

A dramatic photograph of a whale breaching the ocean. The whale's dark body is angled upwards, with its white underbelly and a large splash of water visible at the point of entry. A person wearing a red life vest is in a small blue boat to the left, looking towards the whale. Several seagulls are flying in the clear blue sky above the water.

# Profiling in PHP

Artūras Šmorgun, VilniusPHP 0x1C

*Profiling:* a way to measure  
where a program spends time.

# Because performance matters

- +1 second = -16% satisfaction rate
- 50% visitors will share bad experience
- 64% mobile users expect <4s load time
- +100ms = -1% of sales (for Amazon)
- +500ms = -25% of searches (Google)

# Latency

- Network
- Web server
- Filesystem
- Application
- Database
- Rendering

# Latency

- Network
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- Application ← **PHP**
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- Rendering

```
<?php
$start = microtime(true);
updateSearchIndex();
$end = microtime(true);
$executionTime = number_format($start - $end, 10);
logToFile("Search index updated in " . $executionTime);
```

# 👍 Straightforward

```
<?php
$start = microtime(true);
updateSearchIndex();
$end = microtime(true);
$executionTime = number_format($start - $end, 10);
logToFile("Search index updated in " . $executionTime);
```

👍 Straightforward

👎 Too verbose    👎 Not flexible

👎 Not informative    👎 Reinventing the wheel

```
<?php
$start = microtime(true);
updateSearchIndex();
$end = microtime(true);
$executionTime = number_format($start - $end, 10);
logToFile("Search index updated in " . $executionTime);
```

# Symfony profiler



Search on Symfony website

1

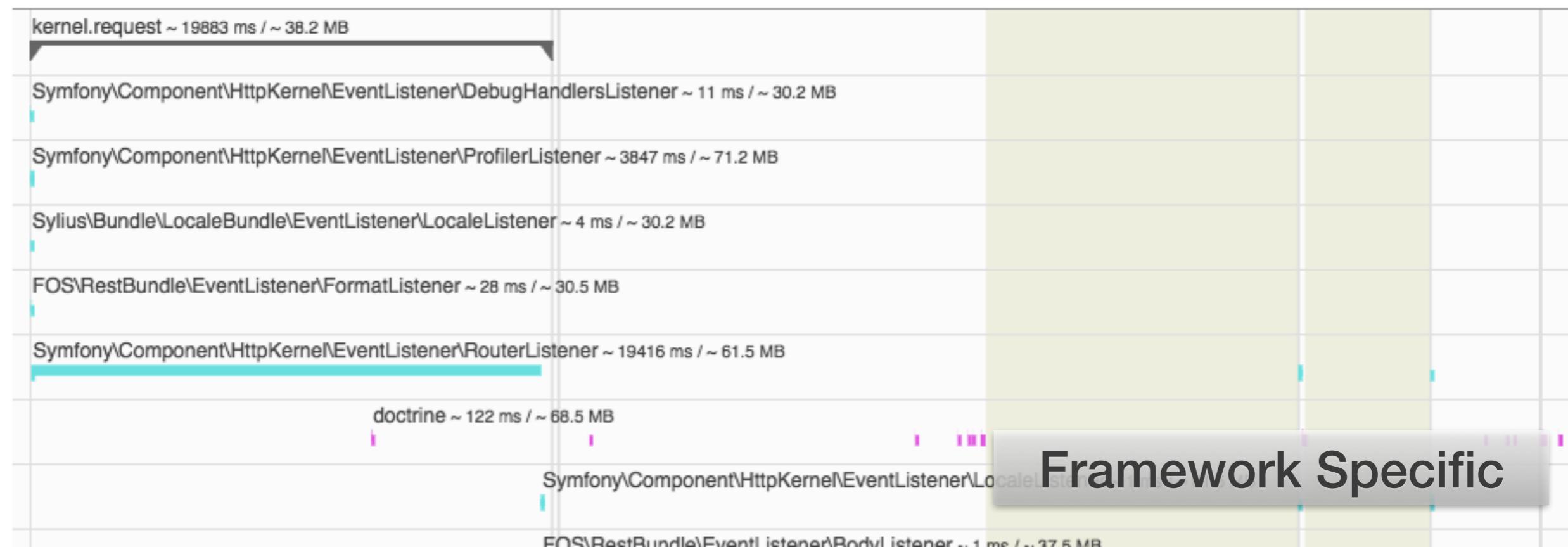
**View last 10** Profile for: GET <http://dev.php-profiling.elecode.com/p/mug-doloribus-1> by 192.168.33.1 at Tue, 03 Mar 2015 23:54:49 +0000

## Timeline

|                     |          |
|---------------------|----------|
| Total time          | 83503 ms |
| Initialization time | 20339 ms |
| Threshold           | 1 ms     |

## Main Request - 63164 ms

default section event\_listener event\_listener\_loading template doctrine propel child\_sections



Framework Specific

# New Relic

(web monitoring with advanced features)

# Features

- Application monitoring
- Integration with languages - PHP, Python, etc.
- Integration with frameworks - Symfony, etc.
- Plugins - varnish, etc.
- Fast
- Has free tear (24h retention)

# Install

1. Create a free account at <http://newrelic.com>

2. Add new relic repository

```
wget -O - https://download.newrelic.com/548C16BF.gpg | sudo apt-key add -
echo "deb http://apt.newrelic.com/debian/ newrelic non-
free" | sudo tee /etc/apt/sources.list.d/newrelic.list
sudo apt-get update
```

3. Install package:

```
sudo apt-get install newrelic-php5
```

# Configure

In newrelic.ini file:

newrelic.enabled = true

newrelic.licence = “secret-licence”

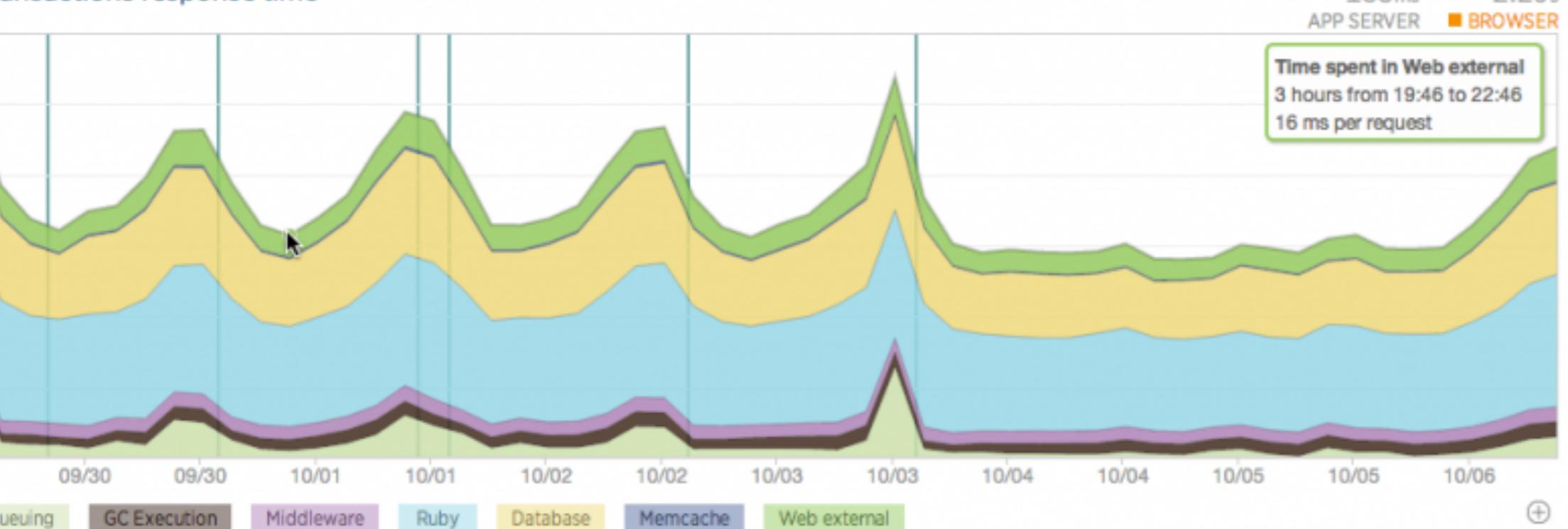
newrelic.appname = “The next big thing”

# Enable

- Cannot be enabled/disabled per request
- Is fast - designed for production monitoring

... ending now  
All servers (8)

