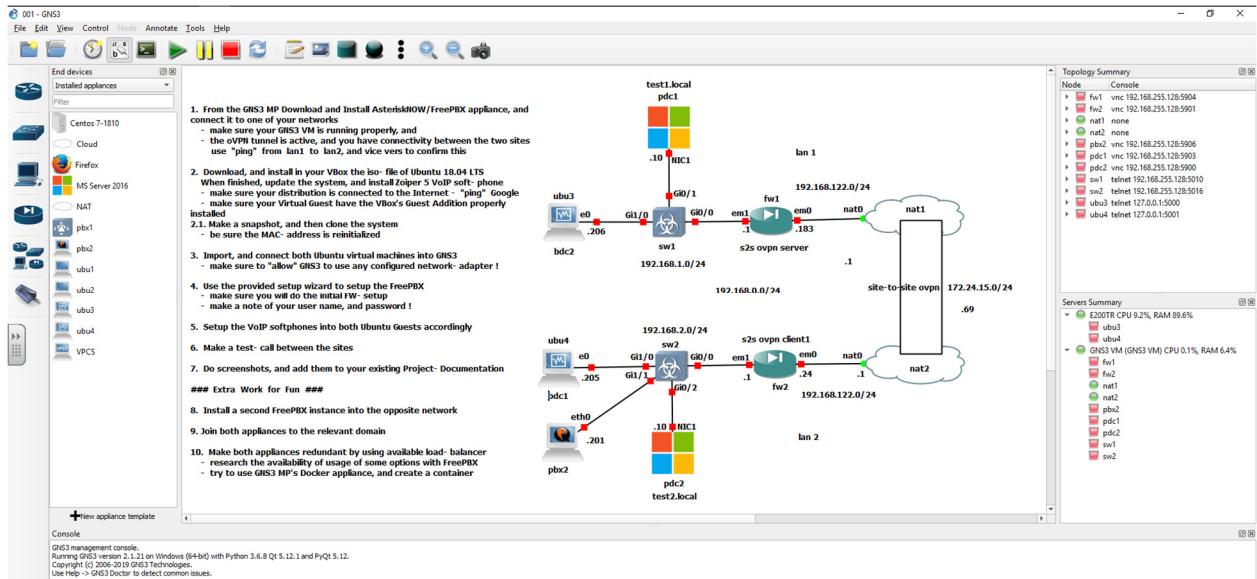
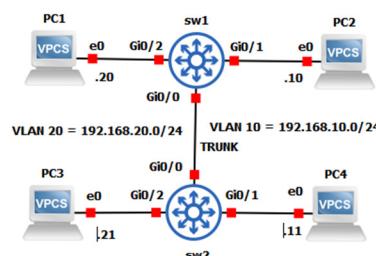


Some recent, work-related samples cont'd:

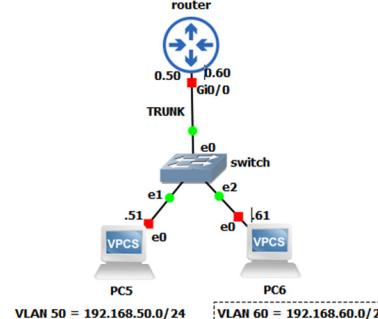
1. Usage of the free Oracle's VirtualBox, VMWare Player (free for educational usage), and GNS3 for local-, and cloud-labs.



