

# APInf –POINT OF VIEW ON TEST Tool selection



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# Executive Summary

**Overview:** Application under test is APInf. Documentation on the selection criteria for runner and assertion tools.

## **Approach:**

**Selenium Web Driver** was chosen to execute Multi Browser Testing when compared to PhantomJS. As Multi Browser testing is the main requirement. As PhantomJS doesn't support. Secondly, Selenium Web Driver has a ghost driver and we can use PhantomJS at any time, but not vice versa.

**Mocha** has been chosen as the Test Runner over Jasmine as its more flexible and we can choose our own assertion and mocking libraries. Where we can integrate easy with Test Reporting tooling to track the results.

Chai has been considered as the Test assertion library.

**Final Recommendation:** Selenium WebDriver has been chosen to execute for Multi Browser, Mocha as the Test Runner, Chai as the Test Assertion Library. More details are provided in the following slides.



# Selenium WEB DRIVER

## Key Benefits:

- Supports all major operating systems and browsers (Firefox, Mozilla, IE and Safari)
- Parallel execution can be DONE via GRID
- Can be used as JavaScript engine, by running selenium server each time we intend to run web application testing.
- Backed by a large community of developers who are continuously working on creation of plugins that are required for ensuring 100% compatibility of Selenium with all latest JavaScript front-end frameworks
- Accompanied by extensive documentation that is simple, clear and easy-to-understand
- Selenium is capable of using bindings for allowing you to use common programming languages like C#, Ruby, Python and JavaScript
- Allows to execute feature test in real time, over the World Wide Web
- Time saving for debugging effort as testers are able to see the activities of the browser in real time
- Integration with a large community of plugins for almost all JAVA Script test runners.



# Selenium WEB DRIVER

## Cons:

- Testing Web app on different operating systems and different browsers with combinations more than 10, which need to have additional infrastructure for VM setup or opt for 3<sup>rd</sup> Party Service providers for exists.
- Selenium framework doesn't allow testers to run multiple browsers instance on one machine at a time.



# PHANTOMJS

Phantom is an invisible, programmable browser which doesn't behave like a real browser window. With the flexibility to execute commands much faster, Phantom can easily work in synchronization with a suitable test runner and testing framework. For instance, PhantomJS can work with Mocha, Capybara etc. Suitable for first layer of JavaScript app testing, PhantomJS has its API based on JavaScript. Backed by command-line based usage, PhantomJS doesn't render anything on the screen and ensures that the website's JavaScript code is sandboxed, refraining it from interacting with the main tool.

## Key Benefits:

- Multiple test cases can be executed in a very less time
- Self-Contained Command-line application
- Consumes very few resources
- Useful for smoke testing of web apps



# PHANTOMJS

## Cons:

- Doesn't support Multi web browser testing as it runs standalone.
- Doesn't include an entire ecosystem
- Servers as a single version of web kit, which is not a good option for web app testers
- Debugging of testing will be very time consuming, as it take lots of efforts to check where the failure is.





# Mocha vs jasmine

Mocha	Jasmine
Tests written with BDD	Tests focused on BDD
Easy Asynchronous Testing	Supports both asynchronous testing and DOM-less testing
Good integration with Node.js	User-friendly Syntax
Supports multiple assertion libraries	Integrates with Ruby on Rails
Runs both in Node.js and Browser	
Easily integrates with custom reporting addons(ex: Allure)	



# CHAIJS

- Chai is a BDD / TDD assertion library for node and the browser that can be delightfully paired with any JavaScript testing framework.
- Among the other available Test Assertion, chai was the most popular among others.





# Appendix



# CHAIJS CheetSheet

- `assert(val)`
- `assert.fail(actual, expected)`
- `assert.ok(val) // is truthy`
- `assert.equal(actual, expected) // 'compare with =='`
- `assert.strictEqual`
- `assert.deepEqual`
- `assert.isTrue`
- `assert.isFalse`
- `assert.isNull`
- `assert.isNotNull`
- `assert.lengthOf(object, 3)`
- `assert.throws(function() { ... })`
- `assert.throws(function() { ... }, /reference error/)`



# CHAIJS CheetSheet

- `assert.doesNotThrow`
- `assert.operator(1, '<', 2)`
- `assert.closeTo(actual, expected)`
- `assert.isUndefined`
- `assert.isDefined`
- `assert.isFunction`
- `assert.isObject`
- `assert.isArray`
- `assert.isString`
- `assert.isNumber`
- `assert.isBoolean`



# CHAIJS CheetSheet

- `assert.typeOf(/tea/, 'regexp') // Object.prototype.toString()`
- `assert.instanceOf(chai, Tea)`
- `assert.include([ a,b,c ], a)`
- `assert.match(val, /regexp/)`
- `assert.property(obj, 'tea') // 'tea' in object`
- `assert.deepProperty(obj, 'tea.green')`
- `assert.propertyVal(person, 'name', 'John')`
- `assert.deepPropertyVal(post, 'author.name', 'John')`

More information @ <http://chaijs.com/guide/styles/#should>



# References



## References:

- <http://chaijs.com/>
- <https://marcofranssen.nl/jasmine-vs-mocha/>
- <http://www.chrisle.me/2013/08/5-reasons-i-chose-selenium-over-phantomjs/>
- <http://jasmine.github.io/>
- <https://www.codementor.io/javascript/tutorial/javascript-testing-framework-comparison-jasmine-vs-mocha>
- <https://www.sitepoint.com/unit-test-javascript-mocha-chai/>
- <http://thejsguy.com/2015/01/12/jasmine-vs-mocha-chai-and-sinon.html>
- <http://ricostacruz.com/cheatsheets/chai.html>
- [http://www.slant.co/topics/1489/compare/~mocha\\_vs\\_jasmine\\_vs\\_casperjs](http://www.slant.co/topics/1489/compare/~mocha_vs_jasmine_vs_casperjs)
- <http://stackoverflow.com/questions/24391462/what-are-the-differences-between-mocha-chai-karma-jasmine-should-js-et-etc-te>
- [http://www.seleniumhq.org/docs/03\\_webdriver.jsp#selenium-webdriver-api-commands-and-operations](http://www.seleniumhq.org/docs/03_webdriver.jsp#selenium-webdriver-api-commands-and-operations)
- <http://guide.meteor.com/testing.html>
- <https://mochajs.org/>