WORLD Interactive Agency

EVENT

MAGENTO WEBINAR

PRESENTATION

I WANNA GO FAST: WEBSITE PERFORMANCE

July 24, 2013

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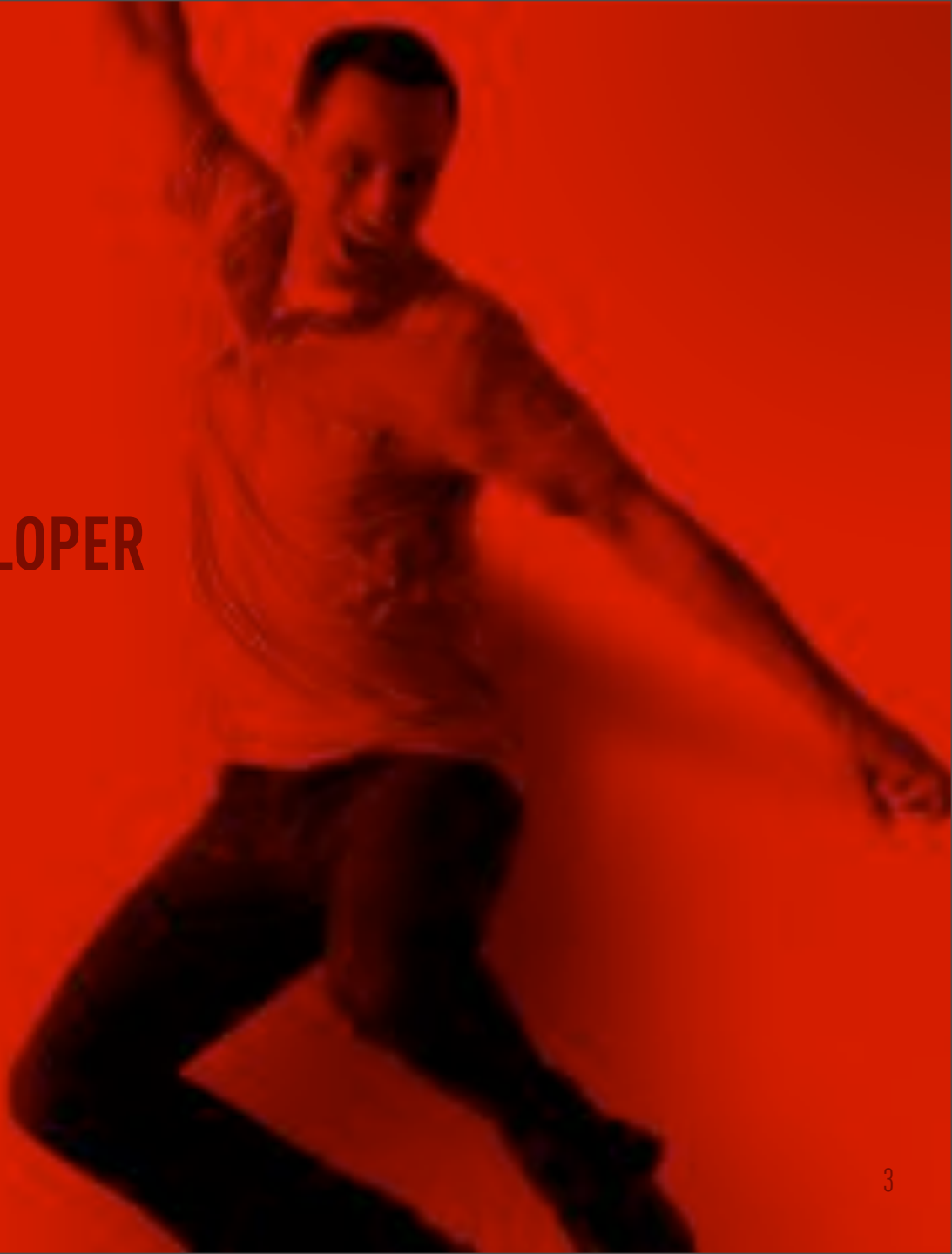


#MakeItFast

WHY DOES PERFORMANCE MATTER?

