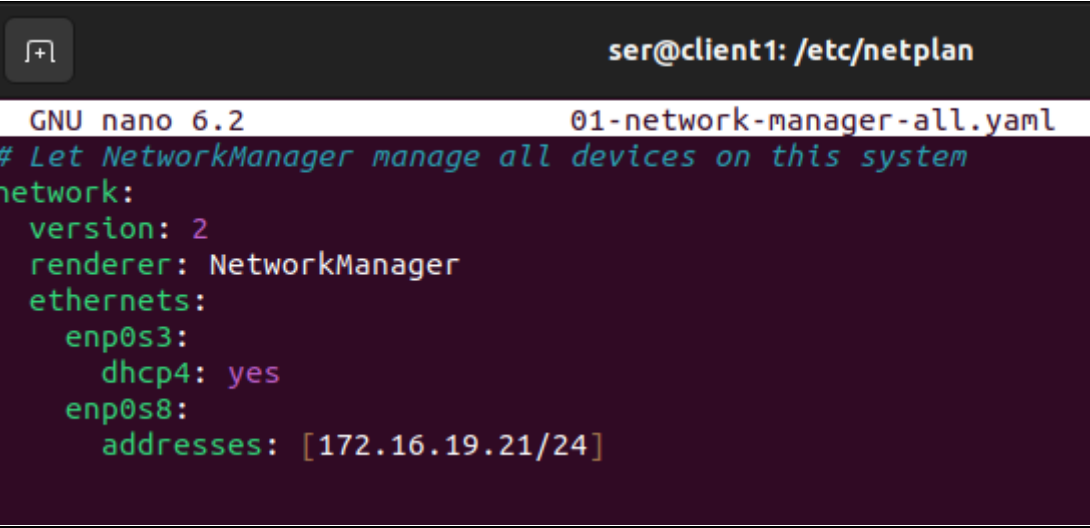
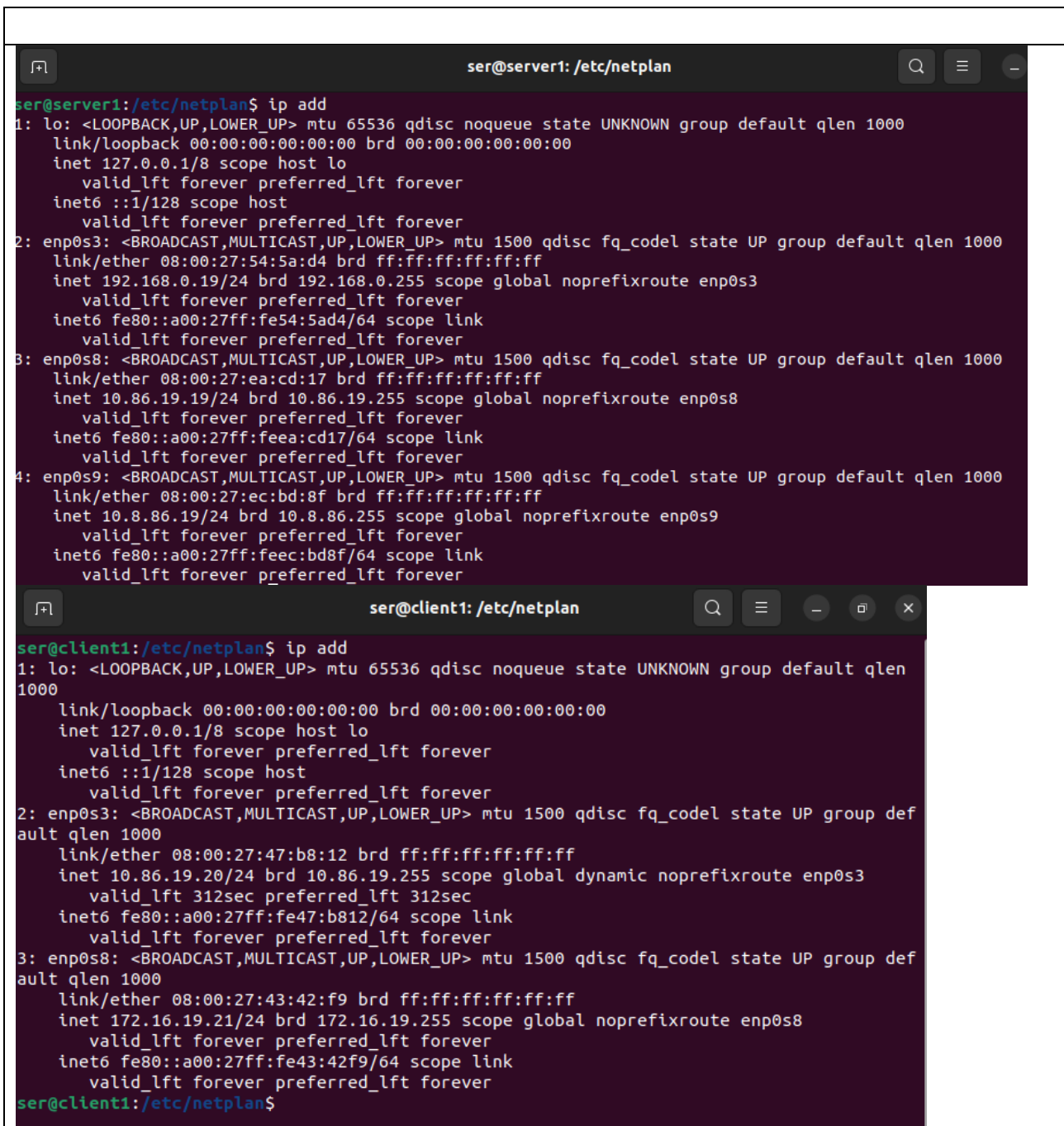


