



# The Small Things That Add Up

How to Find out What Design Factors Influence Conversions

**IRCE**  
INTERNET RETAILER  
CONFERENCE + EXHIBITION

**Joseph Paulling**

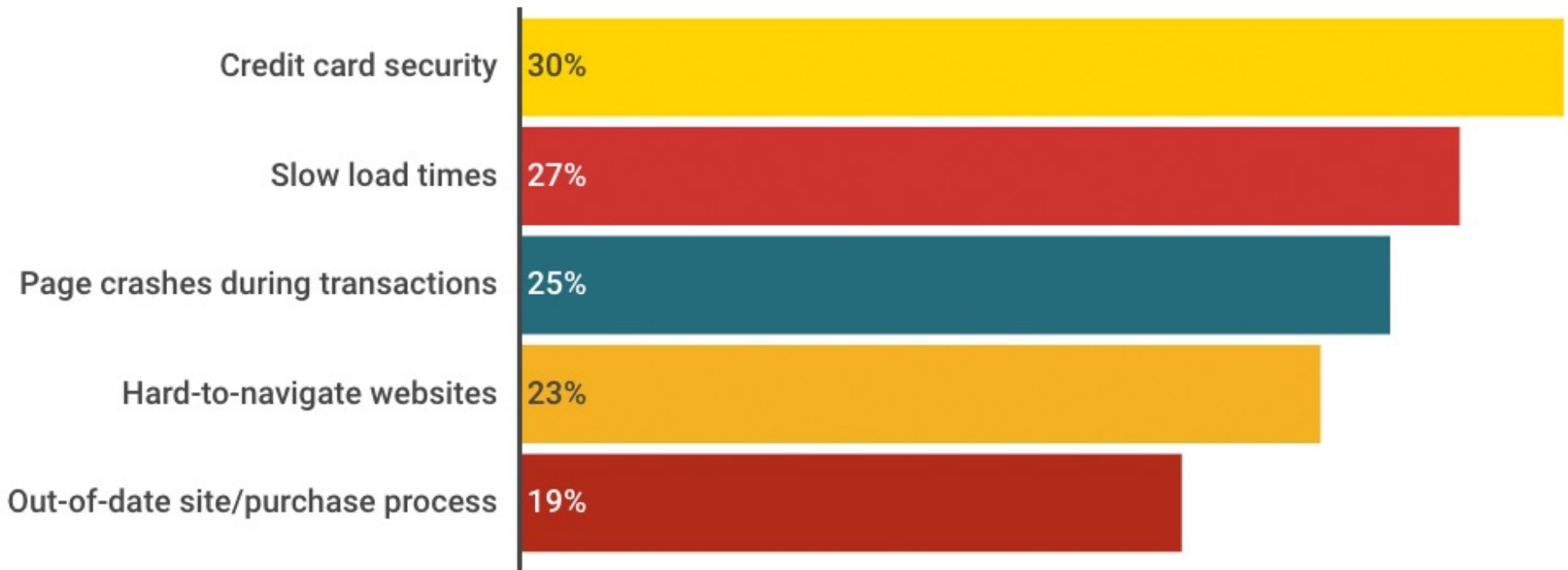


**Tammy Everts**



**Web performance  
is user experience**

# Online Shoppers' Top 5 Web Performance Frustrations



Source: 2015 Harris Poll



● Expect pages to load instantly ● Expect load times of 2 seconds or less  
● Expect load times greater than 4 seconds



Will go to a competitor's site



Will never return to the site



Will share their problems

**“Downtime is better for a B2C web service than slowness.**

**Slowness makes you hate using the service. Downtime you just try again later.”**

**Lenny Rachitsky, Product Manager**



**Web performance  
is ecommerce success**





Every 1 second of load time improvement equals a 2% conversion rate increase for Walmart.com



Staples.com shaves 1 second from median load time, improves conversion rate by 10%



Intuit cuts load times by more than half, increases conversions by 14%

“We ran this experiment on mobile web where **we added 160 kilobytes** of hidden images, meaning the user saw nothing different. We just dumped a bunch of hidden images onto the page and increased page weight by 160 kilobytes.