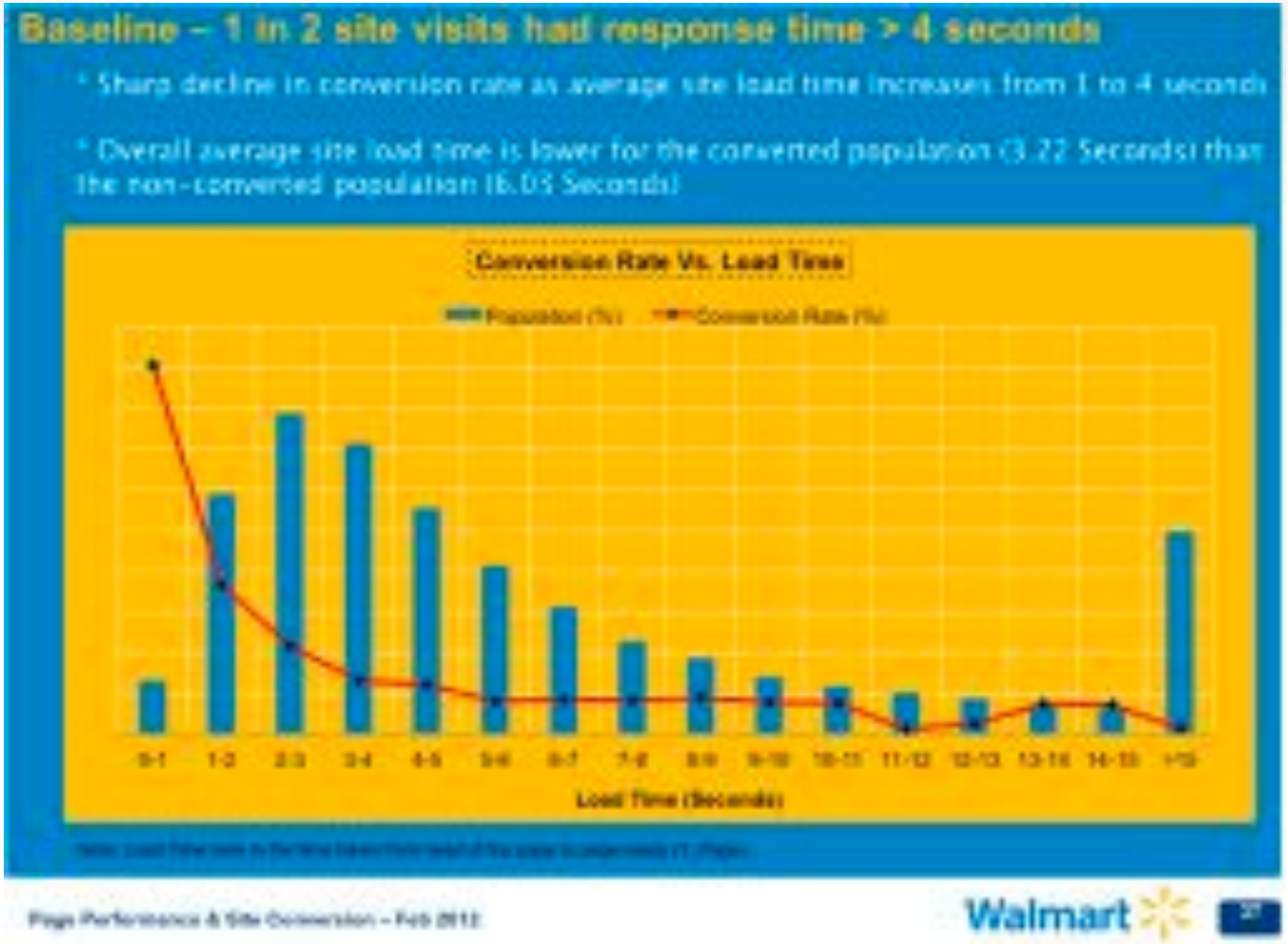
#MakeItFast

WHY DOES PERFORMANCE MATTER?

- *1 Second delay* can cause *7% drop* in conversions
- Nearly *1/2 of users* expect *2 second or less* page load time AND they tend to *abandon if not loaded in 3 seconds*
- *79% of shoppers* say they *won't return* if performance is poor
- *44%* say they *would tell a friend* about their poor experience
- Search Indexing - Bots can index more pages per visit
- A Bad Experience Will Drive
  - *46%* of users to *competitive sites*
  - *35%* are *less likely to visit* a problem site *on ANY platform*
  - *33%* are *less likely to purchase* from that company!

http://bit.ly/zVcxsP, http://bit.ly/mHFVVX, http://mz.cm/W5Pkx7, http://bit.ly/xfvPMC, http://bit.ly/yOlHQv

CONVERSION RATE VS. LOAD TIME - WALMART



http://bit.ly/xfvPMC

TAGMAN'S CONVERSION LOSS CALCULATOR

#MakeItFast

http://bit.ly/PknOpe

WHO DOES PERFORMANCE MATTER TO?

SHOULD WHO ~~DOES~~ PERFORMANCE MATTER TO?

WHO SHOULD PERFORMANCE MATTER TO?

- *Designers and Developers*
- *Sales and Marketing People*
- *eCommerce Managers*

"There's a head-in-the-sand tendency to assume that just because our devices, browsers, and networks are more powerful than ever, end-user performance must also be getting better"

Tammy Everts, Web Performance and UX Geek

DIFFERENCE BETWEEN WEIGHT AND SPEED

DIFFERENCE BETWEEN WEIGHT AND SPEED

- ***Page weight*** *is the total file size of all assets being downloaded to the page*
- ***Page speed*** *is how quickly and efficiently the page is rendered*

HOW PERFORMANT ARE YOU NOW?

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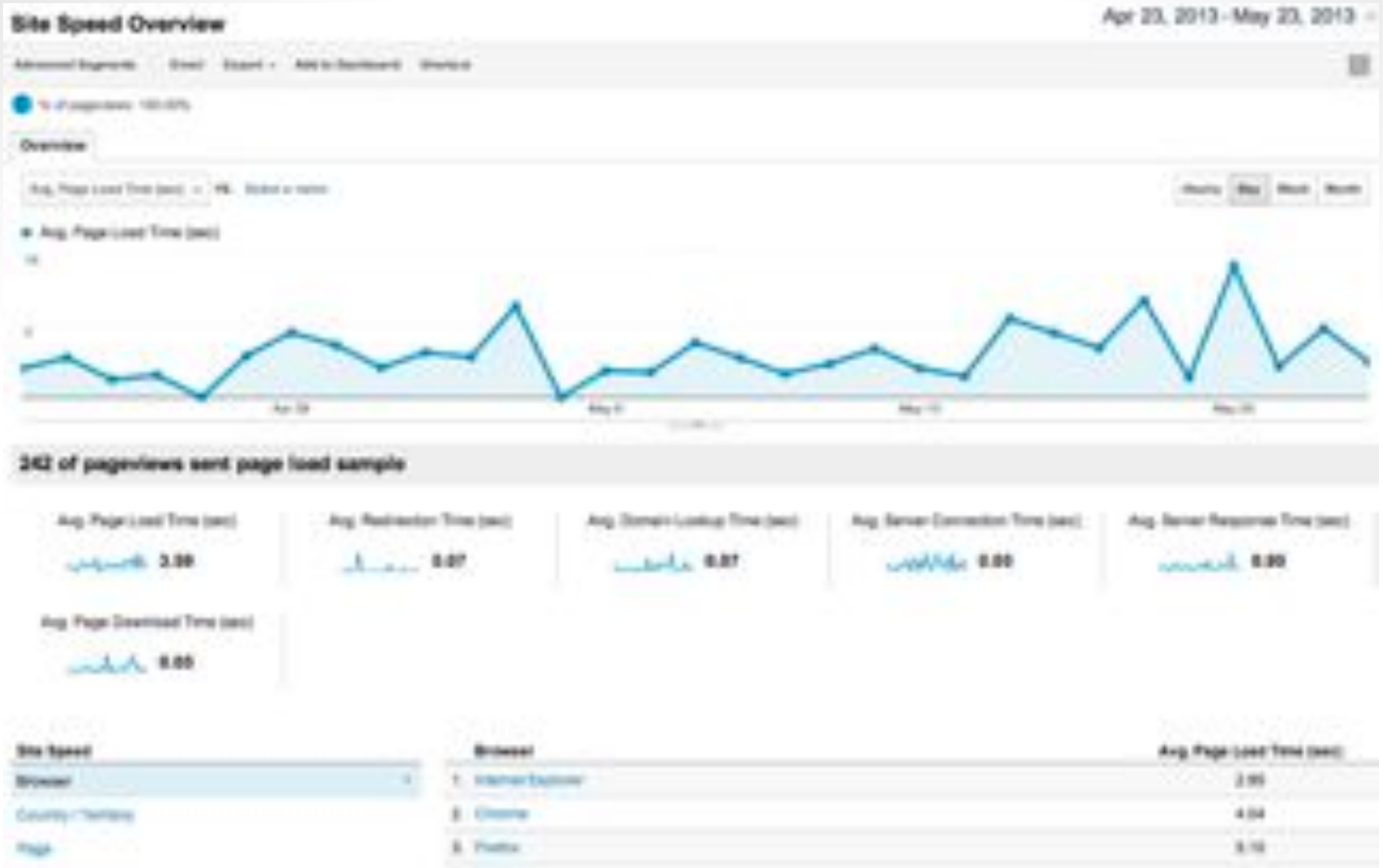
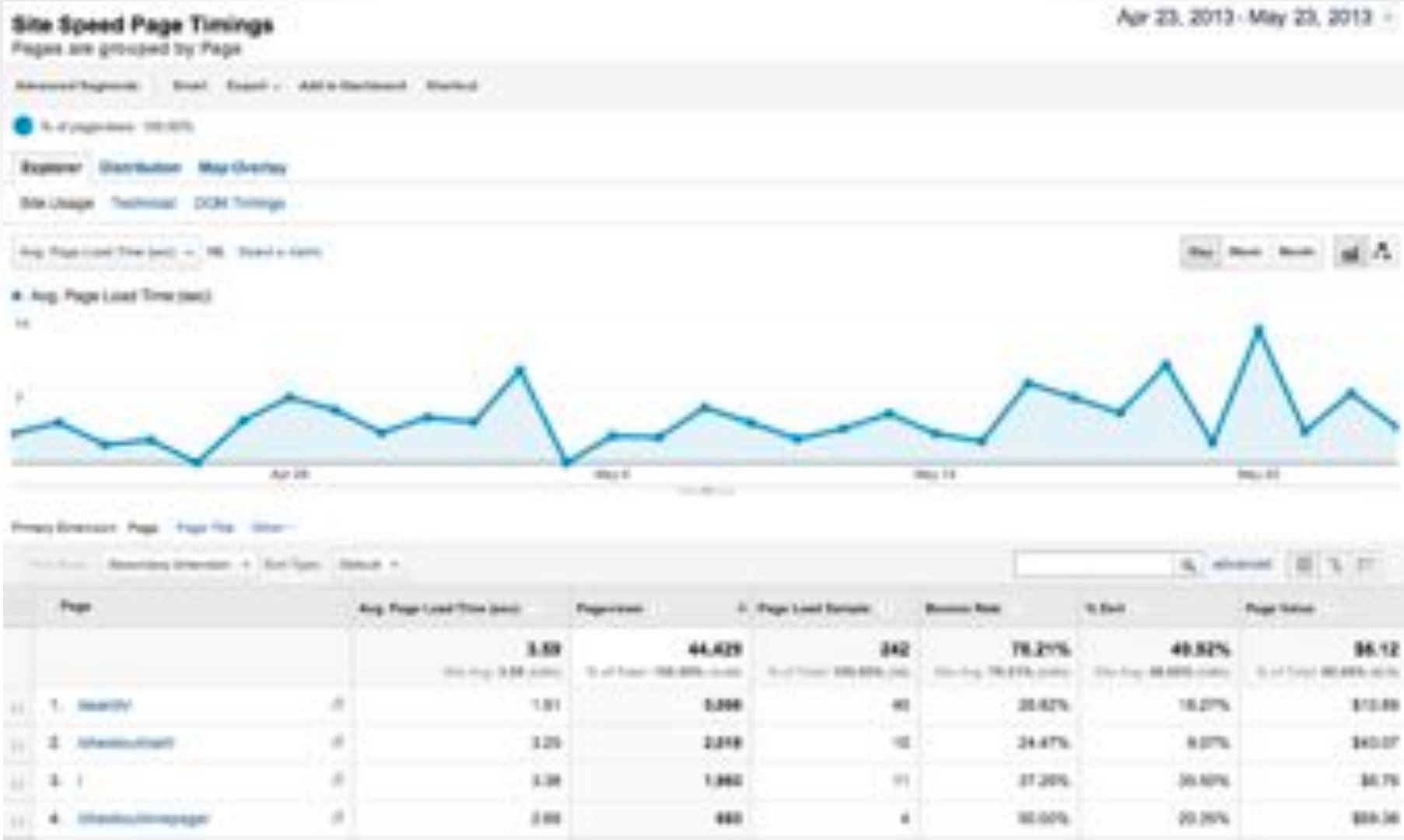
- *Use tools to spot check load times*
- *Google Analytics Site Speed Reports*

