

PHP and Web Server Performance

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Who am I

CTO of ADFLEX.VN

Adflex is a Mobile Ads Network. It has:

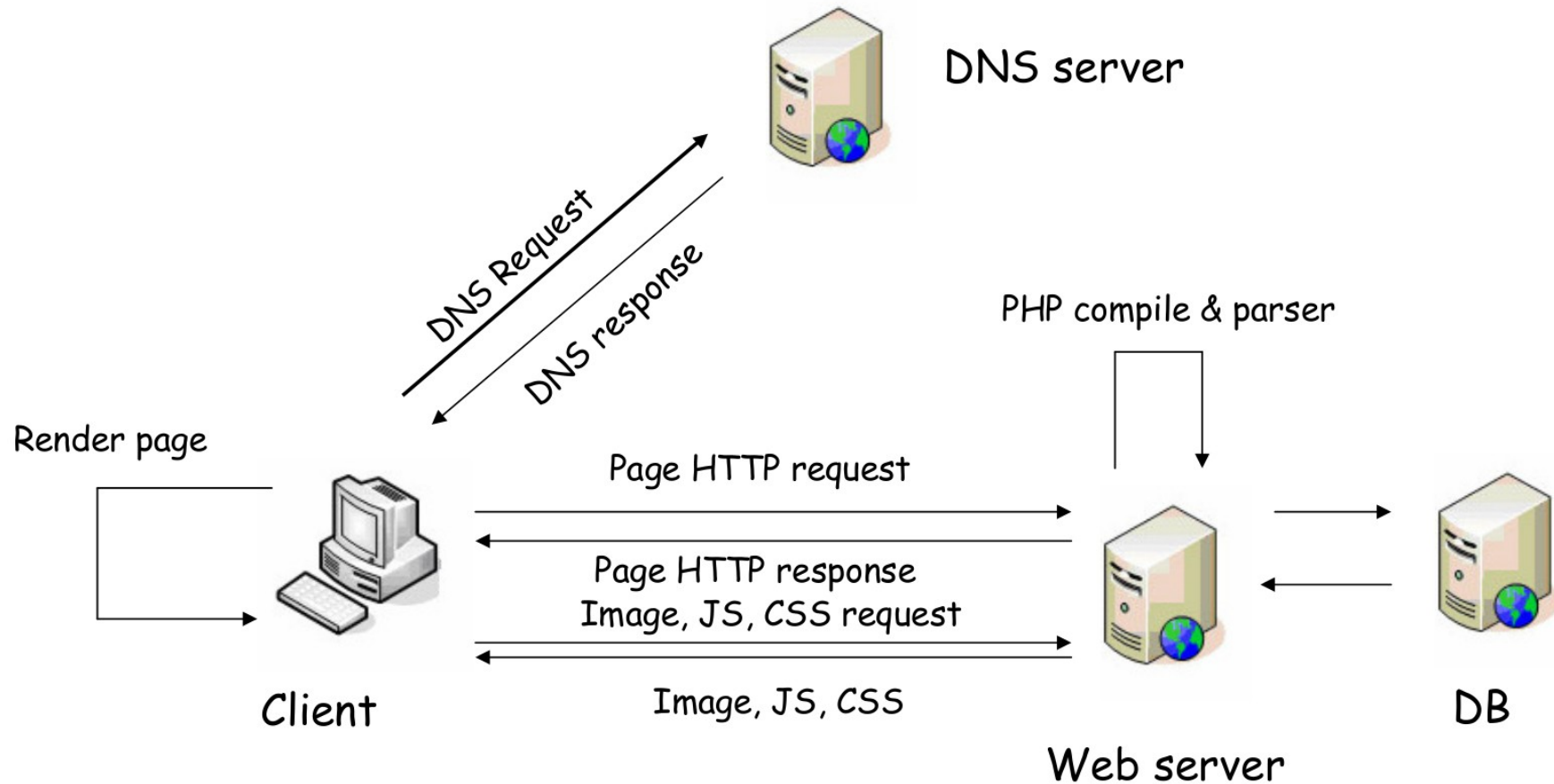
- 5M device for 3 month
- 800K active device / day
- 10M PHP Request / day
- Avg server time 2-20ms
- With only 2 server



