
SmartCliff
CAREER MOBILITY SOLUTIONS
We are on a mission to address the digital skills gap for 10 Million+ young professionals, train and empower them to forge a career path into future tech

SmartCliff
Career Mobility Solutions

Selenium Flavors

19 APRIL, 2022

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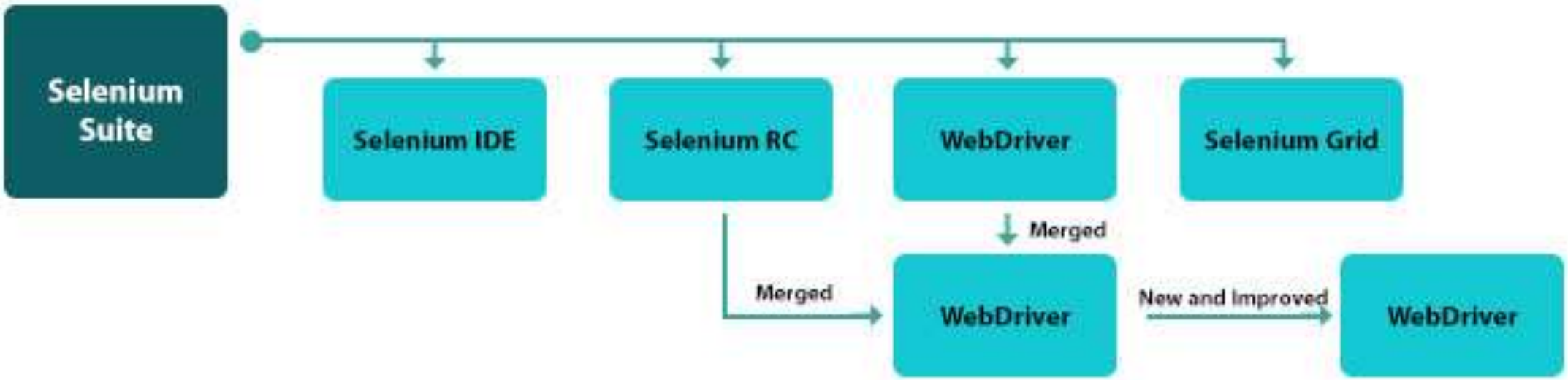
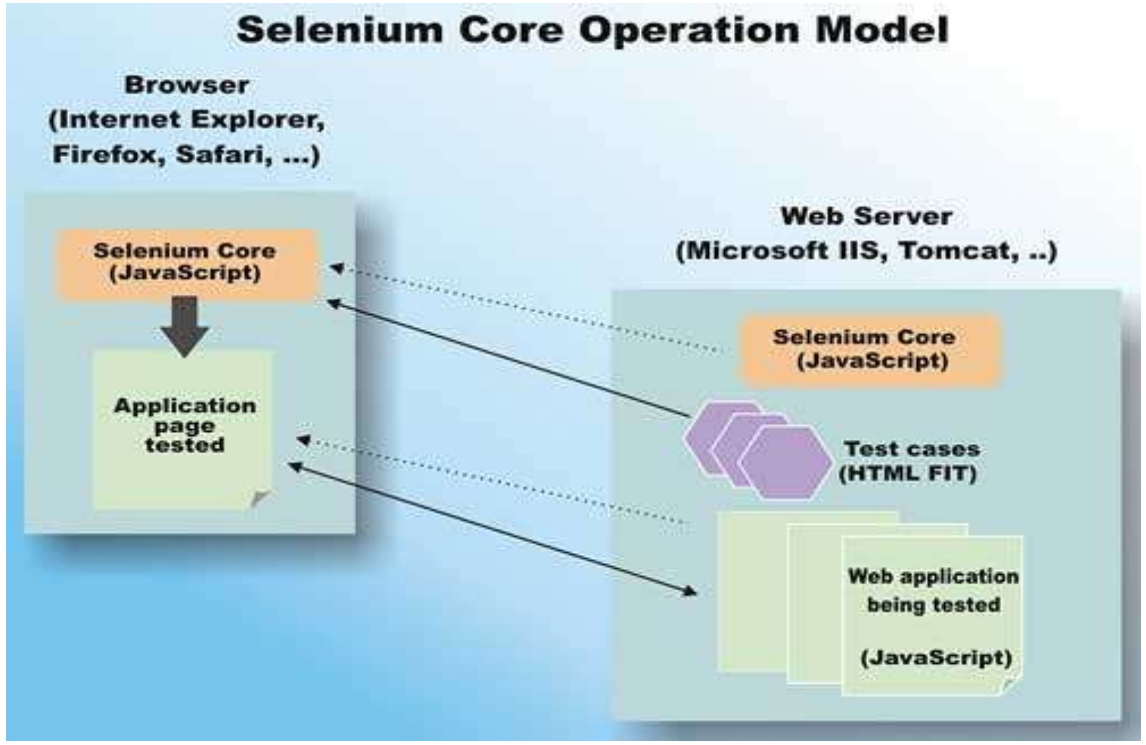
Selenium CORE

