

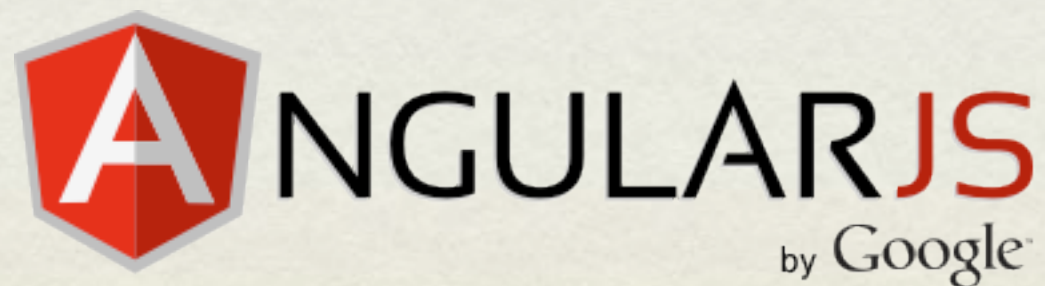
AŤ SE Z KÓDU NEPRÁŠÍ!

Juraj Michálek

6. 5. 2013 - FI MUNI - Brno

<http://georgik.sinusgear.com>

NIEČO O MNE



ČO NÁS ČAKÁ

- Testovanie v C
- C vo svete Applu, krátky úvod do Objective-C
- Kvalita kódu, open source a projekty

