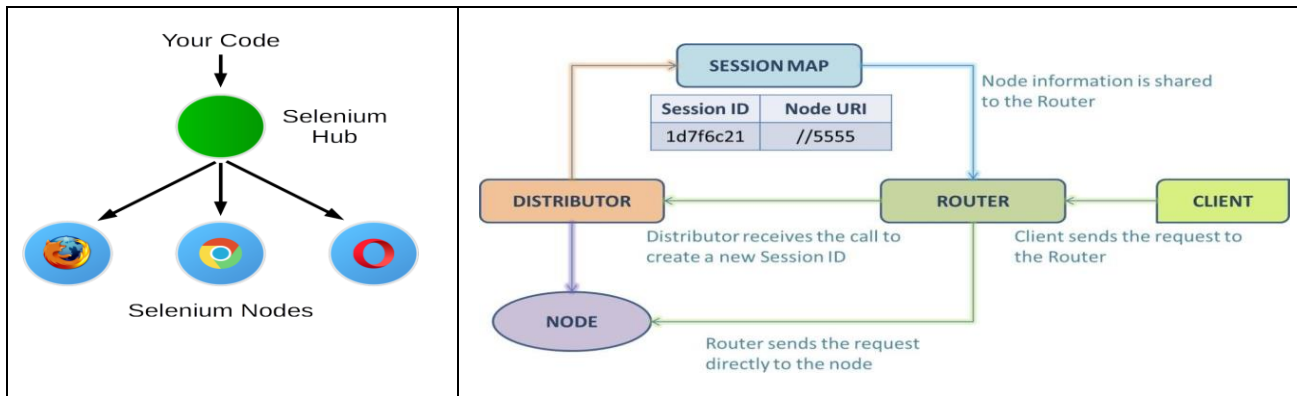# What is Selenium Grid?

Selenium Grid is a smart proxy server that makes it easy to runtests in parallel on multiple machines.

Selenium Grid Architecture

Selenium Grid Setup Instructions-

1. Download the Selenium Grid Server jar file.
2. Download Browser drivers and place in the same path where Selenium server is located.
3. Start the Hub this eventually starts all individual components i.e., Router, Distributor, Session Map, New SessionQueue, Event Bus. Using below query in cmd prompt,
   java -jar <SeleniumGridServerJarname> hub
4. Start the Node in Same Machine where Hub is running. Using below query in cmd prompt,
   java -jar <SeleniumJarname> node --detect-drivers true
5. Start the Node in different Physical Machine. To execute in that system, we need to make sure all setups are done in that system (download jars & drivers, install browsers). Then use below query in another system cmd prompt,
   'java -jar <SeleniumJarname> node --detect-drivers true --publish-event tcp://<ipaddressofhub:XPUB> --subscribe-events tcp://<ipaddressofhub:XSUB>'
   tcp means Transfer Control Protocols, XPUB – Publishing event, XSUB – Subscribing event
   XPUB & XSUB ports are available in cmd prompt where hub is launched.
6. Check the Status of Grid in http://localhost:4444/ (4444 - LocalPort)
7. Create browser setup, for Selenium Grid we need to use RemoteWebDriver.

```
DesiredCapabilities DesiredCapObj = new DesiredCapabilities();
//Initially we set Browser capabilities, like desired browser to run, platform, etc.
DesiredCapObj.setBrowserName("chrome");
DesiredCapObj.setPlatform(Platform.WINDOWS);
//Initialize WebDriver reference variable to RemoteWebDriver
WebDriver driver = new RemoteWebDriver(new URL("<IpAddressOfHub:HubLocalPort>"), DesiredCapObj);
```

8. Create Multiple Selenium TestNG Tests with the ability of parallel run.
9. Run the Tests and see the magic of distributing tests across multiple Node machines