Лабораторная работа №15

Администрирование локальных сетей

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Цель работы

Настроить динамическую маршрутизацию между территориями организации.

Выполнение лабораторной работы

```
msk-donskaya-ioithenko-gw-1(config)#router ospf 1
msk-donskaya-ioithenko-gw-1(config-router)#router-id 10.128.254.1
msk-donskaya-ioithenko-gw-1(config-router)#network 10.0.0.0 0.255.255.255 area 0
msk-donskaya-ioithenko-gw-1(config-router)#^Z
msk-donskaya-ioithenko-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-ioithenko-gw-1#sh ip ospf
 Routing Process "ospf 1" with ID 10.128.254.1
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x000000
 Number of opaque AS LSA 0. Checksum Sum 0x000000
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 1. 1 normal 0 stub 0 nssa
 External flood list length 0
    Area BACKBONE(0)
        Number of interfaces in this area is 8
        Area has no authentication
        SPF algorithm executed 1 times
        Area ranges are
        Number of LSA 1. Checksum Sum 0x00312a
        Number of opaque link LSA 0. Checksum Sum 0x000000
        Number of DCbitless LSA 0
        Number of indication LSA 0
        Number of DoNotAge LSA 0
        Flood list length 0

msk-donskaya-ioithenko-gw-1#sh ip ospf neighbor

msk-donskaya-ioithenko-gw-1#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 198.51.100.1 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 18 subnets, 4 masks
C       10.128.0.0/24 is directly connected, FastEthernet0/0.3
L       10.128.0.1/32 is directly connected, FastEthernet0/0.3
C       10.128.1.0/24 is directly connected, FastEthernet0/0.2
L       10.128.1.1/32 is directly connected, FastEthernet0/0.2
C       10.128.3.0/24 is directly connected, FastEthernet0/0.101
L       10.128.3.1/32 is directly connected, FastEthernet0/0.101
C       10.128.4.0/24 is directly connected, FastEthernet0/0.102
L       10.128.4.1/32 is directly connected, FastEthernet0/0.102
C       10.128.5.0/24 is directly connected, FastEthernet0/0.103
L       10.128.5.1/32 is directly connected, FastEthernet0/0.103
C       10.128.6.0/24 is directly connected, FastEthernet0/0.104

msk-donskaya-ioithenko-gw-1#
```

Рис. 1: Настройка маршрутизатора msk-donskaya-gw-1

```
Enter configuration commands, one per line.  End with CNTL/Z.
msk-q42-ioithenko-gw-1(config)#router ospf 1
msk-q42-ioithenko-gw-1(config-router)#router-i
01:03:00: %OSPF-5-ADJCHG: Process 1, Nbr 10.128.254.1 on FastEthernet0/1.5 from LOADING to FULL,
Loading Done

% Incomplete command.
msk-q42-ioithenko-gw-1(config-router)#router-id 10.128.254.2
msk-q42-ioithenko-gw-1(config-router)#network 10.0.0.0 0.255.255.255 area 0
msk-q42-ioithenko-gw-1(config-router)#exit
msk-q42-ioithenko-gw-1(config)#^Z
msk-q42-ioithenko-gw-1#
```

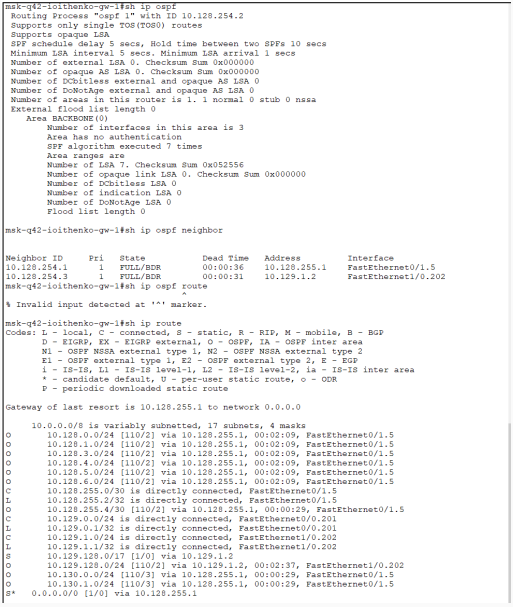
Рис. 2: Настройка маршрутизатора msk-q42-gw-1

```
Password:
msk-hostel-ioithenko-gw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
msk-hostel-ioithenko-gw-1(config)#router ospf 1
msk-hostel-ioithenko-gw-1(config-router)#router-id 10.128.254.3
msk-hostel-ioithenko-gw-1(config-router)#network 10.0.0.0 0.255.255.255 area 0
msk-hostel-ioithenko-gw-1(config-router)#exit
msk-hostel-ioithenko-gw-1(config)#
01:02:42: %OSPF-5-ADJCHG: Process 1, Nbr 10.128.254.3 on Vlan202 from LOADING to FULL, Loading
Done
```

