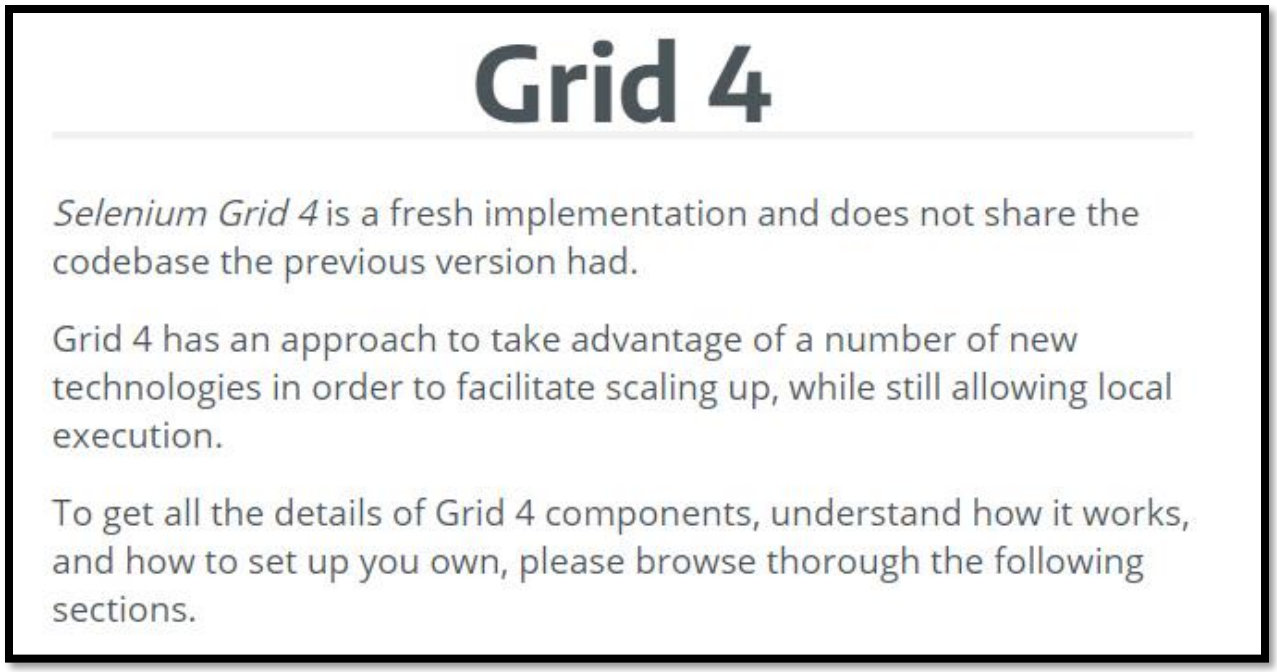
Rex Jones II

Selenium 4
Grid Architecture

Video Playlist Link https://www.youtube.com/playlist?list=PLfp-cJ6BH8u_4AMzeLVizVfqn4SCywSTJ

The new feature for Selenium Grid involves a brand-new architecture. On this selenium.dev page, we see Grid 4 has an approach to take advantage of a number of new technologies. You can browse these sections for more information about the components, understand how the Grid works, and set up the Grid. Let's discuss the components and how the grid works.



