MÉTHODES ET OUTILS DE TEST

TESTS AUTOMATISÉS

MINES PARISTECH

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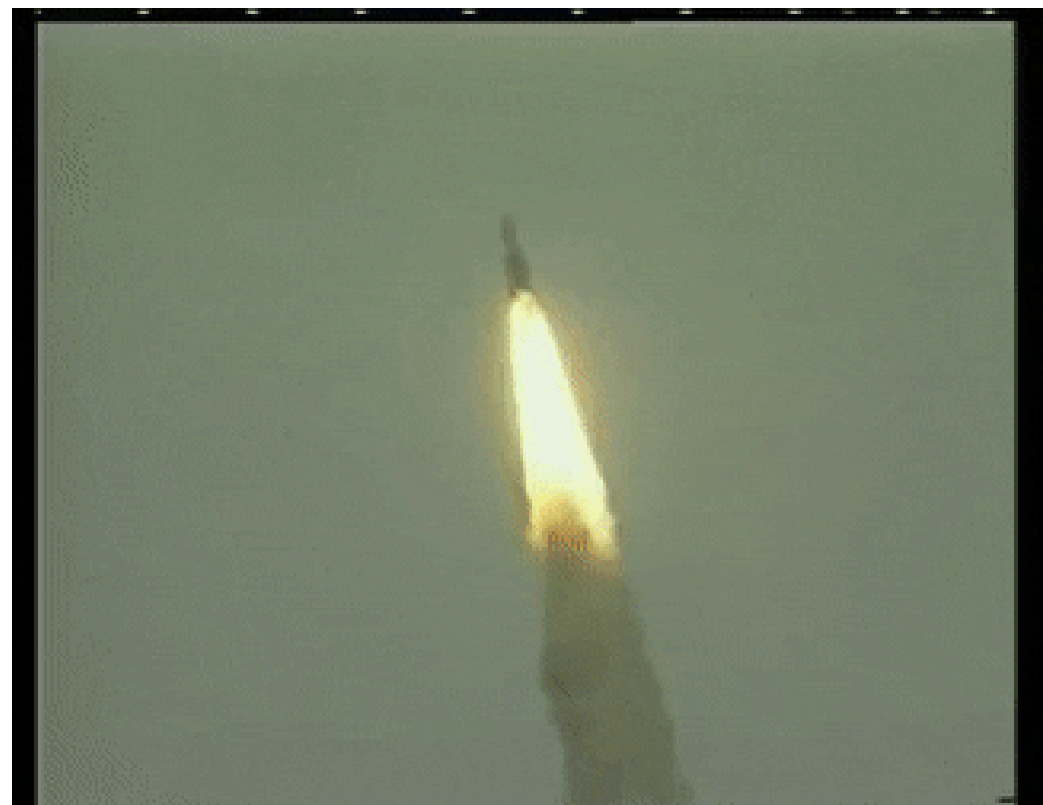
@Kehrlann

https://github.com/Kehrlann

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AUJOURD'HUI, DU LOGICIEL PARTOUT

(ça vous rappelle quelque chose ?)

AUJOURD'HUI, DU LOGICIEL PARTOUT

(ça vous rappelle quelque chose ?)

Alberto Brandolini
@ziobrando

Replying to @JeromeAvoustin

"It's not stakeholder knowledge but developers' ignorance that gets deployed into production"
#QuoteServer

10:59 AM · May 27, 2016 · Twitter for iPhone

PLAN

1. Tour d'horizon théorique
2. En pratique

TOUR D'HORIZON THÉORIQUE

Pourquoi ? Comment ?

Beware of bugs in the above code; I have only proved it correct, not tried it.

