



Page speed optimization

Squeezing milliseconds for better rankings from the server level up to the application layer

by Ralf Schwoebel (@orgaralf)

Why the fixation on speed?

Google, naturally and ...

HubSpot

MARKETING | 1 MIN READ

How Page Load Time
Affects Conversion Rates:
12 Case Studies
[Infographic]

Google Webmaster Central Blog

Official news on crawling and indexing sites for the Google index

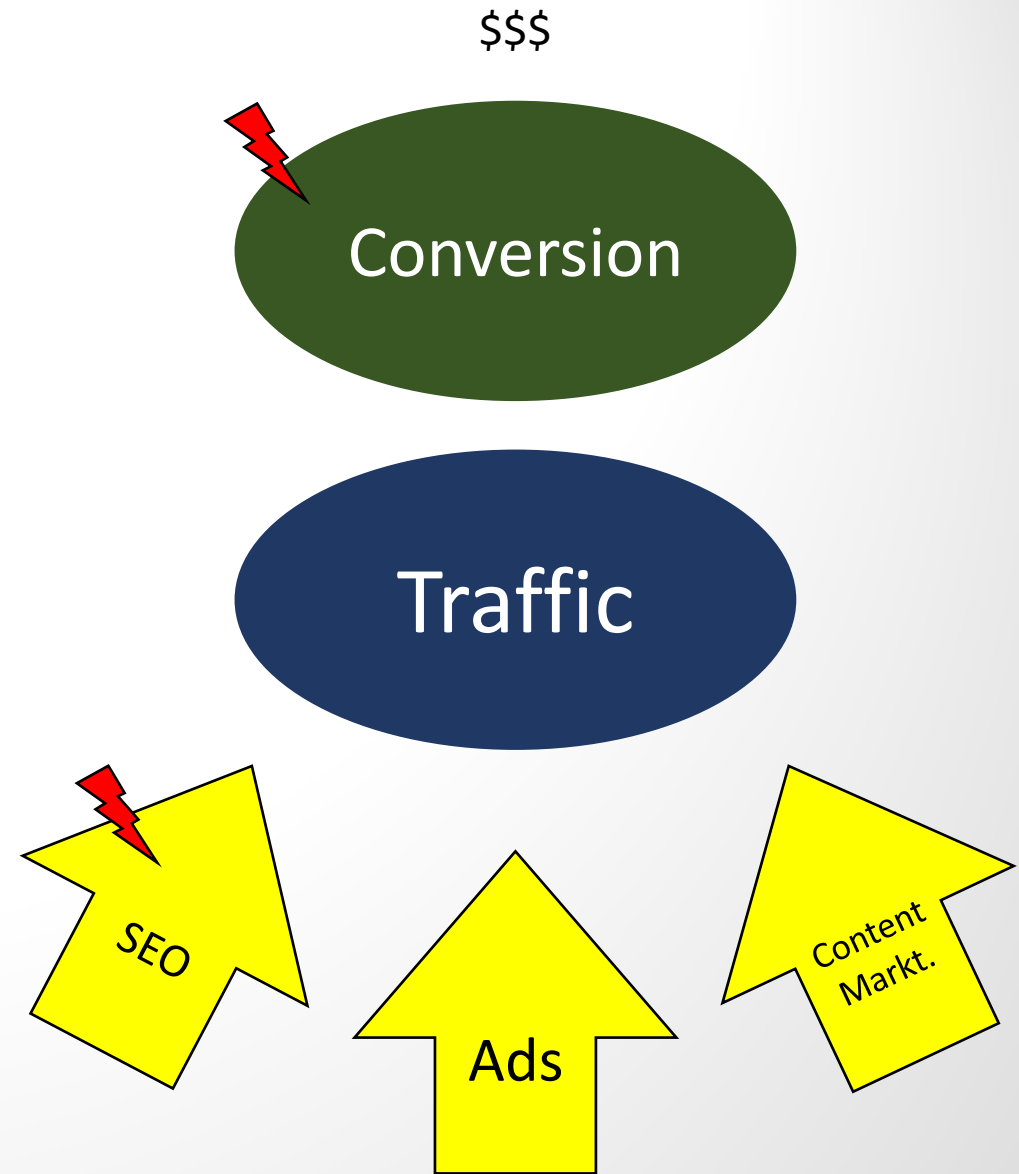
Using page speed in mobile search ranking

Wednesday, January 17, 2018

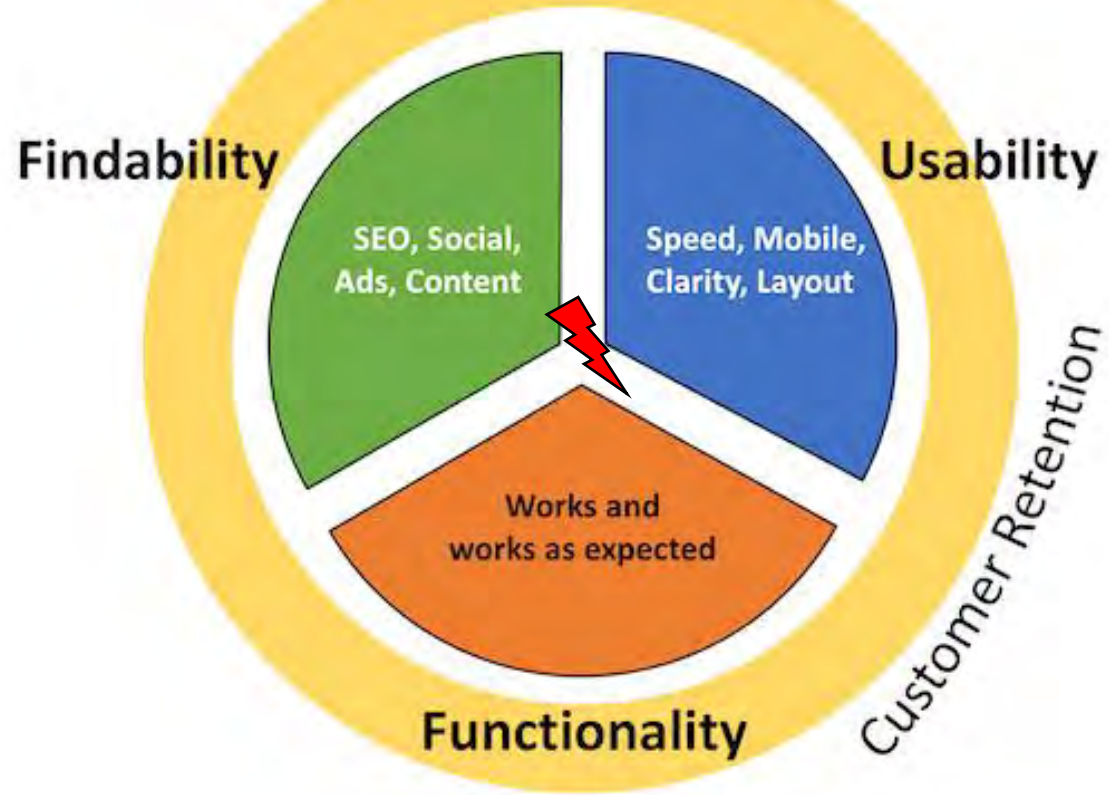
People want to be able to find answers to their questions as fast as possible – [studies](#) show that people really care about the speed of a page. Although speed has been used in ranking for some time, that [signal](#) was focused on desktop searches. Today we're announcing that starting in July 2018, page speed will be a ranking factor for mobile searches.

Why the fixation on speed?

... ultimately money!

