CS3543 Networking Hans-on: Basic of VyOS and Static Routing

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Preparation for Running VMs (1/2)

```
sudo apt-get update
sudo apt-get install kvm libvirt-bin bridge-utils
sudo apt-get install virt-manager
sudo apt-get install vlan
sudo apt-get install iperf traceroute tcpdump
```

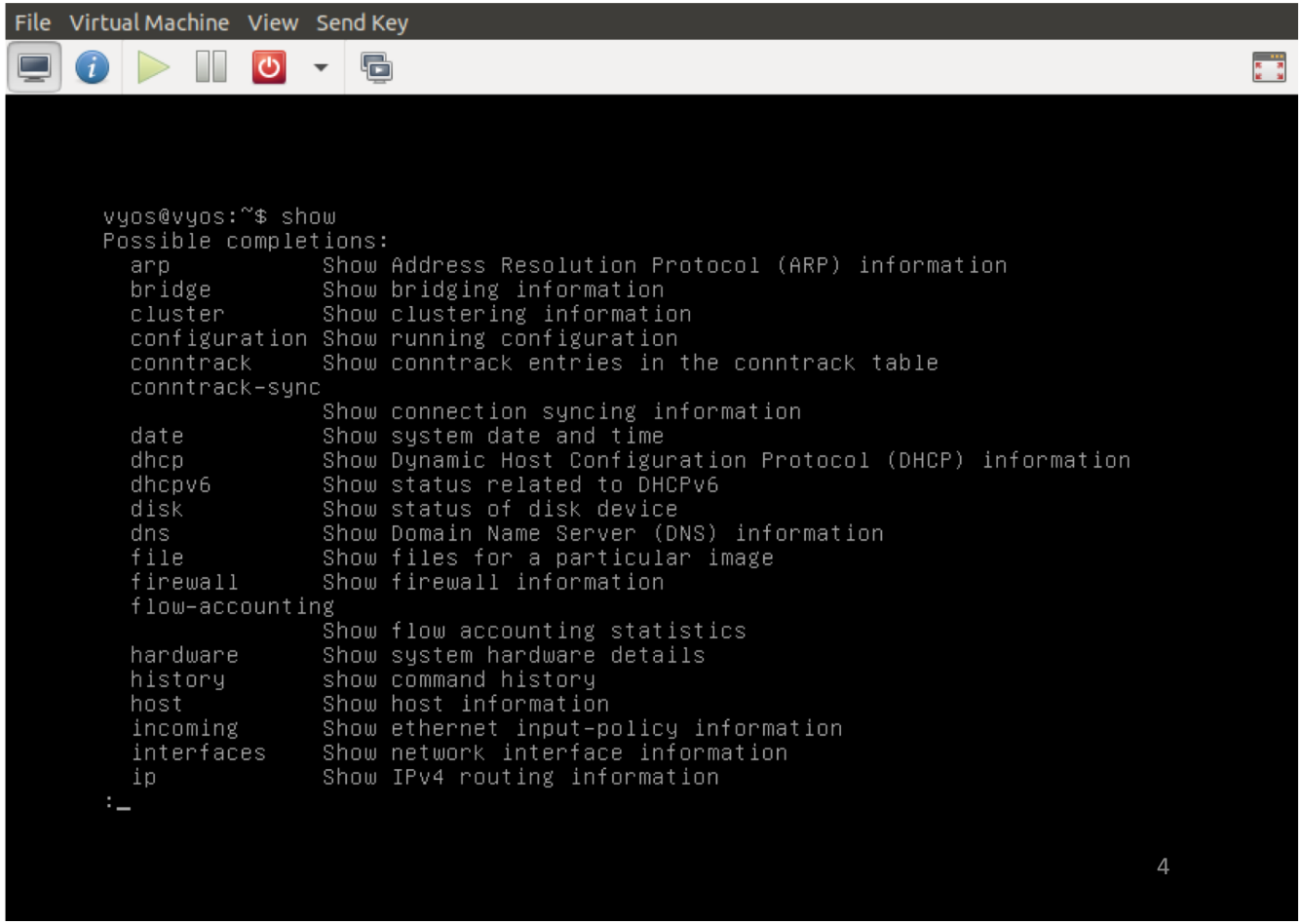
Preparation for Running VMs (2/2)

- Copy ISO image of VyOS 1.1.8 to your laptop
- Install the first VyOS on virt-manager
- Login to VyOS
- Execute “install image”

The most important commands (1/2)

$ show ?