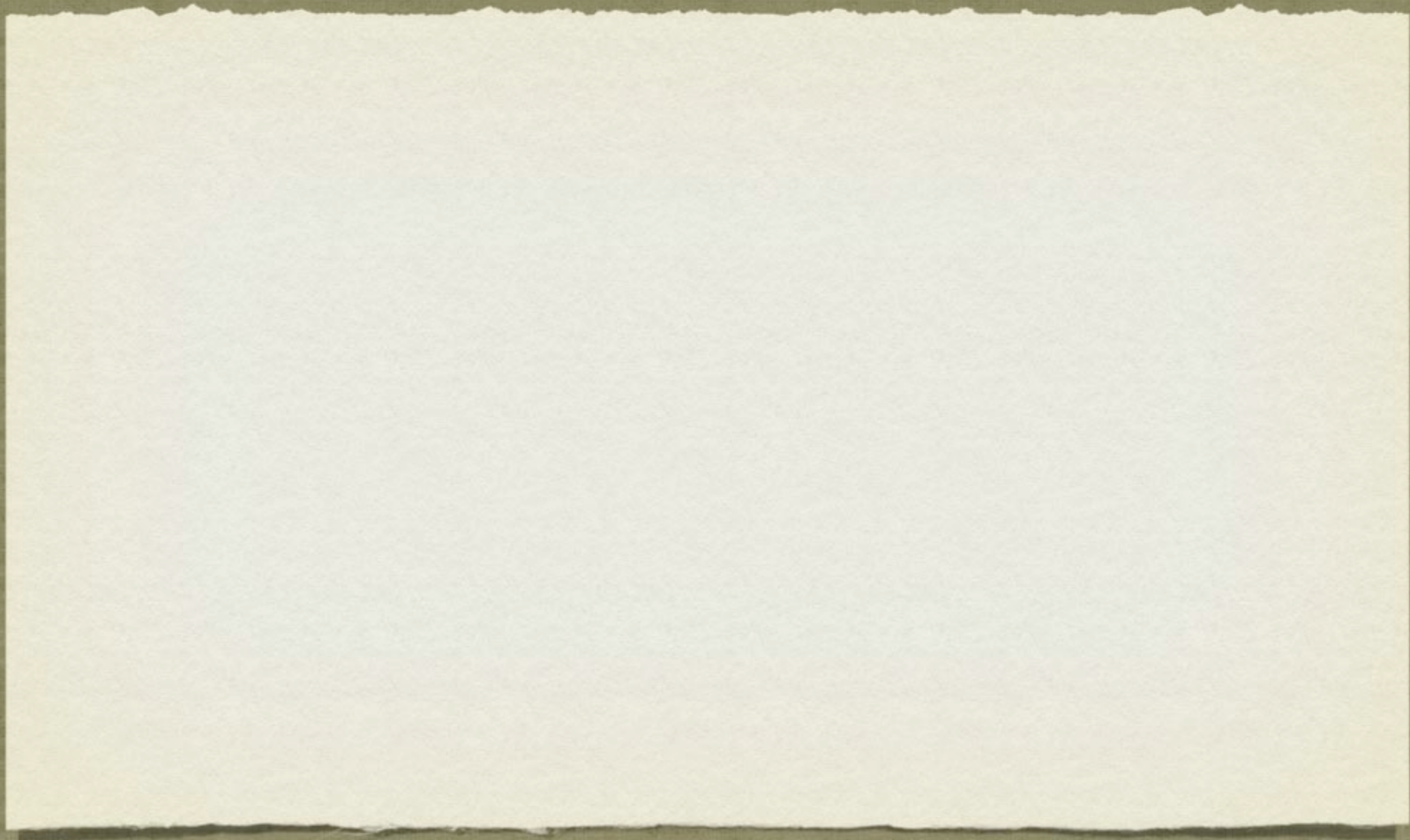
OTVORENIE KÓDU



- GitHub.com
 - Social Coding
 - <https://github.com/georgik/fimuni-c-cpp-examples>

- Když se dívám na svůj kód,
tak se musím pochválit.
Nevypadá věru zle,
zkrátka program jak má být.
- Před naší, za naší
ať se z kódu nepráší! Hej!

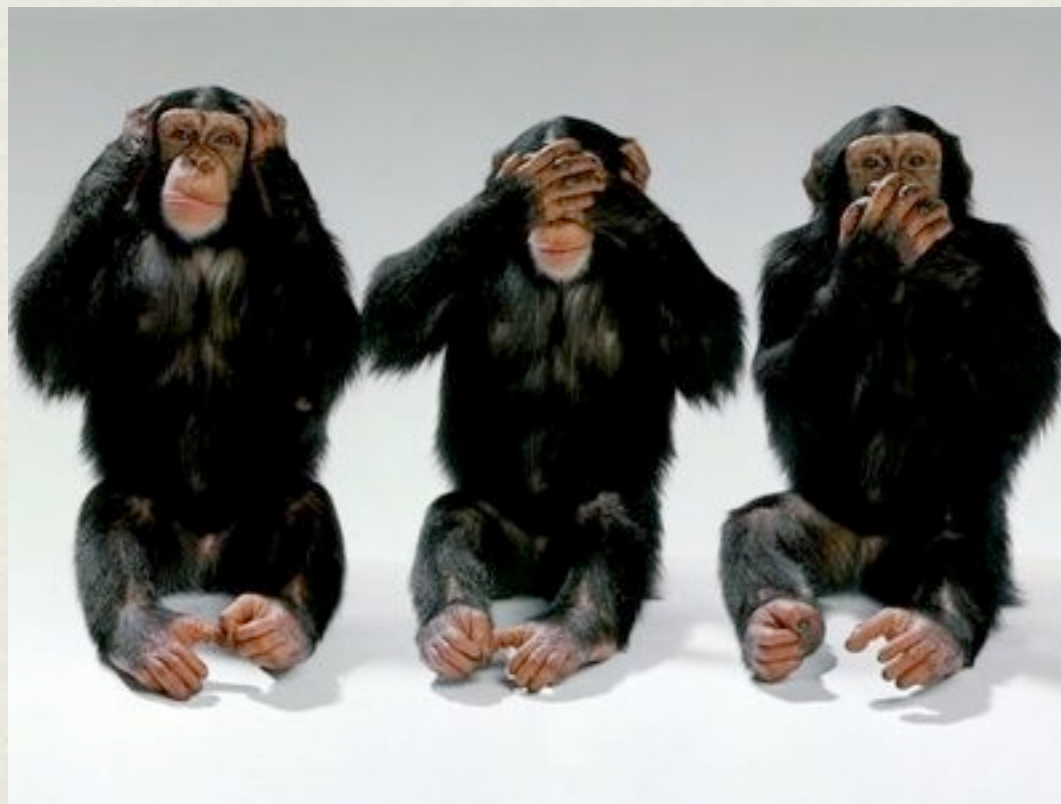
HÁÁ! CHYBÁÁ!



