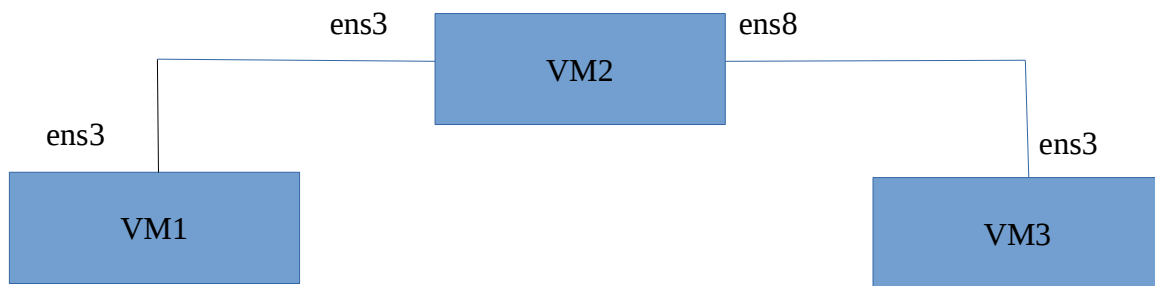# 3. Demonstrate routing with NAT and iptables.

Step 1: Create 3 Virtual Machines
- Create VM1 with One Interface
  - Check the ip using ifconfig
  - ens3 -   192.168.122.131

- Create VM2 with two Interface
  - Check the ip using ifconfig
  - ens3 – 192.168.122.172
  - ens8 - 172.16.34.38

- Create VM3 with isolated Network
  - Check the ip using ifconfig
  - ens3 – 172.16.34.39

Now Check The Connectivity fro each VM
- ping VM3 to VM2 (second Interface) - Done
- ping VM3 to VM2 (First Interface) – Unsuccessful - Successful
- ping VM3 to VM1 – Unsuccessful - Successful

Step 2: Go to VM2
- sudo -i
- type following command
  - cat /proc/sys/net/ipv4/ip_forward
    - (you will get False [0], make it True [1])
  - echo 1> /proc/sys/net/ipv4/ip_forward
    - (you will get True [1])

Step 3: Go to VM3
- Add default gateway to second interface (ens8) by typing following command
  - sudo route add default gw 172.16.34.38 (**sencond interface of VM2**)

Step 4: Go to VM2
- Add rules in iptables
  - sudo iptables -P FORWARD ACCEPT
  - sudo iptables -t nat -A POSTROUTING -o ens3 -j MASQUERADE

Step 5: Check The connectivity from VM1 to VM3
Step 6: Repeat Step 1 to Step 4 for VM1 to VM3