- Donald Knuth

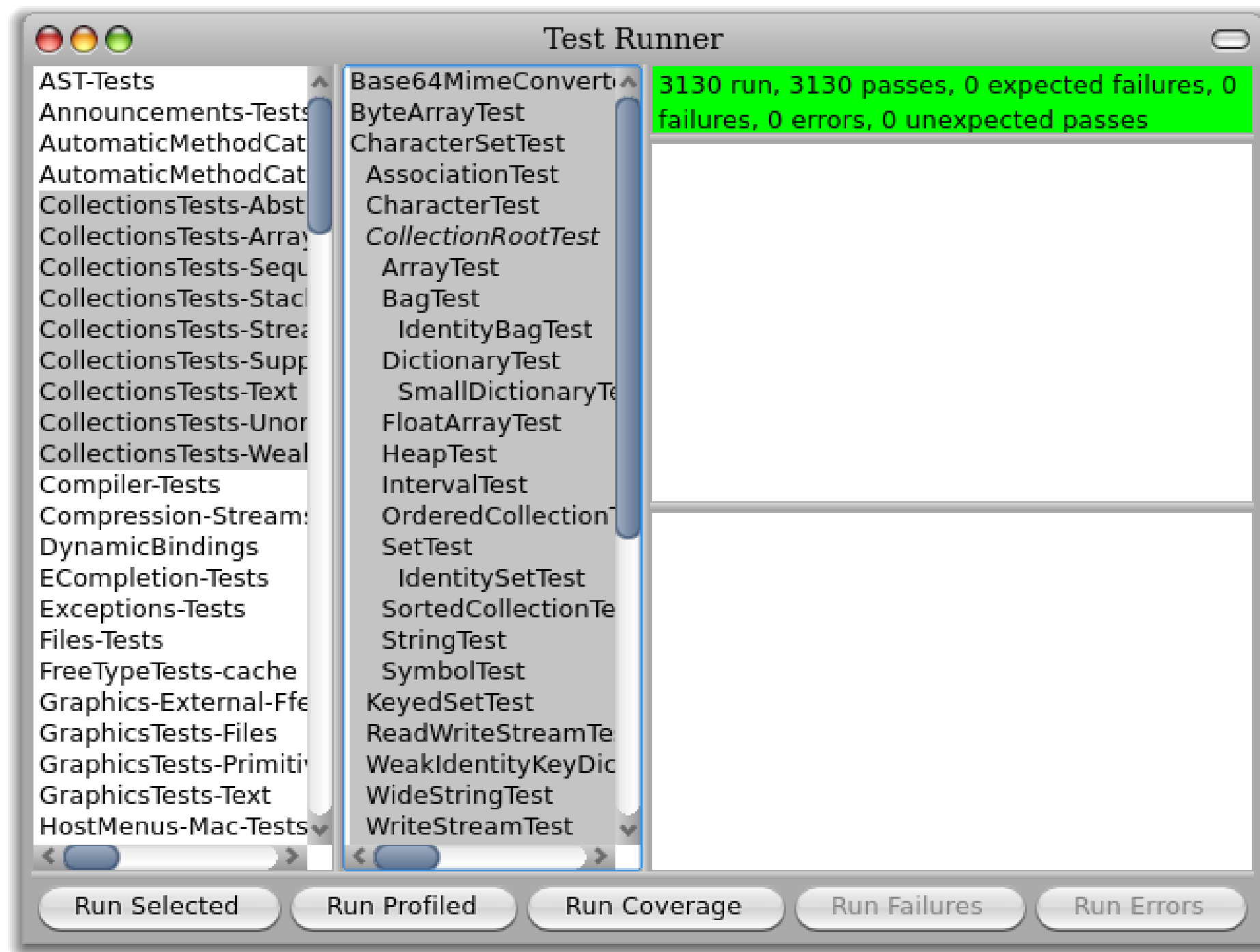| N°	ACTION	ATTENDU	RÉSULTAT
1	Aller sur le site cloudnetcare.fr et cliquer sur le bouton « se connecter »	Ouverture de la page cloudnetcare.fr/connexion/	Ok
2	Rentrer une adresse email invalide sans @	Message d'erreur : Veuillez rentrer une adresse email contenant un @	Ok
3	Rentrer une adresse email valide sans compte actif	Message d'erreur : « Désolé, adresse email inconnue. »	Ok
4	Rentrer une adresse email valide avec compte actif sans mot de passe	Message d'erreur : « Merci de saisir votre mot de passe. »	Message absent
5	Rentrer une adresse email valide avec compte actif et bon mot de passe	Connexion au tableau de bord du client.	Ok

Bill Sempf
@sempf

QA Engineer walks into a bar. Orders a beer. Orders 0 beers. Orders 999999999 beers. Orders a lizard. Orders -1 beers. Orders a sfdeljknesv.