TESTOVANIE

- žiadne
- manuálne
- automatické

ŽIADNE TESTOVANIE



LUDOVÁ MÚDROST

- Bez testů do vývoje nelez!

MANUÁLNE

- Spustíme a aplikácia ...



DEBUGGER



- Když něco rozeberem, tak leda debuggerem

- <http://georgik.sinusgear.com/2010/09/19/zaznam-z-prednasky-kdyz-neco-rozeberem-tak-leda-debuggerem/>

AUTOMATIZOVANÉ TESTY

- Záchranná sieť pre vývojárov
- Živá dokumentácia
- Lepší dizajn
- Viac času na vývoj

UNIT TESTING

- izolácia
 - setUp - príprava prostredia
 - test - samotný test
 - tearDown - upratanie prostredia

PRÍKLAD TESTU

- `int a=41;`
- `a++;`
- `assert( a == 42, “Universe should be ok”);`

MINUNIT

- Minimalist Unit Testing Framework for C
- <http://www.jera.com/techinfo/jtns/jtn002.html>

MINUNIT - CODE

```
/* file: minunit.h */
#define mu_assert(message, test) do { if (!(test)) return message; } while (0)
#define mu_run_test(test) do { char *message = test(); tests_run++; \
                                if (message) return message; } while (0)
extern int tests_run;
```

MU_RUNTEST

- `mu_runttest( test_currency );`
- `mu_runttest( test_accounting );`

MU_ASSERT

- `mu_assert("Should not be null", state == null);`

SPUSTENIE

- gcc *.c -o test
- ./test
 - ALL TEST PASSED
 - Tests run: 2

CHECK FRAMEWORK

- <http://check.sourceforge.net/>
- Inštalácia
 - ./configure
 - make
 - make install

ORGANIZÁCIA TESTOV

- Test Case
 - testovaný prípad
- Test Suite
 - sada Test Case
- Test Runner

TEST FIXTURES

- `void setup();`
- `void teardown();`

KONTROLNE FCIE

- `fail_if ( employee->age != 43, "Problem");`
- `fail_unless( employee->age == 43, "Incorrect age.");`

KOMPILÁCIA

- `gcc -lcheck test.c -o test`

SPUSTENIE TESTU

- ./test
- Príklad:
 - Running suite(s): Employee testing
 - 0%: Checks: 1, Failures: 1, Errors: 0
 - main.c:45:F:Core tests:test_age:0: Incorrect age.

ĎALŠIE FRAMEWORKY

- C/C++
 - CxxTest: <http://cxxtest.com/>
 - Boost: <http://boost.org>
 - http://en.wikipedia.org/wiki/List_of_unit_testing_frameworks#C

