

Test || die();

Anže Žnidaršič

about:me

- *Anže Žnidaršič*
- *vodja tima razvijalcev na PRO PLUS d.o.o.*
- *ZCE (php 4 & 5)*
- *pehape.si - php portal*
- *anze.info - osebni blog*
- *phpguru.si - strokovni blog*



Vrste testiranja

- *Testiranje posameznih kosov kode*
- *Testiranje delujočih sistemov*
- *Nefunkcijsko testiranje (performance, stability, security...)*

Vrste testiranja

- *Developer tests*
 - *Preverijo ali koda deluje pravilno*
- *Acceptance tests*
 - *Preverijo ali koda naredi tisto kar naročnik želi*

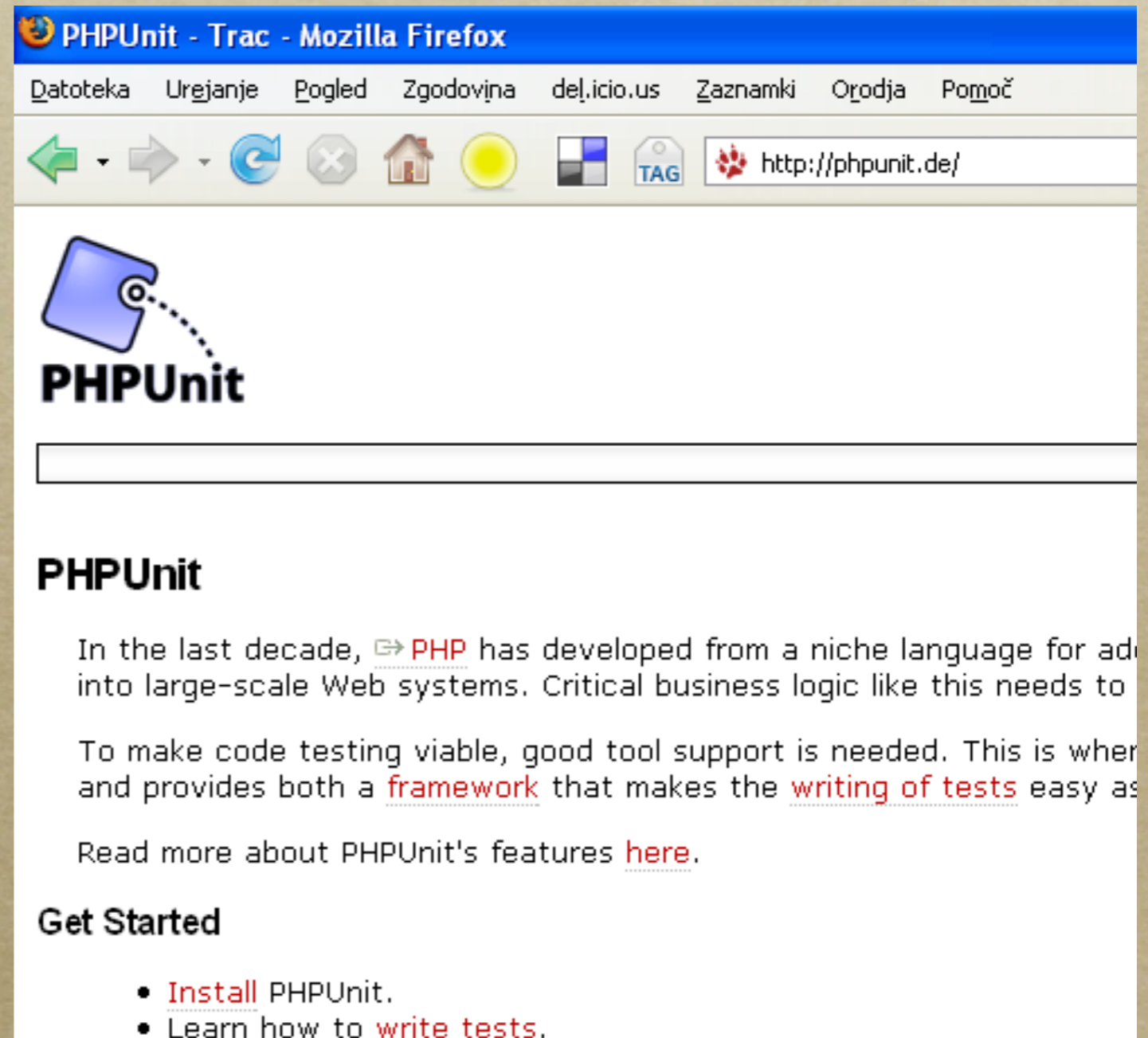
Kaj testirati?

