Drupal Performance and Optimization

By: Shafqat Hussain

http://speedup.co.id/

Overview

Basics of Web App Systems Architecture

- General Web Software Optimization Strategies
- Defining a Goal for Performance
- Performance Metrics, tools
- Performance Debugging Techniques
- What Can You Control?
- What Is Caching?
- Optimizing Drupal

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Why


http://goinswriter.com/frustrated-writer/

Facts and stats

- According to surveys, nearly half of web users expect a site to load in 2 seconds or less, and they tend to abandon a site that isn’t loaded within 3 seconds. 79% of web shoppers who have trouble with web site performance say they won’t return to the site to buy again and around 44% of them would tell a friend if they had a poor experience shopping online.
- 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

Google Search ranking

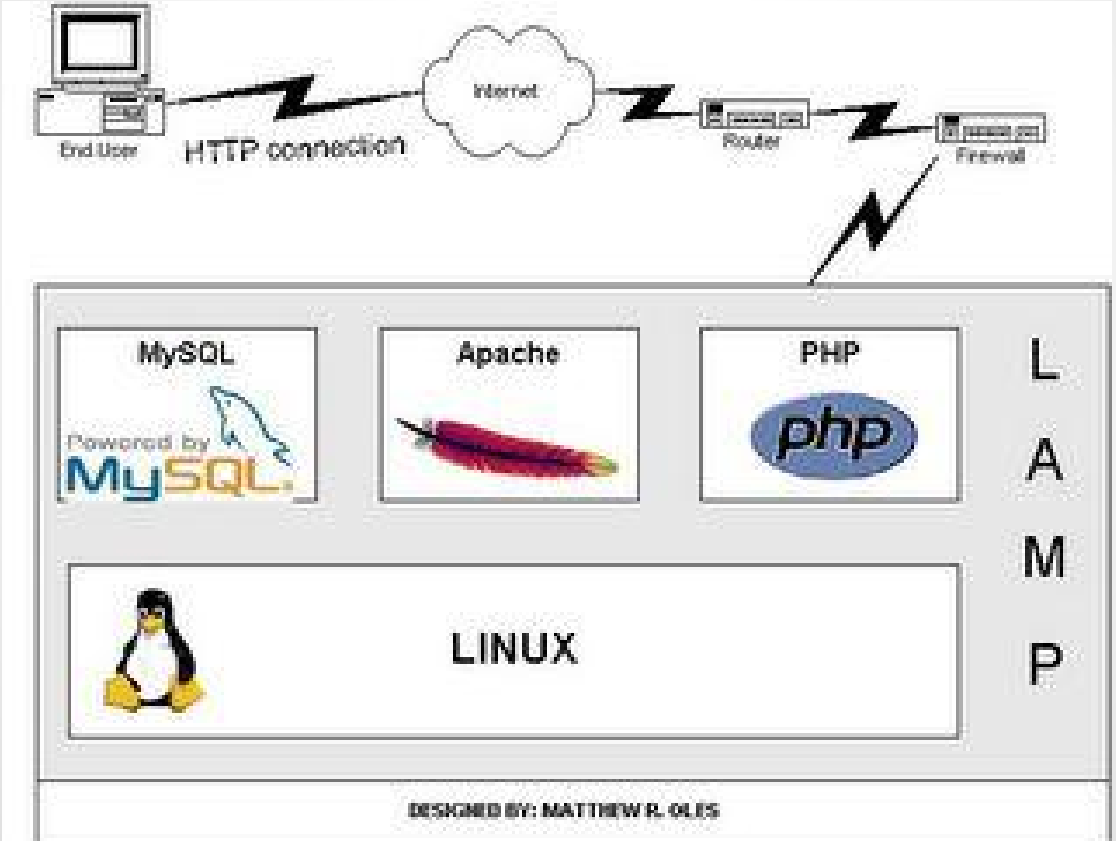
Default Drupal

Large Drupal website without Performance optimization

Our Mission

Planning

Web Architecture LAMP



General Strategies

- Move operations from devices with slower access to devices with faster access
- Reduce disk I/O
- Reduce bandwidth
- Use memory more efficiently
- Increase parallelism
- Reducing CPU
- Keep Drupal and modules up to date.
- Keep monitoring
- Use of Ajax

Defining a Goal

- Performance optimization can become an endless task without a goal
- What is your goal?
- – Page load time (4 seconds for blogs)
- – Requests/sec
- – Response time
- Performance metrics come first!

page loading .....