## Transactions response time

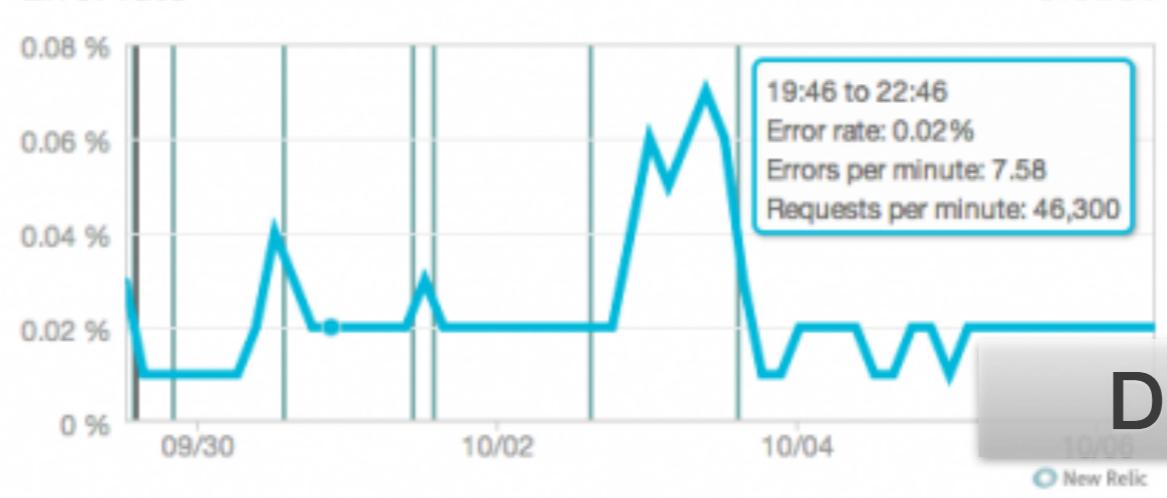


are with yesterday and last week

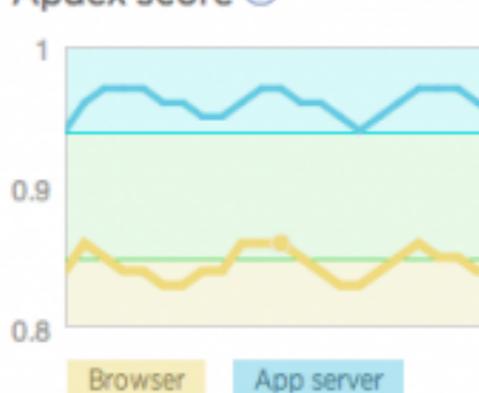
## Transactions

|   | App server time |
|---|-----------------|
| TransactionsController#load_app_server_transactions | 1,250 ms        |
| on traces: 1.6 s 36.2 s 5.7 s                       |                 |
| EventsController#recent_events                      | 1,010 ms        |
| on traces: 1.5 s 6.7 s 2.8 s                        |                 |
| Data::MetricChartsController#app_breakdown          | 246 ms          |
| on traces: 6.4 s 2.9 s 5.2 s                        |                 |
| DataController#multi_app_data                       | 157 ms          |
| on traces: 1 s 2.9 s 3.8 s                          |                 |

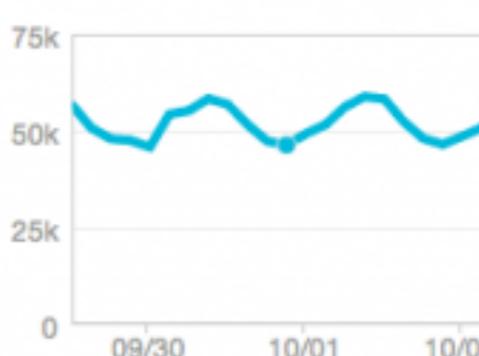
## Error rate



## Apdex score



## Throughput ( rpm )



## Recent events

| Member of policy | RPM UI policy |
|------------------|---------------|
| All              |               |

## Last Week

| ACCOUNT-WIDE                     |
|----------------------------------|
| core-jenkins deployed revision 1 |

## Dashboard

ACCOUNT-WIDE

App server Browser

Most time consuming

Graph view

Table view

## ChartData::BaseChartsController#load\_test

Key Transaction

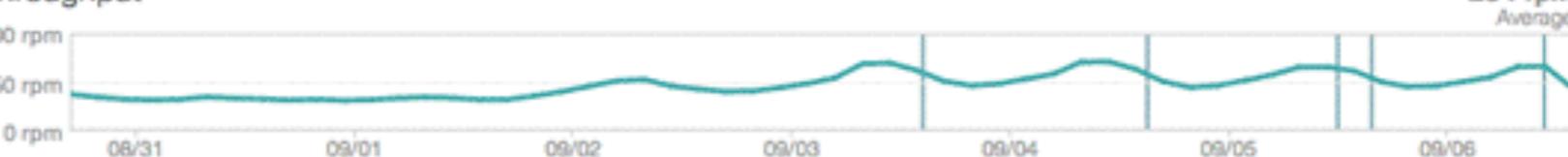
|   |       |
|---|-------|
| ChartData::BaseChartsController#load_test           | 13.7% |
| Alerts::EventsController#recent_events              | 12.1% |
| CurrentStatusController#status_bar                  | 6.46% |
| ChartData::MetricChartsController#app_breakdown     | 6.2%  |
| Api::V1::DataController#data                        | 5.31% |
| WalkthroughsController#index                        | 4.18% |
| ApplicationsController#index                        | 3.91% |
| Api::V1::DataController#multi_app_data              | 3.65% |
| Api::V1::DataController#chart_data                  | 3.55% |
| PublicAccess::ChartsController#data                 | 3.36% |
| ChartData::MetricChartsController#metric_regex      | 3.34% |
| ApplicationsController#show                         | 3.22% |
| AccountFeeds::EventFeedsController#index            | 2.86% |
| ApplicationsController#load_app_server_transactions | 2.4%  |
| Api::V1::ThresholdValuesController#index            | 2%    |
| ApplicationsController#hosts                        | 1.81% |
| ChartData::MetricChartsController#enduser_map       | 1.52% |
| ChartData::BaseChartsController#v2_time_comparison  | 1.45% |
| ApplicationsController#get_count                    | 1.34% |
| ChartData::MetricChartsController#single_metric     | 1.34% |

App performance Browser performance Historical performance

## App server breakdown



## Throughput

[Breakdown table](#)

## App server transaction traces

## Sample performance details

|                       | App server | Browser  |
|-----------------------|------------|----------|
| 15:13 – 1 minute ago  |            | 1,211 ms |
| 15:10 – 4 minutes ago |            | 1,192 ms |
| 15:11 – 3 minutes ago |            | 1,075 ms |
| 15:12 – 2 minutes ago |            | 784 ms   |

Transactions

most time consuming

|  |       |
|--|-------|
| Alerts::EventsController#recent_events             | 13%   |
| ApplicationController#load_app_server_transactions | 8.29% |
| CurrentStatusController#status_bar                 | 7.07% |
| HartData::MetricChartsController#app_breakdown     | 6.63% |
| Hart::BaseChartsController#combined_throughput     | 3.85% |
| Api::V1::DataController#multi_app_data             | 3.76% |
| HartData::MetricChartsController#error_rate        | 3.75% |
| Hart::ChartsController#combined_apdex_rainbow      | 3.6%  |
| ApplicationsController#show                        | 3.4%  |
| AccountFeeds::EventFeedsController#index           | 3.36% |
| Api::V1::ThresholdValuesController#index           | 3.2%  |
| HartData::MetricChartsController#metric_regex      | 3.19% |
| ApplicationsController#index                       | 2.8%  |
| Api::V1::ServersController#index                   | 2.75% |
| HartData::MetricChartsController#single_metric     | 2.4%  |
| Api::V1::DataController#data                       | 2.05% |
| ApplicationsController#hosts                       | 2%    |
| Infrastructure::HostsController#show               | 1.56% |
| Api::V1::AccountsController#index                  | 1.36% |
| CoreApi::V2::Resources::ApplicationInstances#list  | 1.19% |

Show all transactions table...