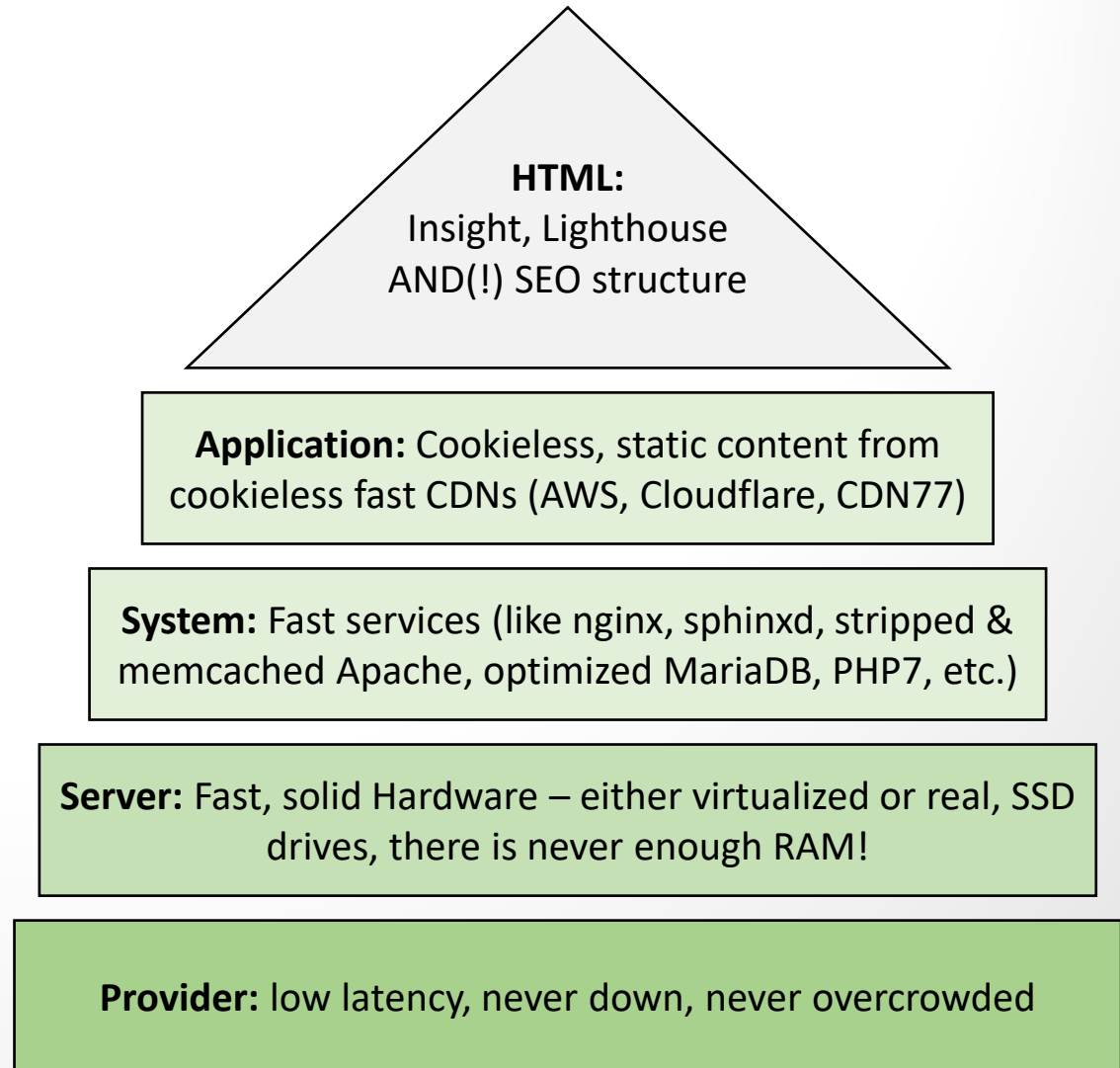
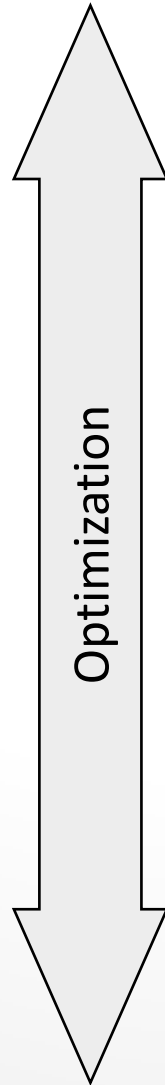


Online Marketing

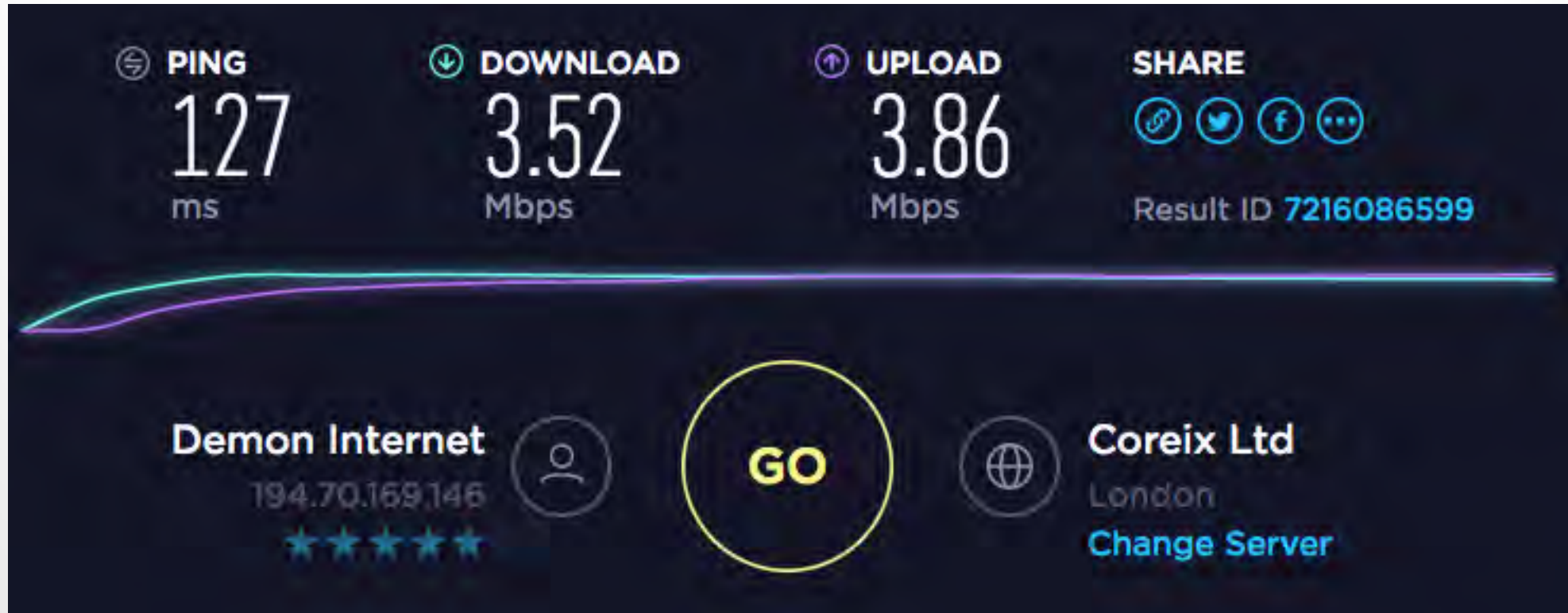


How to approach it?

Using only
Pagespeed Insights
is not **enough!**



But why, we have broadband now...



How do we test speed?

- Google Webmaster Console
- Google PageSpeed Insights
- tools.pingdom.com
- Lighthouse Audit
- Firefox/Chrome Dev Tools (network)
- Online Tools (for different locations) for „traceroute“ or „ping“



Provider

Bottom-up approach: Provider

- If money (=amount of traffic & scalability) **is not an issue:**
AWS instances or Google Cloud (Compute Engine)
- If you want specific setups (dedicated machines):
Local provider with CDN combination

```
[root@oz ~]# ping www.agentor.de
PING www.agentor.de (104.27.167.203) 56(84) bytes of data.
64 bytes from 104.27.167.203 (104.27.167.203): icmp_seq=1 ttl=59 time=5.22 ms
64 bytes from 104.27.167.203 (104.27.167.203): icmp_seq=2 ttl=59 time=5.23 ms
64 bytes from 104.27.167.203 (104.27.167.203): icmp_seq=3 ttl=59 time=5.22 ms
64 bytes from 104.27.167.203 (104.27.167.203): icmp_seq=4 ttl=59 time=5.28 ms
64 bytes from 104.27.167.203 (104.27.167.203): icmp_seq=5 ttl=59 time=5.22 ms
```

Provider choice:

Basic check:

Google rankings & network tools to find your flavour!

```
[root@oz ~]# traceroute smyn.com
traceroute to smyn.com (104.27.29.69), 30 hops max, 60 byte packets
 1 static.193.34.130.94.clients.your-server.de (94.130.34.193)  0.411 ms  0.399 ms  0.395 ms
 2 core21.fsn1.hetzner.com (213.239.245.97)  0.383 ms  0.281 ms core21.fsn1.hetzner.com (213.239.245.89)  0.272 ms
 3 core4.fra.hetzner.com (213.239.245.14)  4.907 ms core1.fra.hetzner.com (213.239.245.177)  4.969 ms core4.fra.hetzner.com (213.239.245.14)  4.905 ms
 4 core8.fra.hetzner.com (213.239.245.86)  5.271 ms  5.272 ms core8.fra.hetzner.com (213.239.245.126)  5.804 ms
 5 162.158.84.254 (162.158.84.254)  5.266 ms  5.314 ms  5.295 ms
 6 104.27.29.69 (104.27.29.69)  5.236 ms  5.246 ms  5.235 ms
[root@oz ~]#
```

Why start at that level?

The screenshot shows a web browser window with the URL <https://21d.smyln.com>. The Developer Tools panel is open, and the Network tab is selected. The network log shows several resources, with the first one, '21d.smyln.com', highlighted in blue and circled in red. The table below summarizes the data from the network log.

Name	Status	Type	Size	Time	Waterfall
21d.smyln.com	200	docu...	26.1 KB	48 ms	
img.php?p=http%3A%2F%2Fapiconf...	200	jpeg	132 KB	49 ms	
jquery-3.3.1.min.js	200	script	29.6 KB	57 ms	
Roboto-Bold.woff2	200	font	64.0 KB	33 ms	

Try the new Search Console

Dashboard

Messages

Search Appearance

Search Traffic

Google Index

Crawl

Crawl Errors

Crawl Stats

Fetch as Google

robots.txt Tester

Sitemaps

URL Parameters

Security Issues

Web Tools

Crawl Stats

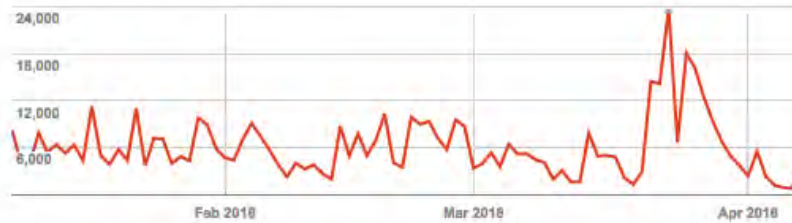
Googlebot activity in the last 90 days

Pages crawled per day



High	Average	Low
976	332	143

Kilobytes downloaded per day



High	Average	Low
23,738	6,111	830

Time spent downloading a page (in milliseconds)