Selenium Core Components



Selenium CORE

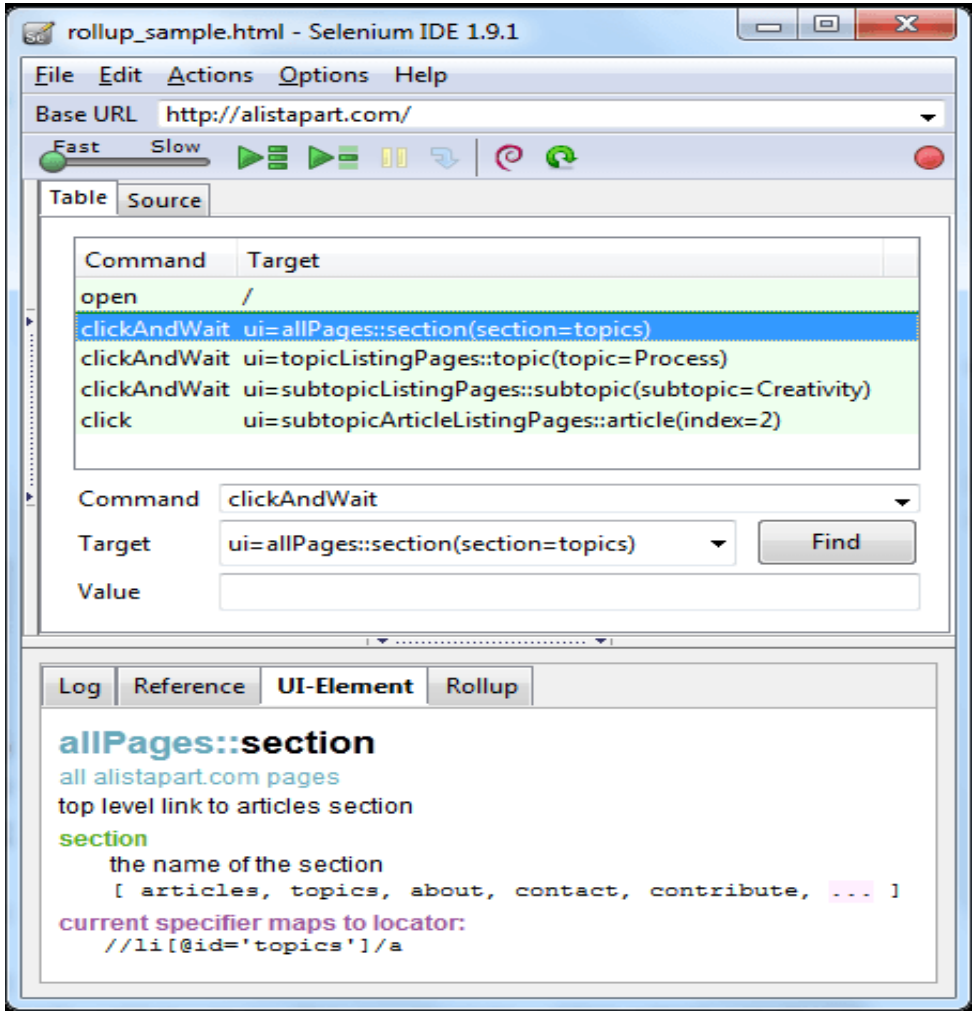
- Selenium-Core is a JavaScript program, actually a set of JavaScript functions which interprets and executes Selenese commands using the browser's built-in JavaScript interpreter.
- The Server receives the Selenese commands from your test program using simple HTTP GET/POST requests.