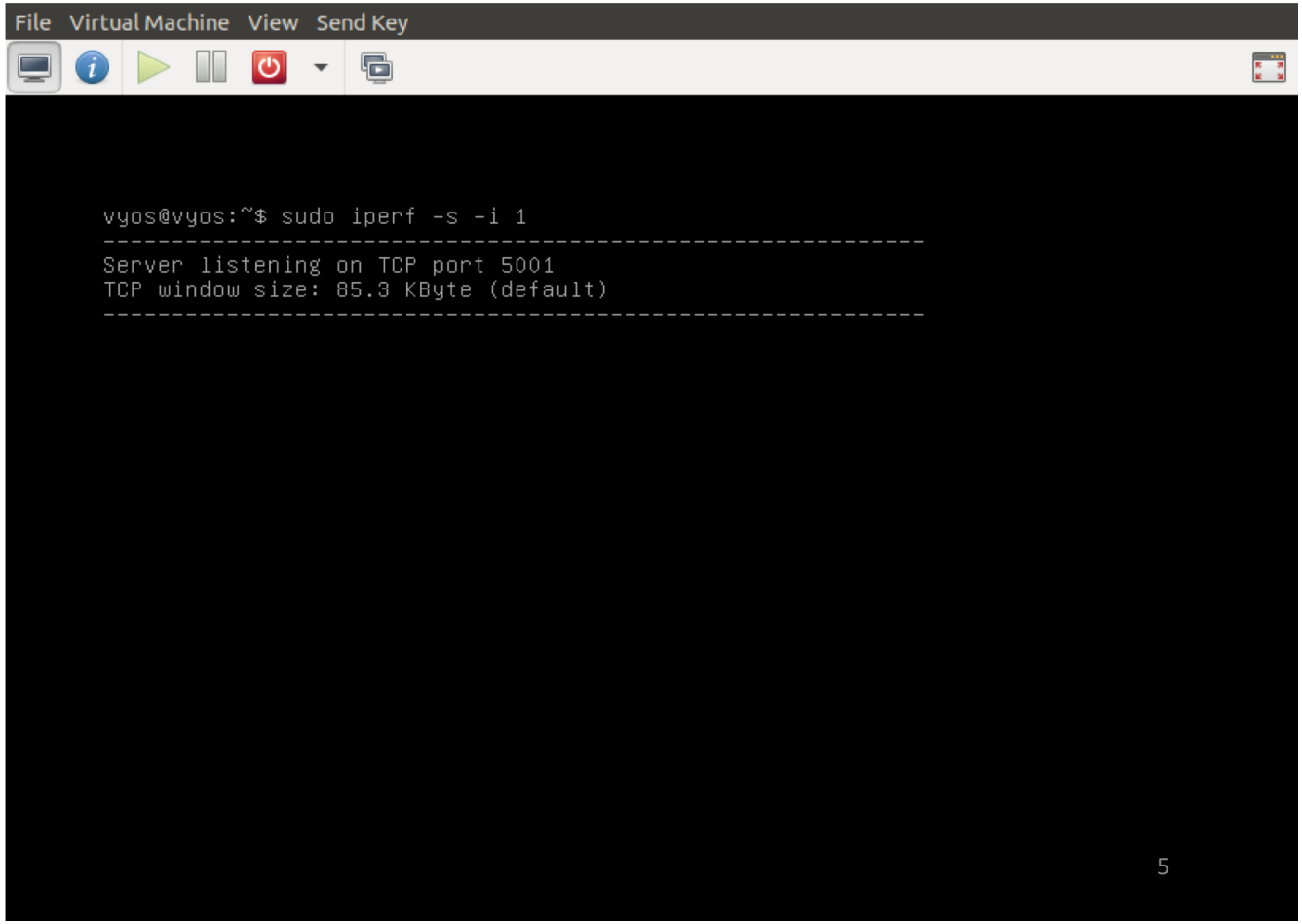
- What does it give?



