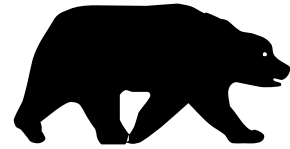# PRACTICAL WORDPRESS PERFORMANCE

Hi

INTRO

My name is Michael Bourne. I am a WordPress developer. This talk is all about WordPress Performance, focusing on practical applications for common problems.

Also, here is a picture of me in front of a waterfall. *Ooooh.*

URSA6.COM/WORDCAMP

TESTING & MONITORING

Performance benchmarks

3 Practical Steps

✓ ☐

TEST

Doing an initial test of your site prior to optimization helps set a baseline for comparison later. It can also point out weaknesses you may not have known about your current site, that certain optimisations may have masked but not fixed.

✓ ☐

RE-TEST

Retesting after each step of optimization is a fantastic way to not only track your progress, but to see how each step affects your load time as they accumulate. In some cases, conflicts could occur that negatively affect load time.

✓ ☐

MONITOR

Once optimization is complete, a proper monitoring solution can help you track on going changes to the site and their affect on your load time. Optimisation isn't just a one time job, it's an ongoing process on your site.

Setting up a GTmetrix test

For our tests, we will need to make a free GTmetrix account. With that, we have access to a few advanced setup features.

1) Ensure you are using the proper URL of your site, including the protocol (https) and subdomain (www or not).
2) Select a testing location that is closest to your target audience.
3) Select a speed that's comparable to the normal cell phone speeds in that area.

Analyze Performance of:

| Enter URL to Analyze... | Analyze |

Test Format
Where and how do you want to analyze this page?

Test URL in ?
Vancouver, Canada

using ?
Chrome (Desktop)

with ?
LTE Mobile (15/10 Mbps, 100ms)

Options
Common analysis options for your page.

OFF Create Video ?

OFF Adblock Plus ?

OFF Stop test onload ?

6

GTmetrix Results

GTmetrix is a free tool to test the loading time of your website, and gather useful data such as the number of requests, their sizes, the timings of your page loading, and suggestions for improvement.

Pay attention to your load time, page size and requests for the comparison with further tests.

Timings Are Important

When it comes to timings, all matter, but 2 numbers stand out from the rest.

TTFB is the Time To First Byte, the actual time it takes from the browser sending a request to your server, and your server responding back an acknowledgement.

Contentful paint is the time it takes for useable content to be rendered in the window after the initial request. This is the effective "psychological" loading time, as users will see nothing prior.

PageSpeed	YSlow	Waterfall	Timings	Video	History

Page Load Timings

Note: Marker spacing not to scale

RUM Speed Index: 905 ?

Switch to Table View

251ms TTFB	0.8s DOM int.	0.9s First paint	0.9s Contentful paint	1.0s (30ms) DOM loaded	2.2s (1ms) Onload

0ms Redirect	102ms Connect	149ms Backend

8
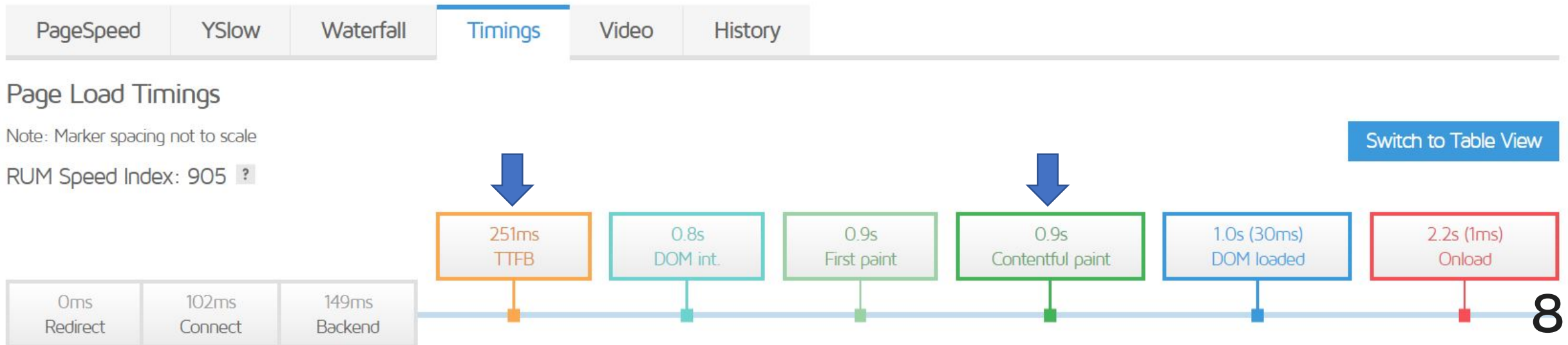
Monitoring

Monitoring with GTmetrix is simple. While viewing a report, click the monitoring button on the top right. Choose your frequency, and hit save settings.

Alerts

Monitoring is only half the battle here, you also need to know when there is an issue. With GTmetrix reports, you can set up conditions for any of the metrics it tracks, including speed.

TESTING

SERVER PERFORMANCE

Hosting, CDN, DNS, SSL

You need a good host.

✓☐

SUPPORT

While not a factor in speed or this talk, poor support will ruin your experience with any host. Be sure to test them on not only their response times, but the quality of the conversation as well. Do they speak your language? Do they try to help or simply point you to a FAQ?

✓☐

TECHNOLOGY

In 2018, you'll be hard pressed to find a host without a modern stack and server hardware. But for some quick take aways, be sure to look for these:
-   PHP 7.0 or higher
-   MariaDB or MySQL 5.6+
-   NGINX

✓☐

SCALABILITY

Depending on the host you choose, you may end up with a VPS that is limited to a specific number of CPU cores and GB of memory. Do they auto-scale when your site is under load? Or will the server fail? As always, testing is key, but it won't hurt to ask up front.

