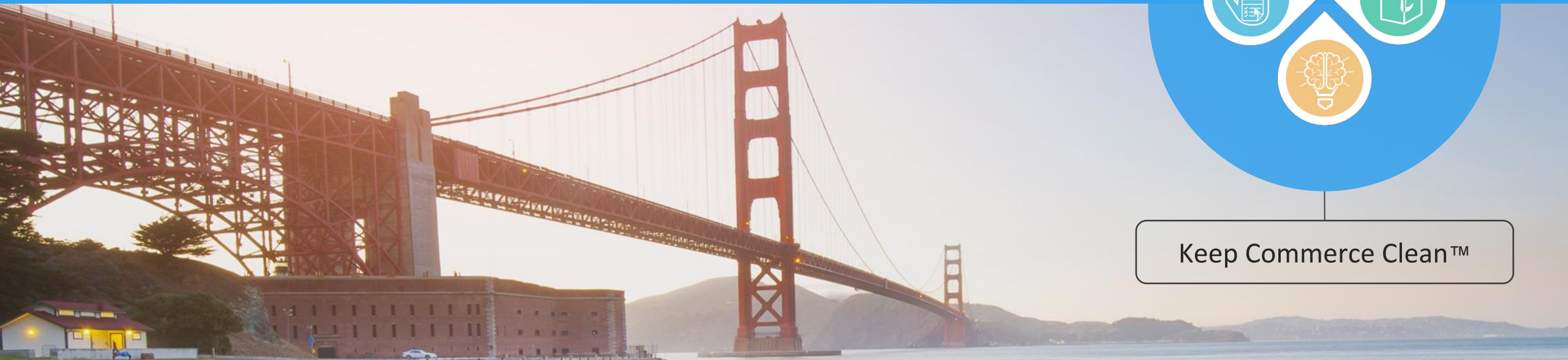
feedzai

PSTQB
ASSOCIAÇÃO PORTUGUESA
DE TESTES DE SOFTWARE

Wrap up Selenium

TEST OUR COFFEE @ Coimbra



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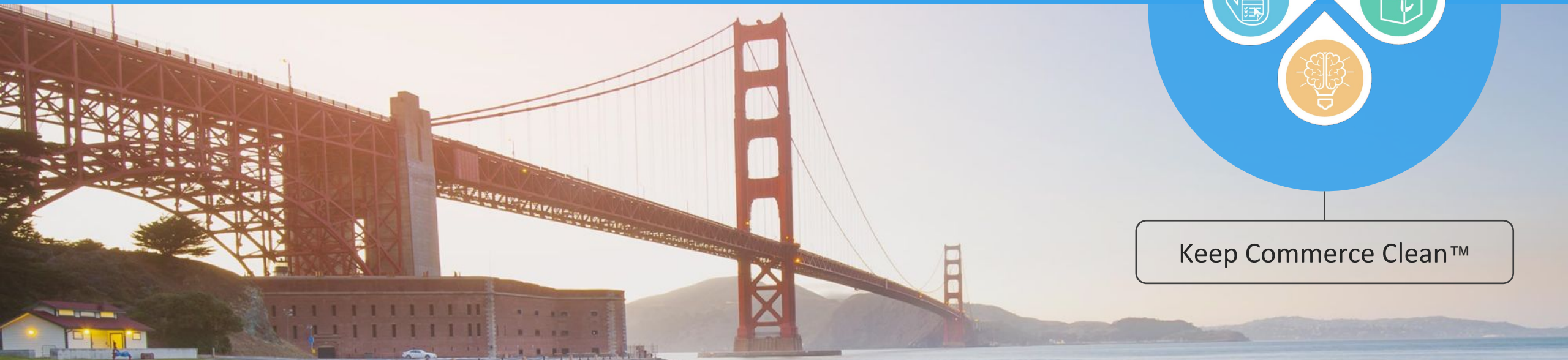
Wrap up Selenium

"The Feedzai Approach to Run Thousands of Tests in a Distributed Way"



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AGENDA

1. Meet Feedzai
2. Selenium @ Feedzai
3. Our Wrapped Selenium
4. Main Features
5. Biggest Challenges
6. Q&A

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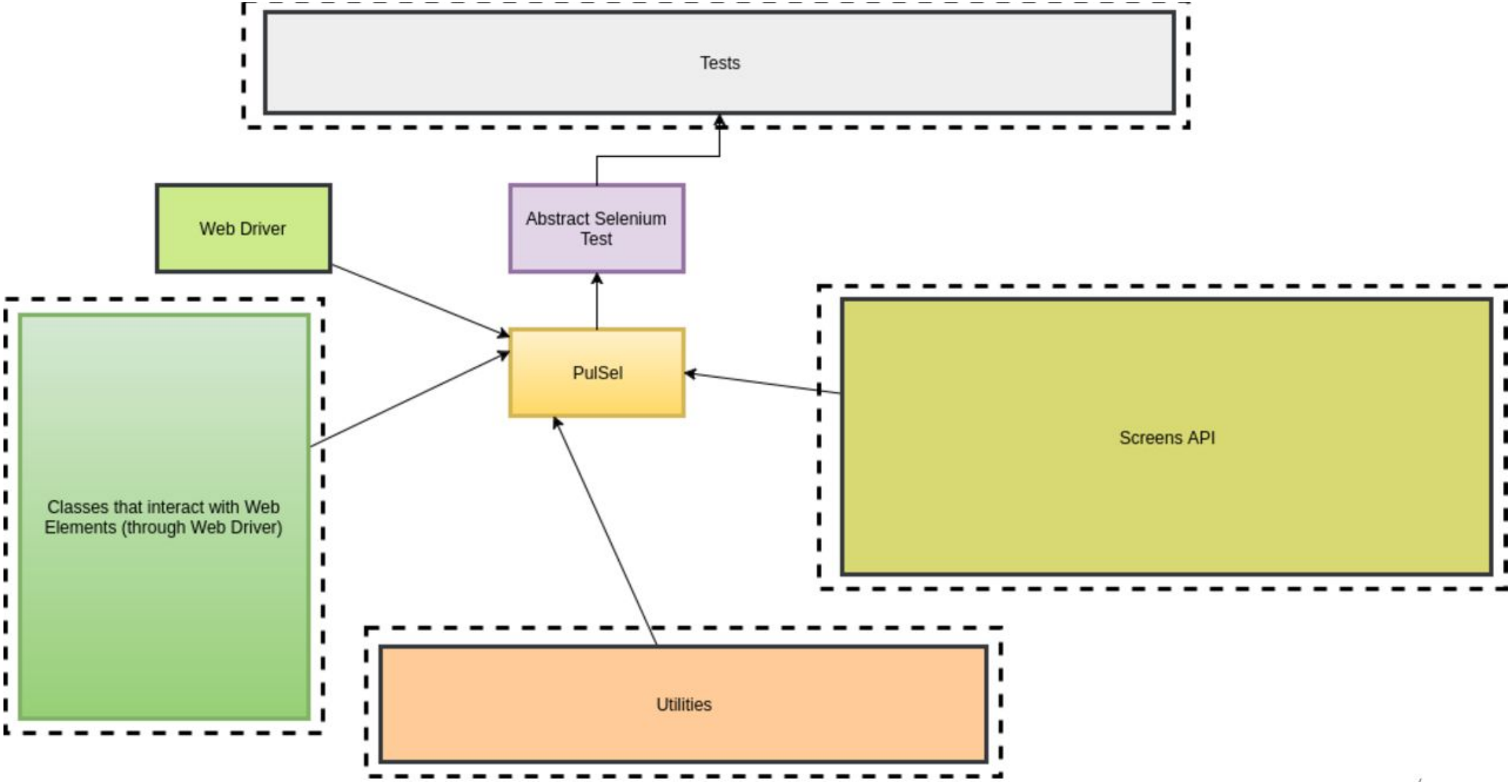
Meet Feedzai

