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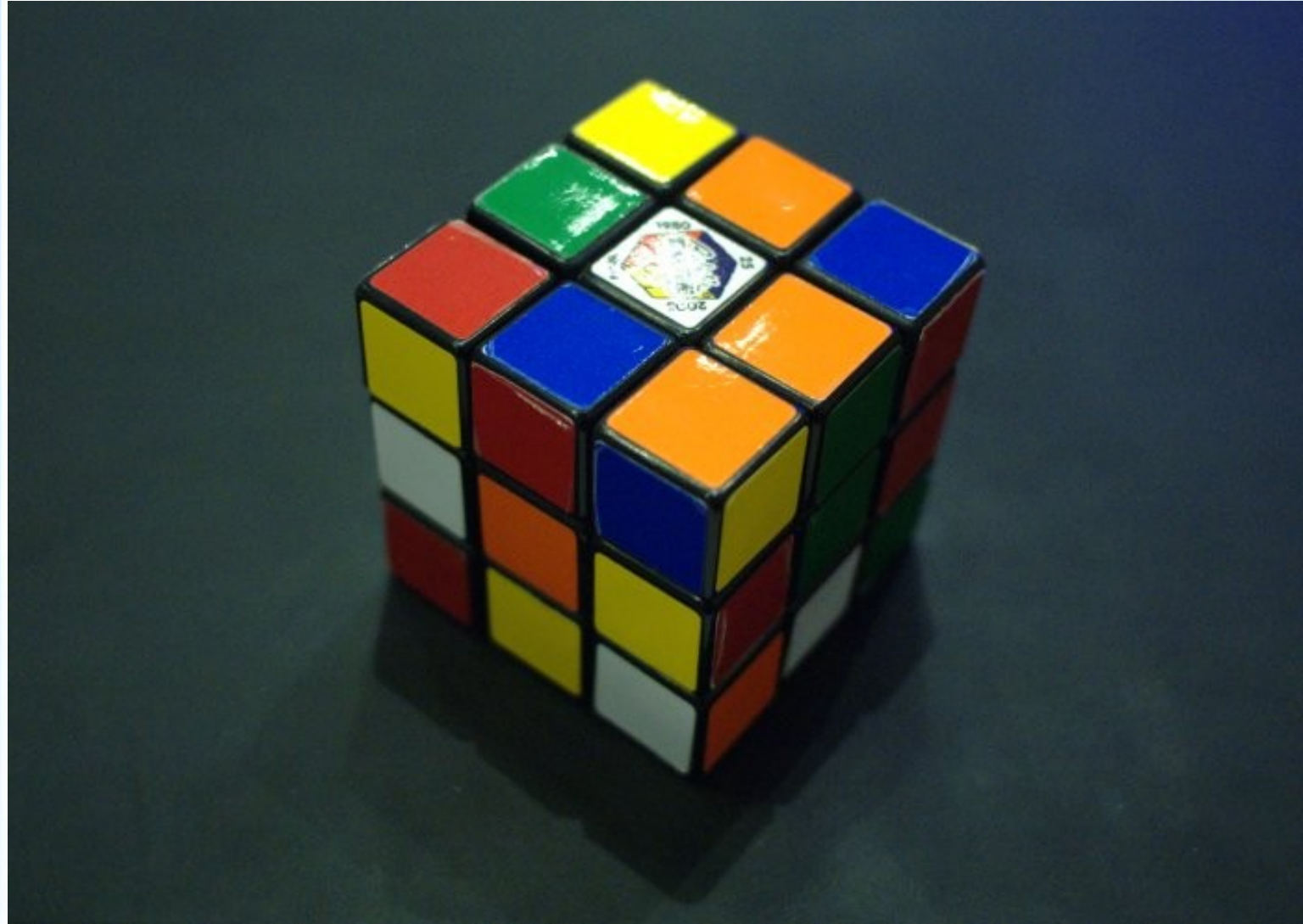
# About Me

