



# The importance of Drupal Cache

Luis F. Ribeiro  
Ci&T Inc. 2013

# Introduction

- **Caio ~~Cia~~ Luppi**
- **Software Architect at Ci&T Inc.**
- **More than 4 years of experience with Drupal Development**
- **Experience with Application Development and Support using Drupal 6 and Drupal 7 Platforms**

### Marketplace

[Services](#)[Hosting](#)[Training](#)[Marketplace preview](#)

## Ci&T - www.ciandt.com

Posted by [ciandt](#) on April 12, 2012 at 8:14pm



<http://www.ciandt.com>

#### Services

3rd party APIs, 3rd party Integration, Agile Project Management, Architecture, Consulting, Custom Development, Data migration, Development, Enterprise Drupal Development, Front-end Development, Mobile App Development, Mobile Site Development, Module Development, Multilingual websites, multisite installations, Performance & Scalability, Performance Tuning & Optimization, Project Management, Quality Assurance, Theming

#### Sectors

All sectors

#### Countries served

Worldwide

#### Headquarters

Campinas, Sao Paulo, Brazil

Established in 1995, Ci&T provides value-driven, Nearshore, web and mobile application services and software product engineering. The company's high-performance teams employ agile methodologies and Lean principles to deliver innovative, value-generating projects for companies of all sizes by leveraging the latest mobile, cloud and web technologies. A strong commitment to innovation has put Ci&T on the forefront of discovering new ways to deliver value and eliminate waste to help clients reduce costs and improve quality, speed and business agility.

Ci&T's Drupal developers have more than five years of experience and have successfully launched hundreds of customized Drupal sites around the world, both in Drupal 6 and 7.

With more than 300 Drupal developers and a strategic partnership with Acquia, Ci&T aims to meet customers' evolving global IT usage and development demands by leveraging the best of the Drupal.

A truly global company, Ci&T is headquartered in Campinas, Brazil, with strategic locations across Latin America, North America, Europe and Asia. Ci&T's US headquarters is in King of Prussia, PA. Ci&T's delivery centers are located in Brazil, Argentina and China, offering nearshore outsourcing services to clients around the globe, including Citibank, Coca-Cola, Dow Jones, Johnson & Johnson, MetLife, Panasonic, Pfizer, Saint-Gobain and Yahoo!. For more information, visit [www.ciandt.com](http://www.ciandt.com).