Alerts::EventsController#recent\_events

## Transaction trace

chi-prod-app-6.newrelic.com(unicorn:RPM UI)  
Jul 21st 2014, 09:54:26    6,300 ms  
TRACE TIME                    RESP. TIME            CPU BURN            GC TIME

Summary    Trace details    SQL statements

[Expand performance problems](#)    [Collapse all](#)

| Duration (ms) | Duration (%) | Segment                                     | Drilldown |
|---------------|--------------|---|-----------|
| 6,300         | 100.00%      | Alerts::EventsController#recent_events      |           |
| 6,300         | 99.97%       | ▶ 29 fast method calls                      |           |
| 6,300         | 99.94%       | ▼ ActionDispatch::Routing::RouteSet#call    |           |
| 6,290         | 99.87%       | ▼ Alerts::EventsController#recent_events    |           |
| 55.0          | 0.87%        | ▶ 30 fast method calls                      |           |
| 6,210         | 98.56%       | ▼ Alerts::EventsController/setup_event_list |           |
| 23.0          | 0.37%        | ▼ 8 fast method calls                       |           |
| 65.0          | 1.03%        | Alerts::Incident#find_by_sql                |           |

### SQL query

```
SELECT `v3_incidents`.* FROM `v3_incidents` WHERE (`v3_incidents.alert_policy_id = 204260) AND (v3_incidents.created_at >='2014-07-07 16:53:41' OR v3_incidents.closed_at IS NULL) ORDER BY v3_incidents.id DESC LIMIT 100
```

1.0 0.02%    [AlertPolicy#find\\_by\\_sql](#)

### SQL query

```
SELECT `alert_policies`.* FROM `alert_policies` WHERE `alert_policies`.`id` = 204260 LIMIT 1
```

|      |  |       |                           |  |
|------|--|-------|---------------------------|--|
| 52.0 |  | 0.83% | Alerts::Event#find_by_sql |  |
| 1.0  |  | 0.02% | AlertPolicy#find_by_sql   |  |
| 51.0 |  | 0.81% | Alerts::Event#find_by_sql |  |
| 1.0  |  | 0.02% | AlertPolicy#find_by_sql   |  |
| 37.0 |  | 0.59% | Alerts::Event#find_by_sql |  |

Trace

# XHProf

# Features

- Free!
- Runs on your machine
- Fast enough (claimed to be OK for production)
- Detailed execution info
- Historical graphs
- Comparison of the runs

# Install

1. Install PEAR

```
wget http://pear.php.net/go-pear.phar  
php go-pear.phar
```

2. Install Xhprof package

```
sudo pecl install -f xhprof
```

# Configure 1/4

- Edit /etc/php5/conf.d/xhprof.ini  
[xhprof]  
extension=xhprof.so  
xhprof.output\_dir=“/var/tmp/xhprof”

# Configure 2/4

- Auto prepend/append xhprof files on host in php

```
# /etc/apache2/sites-enabled/php-profiling.dev.conf
<VirtualHost *:80>
    # ... ...
    php_value auto-prepend_file
        "/usr/share/xhprof_external/header.php"
    php_value auto-append_file
        "/usr/share/xhprof_external/footer.php"
</VirtualHost>
```

# Configure 3/4

- /usr/share/php/xhprof\_external/header.php

```
xhprof_enable();
```

- /usr/share/php/xhprof\_external/footer.php

```
$xhprof_data = xhprof_disable();
$XHPROF_LIB = realpath(dirname(__FILE__) . '/../../xhprof_lib');
include_once $XHPROF_ROOT . "/xhprof_lib/utils/
xhprof_lib.php";
include_once $XHPROF_ROOT . "/xhprof_lib/utils/
xhprof_runs.php";
$xhprof_runs = new XHProfRuns_Default();
$run_id = $xhprof_runs->save_run($xhprof_data, "xhprof_foo");
```

# Configure 4/4

- Create a host for viewer on your server  
OR

```
php -S 0:8080 -t xhprof_html/
```

# Enable

- Always enabled (with this example)
- Configurable in header.php (when used):

```
if (rand(1, 100) < 42) {  
    return;  
}
```

No XHProf runs specified in the URL.

Existing runs:

- [54f78799a1484.xhprof](#) foo.xhprof 2015-03-04 22:30:49
- [54f7874c13c33.xhprof](#) foo.xhprof 2015-03-04 22:29:32
- [54f78554dd969.xhprof](#) foo.xhprof 2015-03-04 22:21:08
- [54f785498867a.xhprof](#) foo.xhprof 2015-03-04 22:20:57
- [54f78220dae43.xhprof](#) foo.xhprof 2015-03-04 22:07:28
- [54f649e34031f.xhprof](#) foo.xhprof 2015-03-03 23:55:15
- [54f649cd9961d.xhprof](#) foo.xhprof 2015-03-03 23:54:53

Dashboard

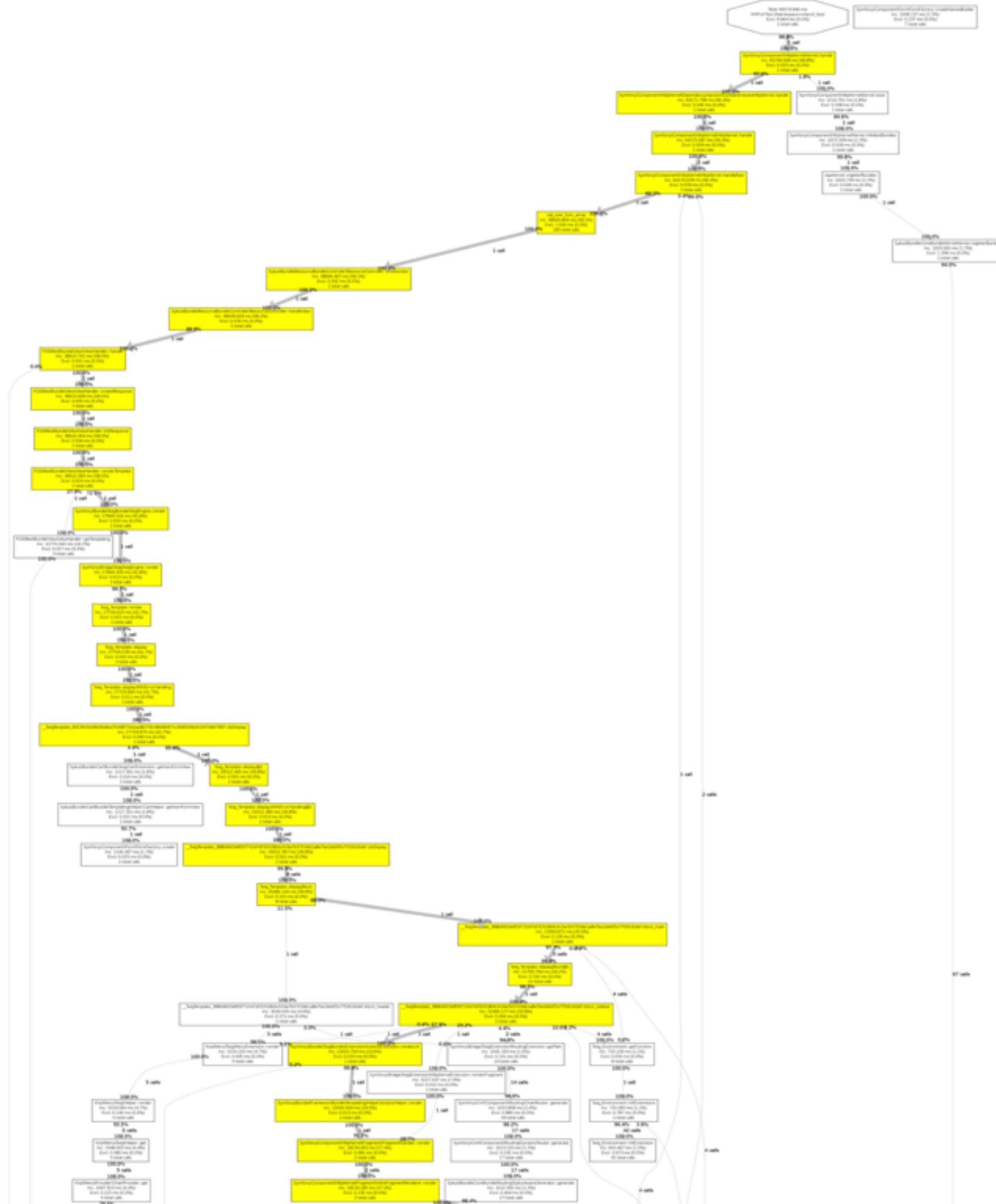
## Displaying top 100 functions: Sorted by Excl. Wall Time (microsec) [[display all](#)]