**It triggered a 12% increase in bounce rate.**  
Insane. Twelve percent is a lot of percent.”

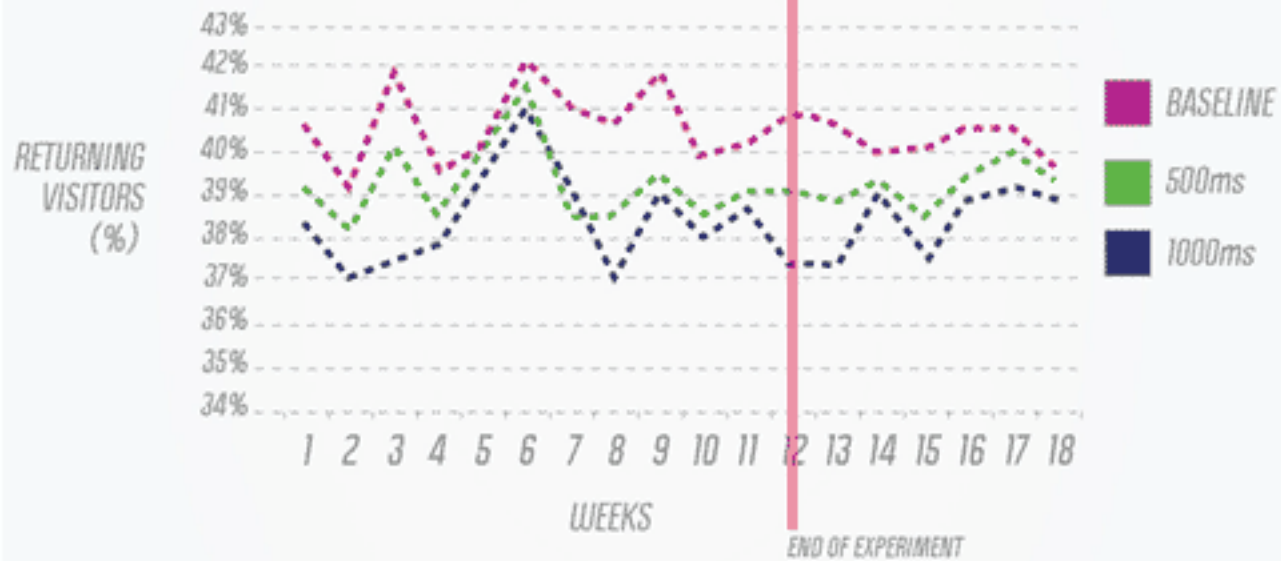
Lara Hogan, Senior Engineering Manager

Etsy

	200ms	500ms	1000ms
Bounce rate	---	4.7%	8.3%
Conversion rate	---	-1.9%	-3.5%
Cart size	---	---	-2.1%
Pageviews	-1.2%	-5.7%	-9.4%