Contents

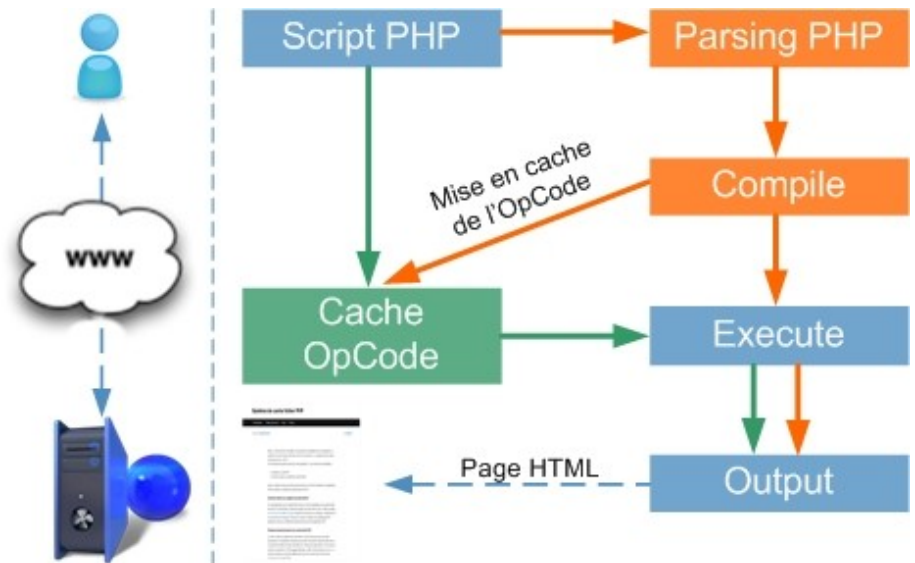
- Overview
- Opcode cache
- Web Performance Best Practices
 - CDN
- Nginx & Apache
- Cache
- Background Process
- Persistent connection
- Tools

1. Overview



2. Opcode cache

- APC
- eAccelerator
- ionCube PHP Accelerator
- XCache
- Zend Accelerator



3. Web Performance Best Practices

Google & Yahoo suggest “Web Performance Best Practices”

- Google => <http://bit.ly/LinH3j>
- Yahoo > <http://yhoo.it/1eSxRm8>

Tools for Browser

- Google Pagespeed
- Yahoo slow

3. Web Performance Best Practices




- Use browser's cache
- Use external CSS & javascript
- Combine CSS & JS file
- Use a cookieless domain for static content
- Avoid 404 error
- Use Gzip
- Put CSS on top, javascript on bottom

3. Web Performance Best Practices

- Specify image size
- Reduce the size of image to fit with display area
- Minify HTML, CSS, Javascript
- Optimize Image
- CDN
- ... bla...bla...

3. Web Performance Best Practices

PageSpeed Module: All in One => <http://bit.ly/1fHuYaQ>

Features										
Method	Status	Type	Initiator	Size	Time					
GET	200	text/javascript	jsapi:21	0B	61ms	 Apache	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GET	200	application/x-javascript	jsapi:21	0B	213ms		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GET	200	text/css	format+en.def...	0B	90ms		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GET	200	text/javascript	jsapi:21	0B	59ms		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
GET	200	text/css	jsapi:21	0B	112ms		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GET	200	application/x-javascript	jsapi:21	0B	164ms	 NGINX	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GET	200	text/css	/speed/:49	0B	25ms		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GET	200	text/css	/speed/:63	0B	244ms		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GET	200	text/css	/speed/:319	0B	199ms		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GET	200	text/css	min.js:18	0B	131ms		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GET	200	text/html	jquery.min.js:18	0B	331ms		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Automatic website and asset optimization
- Latest web optimization techniques
- 40+ configurable optimization filters
- Free, open-source, and frequently updated
- Deployed by individual sites, hosting providers, CDNs