Selenium @ Feedzai

- Used since 2012
- Currently using Selenium 2.48.2
- Java + Maven + JUnit + Docker
- Number of tests: ~1100
- Around 110k lines of code
- CI Build time around 1h 45m

Our Wrapped Selenium

Selenium Architecture



Abstract Selenium Test

- Base class from each test extends.
- Start PulSel (Pulse Selenium)
- Start / Setup Environment (Local or Docker)
- Utility method for test start / stop

PulSel (PulseSelenium)

- “Most important” class used under the Selenium Tests Implementation
- Instantiate Web Driver
- Instantiate Finder, Clicker and Asserter (used to interact with web elements)
- End point to instantiate all screens testers (with the API to interact with Pulse Views pages)
- Other utilities: Screenshot taker, Javascript checker...

Finder / Asserter / Clicker

- Receive WebDriver instance
- Finder: contains methods that allow us to search for web elements
- Asserter: contains methods that allow us to perform asserts in our web elements
- Clicker: contains methods that allow us to interact with web elements: click, write, drag...
- Object Identification Strategy: jQuery

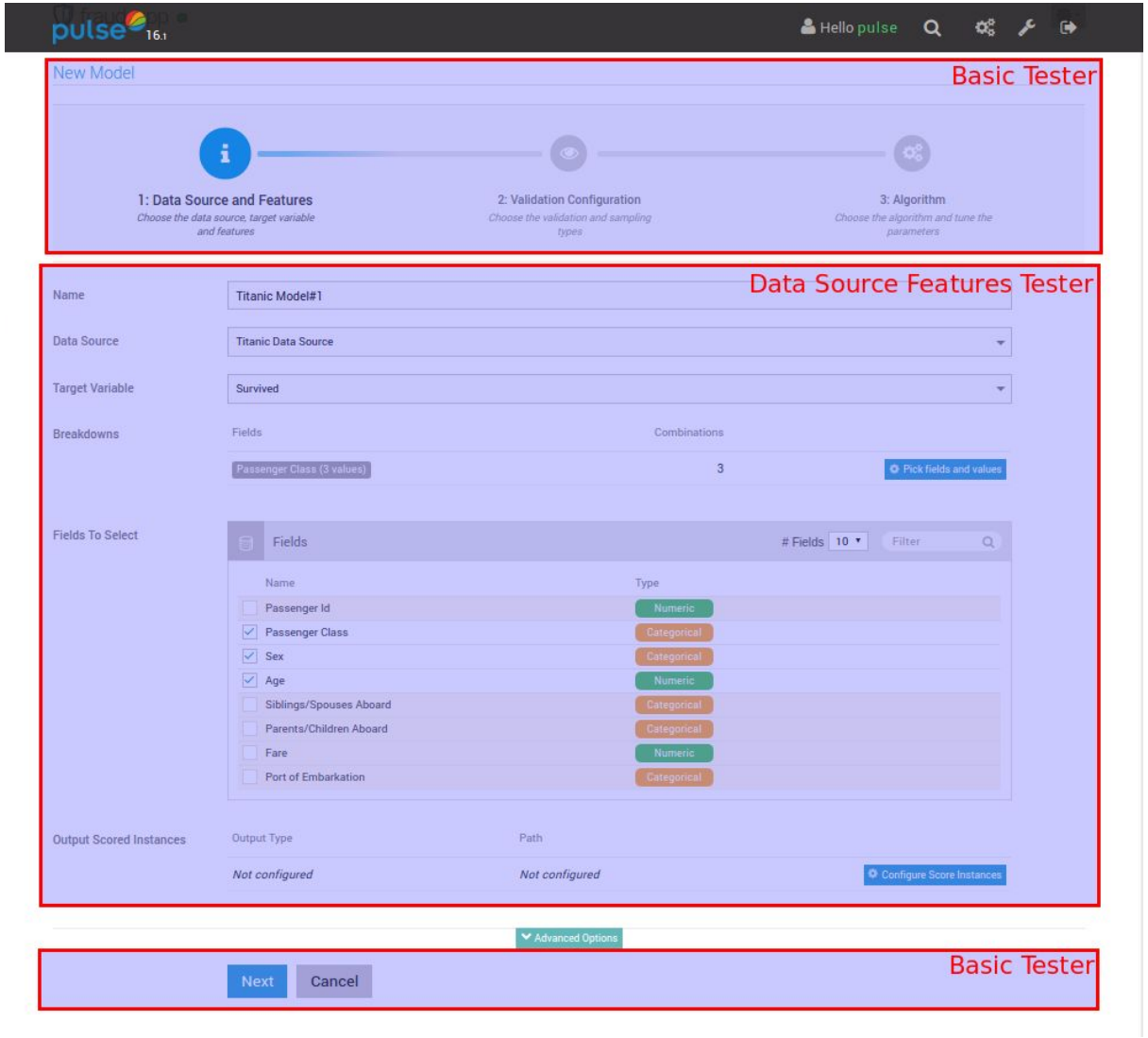
Testers

- Receive Asserter, Clicker and Finder
- Contain the methods to interact with the specific screens from our front end pages
- Has the methods to manipulate, assert or search for given screen element
- Tester classes might instantiate other smaller and more manageable testers that will have the methods to a smaller responsibility on that functionality

