

# WHAT ARE THIRD-PARTY COMPONENTS DOING TO YOUR SITE'S PERFORMANCE?

Andy Davies & Simon Hearne | Velocity Santa Clara 2015



Third-party = Infrastructure and code  
managed by someone else

Guy Podjarny / Velocity Santa Clara 2014



Revenue attribution

Analytics

Personalisation

A/B & MV testing

Advertising

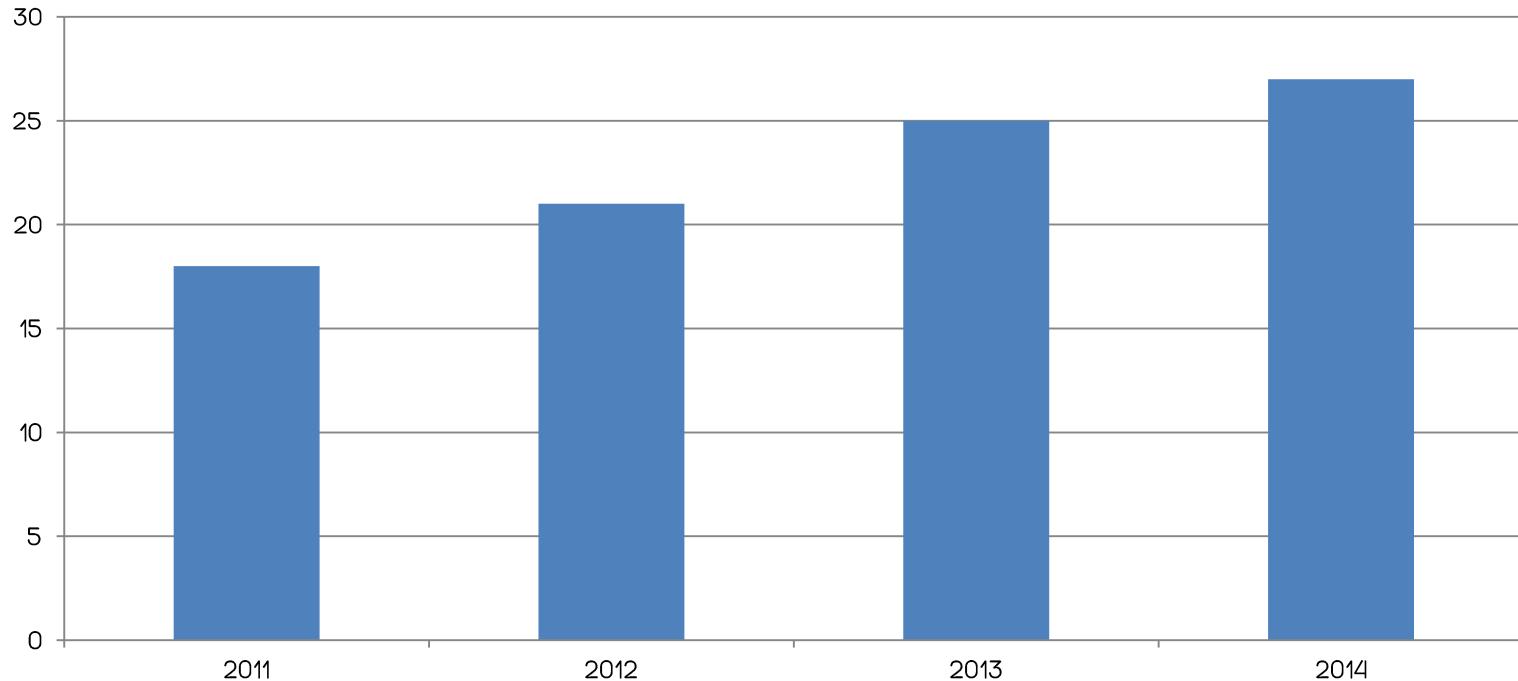
Value added content

Product images

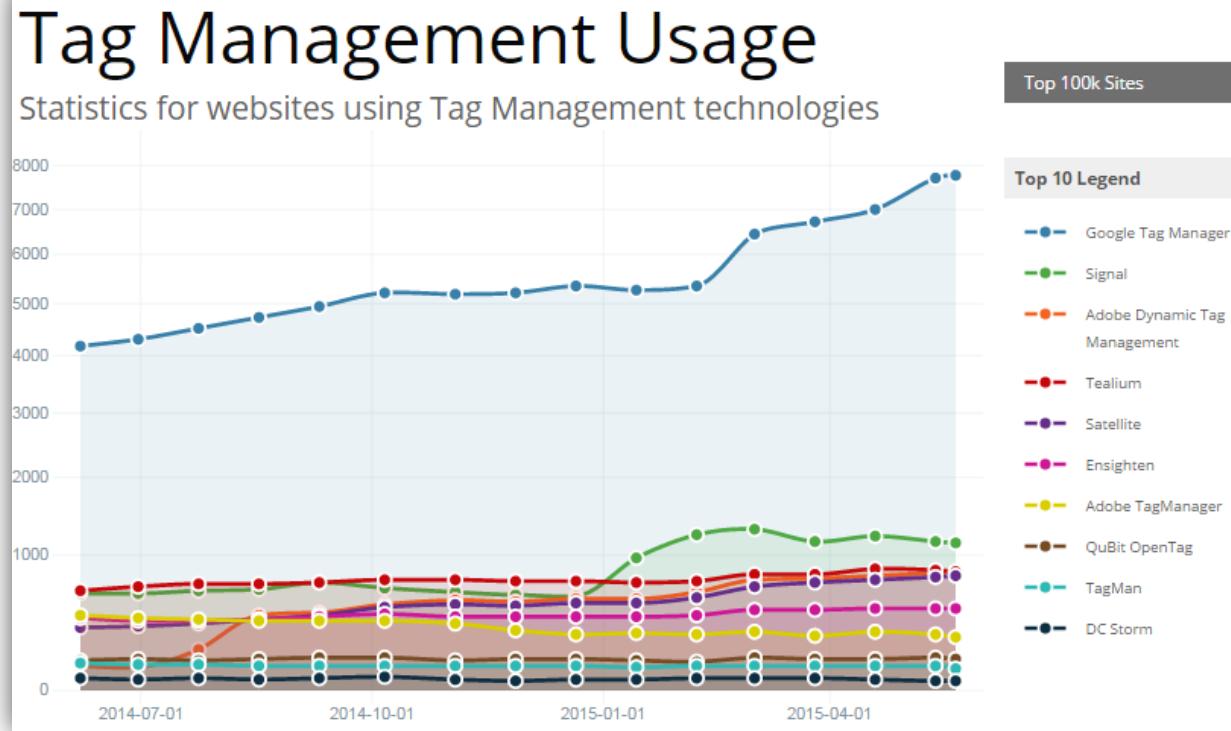
Critical content

# We're using more of them...

Median Number Third-Party Requests



# We're using more of them...



# Not Just Third-parties

## Fourth-party calls: What you don't know can hurt your site... and your visitors

JULY 14, 2011 BY JOSHUA BIXBY IN UNCATEGORIZED 9 COMMENTS ♥ 0

There's a growing awareness of the fact that third-party content can cause a major hit to your site's performance. Good. Great. Now we need to tackle what I've dubbed "fourth-party calls". **Not only can these insidious server calls leach performance, they also have massive security implications.**

Before I get into this, let me back up a little.

