Networking Lab Prerequisites

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The practical part of the Networking Lab will see us configuring networking on two Ubuntu Server virtual machines, as well as observing the traffic between the VMs from the host.

If you're having trouble with any setup steps, please contact Cloudbase so we can arrange for help with the setup **before** the Lab starts.

1 Host Requirements

1.1 Virtualization Platform

Considering we'll be needing two independent machines, we'll need to set up a proper virtualization solution on the host. (aka your laptops)

- Windows:
  - VirtualBox: free and usable virtualization solution.
  - Hyper-V: free and built into Windows (might need explicit enabling though), but a bit more obtuse to use.
- any Linux with Desktop!:
  - VirtualBox: free and usable virtualization solution.
  - LibVirt + VirtManager: free and built into Linux. Quite ugly though.
- macOS:
  - Ask Cloudbase for a host.

2 Isolated Virtual Network Setup

Whichever virtualization platform we chose, we'll need to set up an extra virtual network to be used by our two playground VMs. This virtual network must be "isolated" from the outside Internet as well as the host, so we can play around with our two VMs within that isolated network freely.

The term for such a network on each virtualization platform is:

- VirtualBox: create an Internal Network.
- Hyper-V: create an Internal Virtual Swtich.
- LibVirt: create an Isolated Virtual Network.

3 Virtual Machines

We'll be needing two Ubuntu 22.04 Server VMs with the following setup.

TIP 1: install only one VM, and either clone or turn it into a template and create two VMs from the template.

- OS choice: **must** be Ubuntu **Server** 22.04:
  - [preferred] ISOs: just boot a VM with the install ISO attached and run the installer normally.

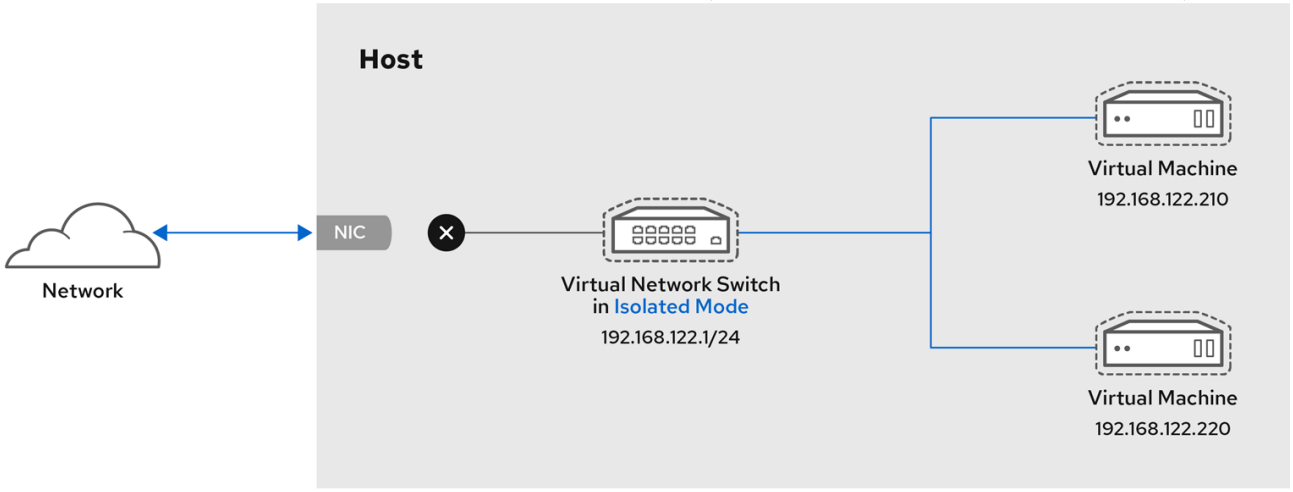
  - Pre-installed images: various pre-installed disk images (`.ova` or `.vmdk` for VirtualBox, `.vhd` for Hyper-V, or `-kvm.img` for LibVirt). DO NOT bother trying to boot these unless you have pre-booted cloud images before (you'll most likely need to set up a "config drive" or some other mechanism for the cloud-init install in the image to do its job)

- First VM specs:
  - 2 vCPU cores
  - 3GB RAM
  - 2 Network Interfaces:
    * One attached to the default network.
    * One attached to the Isolated Network previously created.
- Second VM specs:
  - 1-2 vCPU cores
  - 1-2 GB RAM
  - 1 Network Interface:
    * Only attached to the Isolated Network previously created.

TIP 2: once you have set up the VMs, power them off nicely and create a snapshot ("checkpoint" in Hyper-V) for them so you can always revert to them later.

Your network layout should look similar to this, with the mention that the first VM will also have direct Internet connection.

Figure 1: Logical diagram of isolated network. (Minux the VM1-Internet connection.)



4 Wireshark on host.

Please pre-install Wireshark on the host machine (aka your laptop). Note that on Linux you may simply be able to install it via your package manager. (make sure you install the Desktop version of Wireshark!)