Mobile Application Testing with **Python** and **Selenium**

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Very brief aside: I woke up this morning…

PyCon is an **amazing community** of very kind and helpful people.

Thank you Augie Fackler, Jonathan Lipps, and Terry Peppers.

What is Selenium?

1 2 3 4

Selenium is an Open Source library for **automating browsers.**

The goal is coverage for **every browser on every platform.**

Selenium RC

AKA ‘Selenium 1’

Uses javascript injection to drive browsers

Has no mobile implementations

Don’t use this.

Selenium WebDriver

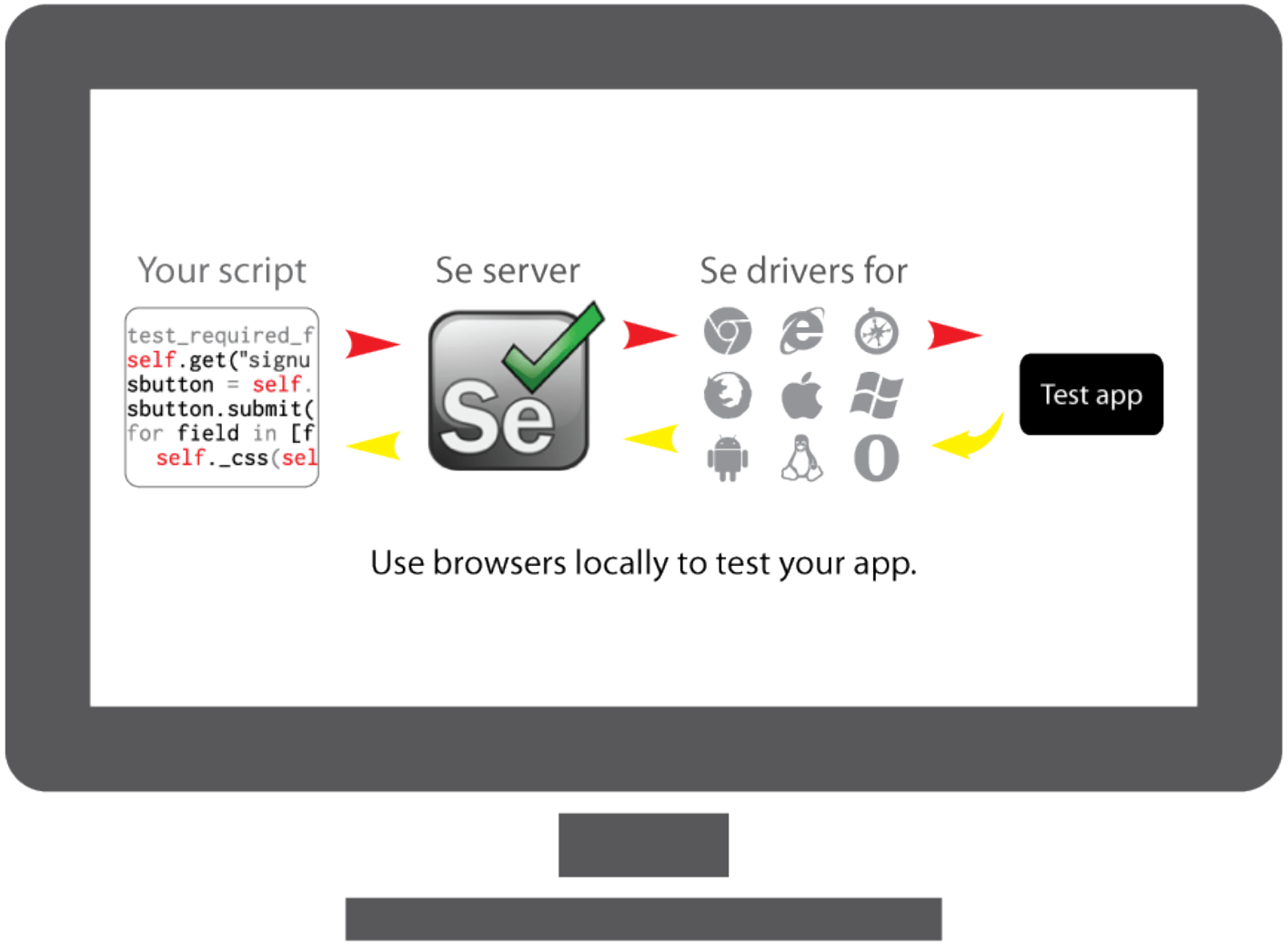
AKA ‘Selenium 2’

Uses native OS events to drive browsers

Has iOS and Android drivers

Use this!

How WebDriver Works



Example Test

```
from selenium import webdriver

driver = webdriver.Firefox()
driver.implicitly_wait(30)
driver.get('http://us.pycon.org’)
driver.quit()
```

Demo

Let’s get mobile.

1 2 3 4

Same Test.

Different Browser.

Tricky.

Example Test

```
from selenium import webdriver

driver = webdriver.Firefox()
driver.implicitly_wait(30)
driver.get('http://us.pycon.org’)
driver.quit()
```

Example Test

```
from selenium import webdriver

desired_capabilities = {}
desired_capabilities['browser'] = 'iphone’
desired_capabilities['platform'] = 'MAC’
desired_capabilities['version'] = '6.1’
driver = webdriver.Remote(
    'http://localhost:3001/wd/hub',
    desired_capabilities)
```

…

Example Test

```
from selenium import webdriver

desired_capabilities = {}
desired_capabilities['browser'] = ’android’
desired_capabilities['platform'] = ’Linux’
desired_capabilities['version'] = ’4.2’
driver = webdriver.Remote(
    'http://localhost:8080/wd/hub',
    desired_capabilities)
```

…

iOS WebDriver

Requires Xcode and a Mac

A .app that you run in the simulator

Some big limitations (alerts, frames, quit)

Build app locally and point your tests at it

Demo

Android WebDriver

Requires Android SDK

A .apk that you run in the emulator

Setup is hard. Really annoying.