#### Drupal contributions



#### [gpanini](#), ScrumMaster

On Drupal.org for 4 years 12 weeks

#### [frubim](#), Chief Technology Architect

On Drupal.org for 4 years 11 weeks

#### [rafaelpedrosanto](#), ScrumMaster

On Drupal.org for 4 years 8 weeks

#### [luiz290788](#), Software developer

On Drupal.org for 4 years 2 days

#### [handrus](#), Software Architect

On Drupal.org for 3 years 44 weeks

#### [ker](#), PHP/Drupal Developer

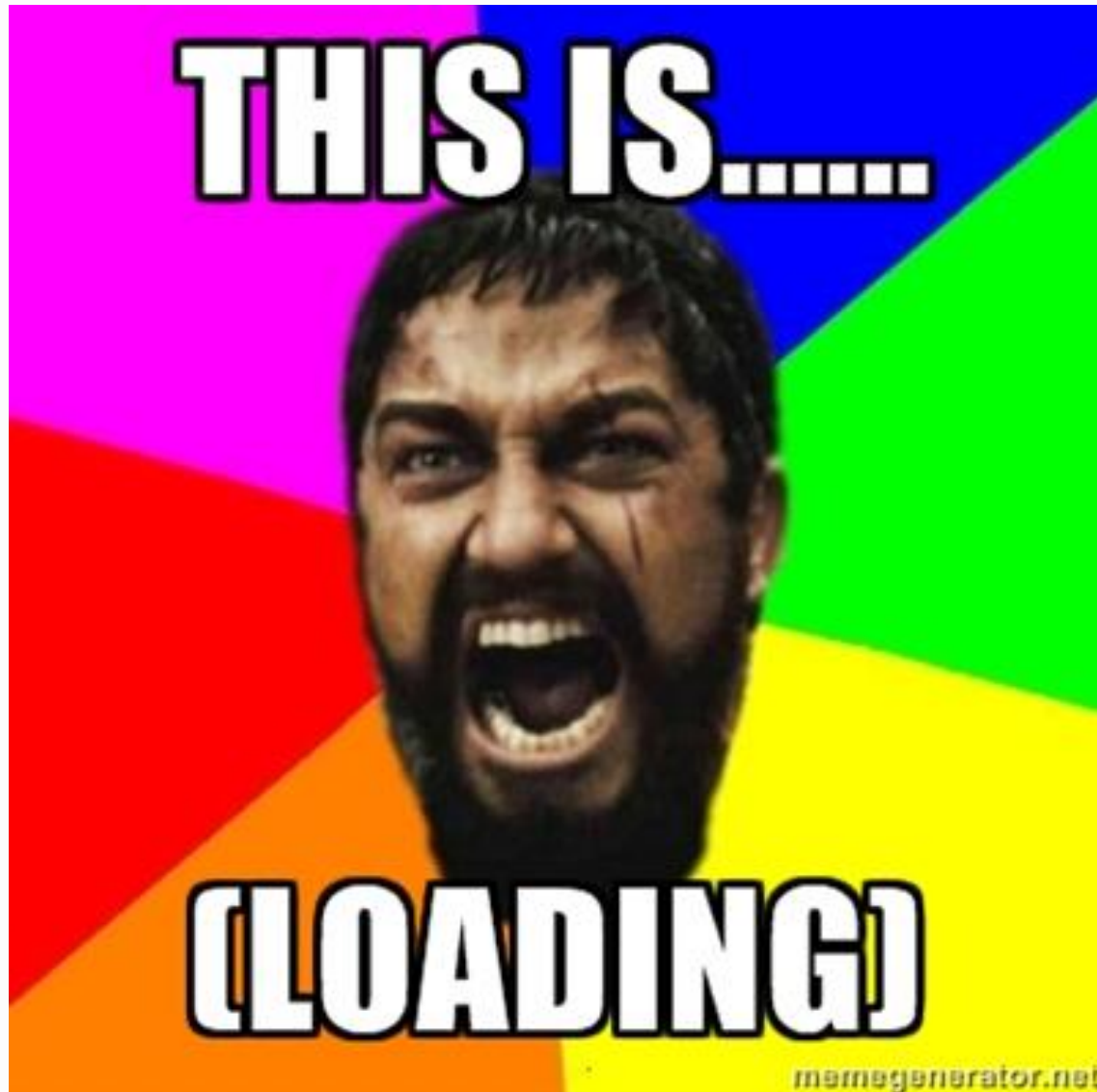
On Drupal.org for 3 years 26 weeks

#### [ttakamoto](#), Software Architect

# Why use Cache ?

- **Faster response time will increase the user experience**
