



Enable Your Automated Web App Testing by WebDriver

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Intel

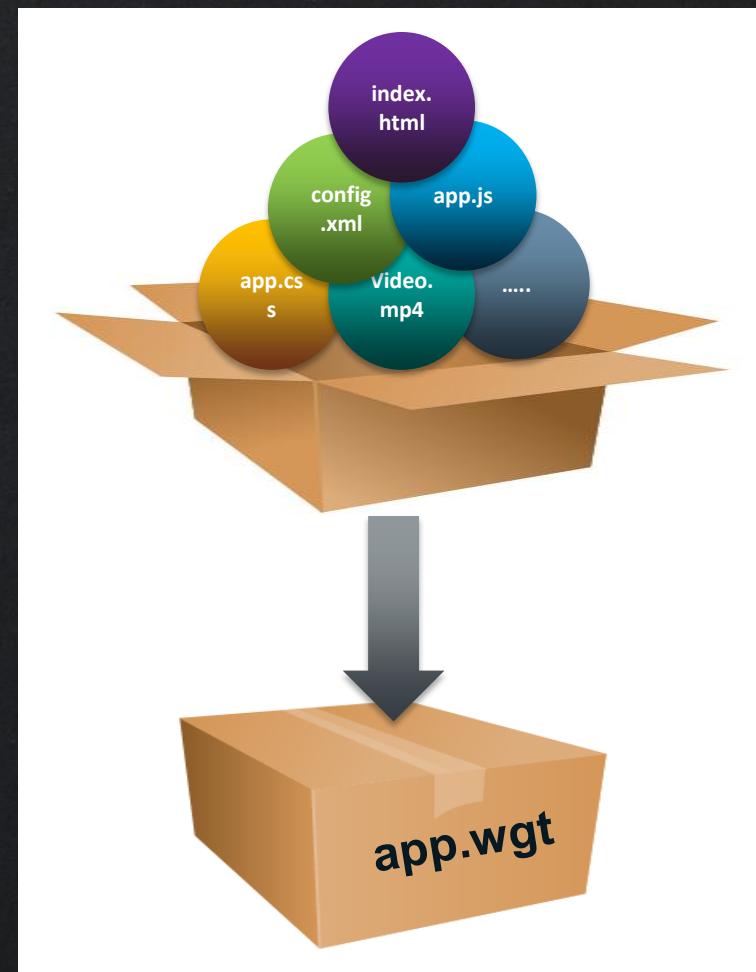


Agenda

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- WebDriver
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- Behavior Driven Test
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Background

- A web application is **any software that runs in a web browser**. It is created in a browser-supported programming language (such as the combination of JavaScript, HTML and CSS) and relies on a web browser to render the application
- For a web runtime, **web application is a packaged app written in JavaScript, HTML, CSS and so on**
- Crosswalk will be the default web runtime on Tizen