Not all hosts are equal.
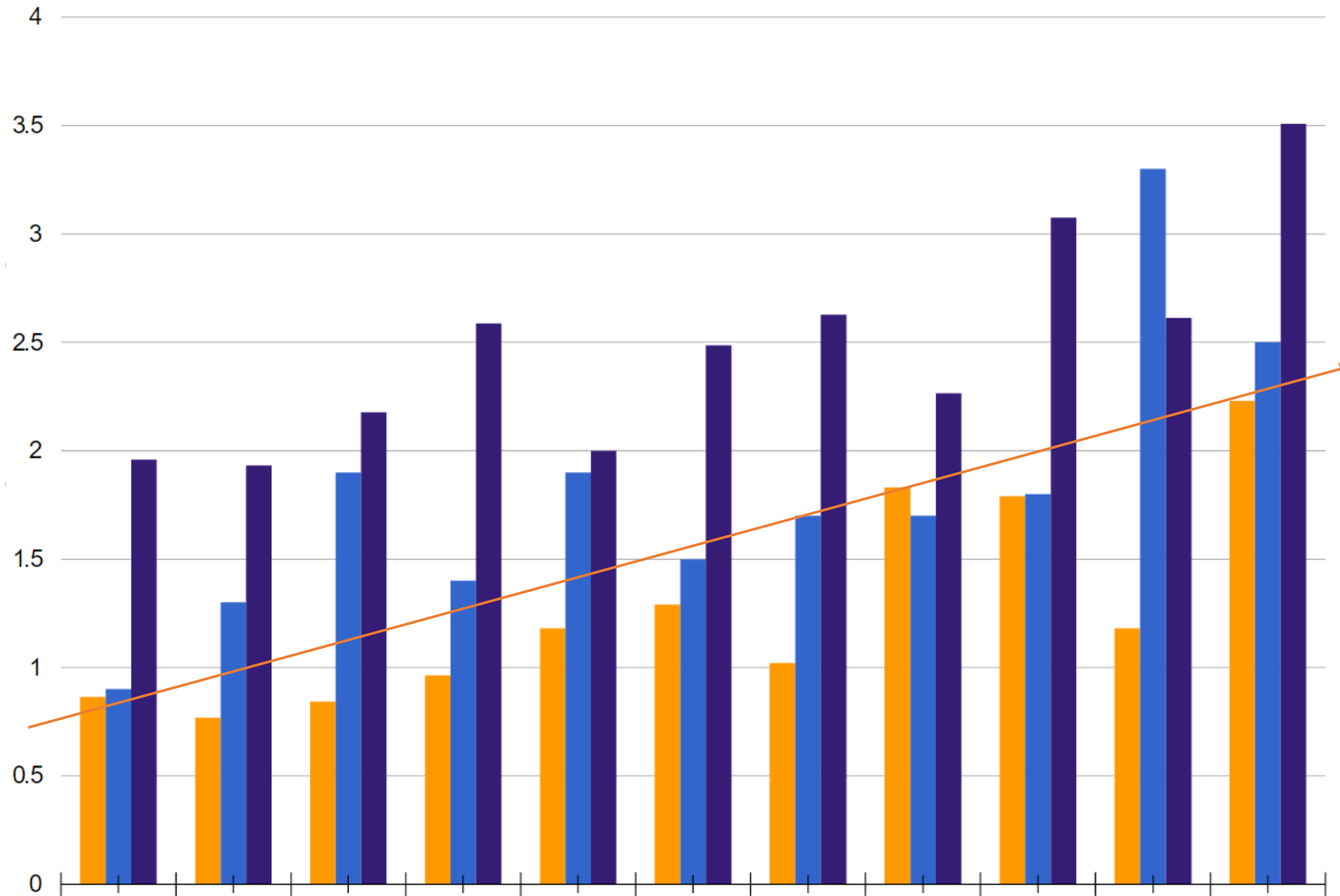
Content Delivery Networks

Choosing a server location that is central to your target audience is a key role in server optimization. But what about audiences that are global? That's where a CDN comes in.

Get the content **closer** to your customers.

We have seen customers reduce their latency by over 70%.

Latency can be defined as the round-trip time from the browser to the server. When it comes serving up your content around the globe in a fast and efficient manner, website latency becomes very important. Content delivery over long distances with traditional fiber optics slows down as the cable, repeaters, and amplifiers introduce delays; as well as unnecessary ISP hops. You can never get past the fact that there is physical distance involved, which limits your speed. However, by implementing a content distribution network you can reduce latency and packet loss by ensuring your web assets are delivered from edge servers located closer to your visitors.

SERVER

Without a CDN

With a CDN

📍 KeyCDN **Edge** Server   ▦ **Origin** Server

Fast DNS providers

Choosing a reliable DNS hosting provider is critical because it can affect everything from the redundancy of your website, speed, and even security.
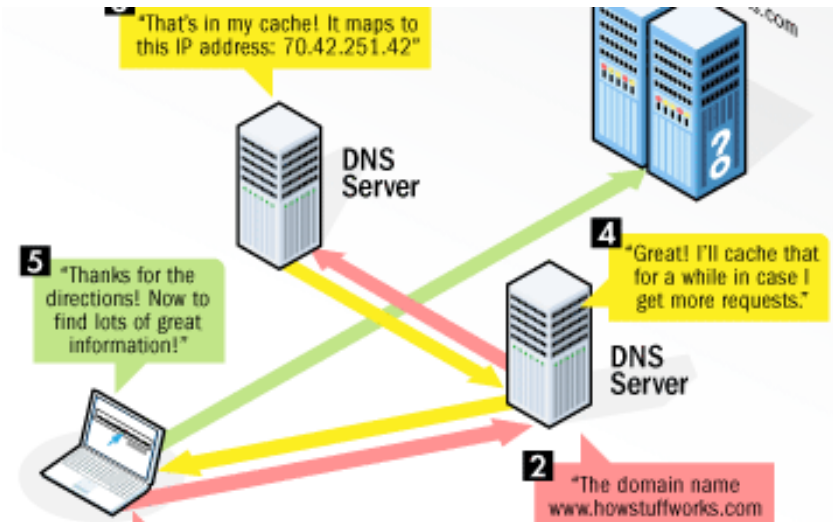
What is DNS?