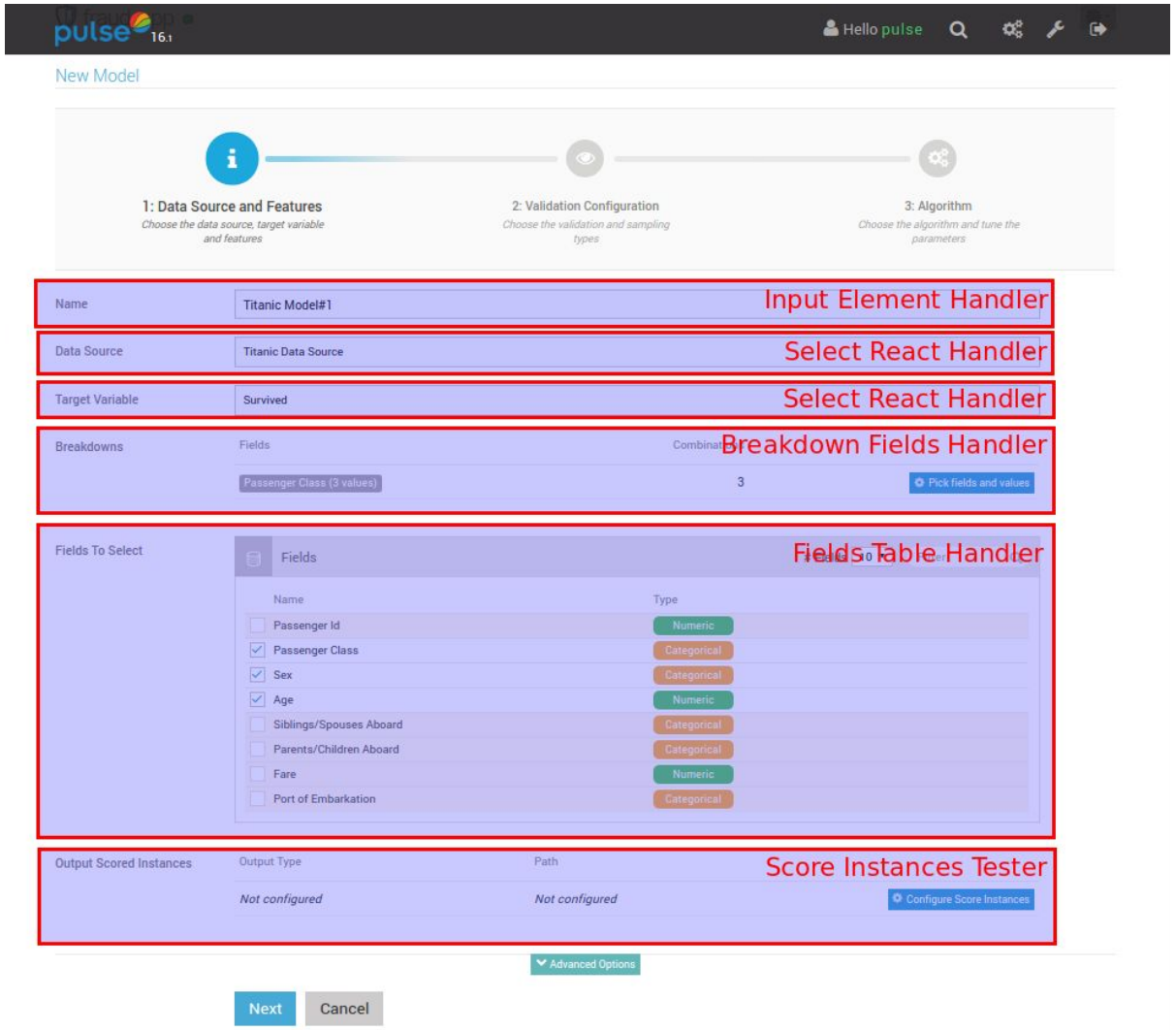
Handlers

- Like a Tester this object is contains also the API for manipulating a particular web element or a set of elements
- A Handler is used in testers as a way to reduce code duplication and abstract some common components
- Handlers are essentially Testers used in multiple places across the screens in our front-end application

