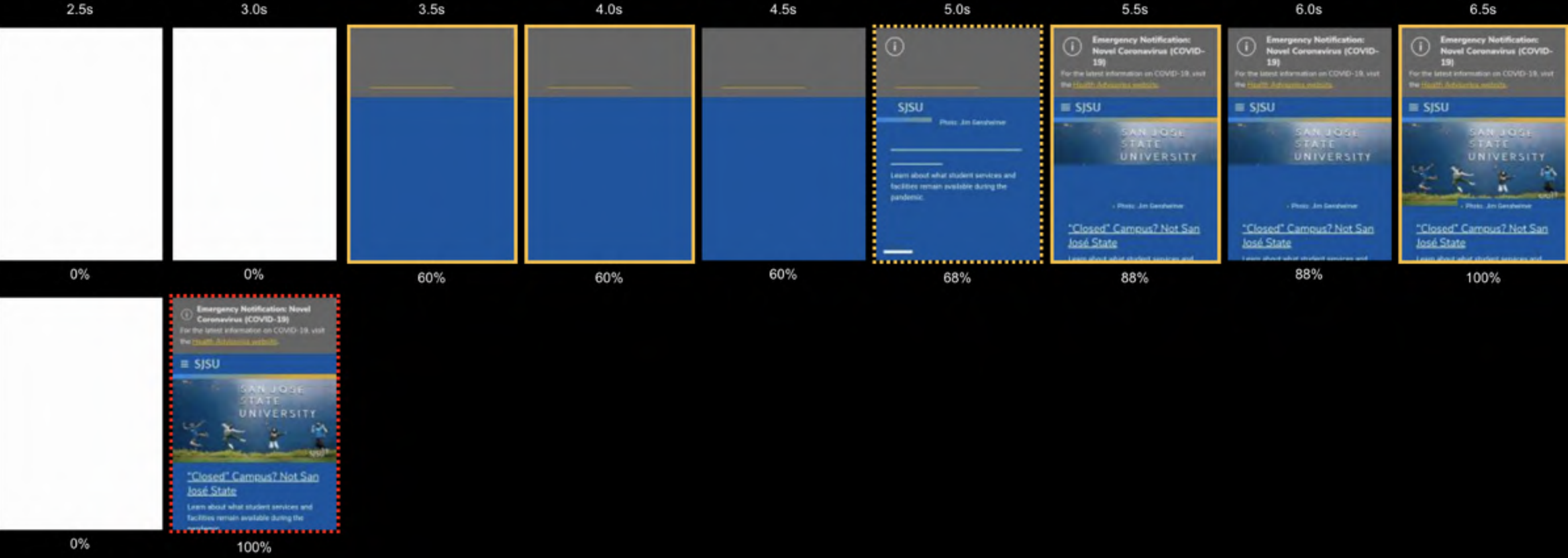
■ First Contentful Paint	2.6 s	▲ Time to Interactive	13.3 s
▲ Speed Index	6.0 s	■ Total Blocking Time	360 ms
▲ Largest Contentful Paint ■	19.1 s	▲ Cumulative Layout Shift ■	1.056

heweb-sjsu.netlify.app



● First Contentful Paint	2.3 s	■ Time to Interactive	5.6 s
● Speed Index	2.3 s	● Total Blocking Time	200 ms
■ Largest Contentful Paint ■	3.5 s	● Cumulative Layout Shift ■	0.001

Tested From: Dulles, VA - Moto G4 - Chrome - 4G



Recommendations

1. Merge and embed all external SVG icons into a single <def>
2. Load lower video only when necessary
3. Load bottom trackers through GTM and defer them as much as possible
4. Refactor to remove Foundation and jQuery



thank you

Erik Runyon
erikrunyon.com
@erunyon

Fill out your evaluations

(please)