Final LAB assignment

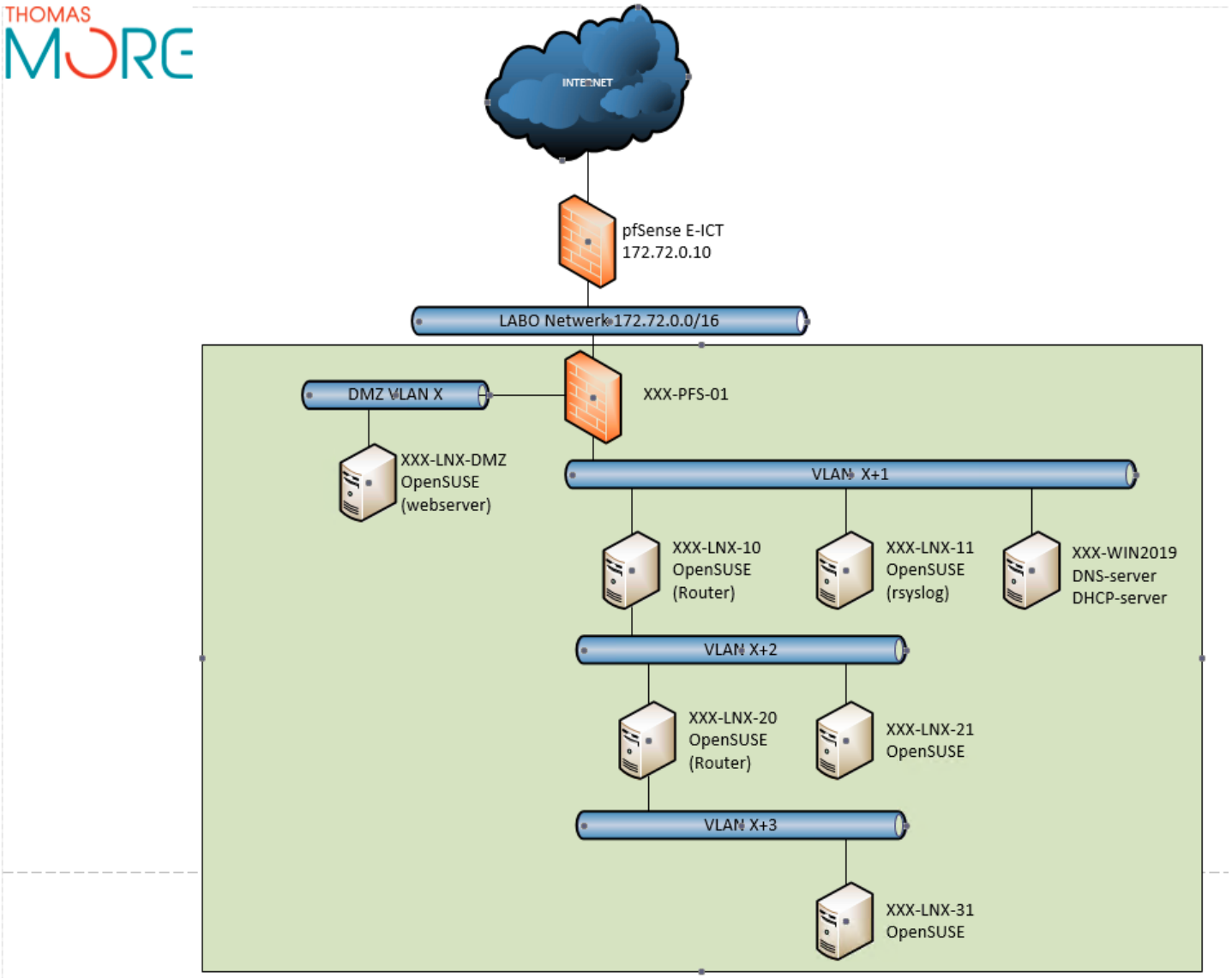
Build the network in the green rectangle as shown in picture 1 on the ESXi datacenter, which is located on Campus De Nayer.
Carefully follow the guidelines on the next pages. You can access the systems with your r-number@e-ict.local and password that was mailed.
The VPN-profile can be found on CANVAS.

SPECIFICATIONS and RULES

- The name of each and every item you create starts with your PREFIX (VM's, vSwitches, PortGroups, hostnames ...) (see table 1 for your personal PREFIX)
- ISO-images are located in datastore1/0Software on both ESXi hosts.
- Virtual Machines are created on the NFS datastore "EMC-R640s" following the specifications in table 2.
- Your personal VLAN-numbers and IP-ranges for the different networks are listed in table 1.
- The Windows server 2019 will be the DHCP and DNS server for the entire network (Active Directory setup is NOT necessary).
- Only the Windows server 2019 can do DNS-lookups on the internet (block rest via firewall).
- Each system has full access to the internet and can ping the other systems (for test purposes).
- Only systems in the ip-ranges 172.80.0.0/16 and 172.90.0.0/24 can open a secure shell session directly to XXX-LNX-21 and XXX-LNX-31.
- The webserver on XXX-LNX-DMZ in the DMZ will host a single static webpage, accessible from the internet and all the LANs.
- Make the DMZ-zone as secure as possible (Allow only the necessary traffic to make things work and to manage the system via ssh from the internal VLANs).
- Make XXX-LNX-11 a central rsyslog-server that will hold the logs of XXX-PFS and XXX-LNX-DMZ in different files, including the website logs.
- You will only have access to the system during lab-hours => approximately 8 hours
- Plan and document (action plan + schema) before you start building the network (these documents are handed in on december 15th at the start of the session at 09h30).

