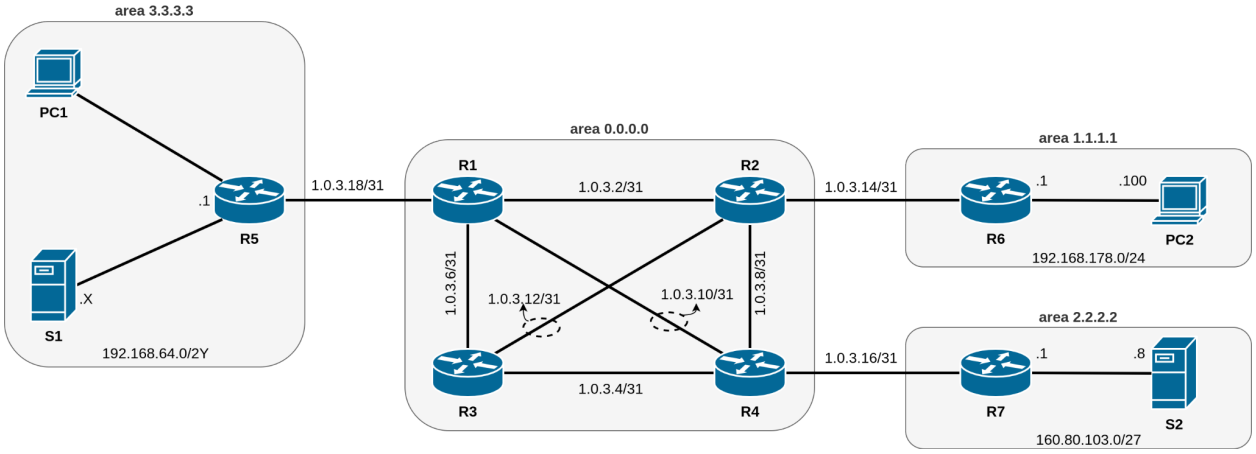
Kathara – Second Midterm



Given the topology in figure, reproduce it in Kathara. You must use container names and addresses specified in the figure above. Container names should be all in lowercase.

For /31 subnets, the addresses are assigned with the following rule: the lower router number takes the even address.

Y is the last digit of your matricola.

X is the highest assignable IP address of the subnet.

The maximum points are **6** and are assigned as follows:

1. +0.5 point: lab created with correct lab.conf and folders created correctly
2. +0.5 point: Assign to all routers, PC and servers static IP addresses via /etc/network/interfaces. Assign to PC1 a suitable IP address of your choice
3. +1 point: Configure OSPF on routers to have a fully routable network. Respect areas given in figure.
4. +1 point: Configure SSH server on S1. Create a user ssh_user accessible by PC1 via public key. Key generation can be done once for all, it is not required to do it at startup. Remove the possibility of password authentication on S1.
5. +1 point: Configure SSH server on S2. Create a user ssh_user accessible with password "`mypassword`"
6. +0.5 point: Configure SSH Remote port forwarding on S1: expose port 9000 of S2 to tunnel packets on port 8000 of S1.
7. +0.5 point: Configure SSH Local port forwarding on PC2: expose port 10000 of PC2 to tunnel packets on port 9000 of S2.
8. +1 point: The double port forwarding you created gives you an end-to-end connection between PC2 and S1, test it with netcat: launch a netcat listener on S1 and a netcat client on PC2, send some packets using the tunnelled connection and capture them using tcpdump on S2 on the file "/shared/capture.pcap".

- On which port should S1 listen? To what destination and on which port should PC2 send packets?

If all was done correctly, the packets sent by PC2 will have as IP source address the one of S2, and will be marked as SSH traffic by wireshark.

In the lab folder, create a text file “commands.txt” and write down the remote port forwarding command, the local port forwarding command, the netcat listener command and the netcat client command you have used in the points 6., 7. and 8. .

The points from 1. to 5. must work at boot time (i.e. using .startup scripts and/or configuration files). The points from 6. to 8. are not required to work at boot time.

Tip: remember to use `kathara connect` if you need multiple terminals on the same node

Restart of all the daemons is required.