GOOGLE ANALYTICS SITE SPEED REPORTS - OVERVIEW



GOOGLE ANALYTICS SITE SPEED REPORTS - PAGE TIMINGS



HOW FAST ARE YOU NOW?

- *Use tools to spot check load times*
- *Google Analytics Site Speed Reports*
  - *Only based on 1% of traffic by default*
  - *Add `'setSiteSpeedSampleRate()'` to the GA tag to increase sample size*

GTMetrix

Latest Performance Report for:
Summary
Breakdown
Page Speed

HOW FAST ARE YOU NOW?

- *Use tools to spot check load times*
- *Google Analytics Site Speed Reports*
- *GTMetrix*
- *WebWait*

WebWait

Options
Player
0.40s
URL Average Median StdDev
1 www.o3world.com 0.40 0.35 0.13

MEET THIS GUY
0.35s

HOW FAST ARE YOU NOW?

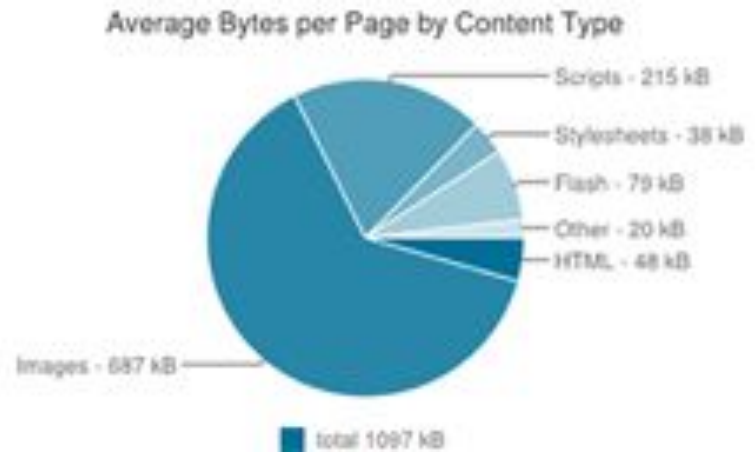
- *Use tools to spot check load times*
- *Google Analytics Site Speed Reports*
- *GTMetrix*
- *WebWait*
- *PingDom*
- *AlertBot*

WHAT DO YOU DO?!?