DNS, which stands for domain name system, is an Internet service that translates domains names into IP addresses.
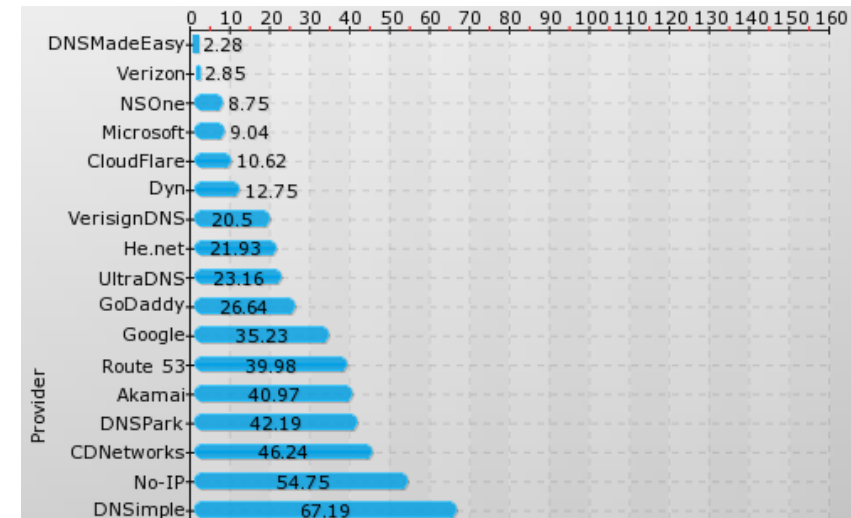
Which one is best?

For the sake of this talk, the faster the better. I've added links to the resources site for this specific topic.

SSL + HTTP/2

In layman's terms: it enables visitors to your site to download multiple assets at the same time, compared to one at a time with HTTP/1.1 hosts. This equates to much greater speeds.

Added bonus: it works over secured connections, so it is making the web faster and safer for everyone.
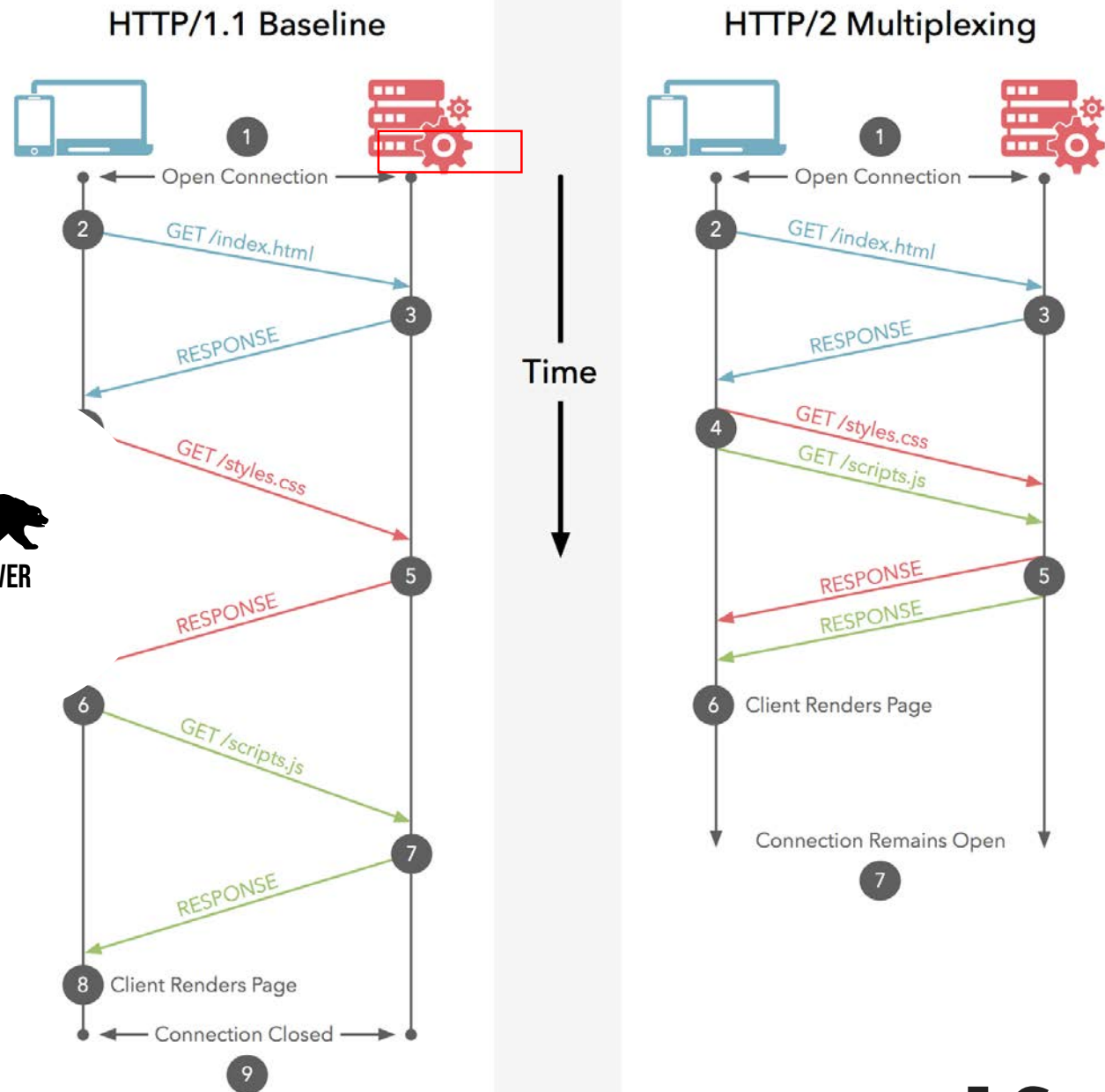
16

CONTENT PERFORMANCE

Don't just make your site pretty, make it pretty fast.

FONTS

Too many fonts are a sure fire way to slow down your
website. Between language support, glyphs, OpenType
features and font weights, the size of these assets can
grow exponentially. And the larger the file is, the more
likely your user is to see FOUT.