	<p>Server_1 – Віртуальна машина, на якій розгорнуто ОС Linux. Int1 цієї машини в режимі «Мережевий міст» підключений до мережі Net1, тобто знаходиться в адресному просторі домашньої мережі. IP-адреса Int1 встановлюється статично відповідно до адресного простору, наприклад 192.168.1.200/24. Інтерфейси Int2 та Int3 відповідно підключено в режимі «Внутрішня мережа» до мереж Net2 та Net3.</p>
 <pre>ser@client1: /etc/netplan GNU nano 6.2                                01-network-manager-all.yaml # Let NetworkManager manage all devices on this system network:   version: 2   renderer: NetworkManager   ethernets:     enp0s3:       dhcp4: yes     enp0s8:       addresses: [172.16.19.21/24]</pre>	<p>Client_1 та Client_2 – Віртуальні машини, на яких розгорнуто ОС Linux (бажано різні дистрибутиви, наприклад Ubuntu та CentOS). Інтерфейси підключені в режимі «Внутрішня мережа» до мереж Net2, Net3 та Net4 як показано на рисунку 1.</p>

```
[Z022@client2 network-scripts]$ less ifcfg-enp0s3
TYPE="Ethernet"
PROXY_METHOD="none"
BROWSER_ONLY="no"
BOOTPROTO="dhcp"
DEFROUTE="yes"
IPV4_FAILURE_FATAL="no"
IPV6INIT="yes"
IPV6_AUTOCONF="yes"
IPV6_DEFROUTE="yes"
IPV6_FAILURE_FATAL="no"
IPV6_ADDR_GEN_MODE="stable-privacy"
NAME="enp0s3"
UUID="8a653ae3-2ddc-4146-9dab-33ebe5be48a3"
DEVICE="enp0s3"
ONBOOT="yes"
[Z022@client2 network-scripts]$ less ifcfg-enp0s8
TYPE=Ethernet
PROXY_METHOD=none
BROWSER_ONLY=no
BOOTPROTO=none
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
IPV6_ADDR_GEN_MODE=stable-privacy
NAME=enp0s8
UUID=d01a4c14-7deb-4865-951d-9677d65b4d99
DEVICE=enp0s8
ONBOOT=yes
IPADDR=172.16.19.22
PREFIX=24
ifcfg-enp0s8 (END)
```

