Optimizing WordPress Performance: Page Speed and Load Times

Doug Yuen

EFFICIENTWP

Why Worry About Page Speed?

Make your visitors happy and keep their attention. The longer your site takes to load, the more likely a visitor will leave without converting.

- 40% of people abandon a site that takes more than 3 seconds to load.
- A 1 second delay in page response can result in a 7% reduction in conversions.
- If an e-commerce site is making $100,000 per day, a 1 second page delay could potentially cost you $2.5 million in lost sales every year.

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

Why Worry About Page Speed?

- **Google rankings.** Site speed is a ranking factor.
  "You may have heard that here at Google we're obsessed with speed, in our products and on the web. As part of that effort, today we're including a new signal in our search ranking algorithms: site speed.**"**
  http://googlewebmastercentral.blogspot.com/2010/04/using-site-speed-in-web-search-ranking.html
- **Keep your visitors' attention.** The longer your site takes to load, the more likely a visitor will leave.
- **Handle traffic spikes with ease.** Caching and other performance optimizations reduce the chance of your website going down if you get a lot of visitors at once.
- **Save money.** Faster, smaller page sizes will reduce your bandwidth costs.

Measuring Performance

Uptime Monitoring

Before worrying about performance, make sure your website has high uptime. If you're not monitoring your site, you may be surprised to see that it's offline more than you think.

These services will send you a notification when your site goes down, and another notification when it comes back up. Sign up for at least two of these services for redundancy.

- **Pingdom (free):** https://www.pingdom.com/free/
- **Uptime Robot (free):** http://uptimerobot.com
- **Montastic (free):** http://www.montastic.com
- **ManageWP (premium):** http://managewp.com

Performance Measurement Tools

GTMetrix: http://gtmetrix.com
- Free to use without setting up an account
- Free account allows 5 monitored URLs, 20 saved reports
- Pro account has even more features

Pingdom: http://tools.pingdom.com/fpt/
- Free to use without setting up an account

Identifying the Problems

Page Speed Grade: **B** (85%) ↑

YSlow Grade: **C** (74%) ↕

Page load time: 3.96s

Total page size: 1.66MB

Total number of requests: 164

Breakdown

| Page Speed | YSlow | Timeline | History |

RECOMMENDATION	GRADE		TYPE	PRIORITY
Defer parsing of JavaScript	F (0)	↓	JS	High
Specify image dimensions	F (0)	↓	Images	High
Combine images using CSS sprites	F (0)	↓	Images	Medium
Prefer asynchronous resources	E (55)	↓	JS	Medium
Avoid CSS @import	C (70)	↓	CSS	Medium
Optimize the order of styles and scripts	B (85)	↓	CSS/JS	High
Remove query strings from static resources	B (87)	↕	Content	High
Serve scaled images	B (87)	↕	Images	High
Inline small CSS	B (89)	↕	CSS	High
Serve resources from a consistent URL	A (9)	↕	Content	High
Leverage browser caching	A (94)	↑	Server	High
Inline small JavaScript	A (95)	↕	JS	High
Minify CSS	A (96)	↑	CSS	High
Minify HTML	A (97)	↕	Content	High

Understanding GTMetrix

Key Measurements (in the Summary):

- Page Speed Grade
- YSlow Grade
- Page Load Time
- Total Page Size
- Total Number of Requests

Page Speed Grade

- The higher, the better. Aim for an A or better.
- Based on Google's recommendations.
- Recommendations are listed below, the default tab under "Breakdown". Click on each recommendation to see specific details.

YSlow Grade

- The higher, the better. Aim for a B or better.
- Based on Yahoo's recommendations.
- It's not as important as Page Speed, but worth looking at when you've done all you can to improve elsewhere.

Page Load Time

- **This is arguably the most important optimization metric to focus on.**
- The lower, the better. Aim for < 2.00s on GTMetrix and Pingdom.
- Note: Load times from locations and servers will vary.
- Impacted by:
  - Page size.
  - Number of requests.
  - Response time of requests. This depends on the server speed of both internal requests and external requests.