Selenium IDE

Selenium IDE

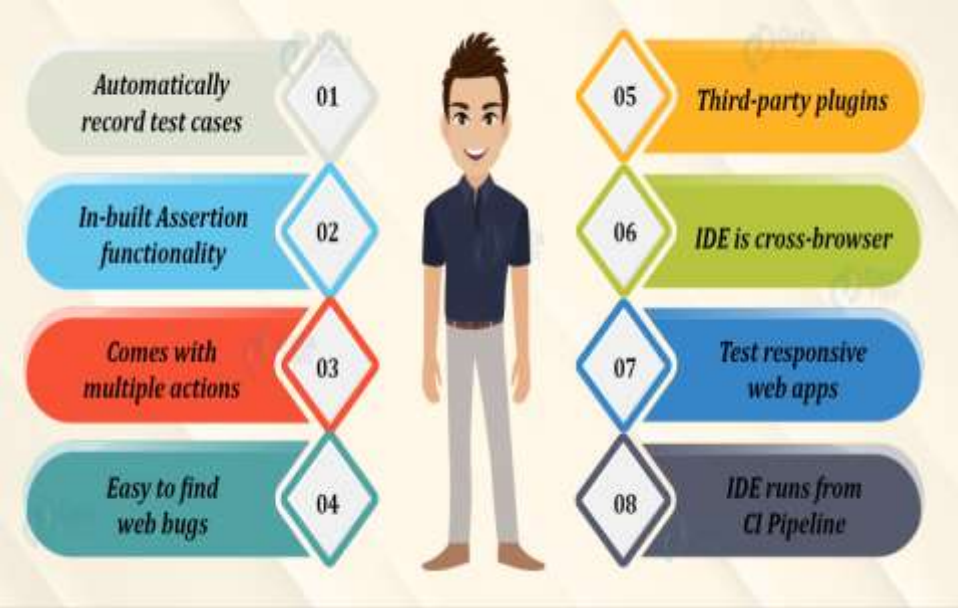
- Selenium IDE (Integrated Development Environment) is primarily a record/run tool that a test case developer uses to develop Selenium Test cases.
- Selenium IDE is an easy-to-use tool from the Selenium Test Suite and can even be used by someone new to developing automated test cases for their web applications



Selenium IDE (Contd.)

- Selenium IDE provides you with a GUI (Graphical User Interface) for easily recording your interactions with the website.
- Selenium IDE is a Chrome and Firefox plugin that can log ‘natural’ interactions in the browser and generate its code in programming languages like C#, Java, Python, and Ruby, as well as Selenese (Selenium’s own scripting language).
- Testers can enable ‘recording’ within the IDE and ‘play out’ the test scenario on the browser. The IDE can then replay those interactions and highlight any errors (during replay) in red.
- Selenium IDE is suitable for creating quick and simple test scripts for bug hunting and basic functional testing.

Features of Selenium IDE



- **Speed Control** - Helps control the speed of test cases.
- **Run All** - Allows execution of the entire Test Suite.
- **Pause/Resume** - Allows a user to pause and resume a particular test case.
- **Step** - Helps step into each specific command in the test script.
- **Rollup** - Helps group all the Selenese Commands.
- Automatically record testcases.
- Easy to find web bugs, assertions.
- Third-party plugins.