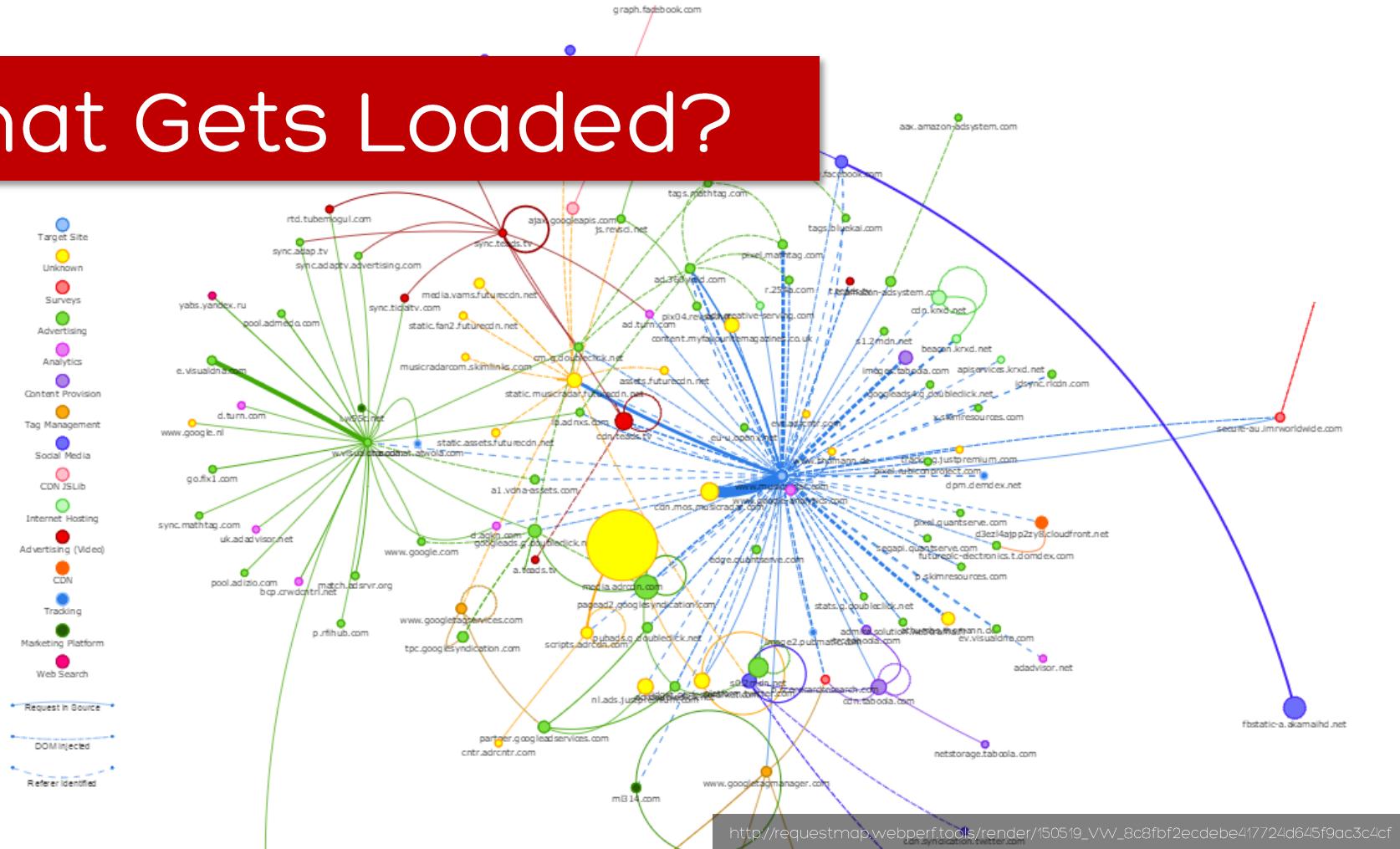
I came across this slide today, which reminded me how difficult the job of a marketer is on an ecommerce site. Look at all of the different technologies and intermediaries that exist between advertisers and publishers (click to see a larger version):



# Not Just Third-parties



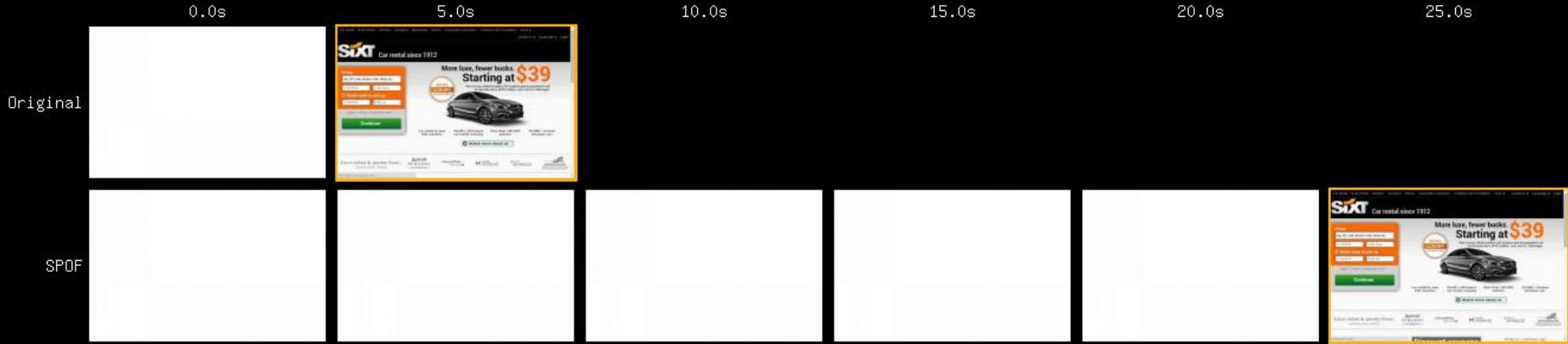
# What Gets Loaded?



# A Necessary Evil?

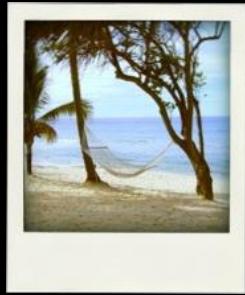


# SPOFs - Outright Failure



What about general performance?