- Dutchie living in Norway
- eZ systems A.S.
- eZ components project lead
- PHP development
- mcrypt, input\_filter, date/time support, unicode
- QA

# I Do Not Need a Debugger

- `printf()`, `var_dump()` and `echo` are good enough

# I Do Not Need a Debugger



# I Do Need a Debugger

- Xdebug: An Open Source debugging tool
- About 4 years old
- Version 2 is about to be released
- Works (atleast) on Linux and Mac and Windows

# Installing Xdebug

With PEAR:

- `pear install xdebug-beta`

Without PEAR:

- `wget http://xdebug.org/files/xdebug-2.0.0RC3.tgz`
- `tar -xvzf xdebug-2.0.0RC3.tgz`
- `cd xdebug-2.0.0RC3`
- `phpize`
- `./configure`
- `make`
- `make install`

# Installing Xdebug

- in php.ini add: `zend_extension=/full/path/to/xdebug.so`
- Use `zend_extension_debug` for debug builds of PHP

# Installing Xdebug

- Download the .dll for your PHP version from <http://pecl4win.php.net/>
- in php.ini add: `zend_extension_ts=c:\php\xdebug.dll`

# Installing Xdebug

- `--enable-versioning` prevent Xdebug from loading
- Zend's extensions (optimizer, debugger, cache) prohibit Xdebug (and other non-Zend zend-extensions) from loading

- Stack overflow in PHP
- Infinite recursion

Xdebug protects with:

```
xdebug.max_nesting_level=4
```

**(!)** Fatal error: Maximum function nesting level of '4' reached, aborting!  
in /home/httpd/html/test/xdebug/infinite.php on line 11

#### Call Stack

#	Time	Memory	Function	Location
1	0.0008	62864	{main}()	../infinite.php:0
2	0.0009	63528	a()	../infinite.php:14
3	0.0009	63604	b()	../infinite.php:6

# Help By Error Messages

**Warning:** fopen(ezcmaintest) [[function fopen](#)]: failed to open stream: No such file or directory in /home/httpd/html/test/ezc/dr\_mail\_test.php on line 147  
 ... is kinda useless.

**(!)** ezcMailTransportException: An error occurred while sending or receiving mail. Failed to connect to the server: dolly.ez.no:ezcomponents. in /dat/dev/ezcomponents/trunk/Mail/src/transports/transport\_connection.php on line 57

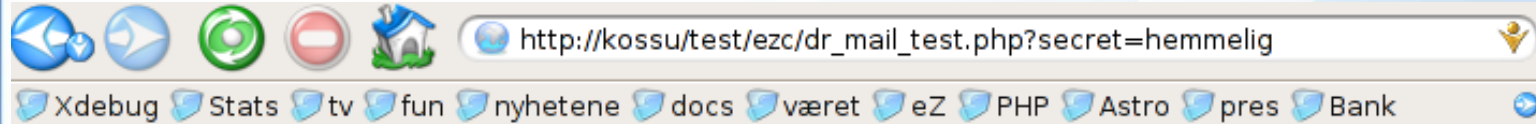
**Call Stack**

#	Time	Memory	Function	Location
1	0.0005	53512	{main}()	../dr_mail_test.php:0
2	0.0237	554800	ezcMailPop3Transport->__construct(string(11), string(12), string(12))	../dr_mail_test.php:8
3	0.0256	594140	ezcMailPop3TransportConnection->__construct(string(11), string(12))	/home/httpd/html/test/ezc/dr_mail_test.php:10 ../pop3_transport.php:101

**Variables in local scope (#3)**

\$server	= 'dolly.ez.no' (length=11)
\$errno	= 111
\$port	= 'ezcomponents' (length=12)
\$errstr	= 'Connection refused' (length=18)
\$timeout	= 5

xdebug.collect\_params=1 and xdebug.show\_local\_vars=1



**(!)** ezcMailTransportException: An error occurred while sending or receiving mail. Failed to connect to the server: dolly.ez.no:ezcomponents. in /dat/dev/ezcomponents/trunk/Mail/src/transports/transport\_connection.php on line 57