3. Web Performance Best Practices

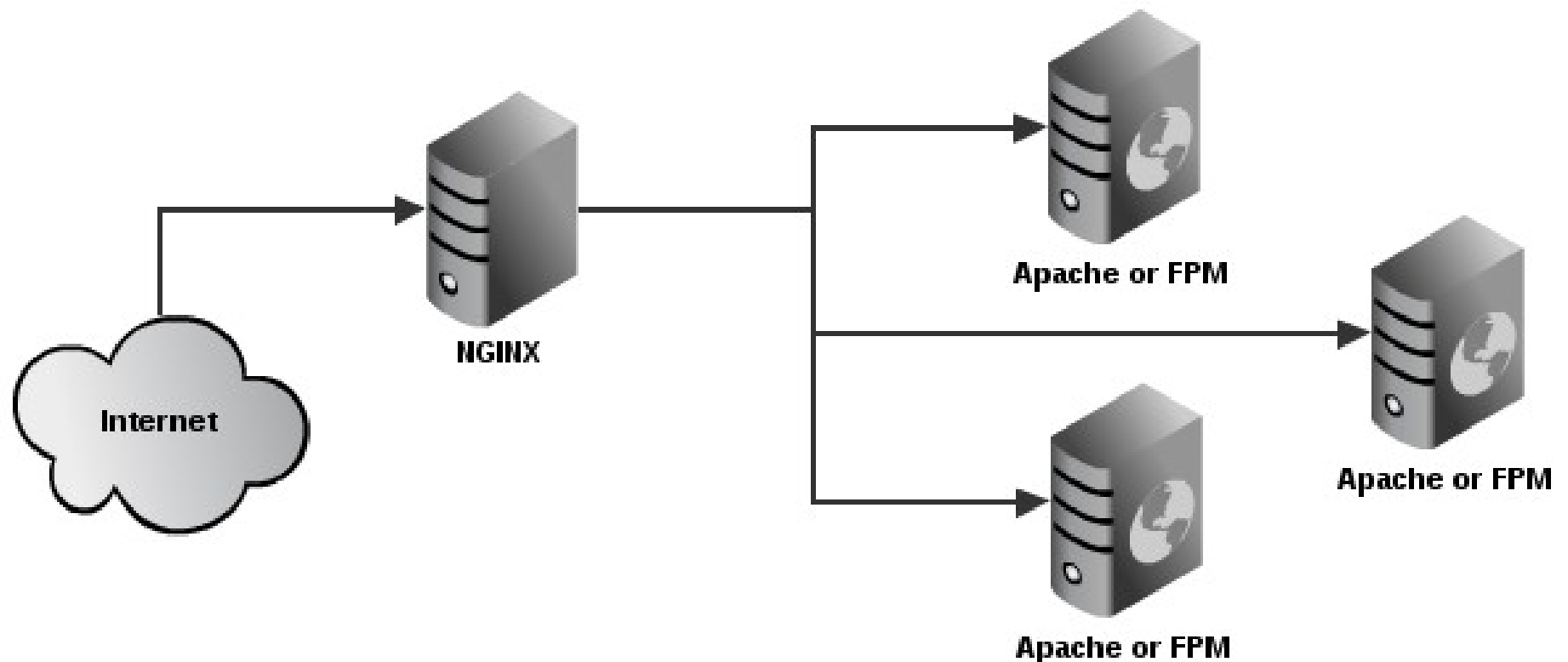
CDN



Only ~ 1.000đ / 1GB

4. Nginx & Apache

- Nginx for static file
- Apache or FPM for PHP script



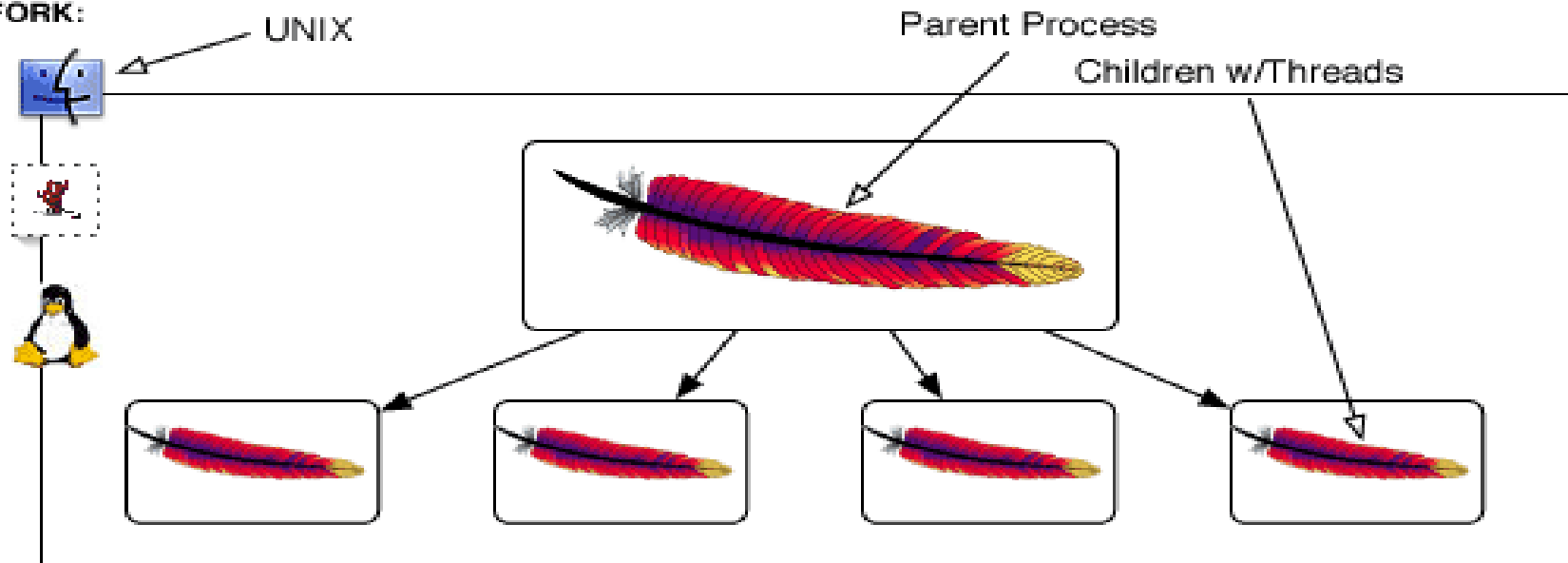
Apache MPM

How many CCU your system can handler?

See <http://fuscata.com/kb/set-maxclients-apache-prefork> for detail.

```
<IfModule mpm_prefork_module>  
  StartServers      5  
  MinSpareServers   5  
  MaxSpareServers   20  
  MaxClients       250  
  MaxRequestsPerChild 500  
</IfModule>
```

PREFORK:



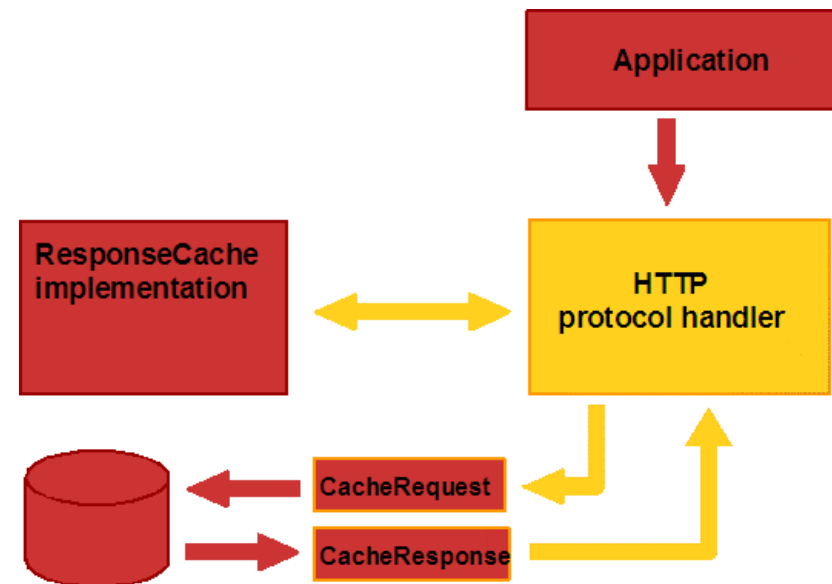
5. Caching

What

- Page cache
- Block cache
- Data cache

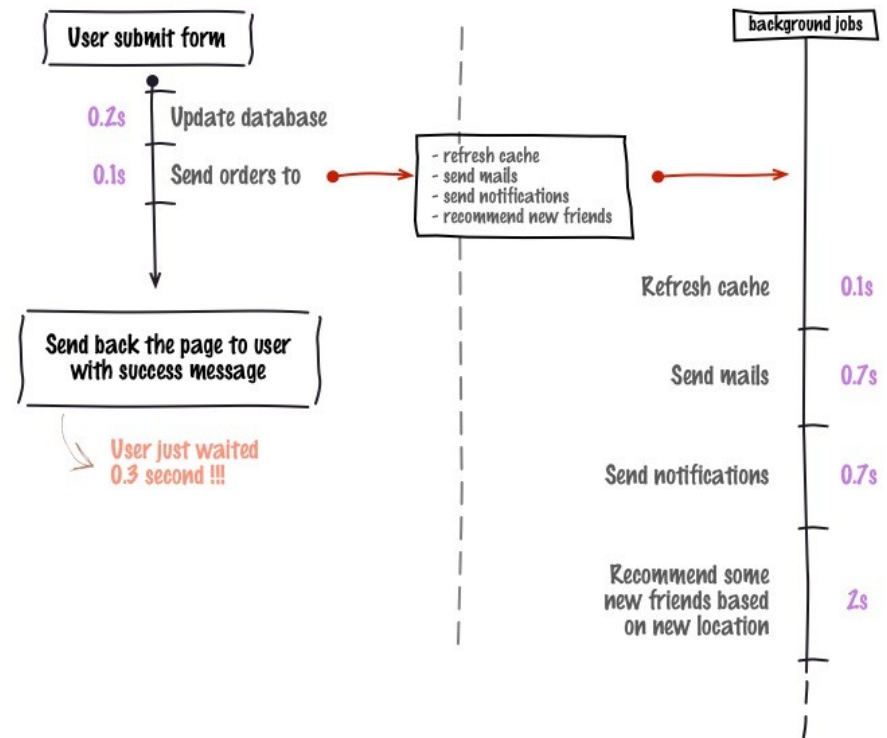
How

- Write to file (and with APC)
- Memory: Memcache/Redis/APC
- Database
- Static/Global variable



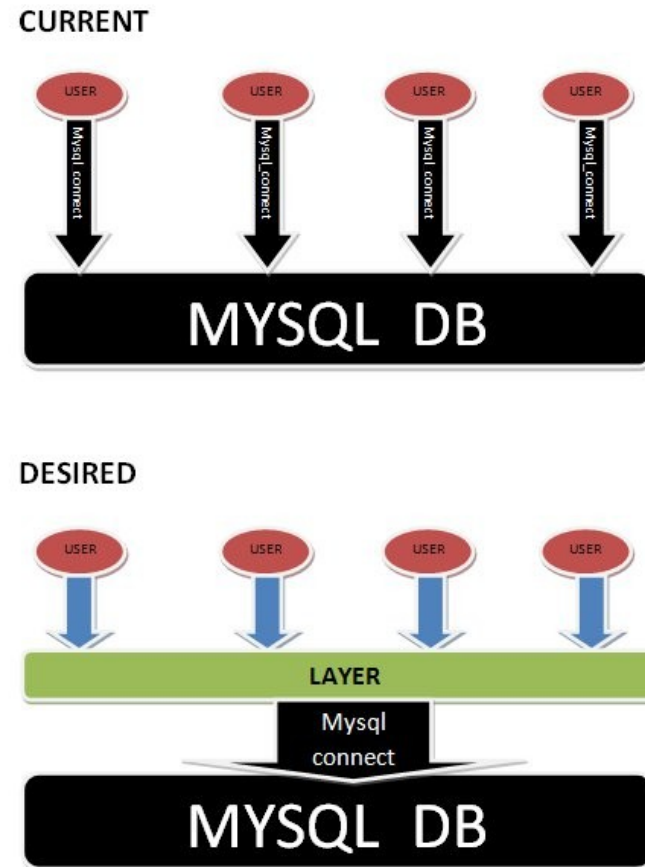