- *Backend*
 - *Poslovna logika*
 - *Reusable komponente*
- *Frontend*
 - *Obrazci, templejti ...*
 - *AJAX skripte, JSON ...*
 - *RSS feedi, web services ...*

PHPUnit

“Feature without a test is not a feature”

- *Framework za izdelavo testov php kode*
- *Preprosto izvajanje testov*
- *Obširna analiza testov*



The screenshot shows a Mozilla Firefox browser window with the title "PHPUnit - Trac - Mozilla Firefox". The address bar contains "http://phpunit.de/". The page content includes the PHPUnit logo (a blue square with a white circle and a dashed line), the text "PHPUnit", and a paragraph of introductory text. The text reads: "In the last decade, PHP has developed from a niche language for ad into large-scale Web systems. Critical business logic like this needs to To make code testing viable, good tool support is needed. This is where and provides both a framework that makes the writing of tests easy as Read more about PHPUnit's features here." Below this is a section titled "Get Started" with two bullet points: "• Install PHPUnit." and "• Learn how to write tests."

PHPUnit - Install

- *PEAR - priporočeno*
- *Download arhiva*

```
C:\E:\WINDOWS\system32\cmd.exe
C:\Server\php5.2.5>pear channel-discover pear.phpunit.de
Adding Channel "pear.phpunit.de" succeeded
Discovery of channel "pear.phpunit.de" succeeded

C:\Server\php5.2.5>pear install phpunit/PHPUnit
Did not download optional dependencies: pear/Image_GraphViz, pear/Log, use --all
options to download automatically
phpunit/PHPUnit can optionally use package "pear/Image_GraphViz" (version >= 1.2
1)
phpunit/PHPUnit can optionally use package "pear/Log"
phpunit/PHPUnit can optionally use PHP extension "pdo"
phpunit/PHPUnit can optionally use PHP extension "pdo_mysql"
phpunit/PHPUnit can optionally use PHP extension "pdo_sqlite"
phpunit/PHPUnit can optionally use PHP extension "xdebug" (version >= 2.0.0)
Downloading PHPUnit-3.2.2.tgz ...
Starting to download PHPUnit-3.2.2.tgz (195,562 bytes)
.....done: 195,562 bytes
install ok: channel://pear.phpunit.de/PHPUnit-3.2.2

C:\Server\php5.2.5>dir
Volume in drive C has no label.
Volume Serial Number is 547F-5C36

Directory of C:\Server\php5.2.5
```


Naš razred

```
0 10 20 30 40 50
1 <?php
2
3 class UserRegister
4 {
5     public function isValidUsername($username)
6     {
7         if (empty($username))
8             return false;
9         if (strlen($username) > 10)
10            return false;
11        return true;
12    }
13 }
14
```


Naš test

```
0 10 20 30 40 50 60 70 80 90
1 <?php
2
3 require_once 'PHPUnit/Framework.php';
4 require_once 'UserRegister.class.php';
5
6 class UserRegisterTest extends PHPUnit_Framework_TestCase
7 {
8     protected $validator;
9
10    public function setUp()
11    {
12        $this->validator = new UserRegister;
13    }
14
15    public function testUsernameIsValid()
16    {
17        $username = 'Anze';
18        $this->assertEquals(true, $this->validator->isValidUsername($username));
19    }
20
21    public function testUsernameTooLong()
```