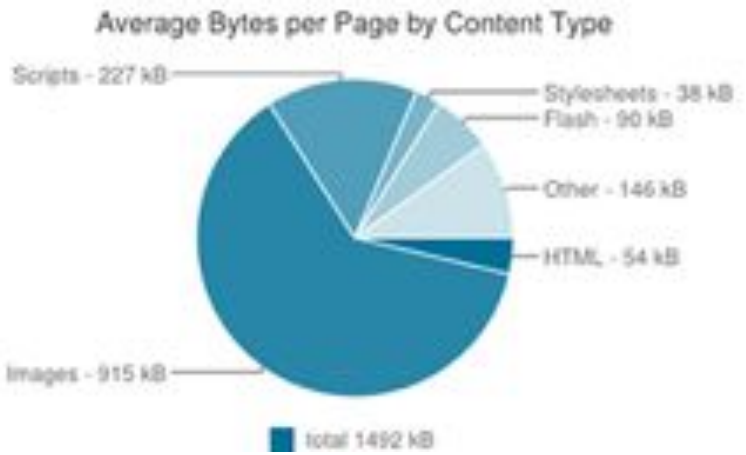
464 Requests | 85.9 MB Transferred | 2.1 Minutes

AVERAGE PAGE WEIGHT

JULY 2012



JULY 2013



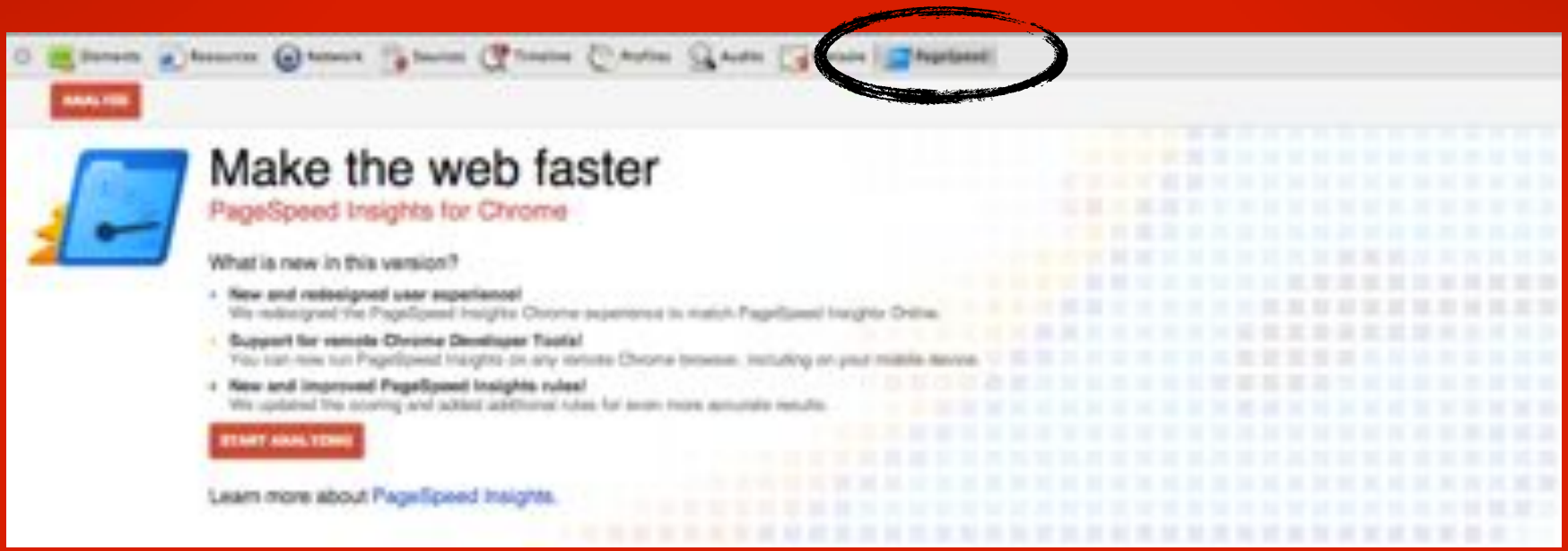
http://bit.ly/15dh1ZZ

WHAT DO I DO?!?

- *Tools*
- *Back-end Architecture and Setup*
- *Front-end Practices*
- *Infrastructure and Delivery Mechanisms*

TOOLS

GOOGLE PAGE SPEED INSIGHTS



http://bit.ly/HH1zLC

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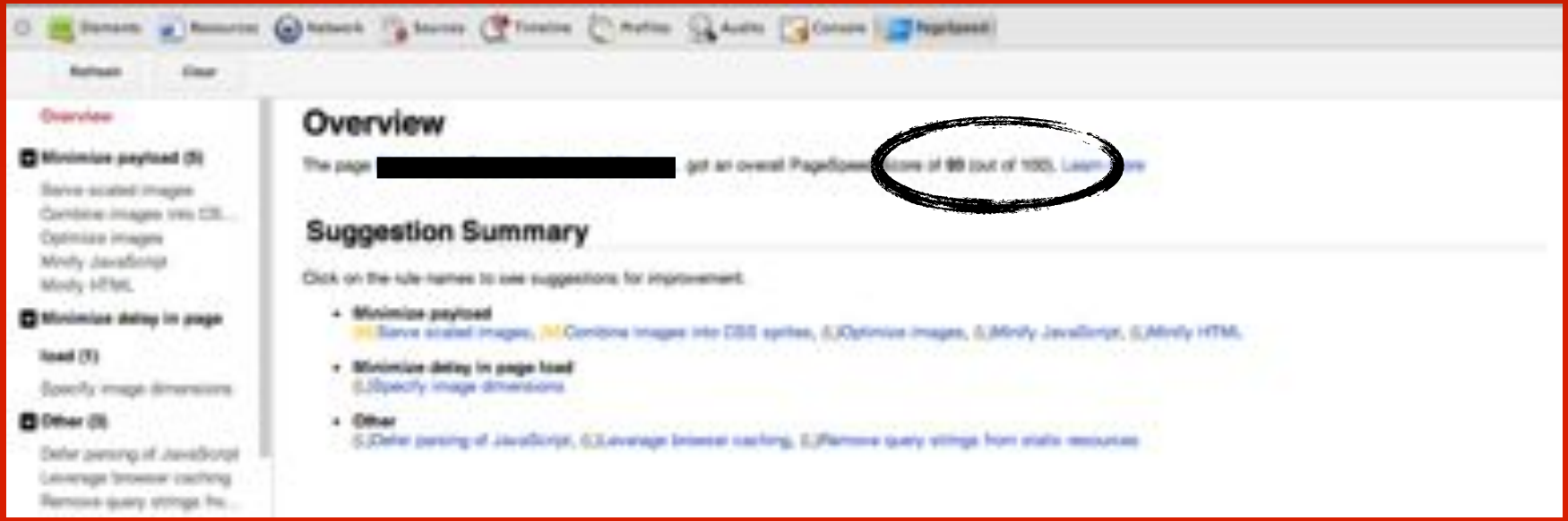
GOOGLE PAGE SPEED INSIGHTS



http://bit.ly/HH1zLC

#MakeItFast

WebPageTest.org

http://www.webpagetest.org

POWERMAPPER SORTSITE

http://bit.ly/4Pte

POWERMAPPER SORTSITE

- ***Accessibility*** *- check against W3C WCAG1, WCAG2 and Section 508 guidelines*
- ***Compatibility*** *- check for browser specific code, script and image formats*
- ***Broken Links*** *- check for broken links and other errors*
- ***Search Engine Optimization*** *- check Google, Yahoo and Bing webmaster guidelines*
- ***Web Standards*** *- validate HTML, XHTML and CSS*