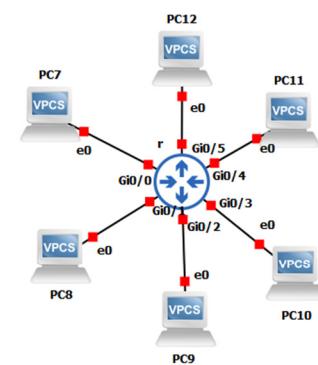
vlangs, trunking, and inter-vlan communication with cisco' 3-layer switches



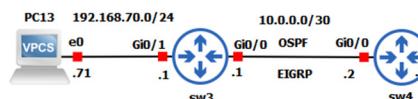
router-on-a-stack with cisco 2-layer switch



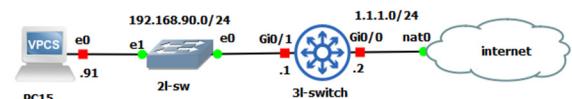
per-router-port inter-vlan



routing with routing protocols

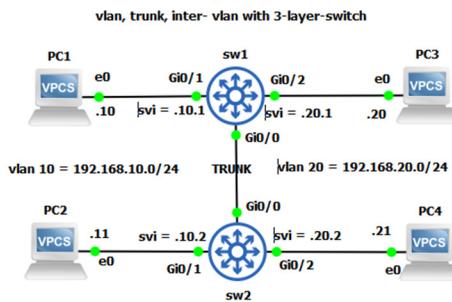


2-layer switch with a 3-layer switch with routed port