High	Average	Low
437	249	55

Provider choice: the traffic snob approach

List of Internet exchange points by size

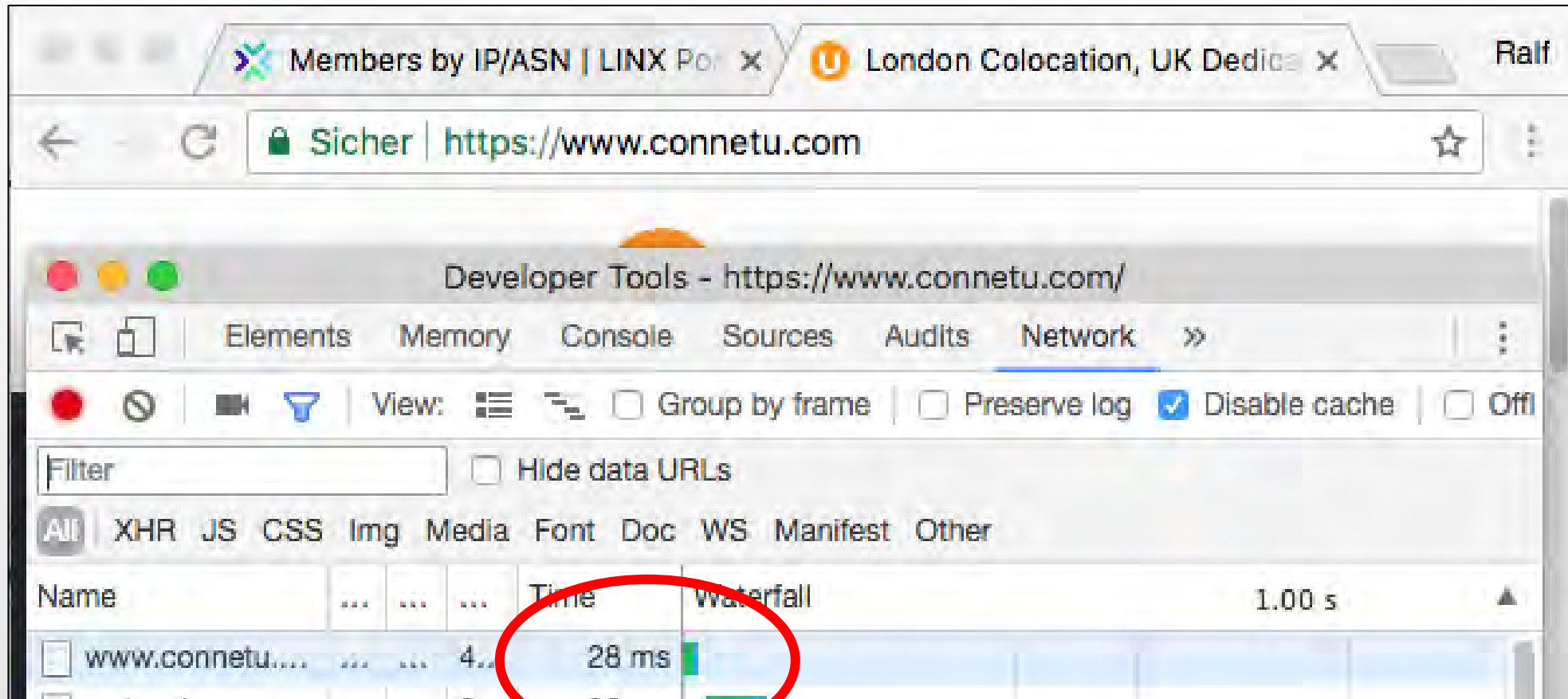
From Wikipedia, the free encyclopedia

See also: *List of Internet exchange points*

Short name	Name	City	Country	Established	Members	Maximum throughput (Gb/s)
DE-CIX	Deutsche Commercial Internet Exchange ^[1]	Frankfurt, Hamburg, Munich, Düsseldorf, New York City, Dubai (as UAE-IX), Palermo, Marseille, Istanbul, Dallas, Madrid, Mumbai (as Mumbai IX)	 Germany,  USA,  UAE,  Italy,  France,  Turkey,  Spain,  India	1995	735 ^[2]	6,408 ^[3]
AMS-IX	Amsterdam Internet Exchange ^[4]	Amsterdam ^[5] , Haarlem ^[5] , Schiphol-Rijk ^[5] , Willemstad ^[6] , Hong Kong ^[7] , New York City ^[8] , Chicago ^[9] , San Francisco Bay Area ^[10] , Mumbai ^[11]	 Netherlands,  Curaçao,  China,  USA,  India	1997 ^[12]	818 ^[13]	5,513 ^[14]
IX.br	Brazil Internet Exchange ^[15]	Belém, Belo Horizonte, Brasília, Campina Grande, Campinas, Caxias do Sul, Cuiabá, Curitiba, Florianópolis, Fortaleza, Goiânia, Lajeado, Londrina, Manaus, Maringá, Natal, Porto Alegre, Recife, Rio de Janeiro, Salvador, São Carlos, São José dos Campos, São José do Rio Preto, São Paulo, Vitória	 Brazil	2004	1,350 ^[16]	4,020 ^[17]
LINX	London Internet Exchange ^[18]	London, Manchester, Edinburgh, Cardiff, Northern Virginia ^[19]	 United Kingdom,  USA	1994	789 ^[20]	3,860 ^[21] ₁₃

Provider choice: the traffic snob approach

<https://portal.linx.net/members/list-ip-asn> => looked for random entry



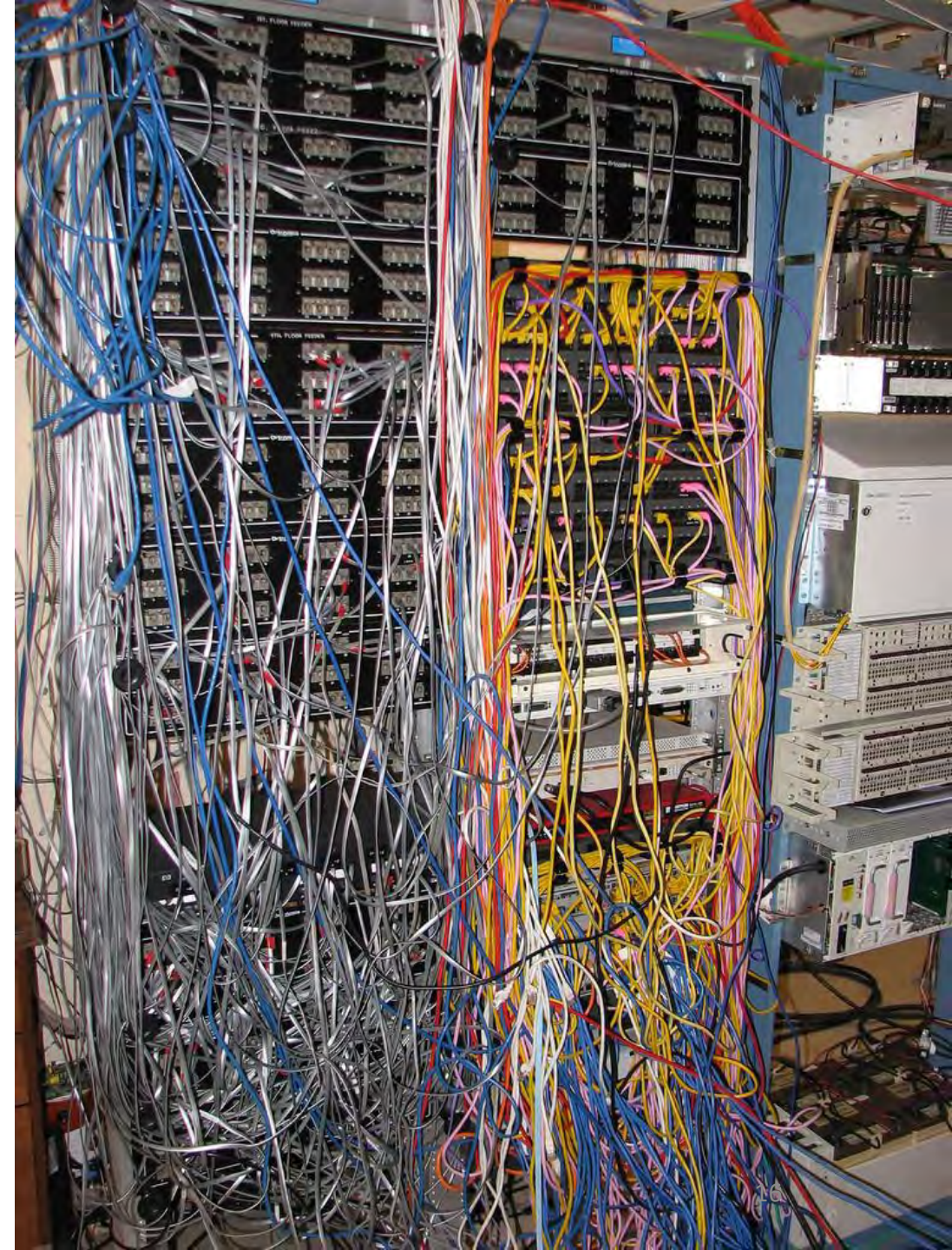
The cloud „problem“...



There is no cloud
it's just someone else's computer

Summary Provider

- **There is no** „cloud is better than dedicated“
- It all depends **on your individual site/offer**
- The **servers must respond quickly**, the rest is happening in the app layer above
- **Cloud** scales better, **dedicated** servers are easier to control (they are yours)



Hardware (if dedicated)

Picking hardware...

- There is never enough RAM
- SSD + RAM + CPU + OS => a choice of money and task



The cloud vs. dedicated servers

New!

