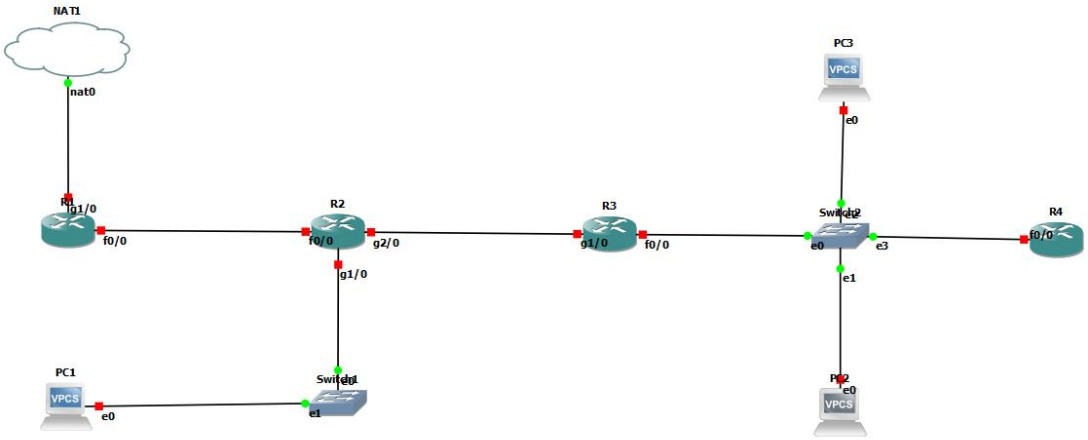
Sprawozdanie z Listy 4 Technologie Sieciowe Mateusz Gancarz

1. Za pomocą programu GNS3 musieliśmy stworzyć sieć o podanej topologii.



Musiała ona spełniać następujące warunki:

-wirtualna sieć powinna być połączona z zewnętrzną siecią

-ruter R1 musiał uzyskać dynamiczny adres IP z sieci ‘Cloud’

-pozostałe urządzenia mają posiadać statyczne adresy w swoich sieciach

-możliwe było wysyłanie komunikatów “ping” pomiędzy dowolną parą urządzeń sieci wirtualnej

-możliwe było wysyłanie komunikatów “ping” z dowolnego urządzenia w sieci wirtualnej na zewnętrzny adres, np. “google.com”.

2. Aby podłączyć sieć z zewnętrzną siecią ‘Cloud’ musieliśmy skonfigurować następująco ruter R1:

```
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#int g1/0
R1(config-if)#ip address dhcp
R1(config-if)#ip nat outside

*Jun  6 17:48:08.503: %LINEPROTO-5-UPDOWN: Line protocol on Interface NVI0, changed state to up
R1(config-if)#no shut
R1(config-if)#end
R1#
*Jun  6 17:48:15.863: %SYS-5-CONFIG_I: Configured from console by console
R1#
*Jun  6 17:48:16.127: %LINK-3-UPDOWN: Interface GigabitEthernet1/0, changed state to up
*Jun  6 17:48:17.127: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0, changed state to up
R1#
*Jun  6 17:48:30.599: %DHCP-6-ADDRESS_ASSIGN: Interface GigabitEthernet1/0 assigned DHCP address 192.168.122.21, mask 255.25
5.255.0, hostname R1

R1#
```

```
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#ip domain-lookup
R1(config)#ip name-server 8.8.8.8
R1(config)#end
R1#
*Jun  6 17:49:00.111: %SYS-5-CONFIG_I: Configured from console by console
R1#ping google.com

Translating "google.com"...domain server (192.168.122.1) [OK]

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 216.58.208.206, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 8/9/12 ms
R1#
```

3. Za pomocą następujących poleceń połączyliśmy z siecią zewnętrzną nasze pozostałe rutery:

```
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#int f0/0
R1(config-if)#ip add 192.168.3.4 255.255.255.0
R1(config-if)#ip nat inside
R1(config-if)#no shut
R1(config-if)#end
R1#
*Jun  6 17:49:58.855: %SYS-5-CONFIG_I: Configured from console by console
R1#
*Jun  6 17:49:59.695: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Jun  6 17:50:00.695: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#router rip
R1(config-router)#version 2
R1(config-router)#network 192.168.122.0
R1(config-router)#network 192.168.3.0
R1(config-router)#default-information originate
R1(config-router)#end
R1#
*Jun  6 17:50:39.863: %SYS-5-CONFIG_I: Configured from console by console
R1#
```

```
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#access-list 10 permit 192.168.1.0 0.0.0.255
R1(config)#access-list 10 permit 192.168.2.0 0.0.0.255
R1(config)#access-list 10 permit 192.168.3.0 0.0.0.255
R1(config)#access-list 10 permit 192.168.4.0 0.0.0.255
R1(config)#ip nat inside source list 10 interface g1/0 overload
R1(config)#end
R1#
*Jun  6 18:00:02.199: %SYS-5-CONFIG_I: Configured from console by console
R1#
```