The most important commands (2/2)

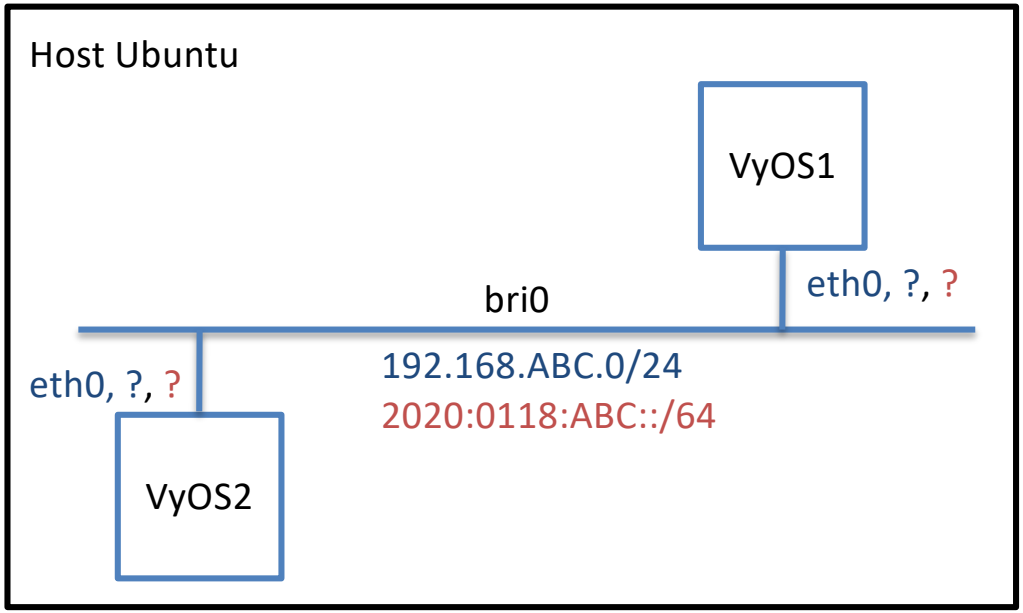
$ sudo SOMETHING

- Can execute Linux (not VyOS) commands



Question 1: Connecting 2 VyOS via Bridge I/F (Virtual Connection) (1/2)

- Goal: Let VyOS1 and VyOS2 communicate with each other
- eth0 of VyOS1 and VyOS2 will be connected via Bridge I/F (bri0)
- Fix the IPv4/v6 address to give to each NIC by yourself