Rezultat testa

```
C:\Server\www\poponline\unittesting>phpunit UserRegisterTest
PHPUnit 3.2.2 by Sebastian Bergmann.

...
Time: 0 seconds

OK (3 tests)

C:\Server\www\poponline\unittesting>
C:\Server\www\poponline\unittesting>
C:\Server\www\poponline\unittesting>
C:\Server\www\poponline\unittesting>
C:\Server\www\poponline\unittesting>
C:\Server\www\poponline\unittesting>
C:\Server\www\poponline\unittesting>phpunit UserRegisterTest
PHPUnit 3.2.2 by Sebastian Bergmann.

F..
Time: 0 seconds

There was 1 failure:

1) testUsernameIsValid(UserRegisterTest)
Failed asserting that <boolean:false> matches expected value <boolean:true>.
C:\Server\www\poponline\unittesting\UserRegisterTest.php:18

FAILURES!
Tests: 3, Failures: 1.

C:\Server\www\poponline\unittesting>
```



```
0 10 20 30 40 50 60 70 80 90
1 <?php
2
3 class UserRegister
4 {
5     public function isValidUsername($username)
6     {
7         if (empty($username))
8             return false;
9         if (strlen($username) > 10)
10            return false;
11        return true;
12    }
13 }
14
15 ?>
16
```


Hitrejši načini testiranja

- *Lahko uporabimo php documentor*

- */**
* @test
/

*nad metodo pove da gre za test metodo in ni treba uporabiti imena test**

- */**
* @assert (1, 2) == 3
* @assert (2, 5) == 3
/

nad metodo postavimo teste metode, npr. metoda, ki vzame 2 parametra in vrne rezultat bi za prvo primerjavo vrnila success za drugo pa fail

Grupiranje testov - TestSuite

```
php AllTests.php
PHPUnit 3.2.1 by Sebastian Bergmann.

..... 60 / 227
..... 120 / 227
..... 180 / 227
.....SSSSS.....

Time: 4 seconds

OK, but incomplete or skipped tests!
Tests: 227, Skipped: 6.
```


Pokritost testov

```
82      :      /**
83      :      * Sets the bank account's balance.
84      :      *
85      :      * @param float $balance
86      :      * @throws BankAccountException
87      :      * @access protected
88      :      */
89      :      protected function setBalance($balance)
90      :      {
91      2 :          if ($balance >= 0) {
92      0 :              $this->balance = $balance;
93      0 :          } else {
94      2 :              throw new BankAccountException;
95      :          }
96      0 :      }
```


Kaj še ponuja PHPUnit?

- *Performance testi*
- *Copy/Paste detektor*
- *Agile documentation*
 - *Lahko si generiramo dokumentacijo kateri testi so narejeni za kateri class in če imamo logična imena testov se lepo vidi kaj vse je bilo predvideno za class in kaj pravzaprav class dela*
- *Veliko različnih možnosti avtomatskega izvažanja rezultatov testov (baza, xml, json, itd.)*
- *Itđ.*

Študije primerov

- *Microsoft: pisanje testov vzame 15 % več časa*
- *IBM: koda s testi ima 40 % manj bugov*
- *Ericsson: produktivnost se poveča za 16 %*
- *Vsi: večja kvaliteta kode!*