4. Aby skonfigurować dowolny ruter w naszej wirtualnej sieci, musieliśmy mu nadać adres dla każdej sieci, a następnie połączyć go z serwerem DNS.

```
R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#int f0/0
R2(config-if)#ip add 192.168.3.5 255.255.255.0
R2(config-if)#no shut
R2(config-if)#end
R2#conf t
*Jun  6 17:51:41.707: %SYS-5-CONFIG_I: Configured from console by console
R2#conf t
*Jun  6 17:51:42.859: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Jun  6 17:51:43.859: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#int g1/0
R2(config-if)#ip add 192.168.1.5 255.255.255.0
R2(config-if)#no shut
R2(config-if)#end
R2#
*Jun  6 17:52:05.931: %SYS-5-CONFIG_I: Configured from console by console
R2#
*Jun  6 17:52:07.299: %LINK-3-UPDOWN: Interface GigabitEthernet1/0, changed state to up
*Jun  6 17:52:08.299: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0, changed state to up
R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#int g2/0
R2(config-if)#ip add 192.168.4.5 255.255.255.0
R2(config-if)#no shut
R2(config-if)#end
R2#
*Jun  6 17:52:28.495: %SYS-5-CONFIG_I: Configured from console by console
R2#
*Jun  6 17:52:29.835: %LINK-3-UPDOWN: Interface GigabitEthernet2/0, changed state to up
*Jun  6 17:52:30.835: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet2/0, changed state to up
R2#
```

```
R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#ip domain lookup source-interface
% Incomplete command.

R2(config)#ip domain lookup source-interface f0/0
R2(config)#ip name-server 8.8.8.8
R2(config)#router rip
R2(config-router)#version 2
R2(config-router)#network 192.168.3.0
R2(config-router)#network 192.168.1.0
R2(config-router)#network 192.168.4.0
R2(config-router)#end
R2#ping
*Jun  6 17:55:32.043: %SYS-5-CONFIG_I: Configured from console by console
R2#ping google.com

Translating "google.com"...domain server (8.8.8.8)
% Unrecognized host or address, or protocol not running.

R2#ping 192.168.3.4

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.3.4, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/16/24 ms
R2#ping google.com

Translating "google.com"...domain server (8.8.8.8) [OK]

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 142.250.203.142, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 12/31/64 ms
R2#
```

5. Aby skonfigurować komputery w naszej wirtualnej sieci, wystarczyło im nadać adres w sieci, której występują i połączyć je z serwerem DNS.

```
PC2> ip 192.168.2.3/24 192.168.2.6
Checking for duplicate address...
PC2 : 192.168.2.3 255.255.255.0 gateway 192.168.2.6

PC2> ip dns

PC2> ip dns 8.8.8.8

PC2> ping google.com
google.com resolved to 216.58.215.110

84 bytes from 216.58.215.110 icmp_seq=1 ttl=115 time=40.383 ms
84 bytes from 216.58.215.110 icmp_seq=2 ttl=115 time=37.873 ms
84 bytes from 216.58.215.110 icmp_seq=3 ttl=115 time=42.996 ms
84 bytes from 216.58.215.110 icmp_seq=4 ttl=115 time=50.335 ms
84 bytes from 216.58.215.110 icmp_seq=5 ttl=115 time=57.206 ms

PC2>
```

```
PC1> ping 192.168.4.6

84 bytes from 192.168.4.6 icmp_seq=1 ttl=254 time=30.196 ms
84 bytes from 192.168.4.6 icmp_seq=2 ttl=254 time=28.687 ms
84 bytes from 192.168.4.6 icmp_seq=3 ttl=254 time=24.146 ms
84 bytes from 192.168.4.6 icmp_seq=4 ttl=254 time=11.285 ms
84 bytes from 192.168.4.6 icmp_seq=5 ttl=254 time=29.087 ms

PC1>
```