Architecture of Selenium IDE

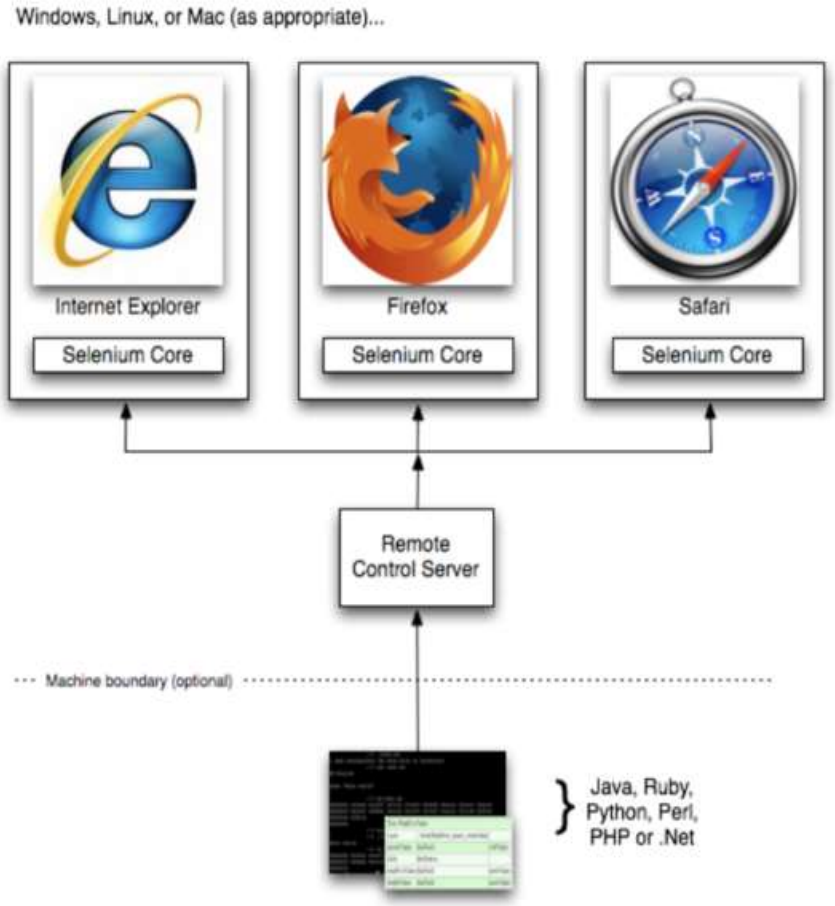
Disadvantages of Selenium IDE

- Selenium IDE doesn’t support error handling
- It doesn’t support test script grouping
- Selenium IDE doesn’t support Database testing
- Not suitable for testing extensive data
- Cannot handle the dynamic part of web-based applications.
- Does not support capturing of screenshots on test failures.
- No feature is available for generating test reports
- It does not support iteration and conditional statements

Selenium RC

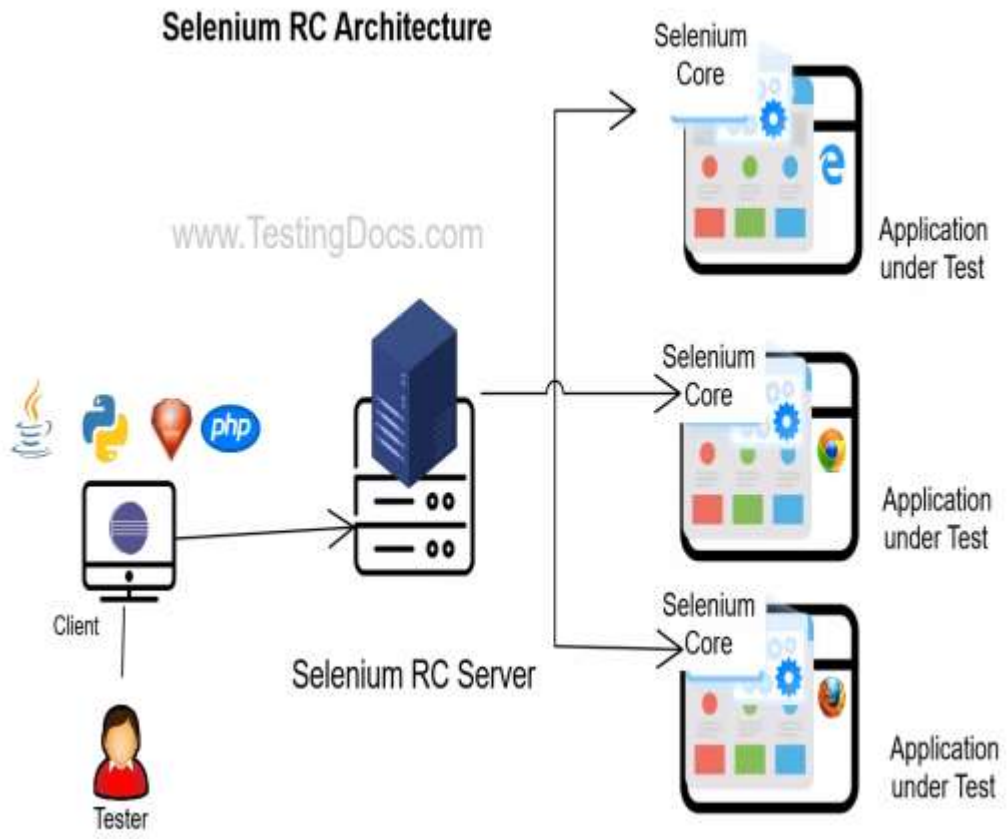
Selenium RC

- Selenium RC is a testing framework that allows testers and developers to design test scripts in multiple languages to automate frontend UI test cases.
- Selenium RC, also known as Selenium 1, was the main Selenium project for a long time before the WebDriver merge brought up Selenium 2. It mainly relies on JavaScript for automation. It supports Ruby, PHP, Python, Perl and C#, Java, Javascript. It supports almost every browser out there.