#### Call Stack

#	Time	Memory	Function	Location
1	0.0008	54776	{main}()	../dr_mail_test.php:0
2	0.0206	556600	ezcMailPop3Transport->__construct(string(11), string(12), string(12), array(3))	../dr_mail_test.php:8
3	0.0223	595860	ezcMailTransportConnection->__construct(string(11), string(12))	../pop3_transport.php:101

#### Dump \$\_GET

\$\_GET['secret'] = 'hemmelig' (length=8)

```
xdebug.dump.GET=*
xdebug.dump.POST=username,password
```

Also for: COOKIE, ENV, FILES, REQUEST, SERVER and SESSION

# Pretty Printing Variables

```

array
  0 => null
  1 => 3.141592654
  2 =>
    array
      'dutch' =>
        object(locale)[1]
          public 'lang' => 'nl' (length=2)
          public 'variation' => 'NL' (length=2)
          public 'charsets' =>
            array
              0 => 'iso-88591' (length=9)
              1 => 'iso-8859-15' (length=11)
          private 'mb_supported' => false
          protected 'self' =>
            &object(locale)[1]
          protected 'id' => 1

```

```

<?php
ini_set( 'xdebug.var_display_max_data', 25 );
ini_set( 'xdebug.var_display_max_depth', 4 );

xdebug_var_dump(); // or just var_dump()
?>

```

# How Many Functions

```
<?php  
echo xdebug_get_function_count ();  
?>
```

```
<?php  
echo xdebug_get_function_count ();  
?>
```

# How Much Time Does It Take

```
<pre>
<?php
ini_set('include_path', '/home/httpd/ezcomponents/trunk');
require_once 'Base/src/base.php';

function __autoload( $className )
{
    ezcBase::autoload( $className );
}

$config = ezcConfigurationManager::getInstance();
$config->init( 'ezcConfigurationIniReader', dirname( __FILE__ ) . '/examples' );

echo "Time Index: ", xdebug_time_index(), "\n";
$password = $config->getSetting( 'settings', 'db', 'password' );
echo "The password is <$password>.\n";
echo "Time Index: ", xdebug_time_index(), "\n";
?>
```

# How Much Memory Does It Use

```
<pre>
<?php
require 'ezc_mail_setup.php';
error_reporting(E_ALL);

$parser = new ezcMailParser();
$set = new ezcMailFileSet( array( dirname(__FILE__).'/ezcmailtest.mail' ) );
echo "Memory: ", xdebug_memory_usage(), " bytes\n\n";

$mail = $parser->parseMail( $set );
foreach( $mail as $mailPart )
{
    echo "From: {$mailPart->from->email}\n";
    echo "Subject: {$mailPart->subject}\n";
}
unset( $mail );

echo "\nMaximum Memory: ", xdebug_peak_memory_usage(), " bytes\n";
?>
```

```

mc - kossu.home.derickrethans.nl:~/j pilot/Backup - [derick@kossu]
27.6247 17664184 -> ezTemplateExpressionSourceToTstParser->__construct
27.6248 17664184 -> ezTemplateSourceToTstParser->__construct() /Temp
27.6250 17664248 -> ezTemplateSourceToTstParser->parseRequiredType() /
27.6251 17664248 -> is_string() /Template/src/parsers/source_to_tst/i
27.6252 17664248 -> is_object() /Template/src/parsers/source_to_tst/i
27.6252 17664248 -> ezTemplateSourceToTstParser->parse() /Template/s
27.6253 17664248 -> ezTemplateExpressionSourceToTstParser->parseCu
27.6256 17664248 -> ezTemplateSourceToTstParser->findNextElement
27.6256 17664248 -> ezTemplateCursor->atEnd() /Template/src/pa
27.6257 17664248 -> strlen() /Template/src/cursor.php:87
27.6258 17664248 -> ezTemplateSourceToTstParser->skipWhitespac
27.6258 17664248 -> ezTemplateCursor->atEnd() /Template/src/
27.6259 17664248 -> strlen() /Template/src/cursor.php:87
27.6260 17664248 -> ezTemplateCursor->pregMatch() /Template/
27.6260 17664248 -> strlen() /Template/src/cursor.php:340
27.6261 17664248 -> substr() /Template/src/cursor.php:343
27.6262 17664760 -> preg_match() /Template/src/cursor.php:3
27.6263 17664392 -> strlen() /Template/src/parsers/source_to
/tmp/trace.2310770352.xt 1,4 All

