Automation for Android

Target !!

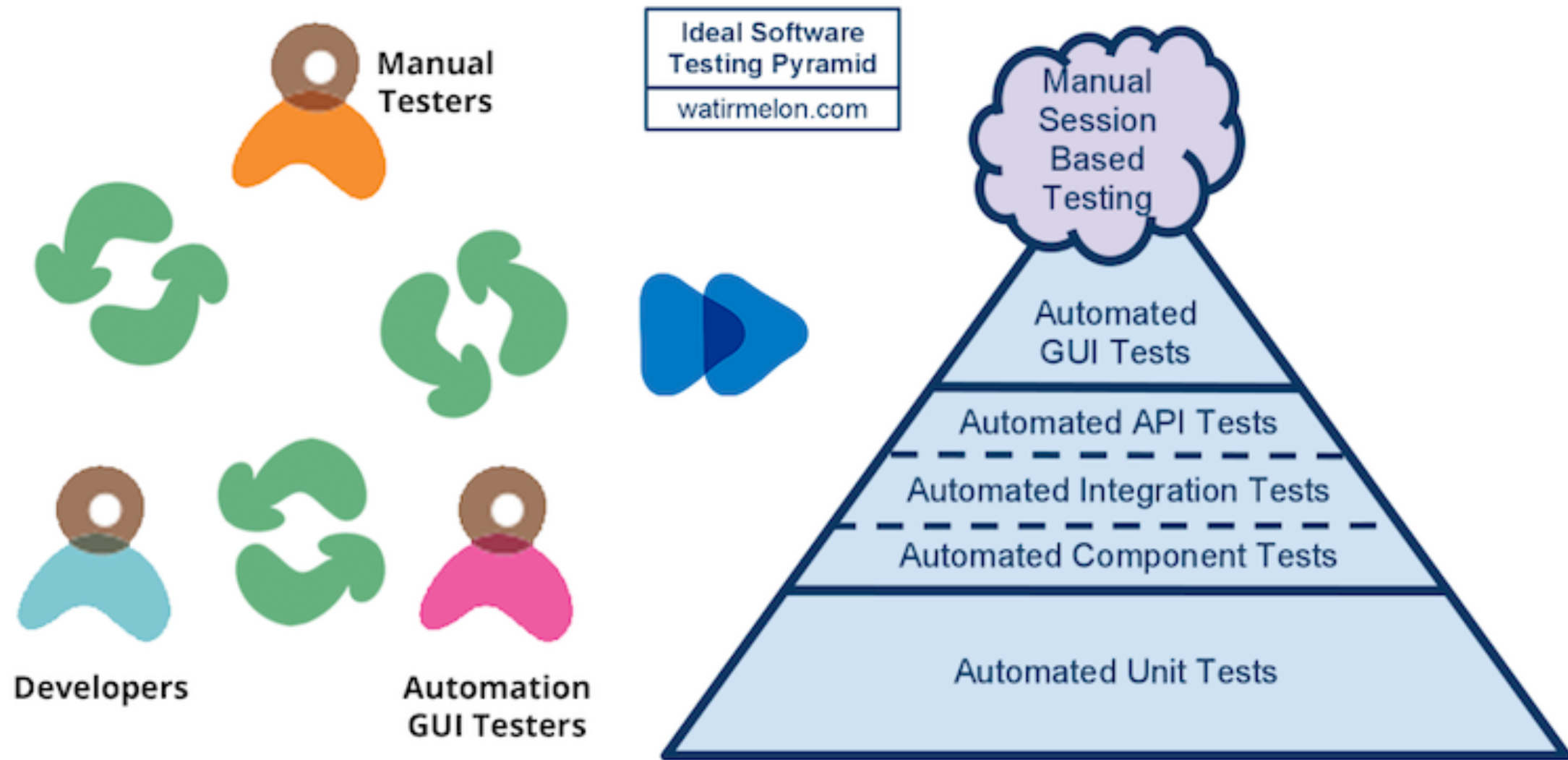Siam Chamnankit Co., Ltd., Odd-e (Thailand) Co., Ltd. and Alliance

