Министерство науки и высшего образования Российской Федерации
федеральное государственное автономное образовательное учреждение высшего образования
«НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИТМО»

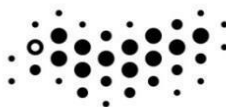**Отчет**

по лабораторной работе №5

по дисциплине «**Телекоммуникационные системы и технологии**»

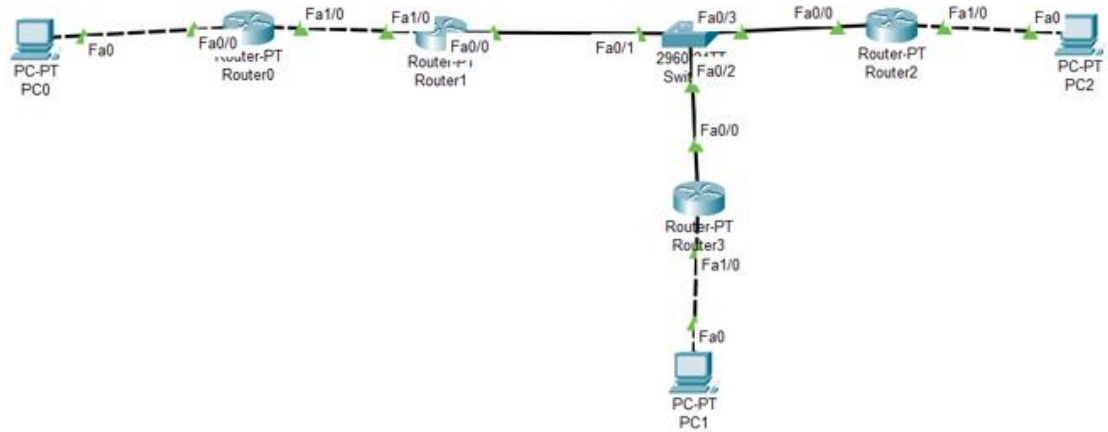Авторы: Юрпалов С. Н.,

Кошкин М.С.

