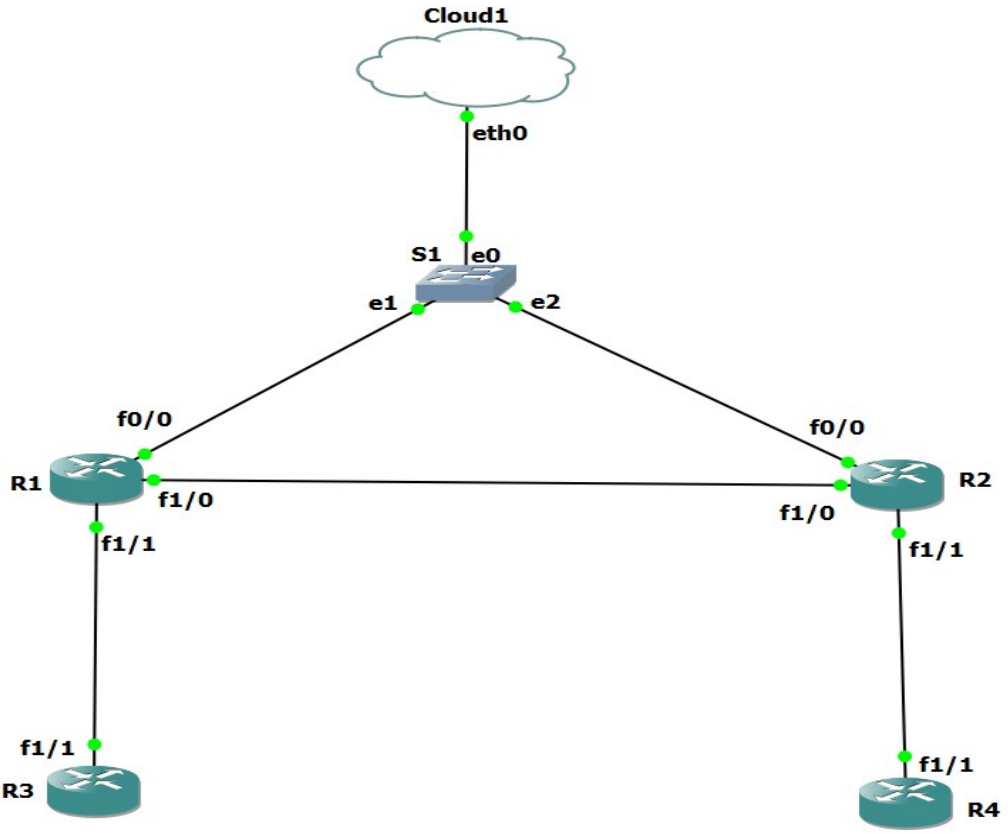
ASSIGNMENT 3

Configuring and Managing Network Devices using Netmiko and Napalm



Build the above topology in GNS3. Configure IP address manually on R1 and R2's fa0/0 interface. The IP address should be in the same subnet as GNS3 VM IP. (**Also configure loopback on all routers**)

Question 1:

Write a script to connect to R1 and R2 separately and print the following output:

1. All interfaces on both routers
2. Device name, version number, uptime

Question 2:

Configure the following:

1. Remaining interfaces shown in topology
2. OSPF, such that R1 and R2's interfaces are in the same area
3. R1 and R3's interfaces are in different areas, R2 and R4's interfaces are in different areas

PART 1:

Create two text files, R1.txt and R2.txt. Write the entire configuration for R1 and R2 in these files. Use these text files to push the above-mentioned configuration on R1 and R2.

PART 2:

Write two separate scripts to configure the interfaces and OSPF on R3 and R4. Setup a direct connection between R3 and R4, which means R3 and R4 should ping each other directly without sending traffic to R1 and R2 (*you can use some additional components in topology to set-up this connection*).

Question 3:

Write a script(s) for the parts that are mentioned below. For all parts of this question, use R1 and R2. The script(s) should be able to connect with R1 and R2 at the same time (*which means first, the script should establish connection with R1 and R2, after that, it should perform below actions and finally, it should terminate the connection with R1 and R2*).

PART 1:

Find the interfaces that are down and print them. From all the down interfaces, randomly select two interfaces and configure them to be up.

PART 2:

Find the interfaces that are up and print their details. Details should include the Interface, IP-Address, status, and protocol column only. Write this output to a file named, **interfaces.txt.** (*Note: Script should print the details of only those interfaces that are up and this list should also include the randomly configured interfaces of PART 1*)

PART 3:

Fetch the output of the routing table on R1 and R2, and extract only those routes which are ECMP'd.

Question 4:

Use NAPALM to connect to R1. Write a script to check the ARP table on R1 and extract IP, MAC and Age. Write the output to a file named **arp.txt**

Also, write a script to ping R3's f1/1 interface. Extract the output of avg, max, min RTT. Write the output to a file named **ping.txt**