

Итоговый отчет по лабораторной работе

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Цель: научиться настраивать сети на оборудовании cisco

Оборудование:

- 2 Маршрутизатора Cisco 1941
- 2 Свитча Cisco Catalyst 2960

Часть первая: проектирование сети

Выберем сеть класса C – 192.100.1.0/24

Выделим 3 подсети:

192.100.1.0/29 – подсеть свитча sw0

192.100.1.8/29 – подсеть свитча sw1

192.100.1.16/30 – подсеть линка между роутерами ro1 ro2

Зададим портам соответствующие ip (см. рис 1)

Настроим маршрутизацию при помощи протокола RIP

название	Интерфейс	Ip4	Ip6	mac	Интерфейс	Ip4
sw1	Vlan1	192.100.1.10/29		00d0.978e.a7e5		
Sw0	Vlan1	192.100.1.2/29		0001.966c.53d5		
ro1	Gi0/1	192.100.1.1/29	2001:D B8::1	0002.160d.2302	Se0/1/0	192.100.1.17/30
Ro2	Gi0/1	192.100.1.9/29	2001:D B8::9	00e0.a348.7702	Se0/1/0	192.100.1.18/30
Pc0	Fa0	192.100.1.3	2001:D B8::3	0001.4367.D100		
Pc1	Fa0	192.100.1.11	2001:DB8::D	000A.F3DE.EDB5		

Схема физического подключения – схема сети (топология) L1:

Рис. 1

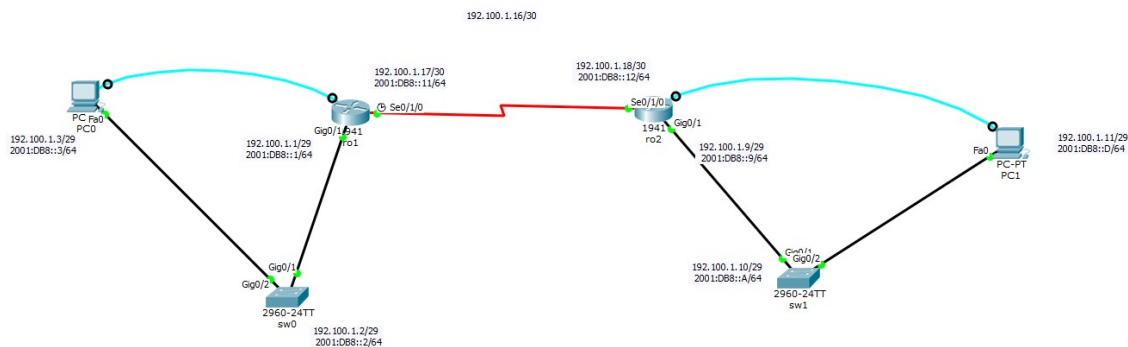


Схема физического подключения – схема сети (топология) L3:



Конфигурирование устройств

Show run sw1:

```
hostname sw1
spanning-tree mode pvst
interface Vlan1
ip address 192.100.1.10 255.255.255.248
ip default-gateway 192.100.1.9
line con 0
line vty 0 4
login
line vty 5 15
login
end
```

show run sw0:

```
hostname sw0
spanning-tree mode pvst
interface Vlan1
ip address 192.100.1.2 255.255.255.248
ip default-gateway 192.100.1.1
line con 0
line vty 0 4
login
line vty 5 15
login
end
```

show run ro1:

```
hostname ro1
no ip cef
no ipv6 cef
username a123 password 0 123123
license udi pid CISCO1941/K9 sn FTX1524QGF2
ip ssh version 2
ip domain-name domain.local
spanning-tree mode pvst
interface GigabitEthernet0/1
ip address 192.100.1.1 255.255.255.248
duplex auto
speed auto
ipv6 address 2001:DB8::1/125
interface Serial0/1/0
ip address 192.100.1.17 255.255.255.252
```

```
ipv6 address 2001:DB8::11/125
clock rate 2000000
router rip
version 2
network 192.100.1.0
ip classless
ip flow-export version 9
line con 0
line aux 0
line vty 0 4
login local
transport input ssh
end
```

showrun ro2:

```
hostname ro2
no ip cef
no ipv6 cef
username a123 password 0 123123
license udi pid CISCO1941/K9 sn FTX1524842H
ip ssh version 2
ip domain-name domain.local
spanning-tree mode pvst
interface GigabitEthernet0/1
ip address 192.100.1.9 255.255.255.248
duplex auto
speed auto
ipv6 address 2001:DB8::9/125
interface Serial0/1/0
ip address 192.100.1.18 255.255.255.252
```

```
ipv6 address 2001:DB8::12/125
router rip
version 2
network 192.100.1.0
ip classless
ip flow-export version 9
line con 0
line aux 0
line vty 0 4
login local
transport input ssh
end
```