CONTENT

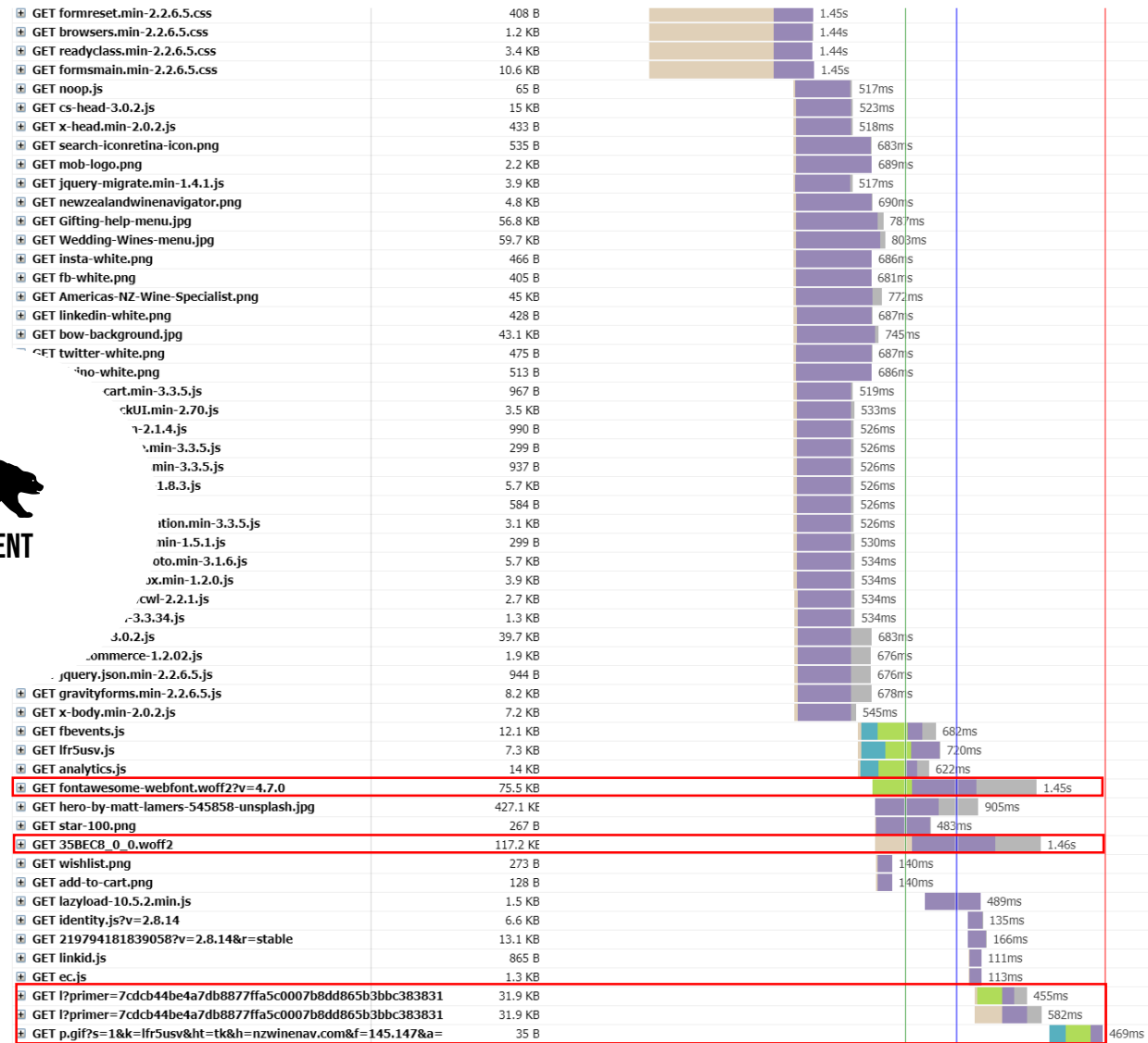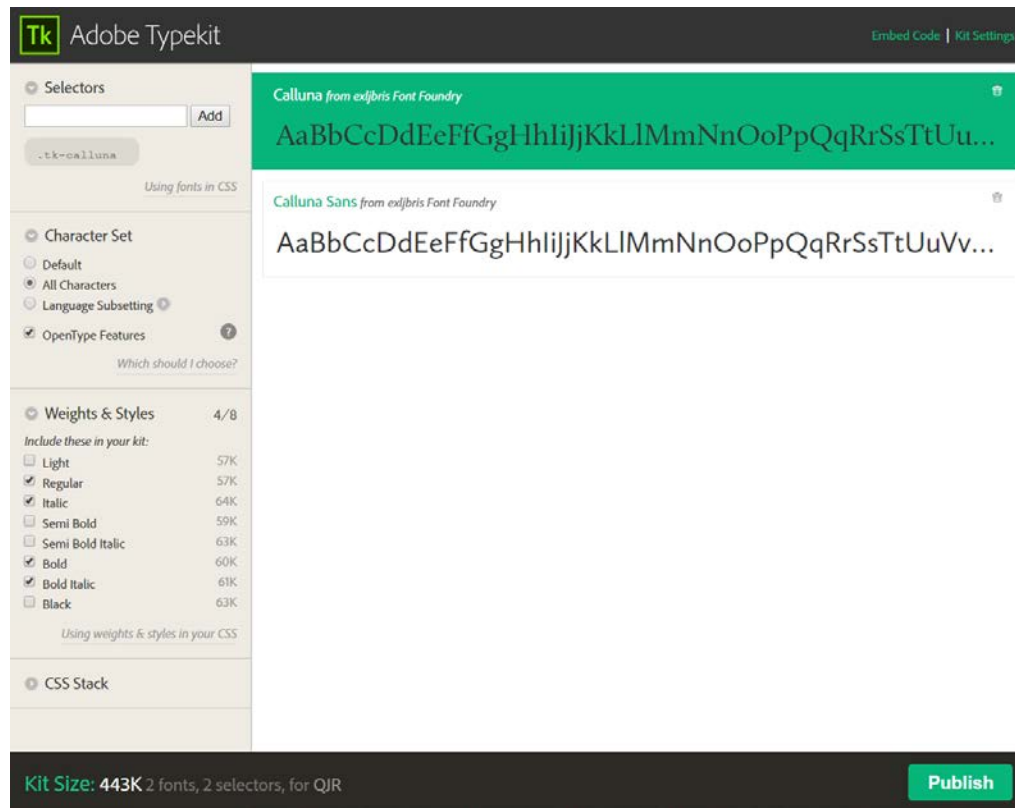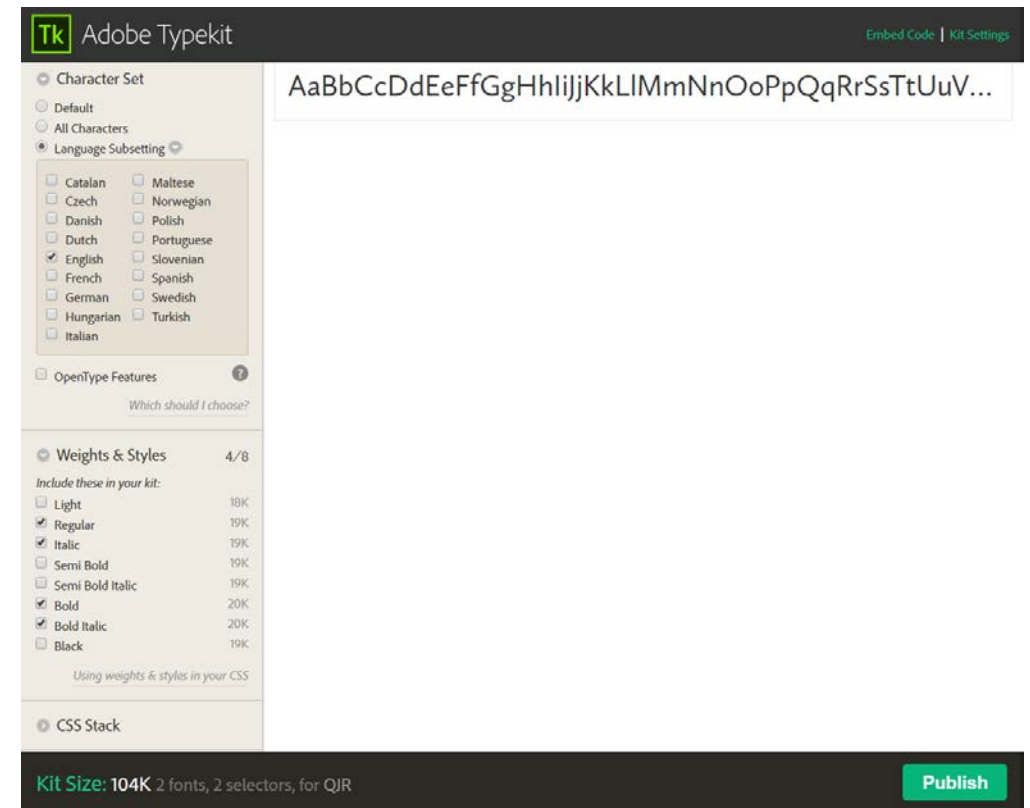|		
⊞ GET formreset.min-2.2.6.5.css	408 B	1.45s
⊞ GET browsers.min-2.2.6.5.css	1.2 KB	1.44s
⊞ GET readyclass.min-2.2.6.5.css	3.4 KB	1.44s
⊞ GET formsmain.min-2.2.6.5.css	10.6 KB	1.45s
⊞ GET noop.js	65 B	517ms
⊞ GET cs-head-3.0.2.js	15 KB	523ms
⊞ GET x-head.min-2.0.2.js	433 B	518ms
⊞ GET search-iconretina-icon.png	535 B	683ms
⊞ GET mob-logo.png	2.2 KB	689ms
⊞ GET jquery-migrate.min-1.4.1.js	3.9 KB	517ms
⊞ GET newzealandwinenavigator.png	4.8 KB	690ms
⊞ GET Gifting-help-menu.jpg	56.8 KB	787ms
⊞ GET Wedding-Wines-menu.jpg	59.7 KB	803ms
⊞ GET insta-white.png	466 B	686ms
⊞ GET fb-white.png	405 B	681ms
⊞ GET Americas-NZ-Wine-Specialist.png	45 KB	772ms
⊞ GET linkedin-white.png	428 B	687ms
⊞ GET bow-background.jpg	43.1 KB	745ms
GET twitter-white.png	475 B	687ms
ino-white.png	513 B	686ms
cart.min-3.3.5.js	967 B	519ms
kUI.min-2.70.js	3.5 KB	533ms
-2.1.4.js	990 B	526ms
.min-3.3.5.js	299 B	526ms
min-3.3.5.js	937 B	526ms
1.8.3.js	5.7 KB	526ms
	584 B	526ms
tion.min-3.3.5.js	3.1 KB	526ms
min-1.5.1.js	299 B	530ms
oto.min-3.1.6.js	5.7 KB	534ms