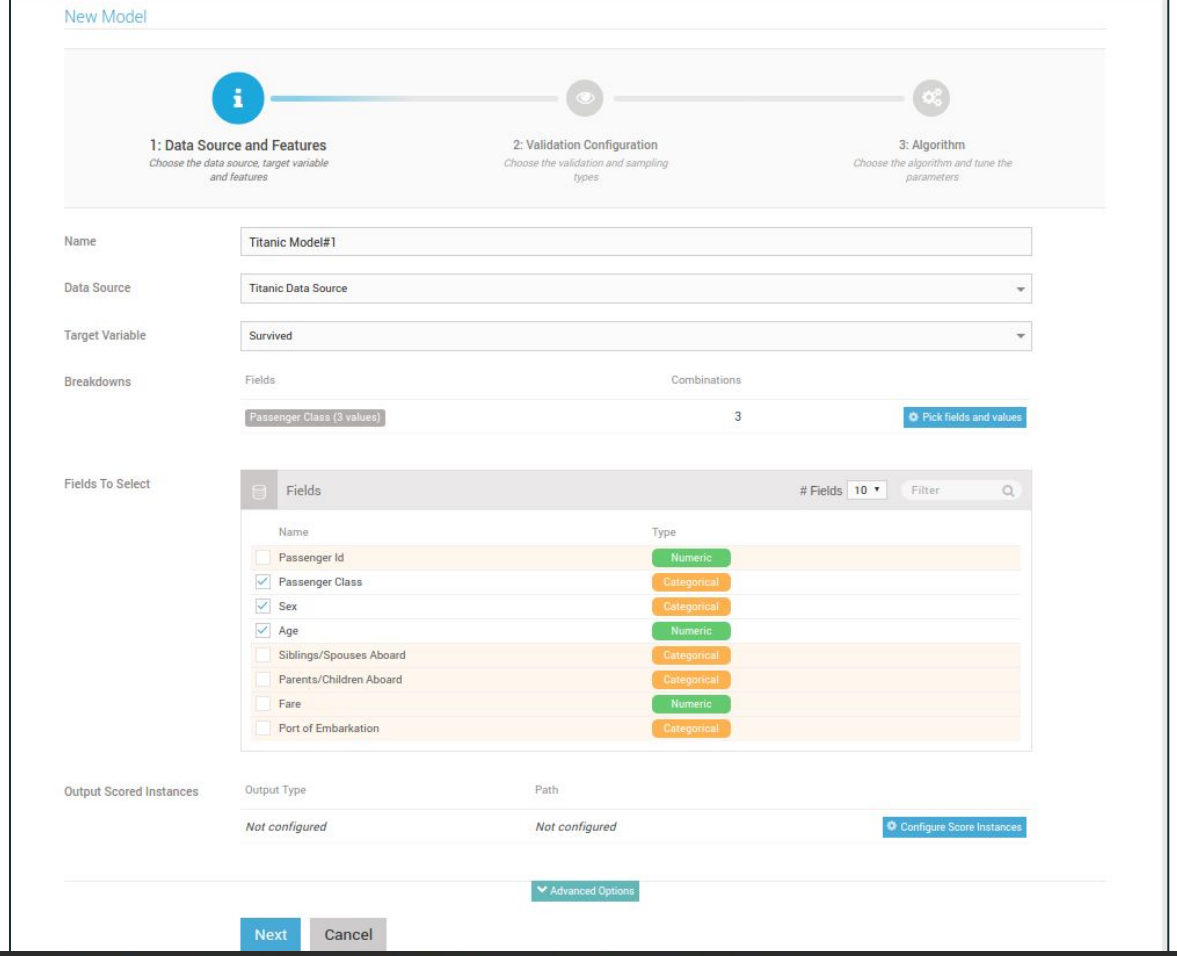
Pulse screen vs Testers Architecture



Pulse screen vs Testers Architecture

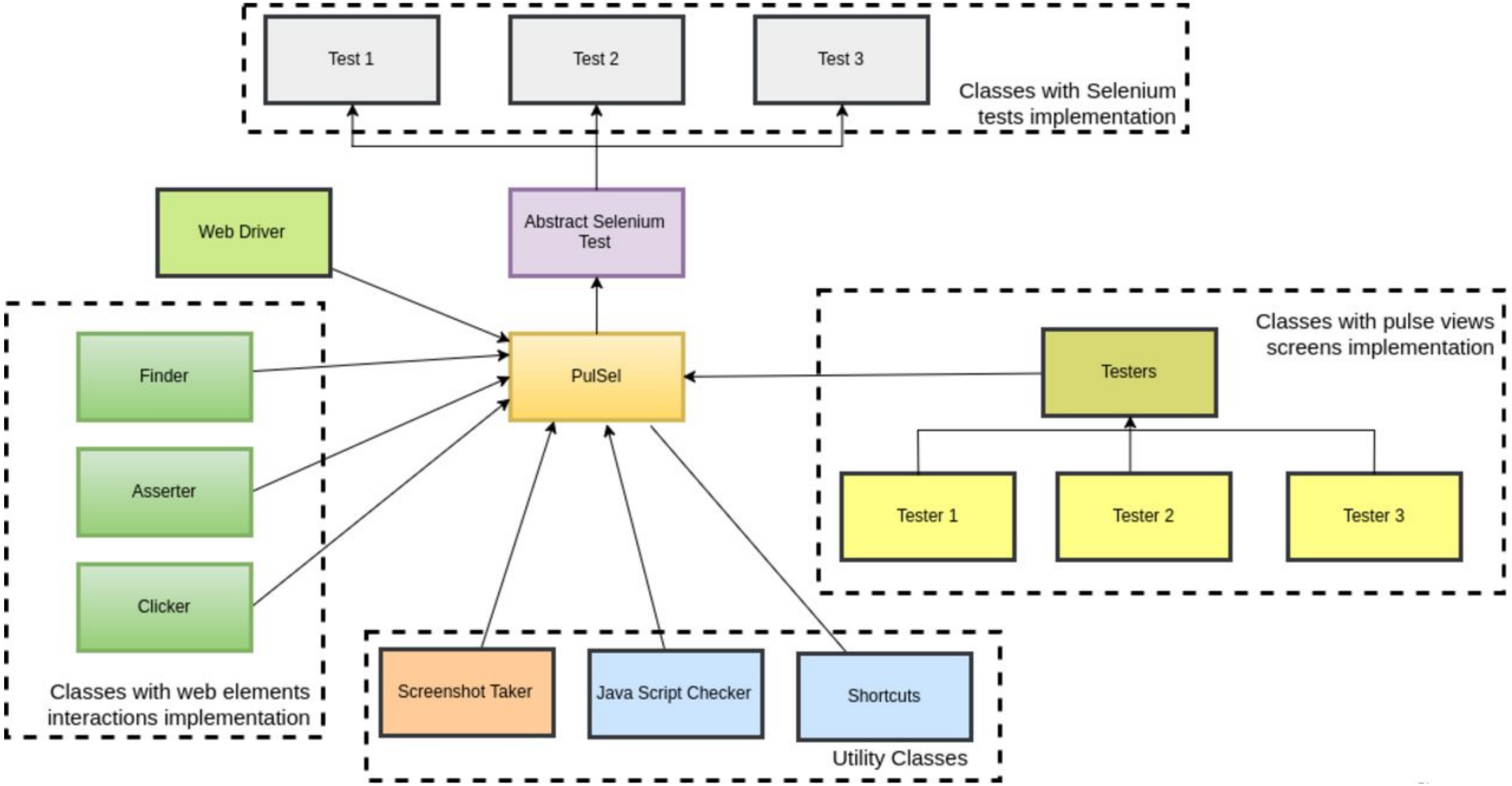


Pulse screen vs Test Implementation




```
tester.model().basic().wizard().assertCurrent("Data Source and Features");
tester.model().datasourceFeatures().editName("Titanic Model#1");
tester.model().datasourceFeatures().editDatasource("Titanic Data Source");
tester.model().datasourceFeatures().editTargetVariable("Survived");
tester.model().datasourceFeatures().breakdowns().clickPickFieldsAndValues();
tester.model().datasourceFeatures().breakdowns().chooseFields().selectFieldAndValues("Passenger Class", "1", "2", "3");
tester.model().datasourceFeatures().breakdowns().chooseFields().clickSaveChanges();
tester.model().datasourceFeatures().fields().uncheckField("Passenger Id");
tester.model().datasourceFeatures().fields().uncheckField("Siblings/Spouses Aboard");
tester.model().datasourceFeatures().fields().uncheckField("Parents/Children Aboard");
tester.model().datasourceFeatures().fields().uncheckField("Fare");
tester.model().datasourceFeatures().fields().uncheckField("Port of Embarkation");
tester.model().basic().clickNext();
tester.model().basic().wizard().assertCurrent("Validation Configuration");
```

Selenium Architecture



Environment

Selenium Grid

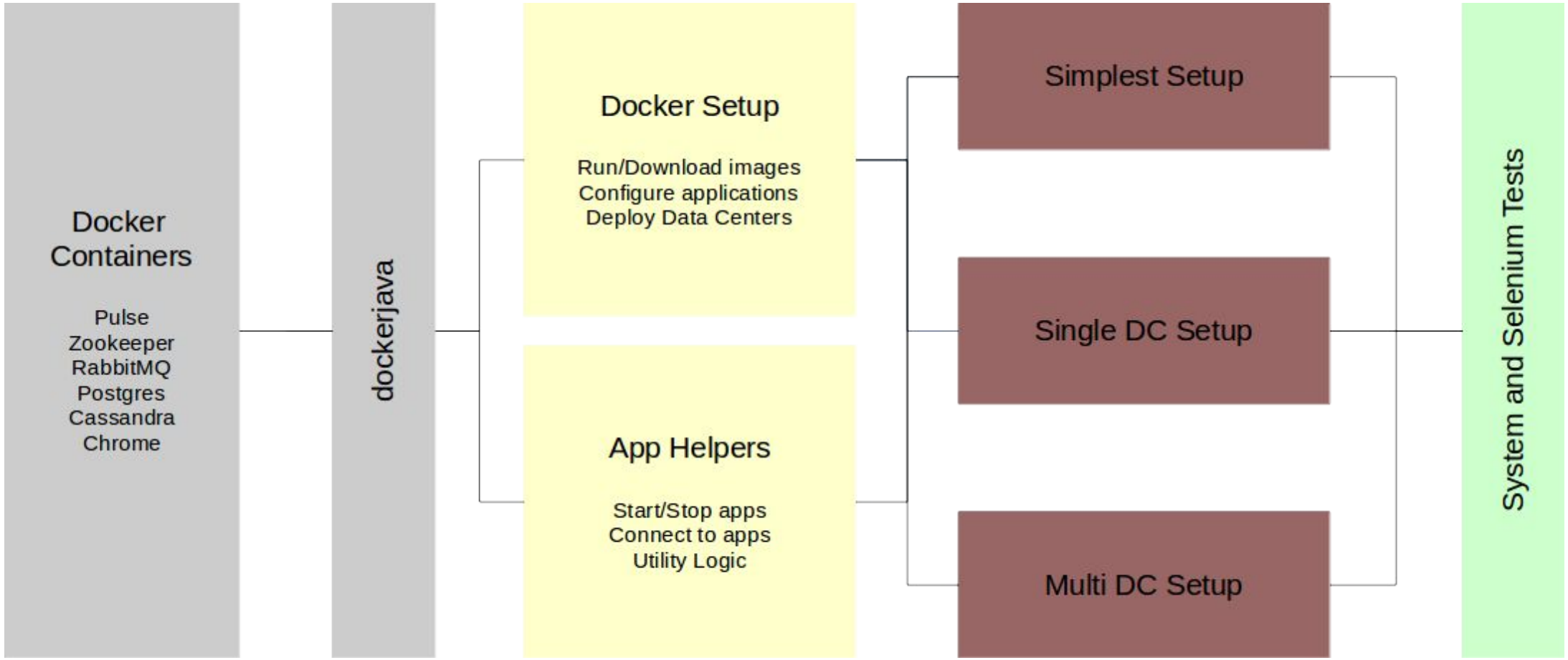
- 16 Windows virtual machines
- 1 grid == 1 build at a time
- Hard to simulate grid environment locally