Microsoft

IBM



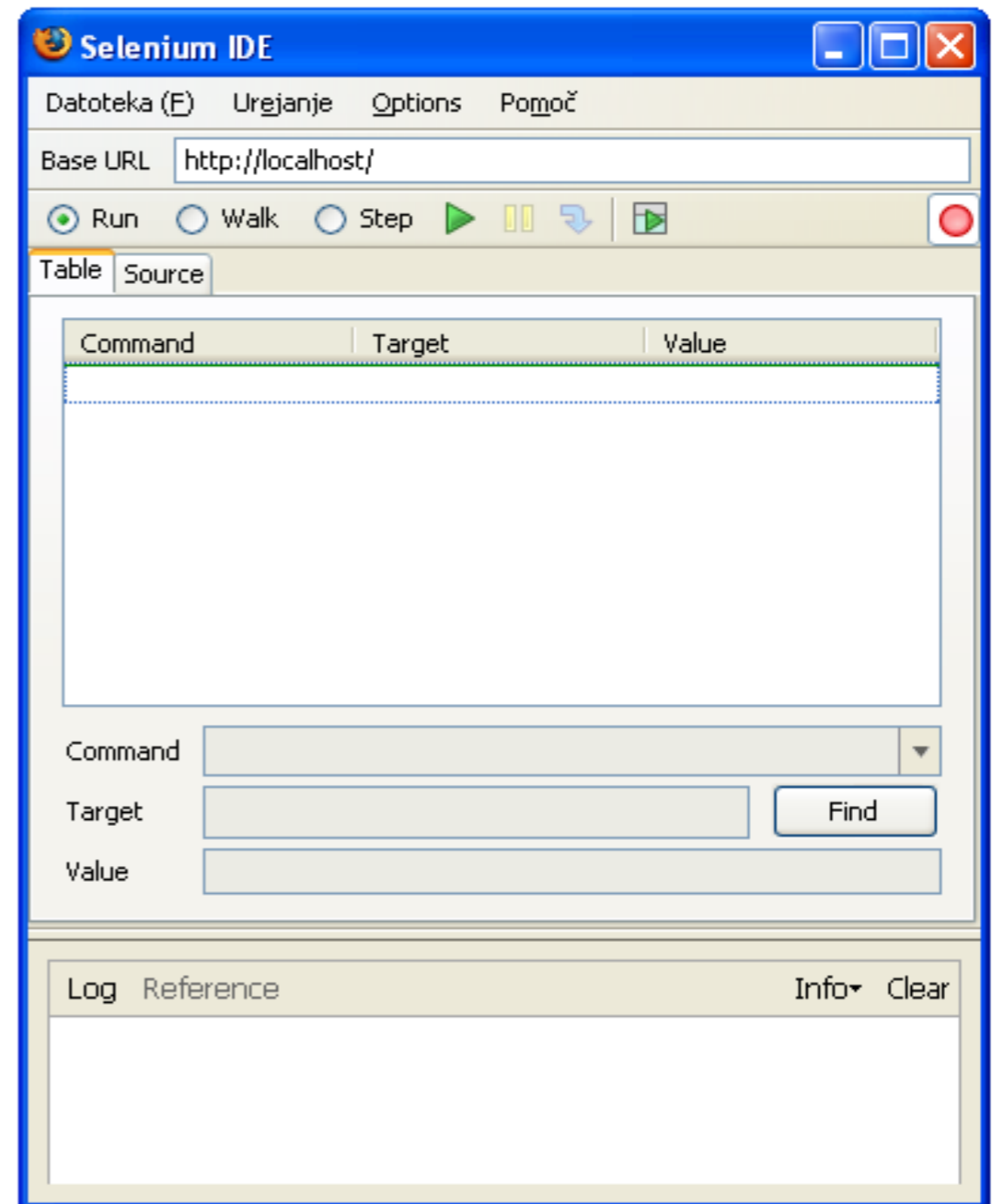
Sony Ericsson

Selenium

- *Framework za izdelavo testov brskalnikov oz. outputa v brskalnike*
 - *Deluje na različnih platformah (MacOSX, Windows, Linux)*
 - *Deluje na različnih brskalnikih (IE, Firefox, Opera, Safari, Seamonkey, Konqueror, Camino)*
 - *Teste je možno izvajati remote in avtomatsko*

Selenium IDE

- *Firefox plugin*
- *Lahko posnamemo / napišemo in izvajamo teste v brskalniku*
- *Izvajanje testov po korakih*



Selenium

Registracija - Mozilla Firefox

Datoteka Urejanje Pogled Zgodovina del.icio.us

← → ↻ × 🏠 🟡 🏠 TAG

Nov uporabnik

Uporabniško ime:

Uporabniško ime je lahko dolgo največ 10 znakov

Geslo:

Ponovi geslo:

Registracija je uspešna!

