high-performance front-end development
SPEED MATTERS
NOT COVERED

Apache/mySQL config
Using a CDN
Choosing a good host
OUR ENEMIES

DNS lookups
HTTP connections
Sequential loading
Bloated DOM
Bloated CSS
Payload size
Every domain mentioned on your page needs to be resolved to an IP (20-120 ms)

But too few domains is bad too.
HTTP CONNECTIONS
HTTP CONNECTIONS

Each asset (script, image, css file, font, etc) is retrieved via an HTTP connection.

Each connection takes a moment to start due to overhead (headers).
HTTP HEADERS

Request URL: http://cornershopcreative.com/
Request Method: GET
Status Code: 200 OK

Request Headers
Accept: text/html, application/xhtml+xml, application/xml; q=0.9, */*; q=0.8
Cache-Control: max-age=0
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8) AppleWebKit/534.57.2
          /5.1.7 Safari/534.57.2

Response Headers
Connection: Keep-Alive
Content-Encoding: gzip
Content-Length: 9339
Content-Type: text/html; charset=UTF-8
Date: Fri, 24 Aug 2012 15:16:29 GMT
Keep-Alive: timeout=15, max=100
Server: Apache/2.2.16 (Debian)
Vary: Accept-Encoding
X-Powered-By: PHP/5.3.3-7+squeeze8
REDUCING CONNECTIONS

- Combine CSS Files
- Combine JS Files
- Use CSS Sprites
- Lazy-load images
COMBINING CSS FILES

Use a tool like SASS that combines them for you
Only write a single style.css
Use a plugin (e.g. W3 Total Cache) to combine (& compress!) them for you.
COMBINING JS FILES

Use a plugin (e.g. W3 Total Cache) to combine+compress them for you.

Manually put all your jQuery plugins into a single file.
CSS SPRITES

Put all your images into a single file, and use CSS to position the background properly.
CSS SPRITE EXAMPLE

.sprite-ben {
  height: 117px;
  width: 91px;
  background-image: url('img/sprite.png');
  background-position: 0 -525px;
  background-repeat: no-repeat;
}

sprite.png measures 304 x 910
Doesn’t technically reduce number of HTTP connections, but defers them from initial load.

jQuery “lazyload” for images.
Use "defer" and/or "async" (HTML5) attribute for JavaScripts.

<script defer async src="script.js" onload="init()"></script>
SEQUENTIAL LOADING
Browsers can load some assets in parallel, such as CSS files, images, and fonts. This is good.

But some assets —JS files— are loaded in sequence and block others.
CSS AND SCRIPTS

JS should be at bottom of page.

CSS should go at the top of your page and be loaded via

<link> not @import
IN WORDPRESS

wp_enqueue_script(
    $handle,
    $src,
    $deps,
    $ver,
    $in_footer
);

Set to TRUE
BLOATED DOM
MORE ELEMENTS = SLOWER

You can do a count with:

$('*').length;
BLOATED CSS
SIMPLE SELECTORS

HTML body div#main article#post-22 p a.inline {
  property: value;
}

VS.

.inline {
  property: value;
}

ul li {} is slower than ul > li {} which is slower than .ul-li {}
REDUCING PAYLOAD
REDUCE TOTAL BITS

Minify JS and CSS (and HTML)

Write clean code

Don’t scale images in browser

Use right image filetype, blur in JPGs
# 200K OR 50K

<table>
<thead>
<tr>
<th>One 200K file</th>
<th>Ten 5K files</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNS Lookup</td>
<td>DNS Lookup</td>
</tr>
<tr>
<td>20ms</td>
<td>20ms</td>
</tr>
<tr>
<td>HTTP Overhead</td>
<td>HTTP Overhead</td>
</tr>
<tr>
<td>40ms</td>
<td>40ms</td>
</tr>
<tr>
<td>Transfer</td>
<td>Transfer</td>
</tr>
<tr>
<td>782ms</td>
<td>20ms</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>TOTAL</strong></td>
</tr>
<tr>
<td><strong>842ms</strong></td>
<td><strong>80ms</strong></td>
</tr>
<tr>
<td>Name</td>
<td>Path</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td><a href="http://cornershopcreative.com">http://cornershopcreative.com</a></td>
</tr>
<tr>
<td></td>
<td>fonts.googleapis.com</td>
</tr>
<tr>
<td></td>
<td>styles.css</td>
</tr>
<tr>
<td></td>
<td>/cms/wp-content/plugins/content/css</td>
</tr>
<tr>
<td></td>
<td>core.css</td>
</tr>
<tr>
<td></td>
<td>/cms/wp-content/themes/css</td>
</tr>
<tr>
<td></td>
<td>Museo_Slab_700-webfont.wof</td>
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<tr>
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<td>/cms/wp-content/themes/css</td>
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<td>Museo_Slab_500-webfont.wof</td>
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<td>MuseoSans_700-webfont.wof</td>
</tr>
</tbody>
</table>
FOR MORE

Google “Steve Souder”

https://developers.google.com/speed/docs/best-practices/rules_intro

http://developer.yahoo.com/yslow/
CONNECT

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