INR lab 1 - Basics

1. Preparation:

a. Read the notes at the end.
b. Install the needed dependencies for GNS3: QEMU/KVM, Docker, and Wireshark.
c. Be sure to take a snapshot of your infrastructure before you start

2. Installation:

a. Start a new GNS3 project, configure the pre-installed **Ubuntu Cloud Guest template**. Check that you can start it.
b. What are the different ways you can configure internet access in GNS3? Test them with a single PC and give a one-line description of each. What are the differences between them?

3. Switching:

a. Create the following topology in GNS3
b. Install **OpenSSH-server** on **both VMs** and **Nginx** web server on the **Web VM**. (you can use any web server, Nginx is just a recommendation)
c. What is the IP of the mask corresponding to /28? How many machines can you configure under this subnet?
d. Configure the VMs with private static IPs under a /28 subnet.
e. Check that you have connectivity between them. *Hint: use ping, traceroute, mtr*
f. Make sure your web server is accessible from the Admin VM. *Hint: use curl or wget*

4. Routing:

a. Select a virtual Routing solution (Gateway) such as Mikrotik, PfSense, VyOS, Untangle NG, OpenWrt, Cumulus VX).
b. Change the topology as follows.
c. Connect your Gateway to the **internet** and to your **workstation/laptop**. (2.b)
d. Configure port forwarding for HTTP and ssh to Web and Admin respectively.
e. Check that you can ssh to the Admin and access your web page from your workstation/laptop.

Notes:

- Make the report as technical as possible (no installation guide please).
- Try to include a network scheme in your report
- If you paste some data (routing table), please make sure it is readable and the format did not change
- If you want to include a command in the report, please highlight it (bold, italic, different format, ...)
- Keep your lab project file, you might use it for the next lab.