Рис. 3: Настройка маршрутизирующего коммутатора msk-hostel-gw-1

```
sch-sochi-ioithenko-gw-1>enable
Password:
sch-sochi-ioithenko-gw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
sch-sochi-ioithenko-gw-1(config)#router ospf 1
sch-sochi-ioithenko-gw-1(config-router)#router-id 10.128.254.4
sch-sochi-ioithenko-gw-1(config-router)#network 10.0.0.0 0.255.255.255 area 0
sch-sochi-ioithenko-gw-1(config-router)#exit
sch-sochi-ioithenko-gw-1(config)#
01:04:40: %OSPF-5-ADJCHG: Process 1, Nbr 10.128.254.1 on FastEthernet0/0.6 from LOADING to FULL,
Loading Done
```

Рис. 4: Настройка маршрутизатора sch-sochi-gw-1

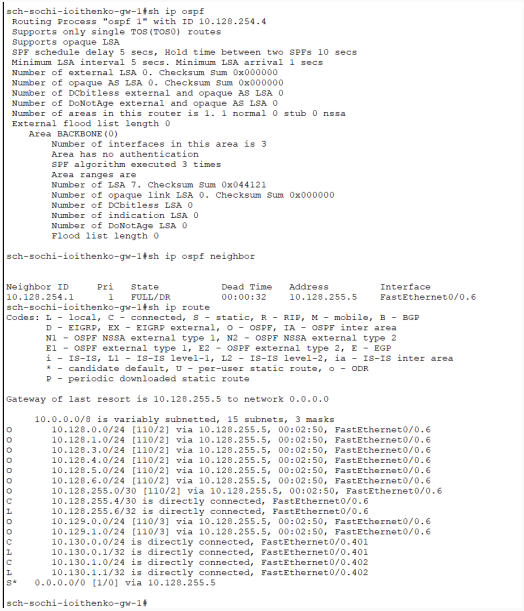


```
msk-q42-ioithenko-gw-1#sh ip ospf
 Routing Process "ospf 1" with ID 10.128.254.2
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x000000
 Number of opaque AS LSA 0. Checksum Sum 0x000000
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 1. 1 normal 0 stub 0 nssa
 External flood list length 0
    Area BACKBONE(0)
        Number of interfaces in this area is 3
        Area has no authentication
        SPF algorithm executed 7 times
        Area ranges are
        Number of LSA 7. Checksum Sum 0x052556
        Number of opaque link LSA 0. Checksum Sum 0x000000
        Number of DCbitless LSA 0
        Number of indication LSA 0
        Number of DoNotAge LSA 0
        Flood list length 0

msk-q42-ioithenko-gw-1#sh ip ospf neighbor


Neighbor ID     Pri   State           Dead Time   Address         Interface
10.128.254.1      1   FULL/BDR        00:00:36    10.128.255.1    FastEthernet0/1.5
10.128.254.3      1   FULL/BDR        00:00:31    10.129.1.2      FastEthernet1/0.202
msk-q42-ioithenko-gw-1#sh ip ospf route
                       ^
% Invalid input detected at '^' marker.

msk-q42-ioithenko-gw-1#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 10.128.255.1 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 17 subnets, 4 masks
O       10.128.0.0/24 [110/2] via 10.128.255.1, 00:02:09, FastEthernet0/1.5
O       10.128.1.0/24 [110/2] via 10.128.255.1, 00:02:09, FastEthernet0/1.5
O       10.128.3.0/24 [110/2] via 10.128.255.1, 00:02:09, FastEthernet0/1.5
O       10.128.4.0/24 [110/2] via 10.128.255.1, 00:02:09, FastEthernet0/1.5
O       10.128.5.0/24 [110/2] via 10.128.255.1, 00:02:09, FastEthernet0/1.5
O       10.128.6.0/24 [110/2] via 10.128.255.1, 00:02:09, FastEthernet0/1.5
C       10.128.255.0/30 is directly connected, FastEthernet0/1.5
L       10.128.255.2/32 is directly connected, FastEthernet0/1.5
O       10.128.255.4/30 [110/2] via 10.128.255.1, 00:00:29, FastEthernet0/1.5
C       10.129.0.0/24 is directly connected, FastEthernet0/0.201
L       10.129.0.1/32 is directly connected, FastEthernet0/0.201
C       10.129.1.0/24 is directly connected, FastEthernet1/0.202
L       10.129.1.1/32 is directly connected, FastEthernet1/0.202
S       10.129.128.0/17 [1/0] via 10.129.1.2
O       10.129.128.0/24 [110/2] via 10.129.1.2, 00:02:37, FastEthernet1/0.202
O       10.130.0.0/24 [110/3] via 10.128.255.1, 00:00:29, FastEthernet0/1.5
O       10.130.1.0/24 [110/3] via 10.128.255.1, 00:00:29, FastEthernet0/1.5
S*   0.0.0.0/0 [1/0] via 10.128.255.1
```