- **Optimizing / rewriting code is often expensive or not an option**
- **Lower data center costs**
- **Reduce the CMS Workflow overhead**

# Why use Cache ?



## Drupal Modules/Distros

- Page Cache
- Boost Cache
- Authenticated Cache
- PressFlow

## Other Cache Options

- Varnish
- APC
- CDN (Akamai, Amazon CloudFront, Level 3)
- Memcache

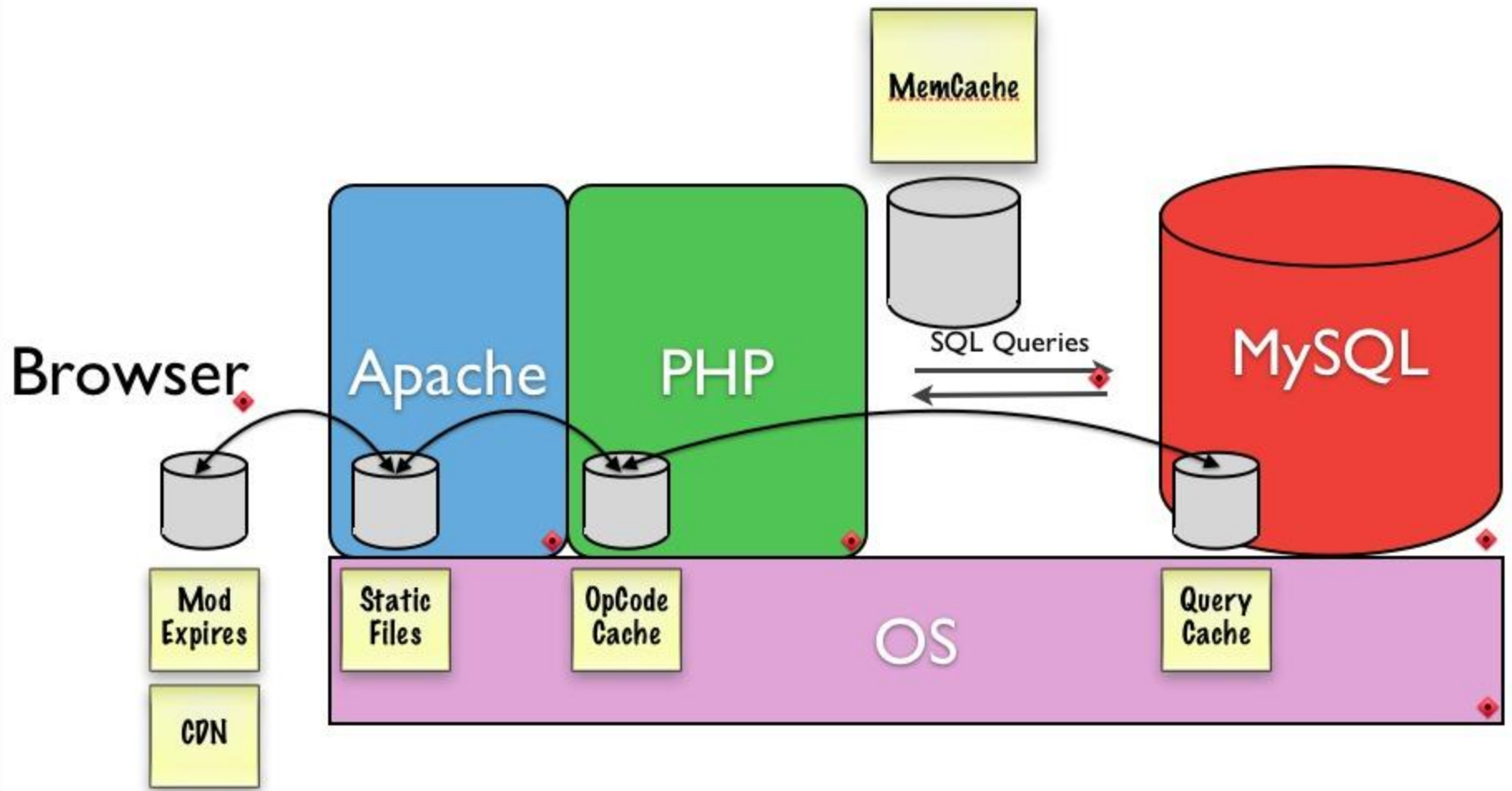
- **Out of the box Drupal page caching mechanism**
- **Saves rendered pages directly into the database**
- **By default only caches anonymous requests**
- **Hook\_boot and hook\_exit are always called – unless you're using the aggressive cache option**