# Data Sources



WEBPAGETEST

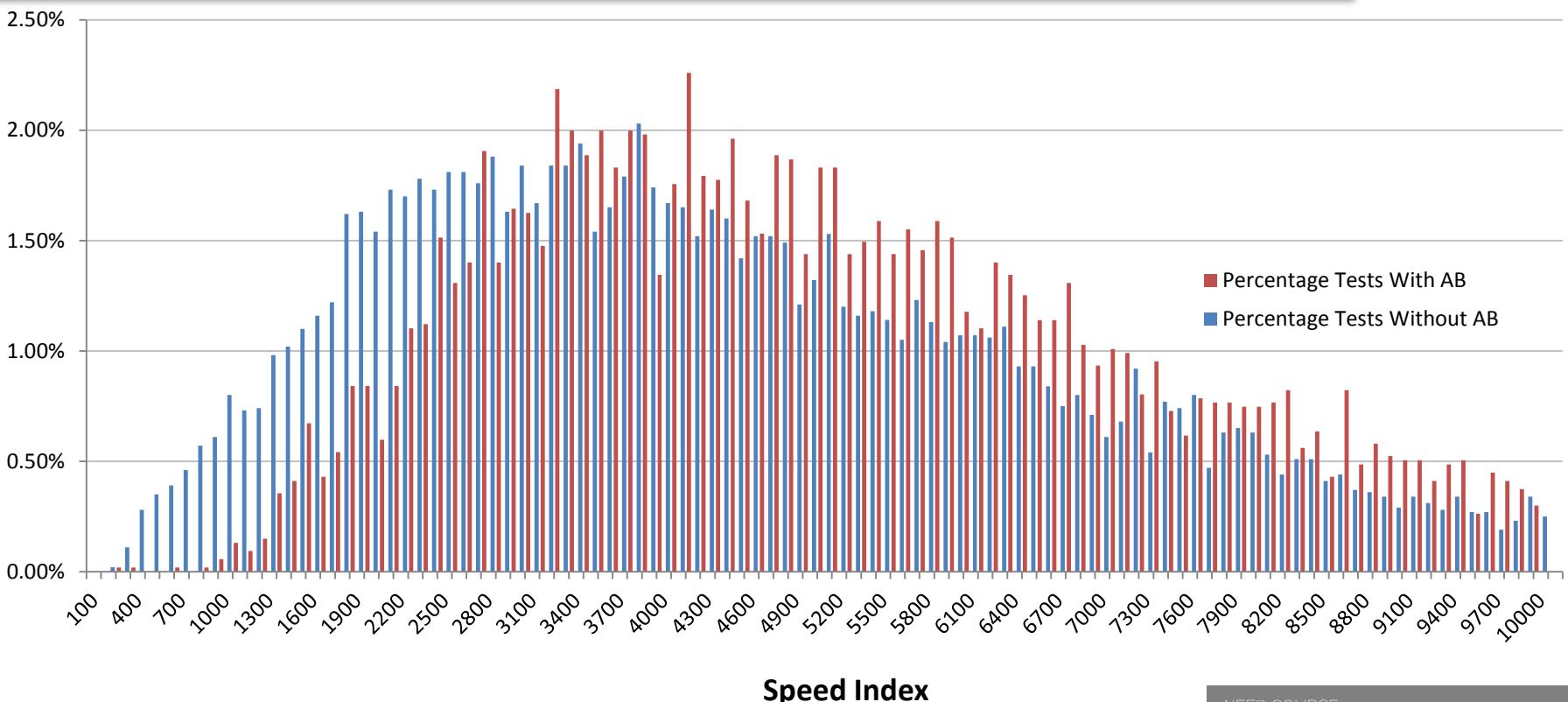
http.  
archive

nccgroup

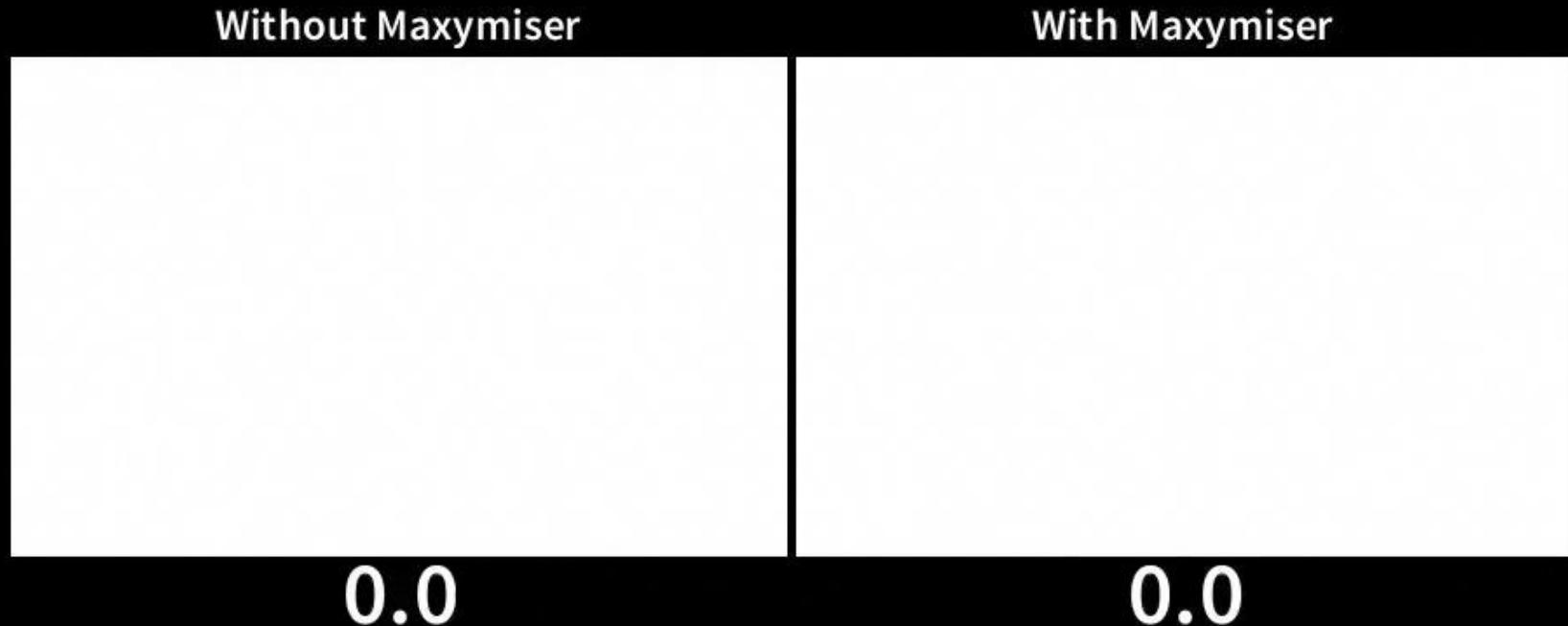


# An Easy Target

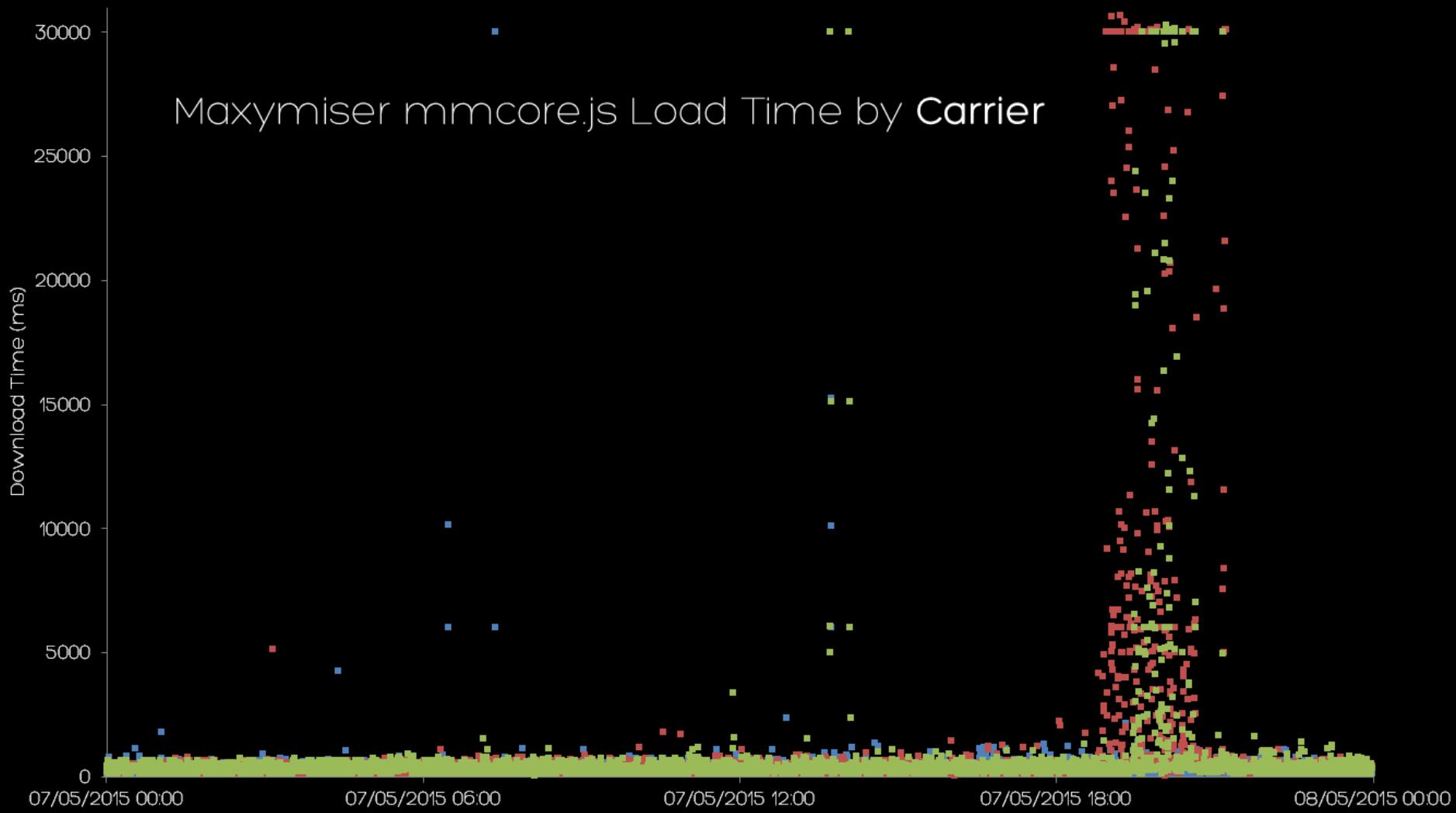
# MVT Impact On User Experience



# What does this mean?

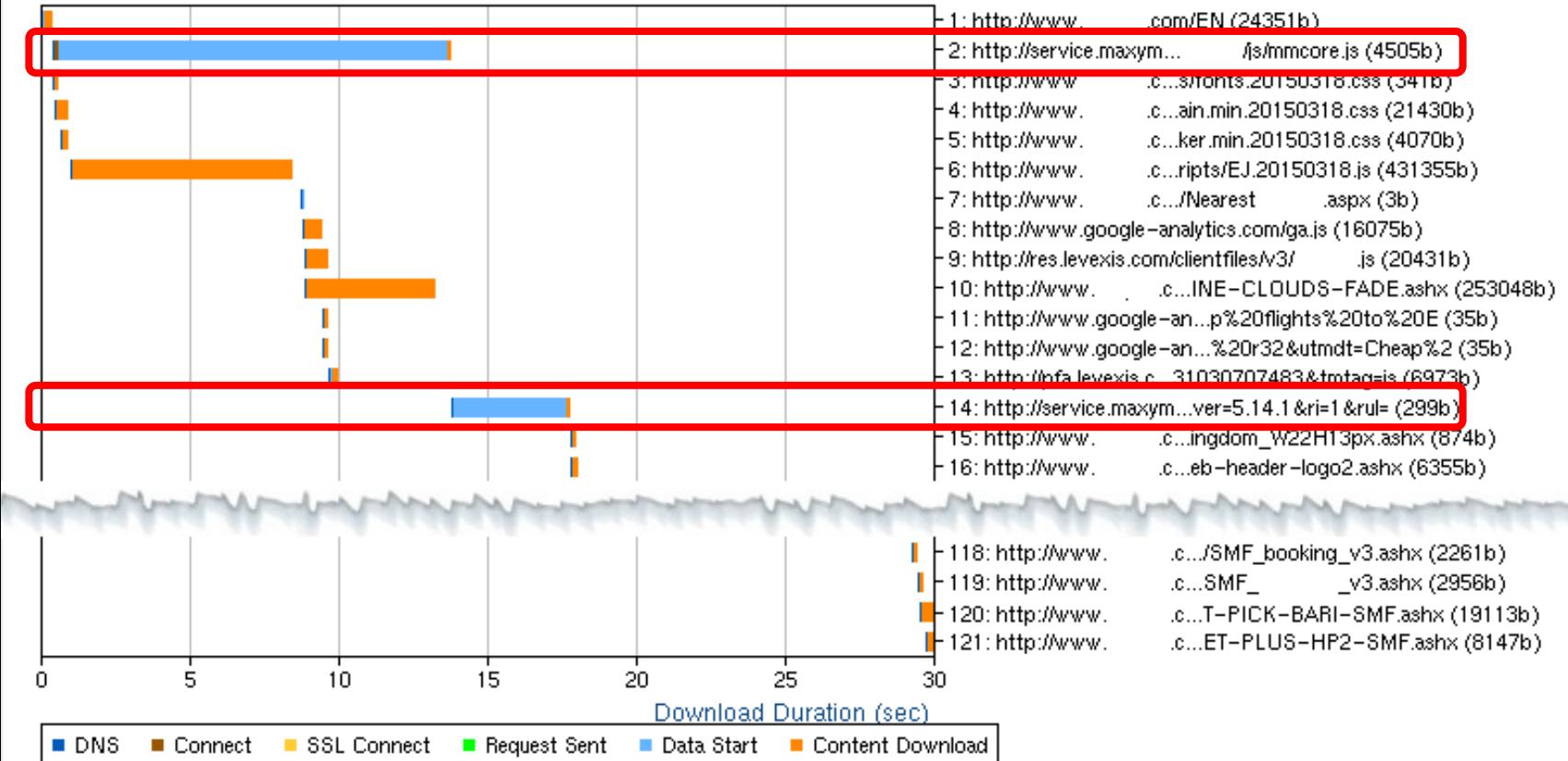


## Maxymiser mmmcore.js Load Time by Carrier





## Component Timing Breakdown for Homepage



A large, colorful statue of Spider-Man is mounted on the side of a light-colored brick building. He is depicted in his iconic red and blue suit with a black spider emblem on his chest, crouching and appearing to climb upwards. The building