ox.min-1.2.0.js	3.9 KB	534ms
cwl-2.2.1.js	2.7 KB	534ms
-3.3.34.js	1.3 KB	534ms
3.0.2.js	39.7 KB	683ms
ommerce-1.2.02.js	1.9 KB	676ms
jquery.json.min-2.2.6.5.js	944 B	676ms
⊞ GET gravityforms.min-2.2.6.5.js	8.2 KB	678ms
⊞ GET x-body.min-2.0.2.js	7.2 KB	545ms
⊞ GET fbevents.js	12.1 KB	682ms
⊞ GET lfr5usv.js	7.3 KB	720ms
⊞ GET analytics.js	14 KB	622ms
⊞ GET fontawesome-webfont.woff2?v=4.7.0	75.5 KB	1.45s
⊞ GET hero-by-matt-lamers-545858-unsplash.jpg	427.1 KE	905ms
⊞ GET star-100.png	267 B	483ms
⊞ GET 35BEC8_0_0.woff2	117.2 KE	1.46s
⊞ GET wishlist.png	273 B	140ms
⊞ GET add-to-cart.png	128 B	140ms
⊞ GET lazyload-10.5.2.min.js	1.5 KB	489ms
⊞ GET identity.js?v=2.8.14	6.6 KB	135ms
⊞ GET 219794181839058?v=2.8.14&r=stable	13.1 KB	166ms
⊞ GET linkid.js	865 B	111ms
⊞ GET ec.js	1.3 KB	113ms
⊞ GET l?primer=7cdcb44be4a7db8877ffa5c0007b8dd865b3bbc383831	31.9 KB	455ms
GET l?primer=7cdcb44be4a7db8877ffa5c0007b8dd865b3bbc383831	31.9 KB	582ms
⊞ GET p.gif?s=1&k=lfr5usv&ht=tk&h=nzwinenav.com&f=145.147&a=	35 B	469ms

Choosing fonts

Take a look at these screenshots from Adobe Typekit:

2 web fonts

Default settings. 4 weights each. <u>443 KB</u>.