 <pre> ser@server1: /etc/netplan ser@server1:/etc/netplan\$ ip add 1: lo: &lt;LOOPBACK,UP,LOWER_UP&gt; mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00    inet 127.0.0.1/8 scope host lo        valid_lft forever preferred_lft forever    inet6 ::1/128 scope host        valid_lft forever preferred_lft forever 2: enp0s3: &lt;BROADCAST,MULTICAST,UP,LOWER_UP&gt; mtu 1500 qdisc fq_codel state UP group default qlen 1000    link/ether 08:00:27:54:5a:d4 brd ff:ff:ff:ff:ff:ff    inet 192.168.0.19/24 brd 192.168.0.255 scope global noprefixroute enp0s3        valid_lft forever preferred_lft forever    inet6 fe80::a00:27ff:fe54:5ad4/64 scope link        valid_lft forever preferred_lft forever 3: enp0s8: &lt;BROADCAST,MULTICAST,UP,LOWER_UP&gt; mtu 1500 qdisc fq_codel state UP group default qlen 1000    link/ether 08:00:27:ea:cd:17 brd ff:ff:ff:ff:ff:ff    inet 10.86.19.19/24 brd 10.86.19.255 scope global noprefixroute enp0s8        valid_lft forever preferred_lft forever    inet6 fe80::a00:27ff:feea:cd17/64 scope link        valid_lft forever preferred_lft forever 4: enp0s9: &lt;BROADCAST,MULTICAST,UP,LOWER_UP&gt; mtu 1500 qdisc fq_codel state UP group default qlen 1000    link/ether 08:00:27:ec:bd:8f brd ff:ff:ff:ff:ff:ff    inet 10.8.86.19/24 brd 10.8.86.255 scope global noprefixroute enp0s9        valid_lft forever preferred_lft forever    inet6 fe80::a00:27ff:feec:bd8f/64 scope link        valid_lft forever preferred_lft forever  ser@client1: /etc/netplan ser@client1:/etc/netplan\$ ip add 1: lo: &lt;LOOPBACK,UP,LOWER_UP&gt; mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00    inet 127.0.0.1/8 scope host lo        valid_lft forever preferred_lft forever    inet6 ::1/128 scope host        valid_lft forever preferred_lft forever 2: enp0s3: &lt;BROADCAST,MULTICAST,UP,LOWER_UP&gt; mtu 1500 qdisc fq_codel state UP group default qlen 1000    link/ether 08:00:27:47:b8:12 brd ff:ff:ff:ff:ff:ff    inet 10.86.19.20/24 brd 10.86.19.255 scope global dynamic noprefixroute enp0s3        valid_lft 312sec preferred_lft 312sec    inet6 fe80::a00:27ff:fe47:b812/64 scope link        valid_lft forever preferred_lft forever 3: enp0s8: &lt;BROADCAST,MULTICAST,UP,LOWER_UP&gt; mtu 1500 qdisc fq_codel state UP group default qlen 1000    link/ether 08:00:27:43:42:f9 brd ff:ff:ff:ff:ff:ff    inet 172.16.19.21/24 brd 172.16.19.255 scope global noprefixroute enp0s8        valid_lft forever preferred_lft forever    inet6 fe80::a00:27ff:fe43:42f9/64 scope link        valid_lft forever preferred_lft forever ser@client1:/etc/netplan\$ </pre>	<p>Адреса мережі Net2 – 10.Y.D.0/24, де Y – дві останні цифри з вашого року народження, D – дата народження.</p> <p>Адреса мережі Net3 – 10.M.Y.0/24, де M – номер місяця народження.</p> <p>Адреса мережі Net4 – 172.16.D.0/24.</p> <p>Увага! Якщо, адресний простір Net2, Net3 або Net4 перетинається з адресним простором Net1 – відповідну адресу можна змінити на власний розсуд.</p>
--	--

```
[2022@client2 network-scripts]$ ip add
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:54:5a:d4 brd ff:ff:ff:ff:ff:ff
    inet 10.8.86.20/24 brd 10.8.86.255 scope global noprefixroute dynamic enp0s3
        valid_lft 473sec preferred_lft 473sec
    inet6 fe80::51a2:9e56:6fc0:40ce/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:ce:82:09 brd ff:ff:ff:ff:ff:ff
    inet 172.16.19.22/24 brd 172.16.19.255 scope global noprefixroute enp0s8
        valid_lft forever preferred_lft forever
    inet6 fe80::57b7:b1d:9fc3:5000/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
[2022@client2 network-scripts]$ _
```