6. Background Process

- Resque
 - Gearman
 - RabbitMQ
 - Beanstalkd
 - ZeroMQ
 - ActiveMQ
- or
- **Build it yourself**



7. Persistent connection

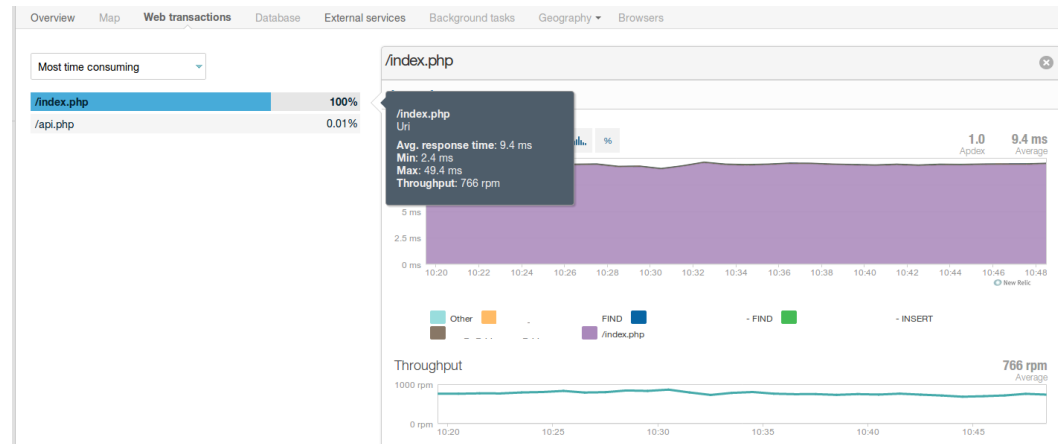
- Similar Connection Pool
- Default for MongoDB Driver