Same 2 fonts

English only. No OpenType features. 4 weights each. <u>104 KB.</u>

Google Fonts

WEIGHTS

Choose only the font weights you need on your website. If you find yourself choosing multiple weights across multiple fonts, reconsider your typography design.

LANGUAGES

Choose only the languages you need.

QUANTITY

There is no hard rule on this, but if you find yourself needing more than 2 or 3 fonts for a website, you may be slowing down your site. Watch the "Load Time" estimator on the Google font builder for reference.

Your Selection   Clear All

Open Sans ⊖

EMBED   **CUSTOMIZE**   Load Time: Fast

Open Sans

☐ light 300

☐ *light 300 Italic*

☑ regular 400

☐ *regular 400 Italic*

☐ semi-bold 600

☐ *semi-bold 600 Italic*

☐ **bold 700**

☐ *bold 700 Italic*

☐ **extra-bold 800**

☐ ***extra-bold 800 Italic***

Languages

☐ Vietnamese (Supported by Open Sans)

☑ Latin (Supported by all Fonts)

☐ Greek Extended (Supported by Open Sans)

☐ Latin Extended (Supported by Open Sans)

☐ Greek (Supported by Open Sans)

☐ Cyrillic Extended (Supported by Open Sans)

☐ Cyrillic (Supported by Open Sans)

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FONTELLO

Fontello is a great, free alternative to complete icon font libraries. It allows you to select the icons needed for a project and export them as a web font, saving massive overhead when compared to the native font files. It even supports custom SVG icons for additional branding benefits.

CONTENT

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SLIDERS

Sliders. Carousels. Whatever you call them, they are bad news.

We've all seen them. Many of us have used them. And far too many clients want them. But one thing hold true 99% of the time: they will slow down your website for absolutely no positive gain, and in many cases, will have a negative impact.

Practical alternative: hero images and hero sections. A single, static above-the-fold section properly designed with a clear CTA will always outperform a slider in conversions, and will always produce better load times.

CONTENT

Let's look at some of the findings:

- Only 1% of the people actually click on a slide, which almost always was the first slide;
- Sliders confuse people, as you're sending multiple offers they may or may not be interested in at once;
- People simply ignore your slider, because it triggers banner blindness;
- On that same note, visitors just don't get the message because they will skip the messages in your slider as they consider it advertisement or promotions;
- They slow down your site, negatively impacting your SEO and conversion rate;
- Sliders don't always work well on mobile devices;
- They push down your content, which is *not* smart, as Google already mentioned in 2012;
- It's most probably as effective to use just one image instead of putting all that effort in slider plugins and images.

That's just the tip of the iceberg. Over the years, many studies have shown that sliders should be avoided.

Grids

Grid plugins can produce beautiful layouts of images and content overlays.

Why use them?

They make it very user friendly to create grid layouts on WordPress pages.

At what cost?

Potentially dozens of extra requests for JavaScript files and stylesheets. Extra, bloated code. And possibly extra loading time on ALL pages.

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Grid Alternatives

Believe it or not, you can code your own with some very simple HTML and CSS. Easy to add into a custom loop to make your own Grid layouts in WordPress

Alternative 1

Linked in the resources.

The difference?

In this case, 12 requests, 800 KB, and an entire plugin.

MAPS

CONTENT

Google Maps have become a very popular feature to embed on websites over the last few years. It's not uncommon to see one on the contact page of a website, and in some cases, in the footer of every page.