Drop selenium grid

System Test Framework

- Create test product deployments using docker containers
- Provides an api to manage the containers
- Provides an api to interact with the applications

System Test Framework



Example Test Setup

```
testSetup()
    .withPulse(2)
    .withCassandra(3)
    .withZookeeper(3)
    .withPostgres(1)
    .withRabbitmq(3)
    .withChrome()
    .withPulseConfigs("pulse.example.config", "value")
    .copyFileToPulseContainer("/some/local/file")
    .runBeforePulse(ExampleTest::RunMigrationScripts)
    .run();
```

Selenium on Docker

- Start and configure the containers per test class (Pulse, browser, storage)
- Run each test case in the class
- Save metrics, logs and dumps
- Tear down all containers

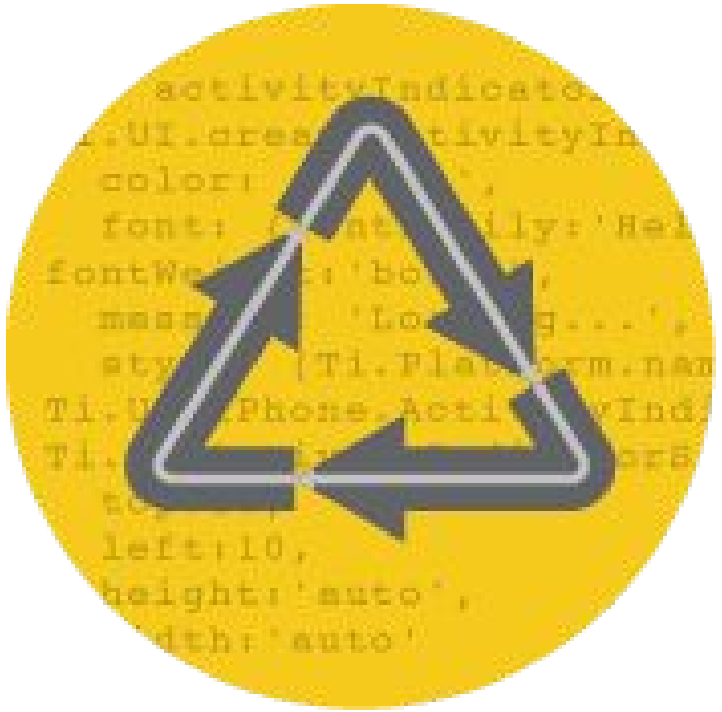
Main Features

Main features

- Tests are easy to write and understand since them follow a screen base logic

Main features

- Testers / Handlers created might be easily reused in other Testers, allowing a friendly code re-usage.



Main features

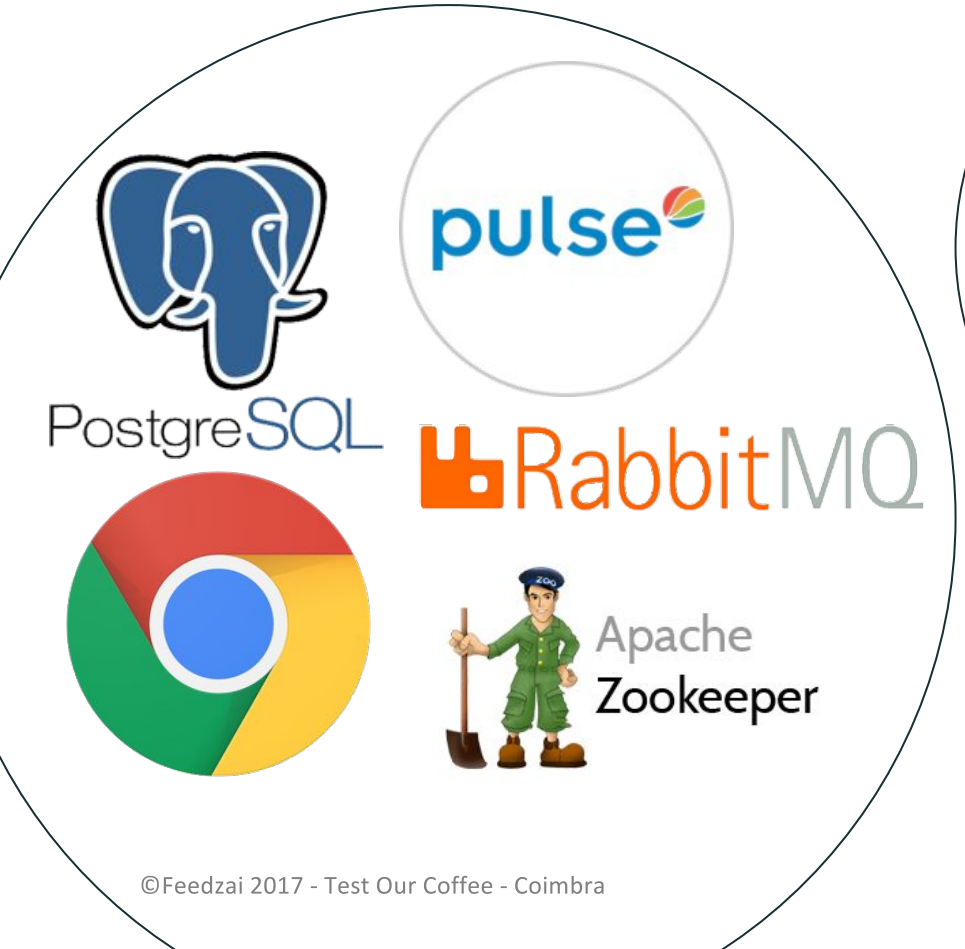
- Full control the machine under tests (Docker Environment)