Intel® Core™ i7-8700 Hexa-Core
incl. Hyper-Threading Technology

RAM: 64 GB DDR4


Hard Drive: 2 x 512 GB NVMe Gen3 x4 (Software-RAID 1)

Connection: 1 GBit/s-Port

Guaranteed bandwidth: 1 GBit/s


Backup space: 100 GB

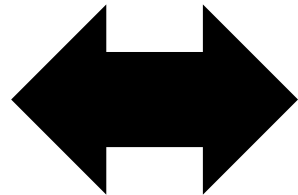
Traffic: 30 TB *

Available locations: 

€ 59.00

monthly, + € 119.00 once-off setup fee;
Prices excl. VAT
[Check availability >](#)

 **CONFIGURE**



MEMORY	vCPUs	SSD DISK	TRANSFER	PRICE
1 GB	1 vCPU	25 GB	1 TB	\$5/mo \$0.007/hr
2 GB	1 vCPU	50 GB	2 TB	\$10/mo \$0.015/hr
4 GB	2 vCPUs	80 GB	4 TB	\$20/mo \$0.030/hr
8 GB	4 vCPUs	160 GB	5 TB	\$40/mo \$0.060/hr
16 GB	6 vCPUs	320 GB	6 TB	\$80/mo \$0.119/hr
32 GB	8 vCPUs	640 GB	7 TB	\$160/mo \$0.238/hr
48 GB	12 vCPUs	960 GB	8 TB	\$240/mo \$0.357/hr

Summary Hardware

- Choose along your „knowledge pool“ and budget + provider choice, but it has to be a decent machine or cloud offer...



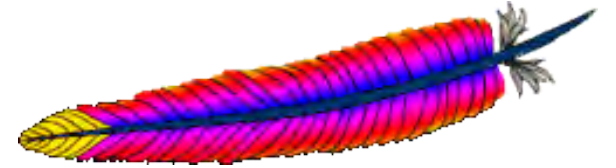
System Layer

System Layer

- OS (Linux or Windows – I think, but I am a Linux guy)
- Services
 - Webserver (Apache)
 - Reverse Proxy / Cache (nginx, varnishd, squid, memcached)
 - Database (MariaDB, SphinxSearch, ElasticSearch)
 - Filesystem (from NFS to Hadoop)



System Layer



For example: **persistent connections** make a huge difference!

Advantages of KeepAlive

- **Improves website speed:** It reduces latency associated with HTTP transfers and delivers a better user experience.
- **Reduces CPU usage:** On the server side enabling KeepAlive reduces CPU usage. Consider that a typical web page has dozens of different files such as images, stylesheets, javascript files etc. If KeepAlive is disabled a separate connection must be made for each of those files. Creating and closing connections has an overhead and doing it for every single file wastes CPU time.

Disadvantages of Keepalive

- **Increases memory usage:** Enabling KeepAlive increases memory usage on the server. Apache processes have to keep connections open waiting for new requests from established connections. While they are waiting they are occupying RAM that could be used to service other clients. If you turn off KeepAlive fewer apache processes will remain active. This will lower memory usage and allow Apache to serve more users.

System Layer

For example: **persistent connections** make a huge difference!



The image shows a screenshot of a forum post from the PHP website. The navigation bar at the top includes 'php', 'Downloads', 'Documentation', 'Get Involved', and 'Help'. The post is by user 'zubkov dot rabota at gmail dot com' and is dated '9 months ago'. The post content explains how to set a permanent connection using the 'p:' prefix in the MySQLi constructor.

```
php  Downloads  Documentation  Get Involved  Help
```

▲ 6 ▼ zubkov dot rabota at gmail dot com 9 months ago

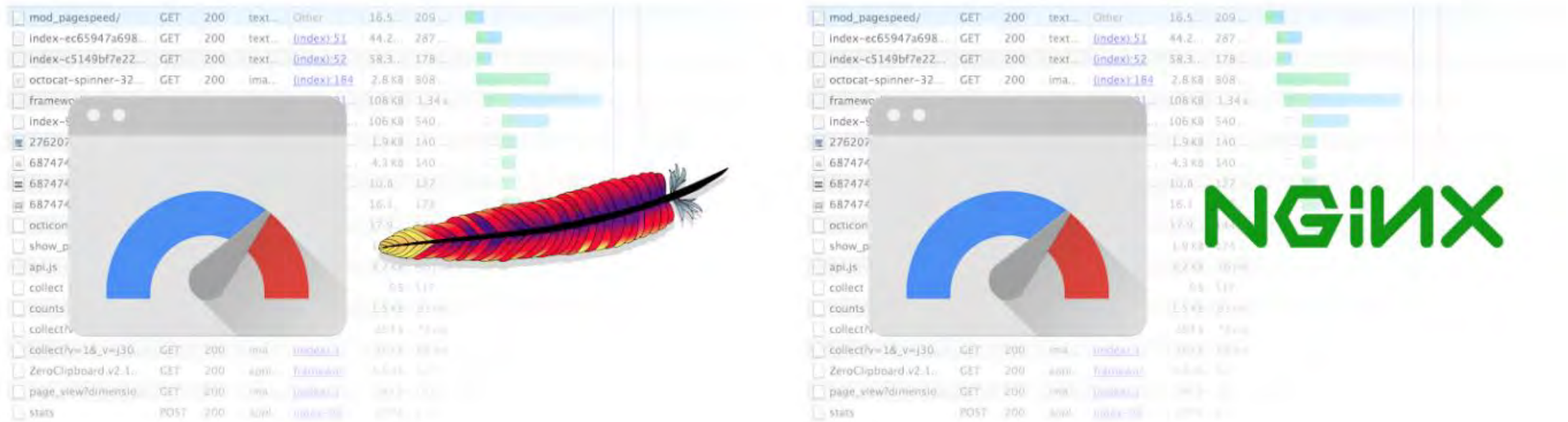
To set a permanent connection use prefix 'p:'
example:

```
"$pMysqli = new mysqli('p:'.DB_HOST, DB_USERNAME, DB_PASSWORD, DB_NAME);"
```

System Layer: the lazy approach

<https://developers.google.com/speed/pagespeed/module/>

Install on your webserver

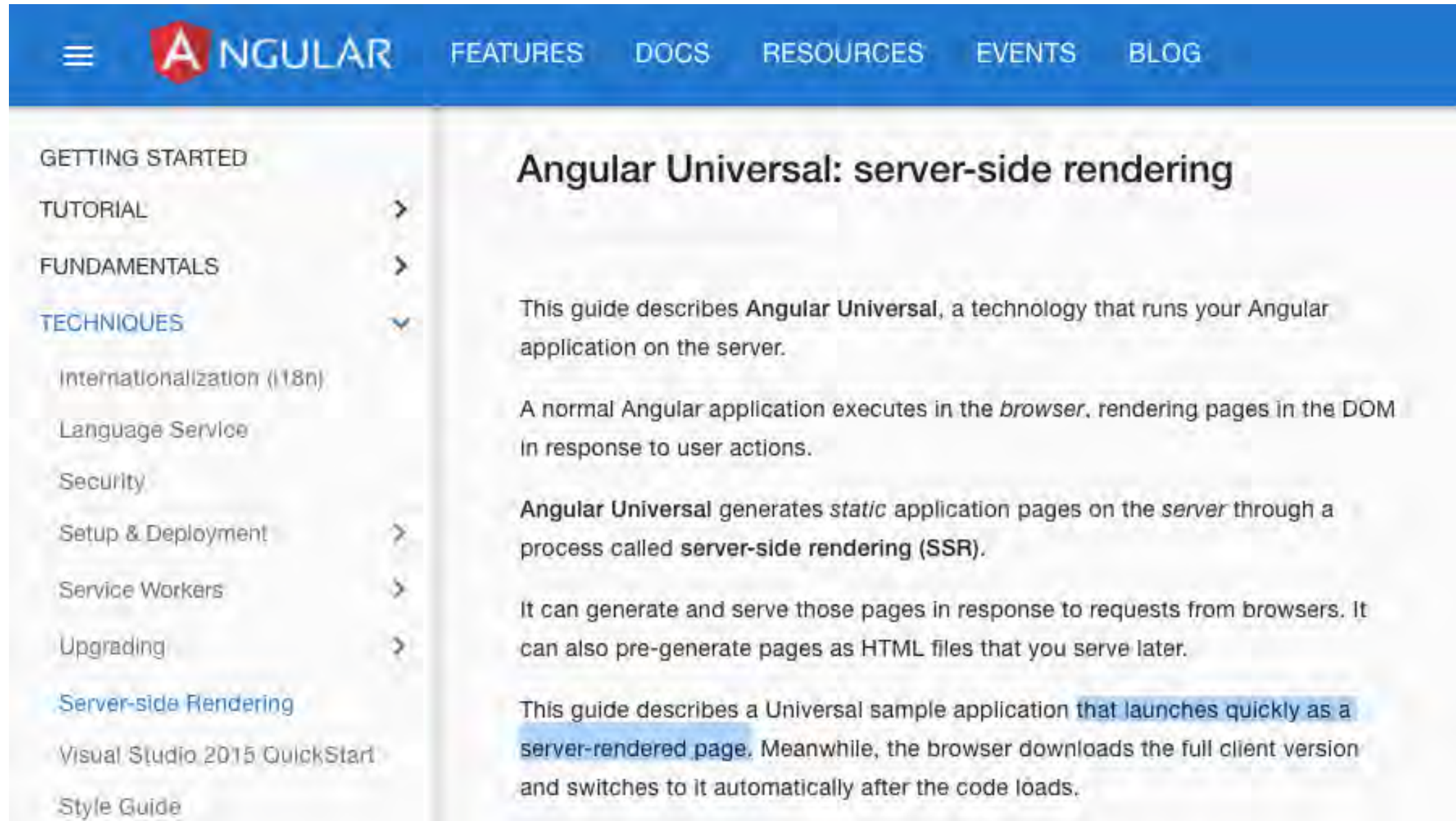


System: rules of thumb

- Cache in RAM, whatever possible
- Limit requests per second to system by splitting static content
- Writing is **more expensive** than reading
- The Open Source community has you covered, but you need to know, what you are doing!