Рис. 5: Проверка состояния протокола OSPF на маршрутизаторе msk-q42-gw-1

```
msk-hostel-ioithenko-gw-1#sh ip ospf
 Routing Process "ospf 1" with ID 10.128.254.3
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x000000
 Number of opaque AS LSA 0. Checksum Sum 0x000000
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 1. 1 normal 0 stub 0 nssa
 External flood list length 0
    Area BACKBONE(0)
        Number of interfaces in this area is 2
        Area has no authentication
        SPF algorithm executed 6 times
        Area ranges are
        Number of LSA 7. Checksum Sum 0x052556
        Number of opaque link LSA 0. Checksum Sum 0x000000
        Number of DCbitless LSA 0
        Number of indication LSA 0
        Number of DoNotAge LSA 0
        Flood list length 0

msk-hostel-ioithenko-gw-1#sh ip ospf neighbor


Neighbor ID     Pri   State           Dead Time   Address         Interface
10.128.254.2      1   FULL/DR         00:00:39    10.129.1.1      Vlan202
msk-hostel-ioithenko-gw-1#sh ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 10.129.1.1 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 13 subnets, 2 masks
O       10.128.0.0/24 [110/3] via 10.129.1.1, 00:03:48, Vlan202
O       10.128.1.0/24 [110/3] via 10.129.1.1, 00:03:48, Vlan202
O       10.128.3.0/24 [110/3] via 10.129.1.1, 00:03:48, Vlan202
O       10.128.4.0/24 [110/3] via 10.129.1.1, 00:03:48, Vlan202
O       10.128.5.0/24 [110/3] via 10.129.1.1, 00:03:48, Vlan202
O       10.128.6.0/24 [110/3] via 10.129.1.1, 00:03:48, Vlan202
O       10.128.255.0/30 [110/2] via 10.129.1.1, 00:03:58, Vlan202
O       10.128.255.4/30 [110/3] via 10.129.1.1, 00:02:08, Vlan202
O       10.129.0.0/24 [110/2] via 10.129.1.1, 00:04:16, Vlan202
C       10.129.1.0/24 is directly connected, Vlan202
C       10.129.128.0/24 is directly connected, Vlan301
O       10.130.0.0/24 [110/4] via 10.129.1.1, 00:02:08, Vlan202
O       10.130.1.0/24 [110/4] via 10.129.1.1, 00:02:08, Vlan202
S*   0.0.0.0/0 [1/0] via 10.129.1.1
```