HOW TO START

- Create a rough action plan, plan ahead, prepare the lab-hours to make optimal use of these few hours
- Refine your plan along the way …


INTERNET
pfSense E-ICT
172.72.0.10
LABO Netwerk 172.72.0.0/16
DMZ VLAN X
XXX-PFS-01
XXX-LNX-DMZ
OpenSUSE
(webserver)
VLAN X+1
XXX-LNX-10
OpenSUSE
(Router)
XXX-LNX-11
OpenSUSE
(rsyslog)
XXX-WIN2019
DNS-server
DHCP-server
VLAN X+2
XXX-LNX-20
OpenSUSE
(Router)
XXX-LNX-21
OpenSUSE
VLAN X+3
XXX-LNX-31
OpenSUSE

Picture 1

Table 1 – Personal network parameters

Name	Prefix	X	IP WAN pfSense	VLAN X DMZ-zone	VLAN X+1	VLAN X+2	VLAN X+3
Stijn Ceulemans	SCE	20	172.72.88.1/16	10.10.1.0/24	10.11.1.0/24	10.12.1.0/24	10.99.1.0/24
Ibrahim Challouk	ICH	25	172.72.88.2/16	10.10.2.0/24	10.11.2.0/24	10.12.2.0/24	10.99.2.0/24
Lucas Cornette	LCO	30	172.72.88.3/16	10.10.3.0/24	10.11.3.0/24	10.12.3.0/24	10.99.3.0/24
Sandis Engelen	SEN	35	172.72.88.4/16	10.10.4.0/24	10.11.4.0/24	10.12.4.0/24	10.99.4.0/24
Maxime Frankefort	MFR	40	172.72.88.5/16	10.10.5.0/24	10.11.5.0/24	10.12.5.0/24	10.99.5.0/24
Lode Gilis	LGI	45	172.72.88.6/16	10.10.6.0/24	10.11.6.0/24	10.12.6.0/24	10.99.6.0/24
Mohammed Haibout	MHA	50	172.72.88.7/16	10.10.7.0/24	10.11.7.0/24	10.12.7.0/24	10.99.7.0/24
Arno Halsberghe	AHA	55	172.72.88.8/16	10.10.8.0/24	10.11.8.0/24	10.12.8.0/24	10.99.8.0/24
Jakub Ladynski	JLA	60	172.72.88.9/16	10.10.9.0/24	10.11.9.0/24	10.12.9.0/24	10.99.9.0/24
Bram Vandecauter	BVC	65	172.72.88.10/16	10.10.10.0/24	10.11.10.0/24	10.12.10.0/24	10.99.10.0/24
Lennert Vandendurpel	LVD	70	172.72.88.11/16	10.10.11.0/24	10.11.11.0/24	10.12.11.0/24	10.99.11.0/24
Bram Vandenheuvel	BVH	75	172.72.88.12/16	10.10.12.0/24	10.11.12.0/24	10.12.12.0/24	10.99.12.0/24
Michiel Van Royen	MVR	80	172.72.88.13/16	10.10.13.0/24	10.11.13.0/24	10.12.13.0/24	10.99.13.0/24
Daan Ver Elst	DVE	85	172.72.88.14/16	10.10.14.0/24	10.11.14.0/24	10.12.14.0/24	10.99.14.0/24
Alessio Vortice	AVO	90	172.72.88.15/16	10.10.15.0/24	10.11.15.0/24	10.12.15.0/24	10.99.15.0/24
Harun Kahramanoglu	HKA	95	172.72.88.16/16	10.10.16.0/24	10.11.16.0/24	10.12.16.0/24	10.99.16.0/24
Murthaza Omar	MOM	120	172.72.88.17/16	10.10.17.0/24	10.11.17.0/24	10.12.17.0/24	10.99.17.0/24
Emre Unlu	EUN	125	172.72.88.18/16	10.10.18.0/24	10.11.18.0/24	10.12.18.0/24	10.99.18.0/24

Table 2 - Virtual Machine creation parameters

	CPU's	Memory	Disk, Provisioning
pfSense	1	1GB	64GB, Thin
XXX-LNX-XX (OpenSUSE)	1	1GB	64GB, Thin
Windows 2019	2	8GB	64GB, Thin

ACCESS to the SYSTEMS

vCenter server: https://172.27.1.120 r-number@e-ict.local
ESXi1: https://172.27.1.121 r-number@e-ict.local
ESXi2: https://172.27.1.122 r-number@e-ict.local

Both systems use the same NFS-datastore: EMC-R640.

Distribution over the ESXi servers

Vcenter ict3: https://172.27.1.120	
ESXi1: https://172.27.1.121	**ESXi2: https://172.27.1.122**
Stijn	Bram VDC
Ibrahim	Lennert
Lucas	Bram VDH
Sandis	Michiel
Maxime	Daan
Lode	Alessio
Mohammed	Harun
Arno	Murthaza
Jakub	Emre

Always keep your virtual machines together on the same physical host! Should you ever need to migrate them, migrate them all together to the other ESXi host, otherwise network connectivity will be lost.
Be sure to always select the same ESXi host when creating VMs using the vCenter interface.