BACK-END BEST PRACTICES

BACK-END BEST PRACTICES

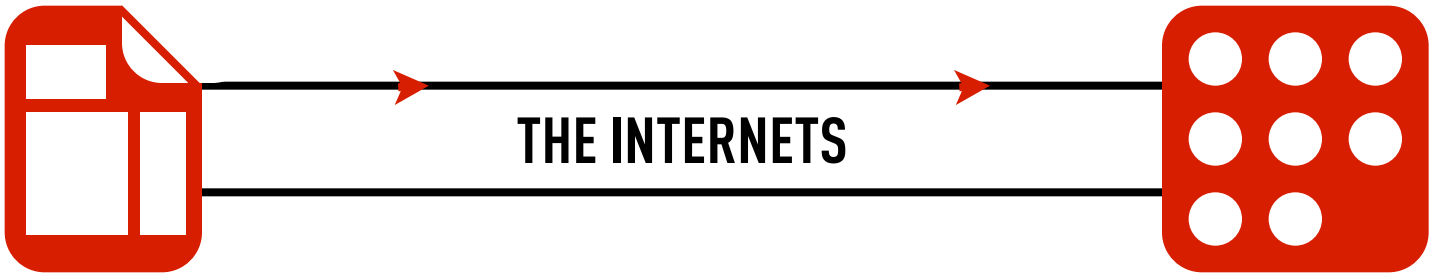
- *Application Architecture*
  - *Magento is purpose built for e-commerce*
  - *Built with PHP and Zend Framework*
  - *Designed for linux and Mysql*
- *Implementation and deployment*
  - *Best bet is a Magento Solution Partner*
- *Extension / Module Selection and Integration*
  - *Look to Magento Industry Partners*

http://www.hark.com/top-gun/i-feel-the-need-the-need-for-speed

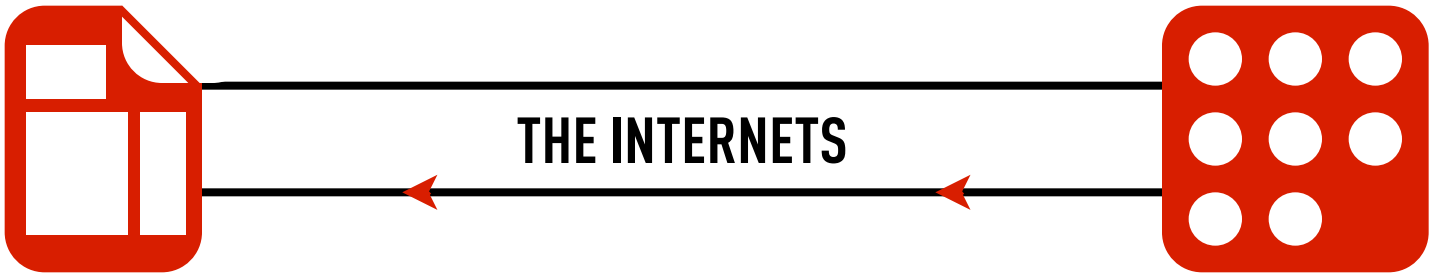
FRONT-END BEST PRACTICES

MINIMIZE HTTP REQUESTS

MINIMIZE HTTP REQUESTS



MINIMIZE HTTP REQUESTS



CSS AND JAVASCRIPT ORGANIZATION

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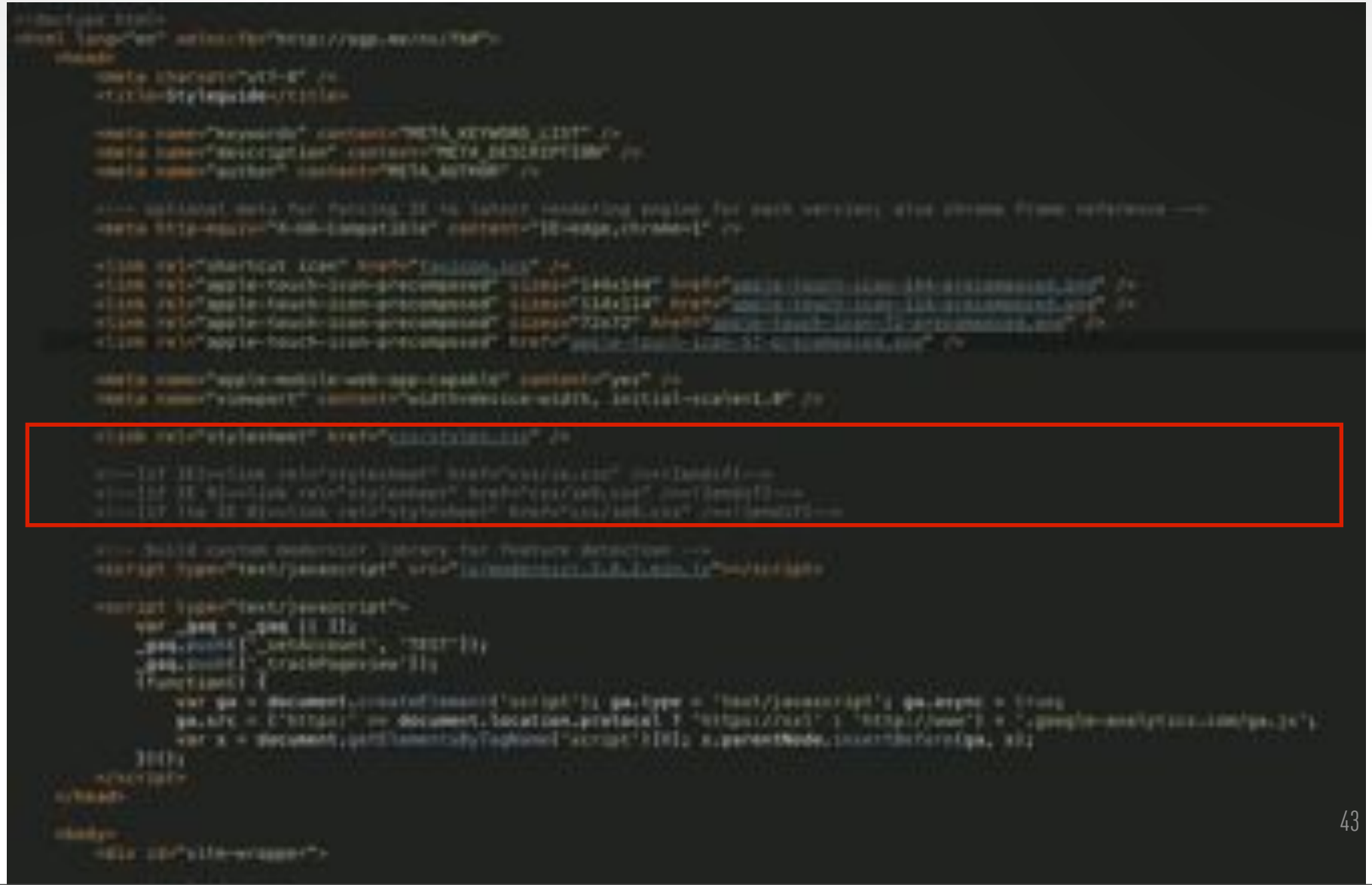