has white-framed windows and decorative architectural details. A red rectangular overlay box is positioned in the upper left corner, containing the text "With great power...". Another red rectangular overlay box is at the bottom right, containing the text "...comes great responsibility".

With great power...

...comes great responsibility



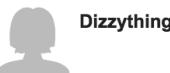
[Write a review](#)

# Auditing a Third-party

ings



1–8 of 8 Reviews



Dizzything

Essex, United Kingdom

Review 1

Votes 0

Age 35 to 44

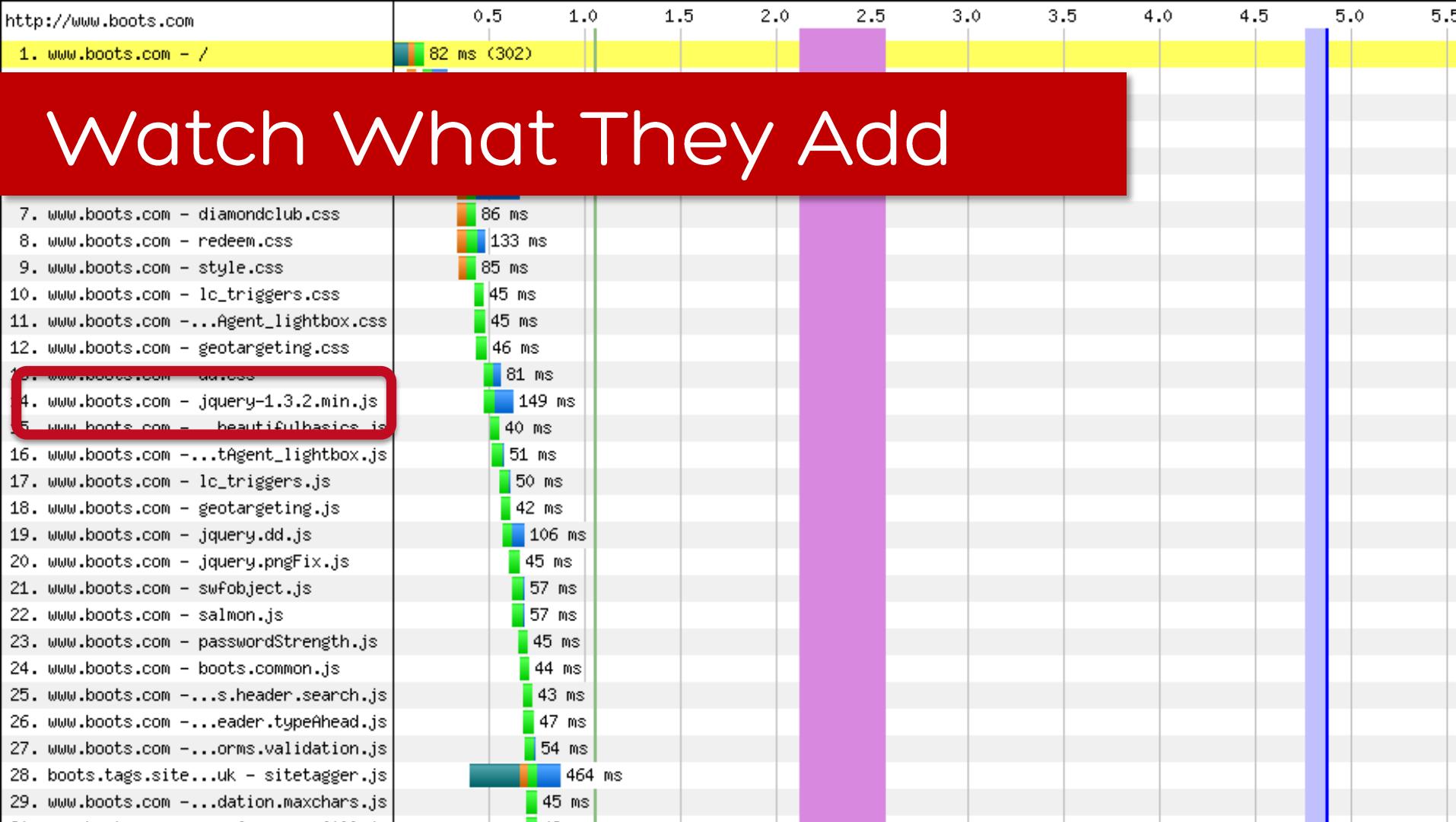
Gender Female

## BazaarVoice JS 224 kB over the wire 917 kB uncompressed

Bought this for my 7 year old daughter for Xmas. It was just what I was looking for as my daughter wanted a pushchair that she could have her baby facing as well as away. Great value for money . Height is perfect as my daughter is tall for her age. Good and sturdy. My only criticism is that the fittings on the sides of each item are VERY stiff and hard to fit. I think she will need me to do the changeovers which is a bit annoying . Over all I know she will absolutely love it and be very happy! I have deducted 1 star for the fitting problem but would actually give it 4.5 start if I could!



Yes, I recommend this product.