Activities Terminal Oct 21 00:18

ser@server1: /etc/netplan

```
GNU nano 6.2 01-network-manager-all.yaml *
# Let NetworkManager manage all devices on this system
network:
  version: 2
  renderer: NetworkManager
  ethernets:

    enp0s3:
      dhcp4: no
      gateway4: 192.168.0.1
      addresses: [192.168.0.19/24]

    enp0s8:
      addresses: [10.86.19.19/24]

    enp0s9:
      addresses: [10.8.86.19/24]
```

1. На Server\_1 налаштувати статичні адреси на всіх інтерфейсах.

<div data-bbox="100 76 174 140"></div> <div data-bbox="945 92 1279 124">ser@server1: /etc/dhcp</div> <div data-bbox="89 159 1310 1117"><div>GNU nano 6.2</div><div>dhcpd.conf</div><pre># If this DHCP server is the official DHCP server for the local # network, the authoritative directive should be uncommented. authoritative;  subnet 10.86.19.0 netmask 255.255.255.0 { range 10.86.19.50 10.86.19.254; option routers 10.86.19.1; }  host client1 { hardware ethernet 08:00:27:47:b8:12; fixed-address 10.86.19.20; }  subnet 10.08.86.0 netmask 255.255.255.0 { range 10.08.86.50 10.08.86.254; option routers 10.08.86.1; }  host client2 { hardware ethernet 08:00:27:54:5a:d4; fixed-address 10.08.86.20; }</pre></div>	<p>2. На Server_1 налаштувати DHCP сервіс, який буде конфігурувати адреси Int1 Client_1 та Client_2</p>
--	---



ser@server1: /etc/default

GNU nano 6.2

isc-dhcp-server

```
# Defaults for isc-dhcp-server (sourced by /etc/init.d/isc-dhcp-server)

# Path to dhcpd's config file (default: /etc/dhcp/dhcpd.conf).
#DHCPDv4_CONF=/etc/dhcp/dhcpd.conf
#DHCPDv6_CONF=/etc/dhcp/dhcpd6.conf

# Path to dhcpd's PID file (default: /var/run/dhcpd.pid).
#DHCPDv4_PID=/var/run/dhcpd.pid
#DHCPDv6_PID=/var/run/dhcpd6.pid

# Additional options to start dhcpd with.
# Don't use options -cf or -pf here; use DHCPD_CONF/ DHCPD_PID instead
#OPTIONS=""

# On what interfaces should the DHCP server (dhcpd) serve DHCP requests?
# Separate multiple interfaces with spaces, e.g. "eth0 eth1".
INTERFACESv4="enp0s8 enp0s9"
INTERFACESv6=""
```

