



YOU SHALL NOT PASS

A HOBBIT'S TALE



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You are given 4 virtual machines to configure:

vm 1 is the gateway based on OpenBSD 7.4.
It contains

- ✓ 4 network cards
- ✓ 1 bridge or nat
- ✓ 3 private networks

vm 2 is the web server based on FreeBSD 13.
It contains 1 network card.

vm 3 is the employee-client machine
It contains 1 network card.

vm 4 is the admin-client machine
It contains 1 network card.



A good initiative would be to schematize the expected infrastructure.

Check all the specifications below.

VM 1 - DHCP

The gateway server must be able to provide IP addresses on private network.
The IP address of internal cards must be static.

Create 3 lan with the following configurations:

lan-1: `administration`

- ✓ network : 192.168.42.0
- ✓ broadcast : 192.168.42.63
- ✓ range DHCP : 192.168.42.40 - 192.168.42.60

lan-2: `server`

- ✓ network : 192.168.42.64
- ✓ range DHCP : 192.168.42.70 - 192.168.42.110
- ✓ broadcast : 192.168.42.127

lan-3: `employee`

- ✓ network : 192.168.42.128
- ✓ range DHCP : 192.168.42.140 - 192.168.42.180
- ✓ broadcast : 192.168.42.191



Your mission requires to calculate each subnet's netmask.

All the sub-networks must be able to communicate with each other through the gateway.



Paquet filter

For security reasons, right segregations and access control must be applied:

- ✓ `administration` LAN can reach any server through the `server` network, on all ports.
- ✓ `employee` LAN can reach only reach the server on HTTP and HTTPS protocols.
- ✓ `employee`, `administration` and `server` LANs can go out on the internet, ping devices on another subnet, and retrieve DHCP and DNS information from the gateway.

VM 2 - Server Web

On this machine, install and setup a NGINX web server
Also install also php7.4 and required modules for this application.

You must deploy the page provided.

The server should always get the same IP (192.168.42.70) and the configuration must be in DHCP mode.

Install `mysql80-server` using the system port and install the provided `nsa501` database.
Create a user for this database with the following features:

- ✓ user: `backend` ;
- ✓ rights: All rights on `nsa501` table ;
- ✓ password: `Bit8Q6a6G`.



mac address

VM 3 & VM 4 - Clients

Both client machines can be installed with the system of your choice and with a GUI, the network configuration being automatically recovered by the DHCP.



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