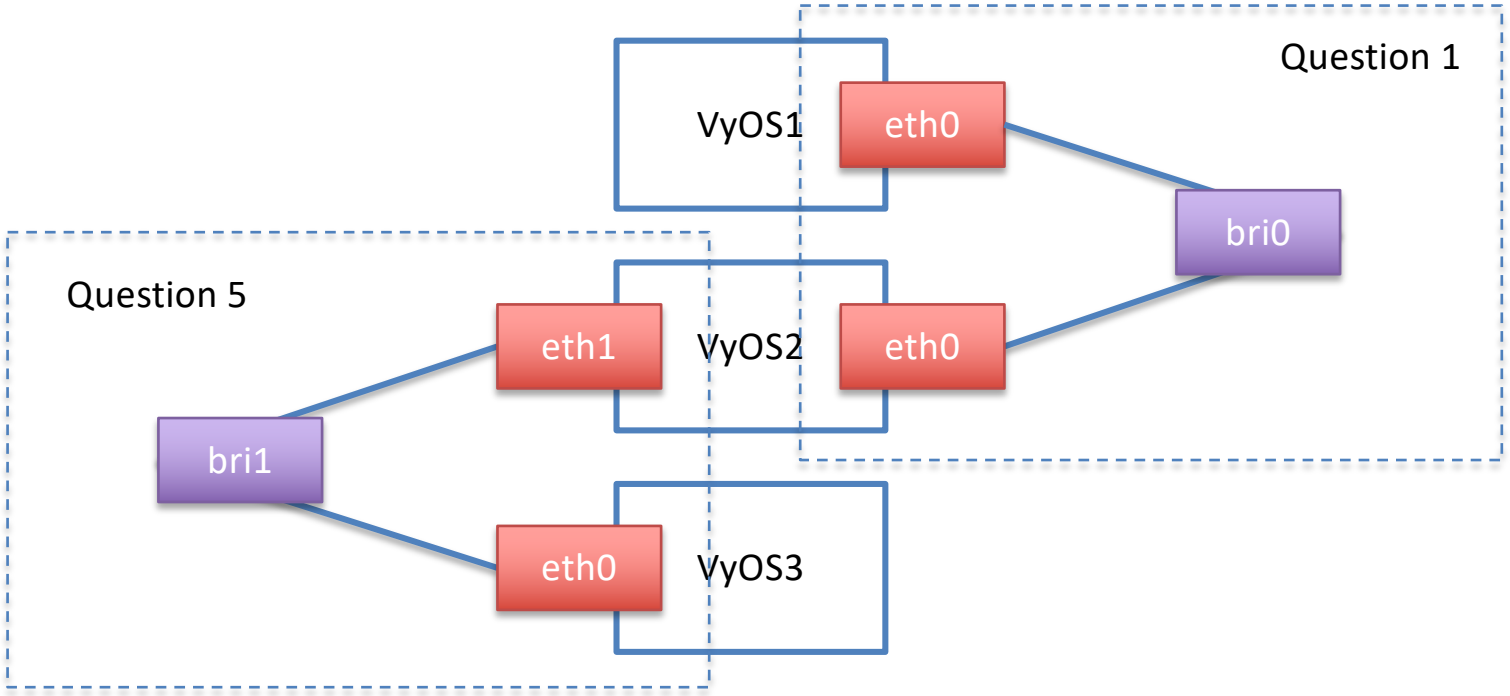


Question 1: Connecting 2 VyOS via Bridge I/F (Virtual Connection) (2/2)

- Installing second VyOS
- Creating a bridge interface on Host Ubuntu
- Configuring two VyOSes to connect with each other via Bridge I/F on virt-manager
- Configuring IPv4/v6 addresses on NICs on VMs
- Running ping and iperf between two VyOSes

Bridge I/F and VM NIC Configuration for Questions 1 and 5 (hints)

- Bridge I/F can be created using “brctl” command
  - “man brctl” if needed
  - Activate and choose in virt-manager appropriately