Pyramid testing

Pyramid testing

Ideal Test Pyramid

Functional Tests (GUI)
- Developers & / QA team

API Tests
- Developers & / QA team

Integration tests
- Developers

Component tests
- Developers

Unit Tests
- Developers

Cost / Effort

Time
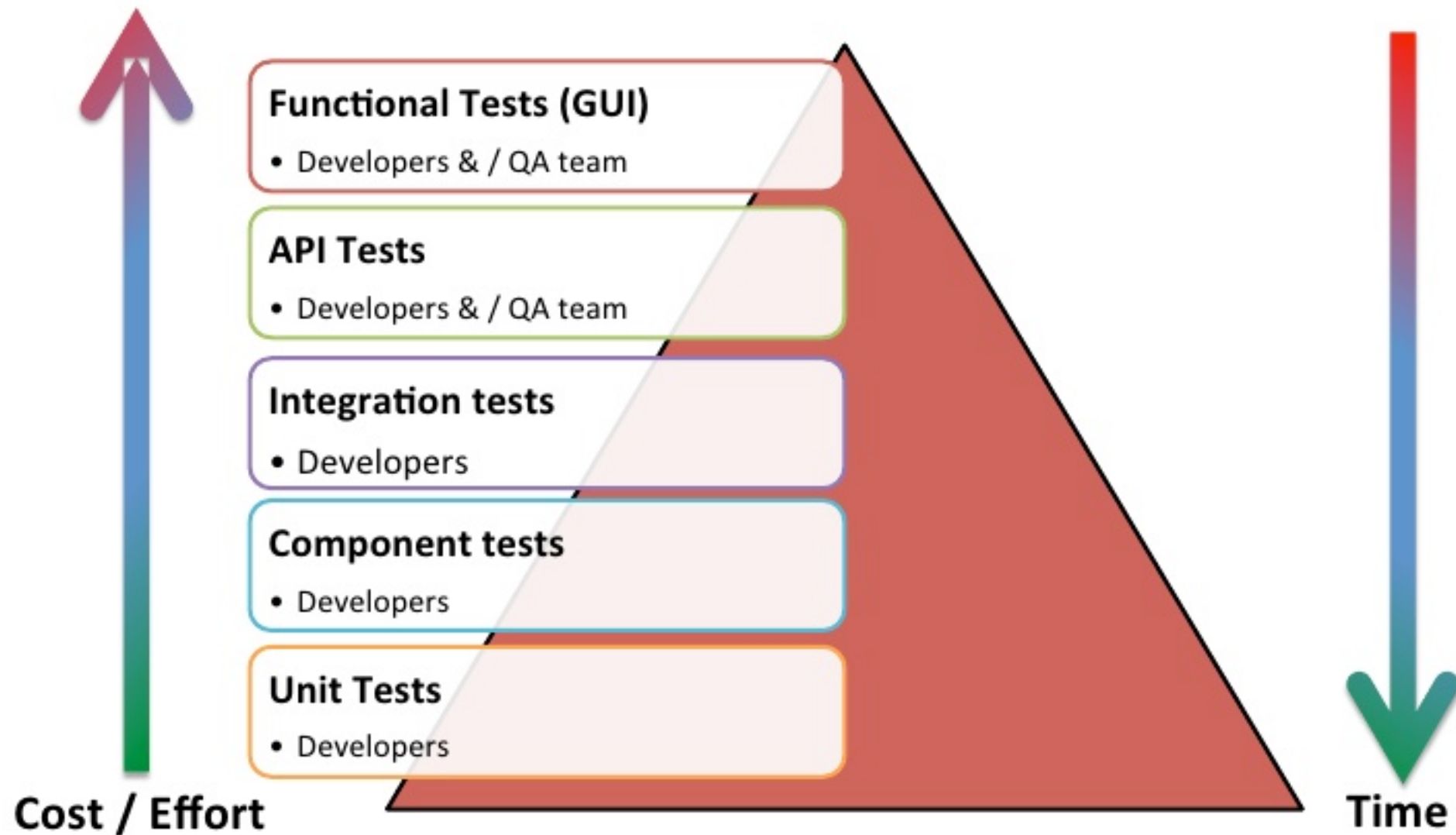
Cycle of Automation test

1. Setup data

2. Run tests

3. Validation

Software requirement
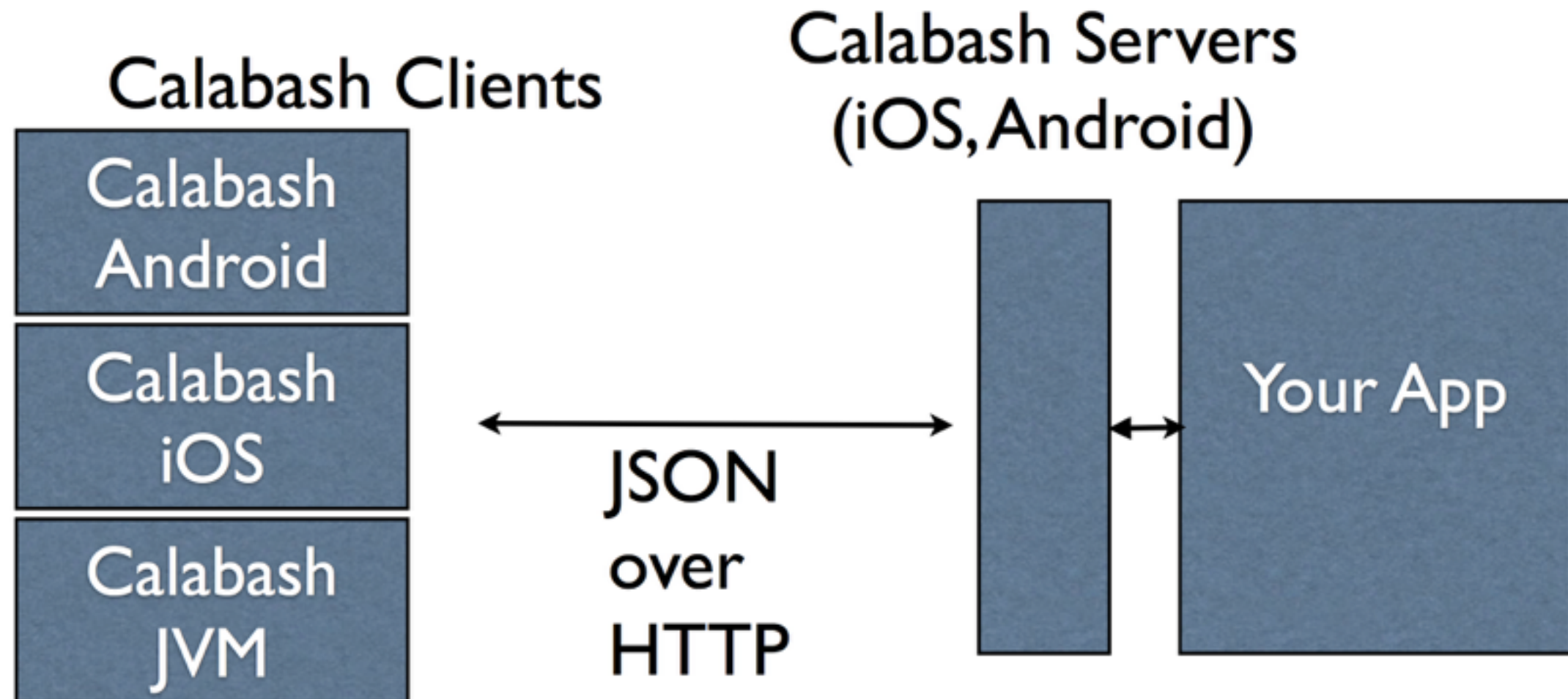
1. Ruby + Gem

2. Android SDK

Installation
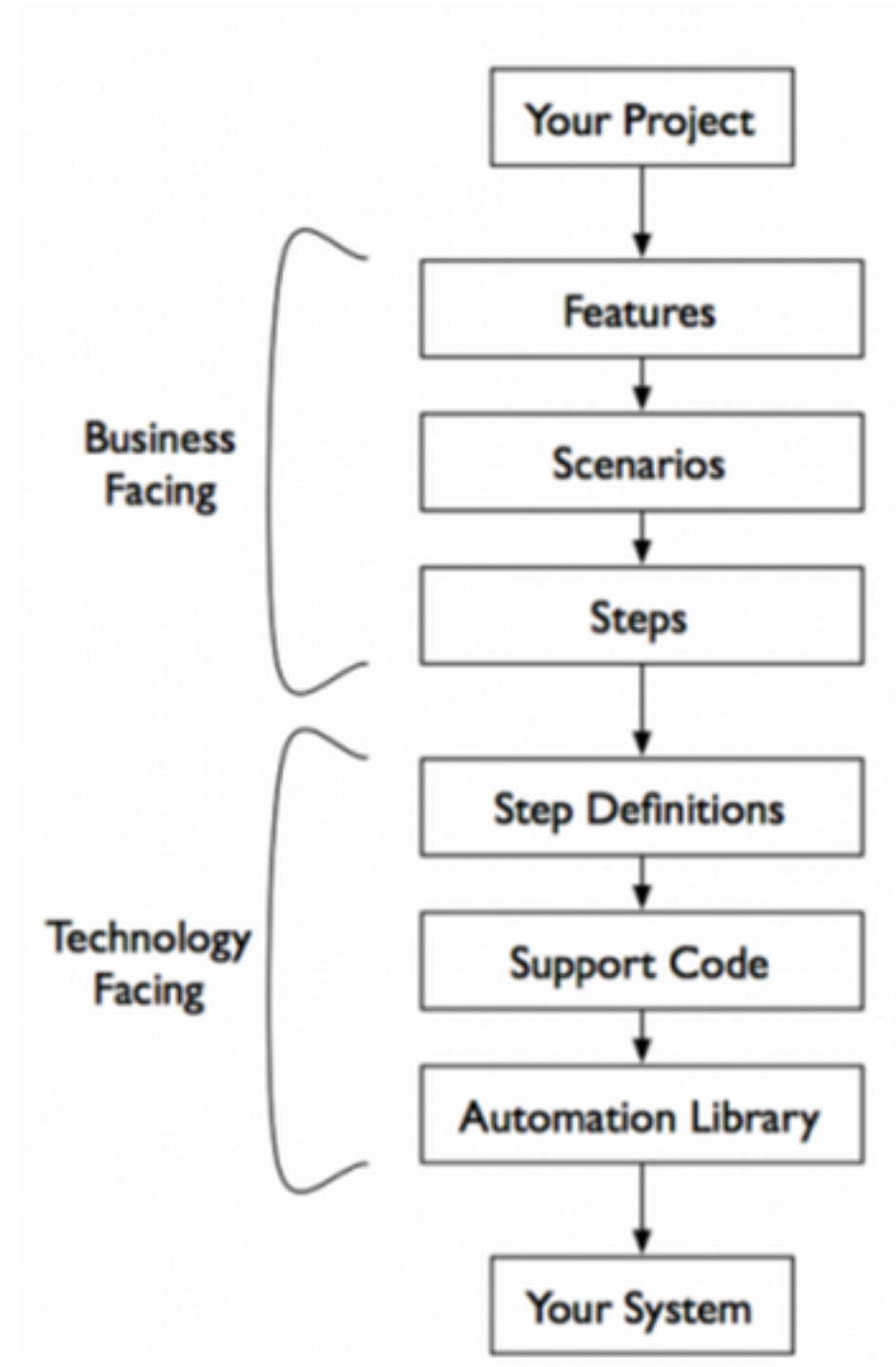
$ gem install calabash-android

Generate project

$ calabash-android gen

```
.
└── features
    ├── my_first.feature
    ├── step_definitions
    │   └── calabash_steps.rb
    └── support
        ├── app_installation_hooks.rb
        ├── app_life_cycle_hooks.rb
        ├── env.rb
        └── hooks.rb
```

Architecture

Calabash Clients

Calabash Android
Calabash iOS
Calabash JVM

Calabash Servers (iOS, Android)

Your App

JSON over HTTP

Cucumber stack

Feature


```
my_first.feature

1    Feature: Login feature
2
3    Scenario: As a valid user I can log into my app
4        When I press "Login"
5        Then I see "Welcome to coolest app ever"
```

Given When Then

Given -> to put system in known state
When -> to describe the action
Then -> to observe outcomes

And, But

https://github.com/cucumber/cucumber/wiki/Given-When-Then

Step Definitions

Define in **features/step_definitions/*_steps.rb**
Write in Ruby language

Cucumber

Write in **Gherkin**

Domain Specific Language (DSL)

