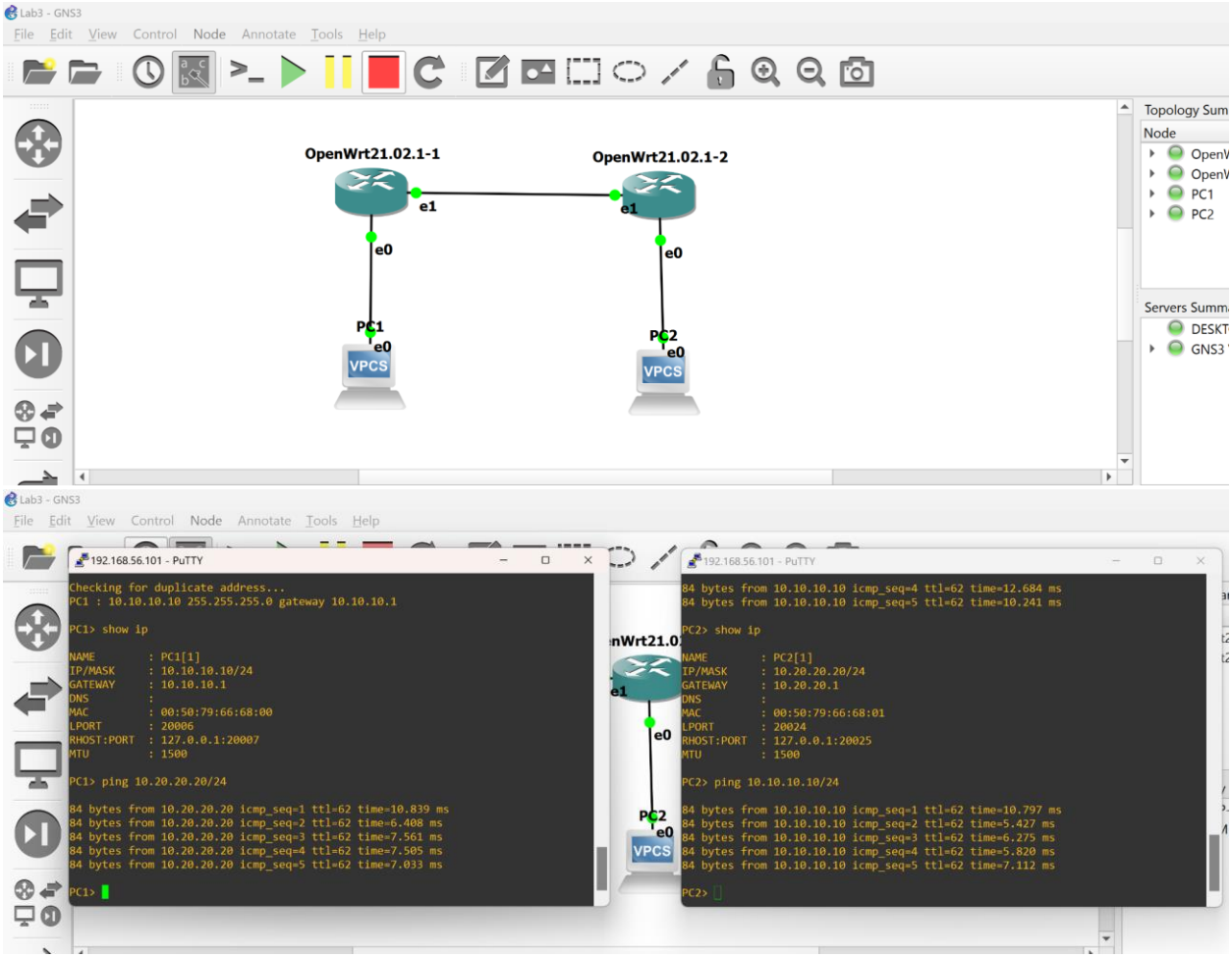
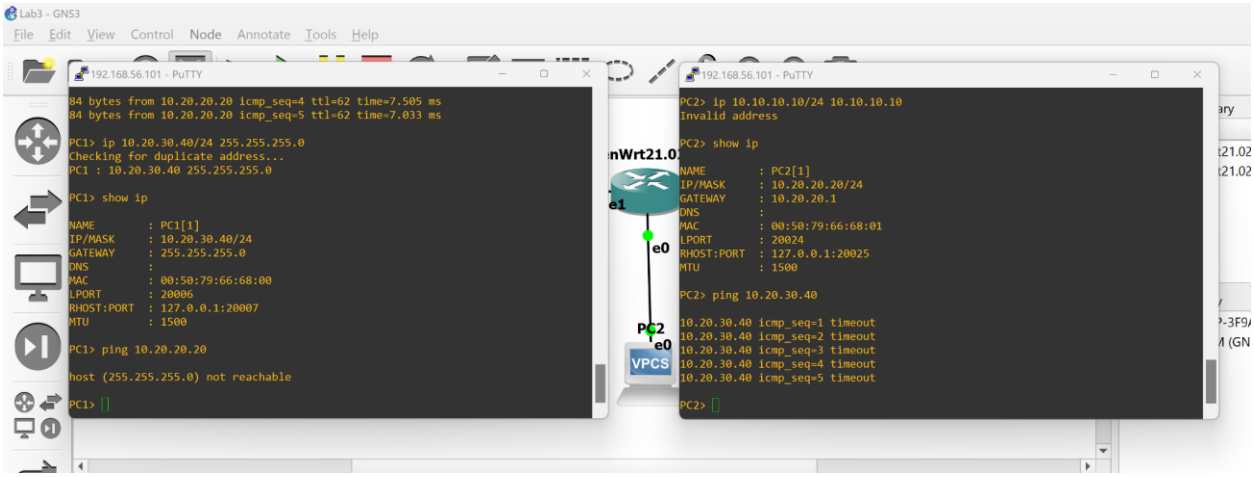
Lab 2 - Routers:

In this lab, I set up two VPCs and two routers, and connected them as shown below. Additionally, I have provided an image that shows the two VPCs communicating with each other successfully with the default configurations.

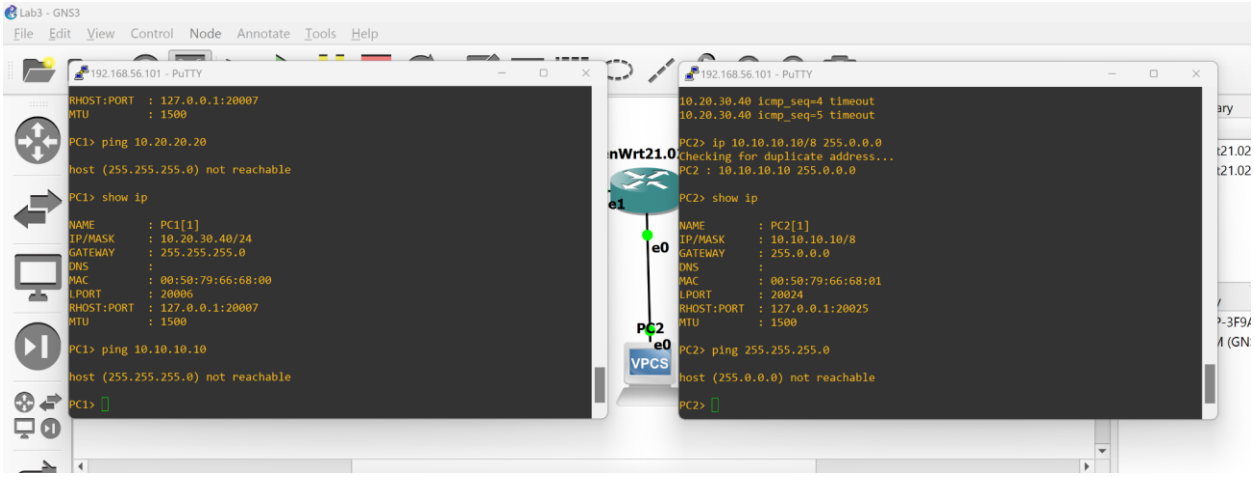


As part of this lab, I have also ran some tests to see if there's any configurations that prevent communication between the two VPCs. Here are screenshots showcasing the results:

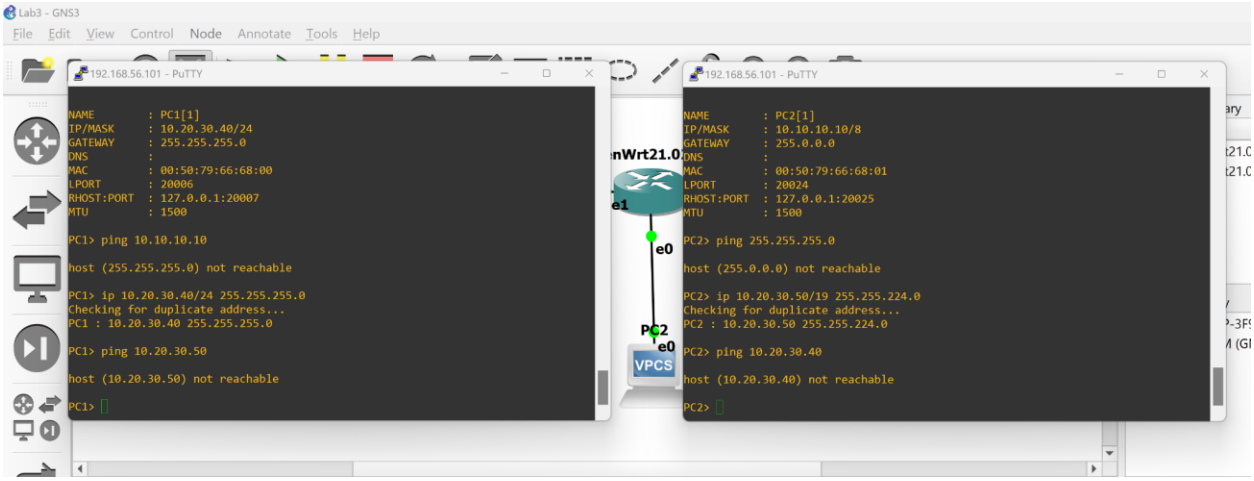
Test 1:



Test 2:

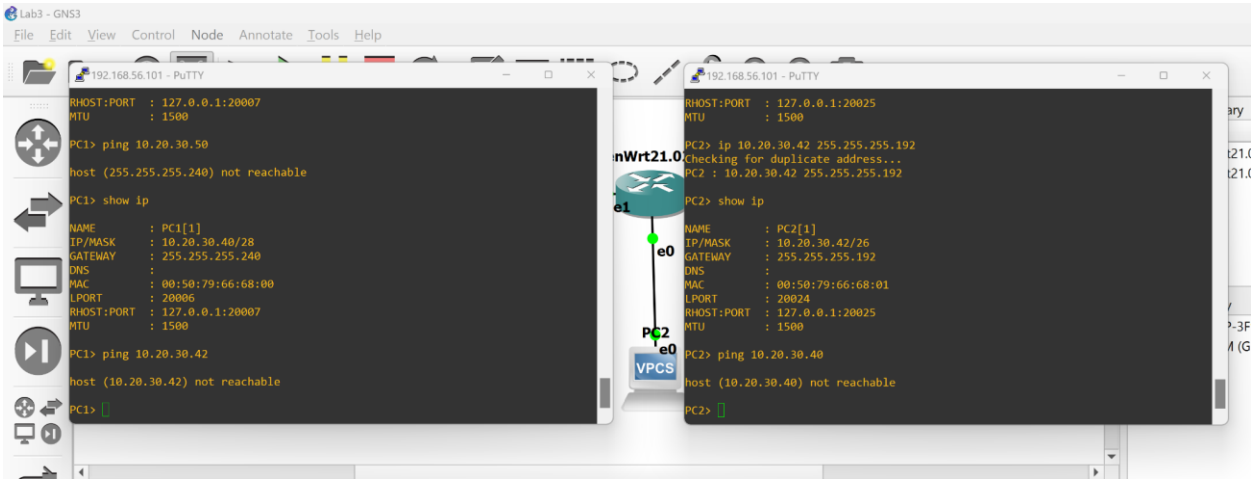


Test 3:



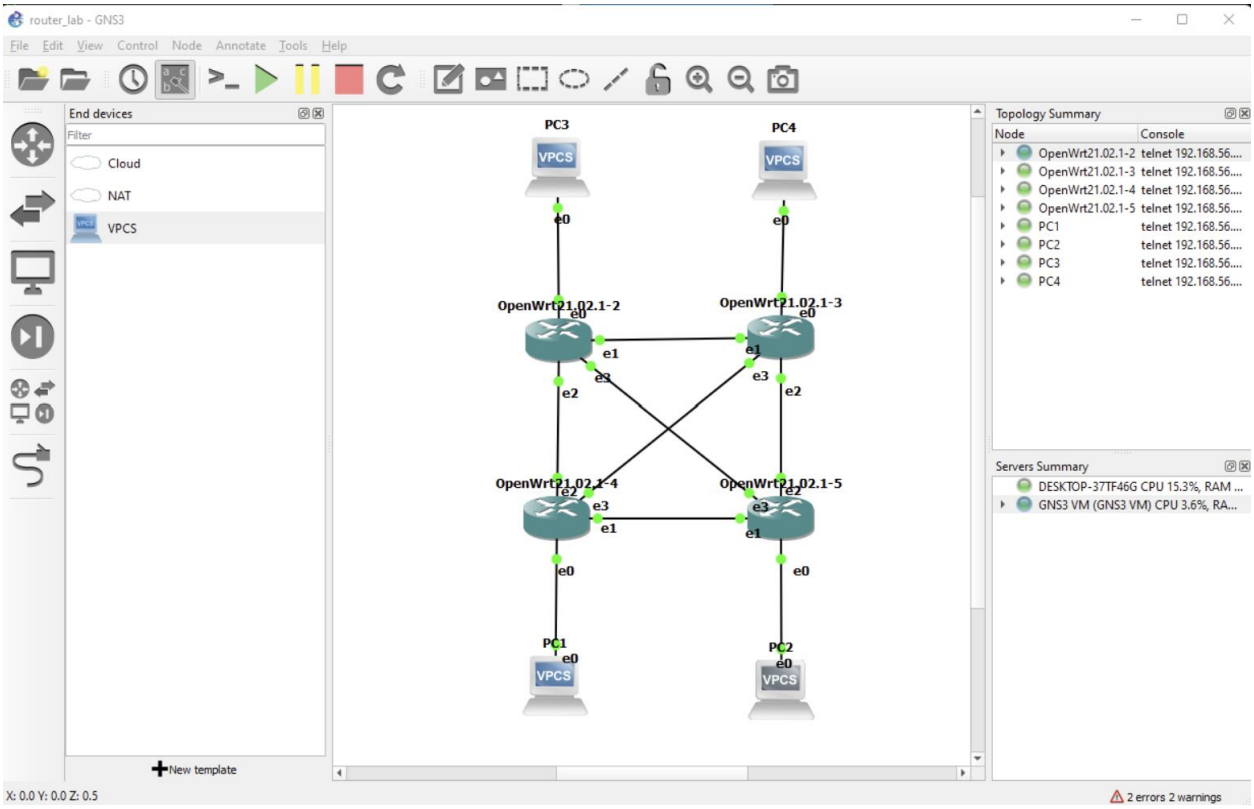
Test 4:

Test 5:



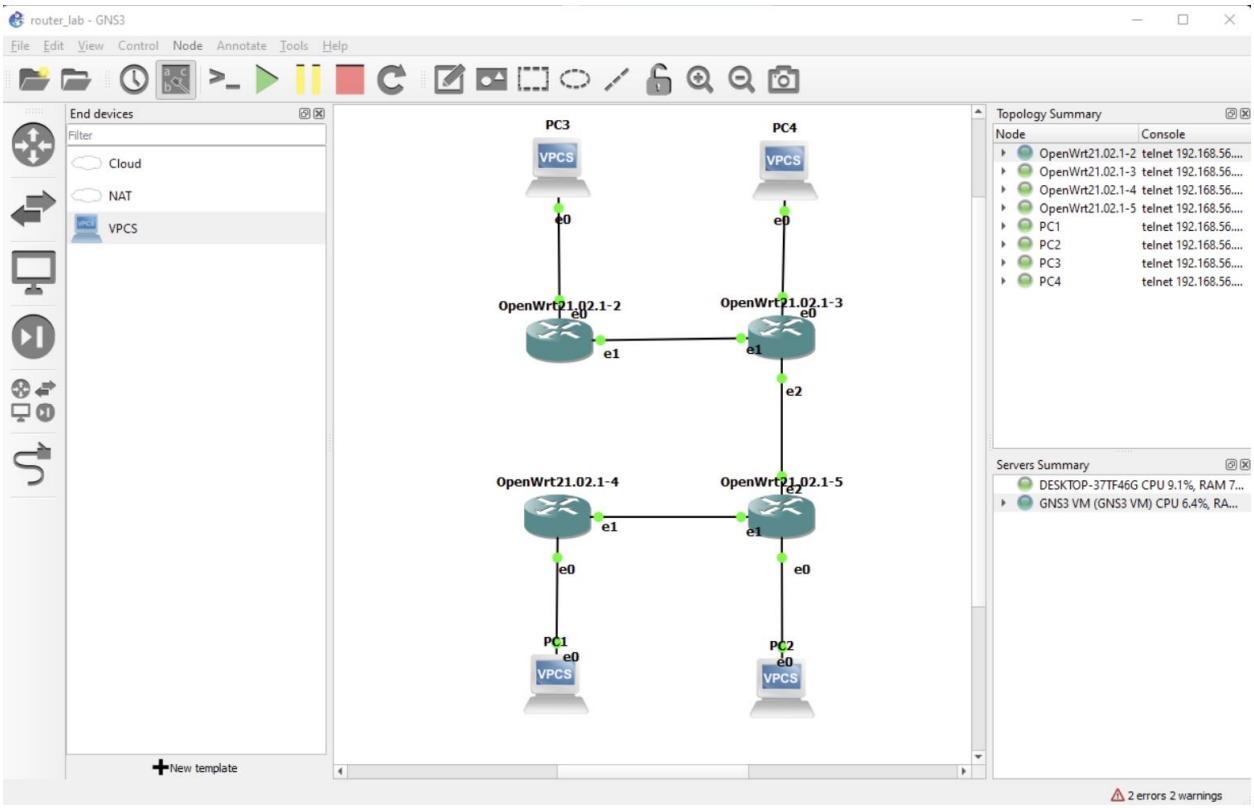
Earlier in the lab when I was able to ping address 192.168.1.2 from PC1 before routes were set up, this was able to be done because this address had been added to the router that was connected to PC1.

Here is the screenshot showing how this network could look if it were expanded to include four routers:



If I wanted to expand the network to look like this, where all four routers are directly connected to each other, I would need to do more configurations to allow each of the four routers to communicate with each of the other routers. This is why static routes become a bad idea as the network gets larger- the amount of configurations needed rapidly increases as the network gets larger.

However, the amount of configurations needed with a larger network can be alleviated by not directly connecting each of the routers to all of the other routers, like this network:



Keeping a minimal number of connections between the routers like this allows for a minimum number of configurations, allowing for an easier setup of the network. Additionally, a network with less direct connections between routers requires that communication between two given devices in the network will likely have to pass through more routers. This can be a good thing, as it can allow the network to be more secure, as the routers can help filter out malicious activity. On the other hand, because the devices in a network like this aren't as connected to each other as they would be in a network with more direct connections, the communication between devices could be slower. Overall, there are a variety of considerations to think about in the case of setting up a network using static routes- depending on how secure and/or fast you want or need the network to be, you may need more or less direct connections between routers, or, you may need to consider using different type(s) of routes.