- Kopiraj
- Izberi vse
- ScribeFire ▶
- Highlight Keyword...
- Show Keyword Density...
- Iskanje Google po "Registracija je..."
- Bookmark This Page In del.icio.us...
- Pokaži izvorno kodo izbora
- Web Developer ▶
- SEO For Firefox ▶
- Note this (Google Notebook)
- Inspect Element
- open /poponline/register/register.php
- assertTextPresent Registracija je uspešna!**
- verifyTextPresent Registracija je uspešna!
- verifyValue
- assertText //b Registracija je uspešna!

Selenium IDE *

Datoteka (F) Urejanje Options Pomoč

Base URL

Run Walk Step ▶ || ↺ ▶

Command	Target	Value
open	/poponline/register/f...	
type	username	testko
type	password	123
type	password2	123
clickAndWait	//input[@value='Potrdi']	

Command

Target

Value

Log Reference Info Clear

Selenium IDE – TestSuite(.html)

```
0 10 20 30 40 50 60 70 80 90 100 110
1 <table>
2 <tr>
3 <td>Testno okolje za teste registracijskega obrazca</td>
4 </tr>
5 <tr>
6 <td><a target="testFrame" href="register_success.html">Uspesna registracija</a></td>
7 </tr>
8 <tr>
9 <td><a target="testFrame" href="register_fail_username_empty.html">Neuspesna registracija - Prazno uporabnisko
10 </tr>
11 <tr>
12 <td><a target="testFrame" href="register_fail_password_empty.html">Neuspesna registracija - Prazno geslo</a></td>
13 </tr>
14 <tr>
15 <td><a target="testFrame" href="register_fail_too_long_username.html">Neuspesna registracija - Predolgo uporabn
16 </tr>
17 <tr>
18 <td><a target="testFrame" href="register_fail_passwords_does_not_match.html">Neuspesna registracija - Gesli se
19 </tr>
20 </table>
```






Selenium IDE – TestSuite – OK

Testno okolje za teste registracijskega obrazca
Uspesna registracija
Neuspesna registracija - Prazno uporabnisko ime
Neuspesna registracija - Prazno geslo
Neuspesna registracija - Predolgo uporabnisko ime
Neuspesna registracija - Gesli se ne ujemata

register_fail_passwords_does_not_match		
open	/poponline/register/form.php	
type	username	anze
type	password	bla
type	password2	bla1
click	//input[@value='Potrdi']	
assertTextPresent	Registracija ni uspela	
assertTextPresent	Gesli se ne ujemata	

Selenium TestRunner

Execute Tests

Fast Slow

Highlight elements

Elapsed: 00:06

Tests	Commands
5 run	9 passed
0 failed	0 failed
	0 incomplete

Tools

[View DOM](#) [Show Log](#)

Registracija ni uspela:
Gesli se ne ujemata!

Selenium IDE – TestSuite – Fail

Testno okolje za teste
registracijskega obrazca

Uspesna registracija

Neuspesna registracija -

Prazno uporabnisko ime

Neuspesna registracija -

Prazno geslo

Neuspesna registracija -

Predolgo uporabnisko

ime

Neuspesna registracija -

Gesli se ne ujemata

register_fail_passwords_does_not_match

open	/poponline/register/form.php	
type	username	anze
type	password	bla
type	password2	bla1
click	//input[@value='Potrdi']	
assertTextPresent	Registracija ni uspela	
assertTextPresent	Gesli se ne ujemata	false

Selenium TestRunner

Execute Tests



Fast

Slow

Highlight elements

Elapsed: 00:05

Tests **Commands**

5 run 4 passed

5 failed 0 failed

5 incomplete

Tools

View DOM

Show Log

Registracija ni uspela:

Zakaj pa nič ni v postu?