Business readable

Support 40 languages

https://github.com/cucumber/cucumber/wiki/Gherkin
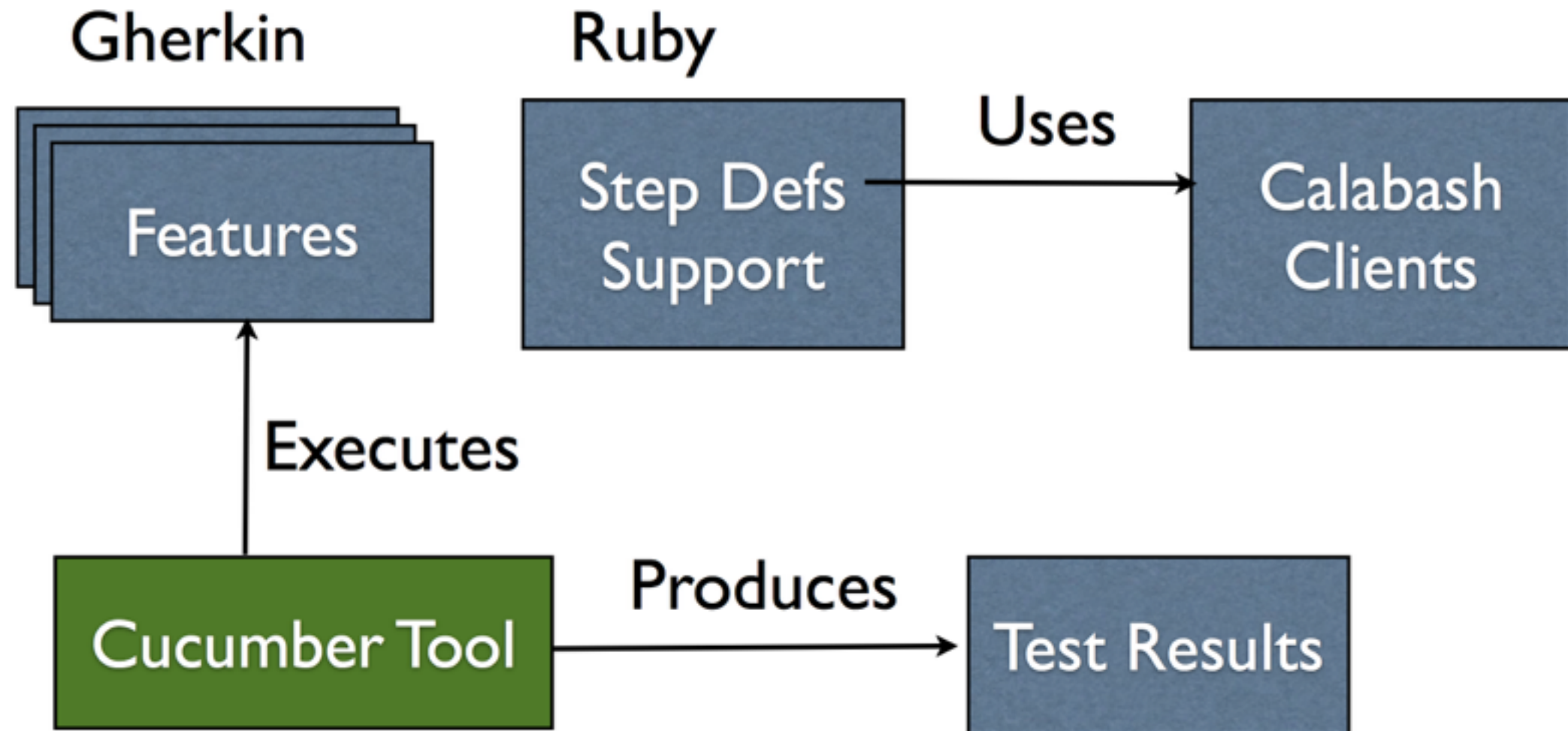
English

```
"en": {
  "but": "*|But",
  "and": "*|And",
  "then": "*|Then",
  "when": "*|When",
  "name": "English",
  "native": "English",
  "feature": "Feature|Business Need|Ability",
  "background": "Background",
  "scenario": "Scenario",
  "scenario_outline": "Scenario Outline|Scenario Template",
  "examples": "Examples|Scenarios",
  "given": "*|Given"
},
```

