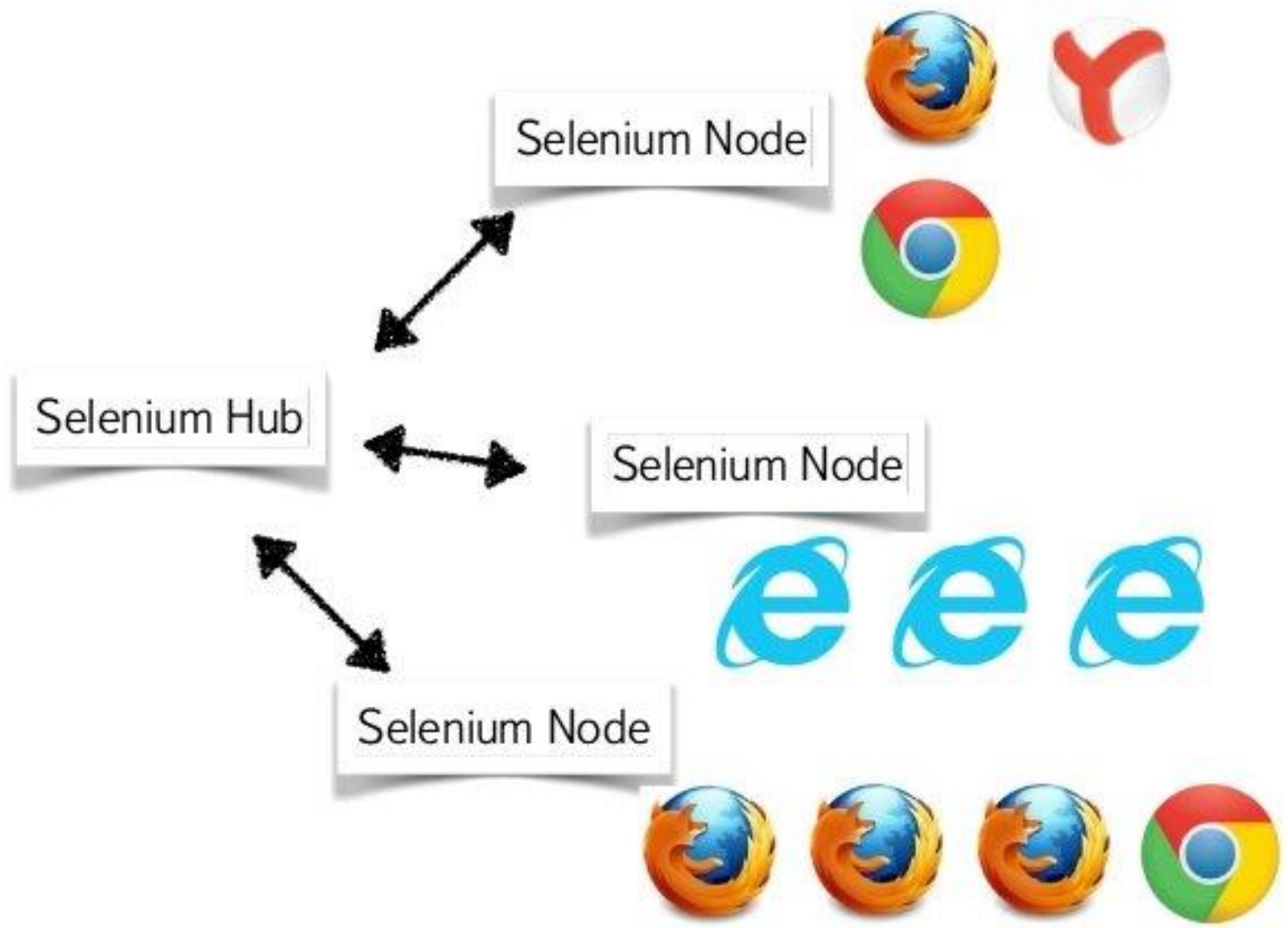
Selenium Grid



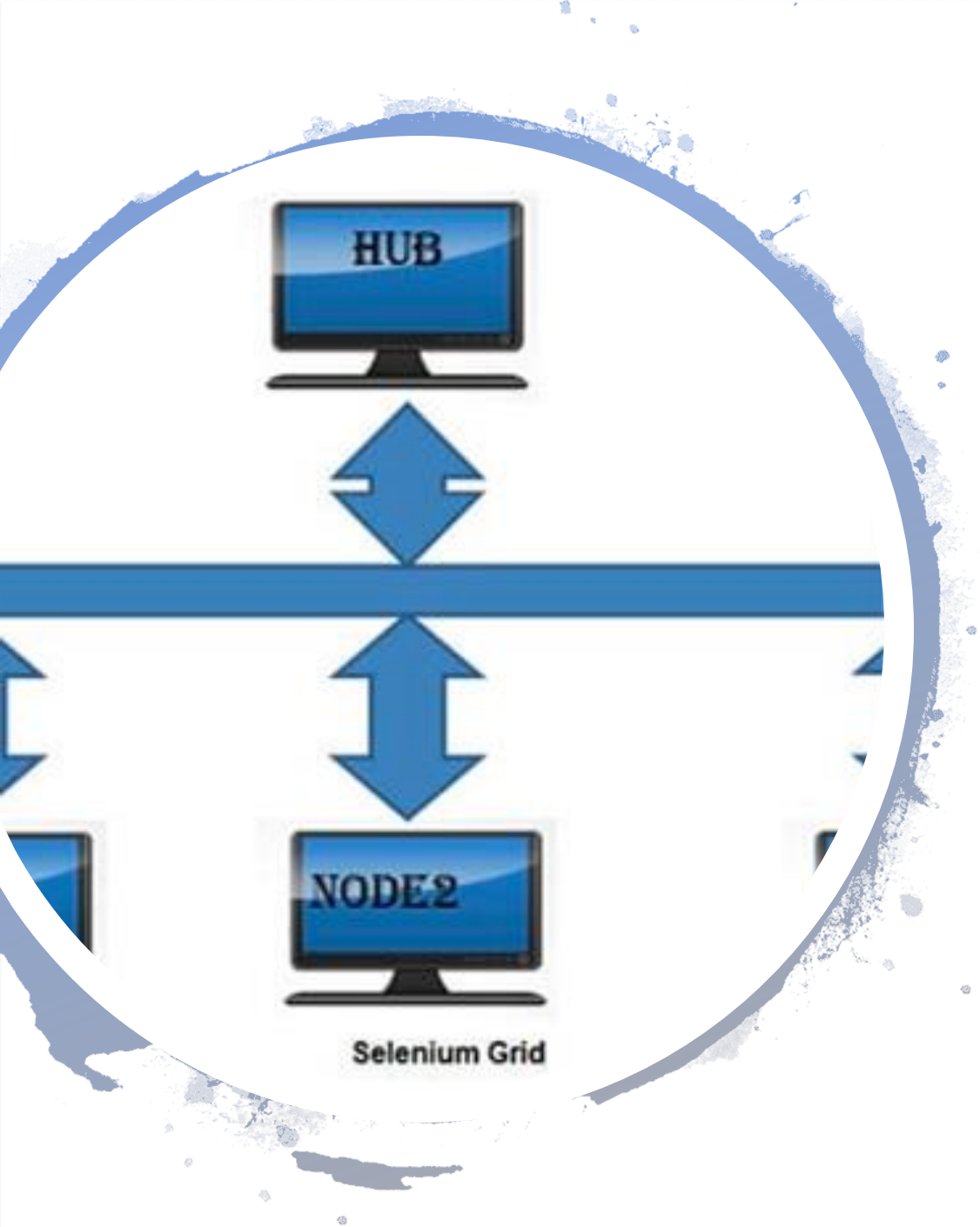
Points to be remembered:

- It is a component of the Selenium which is use to execute the scenarios remotely.
  Note: What is meant by Remotely?
  To execute the scenarios on the machine/system which is not physically present(known as Virtual machine).
- Grid follows two concept-- **Hub(Master) and Node(slave)**

Note: We can create one Hub and multiple nodes.

Pre-requisites:

1. We should have drivers and browsers on local and remote systems.
2. we need to make our local system as Hub and register all the VM in Hub as a node.
3. Write test case then execute on remote systems.



Basic Terminology Of Selenium Grid:

- **Hub**: Hub is the central point to the entire GRID Architecture which receives all requests. There is only one hub in the selenium grid. Hub distributes the test cases across each node.
- **Node**: There can be multiple nodes in Grid. Tests will run in nodes. Each node communicates with the Hub and performs test assigned to it.

Steps to convert any device(system) as HUB.

1. Install the standalone application in device and Navigate to the location where standalone jar is installed and type cmd in file path section and click enter.

2. use this command to make local machine as hub: **java -jar selenium-server-standalone-3.141.59.jar -role hub**

- check hub is running using below url:

http://localhost:4444/grid/console

Note: **If we do not specify the port then selenium grid server will up at 4444 and node would up at 5555 by default. To specify the port we can use –port with above command.**