# Memcache

- **High-performance, distributed memory object caching system**
- **Reduces database hits**
- **Cached data is stored in web server memory**
- **It works awesomely if the database is in a different server**



# Memcache



## High-level steps to install memcache

1. **Install memcached daemon**
2. **Install and configure PHP memcache extension**
3. **Install and enable memcache Drupal module**
4. **Configure Drupal to use memcache**

- **Module solution that provides static page caching**
- **Significant performance improvement for unauthenticated traffic**
- **Supports shared, VPS and dedicated hosting**
- **Requires cron & clean urls to work properly**
- **Have to edit .htaccess and robots.txt files**

# Boost - Flow



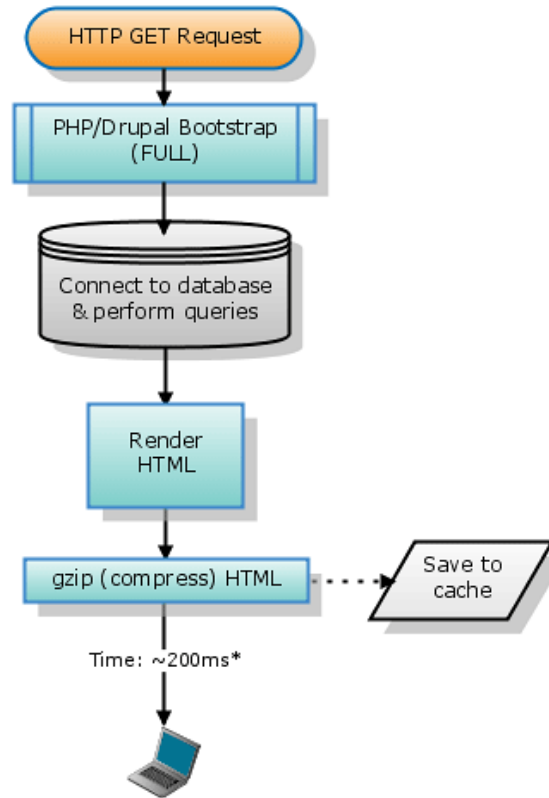
# Authenticated User Page Caching (Authcache)

- **Most popular solution for authenticated caching**
- **Caches final rendered HTML per role and makes AJAX calls to get user specific content**
- **Ability to use different types of caching (database, memcache, etc...)**