| <a href="#">Function Name</a>   | <a href="#">Calls</a> | <a href="#">Calls %</a> | <a href="#">Incl. Wall Time (microsec)</a> |
|---|-----------------------|-------------------------|--|
| <a href="#">Doctrine\Common\Persistence\Mapping\Driver\SymfonyFileLocator::getAllClassNames</a> | 1,056                 | 0.5%                    | 30,012,265                                 |
| <a href="#">simplexml_load_file</a>   | 261                   | 0.1%                    | 7,319,749                                  |
| <a href="#">RecursiveDirectoryIterator::__construct</a>   | 1,057                 | 0.5%                    | 3,291,904                                  |
| <a href="#">fopen</a>   | 22                    | 0.0%                    | 3,104,407                                  |
| <a href="#">is_dir</a>  | 1,104                 | 0.5%                    | 2,415,346                                  |
| <a href="#">file_exists</a>   | 1,360                 | 0.6%                    | 2,382,514                                  |
| <a href="#">is_file</a>   | 751                   | 0.3%                    | 1,570,555                                  |
| <a href="#">Symfony\Component\Debug\DebugClassLoader::loadClass</a>                             | 1,005                 | 0.5%                    | 20,876,603                                 |
| <a href="#">run_init::Annotations/DoctrineAnnotations.php</a>                                   | 1                     | 0.0%                    | 339,418                                    |
| <a href="#">Twig_Environment::loadTemplate</a>  | 25                    | 0.0%                    | 636,843                                    |
| <a href="#">realpath</a>  | 61                    | 0.0%                    | 158,307                                    |
| <a href="#">file_get_contents</a>   | 17                    | 0.0%                    | 154,068                                    |
| <a href="#">load::Adapter/ORM.php</a>   | 7                     | 0.0%                    | 137,220                                    |
| <a href="#">Composer\Autoload\ClassLoader::findFileWithExtension</a>                            | 1,304                 | 0.6%                    | 2,501,336                                  |
| <a href="#">Symfony\Component\Debug\DebugClassLoader::loadClass@1</a>                           | 336                   | 0.2%                    | 8,557,279                                  |
| <a href="#">load::Driver/Xml.php</a>  | 7                     | 0.0%                    | 100,631                                    |
| <a href="#">load::dev/appDevProjectContainer.php</a>  | 1                     | 0.0%                    | 96,425                                     |
| <a href="#">Doctrine\Common\Persistence\Mapping\AnnotationDriver::getAllClassNames</a>          | 44                    | 0.0%                    | 230,686                                    |
| <a href="#">load::Driver/Annotation.php</a>   | 6                     | 0.0%                    | 83,531                                     |
| <a href="#">strpos</a>  | 30,845                | 14.0%                   | 81,952                                     |
| <a href="#">load::Validator/RecursiveValidator.php</a>  | 1                     | 0.0%                    | 79,567                                     |
| <a href="#">load::Provider/MenuProviderInterface.php</a>  | 1                     | 0.0%                    | 73,493                                     |
| <a href="#">load::Driver/AnnotationDriver.php</a>   | 4                     | 0.0%                    | 72,611                                     |
| <a href="#">load::Provider/ChainProvider.php</a>  | 1                     | 0.0%                    | 71,927                                     |
| <a href="#">SplFileInfo::getBasename</a>  | 13,992                | 6.3%                    | 70,356                                     |
| <a href="#">load::Menu/FactoryInterface.php</a>   | 1                     | 0.0%                    | 68,546                                     |
| <a href="#">load::Calculator/CalculatorInterface.php</a>  | 1                     | 0.0%                    | 61,963                                     |
| <a href="#">run_init::klarna-invoice/Klarna.php</a>   | 1                     | 0.0%                    | 38,400                                     |
| <a href="#">load::Model/ArchetypeTranslation.php</a>  | 2                     | 0.0%                    | 37,295                                     |
| <a href="#">load::Validator/ValidatorInterface.php</a>  | 2                     | 0.0%                    | 56,329                                     |

|  | Calls  | Calls % |
|--|--------|---------|
| <b>Current Function</b>                  |        |         |
| ver\SymfonyFileLocator::getAllClassNames | 1,056  | 4.7%    |
| Exclusive Metrics for Current Function   |        |         |
| <b>Parent function</b>                   |        |         |
| ver\FileDriver::getAllClassNames         | 1,056  | 100.0%  |
| <b>Child functions</b>                   |        |         |
|  | 1,056  | 5.0%    |
|  | 1,056  | 5.0%    |
|  | 13,992 | 65.7%   |
|  | 4,136  | 19.4%   |
|  | 1,056  | 5.0%    |

Function View

# Call Graph



# XHGui

more sophisticated alternative web gui for XHProf

**XHG** Recent Longest wall time Most CPU Most memory Custom View

## Profile data for GET /

THIS RUN

URL /  
Time Thu, 07 Mar 2013 09:48:34 +0000  
ID 5138615165aac25031000000  
Wall Time 94,592 µs  
CPU Time 56,003 µs  
Memory Usage 1,824,600 bytes  
Peak Memory Usage 1,932,028 bytes

GET  
No GET data

SERVER

JOINDIN\_DEBUG  
on  
HTTP\_HOST  
joindin.local  
HTTP\_CONNECTION  
keep-alive  
HTTP\_ACCEPT  
text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*;q=0.  
8  
HTTP\_USER\_AGENT  
Mozilla/5.0 (X11; Linux i686) AppleWebKit/537.19 (KHTML, like Gecko) Chrome/25.0.1323.1 Safari/537.19  
HTTP\_ACCEPT\_ENCODING  
gzip,deflate,sdch  
HTTP\_ACCEPT\_LANGUAGE  
en-GB,en-US;q=0.8,en;q=0.6  
HTTP\_ACCEPT\_CHARSET  
ISO-8859-1,utf-8;q=0.7,\*;q=0.3  
HTTP\_COOKIE  
\_\_utma=77155982.955998952.1348489933.1362347367.13  
62432713.53; \_\_utmc=77155982; \_\_utmz=77155982.13484  
89933.1.1.utmcsr=(direct)|utmccn=(direct)|utmcmd=(none)  
PATH  
/usr/local/bin:/usr/bin:/bin

### Watch Functions

| Function | Call Count | ewt  | emu         |
|----------|------------|------|-------------|
| strlen   | 30         | 9 µs | 1,684 bytes |

### Exclusive Wall Time

| Category | Exclusive Wall Time (µs) |
|----------|--------------------------|
| 1        | ~36,000                  |
| 2        | ~36,000                  |
| 3        | ~32,000                  |
| 4        | ~15,000                  |
| 5        | ~11,000                  |
| 6        | ~10,000                  |

### Memory Hogs

| Category | Memory Usage (bytes) |
|----------|----------------------|
| 1        | ~380,000             |
| 2        | ~360,000             |
| 3        | ~290,000             |
| 4        | ~150,000             |
| 5        | ~145,000             |

# Xdebug

(not only a debugger)

# Features

- Well known PHP Debugger
- Free!
- Generates widely used cachegrind files
- Broad choice of viewers
- On demand
- Only for dev (+15~30% execution time)

# Install

## 1. Install PEAR

```
wget http://pear.php.net/go-pear.phar  
php go-pear.phar
```

- Install extension

```
sudo pecl install xdebug
```

# Configure

- Edit /etc/php5/conf.d/xdebug.ini

```
[xdebug]
zend_extension=xdebug.so
```

```
[xdebug-profiling]
xdebug.profiler_enable_trigger = 1
xdebug.profiler_enable = 0
xdebug.profiler_output_dir = /tmp/cachegrind
```

# Enable

- Install “Xdebug helper” browser extension
- Enable Profiling in browser



# QCacheGrind

also KCacheGrind, WinCacheGrind, WebCacheGrind, etc

# Install

- QCachegrind via homebrew on a Mac:

`brew install qcachegrind`

- WinCacheGrind via sourceforge on Windows:

<http://sourceforge.net/projects/wincachegrind/>

- Compile it from sources of KCacheGrind:

<http://kcachegrind.sourceforge.net/>

Parts Overview

cachegrind.out.5897 100.00 %

Top Cost Call Stack

Time Calls Function

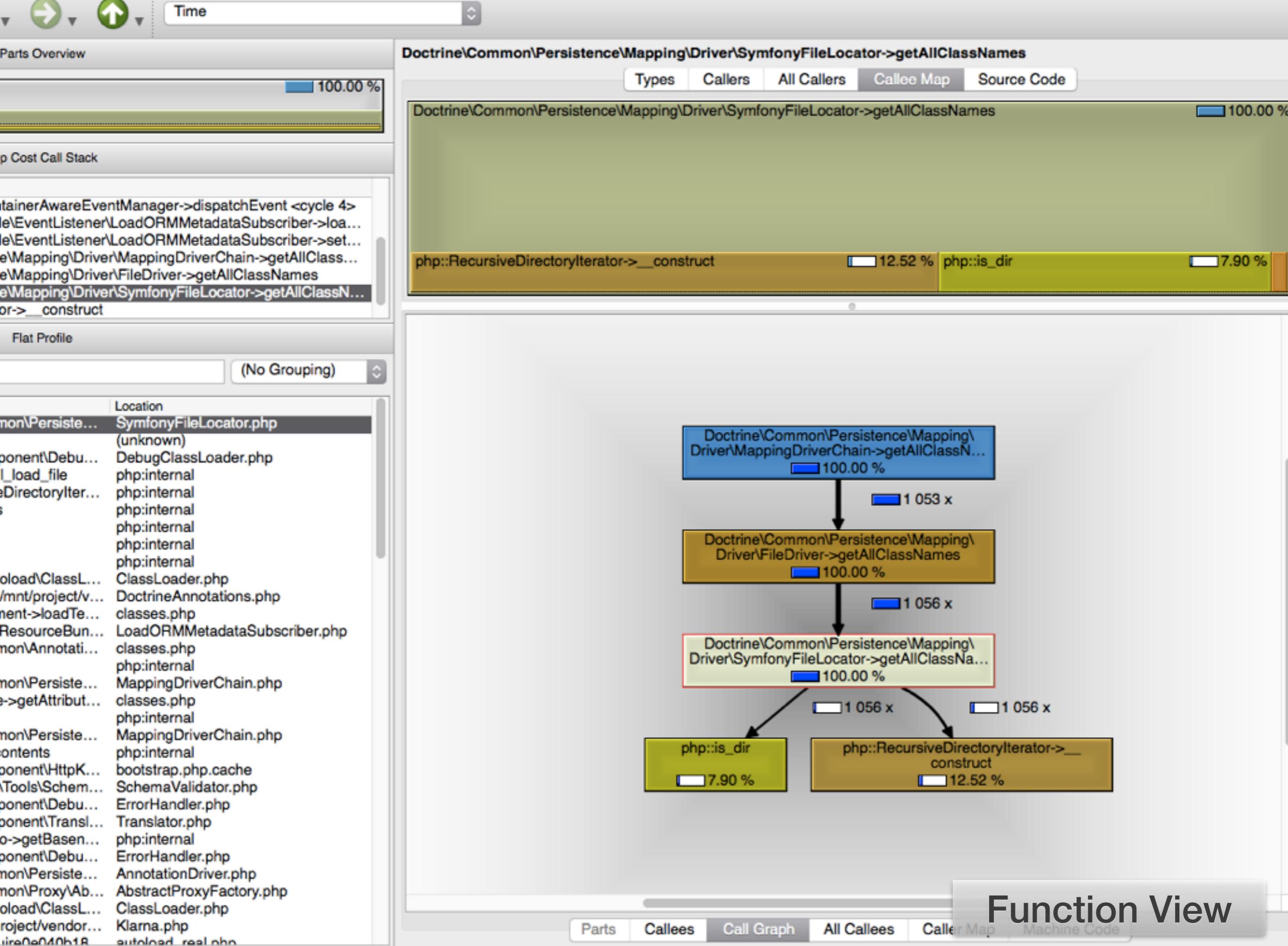
Flat Profile

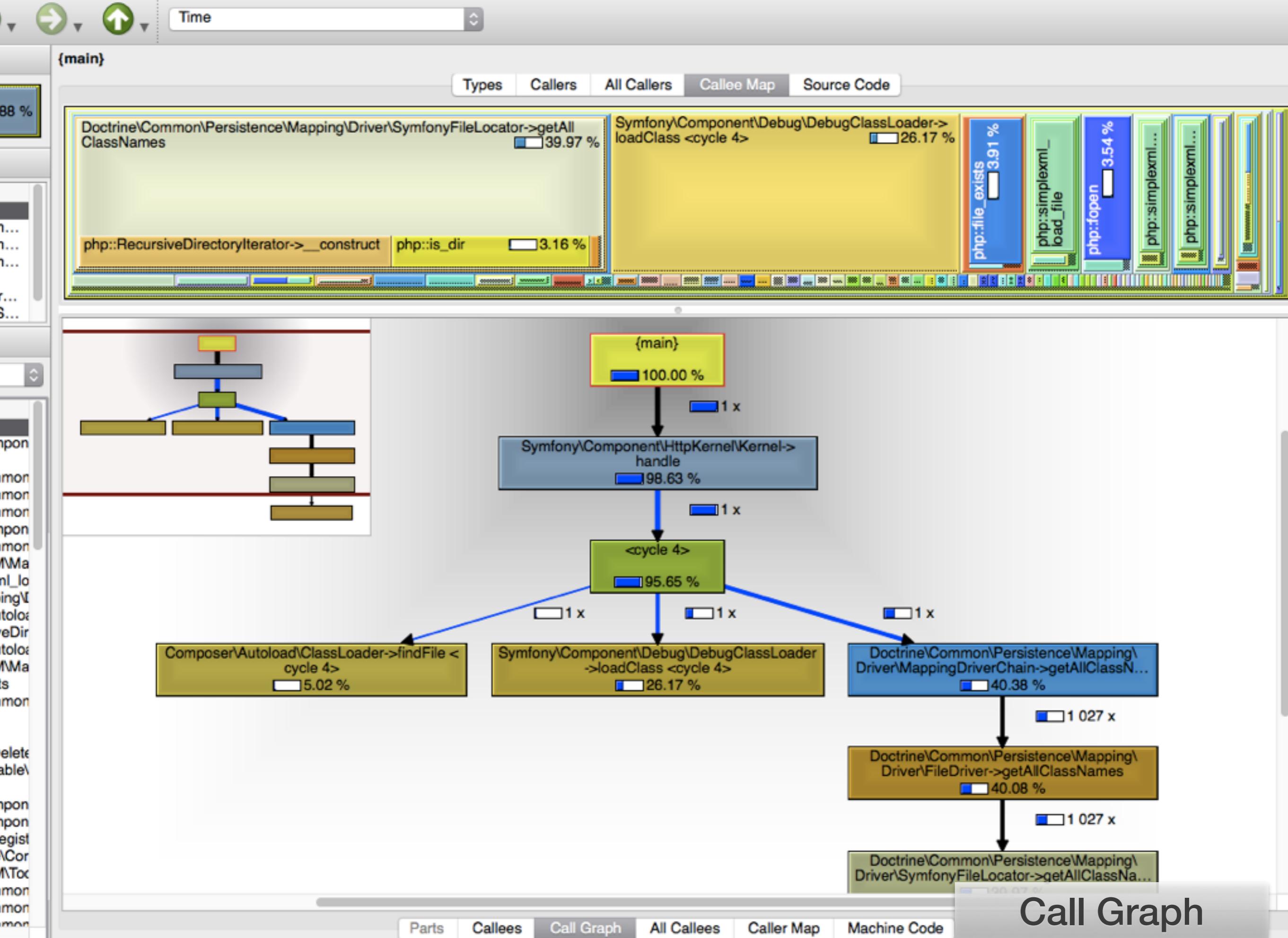
Search: (No Grouping)