Рис. 6: Проверка состояния протокола OSPF на маршрутизаторе msk-hostel-gw-1



```
sch-sochi-ioithenko-gw-1#sh ip ospf
 Routing Process "ospf 1" with ID 10.128.254.4
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x000000
 Number of opaque AS LSA 0. Checksum Sum 0x000000
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 1. 1 normal 0 stub 0 nssa
 External flood list length 0
    Area BACKBONE(0)
        Number of interfaces in this area is 3
        Area has no authentication
        SPF algorithm executed 3 times
        Area ranges are
        Number of LSA 7. Checksum Sum 0x044121
        Number of opaque link LSA 0. Checksum Sum 0x000000
        Number of DCbitless LSA 0
        Number of indication LSA 0
        Number of DoNotAge LSA 0
        Flood list length 0

sch-sochi-ioithenko-gw-1#sh ip ospf neighbor


Neighbor ID     Pri   State           Dead Time   Address         Interface
10.128.254.1      1   FULL/DR         00:00:32    10.128.255.5    FastEthernet0/0.6
sch-sochi-ioithenko-gw-1#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 10.128.255.5 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 15 subnets, 3 masks
O       10.128.0.0/24 [110/2] via 10.128.255.5, 00:02:50, FastEthernet0/0.6
O       10.128.1.0/24 [110/2] via 10.128.255.5, 00:02:50, FastEthernet0/0.6
O       10.128.3.0/24 [110/2] via 10.128.255.5, 00:02:50, FastEthernet0/0.6
O       10.128.4.0/24 [110/2] via 10.128.255.5, 00:02:50, FastEthernet0/0.6
O       10.128.5.0/24 [110/2] via 10.128.255.5, 00:02:50, FastEthernet0/0.6
O       10.128.6.0/24 [110/2] via 10.128.255.5, 00:02:50, FastEthernet0/0.6
O       10.128.255.0/30 [110/2] via 10.128.255.5, 00:02:50, FastEthernet0/0.6
C       10.128.255.4/30 is directly connected, FastEthernet0/0.6
L       10.128.255.6/32 is directly connected, FastEthernet0/0.6
O       10.129.0.0/24 [110/3] via 10.128.255.5, 00:02:50, FastEthernet0/0.6
O       10.129.1.0/24 [110/3] via 10.128.255.5, 00:02:50, FastEthernet0/0.6
C       10.130.0.0/24 is directly connected, FastEthernet0/0.401
L       10.130.0.1/32 is directly connected, FastEthernet0/0.401
C       10.130.1.0/24 is directly connected, FastEthernet0/0.402
L       10.130.1.1/32 is directly connected, FastEthernet0/0.402
S*   0.0.0.0/0 [1/0] via 10.128.255.5

sch-sochi-ioithenko-gw-1#
```

Рис. 7: Проверка состояния протокола OSPF на маршрутизаторе sch-sochi-gw-1

```
provider-ioithenko-sw-1>enable
Password:
provider-ioithenko-sw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
provider-ioithenko-sw-1(config)#vlan 7
provider-ioithenko-sw-1(config-vlan)#name q42-sochi
provider-ioithenko-sw-1(config-vlan)#exit
provider-ioithenko-sw-1(config)#interface vlan7
provider-ioithenko-sw-1(config-if)#
%LINK-5-CHANGED: Interface Vlan7, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan7, changed state to up

provider-ioithenko-sw-1(config-if)#no shutdown
provider-ioithenko-sw-1(config-if)#exit
provider-ioithenko-sw-1(config)#
```

Рис. 8: Настройка интерфейсов коммутатора provider-sw-1

```
msk-q42-ioithenko-gw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
msk-q42-ioithenko-gw-1(config)#interface f0/1.7
msk-q42-ioithenko-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/1.7, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1.7, changed state to up

msk-q42-ioithenko-gw-1(config-subif)#encapsulation dot1Q 7
msk-q42-ioithenko-gw-1(config-subif)#ip address 10.128.255.9 255.255.255.252
msk-q42-ioithenko-gw-1(config-subif)#description sochi
msk-q42-ioithenko-gw-1(config-subif)#exit
msk-q42-ioithenko-gw-1(config)#
```