Main features

- Easy environment maintainability

Main features

- Easy to configure and parametrize deployments

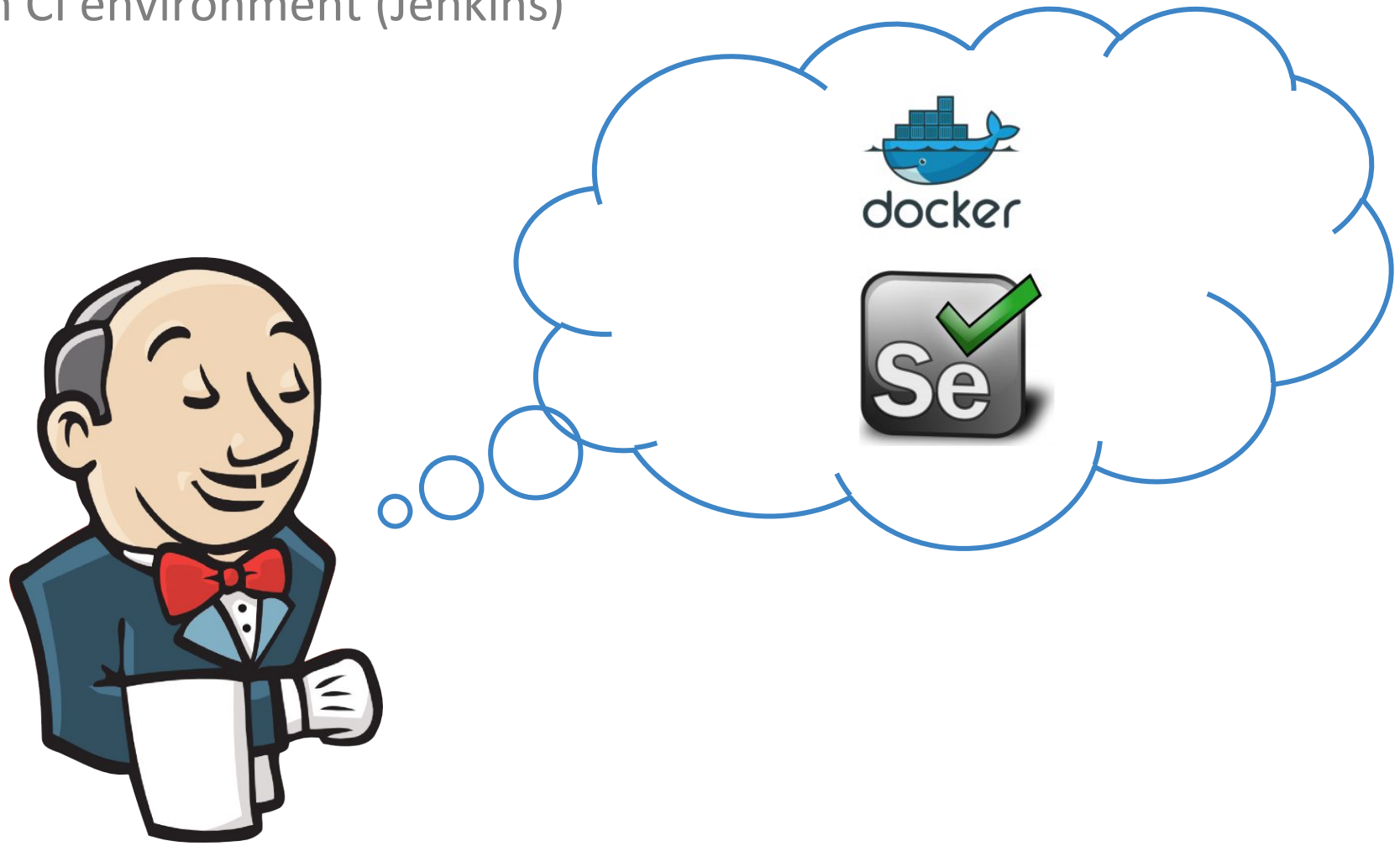


Main features

- Testers / Developers are able to easily run tests (locally, or in a Docker environment)

Main features

- Integrated in CI environment (Jenkins)



Biggest Challenges

Biggest Challenges:

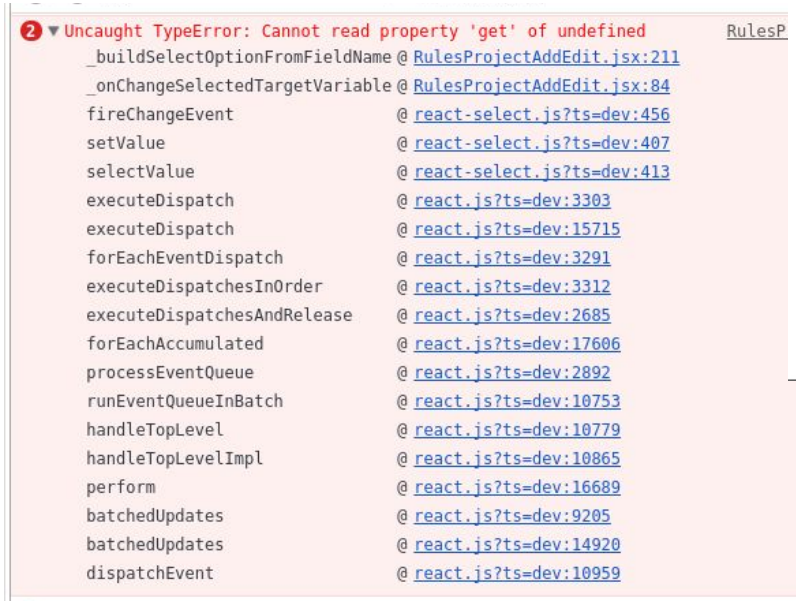
- Keep tests small

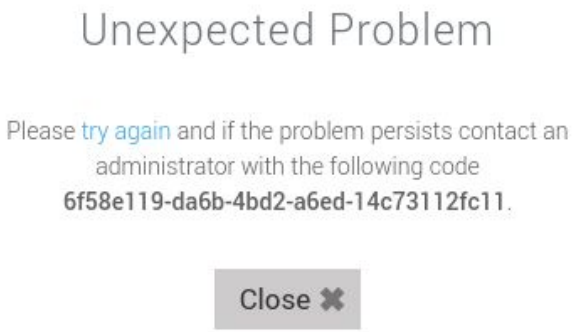
Biggest Challenges:

- Speed up test execution

Biggest Challenges:

- Proper error handling





Biggest Challenges:

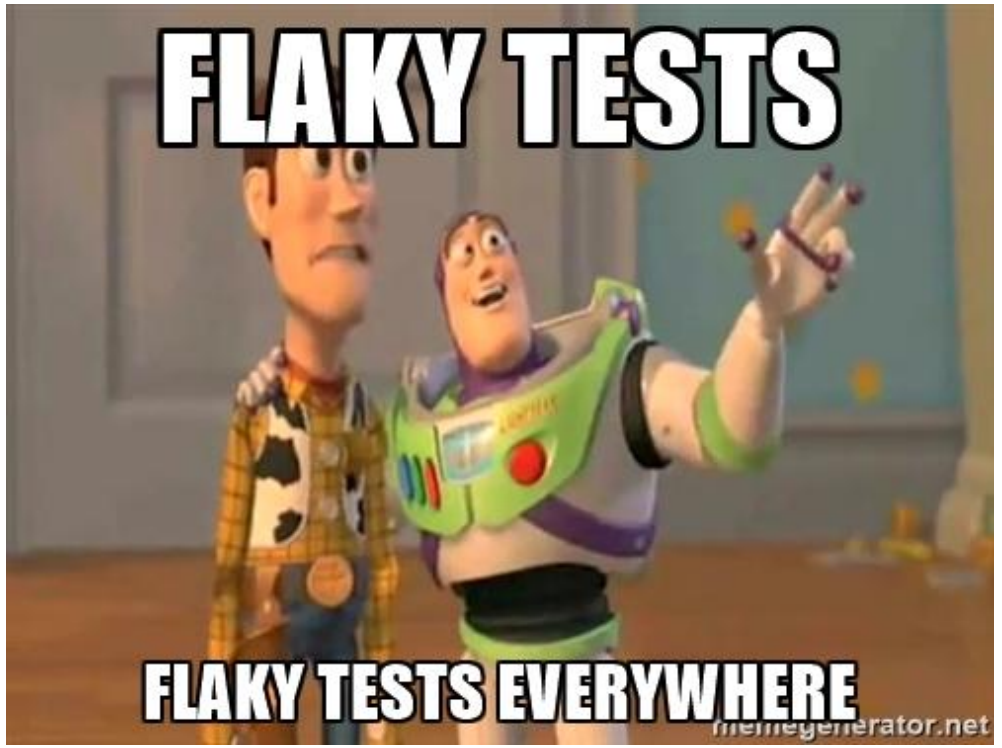
- Create independent and self contained tests

```
/**...*/
@BeforeClass
public static void beforeClass() {...}

/**...*/
@AfterClass
public static void afterClass() {...}

/**...*/
@Before
public void setUp() throws Exception {...}

/**...*/
@After
public void tearDown() throws Exception {...}

/* * * * * * * * * * * * * * * * * * * * * * * *
 *                FEATURES TESTS                 *
 * * * * * * * * * * * * * * * * * * * * * * * */

/**...*/
@{...}
public void defaultTest() {...}

/**...*/
@Test
public void createEmptyDataSourceTest() {...}

/**...*/
@Test
public void createNoHeaderTest() {...}

/**...*/
@{...}
public void wizardNavigationTest() {...}
```