# Watch What They Add

# It's Not Always Easy

```
function _et_vm_ct() \n{ \n\t\n\treturn true; \n} \n\t\nfunction  
et_vm_reload() \n{ \n\tif(etVM instanceof  
et_optInActive \x3d raise; \nvar et_aoevents \x3d false; \n\nfunction  
et_getDeliveryHash() \n{ \n\treturn  
\x27dYKEZ5wR3amdR8e2fXsGrg\x3d\x3d\x27; \n} \n\nfunction  
et_escape(param) \n{ \n\treturn  
encodeURIComponent(param); \n} \n\nfunction  
et_console(message) \n{ \n\tif(typeof(console) !=\x3d \x27undefined\x27  
\x26\x26 typeof(console) !=\x3d  
\x27unknown\x27) \n\t{ \n\t\tconsole.log(message); \n\t} \n} \n\nfunction  
et_debug(param) \n{ \n\t\nfunction et_addEvent(e, t, f, u)  
\n\tif (e.addEventListener) { \n\t\te.addEventListener(t, f,  
u); \n\t\treturn 1; \n\t} \n\telse if (e.attachEvent) { \n\t\tvar r \x3d  
e.attachEvent(\x27on\x27 + t, f); \n\t\treturn r; \n\t} \n\telse  
\n\t\t[e[\x27on\x27 + t]] \x3d f; \n\t} \n\nfunction  
et_random(value) \n{ \n\tif(value \x3e\x3d  
Math.round(Math.random()*100)) \n\t\treturn true; \n\telse \n\t\treturn  
false; \n} \n\nfunction et_md5(a) { \nfunction b(a, b) { \nvar c\x3da[0], h
```

# It's Not Always Easy

```
function _et_vm_ct() {\n    return true;\n}\n\nfunction et_vm_reload()\n{\n    if (etVM instanceof\n        et_optInActive ?\n            raise : et_aeEvents);\n    else\n        et_getDeliveryHash();\n}\n\nfunction et_escape(param)\n{\n    return encodeURIComponent(param);\n}\n\nfunction et_console(message)\n{\n    if (typeof(console) != undefined)\n        console.log(message);\n}\n\nfunction et_debug(param)\n{\n    if (param)\n        et_addEvent(e, t, f, u);\n    else\n        et_addEventListener(e, addEventListener(t, f, u));\n    else\n        et_attachEvent(e, attachEvent(t, f));\n}\n\nfunction et_random(value)\n{\n    if (value < 0 || value > 1)\n        return false;\n    else\n        return Math.round(Math.random() * 100); \n}\n\nfunction et_md5(a)\n{\n    var b = [0],\n        c = 0,\n        d = 0;\n\n    for (var i = 0; i < a.length; i++)\n        b[c] = a.charCodeAt(i),\n        c = (c + 1) % 4,\n        d = (d + b[c]) % 256;\n\n    return d;\n}
```

# It's Not Just SPOF



Privacy Leaks  
JavaScript Overload  
Functionality Conflict  
Inconsistent Performance

# JS Manners

JS Manners is a tool to score scripts that 3rd parties (people or companies outside your dev team) provide for you to put on your page. These scripts can save you a lot of time and provide neat features on your site, but they can also be security risks, cause performance problems, and make debugging a nightmare.

Call it the 'YSlow for widgets' if you will.

## Rate a script now

Filter the list of tests by disabling those that do not interest you:

**Performance**   **Stability**   **Footprint**   **Flexibility**   **Security**   **Compliance**

Are common 3rd party libraries (eg. jQuery, Underscore, Backbone) included outside of a protected scope (ie is there any chance they may conflict with other instances of the same library that may be included on the page?)

How many objects/variables do component script(s) require in / add to the global scope?

Do component script(s) use document.write?

Do component script(s) produce any console output in normal operation?

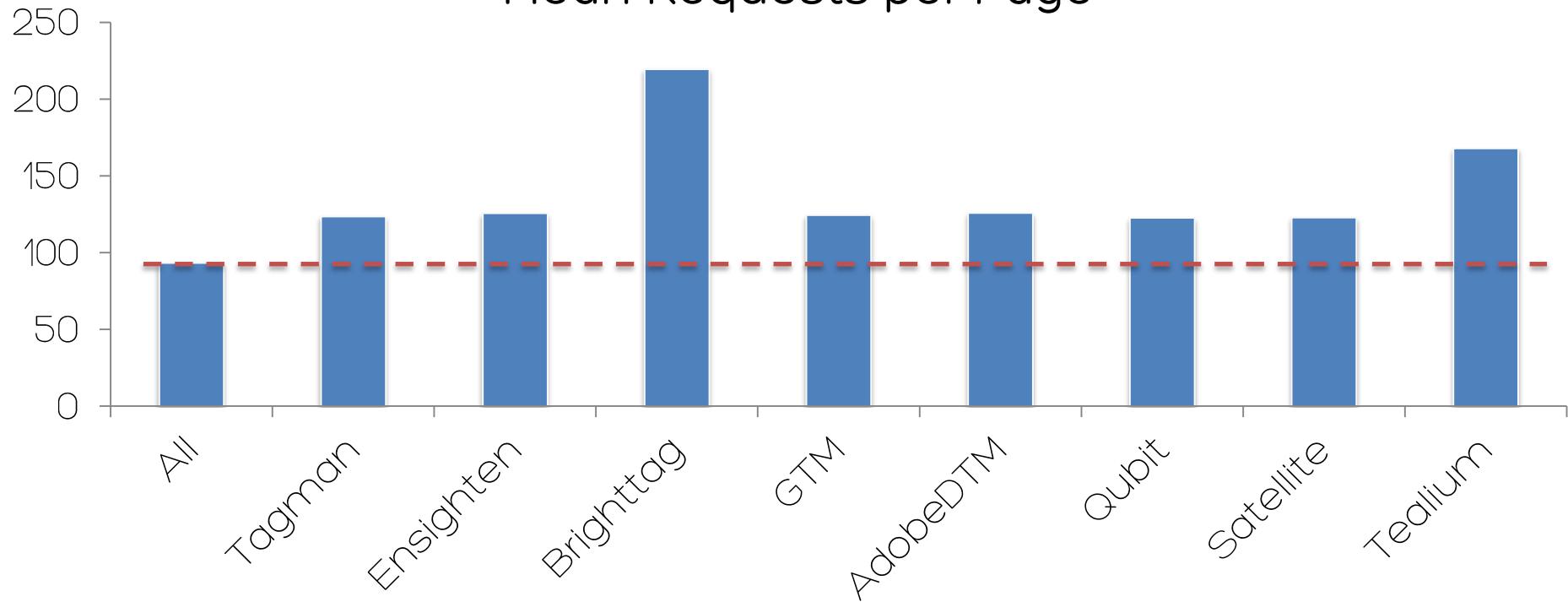
Do component script(s) cause any JavaScript errors in normal operation?