This requires several additional requests to the page load, however, which slow down your site.
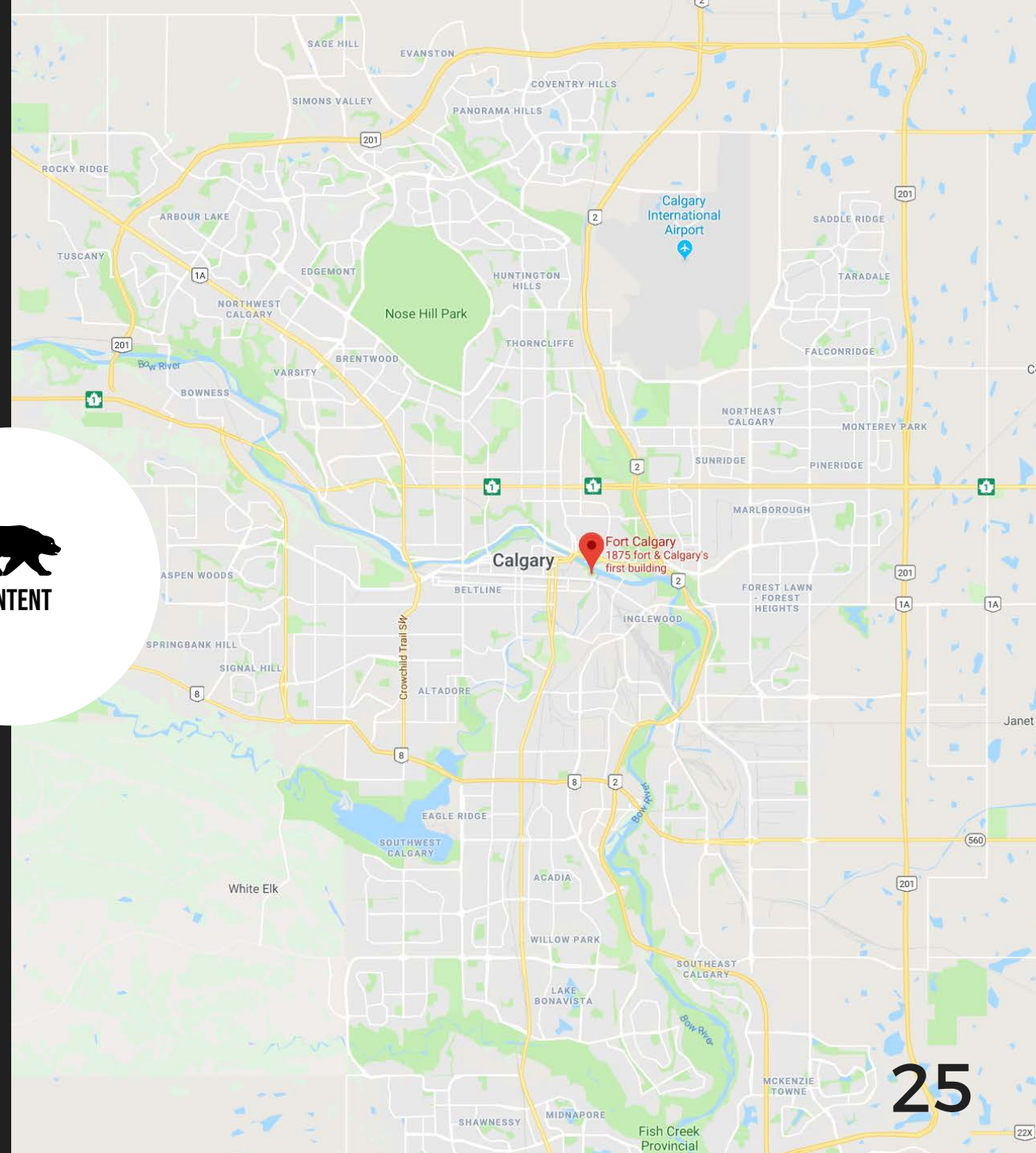
Maps Alternatives

Google has now made it easier than ever to replace your live embed with a static image.

Static Maps API

With a simple configurable URL, you can link to an image (at 640x640 size) of any location or marker you desire.

Additional benefit

Link the image to your Google Maps share URL, so mobile visitors can instantly load the app on their phone for directions and reviews.

IMAGES

Images are by far one the most common bottlenecks I see in content performance. Whether it be unscaled images, unoptimized images, or even just too many images loaded, these optimisations can provide you with the biggest performance boost possible.

CONTENT

Image Optimisation

These are the two main factors that contribute to image bloat, and "PageSpeed Score" warnings.

Serve scaled images

Consider the dimensional limits of where
you are placing your images, and size
them accordingly.

Compress Images

"Save for web" is your friend. Or, use a
plugin to compress images when
uploaded.

SITE PERFORMANCE

After you choose a good host & your content is performant

CACHE

This is the last step, because caching will often band-aid a poorly performing site. Our goal is to ensure the site is optimized prior to caching.

But once you get here, it's important to know that caching will have a dramatic improvement on the performance of your site.

To the right is a graphical flow of a common WordPress page request. What if we could skip those steps?

SITE

The HTML page is served

You visit a WordPress site

The WordPress core combines the retieved data and executes its PHP code to dynamically generate a HTML page

