Лабораторная работа №6

Администрирование локальных сетей

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Настроить статическую маршрутизацию VLAN в сети.

Выполнение лабораторной работы

```
Pouter\enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config) #hostname msk-donskaya-ioithenko-gw-1
msk-donskava-ioithenko-gw-1(config)#line vtv 0 4
msk-donskava-ioithenko-gw-1(config-line) #password cisco
msk-donskava-ioithenko-gw-1(config-line) #login
msk-donskava-joithenko-gw-1(config-line)#line console 0
msk-donskava-ioithenko-gw-1(config-line) #password cisco
msk-donskava-ioithenko-gw-1(config-line)#login
msk-donskava-ioithenko-gw-1(config-line)#enable secret cisco
msk-donskava-ioithenko-gw-1(config) #service password-encryption
msk-donskaya-ioithenko-gw-1(config) #username admin privilege 1 secret cisco
msk-donskava-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-donskava-ioithenko-gw-1.donskava.rudn.edu
Choose the size of the key modulus in the range of 360 to 4096 for your
  General Purpose Kevs. Choosing a key modulus greater than 512 may take
  a few minutes
How many bits in the modulus [512]: 2048
% Generating 2048 bit RSA kevs, keys will be non-exportable...[OK]
msk-donskava-ioithenko-gw-1(config)#line vtv 0 4
*Mar 1 0:3:9.446: %SSH-5-ENABLED: SSH 1.99 has been enabled
msk-donskava-ioithenko-gw-1(config-line)#transport input ssh
msk-donskava-ioithenko-gw-1(config-line)#exit
msk-donskava-ioithenko-gw-1(config) #exit
msk-donskava-ioithenko-gw-1#
%SYS-5-CONFIG I: Configured from console by console
msk-donskava-ioithenko-gw-1#wr me
Building configuration ...
[OK]
msk-donskava-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)#swit
msk-donskaya-ioithenko-sw-1(config)#swit
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#
msk-donskaya-ioithenko-sw-1#
```

Рис. 2: Trunk-порт

```
msk-donskava-ioithenko-gw-1(config)#interface f0/0
mek-donekaya-inithanko-aw-1(config-if) #no.chutdown
msk-donskava-ioithenko-gw-1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
$LINEPROTO-5-HPDOWN: Line protocol on Interface FastEthernet()(), changed state to up
msk-donskaya-ioithenko-qw-1(config-if)#interface f0/0.2
msk-donskava-ioithenko-gw-1(config-subif)#
ST.INE-5-CHANGED: Interface PastFthernet()/() 2. changed state to un
%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-donskava-joithenko-gw-1(config-subjf)#in address 10.128.1.1 255.255.255.0
msk-donskava-ioithenko-gw-1(config-subif)#description management
msk-donskava-ioithenko-gw-1(config-subif)#interface f0/0.3
msk-donskava-ioithenko-gw-1(config-subif)#
$T.TNE-5-CHANGED: Interface FastEthernet()() 3. changed state to up
$LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.3, changed state to up
msk-donskava-ioithenko-gw-1(config-subif)#encapsulation dot1Q 3
msk-donskava-joithenko-gw-1(config-subjf) tip address 10.128.0.1 255.255.255.
msk-donskava-ioithenko-gw-1(config-subif)#description servers
msk-donskaya-ioithenko-gw-1(config-subif)#interface f0/0.101
msk-donskava-ioithenko-gw-1(config-subif)#
STINK-S-CHANGED: Interface FastEthernet0/0.101, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.101, changed state to up
msk-donskava-joithenko-gw-1(config-subjf) tencansulation dot10 101
msk-donskava-joithenko-mw-1(config-subjf) in address 10.128.3.1.255.255.255.0
msk-donskava-ioithenko-gw-1(config-subif)#description dk
msk-donskava-ioithenko-gw-1(config-subif)#interface f0/0.102
msk-donskava-ioithenko-gw-1(config-subif)#
STINK-5-CHANGED: Interface EastEthernet()(0.102, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.102, changed state to up
msk-donskava-joithenko-gw-1(config-subjf) #encapsulation_dot10_102
mek-donekaya-joithenko-gw-1(config-subif) in address 10.128.4.1 255.255.255.0
msk-donskava-ioithenko-gw-1(config-subif)#description departments
msk-donskava-ioithenko-gw-1(config-subif)#interface f0/0.103
msk-donskava-ioithenko-gw-1(config-subif)#
STINK-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 dot10 103
mek-donekaya-joithenko-gw-1(config-subif) in 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-donskava-ioithenko-gw-1(config-subif)#
STINK-5-CHANGED: Interface FactEthernet(/0.104, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.104, changed state to up
msk-donskava-ioithenko-gw-1(config-subif)#encapsulation dot10 104
msk-donskaya-ioithenko-gw-1(config-subif)#ip address 10.128.6.1 255.255.25.0
msk-donskava-ioithenko-gw-1(config-subif)#description other
msk-donskava-ioithenko-gw-1(config-subif)#exit
```

