

Статическая маршрутизация VLAN

Лабораторная работа № 6

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12 февраль 2025

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Настроить статическую маршрутизацию VLAN в сети.

Выполнение лабораторной работы

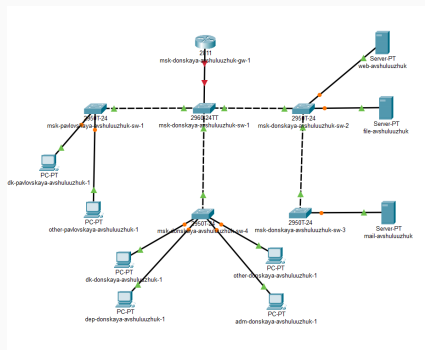
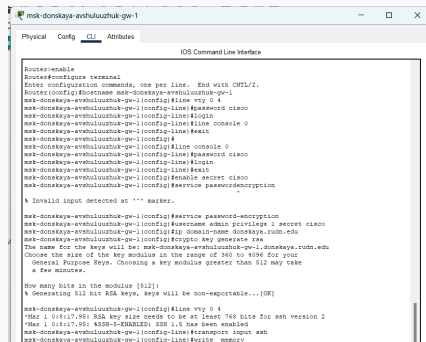


Рис. 1: изменение топологии сети



```
msk-donskaya-avshuluzhuk-gw-1
Physical Config CLI Attributes
IOS Command Line Interface

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname msk-donskaya-avshuluzhuk-gw-1
msk-donskaya-avshuluzhuk-gw-1(config)#line vty 0 4
msk-donskaya-avshuluzhuk-gw-1(config-line)#password cisco
msk-donskaya-avshuluzhuk-gw-1(config-line)#login
msk-donskaya-avshuluzhuk-gw-1(config-line)#line console 0
msk-donskaya-avshuluzhuk-gw-1(config-line)#exit
msk-donskaya-avshuluzhuk-gw-1(config)#
msk-donskaya-avshuluzhuk-gw-1(config)#line console 0
msk-donskaya-avshuluzhuk-gw-1(config-line)#password cisco
msk-donskaya-avshuluzhuk-gw-1(config-line)#login
msk-donskaya-avshuluzhuk-gw-1(config-line)#exit
msk-donskaya-avshuluzhuk-gw-1(config)#enable secret cisco
msk-donskaya-avshuluzhuk-gw-1(config)#service password-encryption

% Invalid input detected at '^' marker.

msk-donskaya-avshuluzhuk-gw-1(config)#service password-encryption
msk-donskaya-avshuluzhuk-gw-1(config)#username admin privilege 1 secret cisco
msk-donskaya-avshuluzhuk-gw-1(config)#ip domain-name donskeya.rdn.edu
msk-donskaya-avshuluzhuk-gw-1(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-avshuluzhuk-gw-1.donskeya.rdn.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]:
% Generating 512 bit RSA keys, keys will be non-exportable...[OK]

msk-donskaya-avshuluzhuk-gw-1(config)#line vty 0 4
*Mar 1 0:01:17.95: RSA key else needs to be at least 768 bits for ssh version 2
*Mar 1 0:01:17.95: SSH-1-ENABLED: SSH 1.5 has been enabled
msk-donskaya-avshuluzhuk-gw-1(config-line)#transport input ssh
msk-donskaya-avshuluzhuk-gw-1(config-line)#write memory
```