Tools

- Google Analytics Site Speed
- Yslow
- Page speed extension chrome/Firefox
- Chrome Developer tools
- Devel Module
- www.webpagetest.org

Chrome Developer tools Live Demo

- Initial page load vs. loading assets
- What is Waiting?

Devel module demo

What Can you Control?

- Shared Hosting vs. VPS or Dedicated Server
- Shared server allows no:
- – Apache configuration
- – MySQL configuration
- – Memcached/APC for utilizing local memory
- – Consistent resources
- Despite these limitations, you still have a lot of options even if on Shared Hosting

What is Caching?

- Saving the results of computation to reuse at a later date which saves time
- • Moving from slow disks to local memory
- • Reduce number of database queries
- • Reduce number of files to serve
- • Both server-side caching, and client-side caching
- • Disadvantages: stale data, duplication of data

Drupal Performance Priority

- Tuning strategies presented in the typical priority that you should look at them.
- – Biggest improvement at lowest cost (time or money)
- – First Shared Hosting
- – Then VPS/Dedicated Server-only

Page Caching

- Output of many database queries that are rendered into HTML to create an entire page are saved as an entire object in cache.
- Only works for Anonymous users

Aggregate and Compress CSS Files

- Parallelism is limited by web browser and web server.
- Reducing number and size of files improves performance

Aggregate/Compress Javascript Files

- Parallelism is limited by web browser and web server.
- Reducing number of files improves performance
- Compression has to be done outside of Drupal, recommend YUI Compressor or Google Closure compiler

Turn Views Caching On

- To address performance for Authenticated Users, look at enabling Views caching
- Set the time lengths for fine tuning your caching strategy
- Views Content Cache (event based)
- Found under Advanced section when Editing a View OR Demo

Turn Block Caching On

- Another way to address performance for Authenticated Users
- Modules can define whether blocks can be cached by user, by role

Disable Modules Not Used

- Reduces the chain of hooks that need to be followed
- This further reduces database queries, CSS and Javascript files
- Can you do it another way with core Drupal/ existing module or small code snippet in template.php?

Move Static Files to a CDN

- Moving static files (images, videos, CSS, Javascript) to another server
- Reduces disk I/O and requests handled by web server
- Increases parallelism due to client-side limit

Caching in Your Own Modules

- Within your own modules, you can create your own database cache tables
- Allows you to control what is cached and how long it is kept
- Separate UI files in modules
- Disable modules UI parts in live sites.
- Link: Beginner's Guide to Caching Data in Drupal 7

Reduce Image Sizes and Number of Images

- Just like CSS and Javascript aggregation,
- always good idea to reduce number and sizes of images
- • Compression
- • Repeating backgrounds
- • CSS Image Sprites

VPS/DEDICATED SERVER-ONLY PERFORMANCE OPTIMIZATIONS

Apache

- Determines how many requests you can handle in parallel
- How to know:

MaxClients = Total RAM dedicated to the web server / Max child process size

- HTTP keep-alive Timeout (also known as persistent connections) is keeping the TCP socket open so that another request can be made without setting up a new connection.

More settings: http://linuxgazette.net/123/vishnu.html

Enable MySQL Query Caching

- Great for saving small queries run on database tables that never or rarely change
- • Doesn’t eliminate, just comes out of memory
- • Even just 8MB or 16MB of memory will do wonders
- • Link: http://dev.mysql.com/doc/refman/5.1/en/query-cache.html
- MySQL Tuning https://drupal.org/node/51263