10:56 AM · 23 Sep 14

27.8K RETWEETS **17.6K** LIKES

↩ ⟲ ♥ ⤴

Test Runner

AST-Tests	Base64MimeConvert...	3130 run, 3130 passes, 0 expected failures, 0 failures, 0 errors, 0 unexpected passes
Announcements-Tests	ByteArrayTest	
AutomaticMethodCat	CharacterSetTest	
AutomaticMethodCat	AssociationTest	
CollectionsTests-Abst	CharacterTest	
CollectionsTests-Array	*CollectionRootTest*	
CollectionsTests-Sequ	ArrayTest	
CollectionsTests-Stacl	BagTest	
CollectionsTests-Strea	IdentityBagTest	
CollectionsTests-Supp	DictionaryTest	
CollectionsTests-Text	SmallDictionaryTe	
CollectionsTests-Unor	FloatArrayTest	
CollectionsTests-Weal	HeapTest	
Compiler-Tests	IntervalTest	
Compression-Streams	OrderedCollection	
DynamicBindings	SetTest	
ECompletion-Tests	IdentitySetTest	
Exceptions-Tests	SortedCollectionTe	
Files-Tests	StringTest	
FreeTypeTests-cache	SymbolTest	
Graphics-External-Ffe	KeyedSetTest	
GraphicsTests-Files	ReadWriteStreamTe	
GraphicsTests-Primitiv	WeakIdentityKeyDio	
GraphicsTests-Text	WideStringTest	
HostMenus-Mac-Tests	WriteStreamTest	