LAB # 6

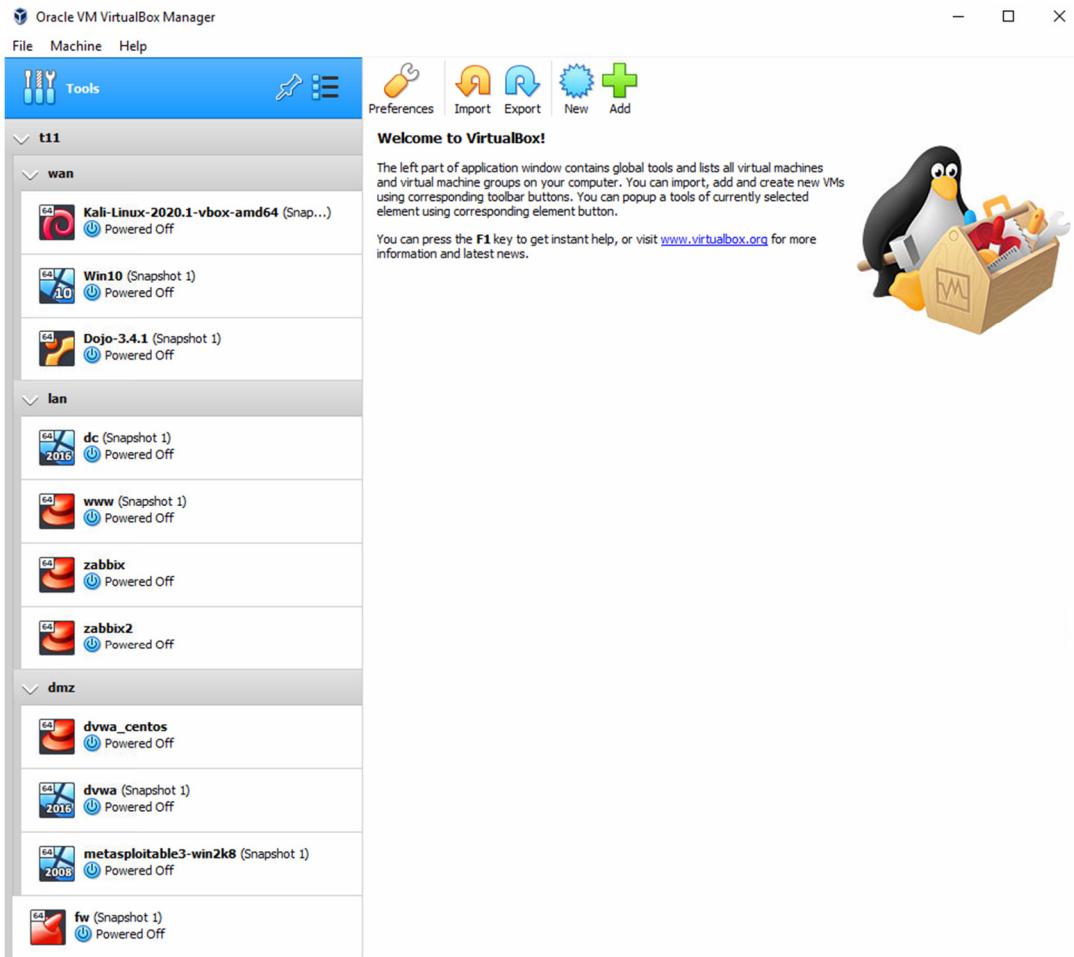
Be sure, at the end of the setups, you will be able to "ping" among all pcs

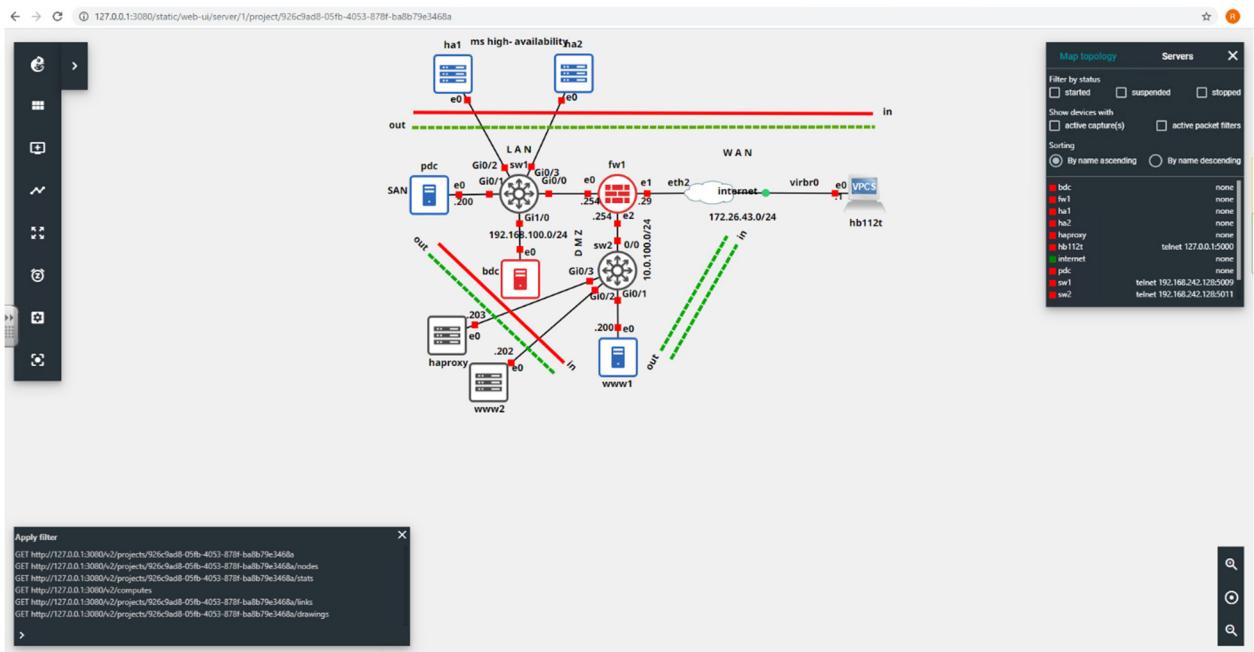
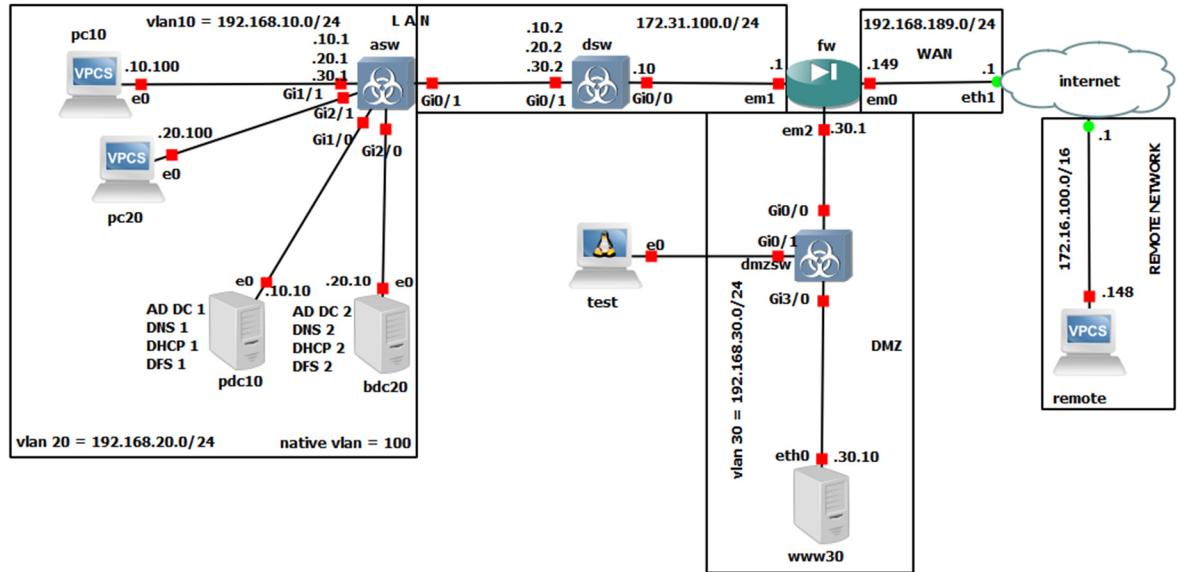


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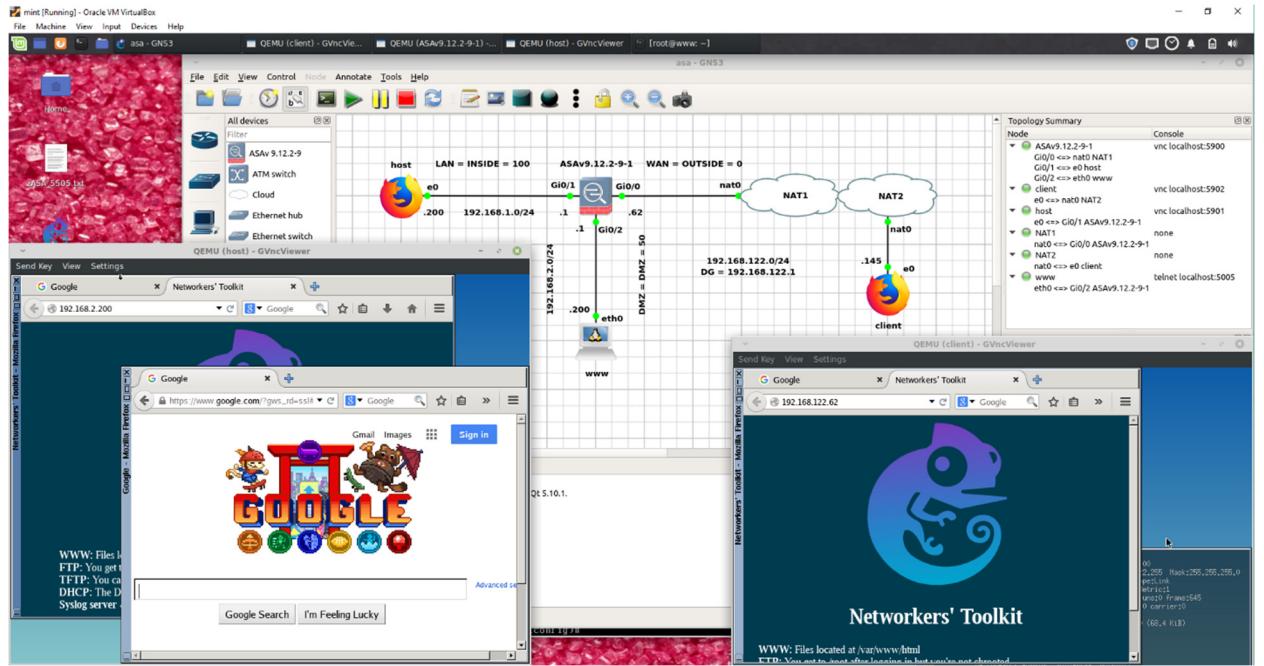
enable
configure terminal
hostname sw1
vlan 10
name vlan10
exit
vlan 20
name vlan20
exit