System: dynamic pages with JS



The image shows a screenshot of the Angular website's navigation and content. The top navigation bar is blue with the Angular logo and links for FEATURES, DOCS, RESOURCES, EVENTS, and BLOG. A left sidebar contains a list of categories: GETTING STARTED, TUTORIAL, FUNDAMENTALS, TECHNIQUES (highlighted in blue), Internationalization, Language Service, Security, Setup & Deployment, Service Workers, Upgrading, Server-side Rendering (highlighted in blue), Visual Studio 2015 QuickStart, and Style Guide. The main content area displays the article 'Angular Universal: server-side rendering'. The article text explains that Angular Universal runs Angular applications on the server, generating static pages through server-side rendering (SSR). It notes that while a normal Angular application runs in the browser, Angular Universal generates static pages on the server. The article also mentions that it can generate and serve pages in response to browser requests or pre-generate them as HTML files. A highlighted sentence states: 'This guide describes a Universal sample application that launches quickly as a server-rendered page. Meanwhile, the browser downloads the full client version and switches to it automatically after the code loads.'

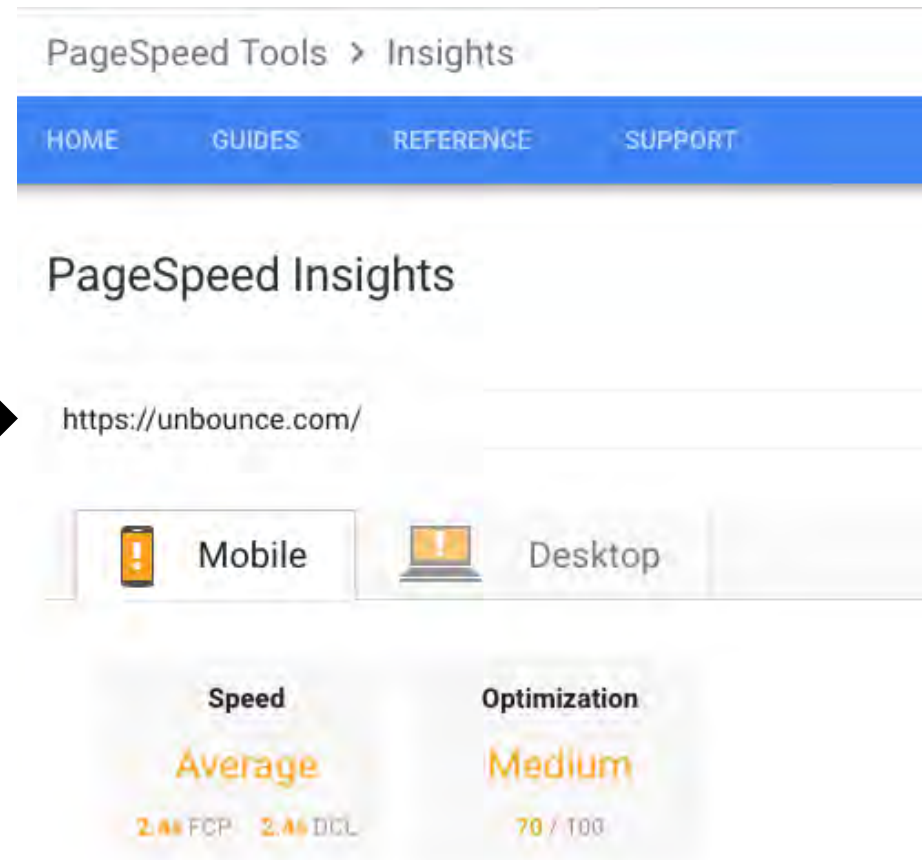
Summary System

- If it shall scale, the choices are limited!
- Progressive web apps with **1+ Mio. daily users** and a lot of files are probably best kept in a cloud environment (coz: add instances per task)
- Solid WP blogs (we have customers with 120k visits / day) can be done on a single server system with a CDN

Application Level

Application Layer

Out of the box systems are never 100% optimized!



Application Layer

But most of them can be tweaked right!

- add a CDN
- avoid Cookies, if possible
- Combine JS, CSS and minify
- Manage images automatically (resizing)
- Nested Loops, *if(file_exists())*, tables without index, etc. = evil!

Application Layer

```
index.php base.php  
1 <?  
2 $doSession=false;  
3 include("inc/base.php");
```



```
if(!isset($doSession) OR isset($_COOKIE['PHPSESSID'])) {  
    $doSession=true;  
}  
if($doSession) {  
    session_start();  
    // logged in or not?  
    if(!isset($_SESSION["USERID"])) {  
        $_SESSION["USERID"]=0;  
    }  
} else {  
    $myHours = 1;  
    header( string: 'Expires: ' . gmdate( format: 'D, d M Y H:i:s \G\M\T', timestamp: time() + (60 * 60 * $myHours)));  
    header( string: "Pragma: cache");  
    header( string: "Cache-Control: max-age=" . (60 * 60 * $myHours));  
    header( string: "User-Cache-Control: max-age=" . (60 * 60 * $myHours));  
}
```

Application Layer: CDN

A CDN-URL for your assets has **2 advantages!**

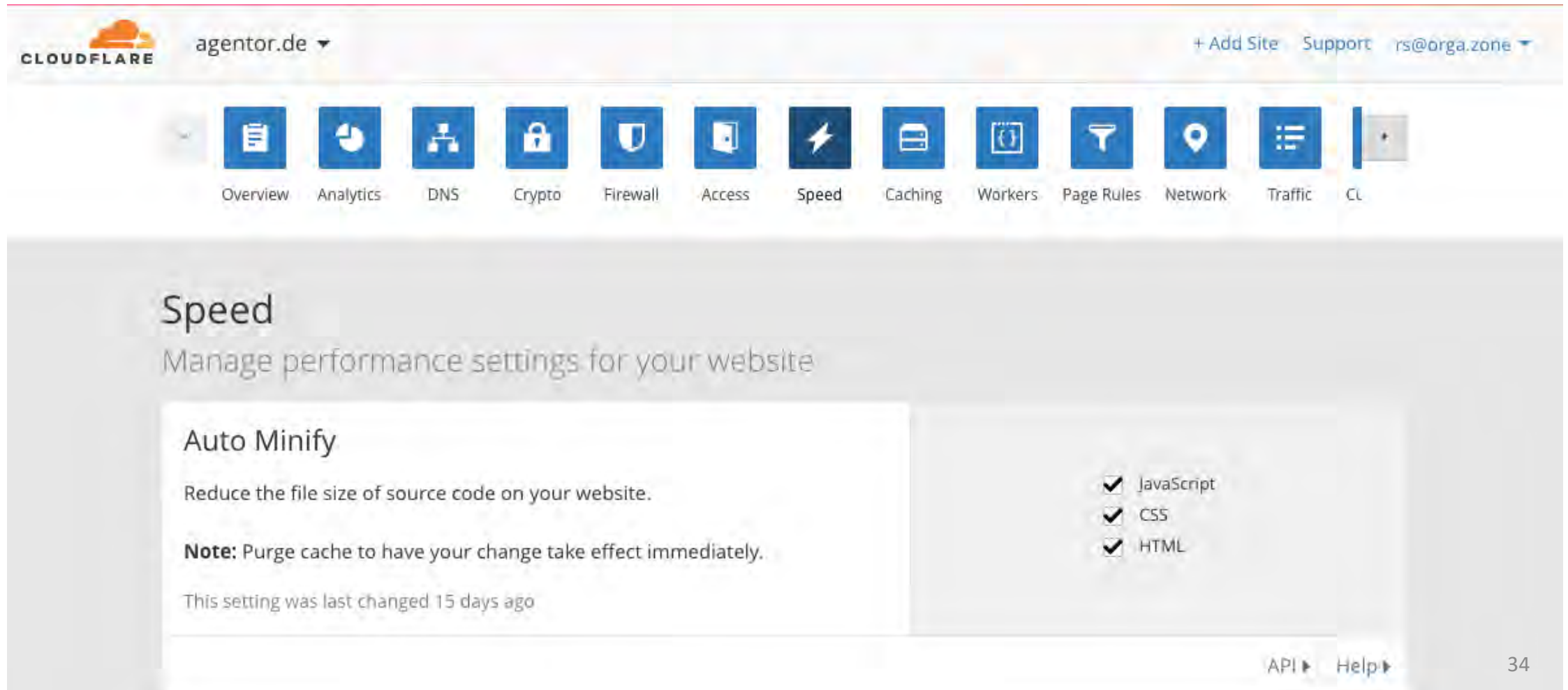
1. Global caching
2. More simultaneous connections per user

TABLE 1. MAXIMUM SUPPORTED CONNECTIONS

Version	Maximum connections
Internet Explorer® 7.0	2
Internet Explorer 8.0 and 9.0	6
Internet Explorer 10.0	8
Internet Explorer 11.0	13
Firefox®	6
Chrome™	6
Safari®	6
Opera®	6
iOS®	6
Android™	6

Application Layer: CDN

There are some and a lot are good!