Рис. 9: Настройка маршрутизатора msk-q42-gw-1

```
Password:
sch-sochi-ioithenko-sw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
sch-sochi-ioithenko-sw-1(config)#vlan 7
sch-sochi-ioithenko-sw-1(config-vlan)#name q42-sochi
sch-sochi-ioithenko-sw-1(config-vlan)#exit
sch-sochi-ioithenko-sw-1(config)#interface vlan7
sch-sochi-ioithenko-sw-1(config-if)#
%LINK-5-CHANGED: Interface Vlan7, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan7, changed state to up

sch-sochi-ioithenko-sw-1(config-if)#no shutdown
sch-sochi-ioithenko-sw-1(config-if)#exit
sch-sochi-ioithenko-sw-1(config)#
```

Рис. 10: Настройка коммутатора sch-sochi-sw-1

```
sch-sochi-ioithenko-gw-1#
sch-sochi-ioithenko-gw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
sch-sochi-ioithenko-gw-1(config)#interface f0/0.7
sch-sochi-ioithenko-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.7, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.7, changed state to up

sch-sochi-ioithenko-gw-1(config-subif)#encapsulation dot1Q
% Incomplete command.
sch-sochi-ioithenko-gw-1(config-subif)#encapsulation dot1Q 7
sch-sochi-ioithenko-gw-1(config-subif)#ip address 10.128.255.10 255.255.255.252
sch-sochi-ioithenko-gw-1(config-subif)#description q42
sch-sochi-ioithenko-gw-1(config-subif)#exit
sch-sochi-ioithenko-gw-1(config)#
```

Рис. 11: Настройка маршрутизатора sch-sochi-gw-1

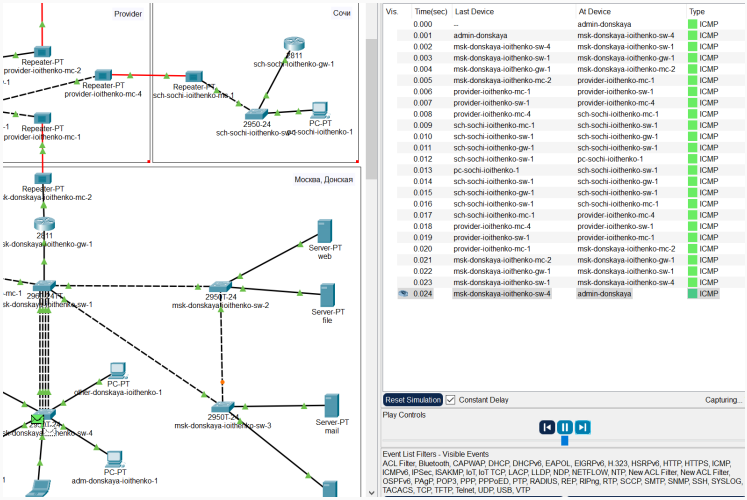
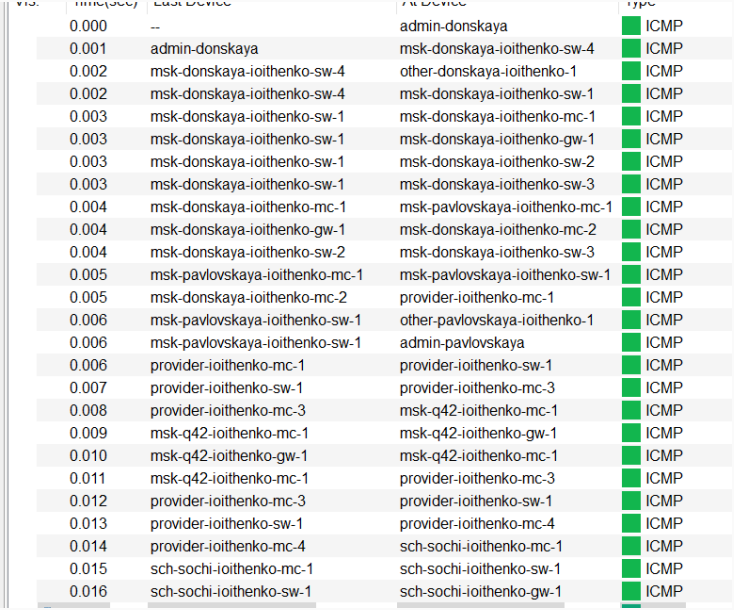
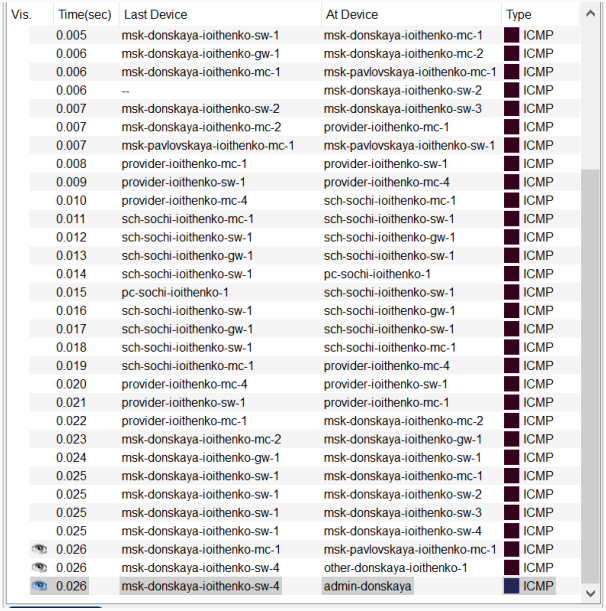