#IRCE16

## IMPACT OF DELAYS ON RETURNING VISITORS



SOURCE: Google Analytics and Real End User Monitoring



fast



slow



# Web performance at Fanatics



Find Your Favorite Gear



365-Day Easy Returns >

Earn FanCash 5% on Purchases >

COLLEGE

NFL

MLB

NBA

NHL

NASCAR

SOCCER

OLYMPICS

MORE

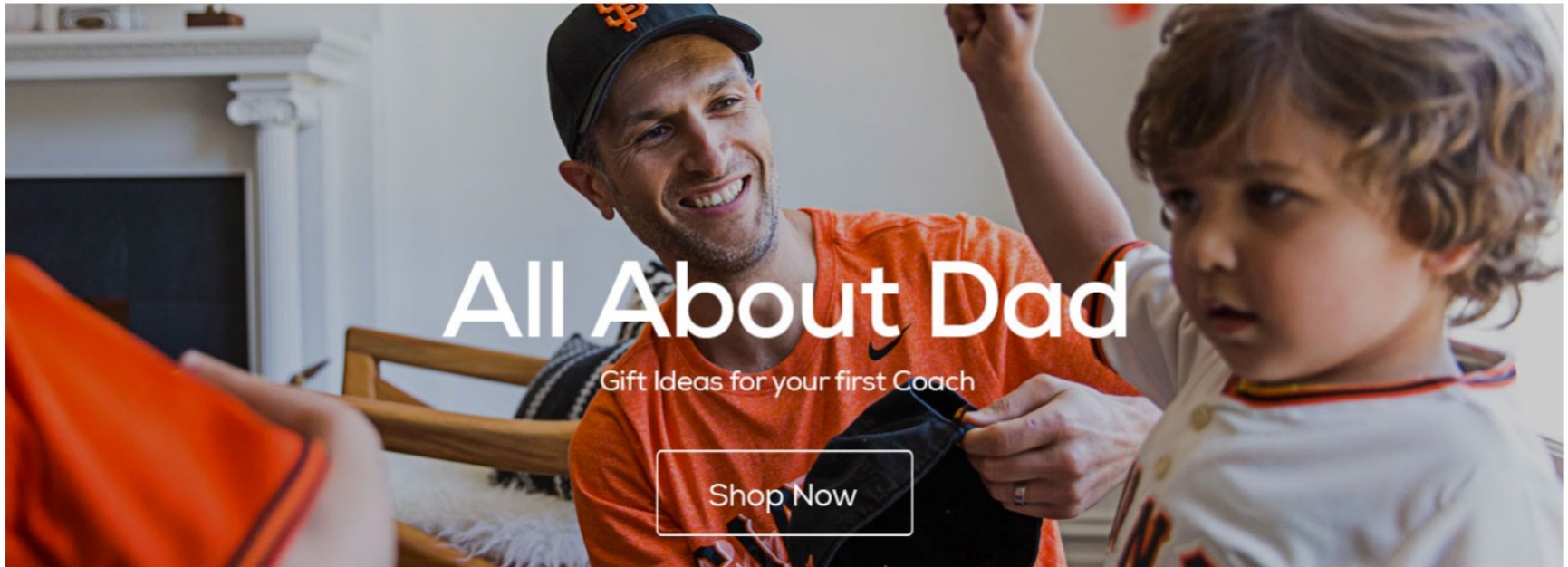
SALE

PLAYERS

CITIES

THROWBACK

FREE SHIPPING OVER \$30 USE CODE: **30SHIP**



# All About Dad

Gift Ideas for your first Coach

Shop Now

**NBA Finals**

Shop Cavaliers

Shop Warriors

**Quest for the Cup**

Shop Sharks

Shop Penguins



# Fanatics

2-second improvement  
in median page load time  
**almost doubled mobile conversions**