CSS AND JAVASCRIPT ORGANIZATION

```
            </div>
        </footer>
    </div>

    <!-- check for latest jQuery CDN library -->
    <script src="//ajax.googleapis.com/ajax/libs/jquery/1.8.3/jquery.min.js"></script>
    <script>window.jQuery || document.write('<script src="js/jquery-1.8.3.min.js"><\/script>')</script>

    <script type="text/javascript" src="js/plugins.min.js"></script>
    <script type="text/javascript" src="js/functionality.js"></script>
</body>
</html>
```

CDN HOSTED LIBRARIES

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```
            </div>
        </footer>
    </div>

    <!-- check for latest jQuery CDN library -->
    <script src="//ajax.googleapis.com/ajax/libs/jquery/1.8.3/jquery.min.js"></script>
    <script>window.jQuery || document.write('<script src="js/jquery-1.8.3.min.js"><\/script>')</script>

    <script type="text/javascript" src="js/plugins.min.js"></script>
    <script type="text/javascript" src="js/functionality.js"></script>
</body>
</html>
```

http://bit.ly/Iz0Dc0

COMBINE AND MINIFY

COMBINE AND MINIFY

BEFORE

AFTER

http://bit.ly/bV0o9

3RD PARTY LIBRARIES

3RD PARTY LIBRARIES

	AddThis	ShareThis
DNS Requests	2	6
Initial HTTP Requests	5	18
Initial Weight	20.7KB	82.6KB
Initial Load Time (avg)	460ms	1.69s
Total HTTP Requests	14	21
Total Weight	71.3KB	82.8KB
Total Load Time (avg)	1.52s	2.34s
Window Load Time (avg)	490ms	460ms
Cookies	10	5

http://bit.ly/dvJTgr

IMAGE FORMAT AND COMPRESSION

IMAGE FORMAT AND COMPRESSION

- Choose the correct format for the image - JPG, GIF, PNG8, PNG24
- JPG is great for photographic images
- GIF largely replaced by PNGs, but still sometimes a viable option for small patterns and textures
- PNG combines some of the best qualities of both and with PNG24 supports true transparency

IMAGE FORMAT AND COMPRESSION

Remove the ***unnecessary comments, meta information and color profiles*** *that Photoshop's* ***"Save for Web" leaves*** *in place*

YAHOO! SMUSH.IT

http://bit.ly/H6jkPe

#MakeItFast

IMAGEOPTIM

http://bit.ly/wozOid

CSS SPRITES

CSS SPRITES

```
.social-links a { background: url("../images/sprite-icons-footer-social.png")
 no-repeat 0 0; }