Architecture of Selenium RC

- The server injects a JavaScript program known as Selenium Core into the browser.
- Selenium Core will start receiving the instructions (Selenium commands) from the RC Server.
- When all the instructions are received, Selenium Core will execute them as JavaScript commands.
- The commands act as instructions to browser.
- The browser will execute all of the instructions provided by Selenium Core and returns an overall summary to the Server. This acts as final result.



Features of Selenium RC

- It is based on JavaScript. It doesn’t support a Record/Playback feature.
- It is based on a client/server architecture, which implies -> whenever you want to execute the test cases/test scripts, you need to start the server manually.
- It supports parallel execution of test cases as well as remote execution with the help of Selenium Grid.

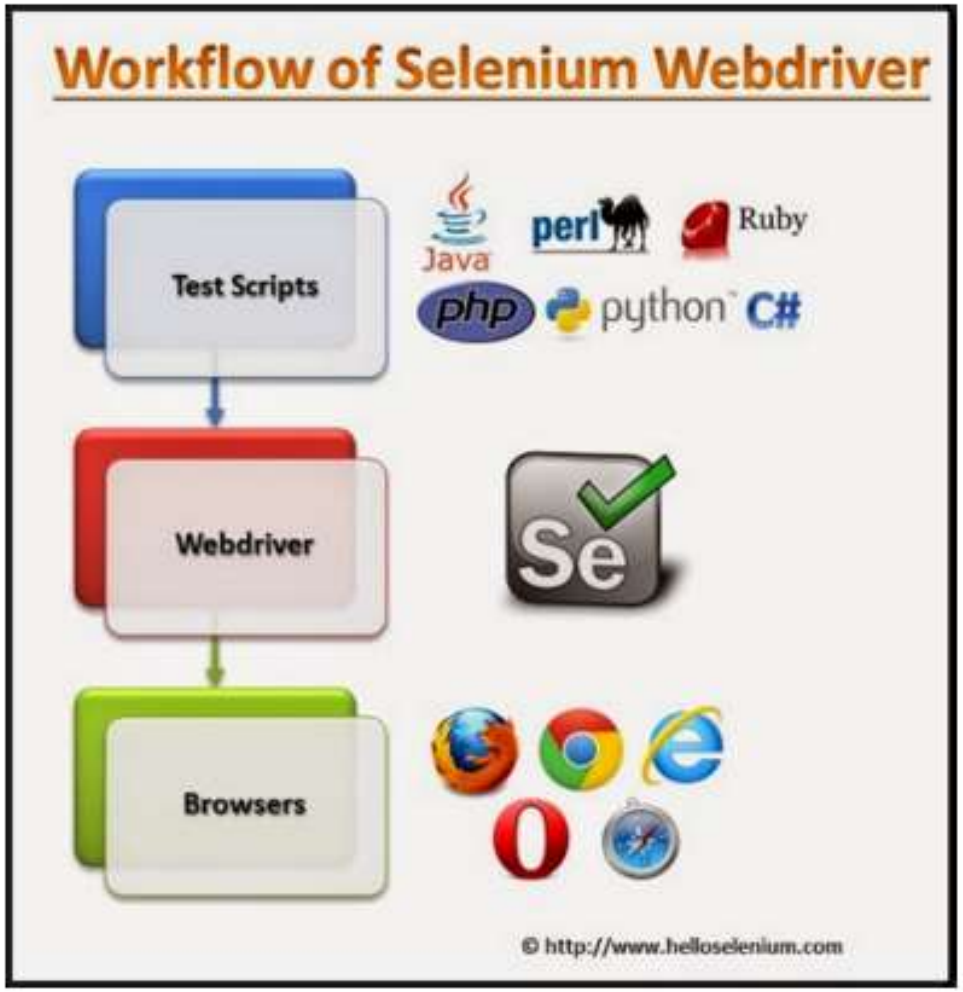
Disadvantages of Selenium RC

- Architecture is Complicated .
- Execution of test scripts is time-consuming
- Slow performance.
- API's are less object-oriented.
- Does not support Headless HTML Unit browsers (Invisible browser)