Background



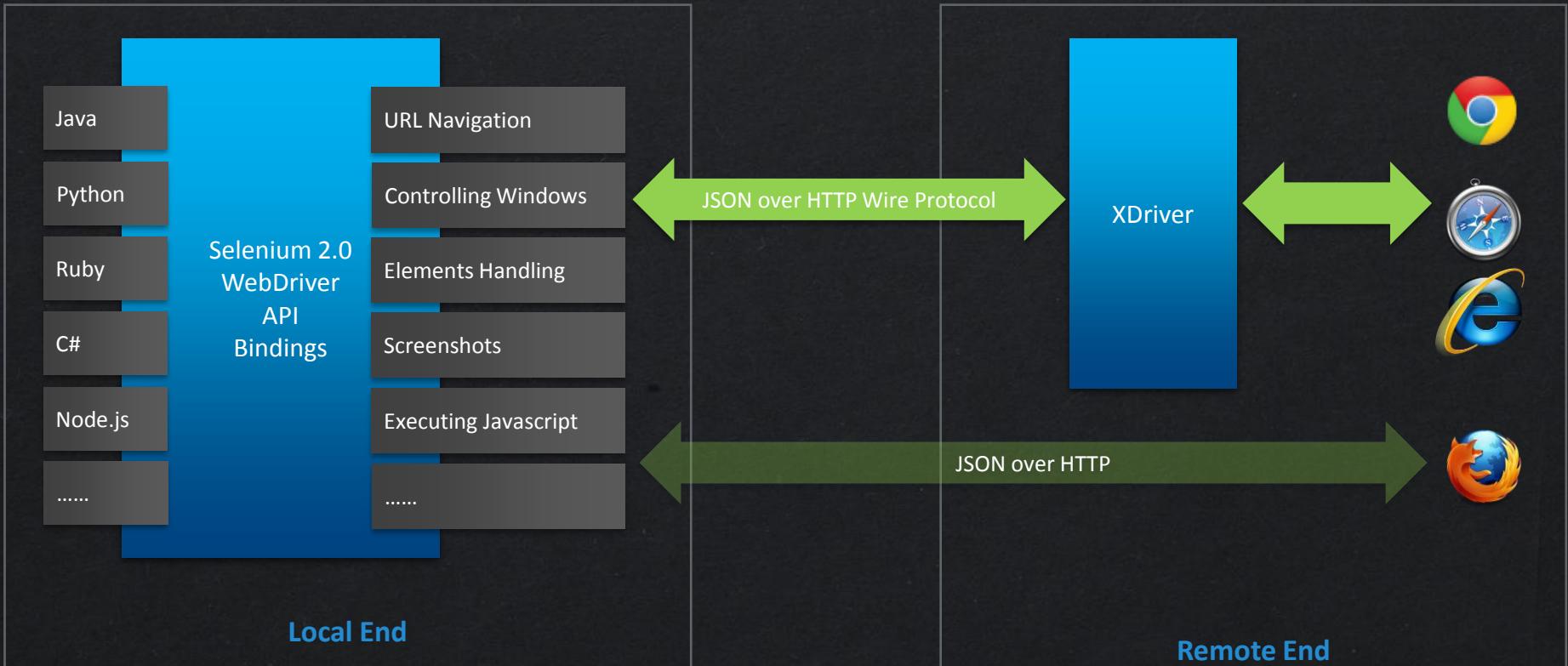
Challenges

- Hard to apply image recognition or platform native UI automation solution to web application
- Multi-formity of web UI layout and elements requires a more convenient test design and development method
- Existing browser test automation techniques and tools have gap on support on web applications or web runtime

WebDriver

- <http://www.w3.org/TR/webdriver/>: The WebDriver API is defined by a wire protocol and a set of interfaces to **discover and manipulate DOM elements on a page**, and to **control the behavior** of the containing browser from a **separate controlling process**
- Most popular instance of WebDriver specification is **selenium2.0**: Chrome, Firefox, IE, Opera,
- More and more framework involve WebDriver to implement Web UI automation, e.g. Watir WebDriver

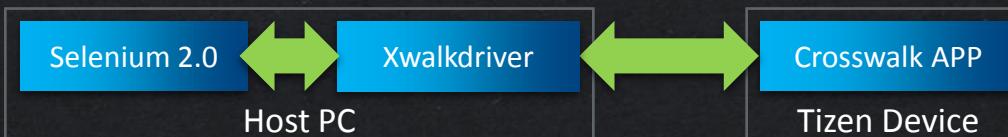
WebDriver Support in Browsers



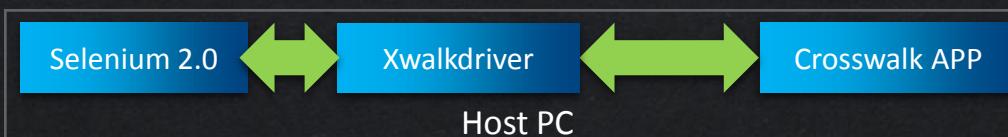
WebDriver Support in Web Runtime

How to enable Crosswalk
WebDriver on Tizen ?

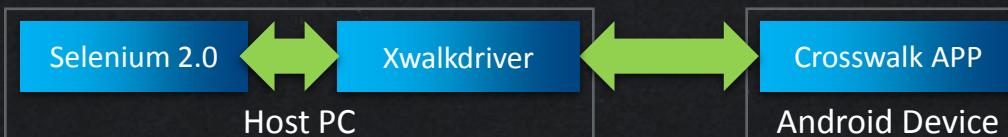
>> <https://crosswalk-project.org/#wiki>