```

## Available settings:

```

xdebug.auto_trace=1
xdebug.trace_output_dir=/tmp
xdebug.collect_vars=1
xdebug.collect_params=1
xdebug.collect_return=1
xdebug.trace_options=1
xdebug.trace_output_name=crc32 # crc32, timestamp, pid

```

demo

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# What Code Do I Use

```
34 public function __construct()  
35 {  
36     $args = func_get_args();  
37     parent::__construct( array() );  
38     foreach ( $args as $part )  
39     {  
40         if ( $part instanceof ezcMailPart )  
41         {  
42             $this->parts[] = $part;  
43         }  
44         elseif( is_array( $part ) ) // add each  
45         {  
46             foreach ( $part as $array_part )  
47             {
```

## Available functions:

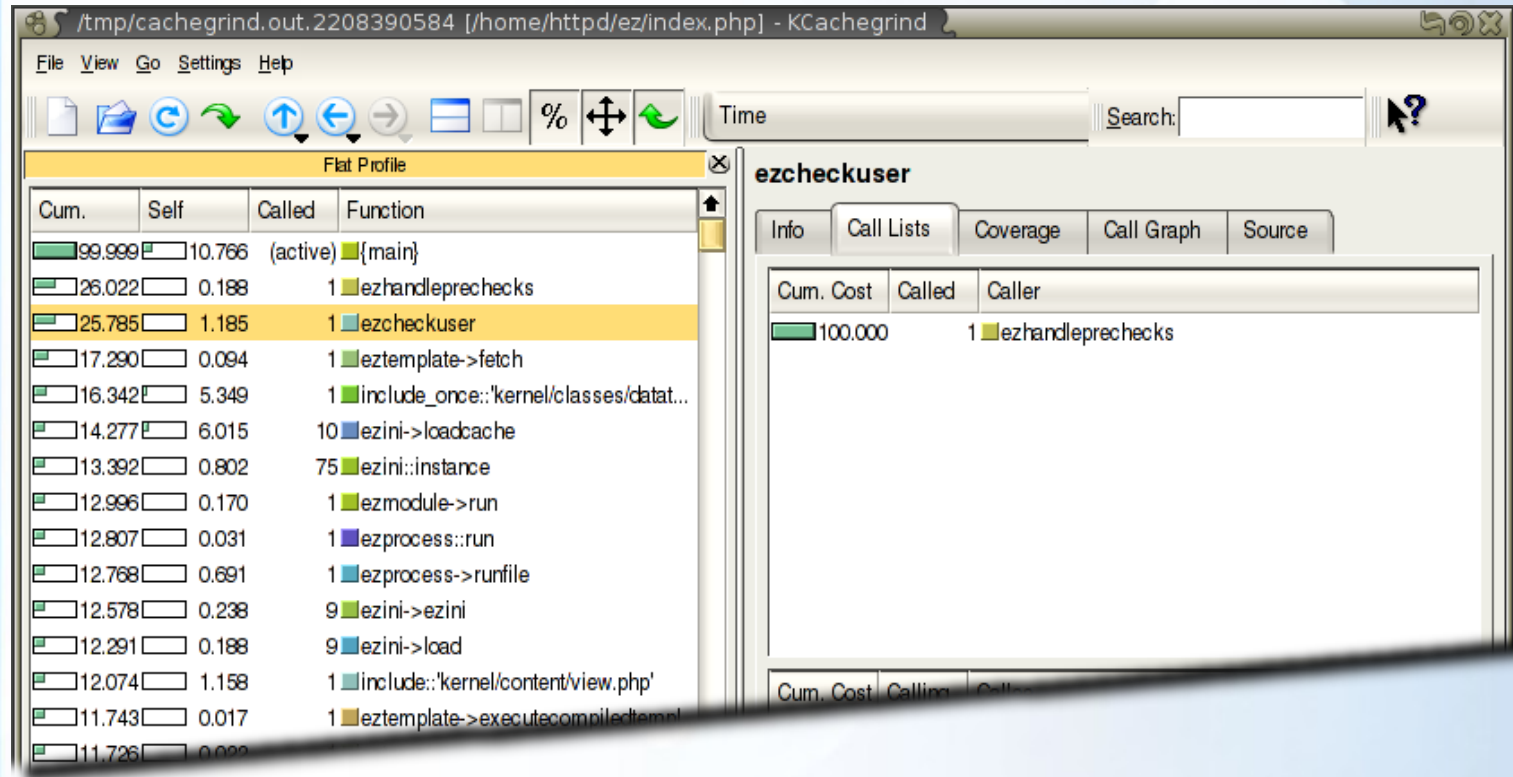
```
xdebug_start_code_coverage();  
xdebug_get_code_coverage();  
xdebug_stop_code_coverage();
```