8. Tools

- New relic
- Profiling: xhprof
- Firebug, Pagespeed, Yahoo slow
- Misc

New relic



For monitor

- Response time: min, max, avg
- Appdex score
- RAM, CPU, Process...
- Error/Alert

See: <http://newrelic.com>

xhprof

Overall Summary
Total Incl. Wall Time (microsec): 167,204 microseconds
Number of Function Calls: 1,116

[\[View Full Callgraph\]](#)

Displaying top 100 functions: Sorted by Incl. Wall Time (microsec) [\[display all\]](#)

Function Name	Calls	Calls%	Incl. Wall Time (microsec)	IWall%	Excl. Wall Time (microsec)	EWall%
main()	1	0.1%	167,204	100.0%	176	0.1%
index.php	1	0.1%	161,106	96.4%	8,089	4.8%
glLogInfo	1	0.1%	81,632	48.8%	65	0.0%
m::getLogInfo	1	0.1%	81,246	48.6%	2,566	1.5%
n::aggregate	1	0.1%	78,567	47.0%	78,567	47.0%
glLogInfo	9	0.8%	69,394	41.5%	142	0.1%
n::count	9	0.8%	69,252	41.4%	69,252	41.4%
_TemplateBase::display	1	0.1%	3,247	1.9%	9	0.0%
_TemplateBase::fetch	1	0.1%	3,238	1.9%	713	0.4%
j22a6724_91416882	1	0.1%	2,110	1.3%	18	0.0%
_Template::getSubTemplate	2	0.2%	2,092	1.3%	59	0.0%
_TemplateBase::fetch@1	2	0.2%	2,018	1.2%	123	0.1%
j264e4c5_39740126	1	0.1%	1,409	0.8%	591	0.4%
	11	1.0%	1,212	0.7%	399	0.2%
tion/config.php	1	0.1%	1,157	0.7%	92	0.1%
me	1	0.1%	1,033	0.6%	38	0.0%
s/front.php	1	0.1%	878	0.5%	595	0.4%
gateTime	1	0.1%	834	0.5%	39	0.0%

Tool for profiling for

- Time for each function
- Memory

See: <http://php.net/manual/en/book.xhprof.php>



Firebug, Pagespeed, Yahoo slow

Firebug

- <https://getfirebug.com>

Pagespeed

- https://developers.google.com/speed/pagespeed/insights_extensions

Yahoo Slow

- <http://developer.yahoo.com/yslow/>

Misc

JS

- Perfomace variable

PHP

- `debug_print_backtrace()`
- `microtime(true)`
- `register_shutdown_function()`
- `memory_usage()`

Q&A

Reference

- <http://java.dzone.com/articles/php-performance-crash-course>
- <http://on.fb.me/1hAc7vL>
- https://developers.google.com/speed/docs/best-practices/rules_intro
- <http://developer.yahoo.com/performance/rules.html>
- <http://www.slideshare.net/lonelywolf/web-optimization>
- <http://code.google.com/p/modpagespeed/>
- https://github.com/pagespeed/nginx_pagespeed
- <http://developer.yahoo.com/yslow/>
- https://developers.google.com/speed/pagespeed/insights_extensions
- <https://addons.mozilla.org/en-US/firefox/addon/firebug>
- <http://php.net/manual/en/book.apc.php>
- <http://php.net/manual/en/book.xhprof.php>
- <http://www.mdproductions.ca/guides/50-best-practices-to-optimize-php-code-performance>
- <http://www.chazzuka.com/63-best-practice-to-optimize-php-code-performances-58/>
- <http://fuscata.com/kb/set-maxclients-apache-prefork>