Crosswalk on Tizen



Crosswalk on Ubuntu



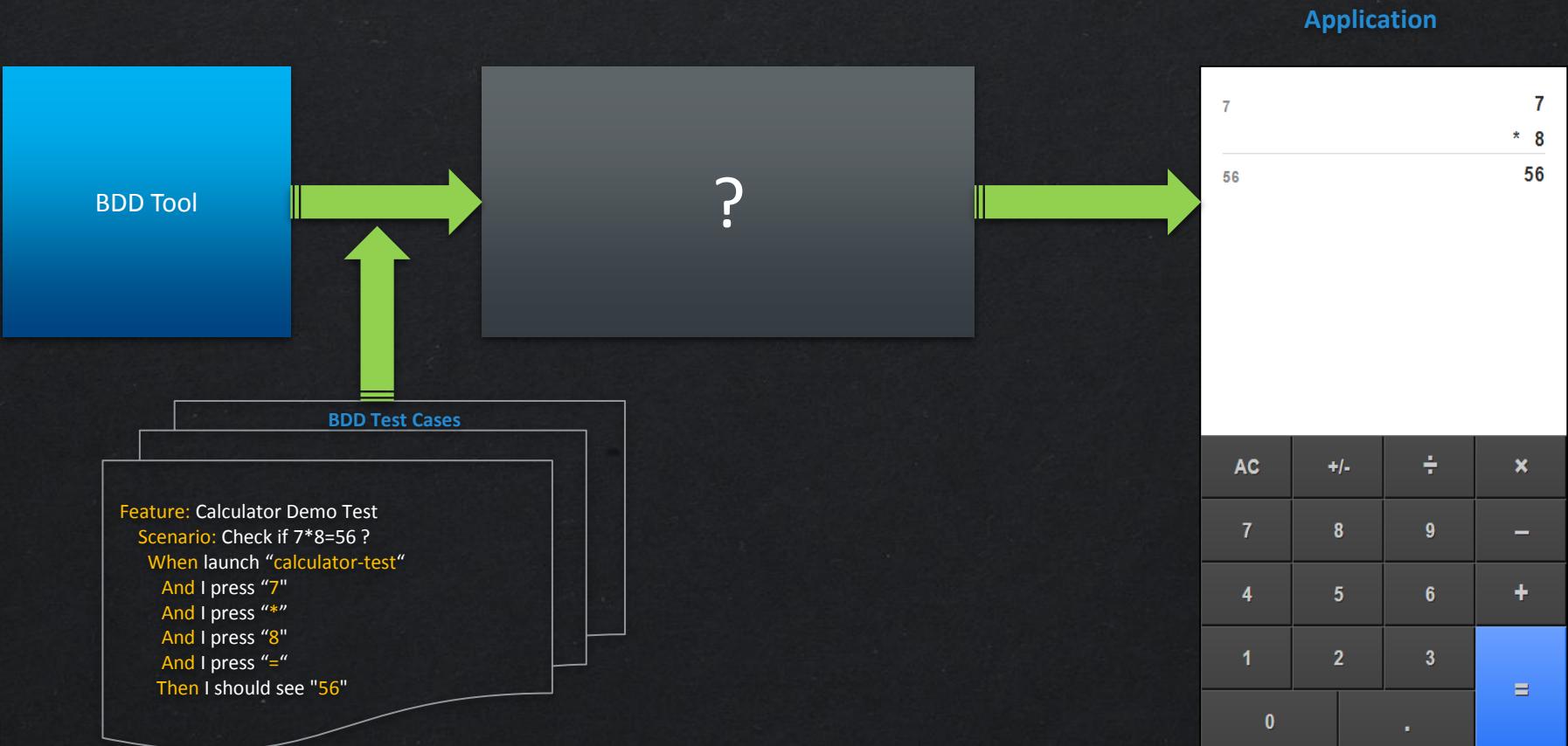
Crosswalk on Android

BDD

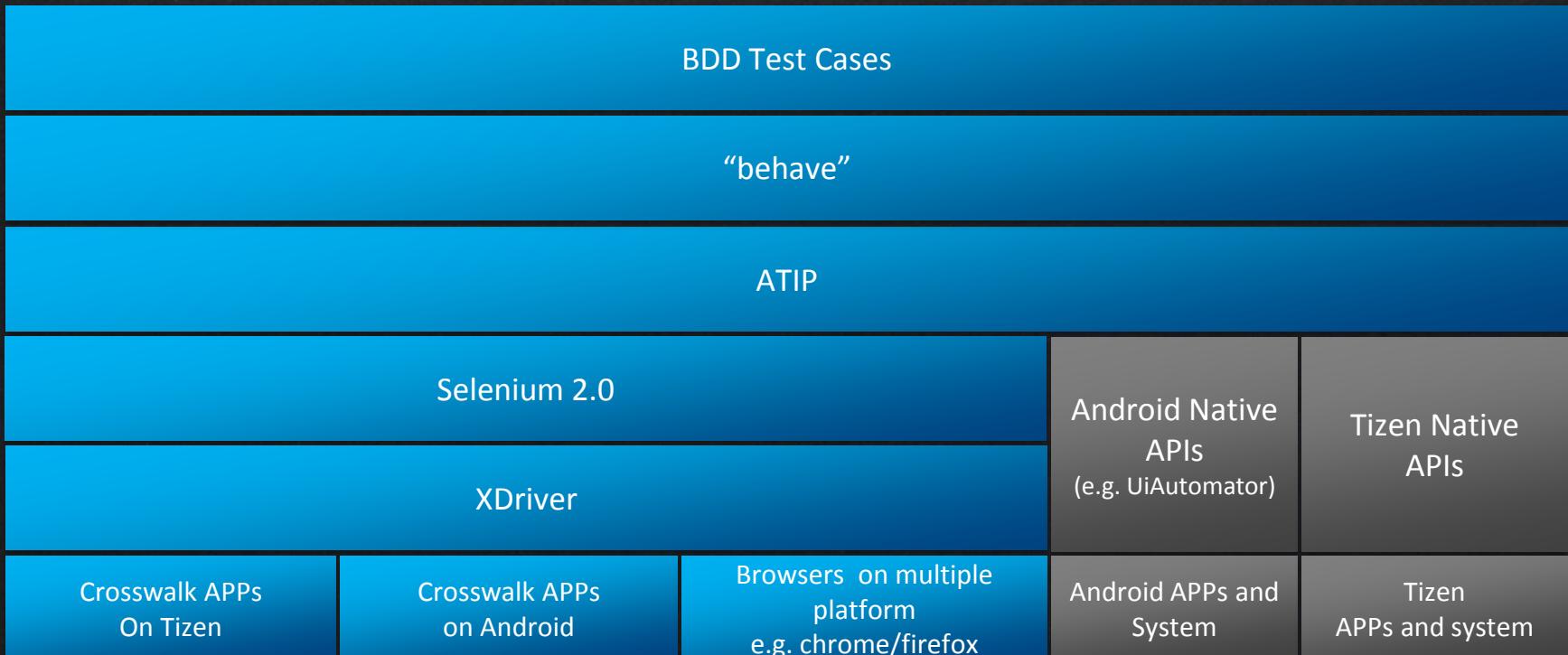
Behavior-driven Development

- An agile software development technique that encourages collaboration between developers, QA and non-technical or business participants in a software project.
- Our solution implements BDD principles to allow users to use tests written in a ubiquitous language style to validate the web applications and web platform and offers a convenient and efficient way to develop, manage, execute the test cases, and easy to combine with high level test framework

BDD Based Test



Architecture



- “behave” — Use a open source Python based BDD instance as the default BDD tool for application test automation
- “ATIP”(Application Test in Python) — Develop a “behave” binding library as the bridge between application and “behave”, and use WebDriver to implement detailed BDD steps for web application

Example

BDD test cases *.feature file

```
Feature: Web Storage Test
Scenario: storage load page times
When launch "w3c-webstorage-app"
And I go to "test.html"
And I press "clear_button"
And I reload
Then I should see "viewed this page 1 time(s)."
And I reload
And I reload
And I reload
And I reload
Then I should see "viewed this page 5 time(s)."
```