mPulse  
by SOASTA



**23 May 2015**  **22 June 2015**

**#IRCE16**

## Conversion vs Performance - Desktop

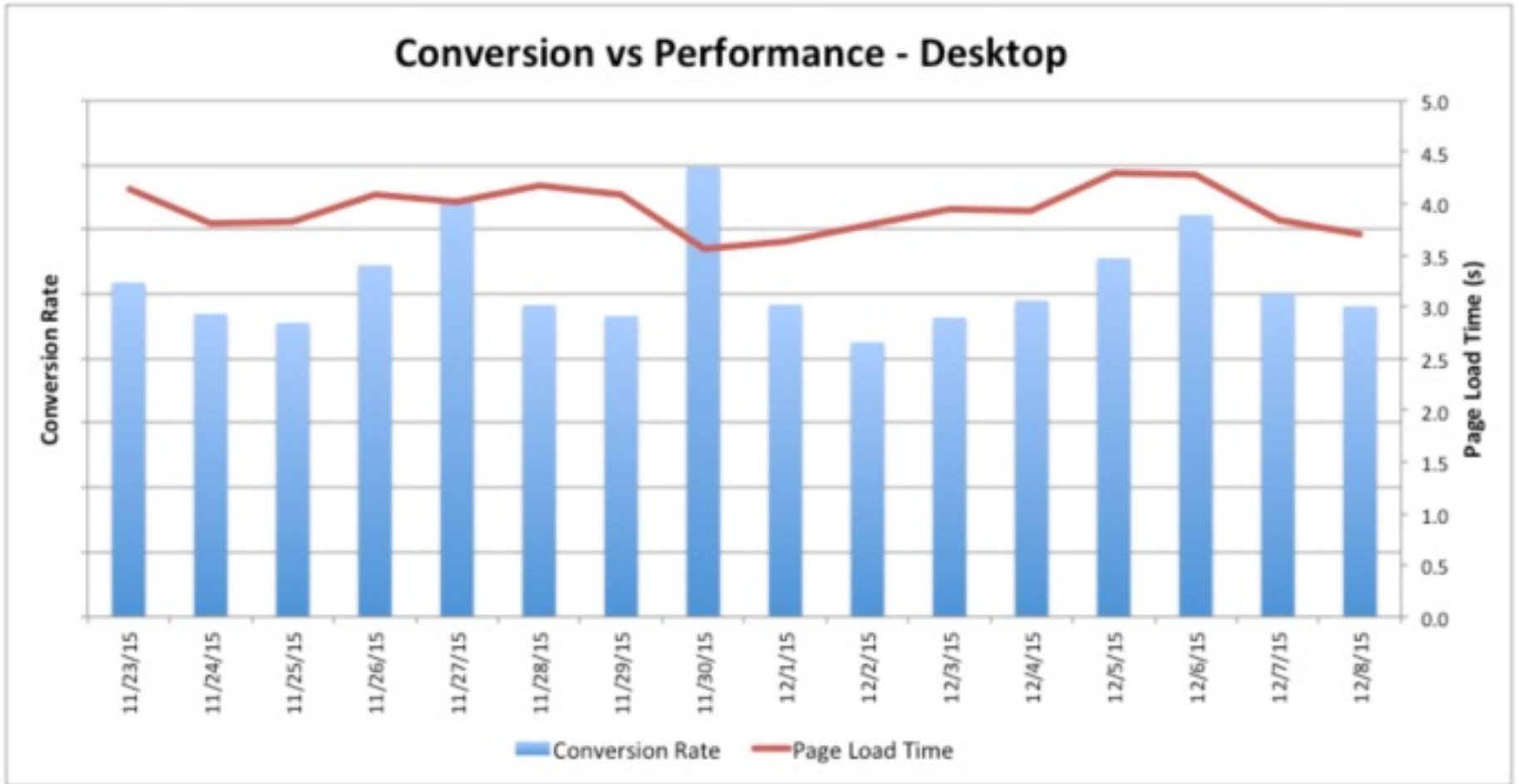
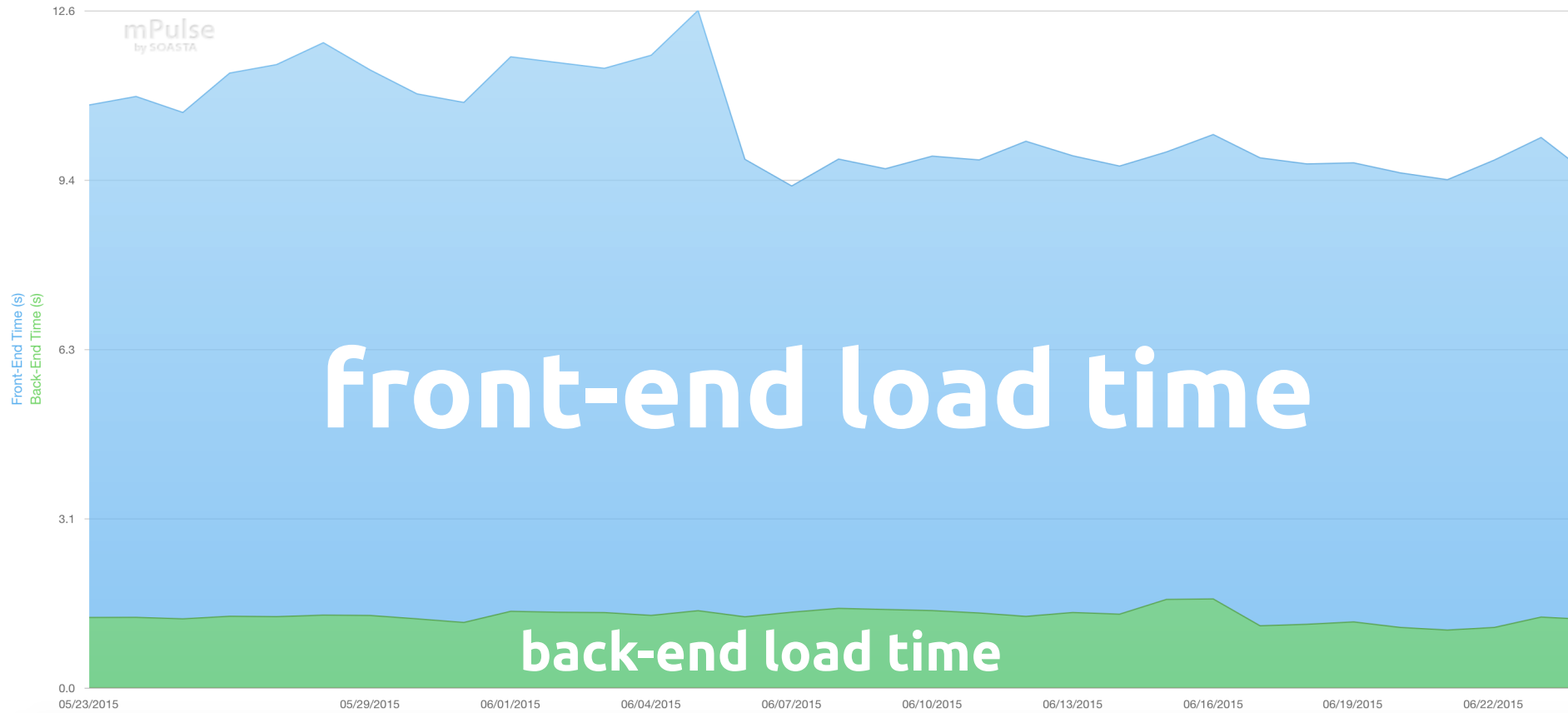