<pre> ser@server1: /etc/dhcp  ser@server1:/etc/dhcp\$ ping 10.86.19.20 PING 10.86.19.20 (10.86.19.20) 56(84) bytes of data. 64 bytes from 10.86.19.20: icmp_seq=1 ttl=64 time=0.876 ms 64 bytes from 10.86.19.20: icmp_seq=2 ttl=64 time=1.77 ms ^C --- 10.86.19.20 ping statistics --- 2 packets transmitted, 2 received, 0% packet loss, time 1002ms rtt min/avg/max/mdev = 0.876/1.321/1.766/0.445 ms ser@server1:/etc/dhcp\$ ping 172.16.19.21 PING 172.16.19.21 (172.16.19.21) 56(84) bytes of data. From 84.116.254.96 icmp_seq=1 Destination Net Unreachable From 84.116.254.96 icmp_seq=2 Destination Net Unreachable  --- 172.16.19.21 ping statistics --- 2 packets transmitted, 0 received, +2 errors, 100% packet loss, time 1001ms  ser@server1:/etc/dhcp\$ ping 10.8.86.20 PING 10.8.86.20 (10.8.86.20) 56(84) bytes of data. 64 bytes from 10.8.86.20: icmp_seq=1 ttl=64 time=0.762 ms 64 bytes from 10.8.86.20: icmp_seq=2 ttl=64 time=1.31 ms ^C --- 10.8.86.20 ping statistics --- 2 packets transmitted, 2 received, 0% packet loss, time 1005ms rtt min/avg/max/mdev = 0.762/1.035/1.308/0.273 ms ser@server1:/etc/dhcp\$ ping 172.16.19.22 PING 172.16.19.22 (172.16.19.22) 56(84) bytes of data. From 84.116.254.96 icmp_seq=1 Destination Net Unreachable From 84.116.254.96 icmp_seq=2 Destination Net Unreachable From 84.116.254.96 icmp_seq=3 Destination Net Unreachable ^C --- 172.16.19.22 ping statistics --- 3 packets transmitted, 0 received, +3 errors, 100% packet loss, time 2004ms </pre>	<p>3. За допомогою команд ping та traceroute перевірити зв'язок між віртуальними машинами. Результат пояснити.</p>
<pre> client2 net3 080027545AD4 net4 080027CE8209 </pre>	<p>Увага! Для того, щоб з Client_1 та Client_2 проходили пакети в мережу Internet (точніше щоб повертались з Internet на Client_1 та Client_2) на Wi-Fi Router необхідно налаштувати статичні маршрути для мереж Net2 та Net3. Якщо такої можливості немає інтерфейс Int1 на Server_1 перевести в режим NAT.</p>