Рис. 2: первоначальная настройка маршрутизатора

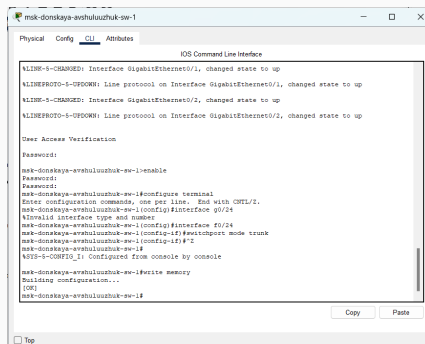
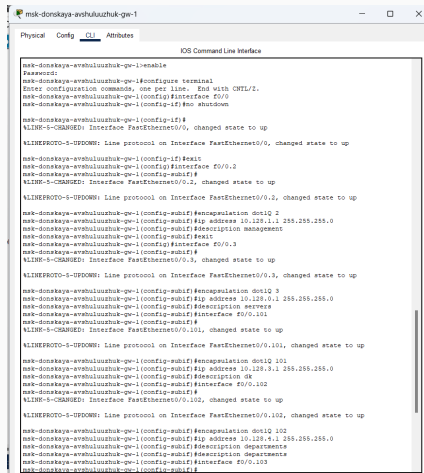


Рис. 3: настройка порта 24 коммутатора msk-donskaya-sw-1 как trunk-порт

Выполнение лабораторной работы



```
msk-donskaya-avshuluzhuk-gw-1
Physical Config CLI Attributes
IOS Command Line Interface

msk-donskaya-avshuluzhuk-gw-1>enable
Password:
msk-donskaya-avshuluzhuk-gw-1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-avshuluzhuk-gw-1(config)#interface f0/0
msk-donskaya-avshuluzhuk-gw-1(config-if)#no shutdown

msk-donskaya-avshuluzhuk-gw-1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

msk-donskaya-avshuluzhuk-gw-1(config-if)#exit
msk-donskaya-avshuluzhuk-gw-1(config)#interface f0/0.2
msk-donskaya-avshuluzhuk-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.2, changed state to up

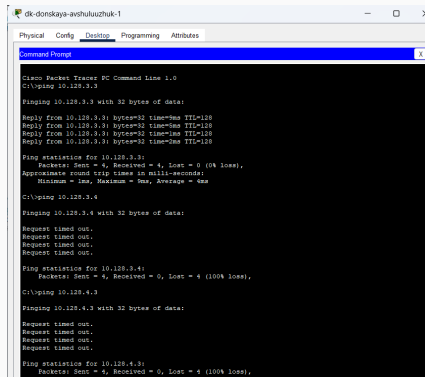
msk-donskaya-avshuluzhuk-gw-1(config-subif)#encapsulation dot1q 2
msk-donskaya-avshuluzhuk-gw-1(config-subif)#ip address 10.128.1.1 255.255.255.0
msk-donskaya-avshuluzhuk-gw-1(config-subif)#description Management
msk-donskaya-avshuluzhuk-gw-1(config-subif)#exit
msk-donskaya-avshuluzhuk-gw-1(config)#interface f0/0.3
msk-donskaya-avshuluzhuk-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.3, changed state to up

msk-donskaya-avshuluzhuk-gw-1(config-subif)#encapsulation dot1q 3
msk-donskaya-avshuluzhuk-gw-1(config-subif)#ip address 10.128.0.1 255.255.255.0
msk-donskaya-avshuluzhuk-gw-1(config-subif)#description servers
msk-donskaya-avshuluzhuk-gw-1(config-subif)#interface f0/0.101
msk-donskaya-avshuluzhuk-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.101, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.101, changed state to up

msk-donskaya-avshuluzhuk-gw-1(config-subif)#encapsulation dot1q 101
msk-donskaya-avshuluzhuk-gw-1(config-subif)#ip address 10.128.3.1 255.255.255.0
msk-donskaya-avshuluzhuk-gw-1(config-subif)#description dk
msk-donskaya-avshuluzhuk-gw-1(config-subif)#interface f0/0.102
msk-donskaya-avshuluzhuk-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.102, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.102, changed state to up

msk-donskaya-avshuluzhuk-gw-1(config-subif)#encapsulation dot1q 102
msk-donskaya-avshuluzhuk-gw-1(config-subif)#ip address 10.128.4.1 255.255.255.0
msk-donskaya-avshuluzhuk-gw-1(config-subif)#description departments
msk-donskaya-avshuluzhuk-gw-1(config-subif)#description departments
msk-donskaya-avshuluzhuk-gw-1(config-subif)#interface f0/0.103
msk-donskaya-avshuluzhuk-gw-1(config-subif)#
```