Run Selected   **Run Profiled**   **Run Coverage**   Run Failures   Run Errors

```gherkin
Feature: Is it Friday yet?
  Everybody wants to know when it's Friday

  Scenario: Sunday isn't Friday
    Given today is Sunday
    When I ask whether it's Friday yet
    Then I should be told "Nope"
```

```java
package hellocucumber;

import io.cucumber.java.en.*;
import static org.junit.Assert.*;

public class Stepdefs {
    private String today;
    private String actualAnswer;

    @Given("today is Sunday")
    public void today_is_Sunday() {
        today = "Sunday";
    }

    @When("I ask whether it's Friday yet")
    public void i_ask_whether_it_s_Friday_yet() {
        actualAnswer = IsItFriday.isItFriday(today);
    }

    @Then("I should be told {string}")
    public void i_should_be_told(String expectedAnswer) {
        assertEquals(expectedAnswer, actualAnswer);
    }
}
```

```javascript
const assert = require('assert');
const { Given, When, Then } = require('cucumber');

Given('today is Sunday', function() {
  this.today = 'Sunday';
});


When("I ask whether it's Friday yet", function() {
  this.actualAnswer = isItFriday(this.today);
});


Then('I should be told {string}', function(expectedAnswer) {
  assert.equal(this.actualAnswer, expectedAnswer);
});
```
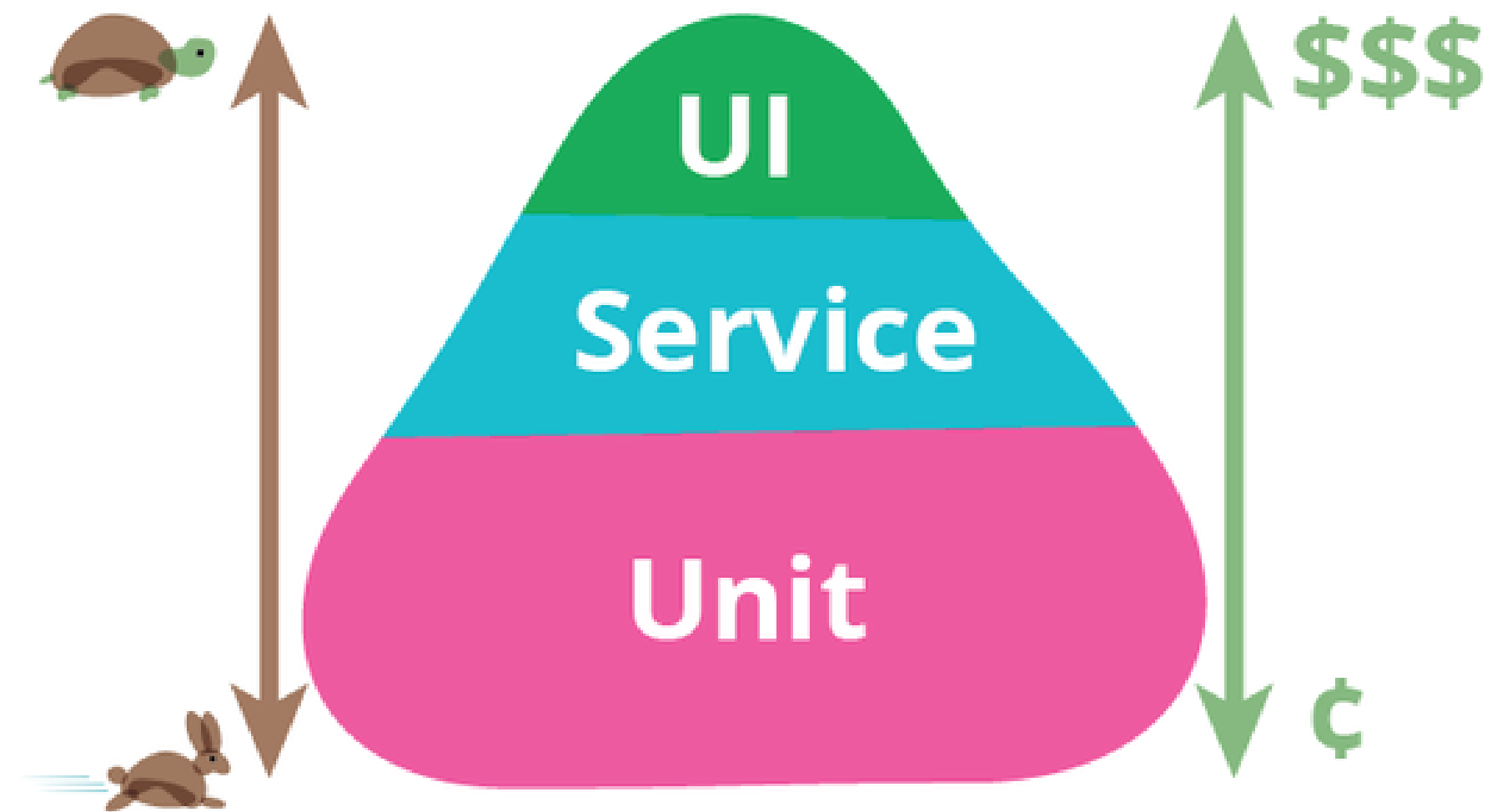
Requests
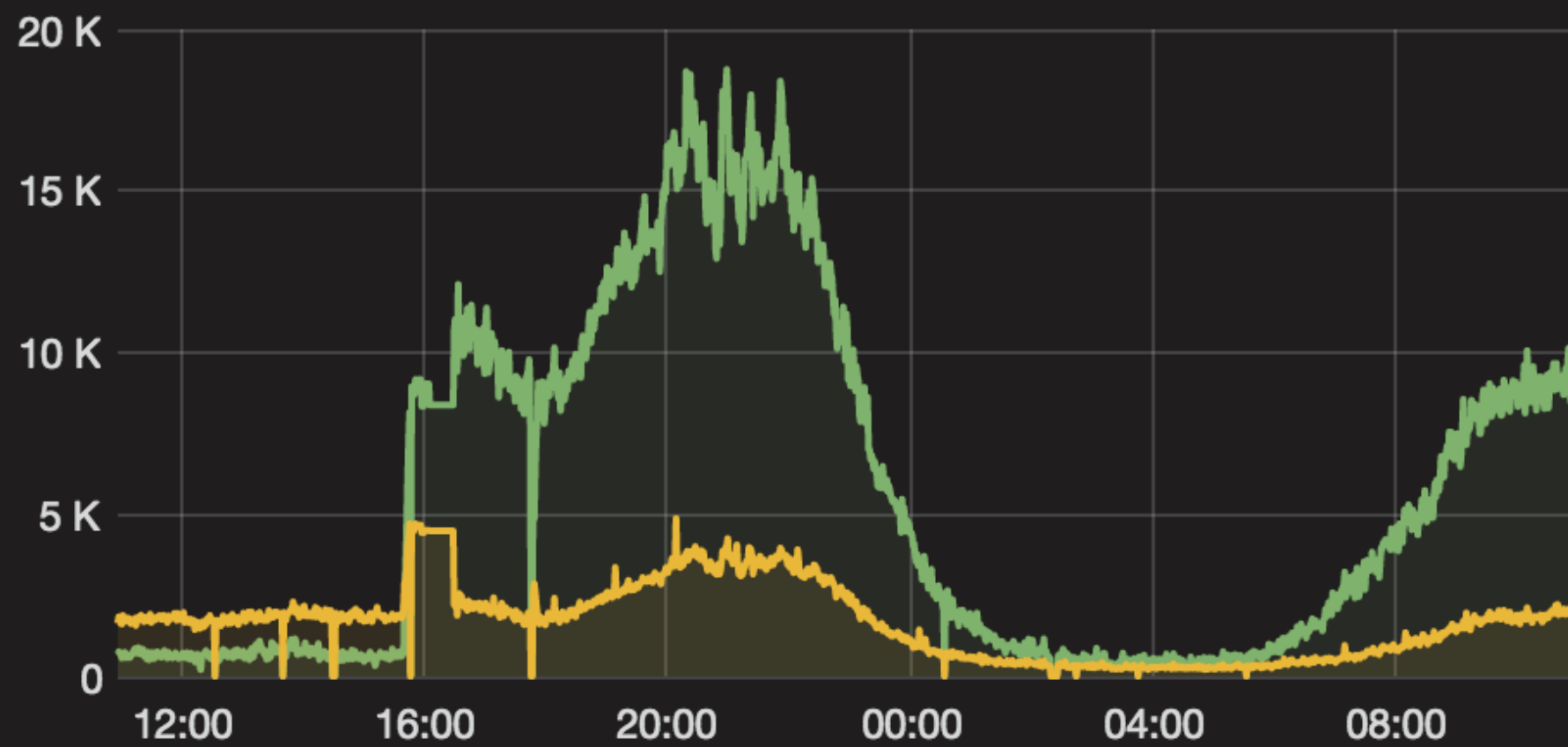
|	max	current ▼
cached	18.75 K	10.41 K
uncached	4.87 K	2.20 K

