Warsztaty 3

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Zadanie 1

Poleceniem ip aktywuj interfejsy enp-rem4 maszyn Virbian1 i Virbian4. Przypisz interfejsowi enp-rem4 maszyny Virbian1 adres `192.168.4.1/24` , zaś interfejsowi enp-rem4 maszyny Virbian4 adres `192.168.4.4/24`.

Zadanie 2

I Niech sieci locali odpowiada zakres adresów `192.168.i.0/24` . Przypisz dwóm interfejsom podłączonym do sieci locali wybrane adresy IP z sieci `192.168.i.0/24` .

Zadanie 3

Dla maszyny Virbian1 ustaw trasę domyślną przechodzącą przez maszynę Virbian2, zaś dla maszyny Virbian5 trasę domyślną przechodzącą przez maszynę Virbian4.

Zadanie 4

Na maszynach Virbian2, Virbian3 i Virbian4 włącz protokół RIP (w wersji 2) dla wszystkich sieci podłączonych bezpośrednio do tych maszyn. Wyświetl zbudowane w ten sposób tablice routingu.

Zadanie 5

Sprawdź wzajemną osiągalność maszyn Virbian1, Virbian3 i Virbian5 poleceniem ping. Wyświetl trasy między tymi maszynami poleceniem traceroute. W razie potrzeby zidentyfikuj problem za pomocą Wiresharka.

Zadanie 1 i 2

V1:

```
* sudo ip link set enp0s3 name enp-loc0
* sudo ip link set up dev enp-loc0
* sudo ip addr add 192.168.0.1/24 dev enp-loc0
```

V2:

```
* sudo ip link set enp0s3 name enp-loc0
* sudo ip link set up dev enp-loc0
* sudo ip addr add 192.168.0.2/24 dev enp-loc0

* sudo ip link set enp0s8 name enp-loc1
* sudo ip link set up dev enp-loc1
* sudo ip addr add 192.168.1.2/24 dev enp-loc1

* sudo ip link set enp0s9 name enp-loc2
* sudo ip link set up dev enp-loc2
* sudo ip addr add 192.168.2.2/24 dev enp-loc2
```

V3:

```
* sudo ip link set enp0s3 name enp-loc1
* sudo ip link set up dev enp-loc1
* sudo ip addr add 192.168.1.3/24 dev enp-loc1

* sudo ip link set enp0s8 name enp-loc3
* sudo ip link set up dev enp-loc3
* sudo ip addr add 192.168.3.3/24 dev enp-loc3
```

V4:

```
* sudo ip link set enp0s3 name enp-loc2
* sudo ip link set up dev enp-loc2
* sudo ip addr add 192.168.2.4/24 dev enp-loc2

* sudo ip link set enp0s8 name enp-loc3
* sudo ip link set up dev enp-loc3
* sudo ip addr add 192.168.3.4/24 dev enp-loc3

* sudo ip link set enp0s9 name enp-loc4
* sudo ip link set up dev enp-loc4
* sudo ip addr add 192.168.4.4/24 dev enp-loc4
```

V5:

```
* sudo ip link set enp0s3 name enp-loc4
* sudo ip link set up dev enp-loc4
* sudo ip addr add 192.168.4.5/24 dev enp-loc4
```

Zadanie 3

V1:

```
* sudo ip route add default via 192.168.0.2
```

V5:

```
* sudo ip route add default via 192.168.4.4
```

Zadanie 4

V2:

```
* sudo touch /etc/quagga/ripd.conf
* sudo touch /etc/quagga/zebra.conf
* sudo touch /etc/quagga/vtysh.conf
* sudo systemctl start ripd
* sudo vtysh
* configure terminal
* router rip
* version 2
* network 192.168.0.0/24
* network 192.168.1.0/24
* network 192.168.2.0/24
```

V3:

```
* sudo touch /etc/quagga/ripd.conf
* sudo touch /etc/quagga/zebra.conf
* sudo touch /etc/quagga/vtysh.conf
* sudo systemctl start ripd
* sudo vtysh
* configure terminal
* ip router rip
* version 2
* network 192.168.1.0/24
* network 192.168.3.0/24
```