Рис. 12: Движение пакета ICMP при пересылке с администратора на ПК в Сочи в режиме симуляции



#3.	Time(sec)	Last Device	At Device	Type
	0.000	--	admin-donskaya	ICMP
	0.001	admin-donskaya	msk-donskaya-ioithenko-sw-4	ICMP
	0.002	msk-donskaya-ioithenko-sw-4	other-donskaya-ioithenko-1	ICMP
	0.002	msk-donskaya-ioithenko-sw-4	msk-donskaya-ioithenko-sw-1	ICMP
	0.003	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-mc-1	ICMP
	0.003	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-gw-1	ICMP
	0.003	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-sw-2	ICMP
	0.003	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-sw-3	ICMP
	0.004	msk-donskaya-ioithenko-mc-1	msk-pavlovskaya-ioithenko-mc-1	ICMP
	0.004	msk-donskaya-ioithenko-gw-1	msk-donskaya-ioithenko-mc-2	ICMP
	0.004	msk-donskaya-ioithenko-sw-2	msk-donskaya-ioithenko-sw-3	ICMP
	0.005	msk-pavlovskaya-ioithenko-mc-1	msk-pavlovskaya-ioithenko-sw-1	ICMP
	0.005	msk-donskaya-ioithenko-mc-2	provider-ioithenko-mc-1	ICMP
	0.006	msk-pavlovskaya-ioithenko-sw-1	other-pavlovskaya-ioithenko-1	ICMP
	0.006	msk-pavlovskaya-ioithenko-sw-1	admin-pavlovskaya	ICMP
	0.006	provider-ioithenko-mc-1	provider-ioithenko-sw-1	ICMP
	0.007	provider-ioithenko-sw-1	provider-ioithenko-mc-3	ICMP
	0.008	provider-ioithenko-mc-3	msk-q42-ioithenko-mc-1	ICMP
	0.009	msk-q42-ioithenko-mc-1	msk-q42-ioithenko-gw-1	ICMP
	0.010	msk-q42-ioithenko-gw-1	msk-q42-ioithenko-mc-1	ICMP
	0.011	msk-q42-ioithenko-mc-1	provider-ioithenko-mc-3	ICMP
	0.012	provider-ioithenko-mc-3	provider-ioithenko-sw-1	ICMP
	0.013	provider-ioithenko-sw-1	provider-ioithenko-mc-4	ICMP
	0.014	provider-ioithenko-mc-4	sch-sochi-ioithenko-mc-1	ICMP
	0.015	sch-sochi-ioithenko-mc-1	sch-sochi-ioithenko-sw-1	ICMP
	0.016	sch-sochi-ioithenko-sw-1	sch-sochi-ioithenko-gw-1	ICMP