# Authcache Flow

## Authenticated User Page Caching (Authcache)

### Non-Cached Page Request

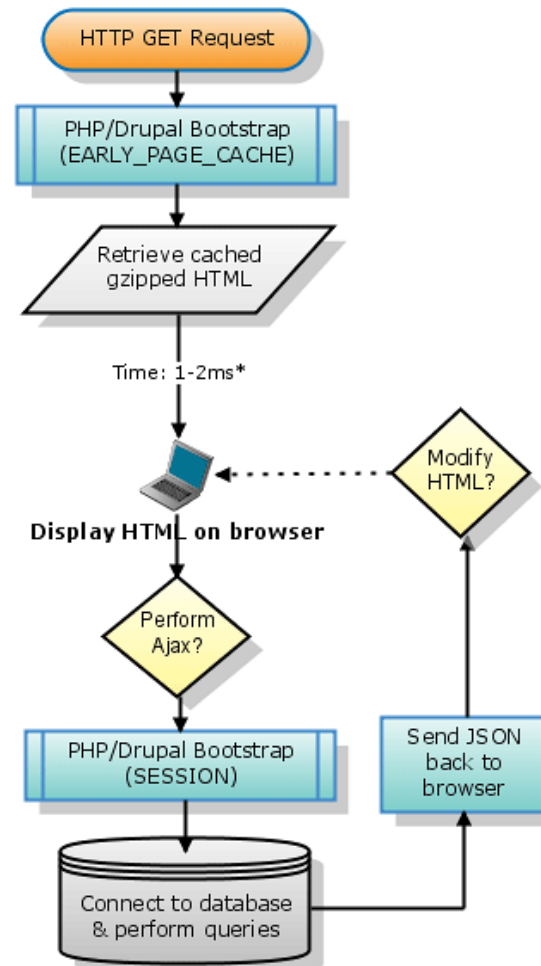


Display HTML on browser

\* Millisecond times are for demonstrative purposes only. Actual times depend on webserver setup and page complexity

<http://drupal.org/project/authcache>

### Cached Page Request

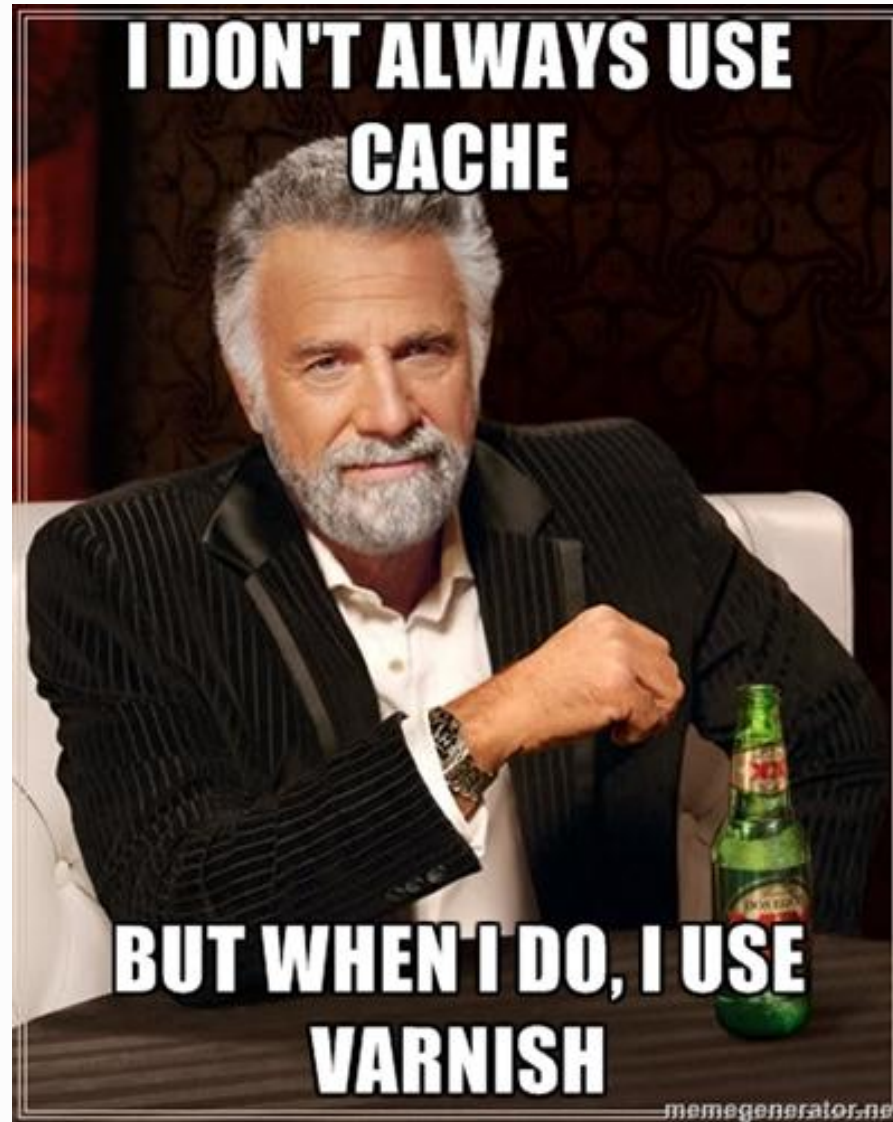


# Authcache Disadvantages

- **Requires changes on how user-customized content is displayed**
- **Increases development time and testing**
- **Not suited for heavy user-centric content**
- **Hooks for contributed modules may need to be added for compatibility**