interface Gi0/1
switchport mode access
switchport access vlan 10
spanning-tree portfast
spanning-tree bpduguard enable
exit
interface Gi0/2
switchport mode access
switchport access vlan 20
spanning-tree portfast
spanning-tree bpduguard enable
exit
interface Gi0/0
switchport trunk encapsulation dot1q
switchport mode trunk
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,100
exit
do write
! ip routing - allows l3-switching (if available)
! no switchport - stops a port being a switchport, you can assign directly an ip- address
int vlan 10
no shutdown
ip address 192.168.10.1 255.255.255.0
exit
int vlan 20
no shutdown
ip address 192.168.20.1 255.255.255.0
exit
do write
  
```

show mac-address-table
show ip route
show running-config
show startup-config
show ip interface brief
show vlan brief
show interface trunk

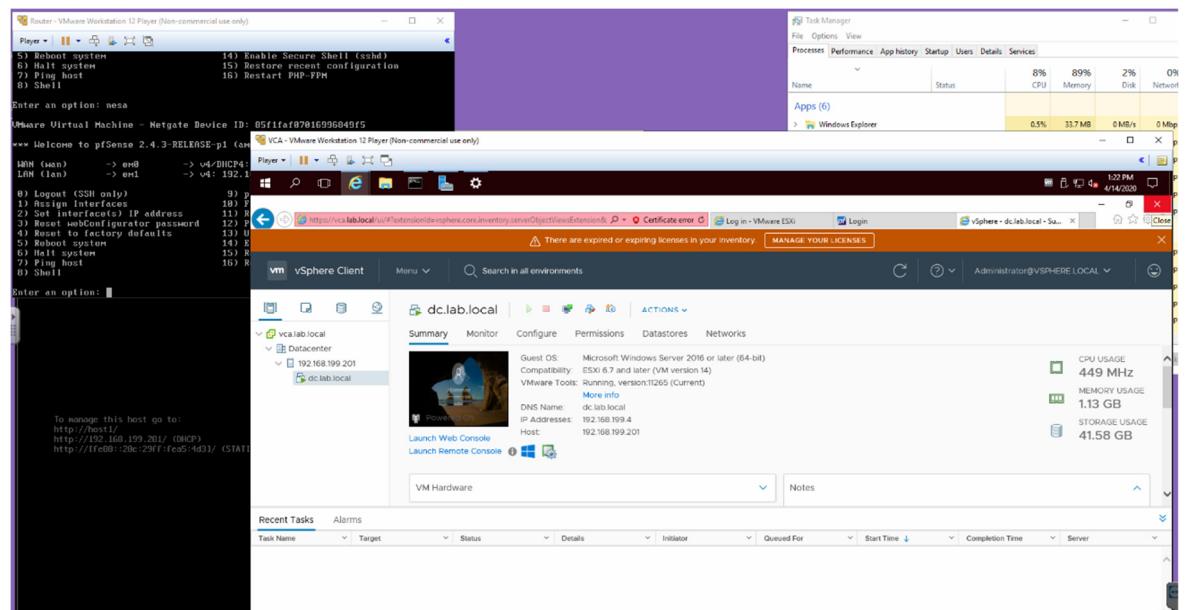




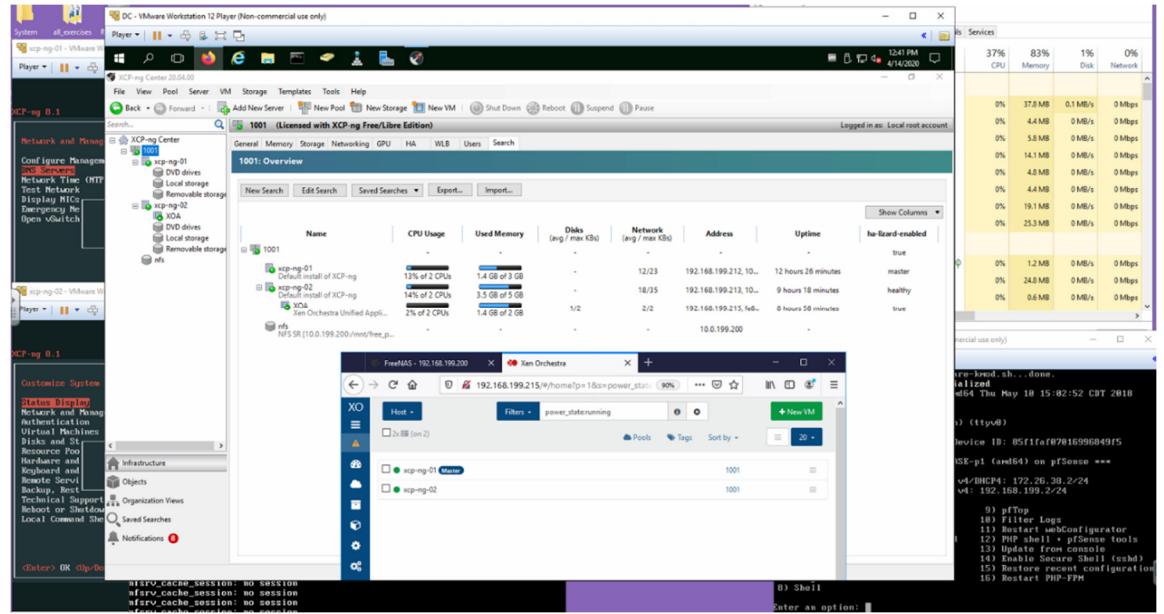
Latest project that will allow all Data- Science, Machine Learning, Encryption, and Crypto-Currency related, Networking and Security, Docker, Kubernetes, and OpenShift projects to be finished into the preinstalled, easy-to-use-from-the-students environment. A Mint Linux virtual PC with preinstalled