The screenshot shows the Cloudflare dashboard for the domain 'agentor.de'. The navigation bar includes the Cloudflare logo, the domain name, and links for '+ Add Site', 'Support', and 'rs@orga.zone'. Below the navigation bar is a row of icons for various dashboard sections: Overview, Analytics, DNS, Crypto, Firewall, Access, Speed, Caching, Workers, Page Rules, Network, Traffic, and Cloudflare Pages. The 'Speed' section is currently selected and expanded, showing the 'Auto Minify' settings. The 'Auto Minify' section has a description: 'Reduce the file size of source code on your website.' and a note: 'Note: Purge cache to have your change take effect immediately.' Below the note, it says 'This setting was last changed 15 days ago'. To the right of the description, there are three checked checkboxes: 'JavaScript', 'CSS', and 'HTML'. At the bottom right of the dashboard, there are links for 'API' and 'Help'.

agentor.de

+ Add Site Support rs@orga.zone

Overview Analytics DNS Crypto Firewall Access Speed Caching Workers Page Rules Network Traffic CL

Speed

Manage performance settings for your website

Auto Minify

Reduce the file size of source code on your website.

Note: Purge cache to have your change take effect immediately.

This setting was last changed 15 days ago

- JavaScript
- CSS
- HTML

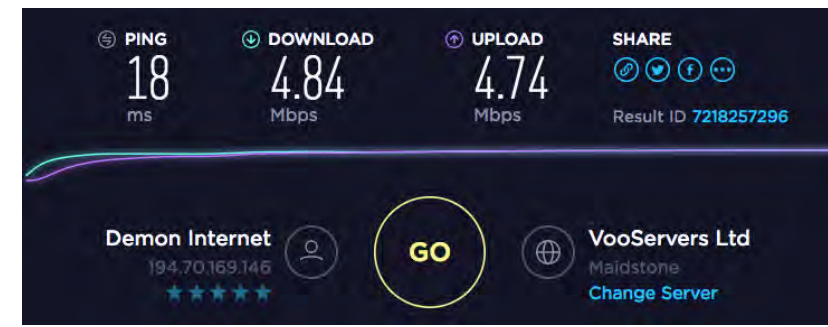
API Help

Application Layer: CDN

The screenshot shows the 'Edit Behavior' page in the AWS IAM console, specifically the 'Default Cache Behavior Settings' section. The page is titled 'Edit Behavior' and has a sub-header 'Default Cache Behavior Settings'. The settings are as follows:

- Path Pattern:** Default (*)
- Origin:** Custom-card.smyln.com
- Viewer Protocol Policy:** HTTP and HTTPS, Redirect HTTP to HTTPS, HTTPS Only
- Allowed HTTP Methods:** GET, HEAD, GET, HEAD, OPTIONS, GET, HEAD, OPTIONS, PUT, POST, PATCH, DELETE
- Field-level Encryption Config:** (Empty dropdown)
- Cached HTTP Methods:** GET, HEAD (Cached by default), OPTIONS
- Cache Based on Selected Request Headers:** Whitelist (dropdown), with a [Learn More](#) link.
- Whitelist Headers:** (Section header)
- Whitelist Headers List:** A list of 6 headers is shown as whitelisted: CloudFront-Is-Desktop-Viewer, CloudFront-Is-Mobile-Viewer, CloudFront-Is-Tablet-Viewer, CloudFront-Viewer-Country, Host, and Origin. There are 'Add Custom >>', 'Add >>', and '<< Remove' buttons.
- Object Caching:** Use Origin Cache Headers, Customize, with a [Learn More](#) link.

Amazon Cloudfront at its best @5Mbit/s



Developer Tools - https://21d.smyln.com/

Elements Memory Console Sources Audits Network Performance Security Application

View: Group by frame Preserve log Disable cache Offline Online

Filter Hide data URLs **All** XHR JS CSS Img Media Font Doc WS Manifest Other

Name	Status	Type	Size	Time	Waterfall
21d.smyln.com	200	docu...	26.1 KB	75 ms	

Developer Tools - https://www.google.co.uk/?gfe_rd=cr&dcr=0&ei=PRLOWvLsA4338AfF...

Elements Memory Console Sources Audits Network Performance Security Application

View: Group by frame Preserve log Disable cache Offline Online

Filter Hide data URLs **All** XHR JS CSS Img Media Font Doc WS Manifest Other

Name	Status	Type	Size	Time	Waterfall
?gfe_rd=cr&dcr=0&ei=PRLOWvLsA4338AfF...	200	docu...	62.8 KB	218 ms	

Application Layer: CDN

The screenshot shows the 'Create new CDN Resource' page in the CDN77 Client. The navigation bar at the top includes 'CDN77 Client', 'REPORTS', 'CDN', 'ADD-ONS', 'BILLING', and 'ADD FUNDS'. The main heading is 'Create new CDN Resource'. Below this, there are three sections: 'Label' with a text input field containing 'Your CDN's nickname'; 'Where we take the data from?' with two radio button options: 'My Origin (Your website on your server, delivered through CDN)' (selected) and 'CDN Storage (Stored on our specialized storage servers, delivered through CDN)'; and 'What is your domain?' with a text input field containing 'http:// https:// www.mydomain.com' and a link 'Use custom port'. A large blue button labeled 'CREATE CDN RESOURCE' is positioned below the form. At the bottom, there are two help options: 'Chat with us' (Get personal help 24/7, Start chatting) and 'Ask your colleague' (Send a request to your technical colleague, Send e-mail). A '24/7 Online Chat' button is visible in the bottom right corner.

CDN77 Client REPORTS **CDN** ADD-ONS BILLING ADD FUNDS

Create new CDN Resource

Label

Your CDN's nickname

Where we take the data from?

My Origin (Your website on your server, delivered through CDN)

CDN Storage (Stored on our specialized storage servers, delivered through CDN)

What is your domain? [Use custom port](#)

http:// https:// www.mydomain.com

CREATE CDN RESOURCE

Do you need any help?

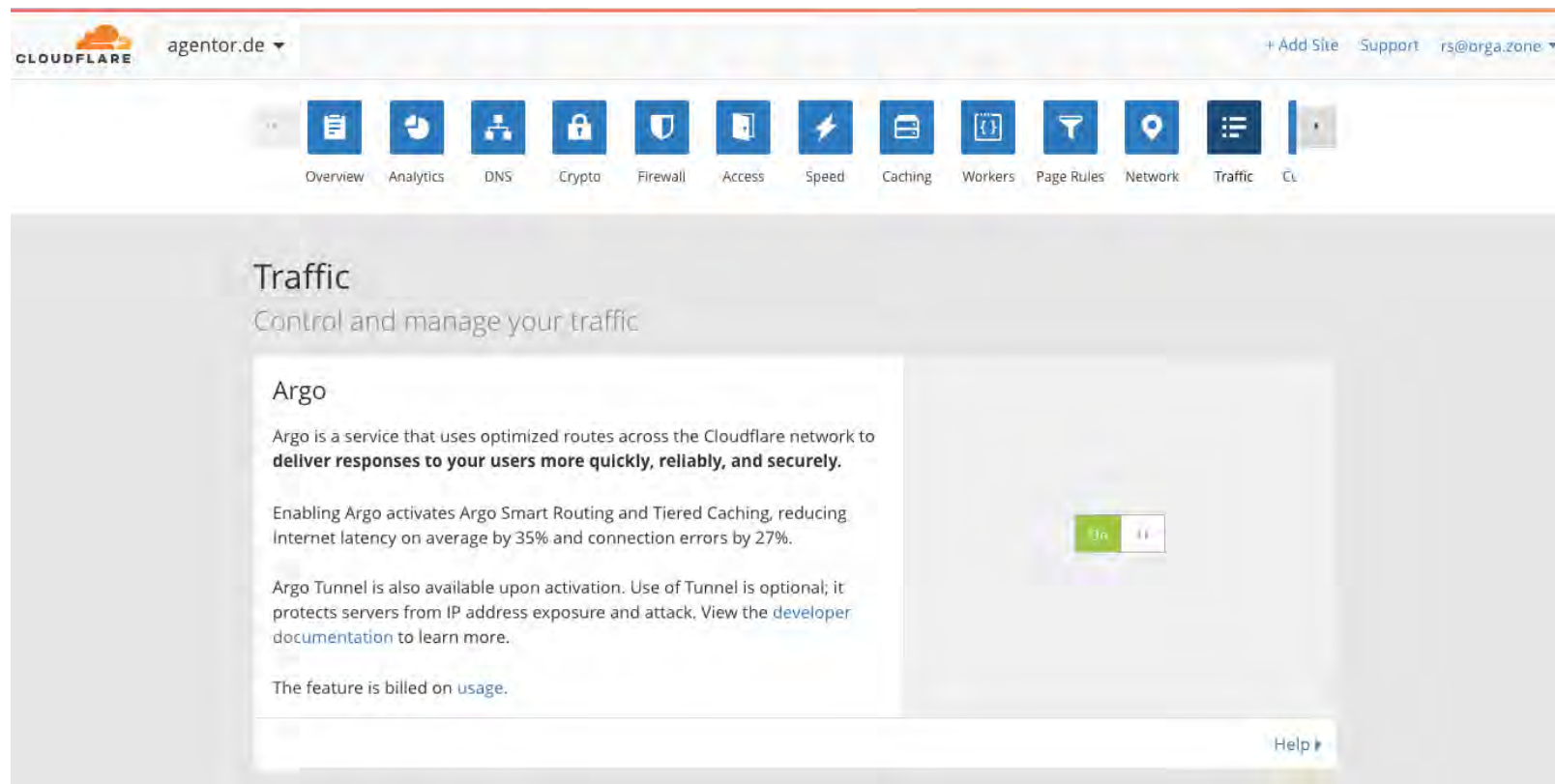
Chat with us
Get personal help
24/7
[Start chatting](#)

Ask your colleague
Send a request to
your technical
colleague.
[Send e-mail](#)

24/7 Online Chat

Summary: Application Layer

- This is the place for 70% of your optimization work
- The other 30% (provider, system) are **important to cover first**




HTML = the result

Now let us go “green“ in the tests!