Рис. 13: Движение пакета ICMP при пересылке с администратора на ПК в Сочи в режиме симуляции



Vis.	Time(sec)	Last Device	At Device	Type
	0.005	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-mc-1	ICMP
	0.006	msk-donskaya-ioithenko-gw-1	msk-donskaya-ioithenko-mc-2	ICMP
	0.006	msk-donskaya-ioithenko-mc-1	msk-pavlovskaya-ioithenko-mc-1	ICMP
	0.006	--	msk-donskaya-ioithenko-sw-2	ICMP
	0.007	msk-donskaya-ioithenko-sw-2	msk-donskaya-ioithenko-sw-3	ICMP
	0.007	msk-donskaya-ioithenko-mc-2	provider-ioithenko-mc-1	ICMP
	0.007	msk-pavlovskaya-ioithenko-mc-1	msk-pavlovskaya-ioithenko-sw-1	ICMP
	0.008	provider-ioithenko-mc-1	provider-ioithenko-sw-1	ICMP
	0.009	provider-ioithenko-sw-1	provider-ioithenko-mc-4	ICMP
	0.010	provider-ioithenko-mc-4	sch-sochi-ioithenko-mc-1	ICMP
	0.011	sch-sochi-ioithenko-mc-1	sch-sochi-ioithenko-sw-1	ICMP
	0.012	sch-sochi-ioithenko-sw-1	sch-sochi-ioithenko-gw-1	ICMP
	0.013	sch-sochi-ioithenko-gw-1	sch-sochi-ioithenko-sw-1	ICMP
	0.014	sch-sochi-ioithenko-sw-1	pc-sochi-ioithenko-1	ICMP
	0.015	pc-sochi-ioithenko-1	sch-sochi-ioithenko-sw-1	ICMP
	0.016	sch-sochi-ioithenko-sw-1	sch-sochi-ioithenko-gw-1	ICMP
	0.017	sch-sochi-ioithenko-gw-1	sch-sochi-ioithenko-sw-1	ICMP
	0.018	sch-sochi-ioithenko-sw-1	sch-sochi-ioithenko-mc-1	ICMP
	0.019	sch-sochi-ioithenko-mc-1	provider-ioithenko-mc-4	ICMP
	0.020	provider-ioithenko-mc-4	provider-ioithenko-sw-1	ICMP
	0.021	provider-ioithenko-sw-1	provider-ioithenko-mc-1	ICMP
	0.022	provider-ioithenko-mc-1	msk-donskaya-ioithenko-mc-2	ICMP
	0.023	msk-donskaya-ioithenko-mc-2	msk-donskaya-ioithenko-gw-1	ICMP
	0.024	msk-donskaya-ioithenko-gw-1	msk-donskaya-ioithenko-sw-1	ICMP
	0.025	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-mc-1	ICMP
	0.025	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-sw-2	ICMP
	0.025	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-sw-3	ICMP
	0.025	msk-donskaya-ioithenko-sw-1	msk-donskaya-ioithenko-sw-4	ICMP
	0.026	msk-donskaya-ioithenko-mc-1	msk-pavlovskaya-ioithenko-mc-1	ICMP
	0.026	msk-donskaya-ioithenko-sw-4	other-donskaya-ioithenko-1	ICMP
	0.026	msk-donskaya-ioithenko-sw-4	admin-donskaya	ICMP

Рис. 14: Движение пакета ICMP при пересылке с администратора на ПК в Сочи в режиме симуляции

Выводы

В ходе выполнения лабораторной работы я настроила динамическую маршрутизацию между территориями организации.