Figure 14 Conversion Rate vs Performance – Nov-Dec, 2015

## Average Order Total vs Performance - Desktop



Figure 15 Order Total vs Performance – Nov-Dec, 2015



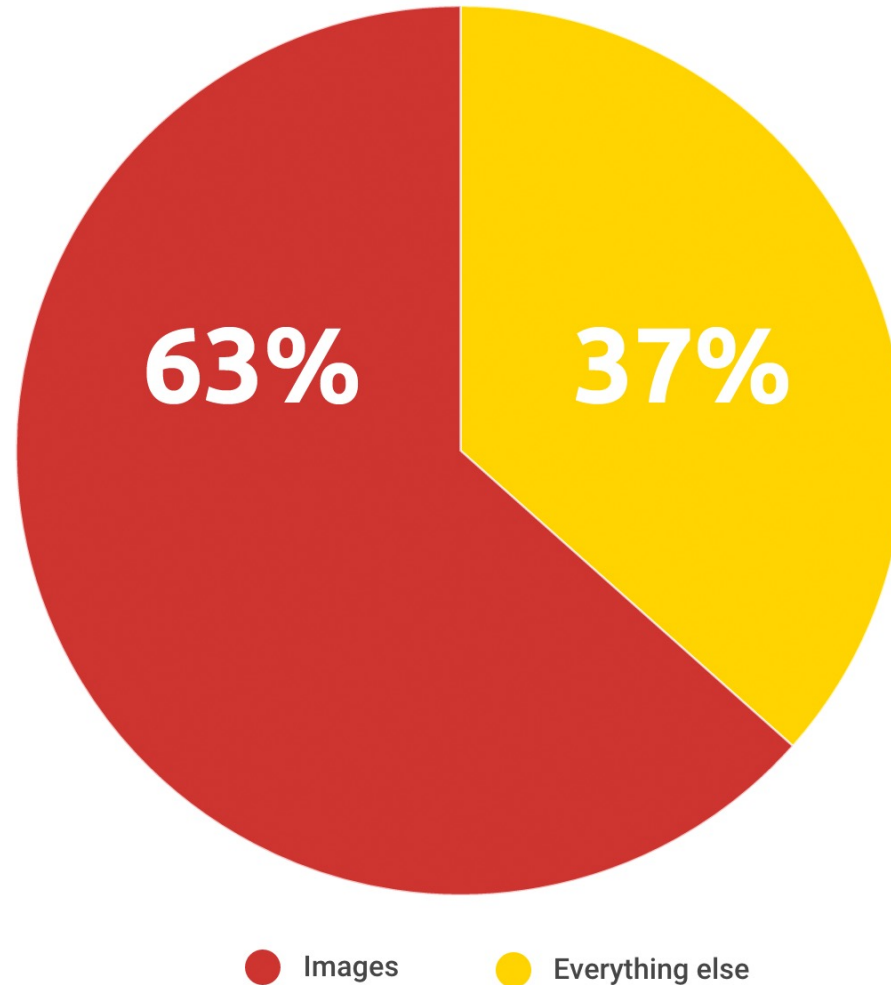
front-end load time

back-end load time

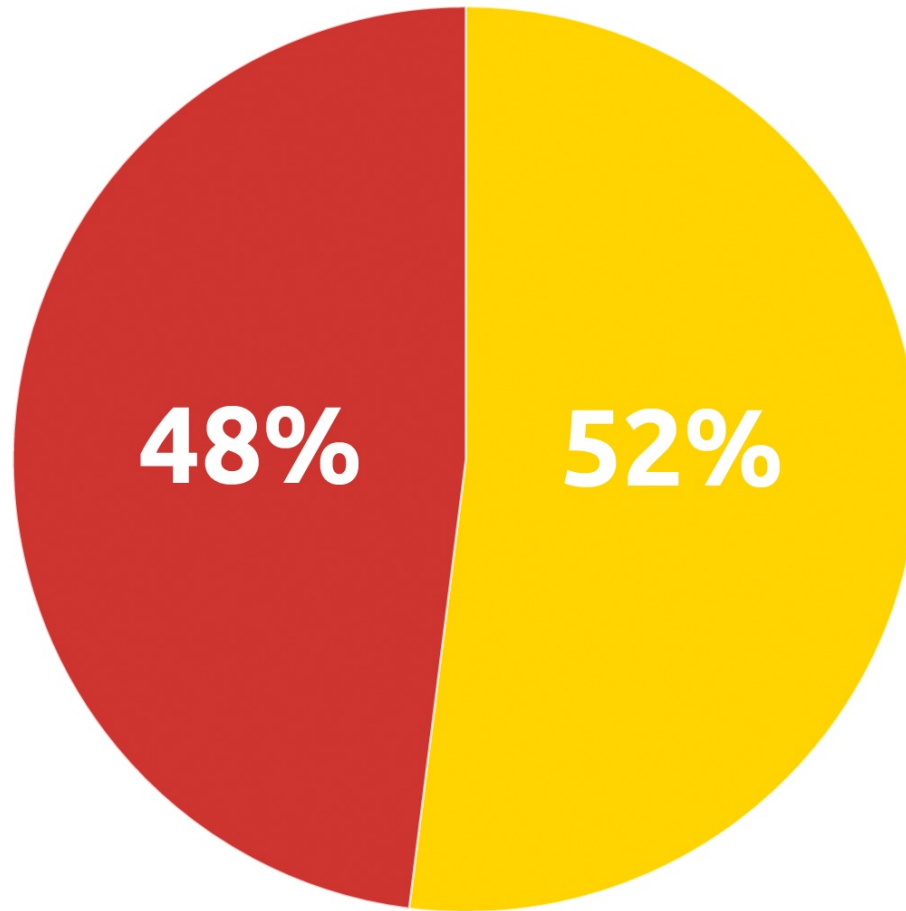
# Issue #1

# Image quality and compression

# Average website



# Fanatics



● Images ● Everything else

## Issue #2

Image sprite  
blocking page load





PayPal Checkout

VISA DISCOVER MasterCard

FanCash ^ v

Out of Stock

Icons: T-shirt, T-shirt, checkmark, exclamation mark, info, checkmark, printer, people, L, shopping cart, shopping cart, chat, ribbon, truck, envelope, X, pencil, double arrows, refresh, zoom in, zoom out, search, T-shirt, T-shirt, share