JENKINS

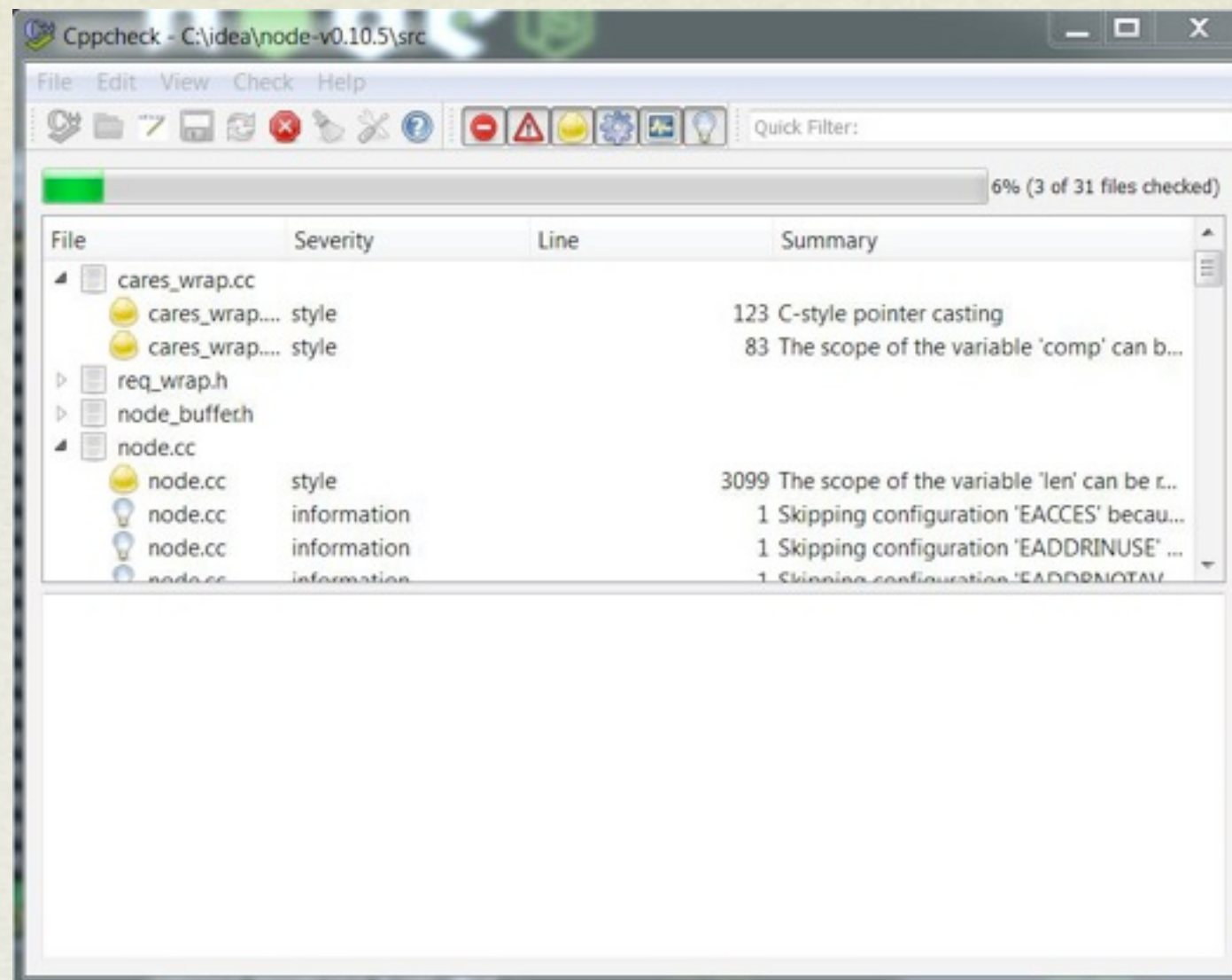
The screenshot shows the Jenkins web interface. The top header is blue with the 'Jenkins' logo. Below it, there's a navigation bar with 'Jenkins' and 'All' tabs. The left sidebar contains links for 'People', 'Build History', 'Project Relationship', 'Check File Fingerprint', 'Disk usage', and 'We Need Beer'. Below these is the 'Build Queue' section, which is empty. The 'Build Executor Status' section shows the status of various executors: 'master' (Idle), 'remote-slave-3' (offline), 'remote-slave-6' (Idle), 'remote-slave-7' (offline), and 'remote-slave-8' (offline). The main content area displays a table of builds with columns for status (S), weather icon (W), name, and last success time. The table lists several builds, including 'config-provider-model', 'core_selenium-test', 'fix-git-configuration-on-remote-slave-8', 'gerrit_master', 'infa_release.rss', 'infa_backend-confluence-spam-remover', 'infa_backend-merge-all-repo', 'infa_backend-plugin-report-card', 'infa_backend-war-size-tracker', 'infa_changelog_refresh', and 'infa_checkout_stats'.

All	All Disabled	All Failed	All Unstable	Infrastructure	Jenkins core	Libraries	Other Projects
S	W	Name ↓	Last Success				
		config-provider-model	4 mo 25 days (#1354)				
		core_selenium-test	N/A				
		fix-git-configuration-on-remote-slave-8	1 yr 7 mo (#1)				
		gerrit_master	1 day 0 hr (#4000)				
		infa_release.rss	16 min (#4758)				
		infa_backend-confluence-spam-remover	5 mo 14 days (#2)				
		infa_backend-merge-all-repo	3 days 5 hr (#58)				
		infa_backend-plugin-report-card	3 hr 27 min (#537)				
		infa_backend-war-size-tracker	17 hr (#204)				
		infa_changelog_refresh	16 min (#17874)				
		infa_checkout_stats	21 hr (#359)				