# Tag Managers FTW!

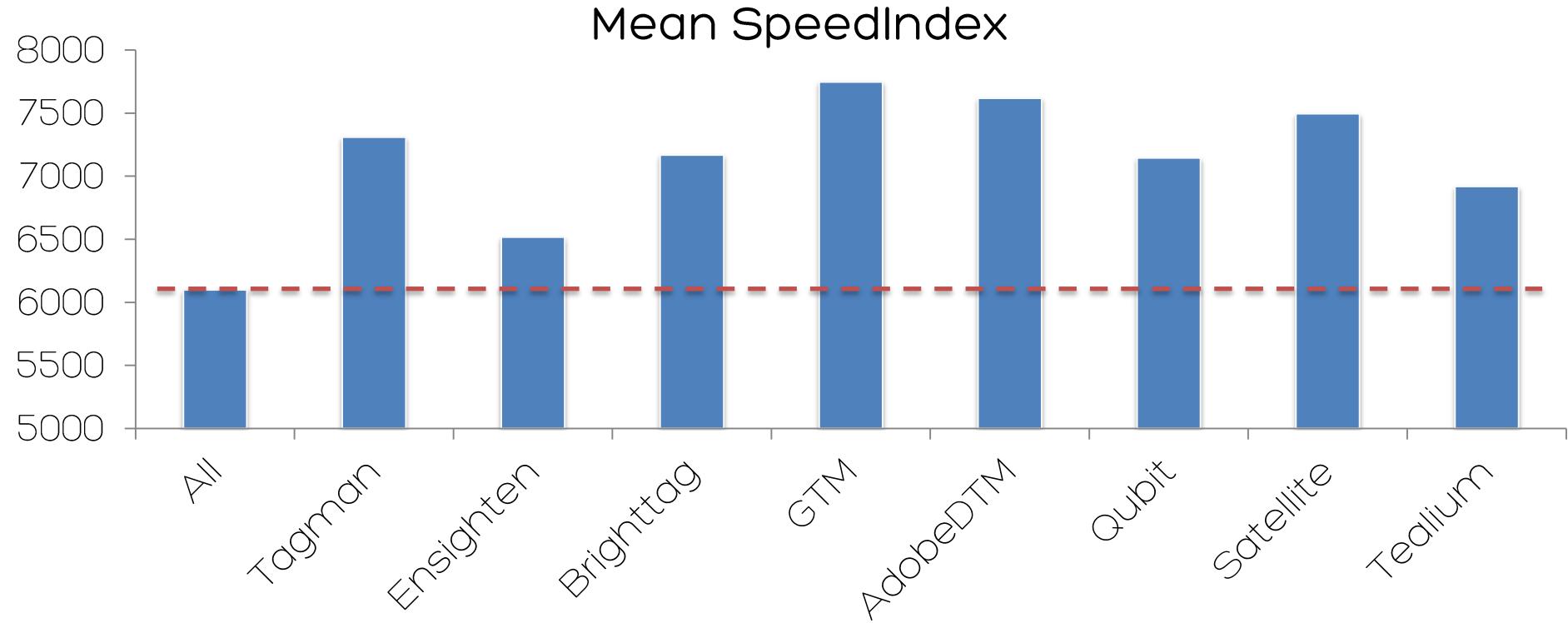


# Tag Managers FTW?

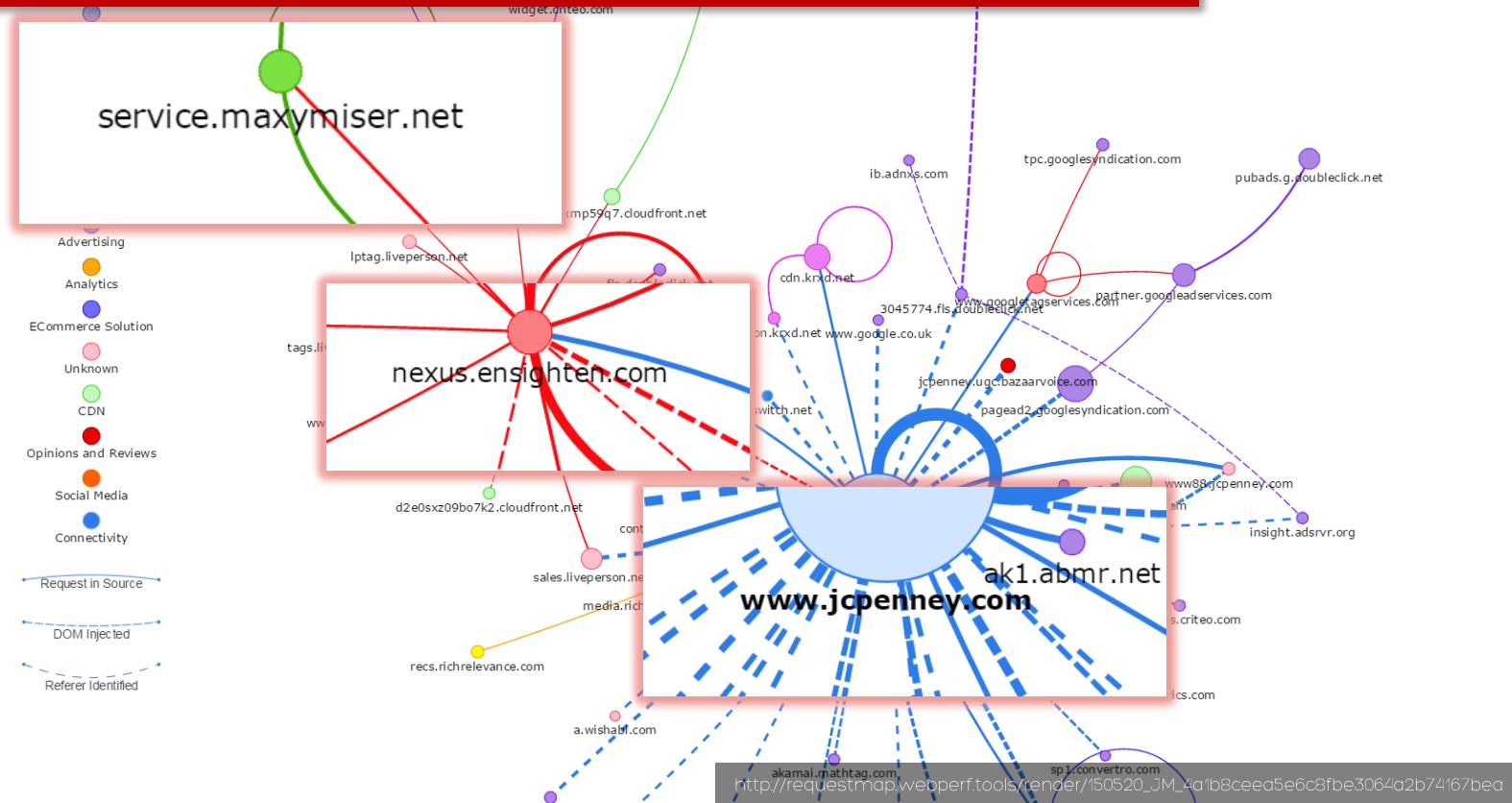
Mean Requests per Page



# Tag Managers FTW?



# Tag Managers Loading MVT



So What Do We Do?

# Find What's On The Site

A screenshot of a web browser displaying the URL [www.musicradar.com/tuition/tech/22-of-the-best-websites-for-learning-new-skills](http://www.musicradar.com/tuition/tech/22-of-the-best-websites-for-learning-new-skills). A pop-up window from Ghostery shows that 44 trackers were found on the page. The Ghostery interface includes a sidebar with various tracking categories and a legend for request types.

Hi, would you like to view the page with ads removed?