Biggest Challenges:

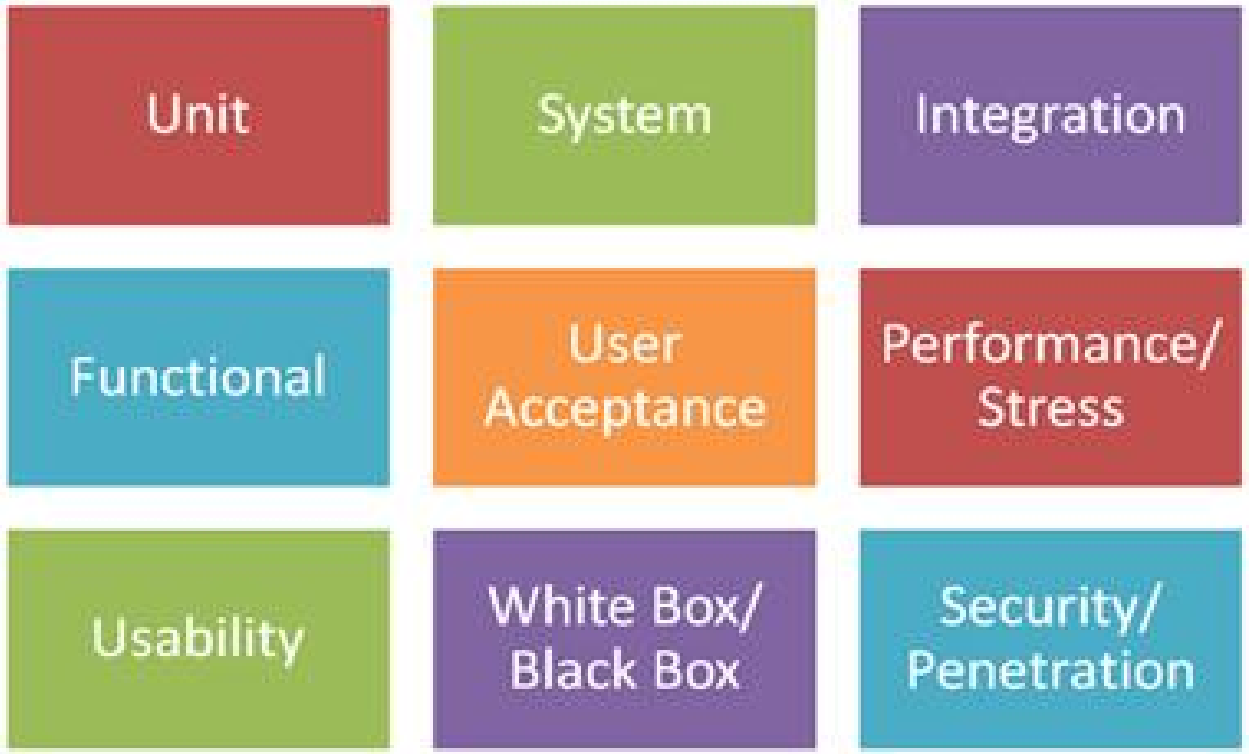
- Fight against flakiness

#1447	Mar 21, 2014 4:31:10 PM
#1446	Mar 21, 2014 3:31:10 PM
#1445	Mar 21, 2014 2:31:10 PM
#1444	Mar 21, 2014 1:31:10 PM
#1443	Mar 21, 2014 12:31:10 PM
#1442	Mar 21, 2014 11:31:10 AM
#1441	Mar 21, 2014 10:31:10 AM
#1440	Mar 21, 2014 9:31:10 AM
#1439	Mar 21, 2014 8:31:10 AM



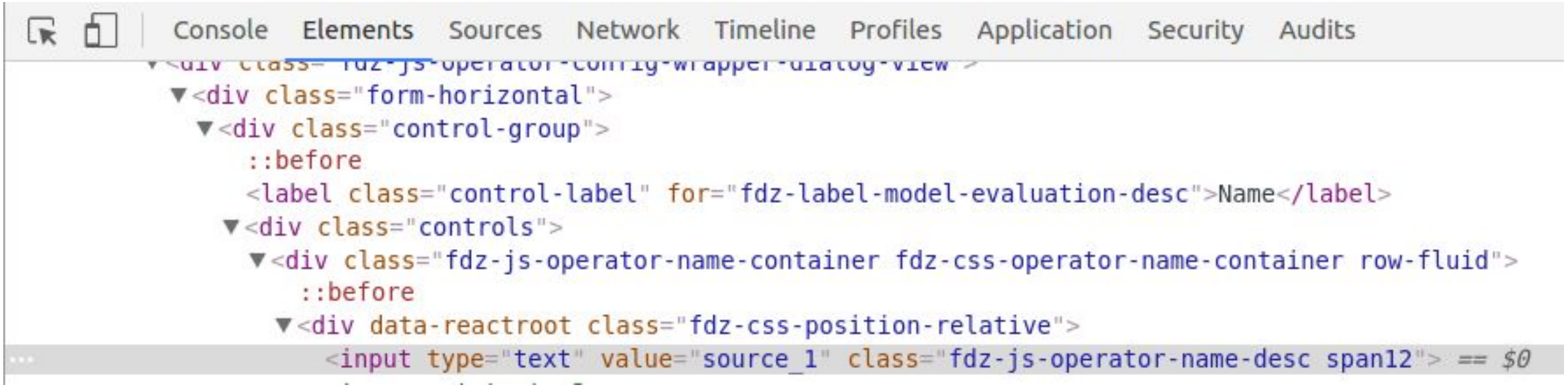
Biggest Challenges:

- Identify the correct type of test



Biggest Challenges:

- Have our own QA front-end element classes



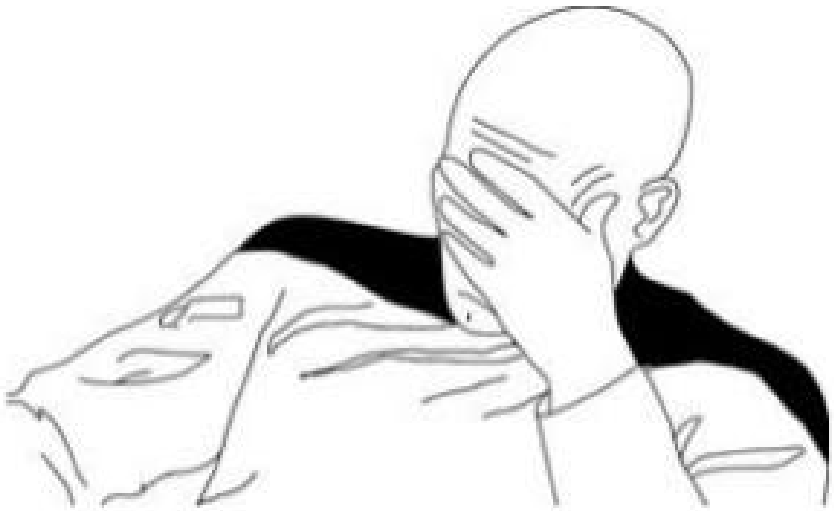
Biggest Challenges:

- Keep code base without ignored tests

"Oh, you have to invoke Maven with this flag that turns off those tests – they are tests that no longer work!"