The WordPress core queries the database

HTML

Sourav Kundu
WPExplorer.com

The database returns the requested data

30
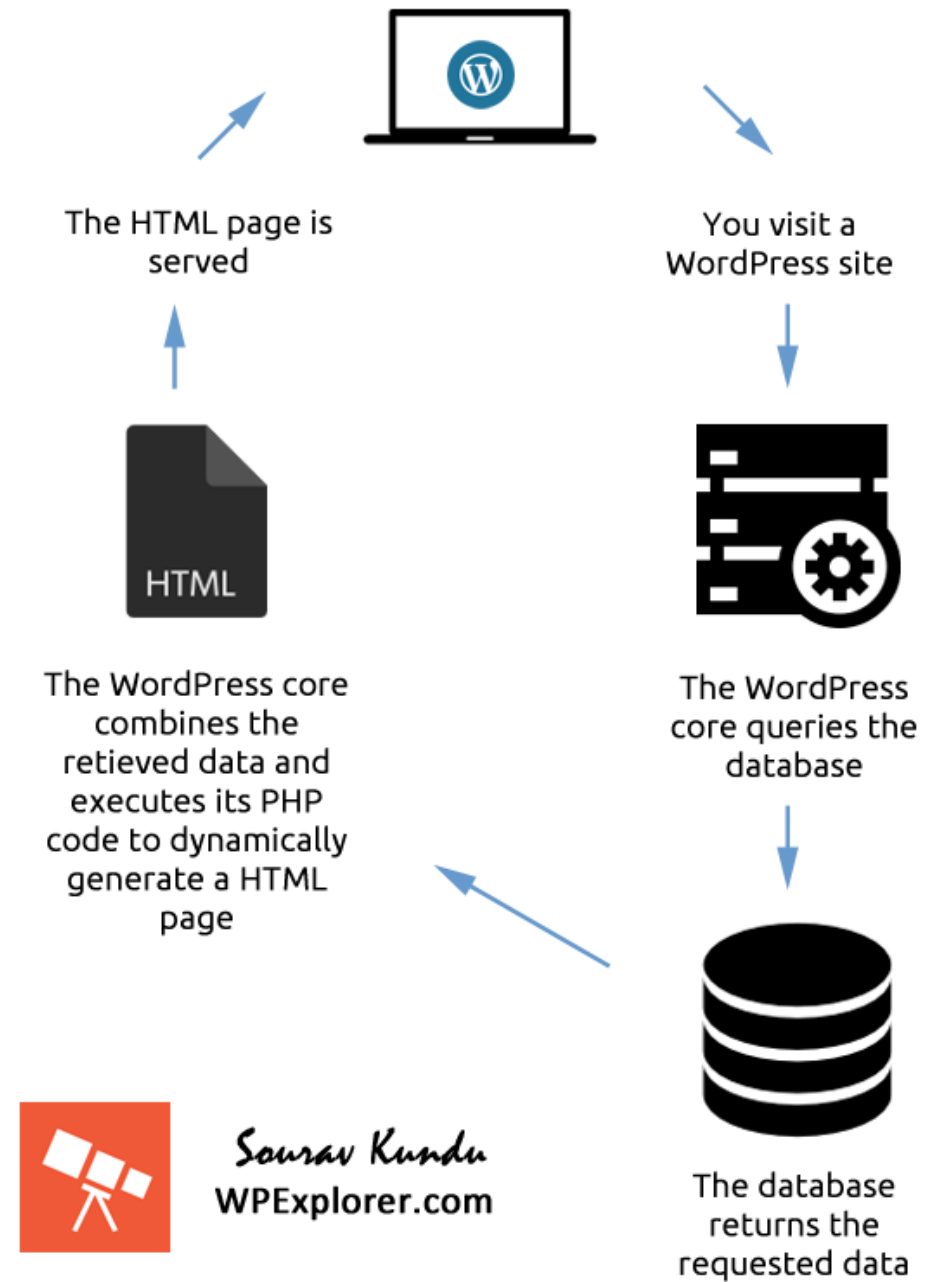
WordPress Caching

By saving the static output of a WordPress page, the server is able to send content to the user without the need for dynamic execution of scripts and queries.
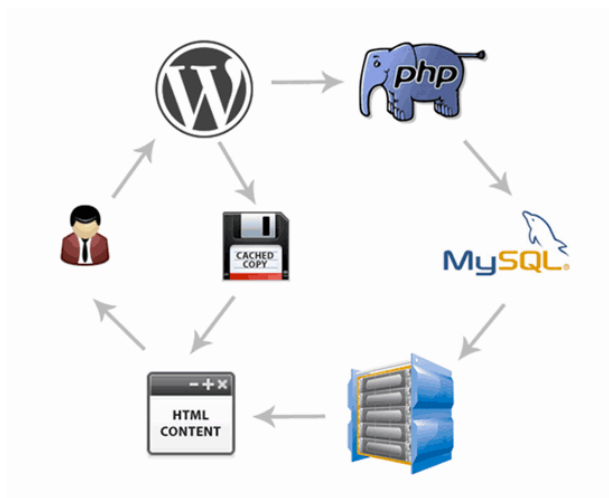
Page Caching Plugins

These generally work by parsing the request and searching for a saved version. If it exists, they will send static content to the user instead of dynamic content.
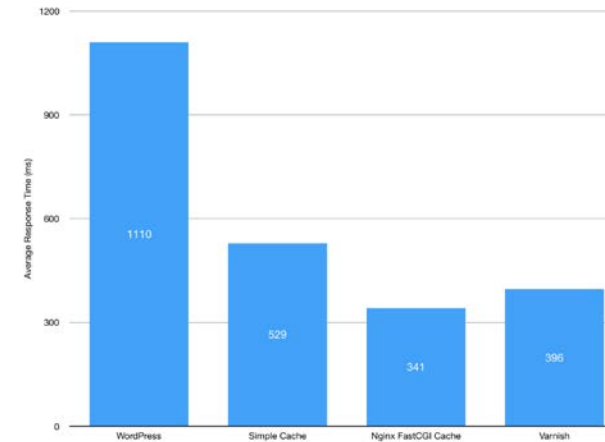
Speed Benefits

By serving static content, the response time of the server drops dramatically.

Cache Plugin Extras

Most popular caching plugins also offer additional performance enhancements.

Your application CSS or Scripts

Bundle.css or Bundle.js

Minification

This will remove extra bytes of data from
CSS and JS files that aren't needed,
therefor reducing their overall file size.

Concatenation

This will combine CSS and JS files respectively into one
(or more) single files, reducing the number of requests.
However, with HTTP/2, this may not always be beneficial,
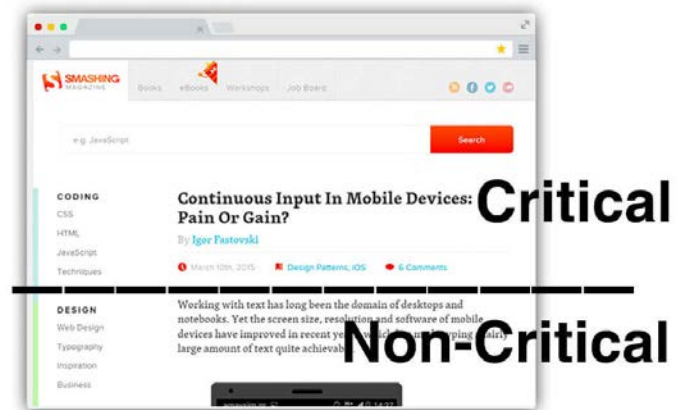and it may cause errors in some themes and plugins.

Cache Plugin Extras

Most popular caching plugins also offer additional performance enhancements.
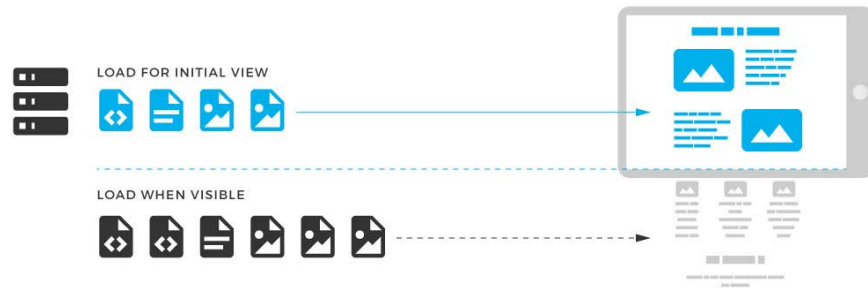
Lazy Loading

A method of preventing the asset from loading in the browser until the user has scrolled it into view, usually applied to images.

Critical Path CSS

This involves putting the CSS required to display above-the-fold content inline into the <head> of the document, allowing the browser to render it without a render-blocking resource call.

THANKS