Nov uporabnik

Uporabniško ime:

Uporabniško ime je lahko dolgo največ 10 znakov

Geslo:

Ponovi geslo:

Potrdi

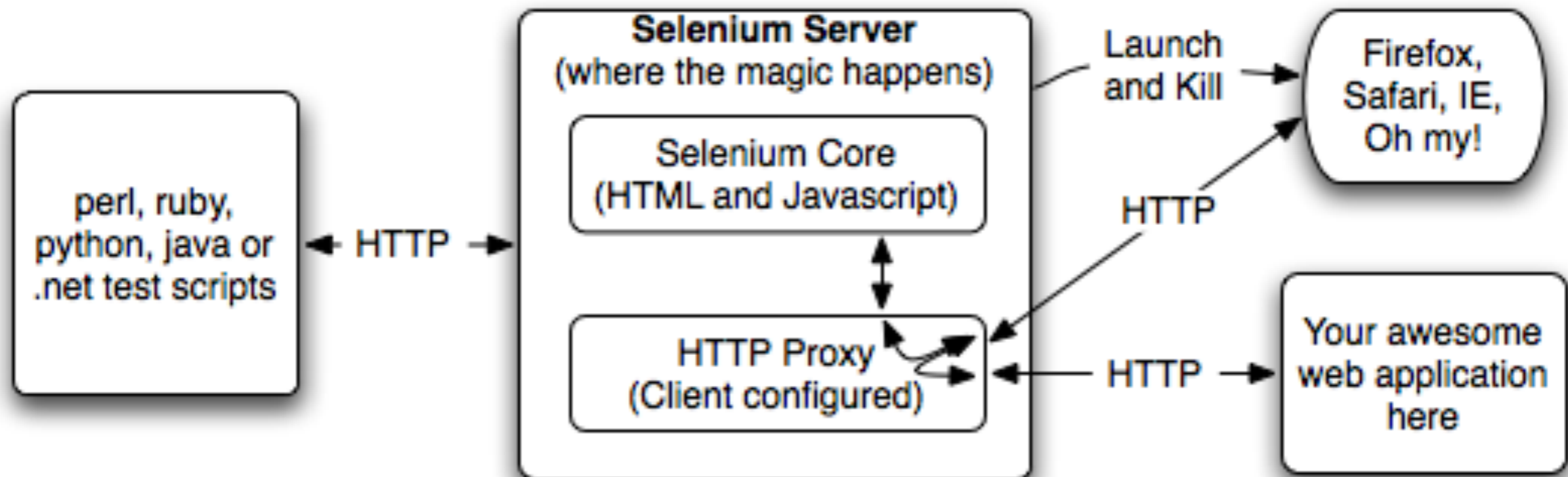
Selenium RC – Remote Control

- *Orodje, s katerim lahko naredimo test, ki se ga izvede na katerikoli spletni strani s katerimkoli podprtim brskalnikom*
- *Vsebuje Selenium server, ki lahko avtomatsko zažene/ustavi/kontrolira vsakega od podprtih brskalnikov*
 - *Deluje kot proxy med brskalnikom in spletno stranjo*
- *V PHPju se uporabi PEAR paket Testing_Selenium in PHPUnit*

```
C:\Server\php5.2.5>pear install Testing_Selenium-0.4.0
downloading Testing_Selenium-0.4.0.tgz ...
Starting to download Testing_Selenium-0.4.0.tgz (25,238 bytes)
.....done: 25,238 bytes
install ok: channel://pear.php.net/Testing_Selenium-0.4.0
```


Selenium Remote Control

The best web browser automation framework in the world. Seriously.