Support Thai

```
"th": {
    "but": "*|แต่",
    "and": "*|และ",
    "then": "*|ดังนั้น",
    "when": "*|เมื่อ",
    "name": "Thai",
    "native": "ไทย",
    "feature": "โครงหลัก|ความต้องการทางธุรกิจ|ความสามารถ",
    "background": "แนวคิด",
    "scenario": "เหตุการณ์",
    "scenario_outline": "สรุปเหตุการณ์|โครงสร้างของเหตุการณ์",
    "examples": "ชุดของตัวอย่าง|ชุดของเหตุการณ์",
    "given": "*|กำหนดให้"
},
```
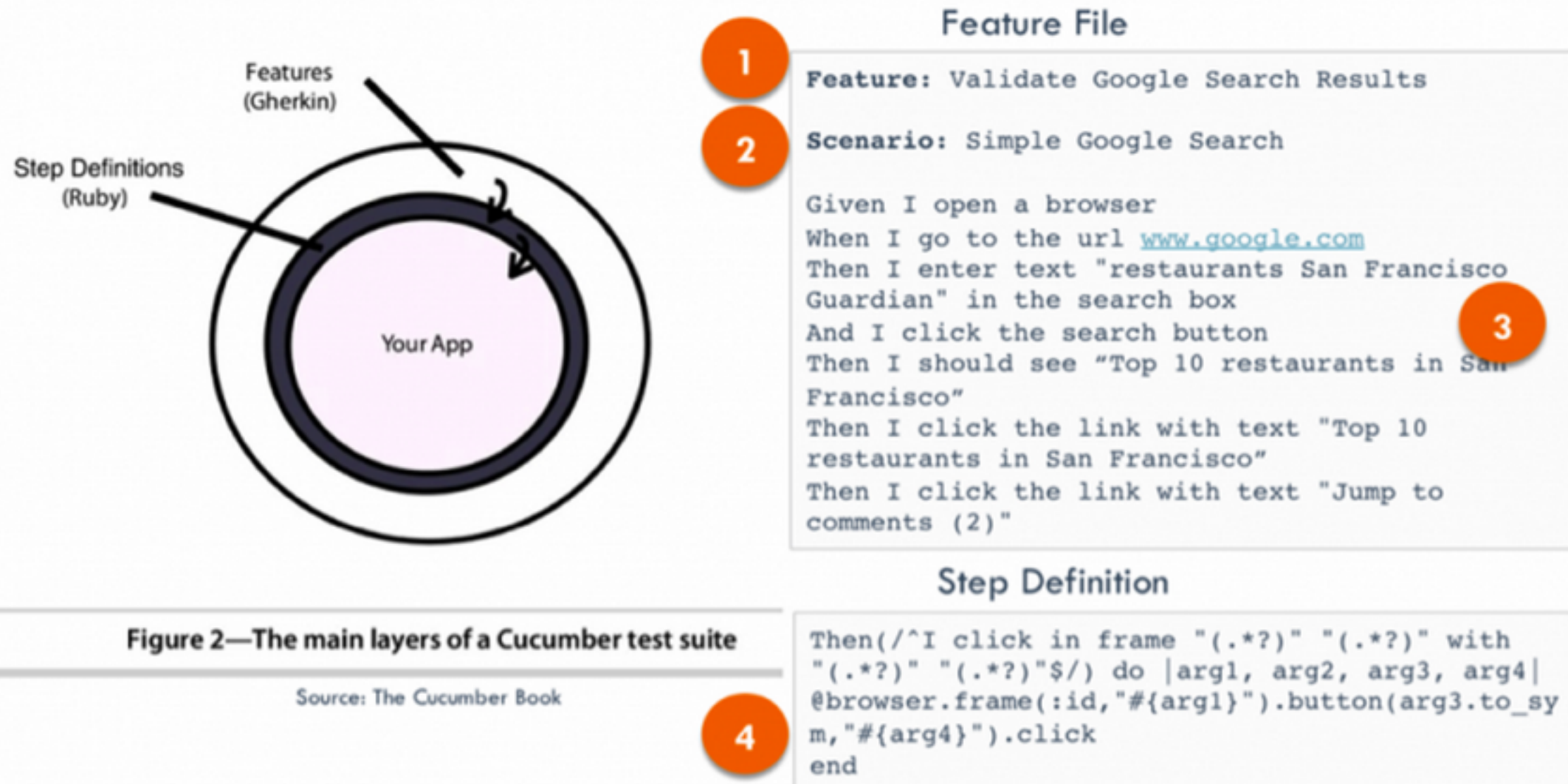
Twin Panichsombat
(roofimon)
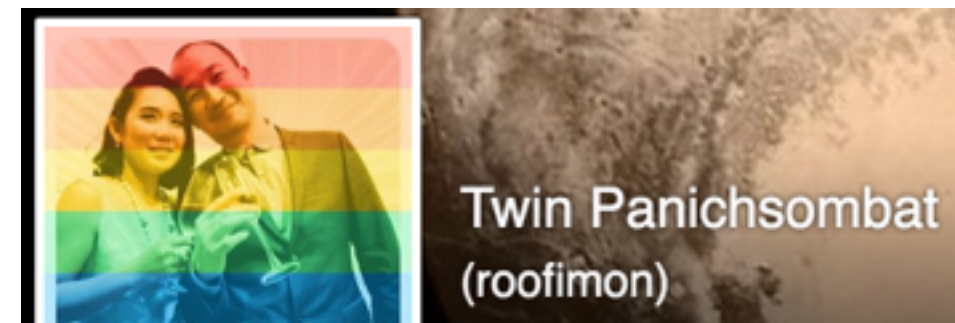
Cucumber + Calabash