Total Page Size

- The lower, the better.
- Impacted by the files needed to render the page, primarily:
    - Images
    - Videos
    - JavaScript
    - CSS
    - HTML

Total Number of Requests

- The lower, the better.
- Impacted by the number of:
  - Files referenced (images, CSS files, JavaScript files, etc.)
  - Embeds (YouTube videos, Facebook Like Box, etc.)
  - Social sharing counts (Likes, Tweets, +1s)

Solving the Problems

The 80/20 of Optimization

- Hosting
- Image optimization
- Caching
- Plugins
- Embeds and other external requests

Hosting

Upgrade to managed WordPress hosting. Don't use cheap shared hosting.

- **Synthesis:** http://websynthesis.com
- **WP Engine:** http://wpengine.com

Benefits:

- Better server speed
- Significantly better server uptime
- Some built-in performance optimization
- Security and backups

Image Optimization

Optimize images.

Use a plugin to optimize/compress images automatically.

- **WP Smush.it:**
  http://wordpress.org/plugins/wp-smushit/
- **EWWW Image Optimizer:**
  http://wordpress.org/plugins/ewww-image-optimizer/

Image Optimization

Serve scaled images.

Upload images at the correct size instead of resizing them in the browser with CSS. This way you're not requiring visitors to download more data than what is necessary.

Image Optimization

Specify image dimensions.

For example, instead of:
<img src="http://example.com/wp-content/uploads/2014/01/image.png">

Use:
<img src="http://example.com/wp-content/uploads/2014/01/image.png" width="80" height="60">

Caching

Leverage browser caching.

- Normally, loading a WordPress page can require many database requests.
- Caching will deliver static HTML files instead, making your pages load significantly faster.
- Caching can be difficult to set up. The correct settings for your site depends on your server configuration and plugins.
- **W3 Total Cache:**
  http://wordpress.org/plugins/w3-total-cache/

Plugins

Plugins are usually the primary cause for slowing down your site. Poorly written plugins tend to load extra files or make unnecessary requests. Your theme, if poorly written, can also have the same effect on your site.

- Deactivate the plugins that you're not actively using.
- Delete your unused themes and plugins.
- Switch to a better theme and plugins if necessary.

Plugins

Use the P3 Plugin Performance Profiler to determine which plugins are impacting your site the most. Deactivate and delete any that are not essential.
https://wordpress.org/plugins/p3-profiler/

The quality of the plugins matter more than the number. EfficientWP.com has 48 plugins activated, yet it has a Page Speed Grade of 97% and a page load time of 1.97s.
http://gtmetrix.com/reports/efficientwp.com/fUJCbeox

Embeds and Other External Requests

External requests often slow down your site. They add to the total number of requests, are not cached, and the external servers are often slow to respond.

- Any images you use should be hosted on your own domain.
- If you are using multiple analytics services, use Segment.io to combine them into a single request.
  http://wordpress.org/plugins/segmentio/
- If you are displaying share counts, remove the buttons from the social networks that your audience doesn't use.
- For other embeds and external requests, such as Facebook Like Boxes and YouTube videos, use only what you need.

Other Performance Improvements

Remove query strings from static resources.

Add this code to your theme's functions.php:

```php
function ewp_remove_script_version( $src ){
    if ( stripos( $src, '?ver=' ) ) {
        $parts = explode( '?', $src );
        return $parts[0];
    }
    elseif ( stripos( $src, 'ver=' ) ) {
        $position = strripos( $src, '&' );
        return substr( $src, 0, $position );
    }
    else {
        return $src;
    }
}
add_filter( 'script_loader_src', 'ewp_remove_script_version', 15, 1 );
add_filter( 'style_loader_src', 'ewp_remove_script_version', 15, 1 );
```

Other Performance Improvements

- Host videos and other large files offsite to reduce your server load and bandwidth. Use a CDN (content delivery network) to deliver files faster.
- Optimize your database tables. Most backup plugins can do this automatically.
- Combine JavaScript and CSS files. Minify JavaScript, CSS, and HTML.
- Remove unnecessary data in your database (i.e. spam comments and their metadata, tables from plugins you're no longer using).
- Remove unnecessary files, such as old backups, from your server.

Questions?

Doug Yuen
doug@efficientwp.com
@Doug_Yuen
EfficientWP.com