| Incl. | Self   | Called | Function  | Location                         |
|-------|--------|--------|---|----------------------------------|
|       | 100.26 | 0.05   | (0) {main}  | app_dev.php                      |
|       | 98.88  | 0.00   | 1 Symfony\Component\HttpFoundation\Request::createFromGlobals()               | bootstrap.php.cache              |
|       | 98.64  | 32.18  | 92 <cycle 4>  | (unknown)                        |
|       | 41.64  | 0.26   | 44 Doctrine\Common\Persistence\Mapping\DriverChain::getDriverForClass()       | MappingDriverChain.php           |
|       | 41.33  | 0.11   | 1 056 Doctrine\Common\Persistence\Mapping\Driver\FileDriver::loadClass()      | FileDriver.php                   |
|       | 41.22  | 32.57  | 1 056 Doctrine\Common\Persistence\Mapping\Driver\SymfonyFileLocator::locate() | SymfonyFileLocator.php           |
|       | 26.99  | 26.57  | 1 531 Symfony\Component\Debug\DebugClassLoader::loadClass()                   | DebugClassLoader.php             |
|       | 10.30  | 0.03   | 272 Doctrine\Common\Persistence\Mapping\Driver\XmlDriver::loadClass()         | FileDriver.php                   |
|       | 9.39   | 0.04   | 260 Doctrine\ORM\Mapping\Driver\XmlDriver::loadFile()                         | XmlDriver.php                    |
|       | 9.36   | 9.36   | 261 php::simplexml_load_file()  | php:internal                     |
|       | 6.01   | 0.02   | 156 Gedmo\Mapping\Driver\FileDriver::loadClass()                              | File.php                         |
|       | 5.17   | 0.13   | 1 420 Composer\Autoload\ClassLoader::loadClass()                              | ClassLoader.php                  |
|       | 5.16   | 5.16   | 1 057 php::RecursiveDirectoryIterator::getChildren()                          | php:internal                     |
|       | 5.05   | 0.83   | 1 304 Composer\Autoload\ClassLoader::addClassMap()                            | ClassLoader.php                  |
|       | 4.24   | 0.08   | 104 Doctrine\ORM\Mapping\Driver\XmlDriver::loadFile()                         | XmlDriver.php                    |
|       | 4.18   | 4.18   | 1 360 php::file_exists()  | php:internal                     |
|       | 3.97   | 0.01   | 27 Doctrine\Common\Cache\FilesystemCache::load()                              | FilesystemCache.php              |
|       | 3.68   | 3.68   | 22 php::fopen()   | php:internal                     |
|       | 3.36   | 3.36   | 1 104 php::is_dir()   | php:internal                     |
|       | 3.02   | 0.02   | 76 Gedmo\SoftDeleteable\Mapping\Driver\XmlDriver::loadClass()                 | Xml.php                          |
|       | 2.96   | 0.02   | 76 Gedmo\Loggable\Mapping\Driver\XmlDriver::loadClass()                       | Xml.php                          |
|       | 2.51   | 2.51   | 751 php::is_file()  | php:internal                     |
|       | 2.35   | 0.01   | 1 Symfony\Component\HttpFoundation\Request::createFromGlobals()               | bootstrap.php.cache              |
|       | 1.94   | 0.01   | 1 Symfony\Component\HttpFoundation\Request::createFromGlobals()               | bootstrap.php.cache              |
|       | 1.93   | 0.00   | 1 AppKernel->registerBundles()  | AppKernel.php                    |
|       | 1.93   | 0.01   | 1 Sylius\Bundle\CoreBundle\Kernel::boot()                                     | Kernel.php                       |
|       | 1.61   | 0.16   | 176 Doctrine\ORM\Tools\SchemaValidator::validate()                            | SchemaValidator.php              |
|       | 1.58   | 0.20   | 333 Doctrine\Common\Persistence\Mapping\DriverChain::getDriverForClass()      | MappingDriverChain.php           |
|       | 1.42   | 0.06   | 269 Doctrine\Common\Persistence\Mapping\Driver\FileDriver::loadClass()        | AbstractClassMetadataFactory.php |
|       | 1.34   | 0.02   | 317 Doctrine\Common\Persistence\Mapping\Driver\FileDriver::loadClass()        | FileDriver.php                   |
|       | 1.31   | 0.08   | 314 Doctrine\Common\Persistence\Mapping\Driver\SymfonyFileLocator::locate()   | SymfonyFileLocator.php           |

No item activated for which to draw the call graph.

Dashboard





# Call Graph

# blackfire.io

low overhead profiler

# Features

- “Profiling in the cloud”
- Free if you are using 20 slots
- Very quick to setup
- Can handle cachegrind and xhprof output files
- On demand
- fast

# Install

1. Create a free account at <http://blackfire.io>

2. Add blackfire repository

```
curl -s https://packagecloud.io/gpg.key | sudo apt-key add -  
echo "deb http://packages.blackfire.io/debian any main"  
| sudo tee /etc/apt/sources.list.d/blackfire.list  
sudo apt-get update
```

3. Install package:

```
sudo apt-get install blackfire-agent
```

# Configure

- Configure credentials:

```
sudo blackfire-agent -register
```

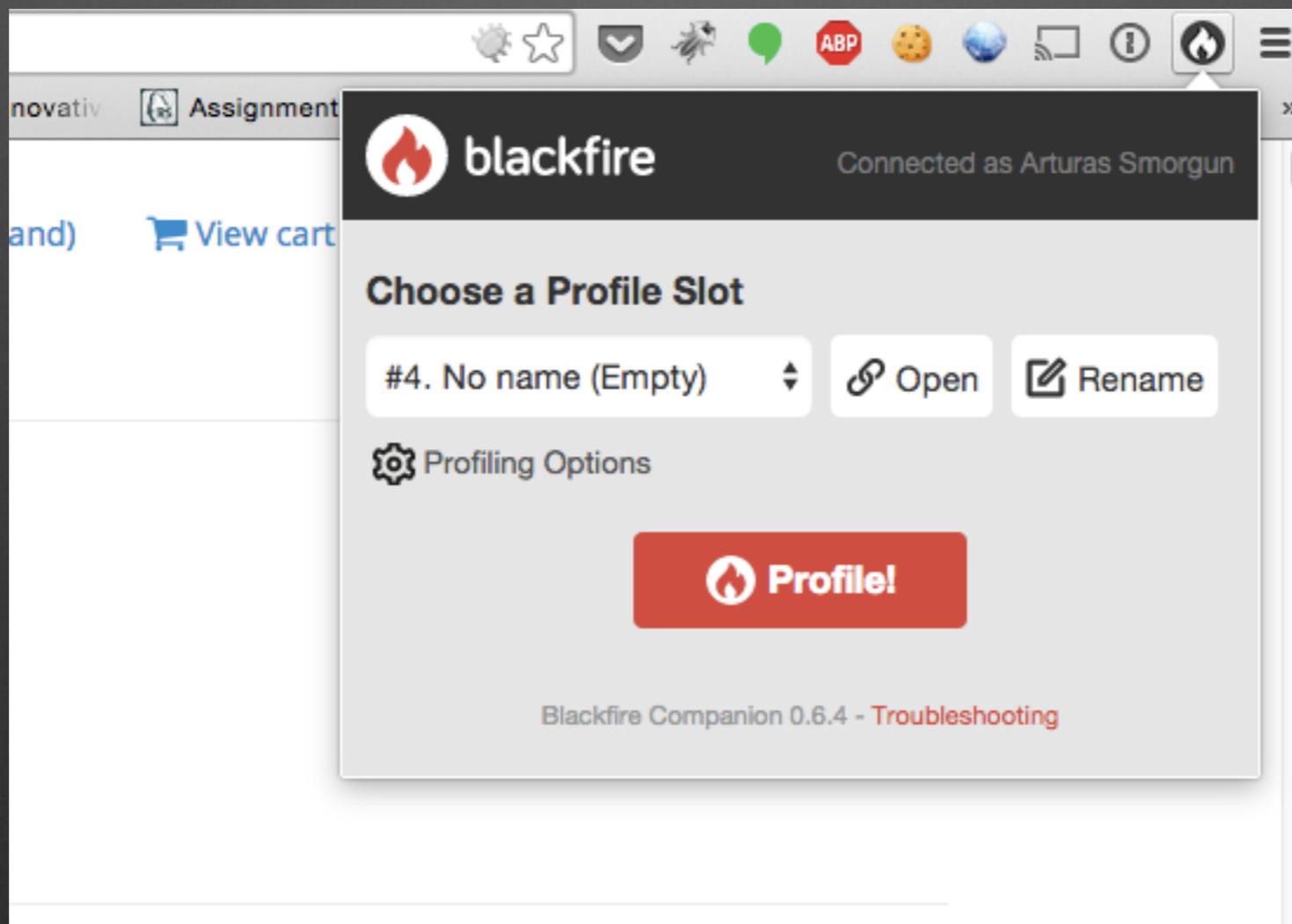
The screenshot shows the Blackfire web interface with a dark theme. At the top, there is a navigation bar with links for Profile Slots, Shared Profiles, Docs, Partners, Blog, and a user profile icon. Below the navigation bar, the page title is "My Account". Under "My Account", there are three tabs: Account (selected), Preferences, and My Credentials. The "My Credentials" tab is active, showing "My Server Credentials" and "Client credentials". In the "My Server Credentials" section, there are fields for "Server ID" (containing a long hex string) and "Server Token" (containing a long hex string). To the right of these fields is a "Last use" timestamp: "39 minutes ago". In the "Client credentials" section, there is a field for "Client ID" (containing a long hex string) and a "Client Token" field (partially visible).

| Server ID                            | Server Token                         | Last use       |
|--------------------------------------|--------------------------------------|----------------|
| xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx | xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx | 39 minutes ago |

| Client ID                            |
|--------------------------------------|
| xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx |

# Enable

- Install “Blackfire” browser extension
- Enable profiling in browser



ime

⌚ ⏴

⚙️ Options

ctions

Metrics 8

ch

## main()

| Function / Metric   | % Excl. | % Incl. | Calls |
|---|---------|---------|-------|
| Symfony\Bridge\Twig\Driver\SymfonyFileLocator::getAllClassNames | 1056    |         |       |
| Component\Debug\DebugClassLoader::loadClass                     | 1005    |         |       |
| Component\Debug\DebugClassLoader::loadClass@1                   | 336     |         |       |
| simplexml_load_file   | 261     |         |       |
| RecursiveDirectoryIterator::__construct                         | 1057    |         |       |
| Component\DependencyInjection\Container::get@2                  | 91      |         |       |
| Component\DependencyInjection\Container::get                    | 360     |         |       |
| Component\DependencyInjection\Container::get@3                  | 80      |         |       |
| fopen   | 22      |         |       |
| file_exists   | 1360    |         |       |
| Component\Debug\DebugClassLoader::loadClass@2                   | 144     |         |       |
| is_dir  | 1104    |         |       |
| Component\DependencyInjection\Container::get@4                  | 77      |         |       |
| Component\DependencyInjection\Container::get@5                  | 49      |         |       |
| is_file   | 751     |         |       |
| Component\DependencyInjection\Container::get@1                  | 87      |         |       |
| @Standard PHP Library   | 49571   |         |       |

▶ main()

100.00%

1 x

run\_init::  
web/app\_dev.php

99.99%

1 x

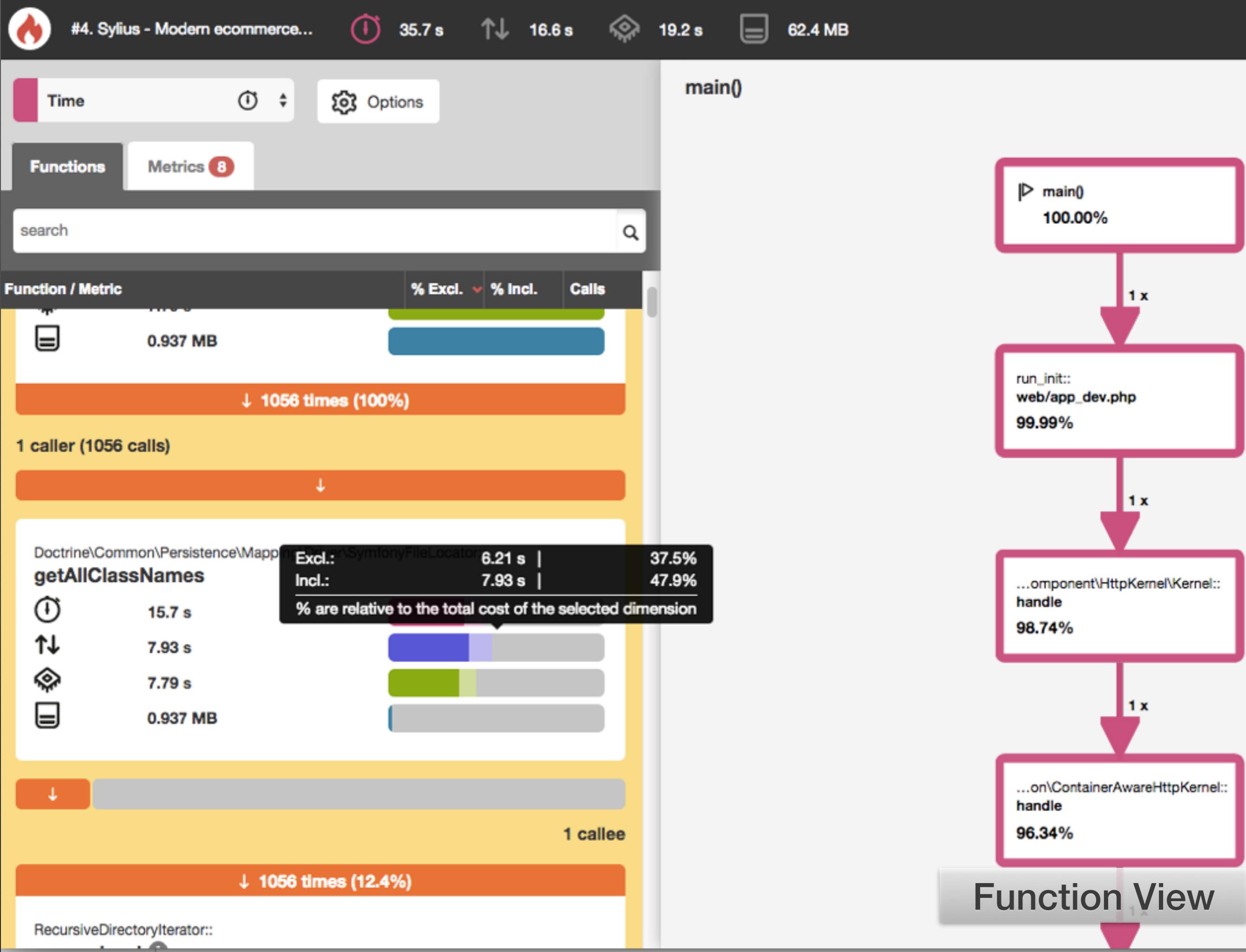
...omponent\HttpKernel\Kernel::  
handle