Рис. 3: Конфигурация VLAN-интерфейсов маршрутизатора

```
Physical Config Desktop Programming Attributes
Command Prompt
   Link-local IPv6 Address......:::
   TPv6 Address..... :::
   Subnet Mask ..... 0.0.0.0
   Default Gateway.....:::
                                  0.0.0.0
C:\>ping 10.128.4.2
Pinging 10.128.4.2 with 32 bytes of data:
Request timed out.
Reply from 10.128.4.2: bytes=32 time<1ms TTL=127
Reply from 10.128.4.2: bytes=32 time<1ms TTL=127
Reply from 10.128.4.2: bytes=32 time<1ms TTL=127
Ping statistics for 10.128.4.2:
   Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
   Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 10.128.4.2
Pinging 10.128.4.2 with 32 bytes of data:
Reply from 10.128.4.2: bytes=32 time<1ms TTL=127
Ping statistics for 10.128.4.2:
    Packets: Sent = 4. Received = 4. Lost = 0 (0% loss).
Approximate round trip times in milli-seconds:
   Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
```

Event L	_ist			
Vis.	Time(sec)	Last Device	At Device	Туре
	0.000		dk-donskaya-ioithenko-1	ICMP
	0.001	dk-donskaya-ioithenko-1	msk-donskaya-ioithenko-sw-4	ICMP
	0.002	msk-donskaya-ioithenko-sw-4	msk-donskaya-ioithenko-sw-1	ICMP
	0.003	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-gw-1	ICMP
	0.004	msk-donskaya-ioithenko-gw-1	msk-donskaya-ioithenko-sw-1	ICMP
	0.005	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-sw-4	ICMP
	0.006	msk-donskaya-ioithenko-sw-4	dep-donskaya-ioithenko-1	ICMP
	0.007	dep-donskaya-ioithenko-1	msk-donskaya-ioithenko-sw-4	ICMP
	0.008	msk-donskaya-ioithenko-sw-4	msk-donskaya-ioithenko-sw-1	ICMP
	0.009	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-gw-1	ICMP
	0.010	msk-donskaya-ioithenko-gw-1	msk-donskaya-ioithenko-sw-1	ICMP
	0.011	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-sw-4	ICMP
	0.012	msk-donskaya-ioithenko-sw-4	dk-donskaya-ioithenko-1	ICMP

Рис. 5: Движение пакета

DU Information at Device: msk-donskaya-ioithenko-sw-1			
OSI Model Inbound PDU Details Outbound PDU Details			
PDU Formats			
Ethernet 802.1q 0			
SRC ADDR 0001.4 TPID 0x TCL0x00 Type.0x1 2DE.5701 8100 65			
DATA (VARIABLE LENGTH) FCS:0x00000000			
VERCY TILES BOOT WAS TELES			
ID:0x0008 FLAGS:0 FRAG OFFSET:0x000 x0			
TTL:127 PRO:0x01 CHKSUM			
SRC IP:10:128:4.2			
DST IP:10.128.3.2			
DATA (VARIABLE LENGTH)			
ICMP 0 , , , , , , 8 , , , , , , 16, , , , , , , , , Bits			
TYPE:0x00 CODE:0x00 CHECKSUM			
ID:0x0004 SEQ NUMBER:9			
Variable Size PDU 0 16 16 16 17 18 19 19 19 19 19 19 19			
DATA (VARIABLE LENGTH)			

Рис. 6: Пакет ІСМР



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