- Continuous Integration - <https://ci.jenkins-ci.org>

Cppcheck

A tool for static C/C++ code analysis



- <http://cppcheck.sourceforge.net/>

OBJECTIVE-C

- programovací jazyk vychádzajúci z C
- objektové princípy zo Smalltalku

OBJECTIVE-C

- 1983 - Brad Cox a Tom Love
 - zakladajú StepStone
- 1988 - Steve Jobs - NeXT
 - licencuje Objective-C od StepStone
 - rozširuje GCC, vytvára AppKit



OBJECTIVE-C

- 1996 - Apple ohlásil akvizíciu NeXT
 - 429 mil. \$
- Cocoa framework



APPLE - XCODE

- Mac OS 10.8
 - Xcode 4
 - Command Line Tools for Xcode
 - <http://developer.apple.com>



OBJECTIVE-C

- Syntax: cammelCase
- Prefix: NS (od NextStep)

HELLO FI MUNI!

```
#import <Foundation/Foundation.h>

int main(int argc, const char * argv[])
{
    @autoreleasepool {
        |        NSLog(@"Hello, FI MUNI!");
    }
    return 0;
}
```

Command + R

NSString

- `NSString *who = @"FI MUNI";`
- `NSLog(@"Hello %@!", who);`

BOOLEAN

- `BOOL isFIBest = YES;`
- `BOOL isCBoring = NO;`

SPRÁVA PAMÄTE

- Nové verzie Mac OS podporujú auto-garbage collection.
- Nespoliehajte sa na to!
 - Naučte sa manažovať pamäť.
 - Nefunguje na mobilných zariadeniach.

RETAIN COUNTER

- alokácia - zvýšenie počítadla
- dealokácia - zníženie počítadla

PRAVIDLÁ

- Ak objekt vlastníš, musíš ho uvoľniť.
- Ak objekt nevlastníš, nesmieš ho uvoľniť.

VLASTNENIE OBJEKTU

- alloc, new, retain, copy
- Každý ANRC musí mať release!

ALOKÁCIA - NEW

```
// Creating object  
NSDate *myDate = [NSDate new];  
  
// Release object  
[myDate release];  
|
```

ALLOC, INIT

```
// Call alloc an then init
NSDate *myDate = [NSDate alloc];
myDate = [myDate init];

// Common way
NSDate *myDate = [[NSDate alloc] init];
```

Preferovaný spôsob

ROZDELENIE KÓDU

- rozhranie (interface) - *.h
- implementácia - *.m

INTERFACE

```
@interface Employee : NSObject {
```

```
@private
```

```
NSString *name;
```

```
NSString *surname;
```

```
NSDate *age;
```

```
}
```

```
@end
```

IMPLEMENTÁCIA

```
@implementation Employee
```

```
- (void) myMethod {  
    NSLog(@"Hello");  
}
```

```
@end
```

ZNAK PRED METÓDOU

- - (void) myMethod
- znak mínus - metóda inštancie
- znak plus - statická metóda

PRÍSTUP K ZDROJOM

- NSURL
- NSURL *myURL = [NSURL fileURLWithPath:path];
- file:///Users/georgik/file.txt

PREČO POUŽÍVAŤ NSURL?

- Pretože to tak Apple povedal.
- rýchlejšie na iOS
- zachytenie chyby v prípade zlého formátu
- omnoho mocnejšie

CODESCHOOL



- Learn by doing
 - lekcja
 - challenge, badge
- iOS, HTML5, CSS3, Ruby on Rails, AngularJS...

LYNDA.COM

- Dobrý zdroj znalostí



OHLOH.NET

- hodnotenie open source projektov



SE-RADIO.NET

Software Engineering Radio

The Podcast for Professional Software Developers

GOURCE



- <http://code.google.com/p/gource/>

KVALITA KÓDU

- Kód sa viackrát číta, než sa píše.
- Review kódu

CURL

- `curl http://www.fi.muni.cz -o index.html`

- <http://curl.haxx.se/>



CURL PROGRAMUJE!

- `curl http://www.fi.muni.cz --libcurl download.c`
- `gcc -lcurl download.c download`
- `./download`

LICENCIE

- Free software
 - GNU/GPL, LGPL
- Open source
 - BSD, MIT, Apache
 - business friendly

ČÍTAJTE LICENCIE

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