.googleplus { /* default position */ }
.facebook   { background-position: 0 -44px; }
.twitter    { background-position: 0 -88px; }
.linkedin   { background-position: 0 -132px; }
.youtube    { background-position: 0 -176px; }
.pinterest  { background-position: 0 -220px; }
```

CSS IMAGE DOWNLOADS

CSS IMAGE DOWNLOADS

- *Determining if your images are downloading when not displayed* ***is critical - especially when considering Responsive Web Design***
- *There's* ***a lot of different circumstances*** *for when images may or may not be downloaded*

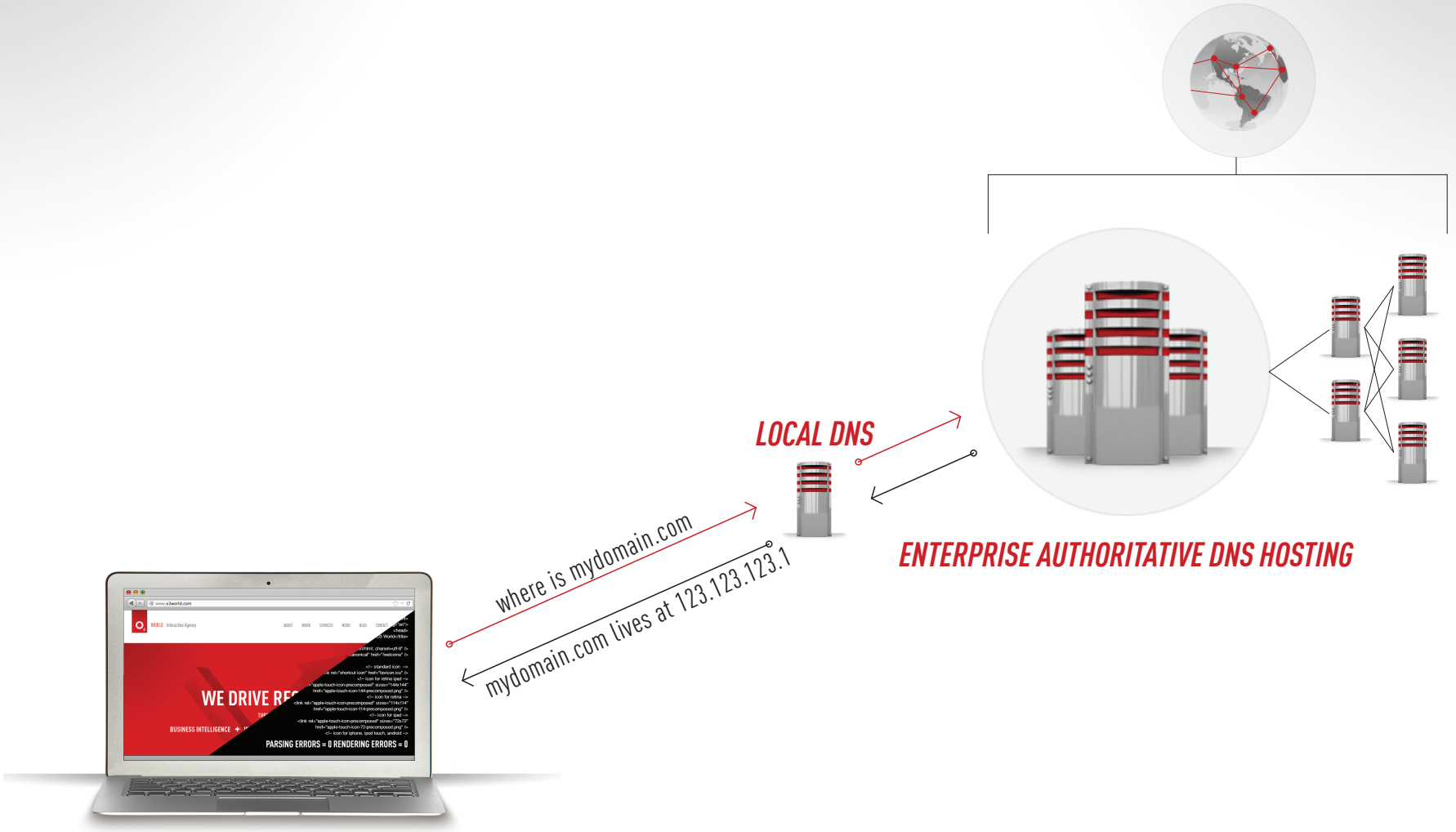
http://bit.ly/HwTCKQ

FRONT-END BEST PRACTICES SUMMARY

- *HTTP Requests* - as few as possible
- *Organization* - CSS at the top, JavaScript at the bottom
- *CDN Hosted Libraries* - decreased latency and likely to be cached
- *Combine and Minify* - both for CSS and JavaScript
- *3rd Party Plugins* - pay to play
- *Image Format & Compression* - use the right format & REALLY compress them
- *CSS Sprites* - combine UI elements into as few as possible
- *CSS Image Downloads* - it might not be displayed, but make sure the user isn't getting hit

INFRASTRUCTURE, CACHING & TUNING

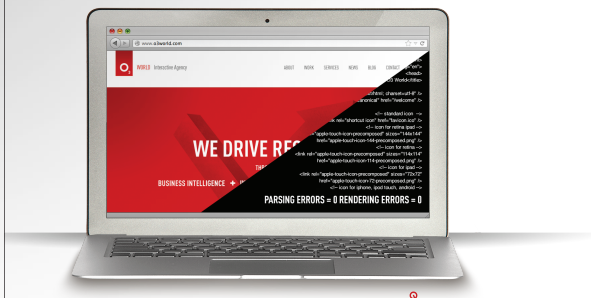
LOCAL & AUTHORITATIVE DNS



HOSTING INFRASTRUCTURE - DNS

- *DNS is extremely important - 1st step to your site*
- *Local DNS takes it's info from Authoritative DNS*
- *Don't use the free default from registrar*
- *Reliable, redundant DNS is cheap*
- *Direct access is key for controlling changes*

WEBSITE HOSTING



HTML is semantic, standards compliant

JS is async or deferred where possible

'get' http://www.mydomain.com @ 123.123.123.1

gzip'd .html files are returned

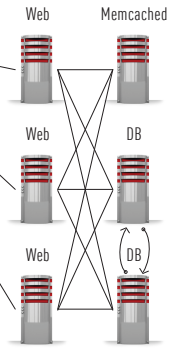
BASIC HOSTING SERVER

OR

HIGH TRAFFIC / HIGH AVAILABILITY HOSTING

OR

MASSIVELY SCALABLE HOSTING



R.E.S.S.
Detect and serve screen appropriate markup & assets

Site Caching
Reverse proxy, basic, and/or full page caching

Nginx (web server)
- NOT Apache! or IIS
- gzip compression enabled
- 30 day TTL on client side cache for all objects

'SQL DBs
- Query Caching
- Buffers Set
- Temp Tables Set

PHP Application Server
Bytecode caching is enabled

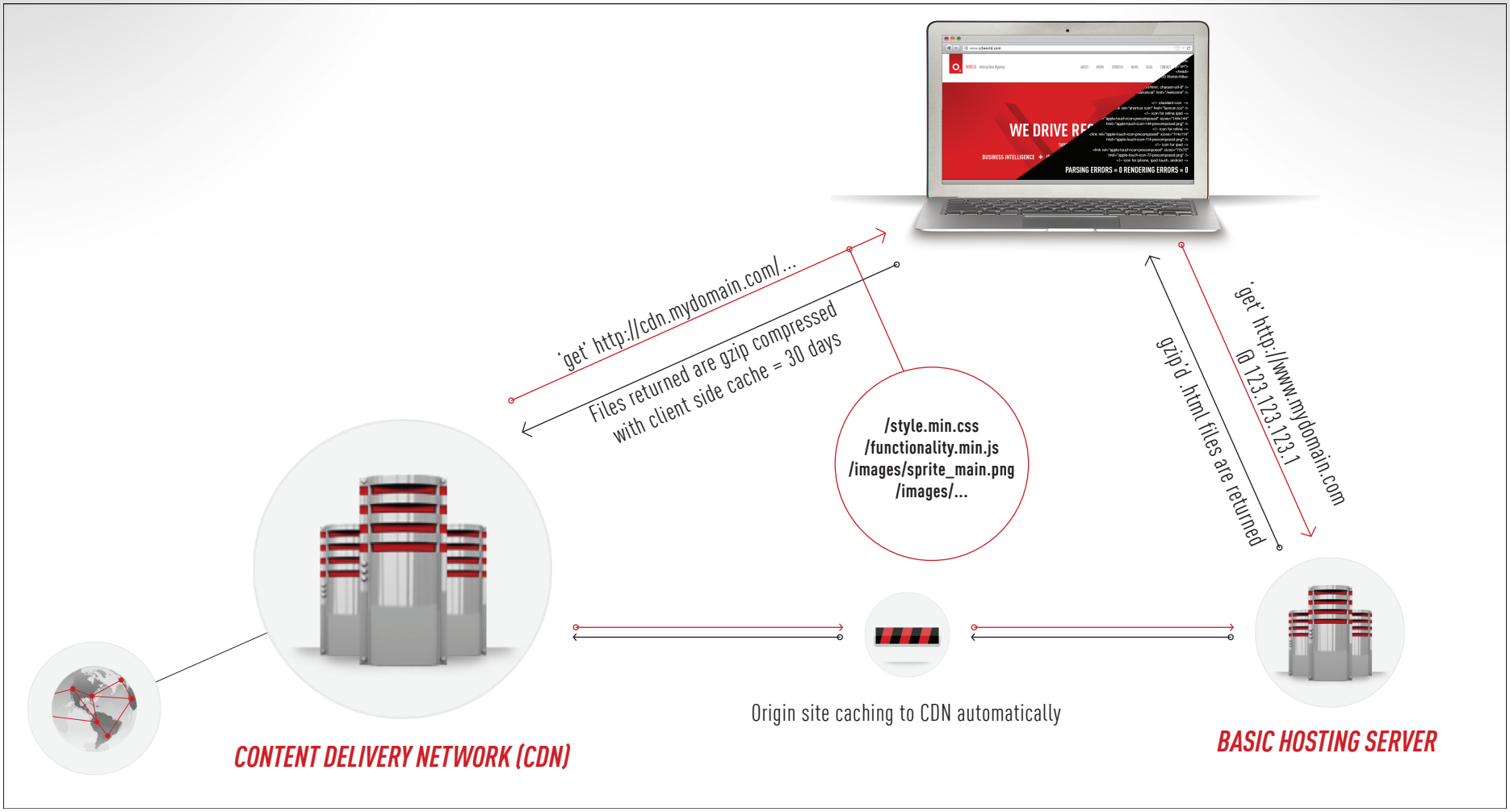
BASIC HOSTING INFRASTRUCTURE

- *Basic hosting is becoming a commodity*
- *Forget inexpensive shared website & VPS hosting*
- *Use a Magento Certified Hosting Partner*
- *Physical vs. VPS vs. Enterprise VMs*
- *Easy scalability of computing resources is key*
- *"Managed" servers and support, good*
- *Support of the application, even better*

SERVER TUNING & TWEAKING