GNS3 (with IOU, Docker, and QEMU- images), Python 3 with all full- stack, and data- science libraries installed, Anaconda, IDLE, Atom with Git, and GitHub' access, and other has been exported as an ova- file for easy to install and use with the students :



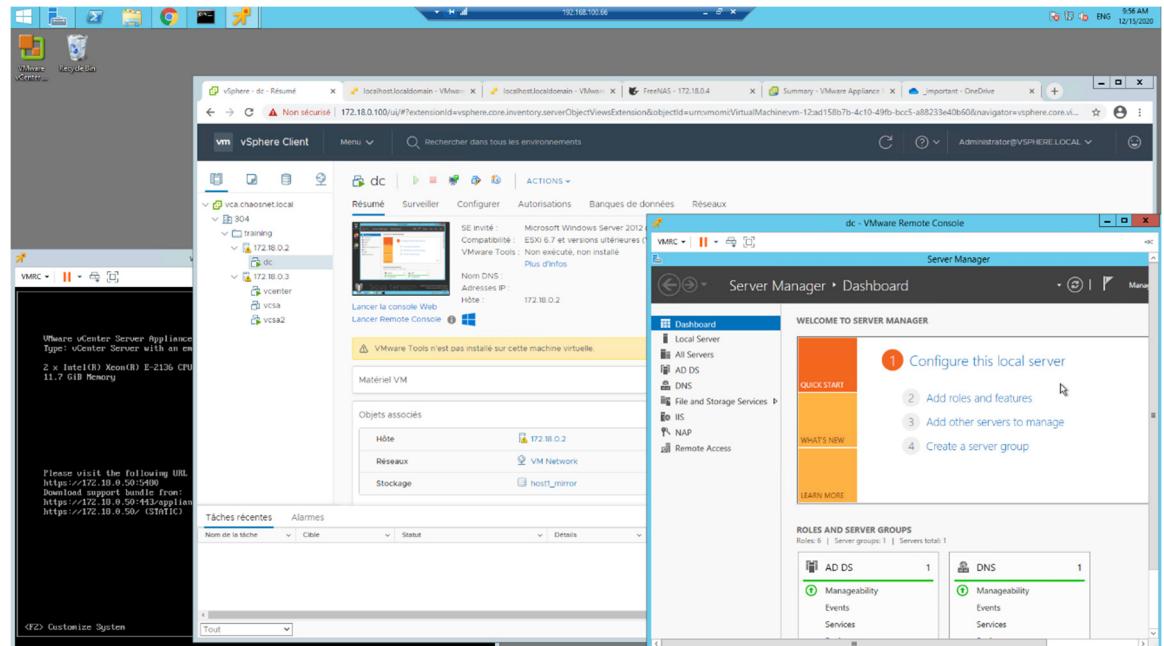
a. vSphere infrastructure in VMWare's Player:



b. XCP-NG (XEN' successor) infrastructure in VMWare's Player