Supports 2.3.x and later

Emulator is slow.

Android WebDriver Setup

Install Android SDK

Create AVD

Launch AVD

Use ADB to connect to device, start app, and forward ports.

Demo

Limitations

'WebViews'

Not a real browser

Second class citizens

Hard to accurately test

Hard to use on real devices

Each mobile implementation is different

Native apps

1 2 3 4

iOS

Problems

UI Automation

- Javascript only
- Very limited set of commands
- Limited command line control
- No interaction with tests

No Test Interoperability

Android

Problems

UI Automator

- Java tests, compiled and pushed
- No interaction with tests

No Test Interoperability

Alternatives

- Require recompiling app to add code
- Various APIs
- Mixed community & limited help
- Forced language implementation

Test Reuse

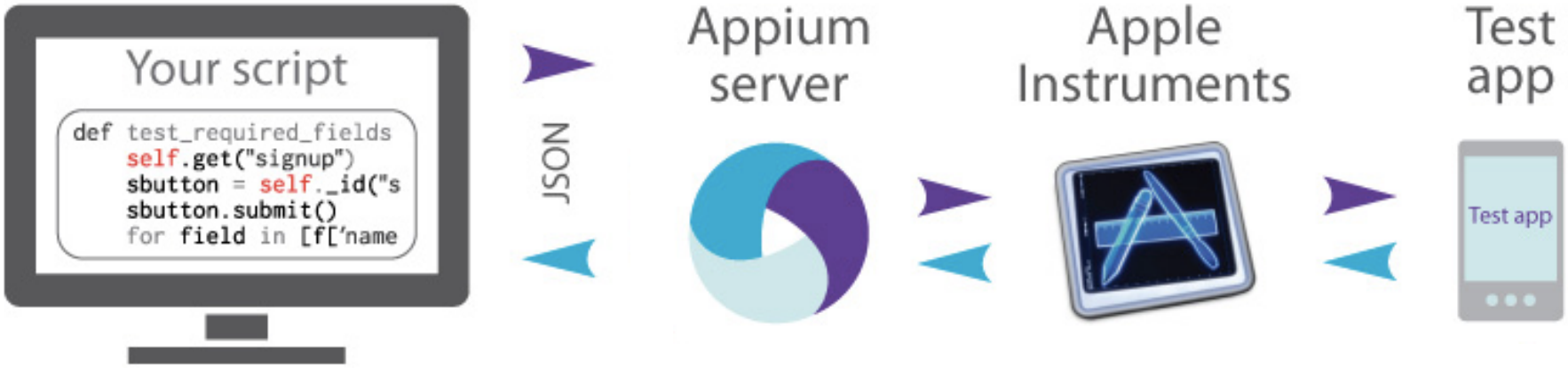
The Solution is Appium

Appium

- No recompilation of app
- Uses Selenium API
- All methods are first class citizens
- Any language, any OS, any framework
- Open Source

Appium for iOS

- Wraps UIAutomation and Instruments

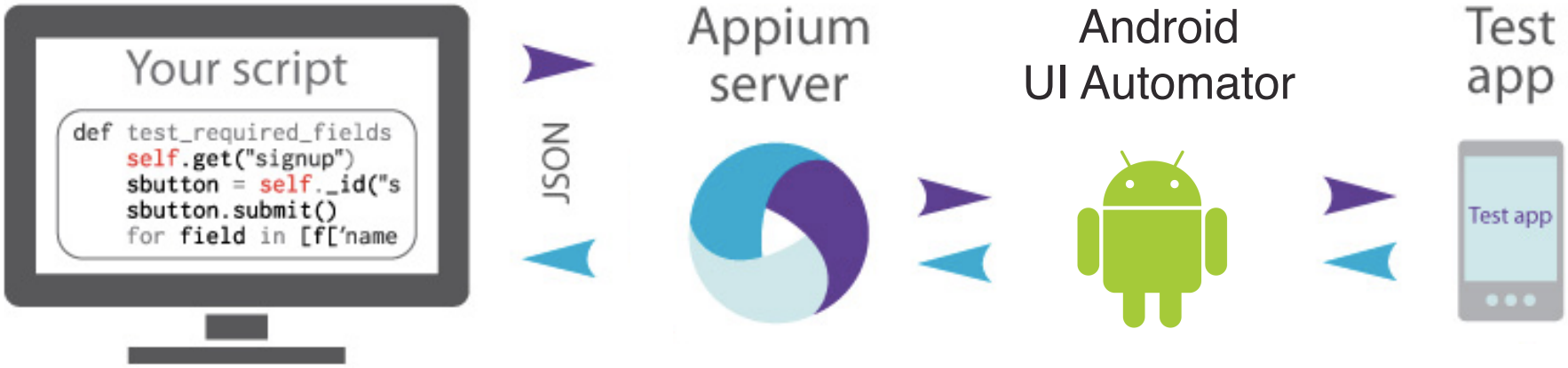


Demo

http://evr.st/

Appium for Android

- Wraps UI Automator



Demo

WOVEN

http://woventheapp.com

Driving the Browser

1 2 3 4

Work in Progress

Why Automate Mobile Browsers?

- Drive a real browser
- Actual rendering
- Accurate
- Works on real devices
- Standards driven (atoms, W3C)

Demo

Thank you

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github.com/appium

appium.io

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seleniumhq.com