Selenium WebDriver

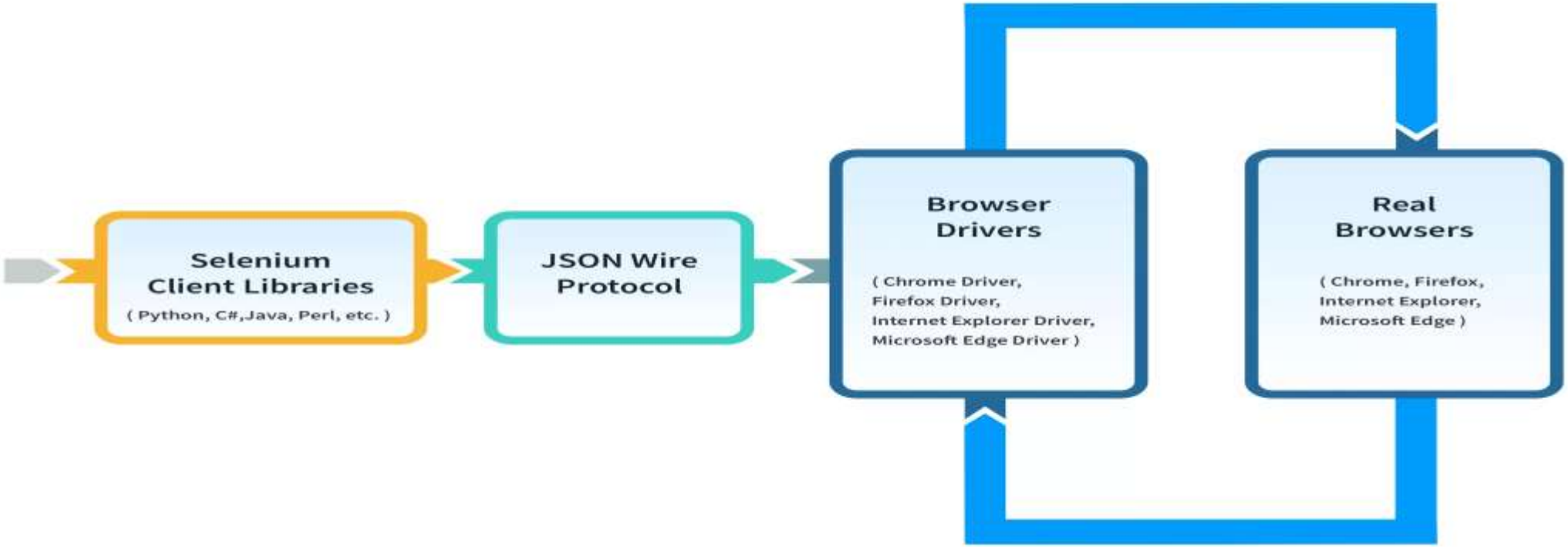
Selenium WebDriver

- Selenium webdriver is a web framework that allows users to execute cross browser test.
- This tool is for automating web-based application testing to verify that it performs expectedly
- Selenium WebDriver allows the user to choose a programming language to create test scripts



Architecture of Selenium WebDriver

- Selenium Webdriver is a standalone testing tool.
- It comprises various components that are required to run the tests.



Architecture of Selenium WebDriver (Contd.)

These are the architectural components of Selenium.

1) Selenium WebDriver Client Libraries / Language Bindings
2) JSON Wire Protocol
3) Browser Drivers
4) Browsers

Advantages of Selenium WebDriver

- Free and Open Source
- Support Programming Language
- Support Multiple OS
- Supports Multiple Frameworks
- Easy to Implement.
- Does not require the user to start any server