<pre> ser@client1: /etc/netplan ser@client1:/etc/netplan\$ ip addr 1: lo: &lt;LOOPBACK,UP,LOWER_UP&gt; mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000     link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00     inet 127.0.0.1/8 scope host lo         valid_lft forever preferred_lft forever     inet 172.17.29.1/24 scope global lo         valid_lft forever preferred_lft forever     inet 172.17.39.1/24 scope global lo         valid_lft forever preferred_lft forever     inet6 ::1/128 scope host         valid_lft forever preferred_lft forever 2: enp0s3: &lt;BROADCAST,MULTICAST,UP,LOWER_UP&gt; mtu 1500 qdisc fq_codel state UP group default qlen 1000     link/ether 08:00:27:47:b8:12 brd ff:ff:ff:ff:ff:ff     inet 10.86.19.20/24 brd 10.86.19.255 scope global dynamic noprefixroute enp0s3         valid_lft 541sec preferred_lft 541sec     inet6 fe80::a00:27ff:fe47:b812/64 scope link         valid_lft forever preferred_lft forever 3: enp0s8: &lt;BROADCAST,MULTICAST,UP,LOWER_UP&gt; mtu 1500 qdisc fq_codel state UP group default qlen 1000     link/ether 08:00:27:43:42:f9 brd ff:ff:ff:ff:ff:ff     inet 172.16.19.21/24 brd 172.16.19.255 scope global noprefixroute enp0s8         valid_lft forever preferred_lft forever     inet6 fe80::a00:27ff:fe43:42f9/64 scope link         valid_lft forever preferred_lft forever  [2022@client2 ~]\$ sudo ip route add 172.17.39.0/24 via 172.16.19.21 [2022@client2 ~]\$ sudo ip route add 172.17.29.0/24 via 10.8.86.19 [2022@client2 ~]\$ ip route default via 10.8.86.1 dev enp0s3 proto dhcp metric 100 10.8.86.0/24 dev enp0s3 proto kernel scope link src 10.8.86.20 metric 100 172.16.19.0/24 dev enp0s8 proto kernel scope link src 172.16.19.22 metric 100 172.17.29.0/24 via 10.8.86.19 dev enp0s3 172.17.39.0/24 via 172.16.19.21 dev enp0s8 [2022@client2 ~]\$ ping 172.17.39.0 PING 172.17.39.0 (172.17.39.0) 56(84) bytes of data. 64 bytes from 172.17.39.0: icmp_seq=1 ttl=64 time=2.85 ms 64 bytes from 172.17.39.0: icmp_seq=2 ttl=64 time=1.05 ms </pre>	<p>4. На віртуальному інтерфейсу lo Client_1 призначити дві IP адреси за таким правилом: 172.17.D+10.1/24 та 172.17.D+20.1/24. Налаштувати маршрутизацію таким чином, щоб трафік з Client_2 до 172.17.D+10.1 проходив через Server_1, а до 172.17.D+20.1 через Net4. Для перевірки використати traceroute.</p>
<pre> 172.17.29.1 172.17.39.1 10101100.00010001.00011101.00000001 (172.17.29.1) 10101100.00010001.00100111.00000001 (172.17.39.1) 10101100.00010001.00000000.00000000 (172.17.0.0) 11111111.11111111.11000000.00000000 (/18) </pre>	<p>5. Розрахувати спільну адресу та маску (summarizing) адрес 172.17.D+10.1 та 172.17.D+20.1, при чому префікс має бути максимально можливим. Видалити маршрути, встановлені на попередньому кроці та замінити</p>



```

[20220client2 ~]# ip route
default via 10.8.86.1 dev enp0s3 proto dhcp metric 100
10.8.86.0/24 dev enp0s3 proto kernel scope link src 10.8.86.20 metric 100
172.16.19.0/24 dev enp0s8 proto kernel scope link src 172.16.19.22 metric 101
172.17.29.0/24 via 10.8.86.19 dev enp0s3
172.17.39.0/24 via 172.16.19.21 dev enp0s8
[20220client2 ~]# sudo ip route del 172.17.29.0/24 via 10.8.86.19
[20220client2 ~]# sudo ip route del 172.17.39.0/24 via 172.16.19.21
[20220client2 ~]# ip route
default via 10.8.86.1 dev enp0s3 proto dhcp metric 100
10.8.86.0/24 dev enp0s3 proto kernel scope link src 10.8.86.20 metric 100
172.16.19.0/24 dev enp0s8 proto kernel scope link src 172.16.19.22 metric 101
[20220client2 ~]# sudo ip route del 172.17.0.0/18 via 10.8.86.19
RTNETLINK answers: No such process
[20220client2 ~]# sudo ip route add 172.17.0.0/18 via 10.8.86.19
[20220client2 ~]# ip route
default via 10.8.86.1 dev enp0s3 proto dhcp metric 100
10.8.86.0/24 dev enp0s3 proto kernel scope link src 10.8.86.20 metric 100
172.16.19.0/24 dev enp0s8 proto kernel scope link src 172.16.19.22 metric 101
172.17.0.0/18 via 10.8.86.19 dev enp0s3