James Coplien

Why Most Unit Testing is Waste

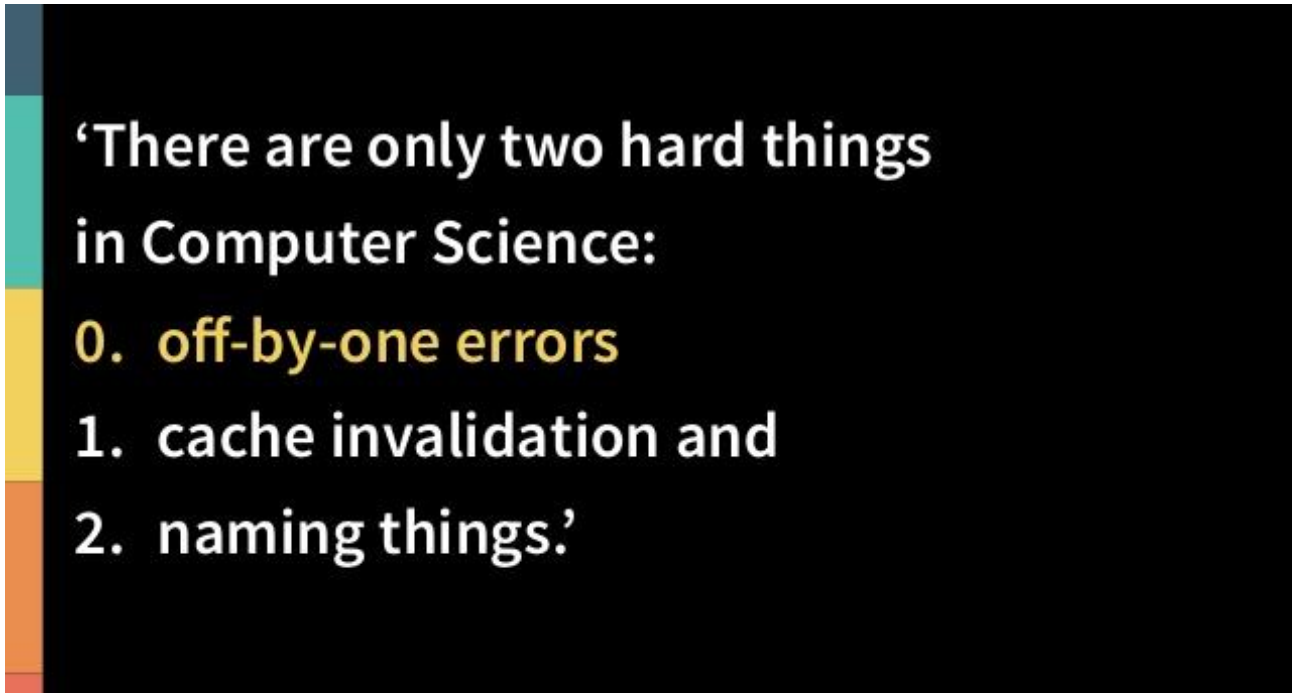


Biggest Challenges:

- Running tests in Windows

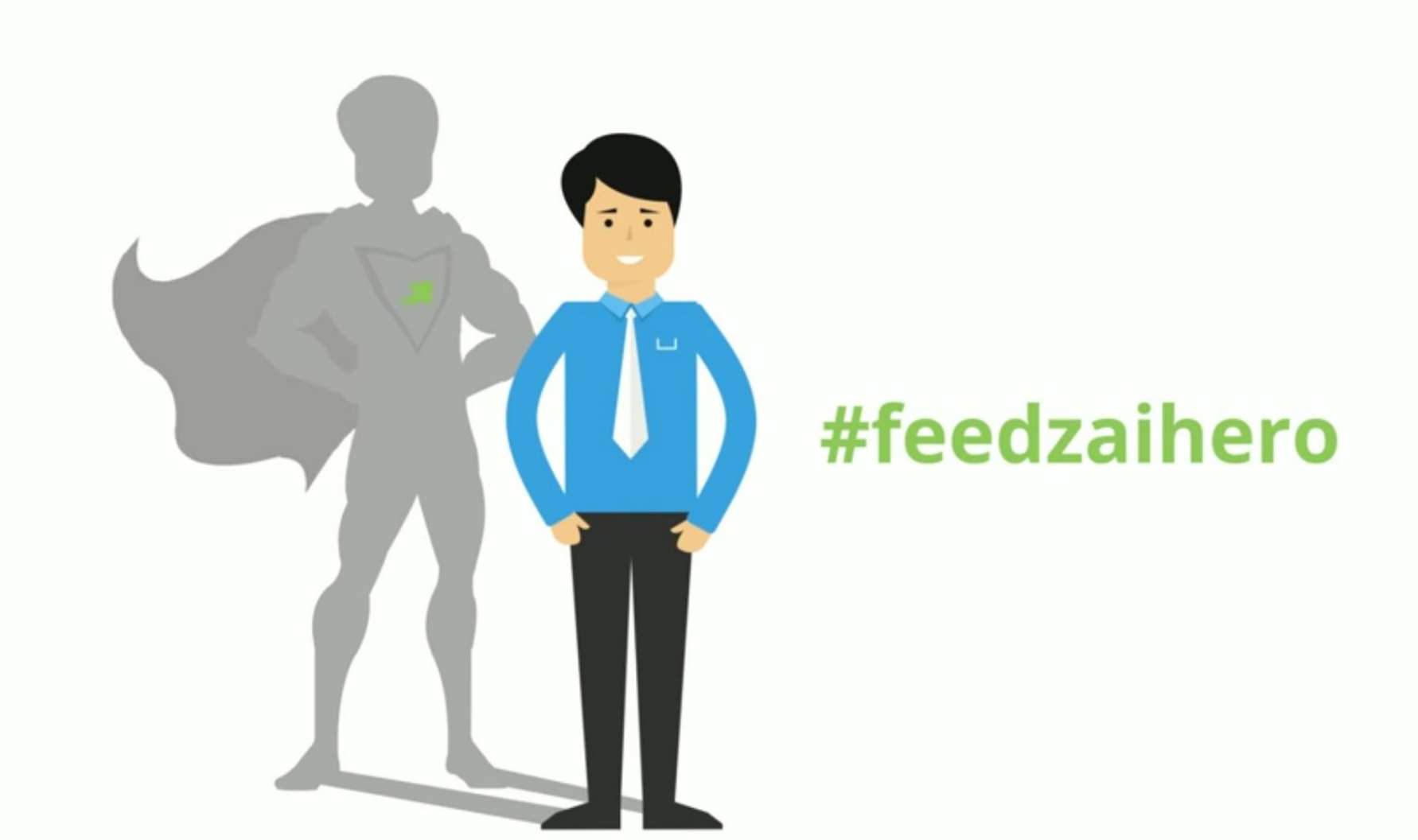
Biggest Challenges:

- Naming



Quote by Phil Karlton.
Slide taken from:
http://www.slideshare.net/pirhilton/how-to-name-things-the-hardest-problem-in-programming

Q&A



Thank You!

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Test Our Coffee
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