Setting Up Bridge I/Fs on Host Ubuntu

- Creating 2 bridge interfaces

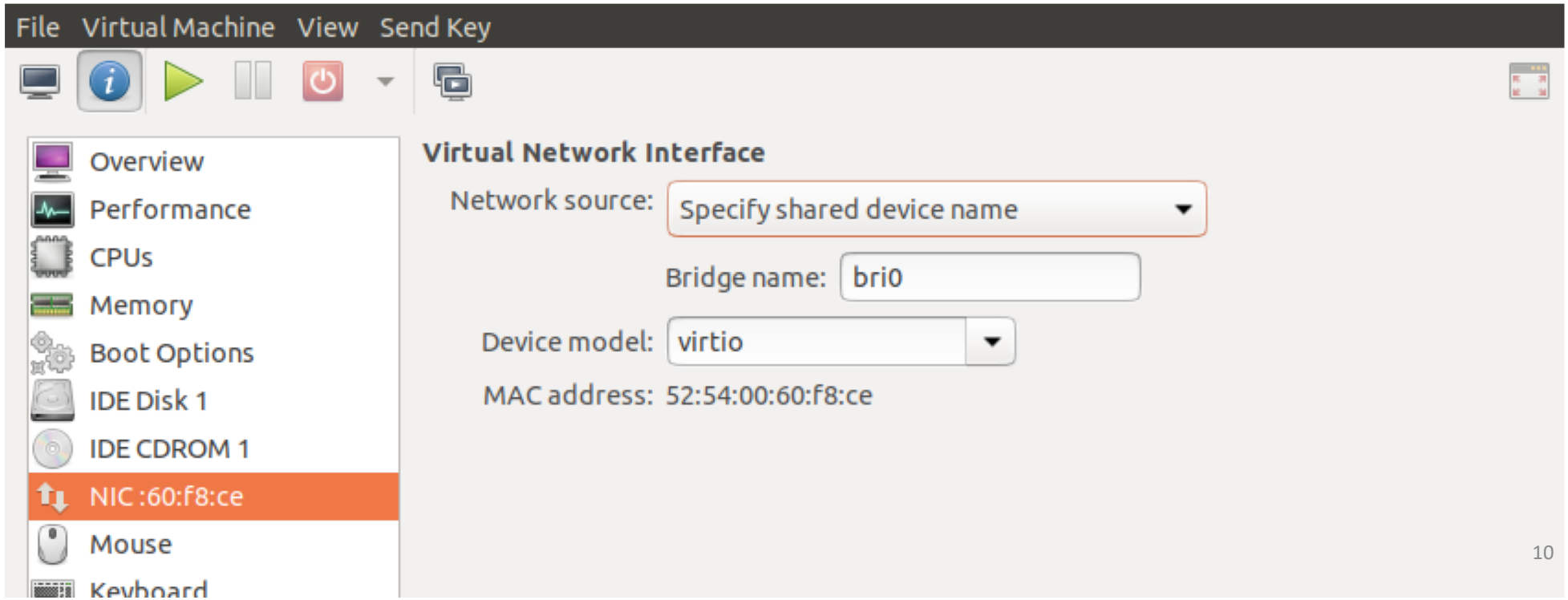
```
$ sudo brctl addbr bri0
$ sudo brctl addbr bri1
```

- Making the interfaces up and running

```
$ sudo ip link set bri0 up
$ sudo ip link set bri1 up
```

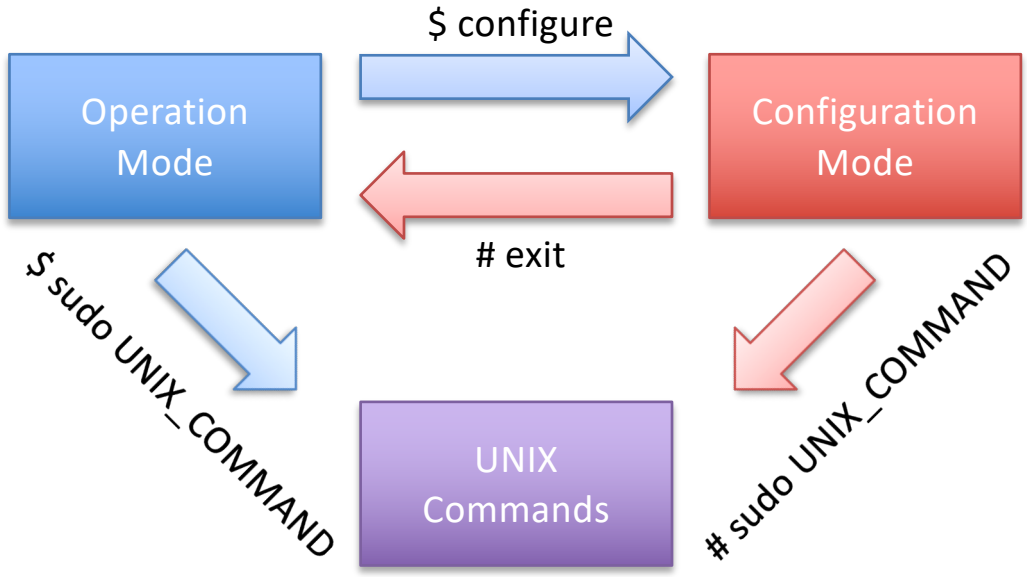
Selecting an appropriate Bridge I/F on virt-manager

- “Network source” must be Bridge I/F for VM-VM connection on the same virt-manager



Basic Operation of VyOS

- Operation Mode
  - Show configuration and status
  - Restart, power off the system
- Configuration Mode
  - Show and set configuration



Showing Status and Configuration

- “$ show SOMETHING” provides the status of your configuration and protocol behavior