```

їх об'єднанням маршрутом, якій має проходити через Server\_1.

```
ser@server1:~$ sudo ip route add 172.17.29.0/24 via 10.86.19.20
[sudo] password for ser:
ser@server1:~$ route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default _gateway 0.0.0.0 UG 100 0 0 enp0s3
10.8.86.0 0.0.0.0 255.255.255.0 U 102 0 0 enp0s9
10.86.19.0 0.0.0.0 255.255.255.0 U 101 0 0 enp0s8
link-local 0.0.0.0 255.255.0.0 U 1000 0 0 enp0s3
172.17.29.0 10.86.19.20 255.255.255.0 UG 0 0 0 enp0s8
192.168.0.0 0.0.0.0 255.255.255.0 U 100 0 0 enp0s3
ser@server1:~$ sudo ip route del 172.17.29.0/24 via 10.86.19.20
[sudo] password for ser:
ser@server1:~$ route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default _gateway 0.0.0.0 UG 100 0 0 enp0s3
10.8.86.0 0.0.0.0 255.255.255.0 U 102 0 0 enp0s9
10.86.19.0 0.0.0.0 255.255.255.0 U 101 0 0 enp0s8
link-local 0.0.0.0 255.255.0.0 U 1000 0 0 enp0s3
192.168.0.0 0.0.0.0 255.255.255.0 U 100 0 0 enp0s3
ser@server1:~$ sudo ip route add 172.17.0.0/18 via 10.86.19.20
ser@server1:~$ route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default _gateway 0.0.0.0 UG 100 0 0 enp0s3
10.8.86.0 0.0.0.0 255.255.255.0 U 102 0 0 enp0s9
10.86.19.0 0.0.0.0 255.255.255.0 U 101 0 0 enp0s8
link-local 0.0.0.0 255.255.0.0 U 1000 0 0 enp0s3
172.17.0.0 10.86.19.20 255.255.192.0 UG 0 0 0 enp0s8
192.168.0.0 0.0.0.0 255.255.255.0 U 100 0 0 enp0s3
```

client2 to server1

6. Налаштувати SSH сервіс таким чином, щоб Client\_1 та Client\_2 могли підключатись до Server\_1 та один до одного.

```
[2022@client2 .ssh]$ ssh-copy-id -i id_rsa.pub ser@10.8.86.19
/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "id_rsa.pub"
/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are
installed
/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to
the new keys
ser@10.8.86.19's password:

Number of key(s) added: 1

Now try logging into the machine, with:  "ssh 'ser@10.8.86.19'"
and check to make sure that only the key(s) you wanted were added.

[2022@client2 .ssh]$ ssh ser@10.8.86.19
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-52-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

51 updates can be applied immediately.
51 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Last login: Sat Oct 22 23:08:37 2022 from 10.8.86.20
ser@server1:~$ exit
logout
Connection to 10.8.86.19 closed.
```

client1 to server1

```
ser@client1:~$ ssh-copy-id ser@10.86.19.19
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any
that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now
it is to install the new keys
ser@10.86.19.19's password:

Number of key(s) added: 1

Now try logging into the machine, with:  "ssh 'ser@10.86.19.19'"
and check to make sure that only the key(s) you wanted were added.

ser@client1:~$ ssh ser@10.86.19.19
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-52-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

51 updates can be applied immediately.
51 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Last login: Sat Oct 22 23:22:05 2022 from 10.8.86.20
ser@server1:~$
```

### client2 to client1

```
[2022@client2 ~]$ ssh ser@172.16.19.21
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-50-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

0 updates can be applied immediately.

Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your Internet connection
or proxy settings

Last login: Sat Oct 22 23:36:29 2022 from 172.16.19.22
ser@client1:~$
```

### client1 to client2

```

ser@client1:~$ ssh 2022@172.16.19.22
2022@172.16.19.22's password:
Last login: Sat Oct 22 16:55:54 2022
[2022@client2 ~]$ exit
logout
Connection to 172.16.19.22 closed.
ser@client1:~$ ssh-copy-id 2022@172.16.19.22
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any
that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now
it is to install the new keys
2022@172.16.19.22's password:
Number of key(s) added: 1

Now try logging into the machine, with: "ssh '2022@172.16.19.22'"
and check to make sure that only the key(s) you wanted were added.

ser@client1:~$ ssh 2022@172.16.19.22
Last login: Sat Oct 22 17:01:35 2022 from 172.16.19.21
[2022@client2 ~]$ exit
logout
Connection to 172.16.19.22 closed.
ser@client1:~$

