T5 - Systems and Networks Seminar

Day 02

Gateway, DNS, DHCP notions

TASK 00 - CLIENT MACHINE

Install a virtual machine which has a graphical interface of your choice(KDE etc …)
After installation, this machine must have one network interface and it must be on private network mode.
This virtual machine will be used to test the configuration on the gateway, DHCP and DNS.

TASK 01 - GATEWAY MACHINE (3PT)

You have to create a new one with debian 10 which has not a graphical interface. (You can't keep yesterday's machine)

It is on this machine that everything will be done

Create two network interfaces.

- First interface must be in brigde mode
- Second interface must be private network. (same network to vm-client)

Download the autograder on the gateway VM and use it from there.

Task 02 - Network name (1PT)

Change the name to `vm-gateway` for your gateway.

Task 03 - Packages (2PT)

Install the following packages on `vm-gateway`

- tcpdump
- isc-dhcp-server
- bind9
- nmap

Task 04 - DHCP (4PT)

Use `isc-dhcp-server` on `vm-gateway` and configure it with the following features:

- network: 192.168.42.0/24
- netmask: 255.255.255.0
- IP for the private interface: 192.168.42.254 (not on DCHP mode)
- range DHCP: 192.168.42.100-192.168.42.150 (50 host)

You can test it with `vm-client` and it must get an IP that is in this range.

> Docker is forbidden.

Task 05 - Router (4pt)

On `vm-gateway`, configure the gateway with iptables

- Brige interface must be set on DHCP mode
- Private network interface must be on the same network as `vm-client`
- write iptables rules in the file `/etc/iptables/rules.v4`
- Allow all outpout traffic from the private network

Make sure your `vm-client` can get internet via your gateway.

> iptables

Task 06 - DNS (4pt)

Use **bind9** and create a DNS configuration with the following features:

- A domain `epi42.lan` (both machine must be in that domain).
- The following DNS record:
  - `gateway.epi42.lan` => `192.168.42.254`
  - `dhcp.epi42.lan` alias to `gateway.epi42.lan`

> Docker is forbidden.