**musicradar.**

Home | Guitars | Acoustic | Electric | Bass | Drums | Keyboards | Mixing & Recording | Effects | Books & DVDs | News | Reviews | Tech | Videos | Forum | Support

Tech

Ghostery

Ghosts found 44 trackers

www.musicradar.com

Adxion Advertising

AdoTube Advertising

Aggregat Beacons

Amazon Advertising

AppNexus Advertising

Target Site

Walt Personalization

Tag Management

Ad Testing

Internet Marketing

Advertising

Analytics

BCommerce Solution

Unknown

CDN

Opinions and Reviews

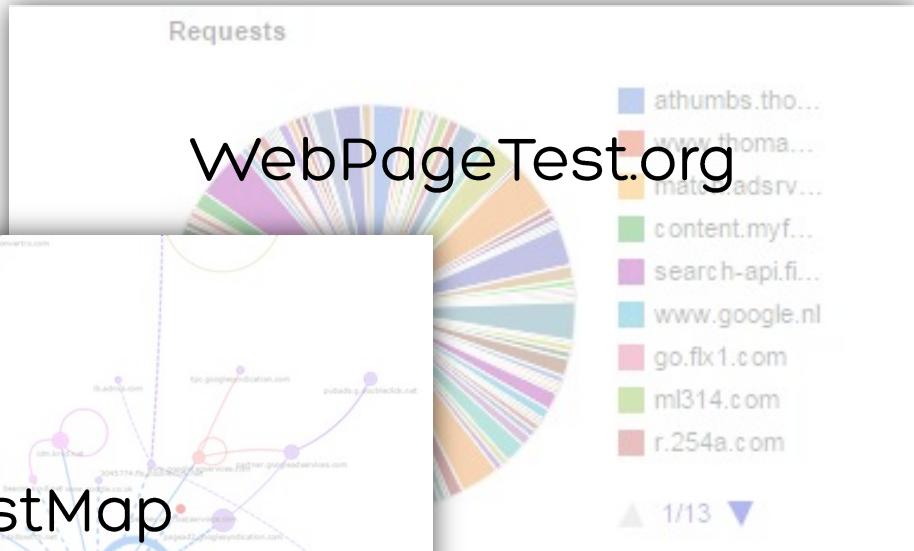
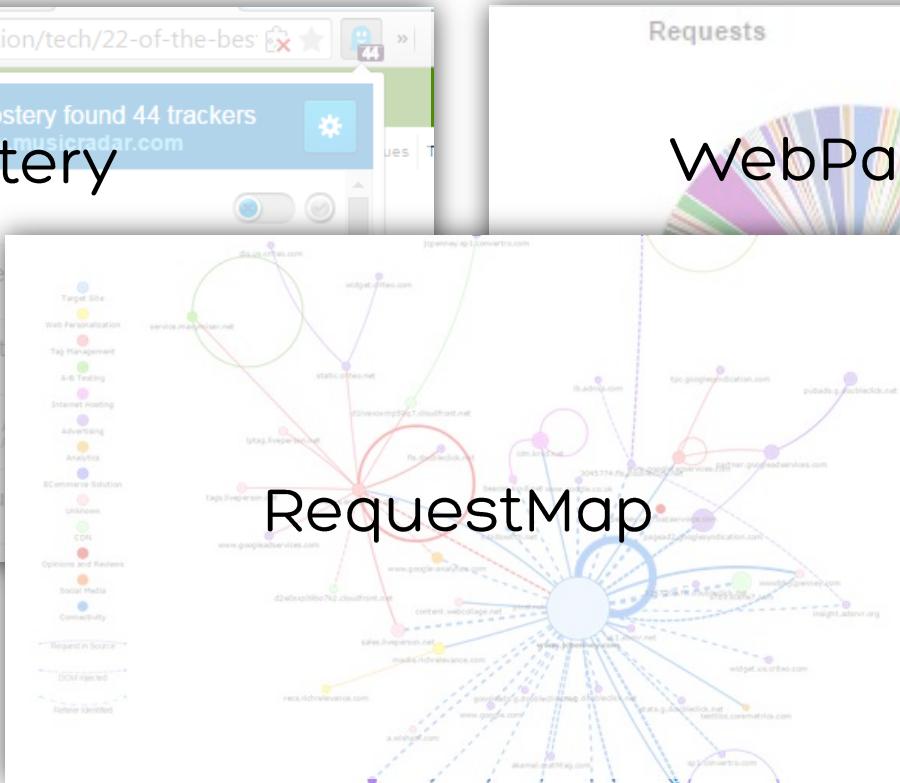
Social Media

Connectivity

Request in Source

CDN injected

Before identified



# Establish Business Value

Revenue attribution

Analytics

Personalisation

A/B & MV testing

Advertising

Value added content

Product images

Critical content



Remove the Unnecessary

# Understand the Impact

The screenshot shows the Chrome Web Store interface. A search bar at the top contains the text "Search the store". Below it, a "Featured" section highlights the "SPOF-O-Matic" extension. The extension's icon is a grey square with a yellow warning sign. The name "SPOF-O-Matic" is displayed in large, bold, black font. Below the name, it says "from www.webpagetest.org". It has a rating of "★★★★★ (6)" and "Developer Tools" listed under categories. The "OVERVIEW" tab is selected, showing a screenshot of the extension running in a browser window. The screenshot shows a page from "test.patrickmeenan.com/spof\_new" with a message: "Resource blocking is currently Disabled. (For best results, exit Chrome and start a new instance before running the extension.) Possible Frontend SPOF from: [redacted]". Other tabs like "REVIEWS" are visible.

The screenshot shows the WebPageTest.org interface. At the top, there's a navigation bar with links for "IE", "TEST RESULT", "TEST HISTORY", "FORUMS", "DOCUMENTATION", and "ABOUT". The main content area displays a test result for a page from Dulles, VA - Chrome. The "TEST RESULT" section includes a table comparing "Page Load Time" and "Speed Index (lower is better)":

	Without Maxymiser	With Maxymiser
Page Load Time	4.357s	5.279s (+0.922s / 21.2%)
Speed Index	3.461	4.776 (+1.315 / 38.0%)

Below the table, there are two filmstrip comparisons for the "J'Verry" website, labeled "view test" for each. The first filmstrip shows a green overlay with the text "heatmap.webperf.tools" overlaid on the page content. The second filmstrip shows a red overlay with the same text. At the bottom, there's a link to "Comparison (view filmstrip comparison)".

# Monitor Performance

Synthetic

RUM

# Maintain Control

```
Content-Security-Policy: "
    default-src 'none';
    script-src 'self' https://www.google-analytics.com;
    connect-src 'self';
    img-src 'self' images.example.com;
    style-src 'self';
"

```

- Find What's on the Site
- Establish Business Value
- Remove the Unnecessary
- Understand the Impact
- Monitor Performance
- Maintain Control

# Thank You

Please share your experiences! (and rate this talk)

@SimonHearne | @AndyDavies