Layer of cucumber

Features (Gherkin)

Step Definitions (Ruby)

Your App

Figure 2—The main layers of a Cucumber test suite

Source: The Cucumber Book

Feature File

1

Feature: Validate Google Search Results

2

Scenario: Simple Google Search

Given I open a browser
When I go to the url www.google.com
Then I enter text "restaurants San Francisco Guardian" in the search box
And I click the search button
Then I should see "Top 10 restaurants in San Francisco"
Then I click the link with text "Top 10 restaurants in San Francisco"
Then I click the link with text "Jump to comments (2)"

3

Step Definition

```
Then(/^I click in frame "(.*?)" "(.*?)" with
"(.*?)" "(.*?)"$/) do |arg1, arg2, arg3, arg4|
@browser.frame(:id,"#{arg1}").button(arg3.to_sy
m,"#{arg4}").click
end
```

4

Write first feature

Run calabash

$ calabash-android run <APK file>

Generate HTML report

$ calabash-android run <APK file>

--format **html** --out report.html --format pretty

Generate JSON report

$ calabash-android run <APK file>

--format **json** --out report.json --format pretty

Predefined steps

- Assertion
- Input
- Button
- Gesture
- Internationalization

- Touching
- Waiting
- Screenshot
- Location

https://github.com/calabash/calabash-android/blob/master/ruby-gem/lib/calabash-android/canned_steps.md

Screenshot

Default is current working directory

SCREENSHOT_PATH=/your/path/

Tags


```
1   Feature: Welcome to drivebot app
2
3   @test
4   Scenario: User see all detail of application
5       Given First time to open app
6       When I see detail at next page
7       And I see detail at next page
8       And I see detail at next page
9       And I see detail at next page
10      And I see detail at next page
11      And I see detail at next page
12      And I see detail at next page
13      And I see detail at next page
14      Then I see verify your device
```

https://github.com/cucumber/cucumber/wiki/Tags

Use Tags

- Feature
- Scenario
- Scenario Outline
- Example

https://github.com/cucumber/cucumber/wiki/Tags

Tags

$calabash-android --tags @a,@b

$calabash-android --tags @a --tags @b

https://github.com/cucumber/cucumber/wiki/Tags

Calling steps from Step definitions

```
Then(/^Logout from app$/) do
  steps %Q{
    And I see "Logout"
    And I press "Logout"
    And I press "lo_cfm_logout"
  }
end
```

https://github.com/cucumber/cucumber/wiki/Calling-Steps-from-Step-Definitions

Scenario outline


```
 2   Scenario Outline: eating
 3     Given there are <start> cucumbers
 4     When I eat <eat> cucumbers
 5     Then I should have <left> cucumbers
 6
 7     Examples:
 8       | start | eat | left |
 9       |  12   |  5  |  7   |
10       |  20   |  5  |  15  |
```

https://github.com/cucumber/cucumber/wiki/Scenario-Outlines

Calabash console

$calabash-android **console** <apk>

Let's try ...