# What Code Do I Use

Options to `xdebug_start_code_coverage()`:

- `XDEBUG_CC_UNUSED`: Enables scanning of code to figure out which line has executable code.
- `XDEBUG_CC_DEAD_CODE`: Enables branch analyzation to figure out whether code can be executed.

<http://kossu/coverage/index.html>



The screenshot shows the KCacheGrind application window. The main window displays a 'Flat Profile' table with the following data:

Cum.	Self	Called	Function
99.999	10.766	(active)	{main}
26.022	0.188	1	ezhandleprechecks
25.785	1.185	1	ezcheckuser
17.290	0.094	1	eztemplate->fetch
16.342	5.349	1	include_once::'kernel/classes/datat...
14.277	6.015	10	ezini->loadcache
13.392	0.802	75	ezini::instance
12.996	0.170	1	ezmodule->run
12.807	0.031	1	ezprocess::run
12.768	0.691	1	ezprocess->runfile
12.578	0.238	9	ezini->ezini
12.291	0.188	9	ezini->load
12.074	1.158	1	include::'kernel/content/view.php'
11.743	0.017	1	eztemplate->executecompiledtempl...
11.726	0.000		

The secondary window, titled 'ezcheckuser', shows a call list for the selected function:

Cum. Cost	Called	Caller
100.000	1	ezhandleprechecks

```
xdebug.profiler_enable=1           ; enable profiler
xdebug.profile_output_dir=/tmp     ; output directory
xdebug.profile_output_name=crc32   ; file extension
```

demo

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# Analyzing Running Scripts

- DBGp, common Debugging protocol
- Cross-language: PHP, Python, Perl...
- Supported in Xdebug 2
- Clients: Komodo, Maguma Workbench, TruStudio (PHP Eclipse Plugin) and many other smaller ones

Let's demo this...

demo

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Xdebug site: <http://xdebug.org>

Xdebug documentation: <http://xdebug.org/docs.php>

DBGp specification: <http://xdebug.org/docs-dbgp.php>

These slides: `:-:url:-:`

Questions?: [derick@xdebug.org](mailto:derick@xdebug.org)