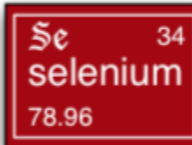
Selenium server

```
C:\Server\selenium-rc\selenium-server-0.9.2>java -jar selenium-server.jar -in
active
03:38:07.790 INFO - Java: Sun Microsystems Inc. 1.6.0_03-b05
03:38:07.805 INFO - OS: Windows XP 5.1 x86
03:38:07.821 INFO - v0.9.2 [2006], with Core v0.8.3 [1879]
03:38:08.305 INFO - Version Jetty/5.1.x
03:38:08.305 INFO - Started HttpContext[/selenium-server/driver,/selenium-ser
/driver]
03:38:08.305 INFO - Started HttpContext[/selenium-server,/selenium-server]
03:38:08.321 INFO - Started HttpContext[/,/]
03:38:08.446 INFO - Started SocketListener on 0.0.0.0:4444
03:38:08.446 INFO - Started org.mortbay.jetty.Server@1cf8583
Entering interactive mode... type Selenium commands here (e.g: cmd=open&1=htt
/www.yahoo.com)
cmd=getNewBrowserSession&1=*iexplore&2=http://www.google.com
03:39:26.837 INFO - ---> Requesting http://localhost:4444/selenium-server/dri
?cmd=getNewBrowserSession&1=*iexplore&2=http://www.google.com
03:39:27.212 INFO - Checking Resource aliases
03:39:27.212 INFO - Command request: getNewBrowserSession[*iexplore, http://w
google.com] on session null
03:39:27.790 INFO - Launching session 967212
03:39:27.852 INFO - Backing up registry settings...
03:39:28.602 INFO - Modifying registry settings...
03:39:28.915 INFO - Launching Internet Explorer...
03:39:38.368 INFO - Allocated session 967212 for http://
03:39:38.415 INFO - Got result: OK,967212 on session 96
cmd=open&1=http://www.google.com/webhp&sessionId=967212
03:42:08.915 INFO - ---> Requesting http://localhost:44
?cmd=open&1=http://www.google.com/webhp&sessionId=96721
03:42:08.915 INFO - Command request: open[http://www.go
```

Selenium Remote Control v0.9.2 [2006], with Core v0.8.3 [1879] - Windows Internet Explorer

http://www.google.com/selenium-server/core/RemoteRunner.html?sessionId=485587&multiWindow=false&baseurl=http%3A%2F%2Fwww.google.com

Selenium Remote Control v0.9.2 [2006], with Core v0...



Selenium Functional Testing for Web Apps

Open Source From [ThoughtWorks, Inc](#) and Friends

Slow Mode:

Tools

485587

Last Four Test Com

getTitle()