V4:

```
* sudo touch /etc/quagga/ripd.conf
* sudo touch /etc/quagga/zebra.conf
* sudo touch /etc/quagga/vtysh.conf
* sudo systemctl start ripd
* sudo vtysh
* configure terminal
* router rip
* version 2
* network 192.168.2.0/24
* network 192.168.3.0/24
* network 192.168.4.0/24
```

teraz na V2, V3, V4:

```
* sudo vtysh
* show ip rip
```

Zadanie 5

(traceroute od razu załatwia nam pinga)

traceroute V1 -> V3

```
user@virbian:~$ traceroute 192.168.1.3
traceroute to 192.168.1.3 (192.168.1.3), 30 hops max, 60 byte packets
 1  192.168.0.2 (192.168.0.2)  0.385 ms  0.420 ms  0.389 ms
 2  192.168.1.3 (192.168.1.3)  0.701 ms  0.792 ms  0.752 ms
user@virbian:~$ traceroute 192.168.3.3
traceroute to 192.168.3.3 (192.168.3.3), 30 hops max, 60 byte packets
 1  192.168.0.2 (192.168.0.2)  0.348 ms  0.367 ms  0.334 ms
 2  192.168.3.3 (192.168.3.3)  0.500 ms  0.459 ms  0.420 ms
```

traceroute V1 -> V5

```
user@virbian:~$ traceroute 192.168.4.5
traceroute to 192.168.4.5 (192.168.4.5), 30 hops max, 60 byte packets
 1  192.168.0.2 (192.168.0.2)  0.442 ms  0.378 ms  0.331 ms
 2  192.168.2.4 (192.168.2.4)  0.551 ms  0.510 ms  0.220 ms
 3  192.168.4.5 (192.168.4.5)  0.712 ms  0.481 ms  0.403 ms
```

traceroute V3 -> V1

```
user@virbian:~$ traceroute 192.168.0.1
traceroute to 192.168.0.1 (192.168.0.1), 30 hops max, 60 byte packets
 1  192.168.1.2 (192.168.1.2)  0.315 ms  0.214 ms  0.173 ms
 2  192.168.0.1 (192.168.0.1)  0.489 ms  0.657 ms  0.620 ms
```

traceroute V3 -> V5

```
user@virbian:~$ traceroute 192.168.4.5
traceroute to 192.168.4.5 (192.168.4.5), 30 hops max, 60 byte packets
 1  192.168.3.4 (192.168.3.4)  0.507 ms  0.394 ms  0.349 ms
 2  192.168.4.5 (192.168.4.5)  1.521 ms  1.310 ms  1.115 ms
```

traceroute V5 -> V1

```
user@virbian:~$ traceroute 192.168.0.1
traceroute to 192.168.0.1 (192.168.0.1), 30 hops max, 60 byte packets
 1  192.168.4.4 (192.168.4.4)  0.299 ms  0.230 ms  0.197 ms
 2  192.168.2.2 (192.168.2.2)  0.391 ms  0.363 ms  0.330 ms
 3  192.168.0.1 (192.168.0.1)  1.781 ms  1.744 ms  1.699 ms
user@virbian:~$
```

traceroute V5 -> V3

```
user@virbian:~$ traceroute 192.168.1.3
traceroute to 192.168.1.3 (192.168.1.3), 30 hops max, 60 byte packets
 1  192.168.4.4 (192.168.4.4)  0.283 ms  0.211 ms  0.165 ms
 2  192.168.2.2 (192.168.2.2)  0.463 ms  0.616 ms  0.993 ms
 3  192.168.1.3 (192.168.1.3)  1.109 ms  1.071 ms  1.031 ms
user@virbian:~$ traceroute 192.168.3.3
traceroute to 192.168.3.3 (192.168.3.3), 30 hops max, 60 byte packets
 1  192.168.4.4 (192.168.4.4)  1.059 ms  0.931 ms  0.889 ms
 2  192.168.3.3 (192.168.3.3)  1.793 ms  1.698 ms  1.649 ms
user@virbian:~$
```