- **Drupal distribution with integrated performance, scalability and availability enhancements**
- **Drupal 6 and Drupal 7 versions**
- **Provides integration with Varnish and allows for MySQL replication**
- **The key enhancements from Pressflow 6 were added to Drupal 7.**





- HTTP reverse proxy solution
- Default caching solution used at Acquia servers
- Focused exclusively on HTTP, unlike other proxy servers that often support FTP, SMTP, etc
- Supports load balancing

# CDN – Content Delivery Network

- Geographically distributed servers
- Delivers the fastest possible download for all users based on location
- Focused on files (resources) referenced by the HTML, such as CSS, JavaScript, fonts and images
- **Free CDNs:** CloudFlare, Coral Content Distribution Network
- **Commercial CDNs:** Akamai Technologies, Amazon CloudFront, Level 3 Communications, etc

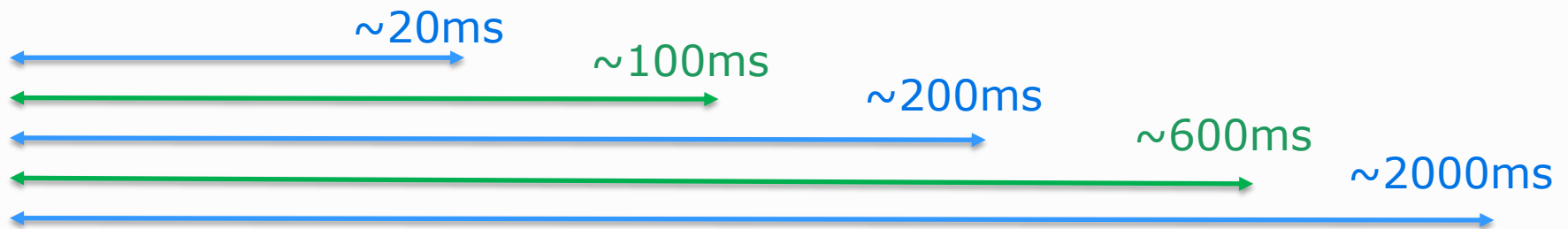
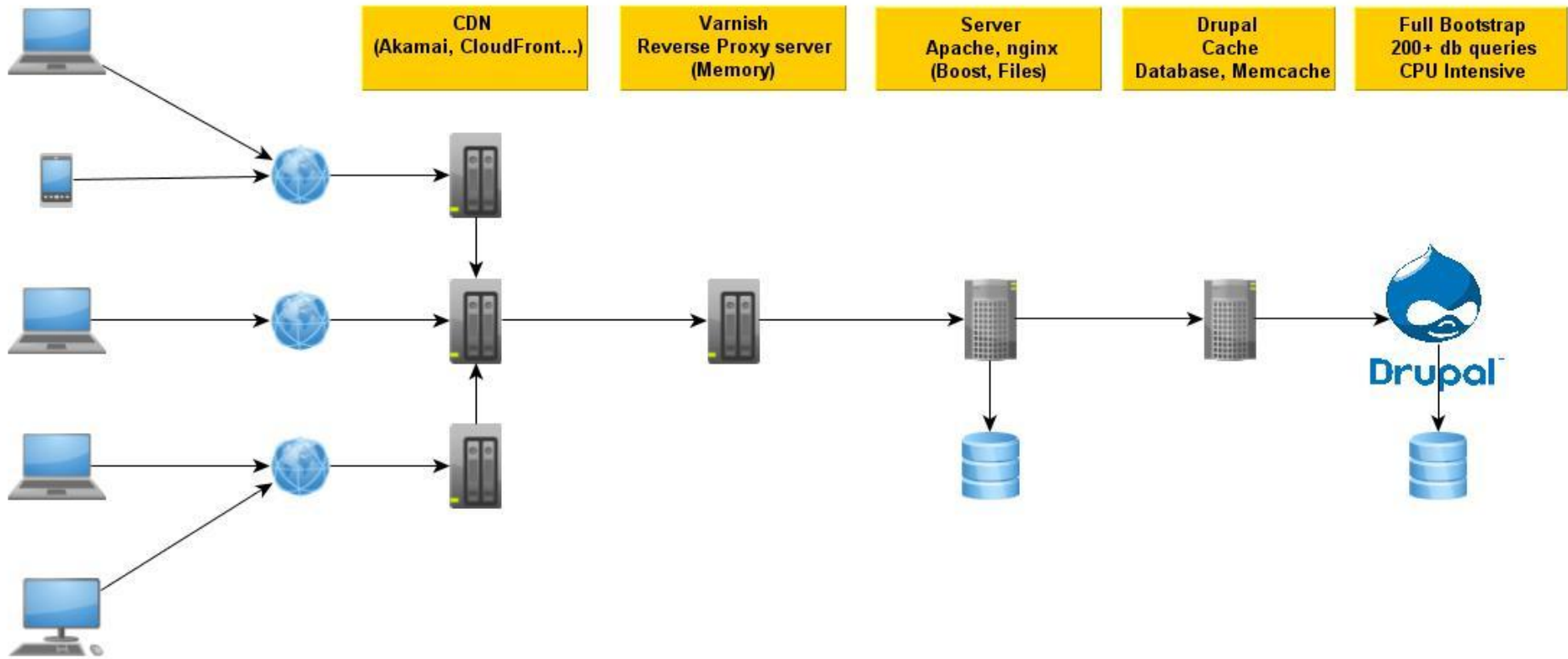
What if we use them all...