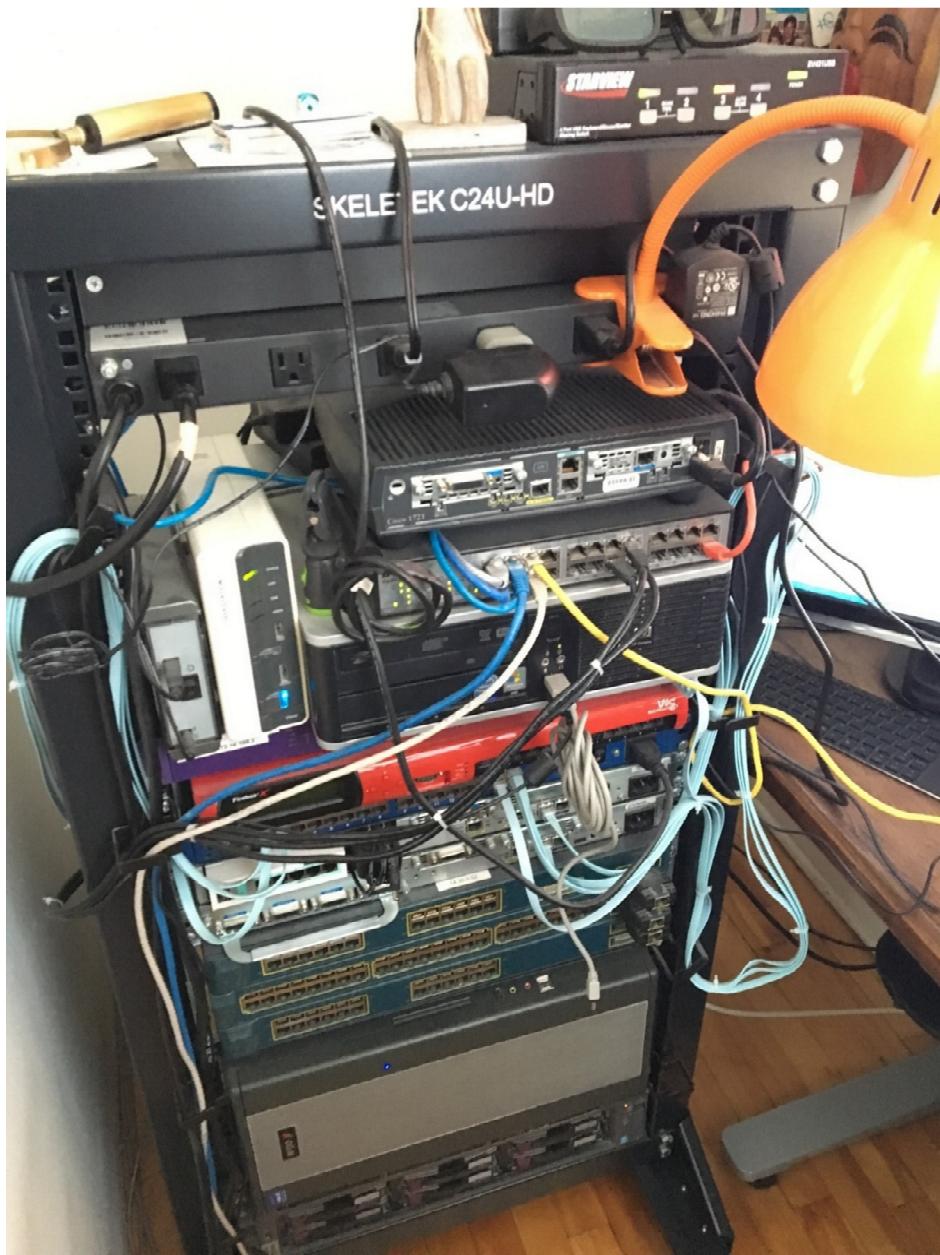
c. ESXi' 2-virtual- hosts infrastructure with the FreeNAS shared storage into the College's virtualisation lab:



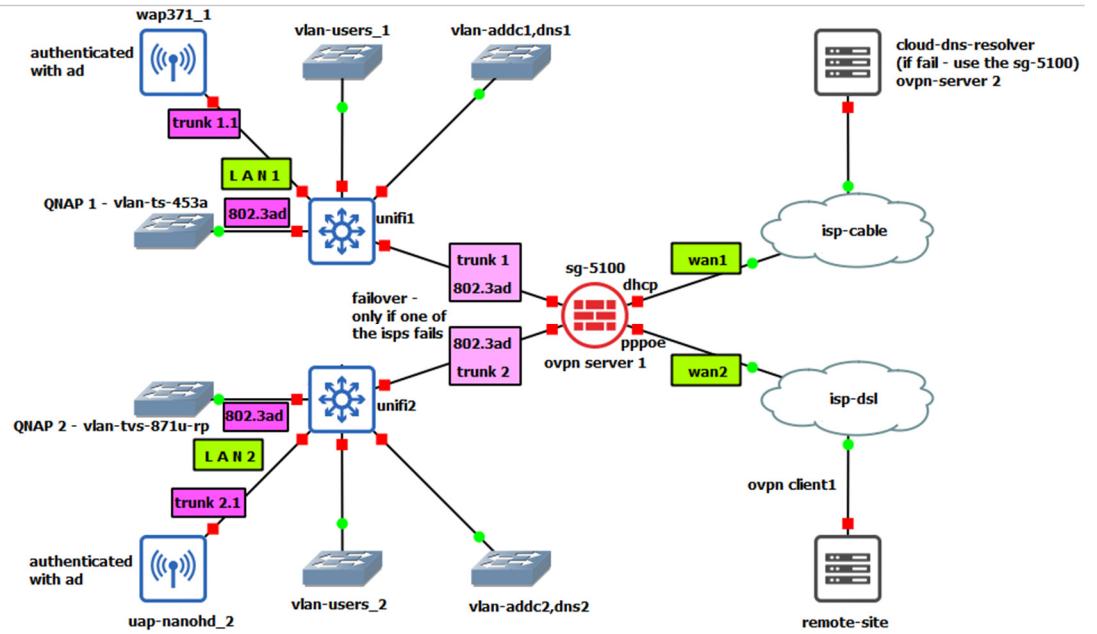
2. Creation, support, and maintenance of a home- lab with ESXi, XCP-NG, and Proxmox:
 - a. Old one:



b. Newer one:



c. Newest one:



Thank you for your kind attention, and consideration!