

Лабораторная работа № 6

Статическая маршрутизация VLAN

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Настроить статическую маршрутизацию VLAN в сети.

1. Добавить в локальную сеть маршрутизатор, провести его первоначальную настройку.
2. Настроить статическую маршрутизацию VLAN.
3. При выполнении работы необходимо учитывать соглашение об именовании

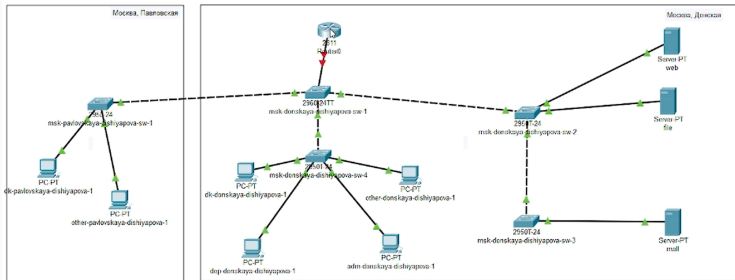


Рис. 1: Логическая область проекта с добавленным маршрутизатором

```
Router>
Router>enable
Router#configure terminal
^
% Invalid input detected at '^' marker.

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname msk-donskaya-dishiyapova-gw-1
msk-donskaya-dishiyapova-gw-1(config)#line vty 0 4
msk-donskaya-dishiyapova-gw-1(config-line)#password cisco
msk-donskaya-dishiyapova-gw-1(config-line)#password cisco
msk-donskaya-dishiyapova-gw-1(config-line)#login
msk-donskaya-dishiyapova-gw-1(config-line)#line console 0
msk-donskaya-dishiyapova-gw-1(config-line)#password cisco
msk-donskaya-dishiyapova-gw-1(config-line)#login
msk-donskaya-dishiyapova-gw-1(config-line)#enable secret cisco
msk-donskaya-dishiyapova-gw-1(config)#service password encryption
^
% Invalid input detected at '^' marker.

msk-donskaya-dishiyapova-gw-1(config)#service password-encryption
msk-donskaya-dishiyapova-gw-1(config)#username admin privilege 1 secret cisco
msk-donskaya-dishiyapova-gw-1(config)#ip domain name donskeya.vudn.edu
msk-donskaya-dishiyapova-gw-1(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-dishiyapova-gw-1.donskaya.vudn.edu
Choose the size of the key modulus in the range of 360 to 4096 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]: 512
% Generating 512 bit RSA keys, keys will be non-exportable...[OK]

msk-donskaya-dishiyapova-gw-1(config)#line vty 0 4
*Mar 1 0:0:19.976: RSA key size needs to be at least 768 bits for ssh version 2
*Mar 1 0:0:19.976: %SSH-5-ENABLED: SSH 1.5 has been enabled
msk-donskaya-dishiyapova-gw-1(config-line)#transport input ssh
msk-donskaya-dishiyapova-gw-1(config-line)#
```

Рис. 2: Конфигурация маршрутизатора

```

Password:
Password:

nsk-donskaya-sw-1>en
Password:
nsk-donskaya-sw-1#conf t
nsk-donskaya-sw-1#conf terminal
Enter configuration commands, one per line. End with CNTL/Z.
nsk-donskaya-sw-1(config)#sw
nsk-donskaya-sw-1(config)#int
nsk-donskaya-sw-1(config)#interface f0/24
nsk-donskaya-sw-1(config-if)#sw
nsk-donskaya-sw-1(config-if)#switchport mo
nsk-donskaya-sw-1(config-if)#switchport mode tr
nsk-donskaya-sw-1(config-if)#switchport mode trunk
nsk-donskaya-sw-1(config-if)#^Z
nsk-donskaya-sw-1#
NSYS-3-CONFIG_1: Configured from console by console
VR M
Building configuration...
[OK]
nsk-donskaya-sw-1#
```