java -jar selenium-server-standalone-3.141.59.jar -role hub –port <port number>

Register node with the hub server:

To convert any machine as a node we have to download the stand alone selenium jar to that machine and need to navigate to that location.

Then open the cmd and use below command
e.g.
java -Dwebdriver.chrome.driver=C:\Drivers\chromedriver_win32\chromedriver.exe" -jar selenium-server-standalone-3.141.59.jar -role node -hub http://localhost:4444/grid/register

Note: we can mention the port no. also in above command like –port <port number> or else node would be register at default port 5555.

We can use below command also in case above one is not working.
java -Dwebdriver.chrome.driver="C:\Users\mithilesh.singh\Downloads\chromedriver_win32\chromedriver.exe" -jar selenium-server-standalone-3.141.59.jar -port 4460 -role node -hub http://localhost:4444/grid/register -browser "browserName=chrome, platform=WINDOWS, maxInstances=10"

Implement code to execute scenarios on node(Registered with hub):

As in the example, you have to use RemoteWebDriver if you are using the GRID and you have to provide capabilities to the browser. You have to set the browser and platform as below.

```
String nodeURL="http://192.168.13.1:5555/wd/hub";
DesiredCapabilities cap = DesiredCapabilities.chrome();
cap.setBrowserName("chrome");
cap.setplatform(Platform.WIND10);
System.setProperty("webdriver.chrome.driver","C://Drivers//chromedriver_win32//chromedriver.exe");
driver=new RemoteWebDriver(new URL(nodeURL), cap);
```

Note: Rest other things will be same in the framwork.

Thank you

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