```

7. Налаштуйте на Server\_1 firewall таким чином:

- Дозволено підключатись через SSH з Client\_1 та заборонено з Client\_2

```

ser@server1:/etc/netplan$ sudo iptables -A INPUT -p tcp --dport ssh -s 10.8.86.20 -j DROP
[sudo] password for ser:
ser@server1:/etc/netplan$ sudo iptables -A INPUT -p tcp --dport ssh -s 10.86.19.20 -j ACCEPT
ser@server1:/etc/netplan$ sudo iptables -L -n -V --line-numbers
iptables v1.8.7 (nf_tables)
ser@server1:/etc/netplan$ sudo iptables -L -n -v --line-numbers
Chain INPUT (policy ACCEPT 0 packets, 0 bytes)
num  pkts bytes target    prot opt in     out     source          destination
1      0      0 DROP      tcp  --  *      *        10.8.86.20      0.0.0.0/0      tcp dpt:22
2      0      0 ACCEPT    tcp  --  *      *        10.86.19.20     0.0.0.0/0      tcp dpt:22

Chain FORWARD (policy ACCEPT 0 packets, 0 bytes)
num  pkts bytes target    prot opt in     out     source          destination

Chain OUTPUT (policy ACCEPT 0 packets, 0 bytes)
num  pkts bytes target    prot opt in     out     source          destination
ser@server1:/etc/netplan$

```

```

ser@server1:/etc/netplan$ sudo iptables -A FORWARD -d 172.17.39.1 -p icmp --icmp-type echo-request -
[sudo] password for ser:
ser@server1:/etc/netplan$ sudo iptables -A FORWARD -d 172.17.29.1 -p icmp --icmp-type echo-request -
ser@server1:/etc/netplan$ sudo iptables -L -vn
Chain INPUT (policy ACCEPT 0 packets, 0 bytes)
 pkts bytes target    prot opt in     out     source                   destination
 1002 113K ACCEPT    all  --  lo      *       0.0.0.0/0                 0.0.0.0/0

Chain FORWARD (policy ACCEPT 0 packets, 0 bytes)
 pkts bytes target    prot opt in     out     source                   destination
    0    0 DROP      icmp --  *       *       0.0.0.0/0                 172.17.39.1             icmp-type 8
    0    0 ACCEPT    icmp --  *       *       0.0.0.0/0                 172.17.29.1             icmp-type 8

Chain OUTPUT (policy ACCEPT 0 packets, 0 bytes)
 pkts bytes target    prot opt in     out     source                   destination
ser@server1:/etc/netplan$

```

• 3 Client\_2 на 172.17.D+10.1 ping проходив, а на 172.17.D+20.1 не проходив

```

ser@server1:/etc/netplan$ sudo iptables -t nat -A POSTROUTING -s 10.8.86.20 -j SNAT --to-source 10.0
ser@server1:/etc/netplan$ sudo iptables -t nat -A POSTROUTING -s 10.86.19.20 -j SNAT --to-source 10.0
ser@server1:/etc/netplan$ sudo iptables -t nat -L --line-numbers
Chain PREROUTING (policy ACCEPT)
num target    prot opt source                   destination

Chain INPUT (policy ACCEPT)
num target    prot opt source                   destination

Chain OUTPUT (policy ACCEPT)
num target    prot opt source                   destination

Chain POSTROUTING (policy ACCEPT)
num target    prot opt source                   destination
1  SNAT        all  --  10.8.86.20              anywhere                to:10.0.2.15
2  SNAT        all  --  10.86.19.20             anywhere                to:10.0.2.15

```

8. Якщо в п.3 була налаштована маршрутизація для доступу Client\_1 та Client\_2 до мережі Інтернет – видалити відповідні записи. На Server\_1 налаштувати NAT сервіс таким чином, щоб з Client\_1 та Client\_2 проходив ping в мережу Інтернет