Ralf Schwoebel @orgaralf · Apr 3

[Ryte.com](#) really helps with the nitty gritty, @mediadonis - but if you really want to reach 100% on Lighthouse, #Pagespeed Insights AND Ryte, your head explodes :-)



Category	Percentage	Optimizations Required
Structure optimization	79%	8 optimizations required
Content optimization	75%	2 optimizations required
Technical optimization	100%	Everything is fine, great!

1 Like

Marcus Tandler ☆ @mediadonis

Following

Replying to @orgaralf

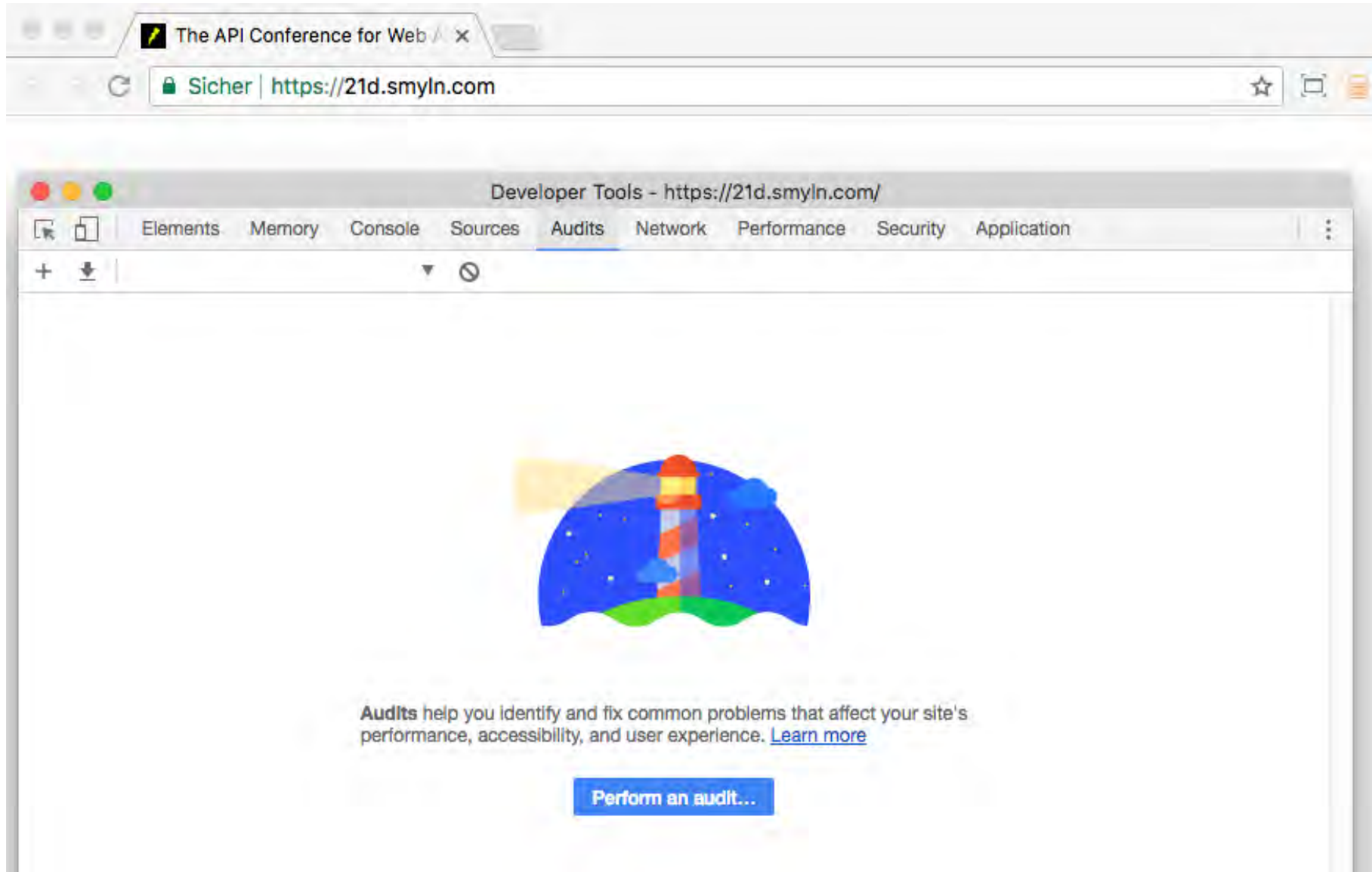
The Tripple Crown of Site Speed Optimization :)

2:25 PM - 3 Apr 2018

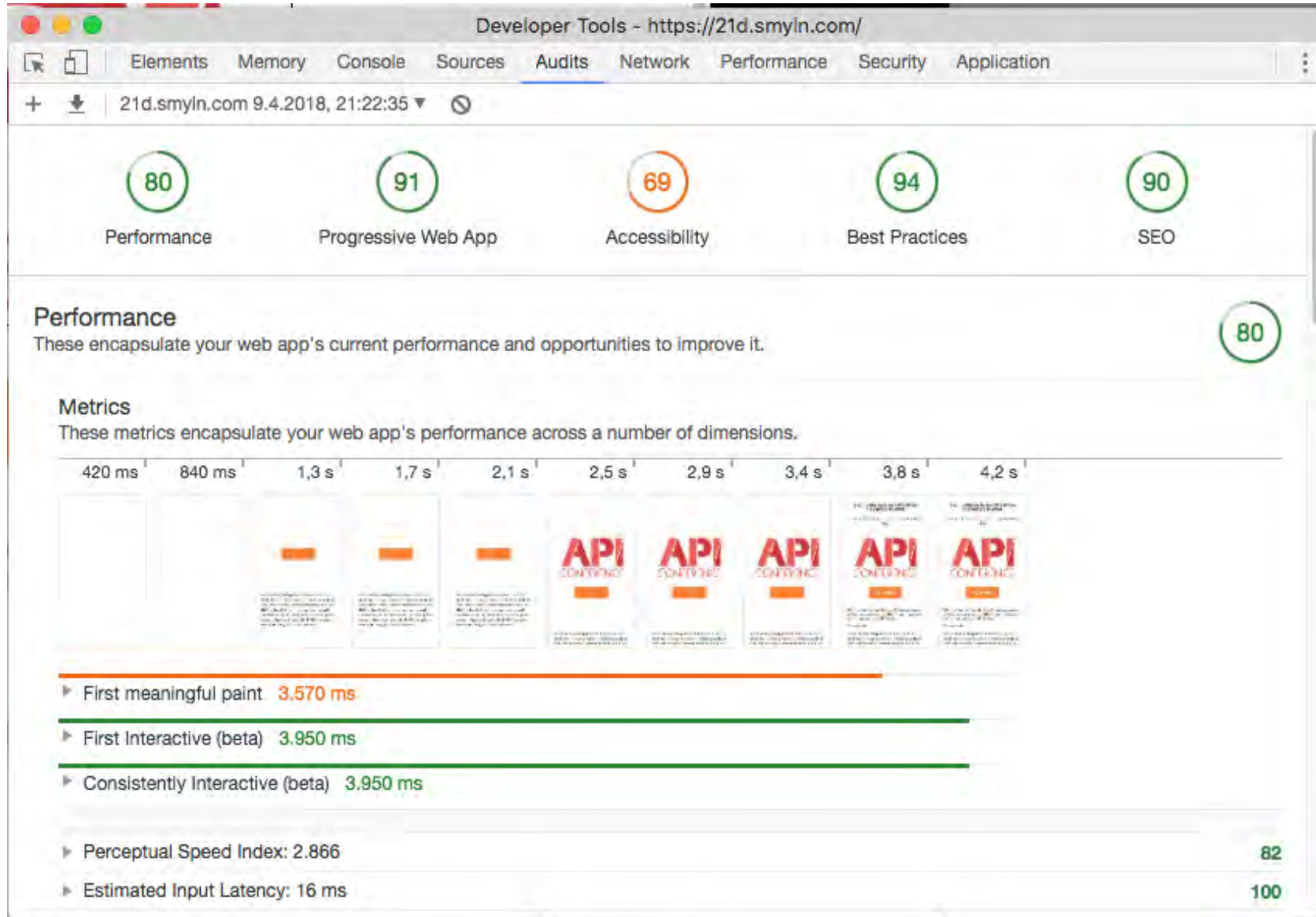
1 Like

Tweet your reply

Lighthouse Audit



Lighthouse Audit



Pagespeed Insights

PageSpeed Tools > Insights

HOME GUIDES REFERENCE SUPPORT

PageSpeed Insights

https://smyln.com/ [ANALYZE](#)

Mobile Desktop

Speed	Optimization
Unavailable	Good
	96 / 100

Data about the real-world performance of this page was **unavailable**. PageSpeed Insights was still able to analyze this page to find potential optimizations. Applying these optimizations may improve the speed of this page. Please investigate the recommendations below. [Learn more.](#)

Page Stats

PSI estimates this page requires 0 additional round trips to load render blocking resources and 1.2 MB to fully render. The median page requires 4 render blocking round trips and 1.2 MB. Fewer round trips and bytes results in faster pages.