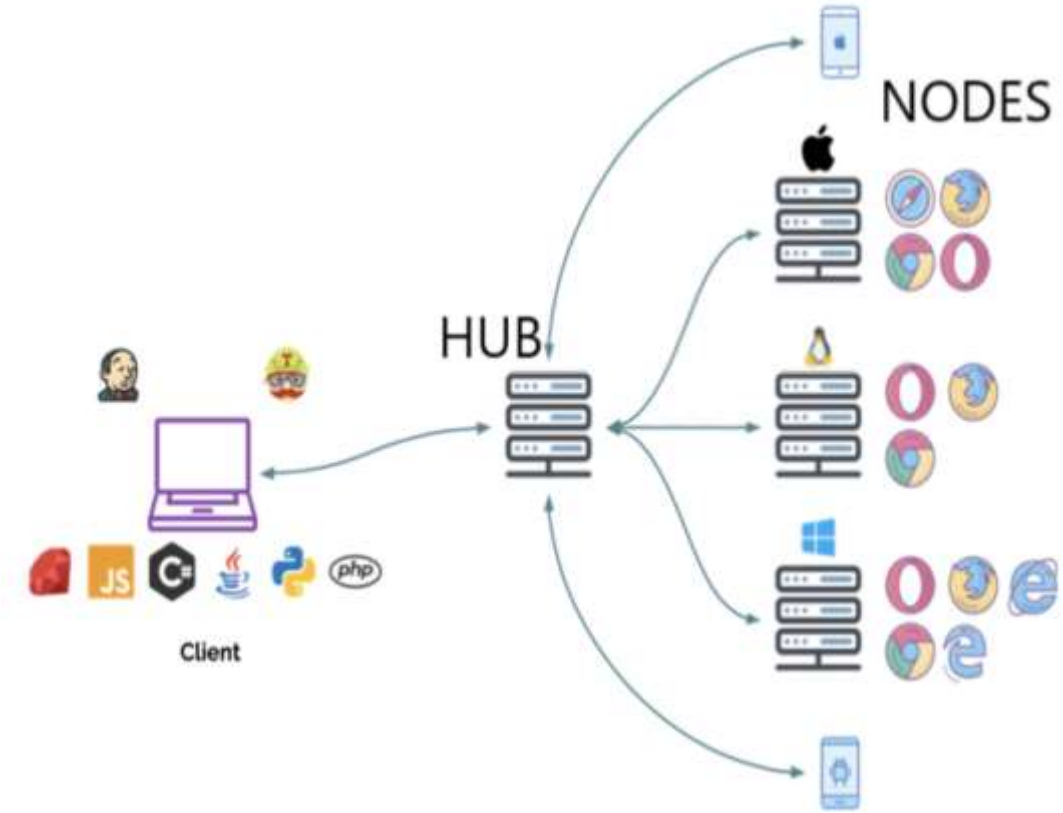
Disadvantages of Selenium WebDriver

- Requires Programming Knowledge and Expertise
- No Support for Desktop Applications.
- No Customer Support
- No Built In Object Repository
- Lack of built-in reporting
- Managing Browser-Selenium Dependencies

Selenium Grid

Selenium Grid

- Selenium Grid is a smart proxy server that makes it easy to run tests in parallel on multiple machines.
- Selenium Grid makes cross browser testing easy as a single test can be carried on multiple machines and browsers, all together, making it easy to analyze and compare the results.
- This hub routes test commands that are in JSON format to multiple registered Grid nodes.



Components of Selenium Grid

- The two major components of the Selenium Grid architecture are:
- **Hub** is a server that accepts the access requests from the WebDriver client, routing the JSON test commands to the remote drives on nodes.
- It takes instructions from the client and executes them remotely on the various nodes in parallel.
- **Node** is a remote device that consists of a native OS and a remote WebDriver.
- It receives requests from the hub in the form of JSON test commands and executes them using WebDriver.

Selenium Grid Usage

- Testers should use Selenium Grid in the following circumstances:

  - To run tests on multiple browsers and their versions, different devices, and operating systems.

  - To reduce the time that a test suite takes to complete execution.

- Selenium Grid improves the turnaround time of the test results. It is especially useful when the test suite is large and takes more time to run.

Quiz

1) The Selenium IDE supports ..... Browsers.

a) Chrome

b) Firefox

c) Neither Chrome nor Firefox

d) Both Chrome and Fireox

Answer : Optfion d)

Quiz

2) Selenium core is set of ……. Functions which interprets and executes …….. Commands.

a) Javascript and Selenese

b) Selenese and Javascript

c) Web Browsers and Javascript

d) Selenese and Web Browsers

Answer : Option a)

Quiz

3) Selenium IDE doesnot support …… testing.

a) Non Functional

b) Website

c) Database

d) Functional

Answer : Option c)

Quiz

4) ..... doesn't support a Record/Playback feature.

a) Selenium Core

b) Selenium IDE

c) Selenium RC

d) Both Selenium IDE and RC

Answer : Option c)

Quiz

5) In which users can choose any of the supported programming language to create test scripts.

a) Selenium Core

b) Selenium IDE

c) Selenium RC

d) Selenium Web Driver

Answer : Option d)


THANK YOU
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