- *Nothing is "optimized" by default*
- *Pick a better web server, like Nginx*
- *Config web server for compression & client-side caching*
- *Use bytecode/opcode caching like APC*
- *MySQL Databases need tuning*
- *HUGE IMPACT ON SPEED*
- *If you don't have a SysAd, ask your hosting vendor*
- *Never once and done, measure, tune, repeat*

CACHING AND CDNS



CACHING, CACHING, AND MORE CACHING

- *Key concept: memory I/O is faster than disk I/O*
- *Enable all Magento Caching*
- *Memcached - flexible, multi-purpose memory storage*
- *Varnish Cache - web app accelerator, a.k.a - reverse proxy*
- *Keep web server even needing to fulfill requests*
- *Keep web server from needing application execution*
- *Keep application from needing database transactions*

CONTENT DELIVERY NETWORKS (CDNs)

- *Serve largest files from geographically closest server*
- *Infrastructure highly tuned for speed*
- *DNS alias setup for cdn.mysite.com*
- *Files are compressed with client-side cache settings*
- *Relieves load on origin host, increasing capacity*
- *Origin caching keeps CDN in sync automatically*
- *Most CMS/eComm systems have CDN support*

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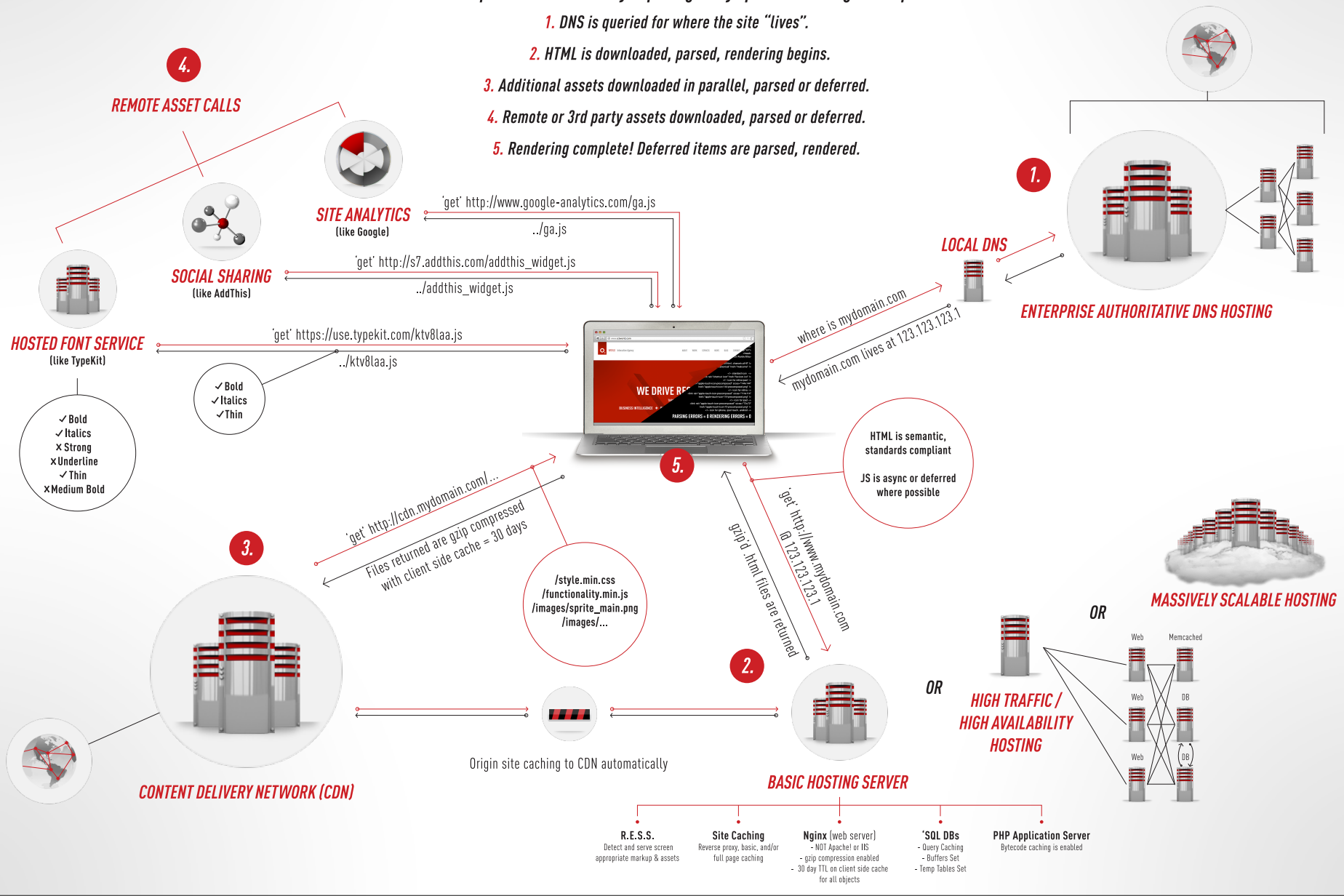
I WANNA GO FAST

Basic steps of website delivery depicting many speed increasing techniques.

1. DNS is queried for where the site "lives".
2. HTML is downloaded, parsed, rendering begins.
3. Additional assets downloaded in parallel, parsed or deferred.
4. Remote or 3rd party assets downloaded, parsed or deferred.
5. Rendering complete! Deferred items are parsed, rendered.



RESOURCES

ADDITIONAL RESOURCES

http://www.compuware.com/d/release/656820/poor-web-performance-results-in-tablet-users-less-likely-to-make-purchases-online

http://www.icrossing.co.uk/slow-pages-lose-users

http://blog.kissmetrics.com/loading-time

https://developers.google.com/speed

http://creativeoverflow.net/20-tools-to-check-your-web-sites-performance

http://www.seomoz.org/ugc/why-site-speed-optimisation-should-be-part-of-your-seo-strategy

http://blog.tagman.com/2012/03/just-one-second-delay-in-page-load-can-cause-7-loss-in-customer-conversions

http://www.tagman.com/conversion-loss-calculator

http://www.seomoz.org/blog/15-tips-to-speed-up-your-website

http://www.seomoz.org/ugc/13-questions-and-answers-about-google-site-speed-and-seo

QUESTIONS?

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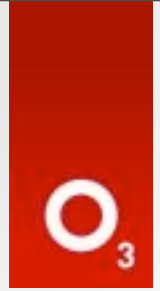

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PRESENTERS

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