Лабораторная работа №6

Администрирование локальных сетей

Ищенко Ирина

Российский университет дружбы народов, Москва, Россия

- Ищенко Ирина
- 1132226529
- уч. группа: НПИбд-02-22
- Факультет физико-математических и естественных наук

Настроить статическую маршрутизацию VLAN в сети.

Выполнение лабораторной работы

```
Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname msk-donskaya-ioithenko-gw-1
msk-donskaya-ioithenko-gw-1(config)#line vty 0 4
msk-donskaya-ioithenko-gw-1(config-line)#password cisco
msk-donskaya-ioithenko-gw-1(config-line)#login
msk-donskaya-ioithenko-gw-1(config-line)#line console 0
msk-donskaya-ioithenko-gw-1(config-line)#password cisco
msk-donskaya-ioithenko-gw-1(config-line)#login
msk-donskaya-ioithenko-gw-1(config-line)#enable secret cisco
msk-donskaya-ioithenko-gw-1(config)#service password-encryption
msk-donskaya-ioithenko-gw-1(config)#username admin privilege 1 secret cisco
msk-donskaya-ioithenko-gw-1(config)#ip domain-name donskaya.rudn.edu
msk-donskaya-ioithenko-gw-1(config)#crypto key generate rsa
The name for the keys will be: msk-donskaya-ioithenko-gw-1.donskaya.rudn.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]: 2048
% Generating 2048 bit RSA keys, keys will be non-exportable...[OK]

msk-donskaya-ioithenko-gw-1(config)#line vty 0 4
*Mar 1 0:3:9.446: %SSH-5-ENABLED: SSH 1.99 has been enabled
msk-donskaya-ioithenko-gw-1(config-line)#transport input ssh
msk-donskaya-ioithenko-gw-1(config-line)#exit
msk-donskaya-ioithenko-gw-1(config)#exit
msk-donskaya-ioithenko-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-ioithenko-gw-1#wr me
Building configuration...
[OK]
msk-donskaya-ioithenko-gw-1#
```

Рис. 1: Конфигурация маршрутизатора

```
msk-donskaya-ioithenko-sw-1>enable
Password:
msk-donskaya-ioithenko-sw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
msk-donskaya-ioithenko-sw-1(config)#interface f0/24
msk-donskaya-ioithenko-sw-1(config-if)#switchport mode trunk
msk-donskaya-ioithenko-sw-1(config-if)#exit
msk-donskaya-ioithenko-sw-1(config)#exit
msk-donskaya-ioithenko-sw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-ioithenko-sw-1#wr me
Building configuration...
[OK]
msk-donskaya-ioithenko-sw-1#
```