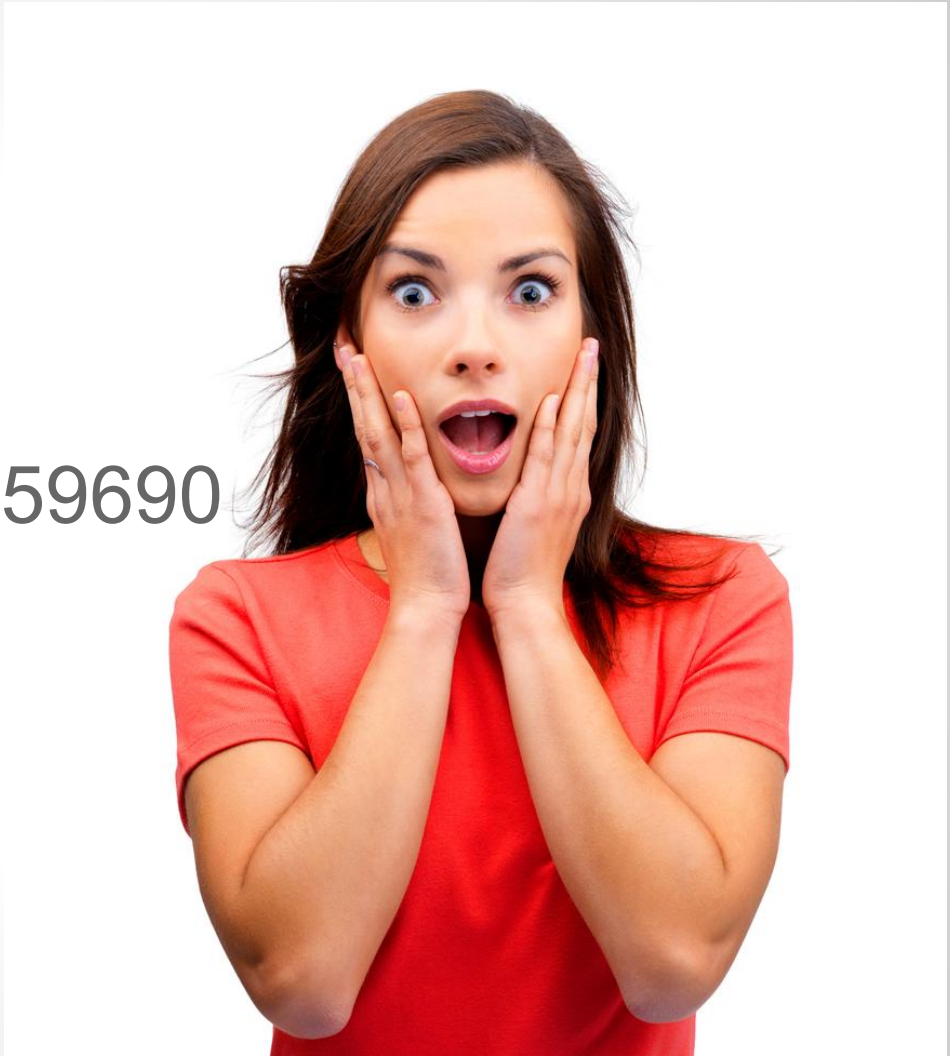
Memcached Server for Caching

- An in-memory cache used to move requests from disks to memory
- • Drupal cache tables run from Memcached instead of cache database table.
- https://drupal.org/project/memcache
- http://andrewdunkle.com/2012/how-to-install-memcached-for-drupal-7.html

Varnish

Boost

Installation demo
https://drupal.org/node/1459690



http://beauteimparfaite.com/soyez-curieux/

- Search is resource intensive
- Consider Solr
- Google Custom search

Pressflow

Enable APC

- Instead of PHP being interpreted every time, stores intermediate code (opcodes) in memory
- Each site can take up 16M or more

Note: It is possible to destroy your site by configuring incorrectly. Be careful and back up configurations before making changes. especially for MySQL, Apache

Modules

- Boost
- Memcached
- Varnish
- Block Cache
- AuthCache
- CacheRouter
- Fast 404
- Entity Cache