**PREPARE YOURSELF**

**THIS CACHING IS GETTING  
SERIOUS**

memegenerator.net

# Cache



# Front-end Improvements

- **Sprites**
- **Compressing images**
- **Minify and aggregate JS and CSS files**
- **Using tool that will help you to analyze and improve front-end performance (YSlow, Web Page Analyzer, Firebug, etc)**

- **Load testing tools**

- Loadrunner
- Jmeter
- Etc...

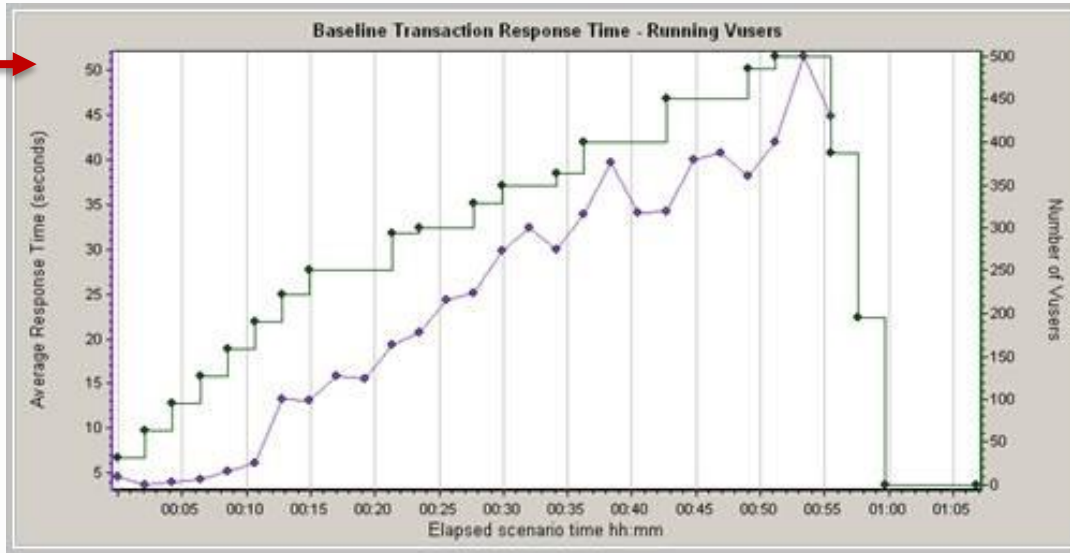
- **Analyze results**

- Response Time
- Throughput

# Load Test – CDN & Page Cache Example

50s

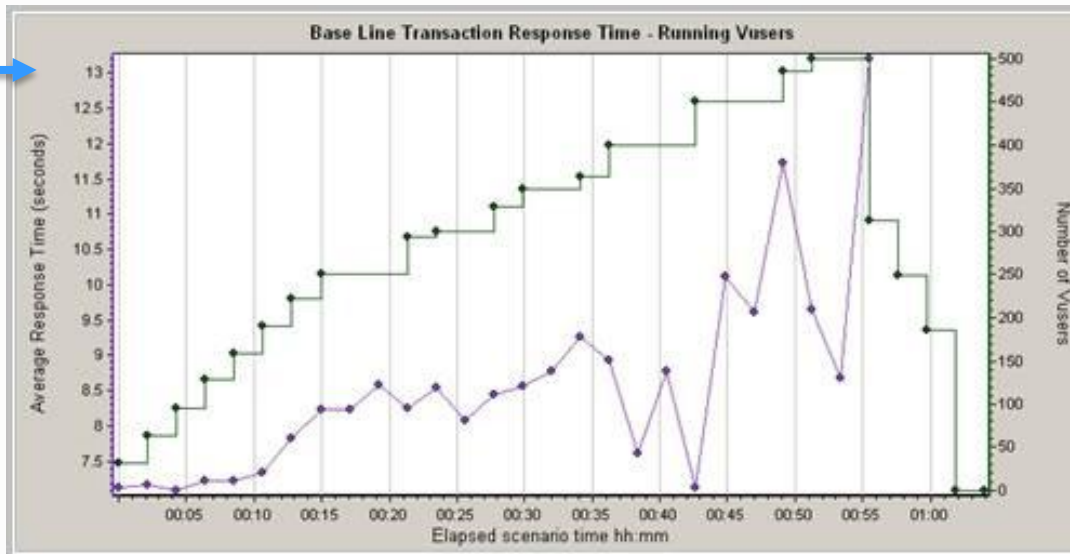
BEFORE



0 to 500 Vusers

13s

AFTER



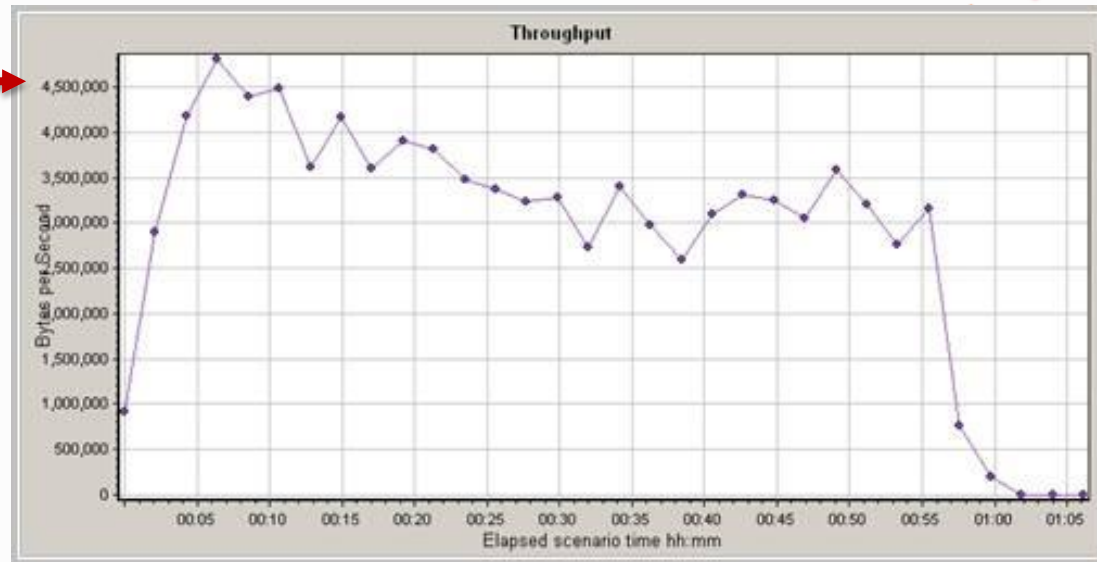
0 to 500 Vusers



# Load Test – CDN & Page Cache Example

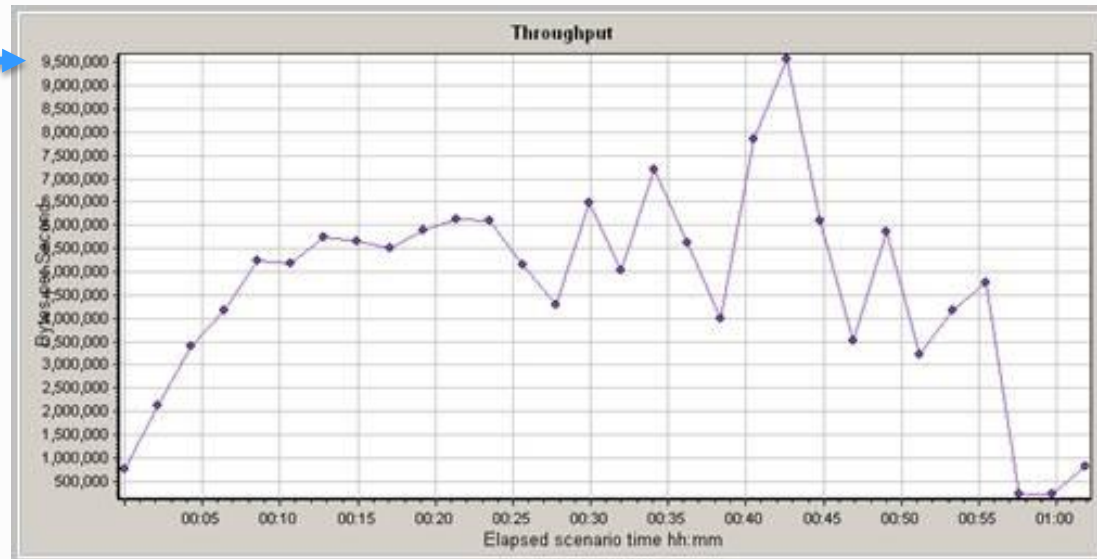
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BEFORE