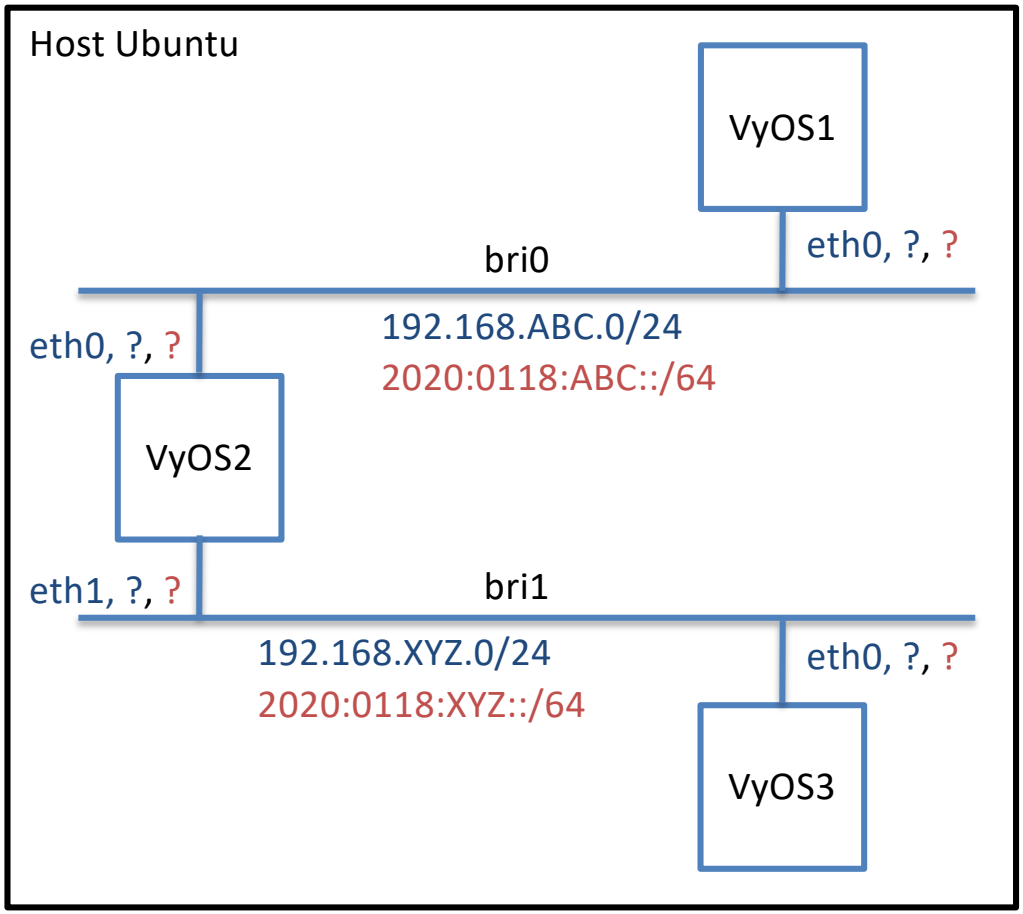
- “# show SOMETHING” provides the configuration of what you have done

Configuring IP Address on VyOS

- Example to configure IPv4/v6 addresses on ethX

```
$ configure
# set interfaces ethernet ethX
                  address 192.168.101.10/24
# set interfaces ethernet ethX
                  address 2013:ABCD:101::10/64
# commit
# save
```

Question 5: Connecting 3 VyOS, and allow VyOS1 and VyOS3 communicate



Configuring Static Route on VyOS

- Example to configure IPv4/v6 static route on ethX

```
$ configure
# set protocols static route 192.168.102.0.0/24
                        next-hop 192.168.100.1
# set protocols static route6 2013:ABCD:102::/64
                        next-hop 2013:ABCD:100::1
# commit
# save
```

Deleting Configurations on VyOS

- Example to delete IPv4 address and static route

```
$ configure
# delete interfaces ethernet ethY address
                                    192.168.1.10/24
# delete protocols static route 192.168.100.0/24
                        next-hop 192.168.101.1
# commit
# save
```

Done!!