#IRCE16

# More image optimization solutions

Reformat

Resize

Compress

Defer/lazy load

Cache



# Perfmap

from <https://umaar.com>

★★★★★ (5)

[Developer Tools](#)

6,135 users

ADDED TO CHROME

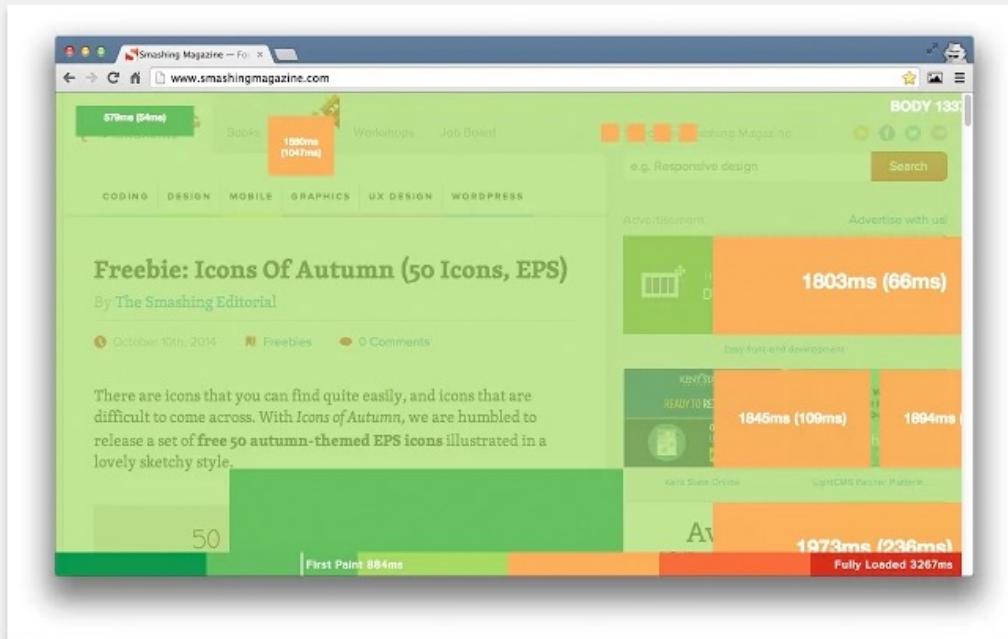


OVERVIEW

REVIEWS

RELATED

31



## Heatmap of resources loaded in the browser using the Resource Timing API

A front-end performance heatmap of resources loaded in the browser using the Resource Timing API.

The heatmap colours and the first ms value indicate at what point in the page load did the image finished loading. It's a good indicator of user experience. "It took 3450ms before the user saw this image." The second value in brackets is the time it took the browser to load that specific image.

The legend attached to the bottom of the page shows timings for the full page load

### Report Abuse

Version: 1.2

Updated: October 25, 2014

Size: 144KB

Language: English

## Issue #3

# Unoptimized CSS and JavaScript

# More optimization solutions

Consolidate page resources

Make sure stylesheets are in the document HEAD

Optimize web fonts

Optimize pop-up scripts

Monitor third parties

## Test a website's performance

[Analytical Review](#) [Visual Comparison](#) [Traceroute](#)

Enter a Website URL

**START TEST**

Test Location  [Select from Map](#)