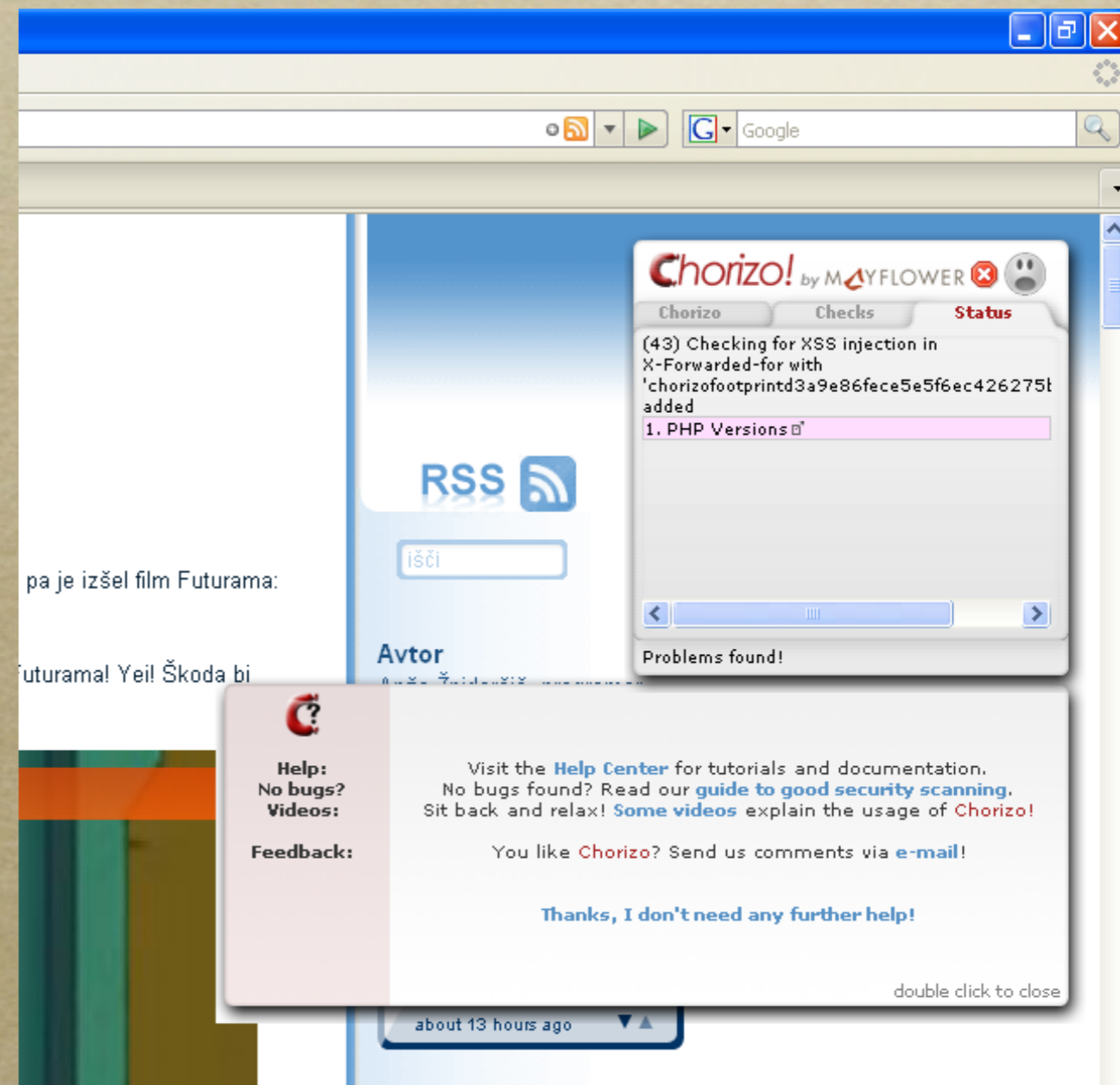
setContext(485587)

1.. googletest.php

```
0 10 20 30 40 50 60 70 80 90
1 <?php
2
3 require_once 'Testing/Selenium.php';
4 require_once 'PHPUnit/Framework/Testcase.php';
5
6 class GoogleTest extends PHPUnit_Framework_TestCase
7 {
8     private $browser;
9
10    public function setUp()
11    {
12    }
13
14    public function tearDown()
15    {
16        $this->browser->stop();
17    }
18
19    public function testGoogleFF()
20    {
21        $this->browser = new Testing_Selenium("*firefox", "http://www.google.com");
22        $this->browser->start();
23        $this->browser->open("/webhp?hl=en");
24        $this->browser->type("q", "hello world");
25        $this->browser->click("btnG");
26        $this->browser->waitForPageToLoad(10000);
27        $this->assertRegExp("/Google Search/", $this->browser->getTitle());
```


Nefunkcijski testi

- *Profiling*
 - *Xdebug+KCacheGrind, Zend Profiler*
- *Performance, load, stress, availability...*
 - *Ab, httpperf, jMeter, Grinder, OpenSTA*
- *Security*
 - *Chorizo*



Continuous Integration

- *Avtomatsko posodabljanje vseh sprememb na centralnem strežniku (daily commits)*
- *Avtomatsko testiranje kode*
- *Avtomatsko testiranje brskalnikov*
- *Avtomatsko obveščanje o napakah*
- *CruiseControl*

Vprašanja?

Hvala za vašo pozornost.

email: anze@anze.info

p.s.

Na pro plusu iščemo programerje in sistemce :)

Anže Žnidaršič