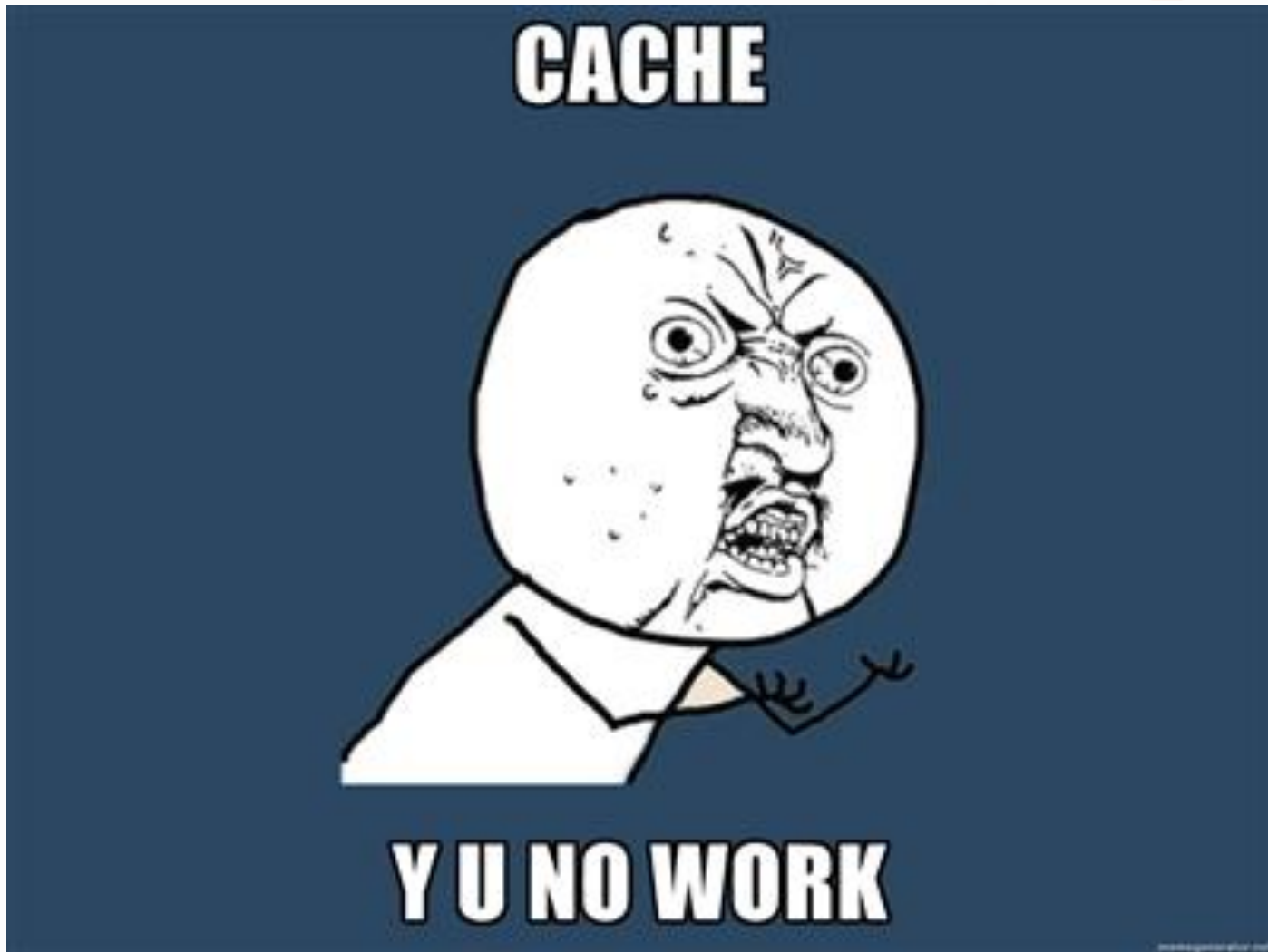
9,500,000

AFTER



- **Authenticated users**
- **Caching what's not supposed to be cached**
  - **Dynamic/random content**
  - **Personalized content**
  - **Etc...**
- **Actual content and cache can be out of sync**

# What to do when nothing works...



# Troubleshooting

- **Clear cache (Drupal, Varnish, CDN, etc...) and try again**
- **Force a new request using random query strings (?asdasd)**
- **Disable cache for authenticated users**
- **Use helper tools/modules/modes (debug mode, memcache interface, etc...)**

Questions?

Questions?

Obrigado!



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