PROPRIÉTÉS DÉSIRABLES DES TESTS

- Isolated
- Composable
- Fast
- Inspiring
- Writable
- Readable
- Behavioral
- Structure-insensitive
- Automated
- Specific
- Deterministic
- Predictive

COMBINAISONS POSSIBLES:

- Unit tests: Inspiring, writable, specific, fast … not predictive ?
- Acceptance tests: Readable (for non programmers), not fast or specific.
- Pour vous:
  - Automated
  - Isolated, Composable, Deterministic
  - Specific
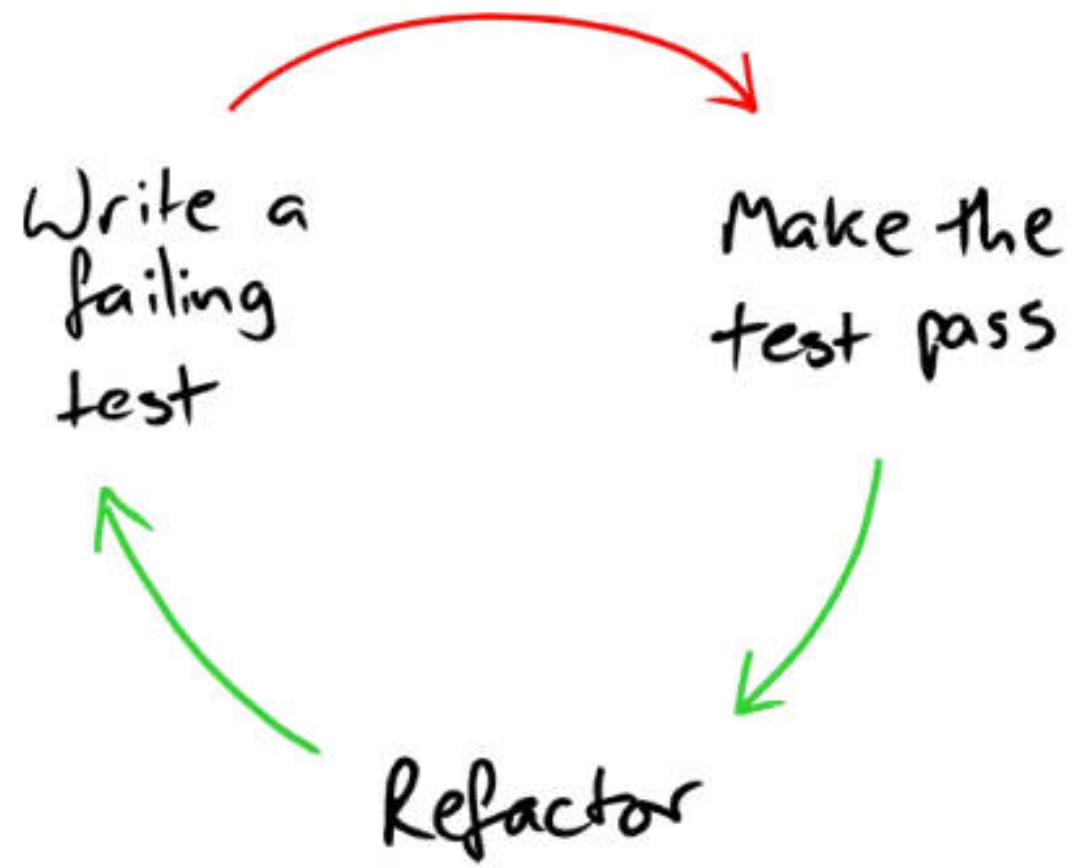
```go
// Exec command execute the command for the resource. It returns a byte buffer, with bot
// mostly for testing purposes.
func execCommand(message *monitor.StateChangeMessage, defaultCommand string) *bytes.Buff
    var command string
    if message.Resource.Command != "" {
        command = message.Resource.Command
    } else if defaultCommand != "" {
        command = defaultCommand
    } else : nil ↵

    var recoveryOrFailure string
    if message.IsOk {
        recoveryOrFailure = "RECOVERY"
    } else {
        recoveryOrFailure = "FAILURE"
    }

    cmd := exec.Command(command, recoveryOrFailure, message.Datetime.Format(time.RFC3339
    var out bytes.Buffer
    cmd.Stdout = &out
    cmd.Stderr = &out
    cmd.Run()
    return &out
}
```

codecov commented a minute ago

Codecov Report

> Merging #2159 into master will **increase** coverage by `-1.09%` .

```
@@            Coverage Diff            @@
##           master    #2159     +/-   ##
=========================================
- Coverage   52.36%   51.27%   -1.09%
=========================================
  Files         125      125
  Lines       11447    11449      +2
=========================================
- Hits         5994     5871     -123
- Misses       4706     4832     +126
+ Partials      747      746      -1
```