Результаты работы:

ping между sw2 -> sw1:

```
to up
sw1>ping 192.100.1.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.100.1.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/5 ms
sw1>
```

Ping между sw1 -> sw2

```
sw0>ping 192.100.1.10
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.100.1.10, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/3/5 ms
sw0>
```

Sw1 sh ip int br:

```
sw0>Sw1 sh ip int br
```

```
% Invalid input detected at '^' marker.
```

```
sw0>sh ip int br
```

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/1	unassigned	YES	manual	down	down
FastEthernet0/2	unassigned	YES	manual	down	down
FastEthernet0/3	unassigned	YES	manual	down	down
FastEthernet0/4	unassigned	YES	manual	down	down
FastEthernet0/5	unassigned	YES	manual	down	down
FastEthernet0/6	unassigned	YES	manual	down	down
FastEthernet0/7	unassigned	YES	manual	down	down
FastEthernet0/8	unassigned	YES	manual	down	down
FastEthernet0/9	unassigned	YES	manual	down	down
FastEthernet0/10	unassigned	YES	manual	down	down

```
--More-- |
```

Sw2 sh ip int br:

```
sw1>sh ip int br
```

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/1	unassigned	YES	manual	down	down
FastEthernet0/2	unassigned	YES	manual	down	down
FastEthernet0/3	unassigned	YES	manual	down	down
FastEthernet0/4	unassigned	YES	manual	down	down
FastEthernet0/5	unassigned	YES	manual	down	down
FastEthernet0/6	unassigned	YES	manual	down	down
FastEthernet0/7	unassigned	YES	manual	down	down
FastEthernet0/8	unassigned	YES	manual	down	down
FastEthernet0/9	unassigned	YES	manual	down	down
FastEthernet0/10	unassigned	YES	manual	down	down

```
--More-- |
```

Ro1 sh ip int br:

```

rol>sh ip int br
Interface                IP-Address      OK? Method Status        Protocol
GigabitEthernet0/0      unassigned      YES unset  administratively down down
GigabitEthernet0/1      192.100.1.1    YES manual  up                up
Serial0/1/0              192.100.1.17   YES manual  up                up
Serial0/1/1              unassigned      YES unset  administratively down down
Vlan1                    unassigned      YES unset  administratively down down
rol>

```

Ro1 sh ipv6 int br:

Press RETURN to get started.

```

ro2>sh ipv6 int br
GigabitEthernet0/0      [administratively down/down]
GigabitEthernet0/1      [up/up]
    FE80::2E0:A3FF:FE48:7702
    2001:DB8::9
Serial0/1/0              [up/up]
    FE80::2E0:A3FF:FE48:7701
    2001:DB8::12
Serial0/1/1              [administratively down/down]
Vlan1                    [administratively down/down]
ro2>

```

tracert между PC2, PC1:

```

Invalid Command.

PC>tracert 192.100.1.2

Tracing route to 192.100.1.2 over a maximum of 30 hops:

  1  0 ms    0 ms    0 ms    192.100.1.9
  2  1 ms    0 ms    0 ms    192.100.1.17
  3  1 ms    0 ms    1 ms    192.100.1.2

Trace complete.

```

маршруты на R1, R2:

```
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 not set

```
192.100.1.0/24 is variably subnetted, 5 subnets, 3 masks
C    192.100.1.0/29 is directly connected, GigabitEthernet0/1
L    192.100.1.1/32 is directly connected, GigabitEthernet0/1
R    192.100.1.8/29 [120/1] via 192.100.1.18, 00:00:06, Serial0/1/0
C    192.100.1.16/30 is directly connected, Serial0/1/0
L    192.100.1.17/32 is directly connected, Serial0/1/0
rol>
```

```
ro2>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 not set

192.100.1.0/24 is variably subnetted, 5 subnets, 3 masks
R    192.100.1.0/29 [120/1] via 192.100.1.17, 00:00:18, Serial0/1/0
C    192.100.1.8/29 is directly connected, GigabitEthernet0/1
L    192.100.1.9/32 is directly connected, GigabitEthernet0/1
C    192.100.1.16/30 is directly connected, Serial0/1/0
L    192.100.1.18/32 is directly connected, Serial0/1/0
ro2>
```

подключение по SSH pc1->rol:

```
PC>sh ip route
Invalid Command.

PC>ssh -l a123 192.100.1.17
Open
Password:

rol>
```

Выводы:

научилась настраивать сети на оборудовании cisco

Научилась тестировать узловые устройства в виртуальной среде Packet Trace