Рис. 4: конфигурация VLAN-интерфейсов маршрутизатора



```
dx-donskaya-avshuluuzhuk-1
Physical Config Desktop Programming Attributes
Command Prompt

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.128.3.3

Pinging 10.128.3.3 with 32 bytes of data:

Reply from 10.128.3.3: bytes=32 time=9ms TTL=128
Reply from 10.128.3.3: bytes=32 time=6ms TTL=128
Reply from 10.128.3.3: bytes=32 time=1ms TTL=128
Reply from 10.128.3.3: bytes=32 time=2ms TTL=128

Ping statistics for 10.128.3.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 9ms, Average = 6ms

C:\>ping 10.128.3.4

Pinging 10.128.3.4 with 32 bytes of data:

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

Ping statistics for 10.128.3.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 10.128.4.3

Pinging 10.128.4.3 with 32 bytes of data:

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

Ping statistics for 10.128.4.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Рис. 5: проверка доступности оконечных устройств из разных VLAN

Выполнение лабораторной работы

Simulation Panel				
Event List				
Vis.	Time(sec)	Last Device	At Device	Type
	0.176	msk-donskaya-avshuluuzhuk-sw-1	msk-pavlovskaya-avshuluuzhuk-sw-1	STP
	0.176	msk-donskaya-avshuluuzhuk-sw-1	msk-donskaya-avshuluuzhuk-sw-4	STP
	0.176	msk-donskaya-avshuluuzhuk-sw-1	msk-donskaya-avshuluuzhuk-sw-2	STP
	0.176	msk-donskaya-avshuluuzhuk-sw-1	msk-donskaya-avshuluuzhuk-gw-1	STP
	0.177	--	msk-pavlovskaya-avshuluuzhuk-sw-1	STP
	0.178	--	msk-donskaya-avshuluuzhuk-sw-1	STP
	0.178	msk-pavlovskaya-avshuluuzhuk-sw-1	msk-donskaya-avshuluuzhuk-sw-1	STP
	0.178	--	msk-pavlovskaya-avshuluuzhuk-sw-1	STP
	0.179	msk-donskaya-avshuluuzhuk-sw-1	msk-pavlovskaya-avshuluuzhuk-sw-1	STP
	0.179	msk-donskaya-avshuluuzhuk-sw-1	msk-donskaya-avshuluuzhuk-sw-4	STP
	0.179	msk-donskaya-avshuluuzhuk-sw-1	msk-donskaya-avshuluuzhuk-sw-2	STP
	0.179	msk-donskaya-avshuluuzhuk-sw-1	msk-donskaya-avshuluuzhuk-gw-1	STP
	0.179	msk-pavlovskaya-avshuluuzhuk-sw-1	msk-donskaya-avshuluuzhuk-sw-1	STP
	0.179	--	msk-donskaya-avshuluuzhuk-sw-1	STP
	0.180	--	msk-donskaya-avshuluuzhuk-sw-1	STP
	0.180	msk-donskaya-avshuluuzhuk-sw-1	msk-donskaya-avshuluuzhuk-gw-1	STP
	0.180	--	msk-donskaya-avshuluuzhuk-sw-1	STP
	0.181	msk-donskaya-avshuluuzhuk-sw-1	msk-donskaya-avshuluuzhuk-sw-4	STP
	0.181	msk-donskaya-avshuluuzhuk-sw-1	msk-donskaya-avshuluuzhuk-gw-1	STP
	0.181	--	msk-donskaya-avshuluuzhuk-sw-1	STP
	0.182	msk-donskaya-avshuluuzhuk-sw-1	msk-donskaya-avshuluuzhuk-sw-4	STP

Рис. 6: режим симуляции, изучение содержимого передаваемого пакета

Выводы

В результате выполнения лабораторной работы была проведена настройка статической маршрутизации VLAN в сети.