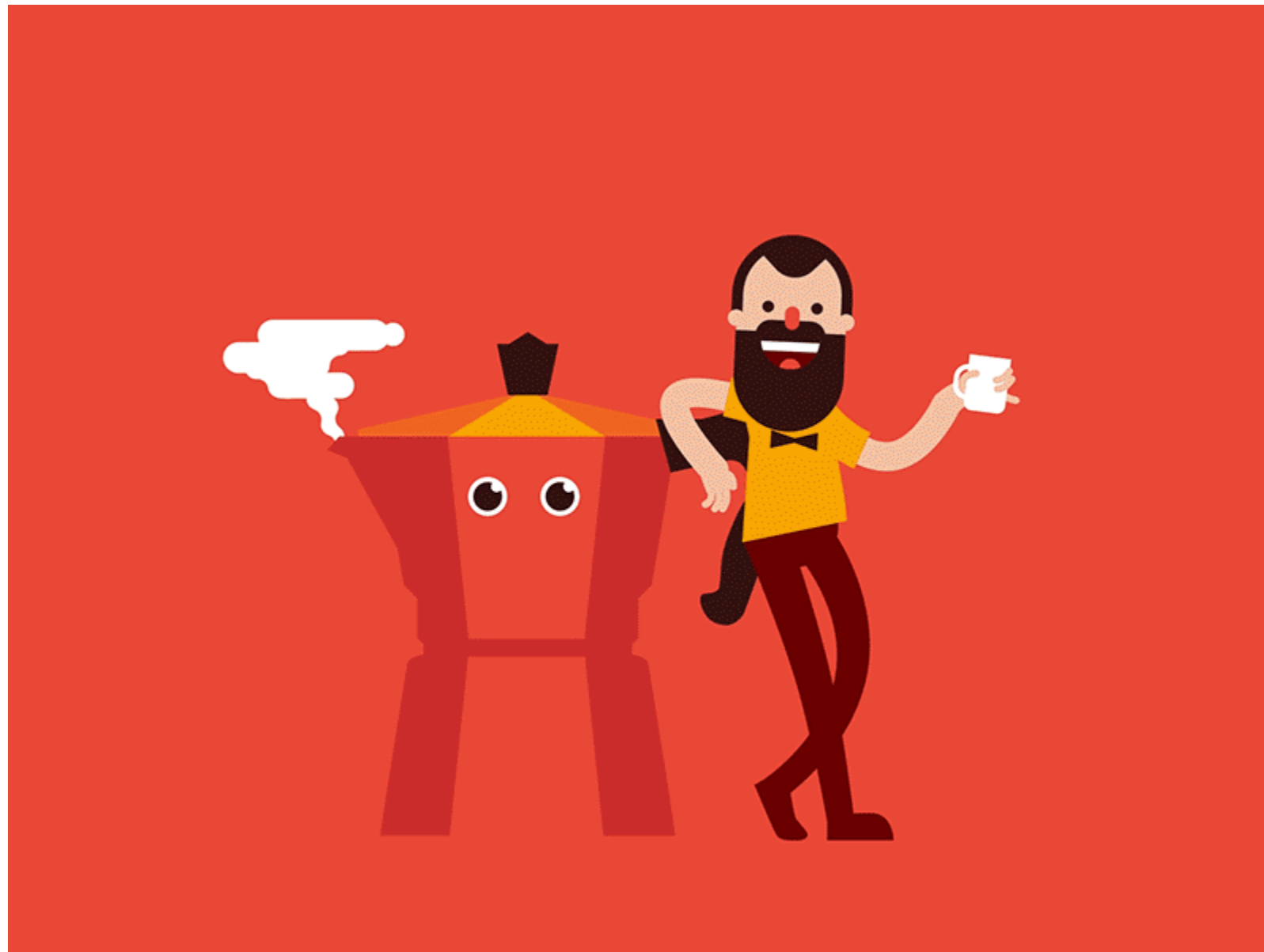| Impacted Files	Coverage Δ	
registry/handlers/blobupload.go	45.17% <75.13%> (+4.17%)	✅
registry/handlers/app.go	48.2% <15%> (-7.1%)	❌
registry/handlers/basicauth.go	100% <ø> (ø)	✅
... and 4 more		

```
Δ = absolute <relative> (impact) +
ø = not affected
? = missing data
```
Powered by Codecov. Last update 96b02e8...7e162a8

PAUSE

LES FRAMEWORKS

- Pytest: https://docs.pytest.org/
- JUnit: https://junit.org/junit5/
- Catch2: https://github.com/catchorg/Catch2

PROGRAMMONS UNE STACK

(OUI OUI, ENCORE UNE STACK)

- new
- empty
- size
- push
- peek
- pop
- "clone" … ?

MOCKING

- pytest-mock: https://github.com/pytest-dev/pytest-mock
- Mockito: https://site.mockito.org/
- FakeIt: https://github.com/eranpeer/FakeIt

REPOSITORY DU COURS

https://github.com/Kehrlann/cours-test