Calabash console

>reinstall_app
>start_test_server_in_background

Let's try ...

Calabash console

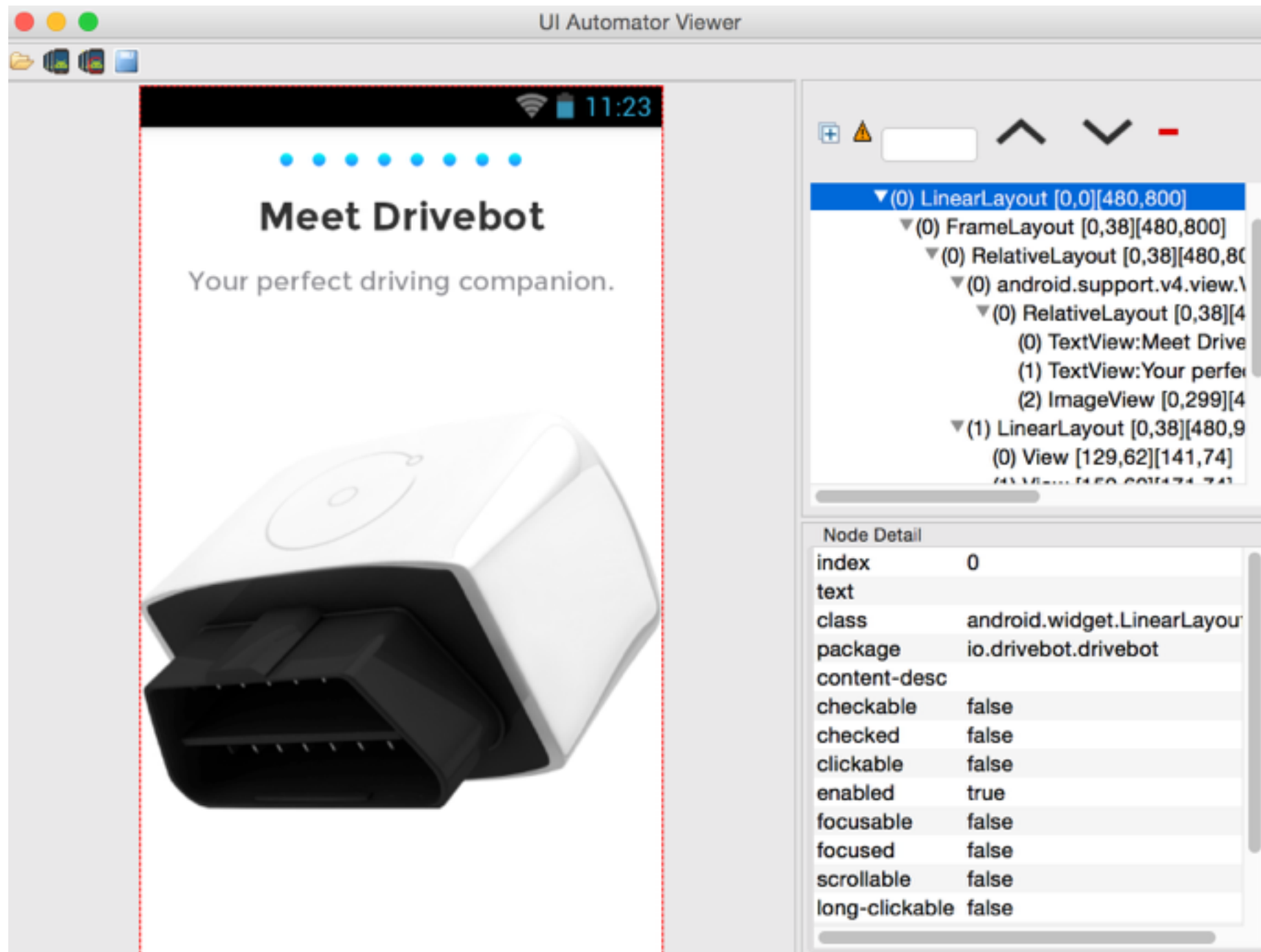>query("*")
>query("* id:'xxxxx'")

Let's try ...

https://github.com/calabash/calabash-android/wiki/05-Query-Syntax

UIAutomator Viewer

$cd ANDROID_HOME/tools

$./uiautomatorviewer

Drivebot

Piggipo