Рис. 3: Настройка порта 24 как trunk-порта

```
msk-donskaya-dishiyapova-gw-1(config-if)#int f0/0.2
msk-donskaya-dishiyapova-gw-1(config-subif)#encapsulation dot1Q 2
msk-donskaya-dishiyapova-gw-1(config-subif)#ip address 10.128.1.1 255.255.255.0
msk-donskaya-dishiyapova-gw-1(config-subif)#description management
msk-donskaya-dishiyapova-gw-1(config-subif)#interface f0/0.3
msk-donskaya-dishiyapova-gw-1(config-subif)#encapsulation dot1Q 3
msk-donskaya-dishiyapova-gw-1(config-subif)#ip address 10.128.0.1 255.255.255.0
msk-donskaya-dishiyapova-gw-1(config-subif)#description management
msk-donskaya-dishiyapova-gw-1(config-subif)#description servers
msk-donskaya-dishiyapova-gw-1(config-subif)#interface f0/0.101
msk-donskaya-dishiyapova-gw-1(config-subif)#encapsulation dot1Q 101
msk-donskaya-dishiyapova-gw-1(config-subif)#ip address 10.128.3.1 255.255.255.0
msk-donskaya-dishiyapova-gw-1(config-subif)#description dx
```

Рис. 4: Конфигурация VLAN-интерфейсов маршрутизатора


```
msk-donakaya-dishiyapova-gw-1(config-subif)#interface f0/0.102
msk-donskaya-dishiyapova-gw-1(config-subif)#encapsulation dot1Q 102
msk-donskaya-dishiyapova-gw-1(config-subif)#ip address 10.128.4.1 255.255.255.0
msk-donakaya-dishiyapova-gw-1(config-subif)#description departmenta
msk-donskaya-dishiyapova-gw-1(config-subif)#interface f0/0.103
msk-donskaya-dishiyapova-gw-1(config-subif)#encapsulation dot1Q 103
msk-donakaya-dishiyapova-gw-1(config-subif)#ip address 10.128.5.1 255.255.255.0
msk-donskaya-dishiyapova-gw-1(config-subif)#description adm
msk-donskaya-dishiyapova-gw-1(config-subif)#interface f0/0.104
```

Рис. 5: Конфигурация VLAN-интерфейсов маршрутизатора

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.128.3.201

Pinging 10.128.3.201 with 32 bytes of data:

Reply from 10.128.3.201: bytes=32 time<1ms TTL=128
Reply from 10.128.3.201: bytes=32 time<1ms TTL=128
Reply from 10.128.3.201: bytes=32 time<1ms TTL=128
Reply from 10.128.3.201: bytes=32 time<1ms TTL=128

Ping statistics for 10.128.3.201:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.128.4.200

Pinging 10.128.4.200 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.128.4.200:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 10.128.0.3

Pinging 10.128.0.3 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.128.0.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 10.128.0.3|
```

Рис. 6: Проверка доступности оконечных устройств

```
Pinging 10.128.4.200 with 32 bytes of data:

Request timed out.
Reply from 10.128.4.200: bytes=32 time<1ms TTL=127
Reply from 10.128.4.200: bytes=32 time=13ms TTL=127
Reply from 10.128.4.200: bytes=32 time=1ms TTL=127

Ping statistics for 10.128.4.200:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 13ms, Average = 4ms

C:\>ping 10.128.3.201

Pinging 10.128.3.201 with 32 bytes of data:

Reply from 10.128.3.201: bytes=32 time<1ms TTL=128
Reply from 10.128.3.201: bytes=32 time<1ms TTL=128
Reply from 10.128.3.201: bytes=32 time<1ms TTL=128
Reply from 10.128.3.201: bytes=32 time<1ms TTL=128

Ping statistics for 10.128.3.201:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Рис. 7: Проверка доступности оконечных устройств

Выполнение лабораторной работы

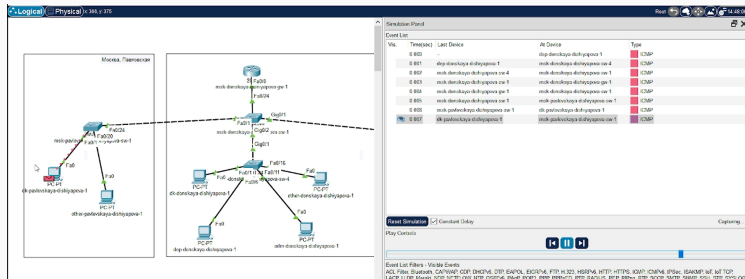


Рис. 8: Передвижения пакета ICMP по сети

В результате выполнения лабораторной работы я настроила статическую маршрутизацию VLAN в сети.