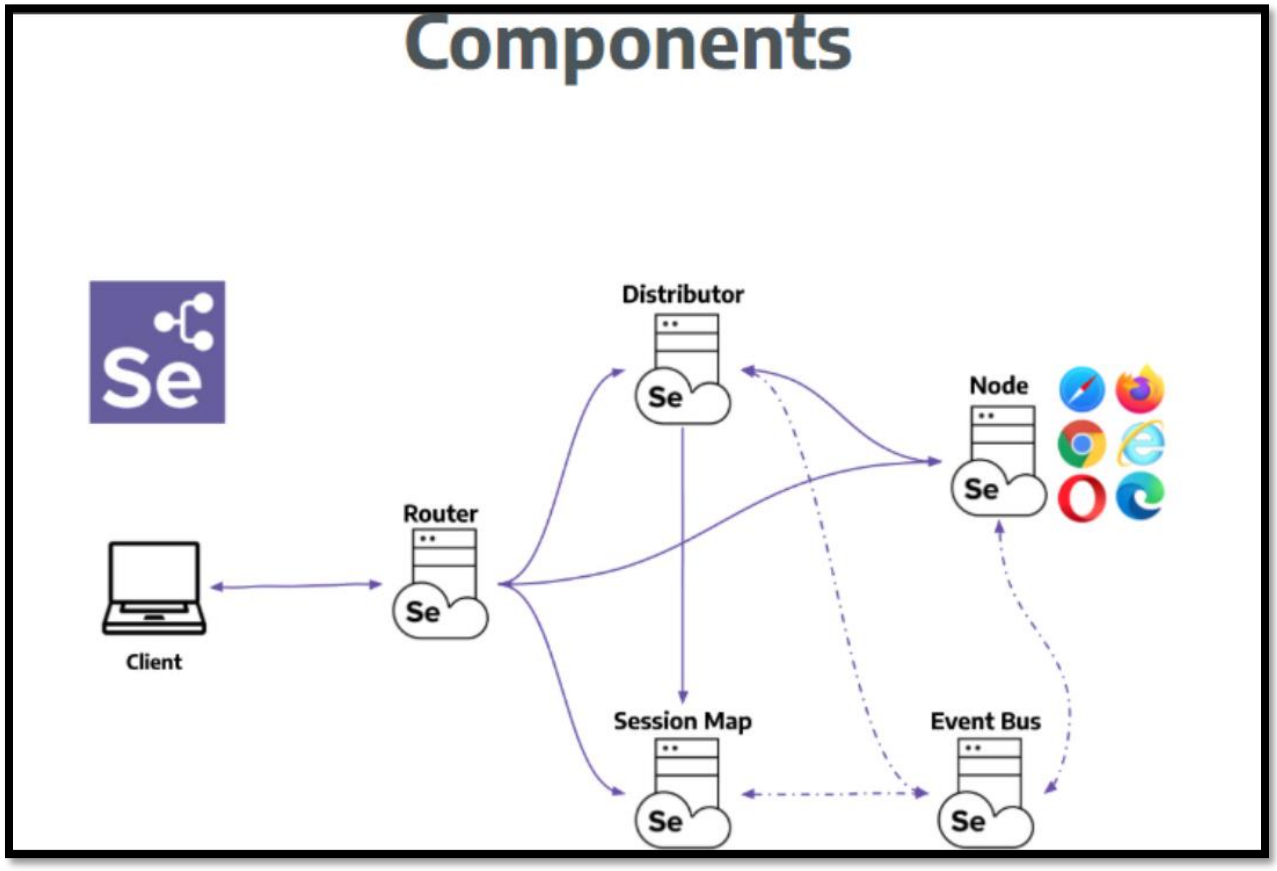
We have a Client, Router, Distributor, Session Map, Node, and Event Bus. Also, GraphQL has been added as a new way query and get data. I'm going to get straight to the point and discuss these Components. The Router's role is to listen for a session request. We see the Router has an arrow pointing to the Distributor and Session Map.

If it is a new session request then communication starts between the Router and Distributor. If the session request already exists then communication is between the Router and Session Map.

When it comes to the Router and Distributor, a session request is sent to the Distributor. The distributor is responsible for selecting a node to run our test. This diagram shows 1 node but in reality, we set up more than 1 node. The node can be a physical machine or virtual machine that execute our Test Scripts. After the distributor selects a node to run our test, the node responds back with a URL of the session. At

this point, a session is created and the Distributor sends information to the Session Map. The Session Map is important because it maps the session ID.

That's how the Grid works when there's a new session request. When the session already exists, the Router sends a Session ID to the Session Map. In return, the Session Map sends the node that has a running session back to the Router. For subsequent steps, the Event Bus operates as a path for communication to other Grid components.



In addition to the new architecture, Selenium Grid is more Modern and has Observability. By it being more modern, we can leverage up-to-date technologies like Docker and Kubernetes. With Docker, our applications can run in containers and not worry about setting up virtual machines. Kubernetes allows us to scale using a cloud infrastructure.

Observability helps us to trace, log, and measure what's going on with the system internal state. There will be a trace id when a request comes in to help developers and admins debug a problem. That's it for the new features for Selenium Grid 4 and I will see you in the next session to discuss the new W3C WebDriver Protocol for Selenium 4 WebDriver.

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