Browser

### Advanced Settings ▾

Test Settings **Advanced** Chrome Auth Script Block SPOF Custom

Connection

Number of Tests to Run   
Up to 9

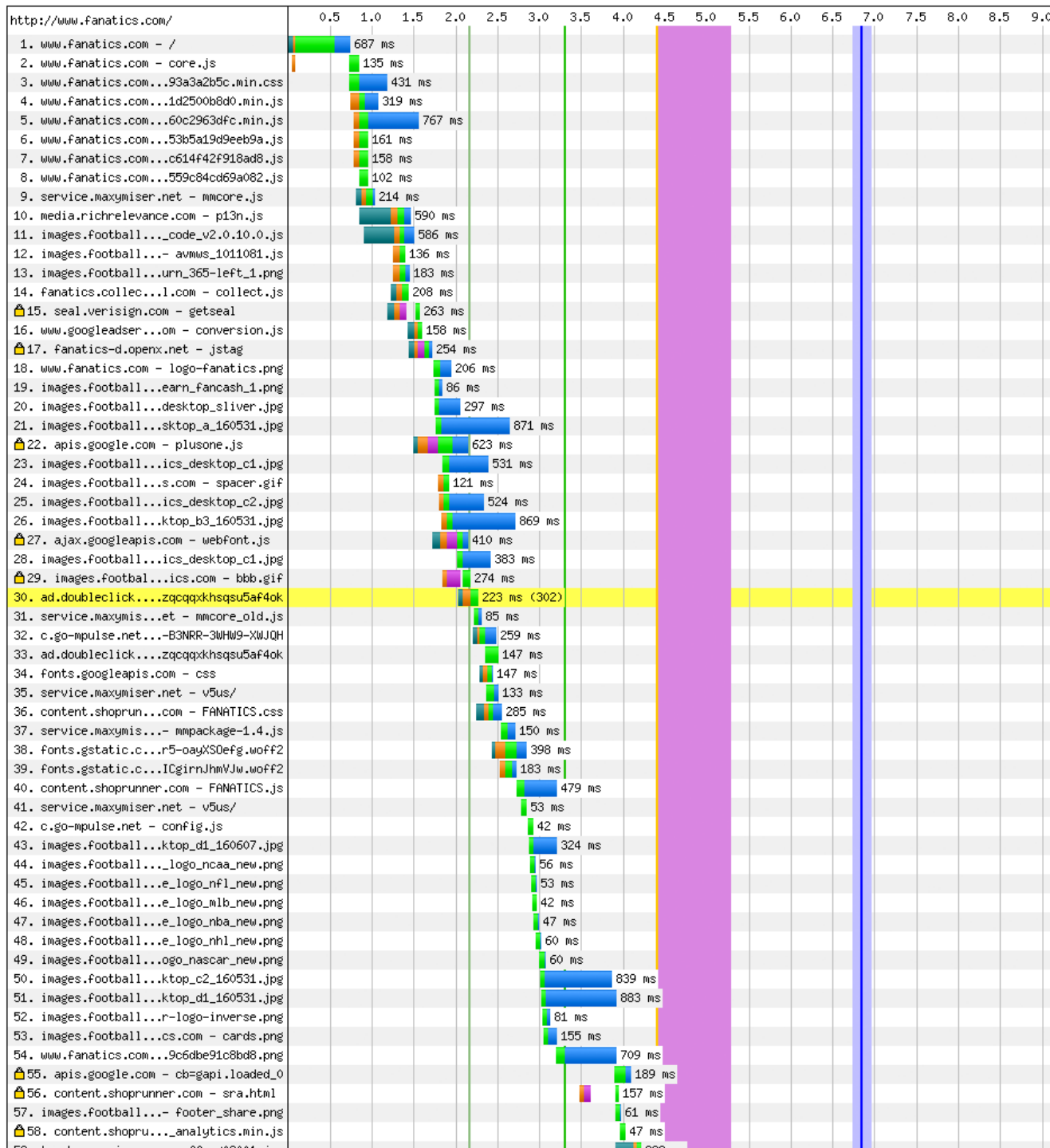
Repeat View  First View and Repeat View  First View Only

Capture Video

Keep Test Private

Label

<http://www.webpagetest.org/>



# Takeaways



- 1 User expectations and behavior are always changing**
- 2 Performance issues are unpredictable**
- 3 You can't know what you don't measure**
- 4 Solutions can create new problems**
- 5 Grab the low-hanging fruit: optimize your images**
- 6 Even small performance improvements can make a big difference**

**Thanks!**

**#IRCE16**