Optimization Suggestions

- Prioritize visible content
 - [Show how to fix](#)
- Leverage browser caching
 - Setting an expiry date or a maximum age in the HTTP headers for static resources instructs the browser to load previously downloaded resources from local disk rather than over the network.
 - [Leverage browser caching](#) for the following cacheable resources:

Pagespeed Insights: Plain Vanilla MaterializeCSS

Free download on <https://static.smyln.com/>

The screenshot shows the Google PageSpeed Insights interface. At the top, the URL <https://static.smyln.com/> is entered in a search bar, with a blue 'ANALYZE' button to its right. Below the search bar, there are two tabs: 'Mobile' (selected) and 'Desktop'. The main content area is divided into two columns. The left column is titled 'Speed' and shows 'Unavailable'. The right column is titled 'Optimization' and shows 'Good' with a score of '100' out of 100. Below this, a paragraph of text explains that real-world performance data was unavailable but the page was still analyzed for optimizations. A 'Page Stats' section follows, stating that the page requires 0 additional round trips to load render blocking resources and 0.6 MB to fully render, compared to a median page requiring 4 round trips and 1.2 MB. On the right side of the interface, there is a mobile device mockup showing the website's mobile view. The mobile view features the 'smyln.com' logo, a hamburger menu icon, and the text 'Pagespeed Optimized Template'. Below this, it says 'Trying to get 100% with MaterializeCSS' and a yellow button labeled 'DOWNLOAD TEMPLATE ZIP'.

The cornerstones of „Insights“

- Server response time
- Caching time for static content >7days
- Render blocking removed (first paint)
- Images optimized
- CSS combined and minimized
- JS combined and minimized (and async'ed)

The Javascript thing...

```
<script async onload="myInit()" src="<?=$cdnurl?>js/jquery-3.3.1.min.js"></script>
```

```

<script>
  //-----
  function myInit() {
    $(document).ready(function() {
      $.ajaxSetup({ cache: true });
      $.getScript( "js/materialize.min.js", function( data, textStatus, jqxhr ) {
        (function($){
          $(function(){
            $('.button-collapse').sideNav();
            $('select').material_select();
            Materialize.updateTextFields();
            $('.modal').modal();
            $('#index-banner').css('background-image','url(<?=$cdnurl?>img/share-background.png)');
          }); // end of document ready
        })(jQuery); // end of jQuery name space
      });
      $.getScript( "js/jssocials.min.js", function( data, textStatus, jqxhr ) {
        (function($){
          $(function(){
            $('#share').jsSocials({
              shares: ["email", "twitter", "facebook", "googleplus", "linkedin", "pinterest", "stumbleupon", "whatsapp"],
              showCount: false,
              shareIn: "popup"
            });
          }); // end of document ready
        })(jQuery); // end of jQuery name space
      });
      $('#nav-mobile').append($('#myTopNav').html());
      $('head').append('<link rel="stylesheet" type="text/css" href="//maxcdn.bootstrapcdn.com/font-awesome/4.7.0/css/font-awesome.min.css">');
      $.ajaxSetup({ cache: false });
      /*<![CDATA[*/window.zE||(function(e,t,s){
        var n=window.zE=window.zEmbed=function(){
          n._.push(arguments)}, a=n.s=e.createElement(t),r=e.getElementsByTagName(t)[0];
          n.set=function(e){
            n.set._.push(e),n._=[],n.set._=[],a.async=true,a.setAttribute("charset","utf-8"), a.src="https://static.zdassets.com/ekr/asset_co
        })(document,"script","e27a5f79-2671-4a5d-adb6-5a3d1ab3cd4a");/*>*/
    });
  }
</script>

```

The render blocking thing...

```
<style>
  <? include("css/materialize.min.css.php"); ?>
  body {
    display: flex;
    min-height: 100vh;
    flex-direction: column;
  }
  main {
    flex: 1 0 auto;
  }
</style>
```

The Wordpress thing

PageSpeed Insights

https://www.agentor.de/

ANALYZE



Mobile



Desktop

Speed

Unavailable

Optimization

Good

84 / 100

Data about the real-world performance of this page was [unavailable](#). PageSpeed Insights was still able to analyze this page to find potential optimizations. Applying these optimizations may improve the



All (11) | Active (11)

Search installed plugins...

Bulk Actions [▼](#) [Apply](#)

11 items

<input type="checkbox"/> Plugin	Description
<input type="checkbox"/> Accelerated Mobile Pages Deactivate Settings Premium Features Pro	AMP for WP - Accelerated Mobile Pages for WordPress Version 0.9.85.2 By Ahmed Kaludi , Mohammed Kaludi View details
<input type="checkbox"/> Adaptive Images for WordPress Deactivate Settings	Resizes your images, by device screen size, to reduce download time in the mobile web. Version 0.6.64 By Nevma View details Plugin page Plugin support page
<input type="checkbox"/> All In One SEO Pack Upgrade to Pro Documentation Support Forum SEO Settings Deactivate	Out-of-the-box SEO for your WordPress blog. Features like XML Sitemaps, SEO for custom post types, SEO for blogs or business sites, SEO for ecommerce sites, and much more. More than 30 million downloads since 2007. Version 2.5 By Michael Torbert View details Feature Request/Bug Report
<input type="checkbox"/> Autoptimize Settings Deactivate	Optimizes your website, concatenating the CSS and JavaScript code, and compressing it. Version 2.3.4 By Frank Goossens (futtta) View details
<input type="checkbox"/> Cloudflare Deactivate Settings	Cloudflare speeds up and protects your WordPress site. Version 3.3.2 By John Wineman , Furkan Yilmaz , Junade Ali (Cloudflare Team) View details
<input type="checkbox"/> Google Captcha (reCAPTCHA) by BestWebSoft Settings Deactivate	Protect WordPress website forms from spam entries with Google Captcha (reCaptcha). Version 1.36 By BestWebSoft View details Settings FAQ Support
<input type="checkbox"/> Markup (JSON-LD) structured in schema.org Settings Deactivate	Allows you to include schema.org JSON-LD syntax markup on your website Version 4.2.1 By Kazuya Takami View details
<input type="checkbox"/> TinyMCE Advanced Settings Deactivate	Enables advanced features and plugins in TinyMCE, the visual editor in WordPress. Version 4.6.7 By Andrew Ozz View details
<input type="checkbox"/> Widget Options Deactivate Settings Upgrade	Additional Widget options for better widget control. Get Extended Widget Options for WordPress for complete widget controls. Thanks! Version 3.6 By Phpbits Creative Studio View details
<input type="checkbox"/> WP Fastest Cache Deactivate	The simplest and fastest WP Cache system Version 0.8.7.8 By Emre Vona View details
<input type="checkbox"/> XML Sitemap & Google News feeds Settings Deactivate	Feed the hungry spiders in compliance with the XML Sitemap and Google News protocols. Happy with the results? Please leave me a tip for continued development and support. Thanks :) Version 4.8.3 By RavanH View details
<input type="checkbox"/> Plugin	Description

The Smartphone thing

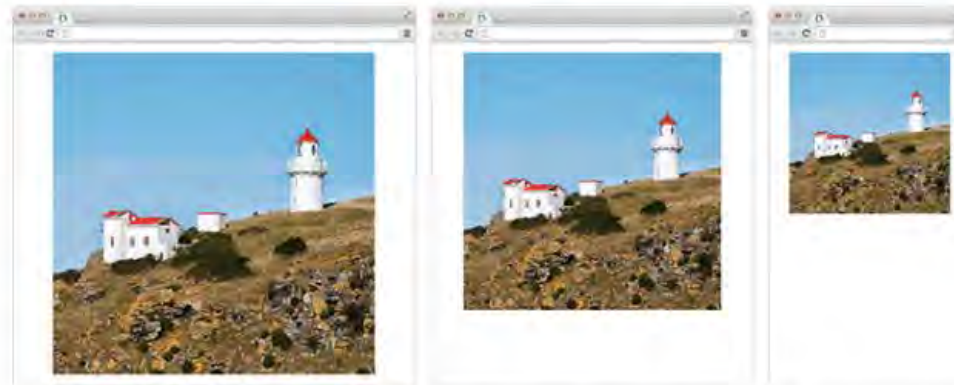


Here's an example of using the `sizes` attribute to set the proportion of an image to always fill 80% of the viewport. It is combined with the `srcset` attribute to supply four versions of the same lighthouse photo in widths of 160px, 320px, 640px, and 1280px wide:

```

```

The browser will use these hints to choose the most appropriate image resource to serve up based on the viewport width and hardware display resolution:



For example, the viewport on the left is approx. 800px wide. The browser will load `lighthouse-640.jpg` unless the device pixel ratio is 2x – in which case, `lighthouse-1280.jpg` will be loaded instead.

The Google Analytics thing

Leverage browser caching

Setting an expiry date or a maximum age in the HTTP headers for static resources instructs the browser to load previously downloaded resources from local disk rather than over the network.

Leverage browser caching for the following cacheable resources:

`https://www.google-analytics.com/analytics.js` (2 hours)

▲ [Hide details](#)

Better, if you do not need everything - <https://github.com/jehna/ga-lite>

The ultimate SEO/quality checklist starts with speed

- The site responds <100ms on fa(s)t lines
- Pages are green on Insights + Lighthouse...
- ...also for mobile(!)
- Keyword is investigated
- On-Page SEO fits (ryte.com creates an extra ToDo list for you)
- Links are coming in (off-page SEO)
- Users stay (want to see more pages, do not use the back button)
- Visitors convert to customers



Thank you!

Thank you for your time and attention...

Have a great time in London!

Ralf Schwoebel, CEO

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