ATIP steps

```
@step(u'I go to "{url}"')
def i_visit_url(context, url):
    assert context.app.switch_url(url, True)

@step(u'I reload')
def reload(context):
    assert context.app.reload()

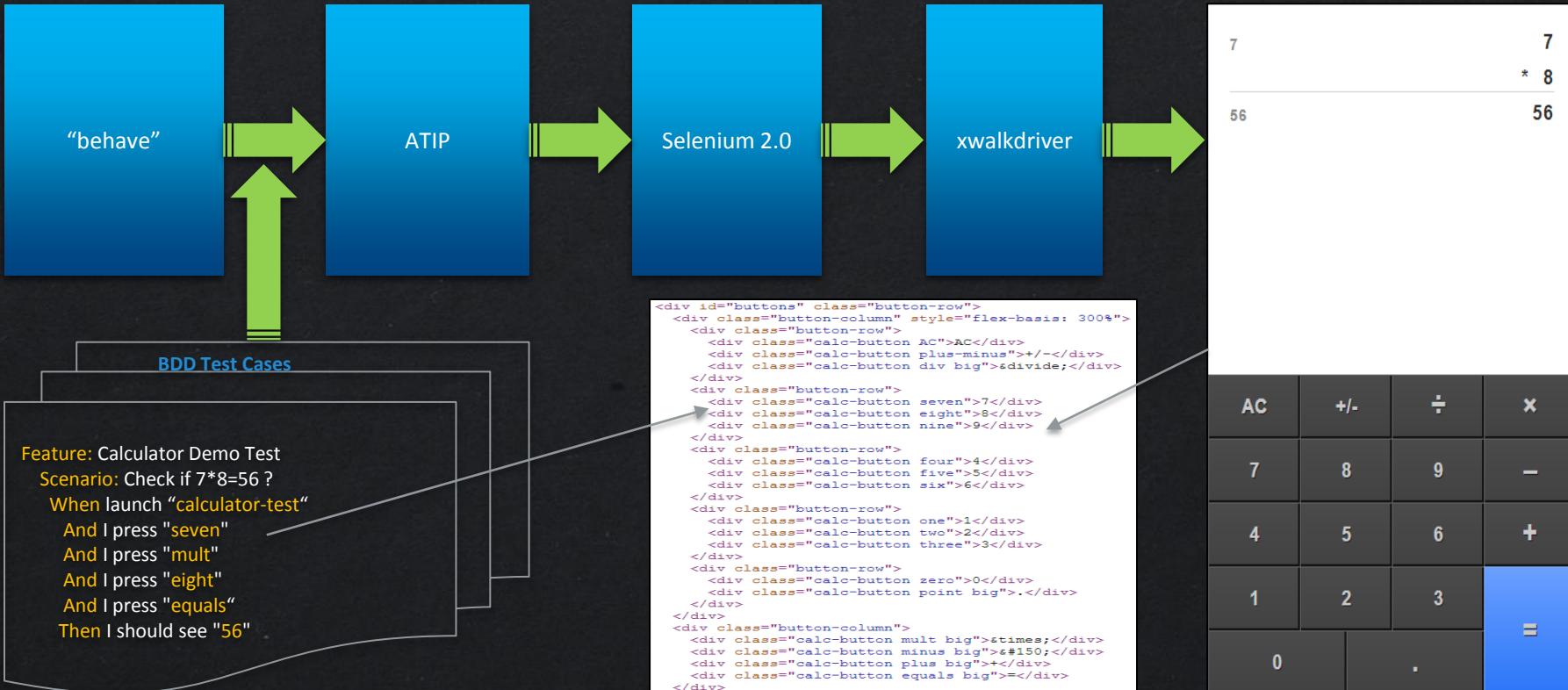
@step(u'I press "{key}"')
def i_press(context, key):
    assert context.app.press_element_by_key(key)
.....
```

ATIP low level implementations

```
def switch_url(self, url, with_prefix=True):
    if with_prefix:
        url = urljoin(self.url_prefix, url)
    try:
        self.__driver.get(url)
    except Exception as e:
        print "Failed to visit %s: %s" % (url, e)
        return False
    return True
.....
```

Selenium2.0 WebDriver APIs

WebDriver Based Behavior Driven Test



Summary

- Used by Crosswalk web tests automation and sample applications test automation: <https://github.com/crosswalk-project/crosswalk-test-suite>
- Easy to be extended to any web application, browsers, web runtime with WebDriver support.

Next Steps

- Support more pre-defined scenarios in ATIP
- Native and Hybrid application support in ATIP
- Multiple-application support in ATIP
- Support both BDD steps and Python APIs
- Adapt to W3C WebDriver specification update

Reference

- <https://github.com/crosswalk-project/crosswalk-test-suite/wiki/WebDriver-Based-Behavior-Driven-Test>
- <https://github.com/crosswalk-project/crosswalk-test-suite>
- <https://github.com/crosswalk-project/crosswalk-test-suite/tree/master/tools/atip>
- <http://docs.seleniumhq.org/projects/>
- <http://pythonhosted.org/behave/>