Рис. 2: Trunk-порт

```
msk-donskaya-ioithenko-gw-1(config)#interface f0/0
msk-donskaya-ioithenko-gw-1(config-if)#no shutdown

msk-donskaya-ioithenko-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-ioithenko-gw-1(config-if)#interface f0/0.2
msk-donskaya-ioithenko-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-ioithenko-gw-1(config-subif)#encapsulation dot1Q 2
msk-donskaya-ioithenko-gw-1(config-subif)#ip address 10.128.1.1 255.255.255.0
msk-donskaya-ioithenko-gw-1(config-subif)#description management
msk-donskaya-ioithenko-gw-1(config-subif)#interface f0/0.3
msk-donskaya-ioithenko-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-ioithenko-gw-1(config-subif)#encapsulation dot1Q 3
msk-donskaya-ioithenko-gw-1(config-subif)#ip address 10.128.0.1 255.255.255.0
msk-donskaya-ioithenko-gw-1(config-subif)#description servers
msk-donskaya-ioithenko-gw-1(config-subif)#interface f0/0.101
msk-donskaya-ioithenko-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-ioithenko-gw-1(config-subif)#encapsulation dot1Q 101
msk-donskaya-ioithenko-gw-1(config-subif)#ip address 10.128.3.1 255.255.255.0
msk-donskaya-ioithenko-gw-1(config-subif)#description dk
msk-donskaya-ioithenko-gw-1(config-subif)#interface f0/0.102
msk-donskaya-ioithenko-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-ioithenko-gw-1(config-subif)#encapsulation dot1Q 102
msk-donskaya-ioithenko-gw-1(config-subif)#ip address 10.128.4.1 255.255.255.0
msk-donskaya-ioithenko-gw-1(config-subif)#description departments
msk-donskaya-ioithenko-gw-1(config-subif)#interface f0/0.103
msk-donskaya-ioithenko-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.103, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.103, changed state to up

msk-donskaya-ioithenko-gw-1(config-subif)#encapsulation dot1Q 103
msk-donskaya-ioithenko-gw-1(config-subif)#ip address 10.128.5.1 255.255.255.0
msk-donskaya-ioithenko-gw-1(config-subif)#description adm
msk-donskaya-ioithenko-gw-1(config-subif)#interface f0/0.104
msk-donskaya-ioithenko-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.104, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.104, changed state to up

msk-donskaya-ioithenko-gw-1(config-subif)#encapsulation dot1Q 104
msk-donskaya-ioithenko-gw-1(config-subif)#ip address 10.128.6.1 255.255.255.0
msk-donskaya-ioithenko-gw-1(config-subif)#description other
msk-donskaya-ioithenko-gw-1(config-subif)#exit
```
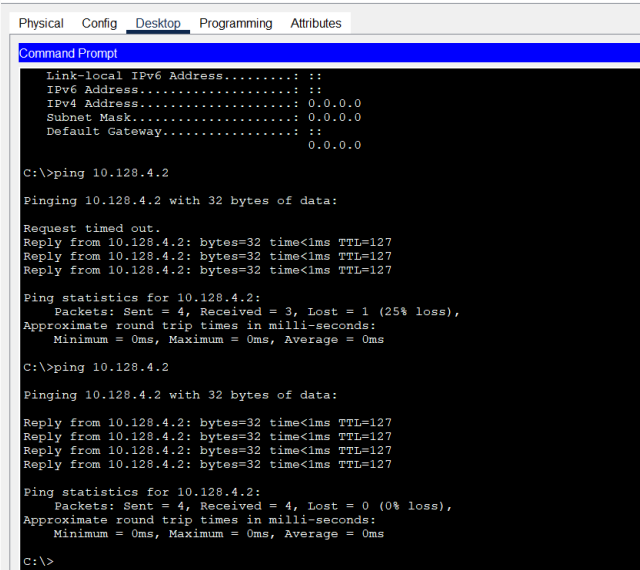
Рис. 3: Конфигурация VLAN-интерфейсов маршрутизатора

Рис. 4: Пинг

Рис. 5: Движение пакета

PDU Information at Device: msk-donskaya-ioithenko-sw-1

OSI Model | Inbound PDU Details | Outbound PDU Details

PDU Formats

Ethernet 802.1q

PREAMBLE: 101010..10	DEST ADDR:000A.F3B7.0A3B
SRC ADDR:0001.42DE.5701	TPID:0x8100	TCI:0x0065	Type:0x1
DATA (VARIABLE LENGTH)	FCS:0x00000000

IP

VER:4	IHL:5	DSCP:0x00	TL:28
ID:0x0008	FLAGS:0x0	FRAG OFFSET:0x000
TTL:127	PRO:0x01	CHKSUM
SRC IP:10.128.4.2
DST IP:10.128.3.2
DATA (VARIABLE LENGTH)

ICMP

| TYPE:0x00 | CODE:0x00 | CHECKSUM |
| ID:0x0004 | SEQ NUMBER:9 |

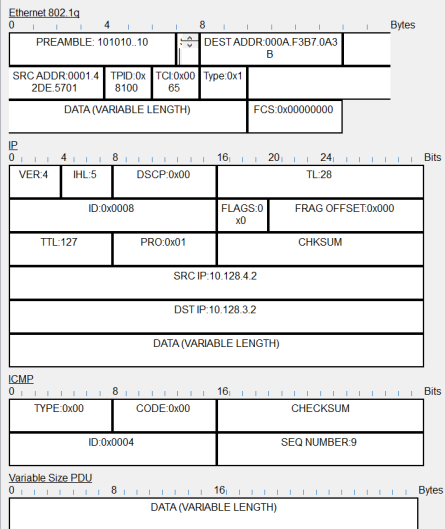**Variable Size PDU**

| DATA (VARIABLE LENGTH) |

Рис. 6: Пакет ICMP

В ходе лабораторной работы я настроила статическую маршрутизацию VLAN в сети.