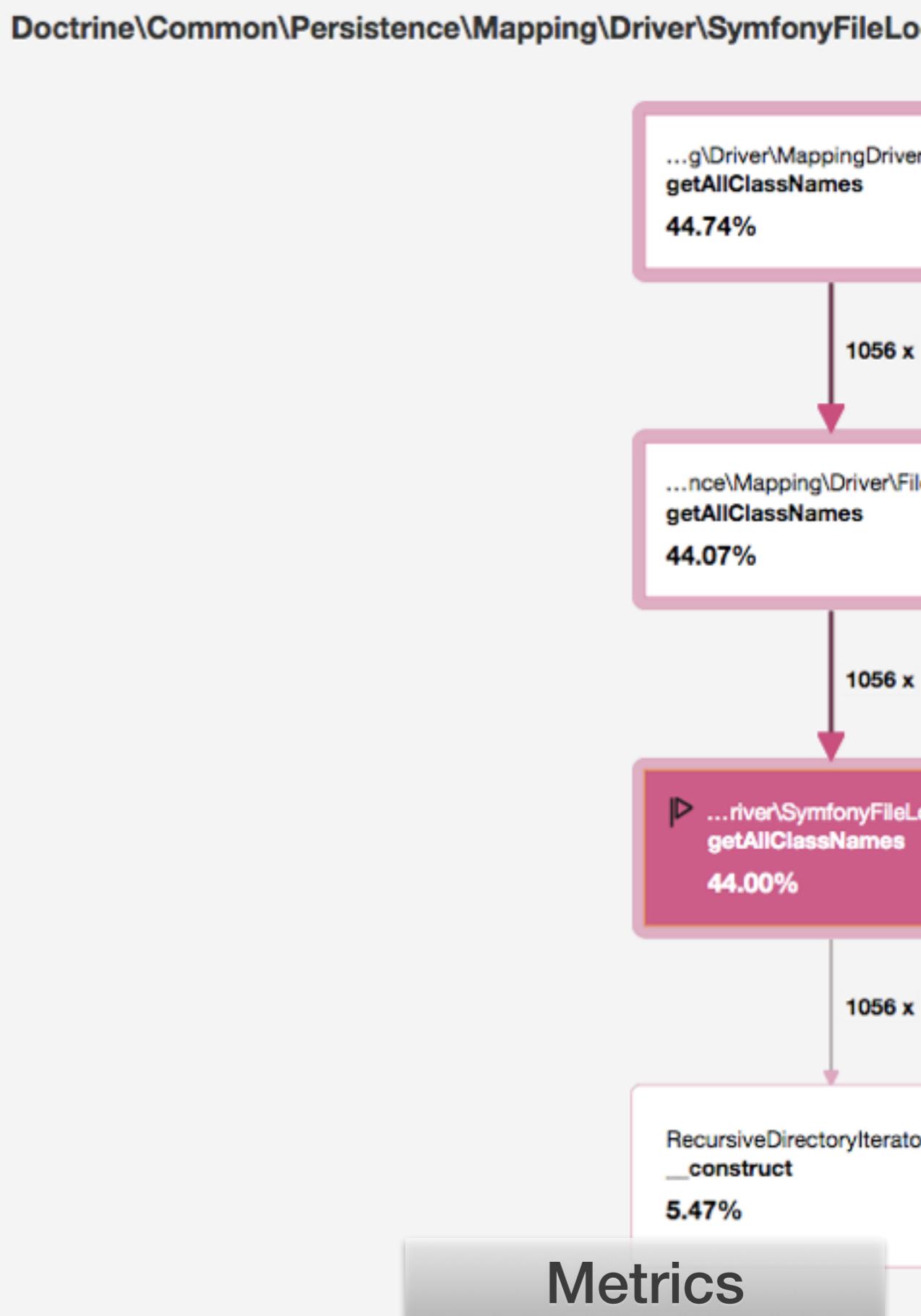
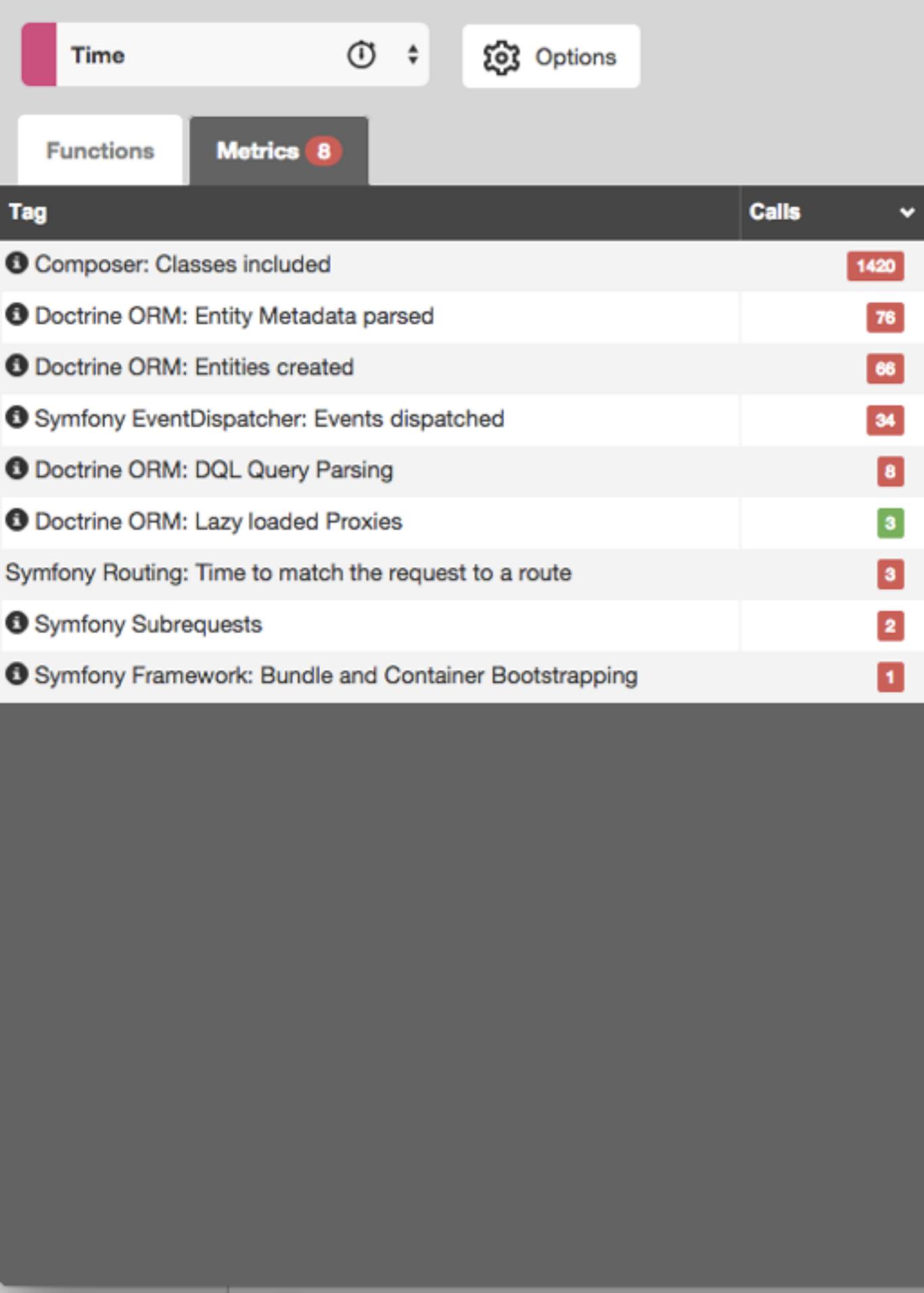
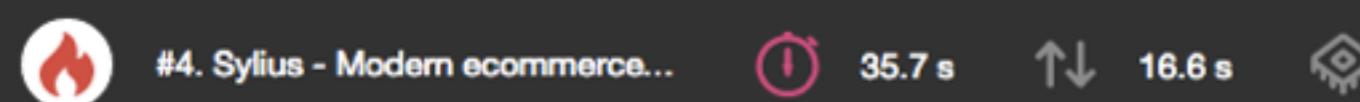
98.74%

1 x

...on\ContainerAwareHttpKernel::  
handle

Slot View







Comparison from #3 to #4



-22 s



-13 s



-8.83 s



-9.17 MB



From: #3. Sylius - Modern ecommerce for Symfony2

200 GET http://dev.php-profiling.elecode.com/

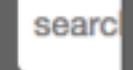
5 days ago

Fun

To: #4. Sylius - Modern ecommerce for Symfony2

200 GET http://dev.php-profiling.elecode.com/p/mug-doloribus-1

about 1 hour ago



Function

[Switch comparison base](#)

Or compare with another Profile Slot

#4. Sylius - Modern ecommerce

...pone

...fony\Component\DependencyInjection\Container::get

...y\Component\DependencyInjection\Container::get@2

...y\Component\DependencyInjection\Container::get@1

filemtime

...ny\Component\Debug\DebugClassLoader::loadClass

...y\Component\DependencyInjection\Container::get@4

...y\Component\DependencyInjection\Container::get@3

...t\Routing\ContentAwareGenerator::getRouteByLocale

...on\Persistence\Mapping\Driver\FileDriver::isTransient

...omponent\Routing\ContentAwareGenerator::generate

file\_exists

simplexml\_load\_file

...7b5703db1a8e7be1bb6f5cf750616def::block\_sidebar

...Bundle\Templating\Loader\FilesystemLoader::isFresh

...apping\AbstractClassMetadataFactory::loadMetadata

Twig\_Environment::loadTemplate

main()

handleRaw

-13 s

+20.4 s

...Controller\ResourceController::

showAction

+20.4 s

+20.4 s

...Controller\ResourceController::

handleView

+18.7 s

+18.7 s

...estBundle\View\ViewHandler::

handle

+18.7 s

+18.7 s

...estBundle\View\ViewHandler::

createResponse

+18.7 s

Comparison

# Final thoughts

Focusing on the  
*right* problem.

# No micro optimisations

- echo “something” **vs** echo ‘something’
- file\_exists(\$file) **vs** is\_file(\$file)
- isset(\$array[\$key]) **vs**  
array\_key\_exists(\$key, \$array)

**“Find the biggest bottleneck.  
Everything else is not your biggest  
bottleneck.”**

– Someone at BuildStuff 2014 (approximate)

Monitoring first,  
profiling later.

**“Premature optimisation is the root of all evil.”**

– Donald Knuth

# Monitoring is not absolutely right.

Sometimes not accurate.  
Sometimes reports false positives.

# Exploit fast wins

- Caching
- CDN (akamai, clouddinary, etc)
- Opcode
- Latest software (PHP 5.6 anyone?)
- Reverse proxies (cloudflare, varnish)
- Mooooooooore server power!
- Do less?

# Thank you!

Follow me:

@asarturas

Contact me:

[asmorgun@inviqa.com](mailto:asmorgun@inviqa.com)



# Questions?

|               | blackfire.io | XHProf | New Relic | Xdebug |
|---------------|--------------|--------|-----------|--------|
| Free          | ✓/✗          | ✓      | ✗/✓       | ✓      |
| Quick         | ✓            | ✓      | ✓         | ✗      |
| Online        | ✓            | ✓      | ✓         | ✗/✓    |
| On demand     | ✓            | ✓      | ✗         | ✓      |
| With Viewer   | ✓            | ✓/✗    | ✓         | ✗/✓    |
| Fast setup    | ✓            | ✗      | ✓         | ✗      |
| Comparison    | ✓            | ✓      | ✓         | ✗      |
| History graph | ✗            | ✓      | ✓/✗       | ✗      |
| Call stack    | ✓            | ✓      | ✓         | ✓      |
| Call graph    | ✓            | ✓      | ✗         | ✓      |

8.6

8.6

7.0

4.6