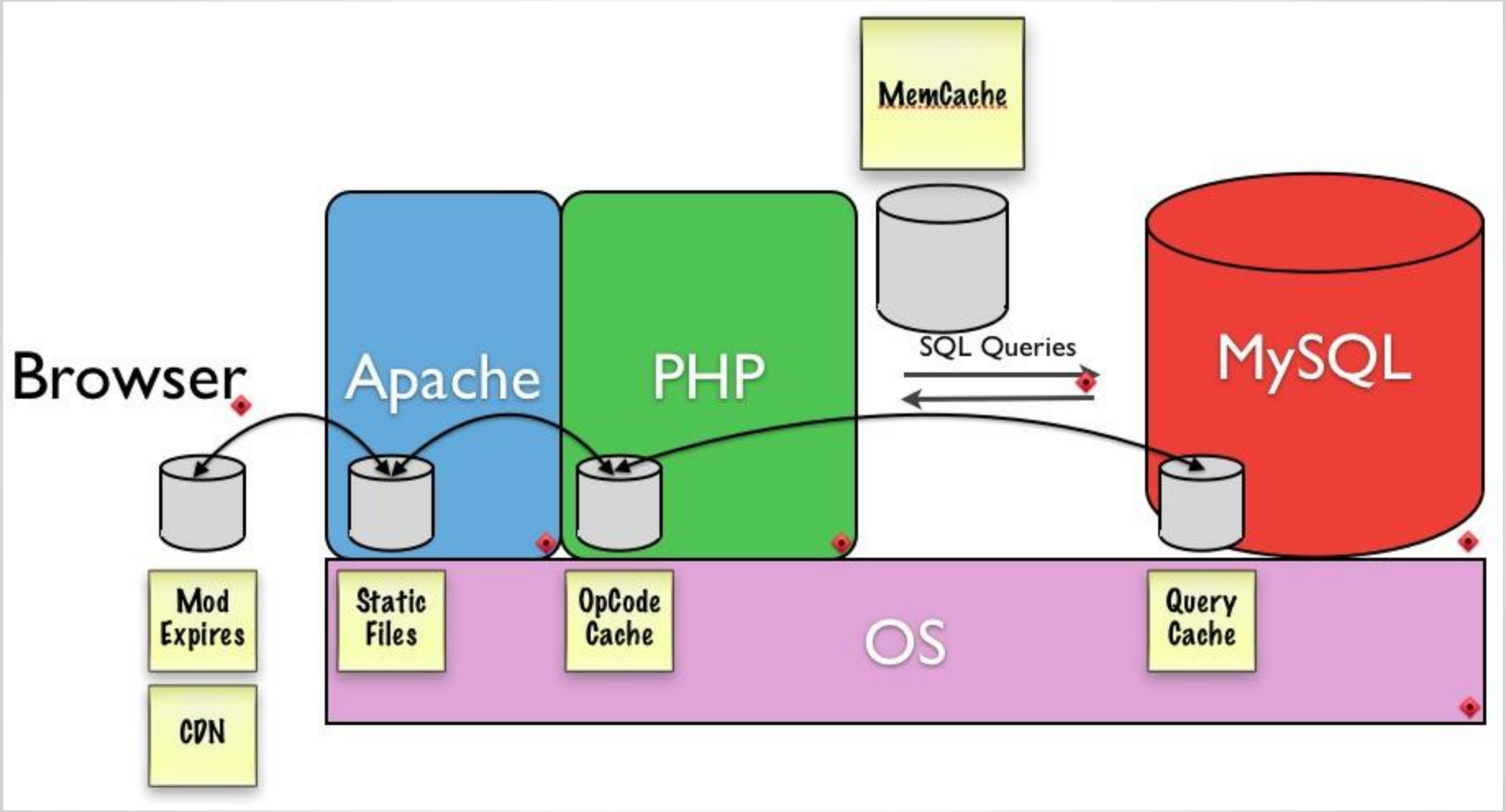
Bad Modules

- Database logging
- Statistics(consider Google Analytics)
- PHP filter
- Update Manager

Note: disable devel, UI modules

Do you really need module for that.

- eg: ‘Add to cart’ change
- You might be able solve with views, or other existing modules.
- Javascript/Jquery for small text changes.


MemCache
Browser
Apache
PHP
SQL Queries
MySQL
Mod Expires
CDN
Static Files
OpCode Cache
OS
Query Cache

Drupal 8

- Cache tags(to delete only related cache)
- P15N(Handling dynamic stuff for anonymous, eg: last visited time).

Spend Some $

- Separate MySQL server from Web Server
- Increase RAM
- Load Balance two web servers
- Buy a separate Memcached server
- Use Varnish or Squid (HTTP accelerators)
- Drupal specific hosting

Thank you for your patience!

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Questions?

Answer:

www.google.com