Факультет: ИТиП

Группа: М33051

УНИВЕРСИТЕТ ИТМО

Санкт-Петербург 2023

Ход работы

Часть 1:


```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time<1ms TTL=255
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Router0 — □ ✕

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Router con0 is now available




Press RETURN to get started.









Router>ping 192.168.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

Router>
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Часть 2:

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Router>ping 192.168.0.129

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.129, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)

Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 192.168.0.128 255.255.255.224 192.168.0.72
Router(config)#ip route 192.168.0.96 255.255.255.224 192.168.0.71
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#ping 192.168.0.129

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.129, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/2 ms

Router#
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 192.168.0.96 255.255.255.224 192.168.0.71
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#ping 192.168.0.97

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.97, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms

Router#
```
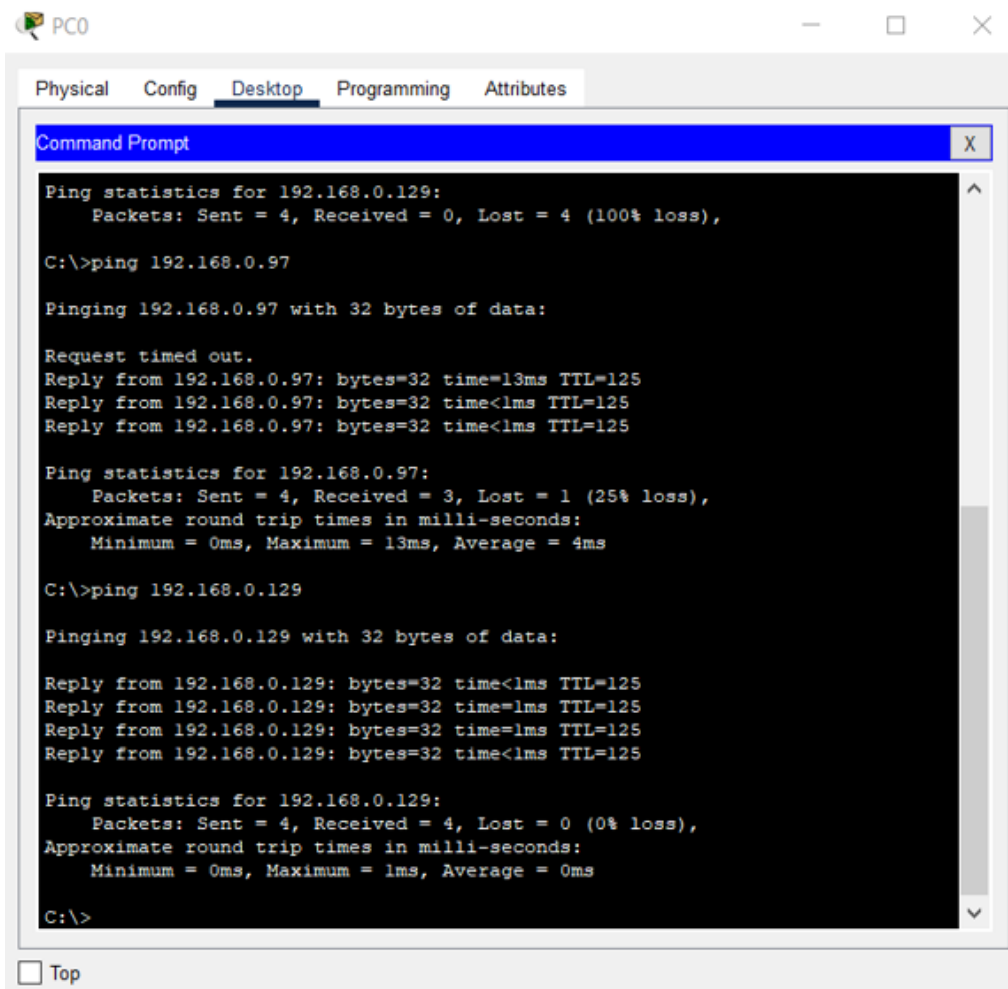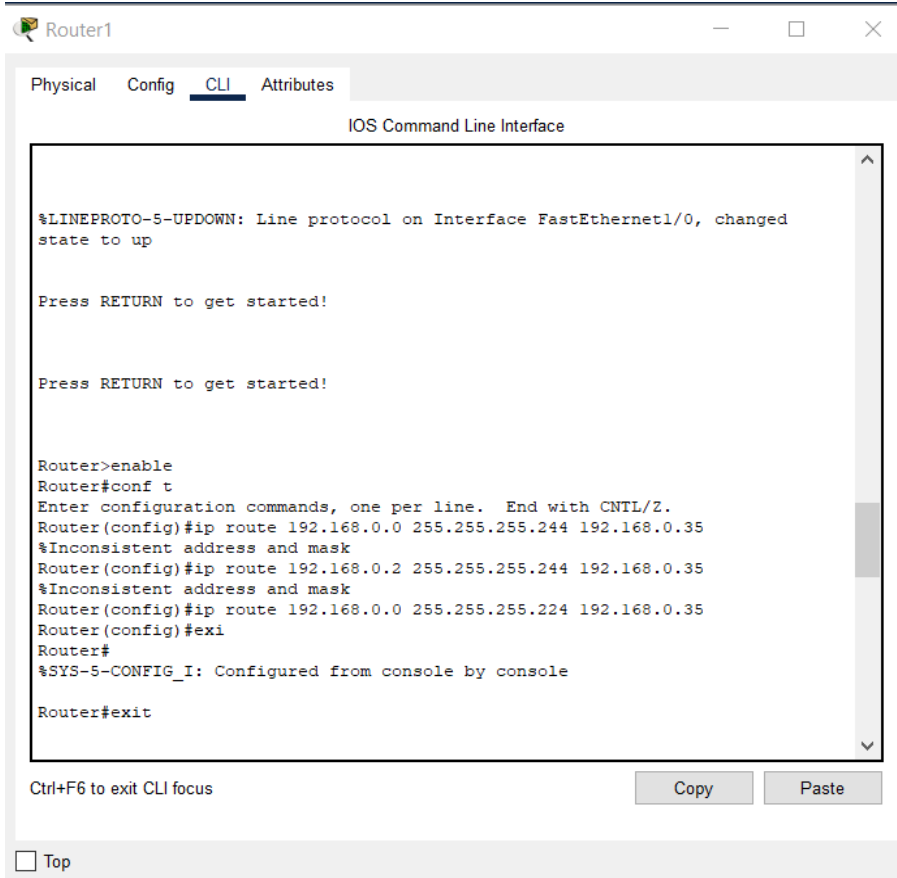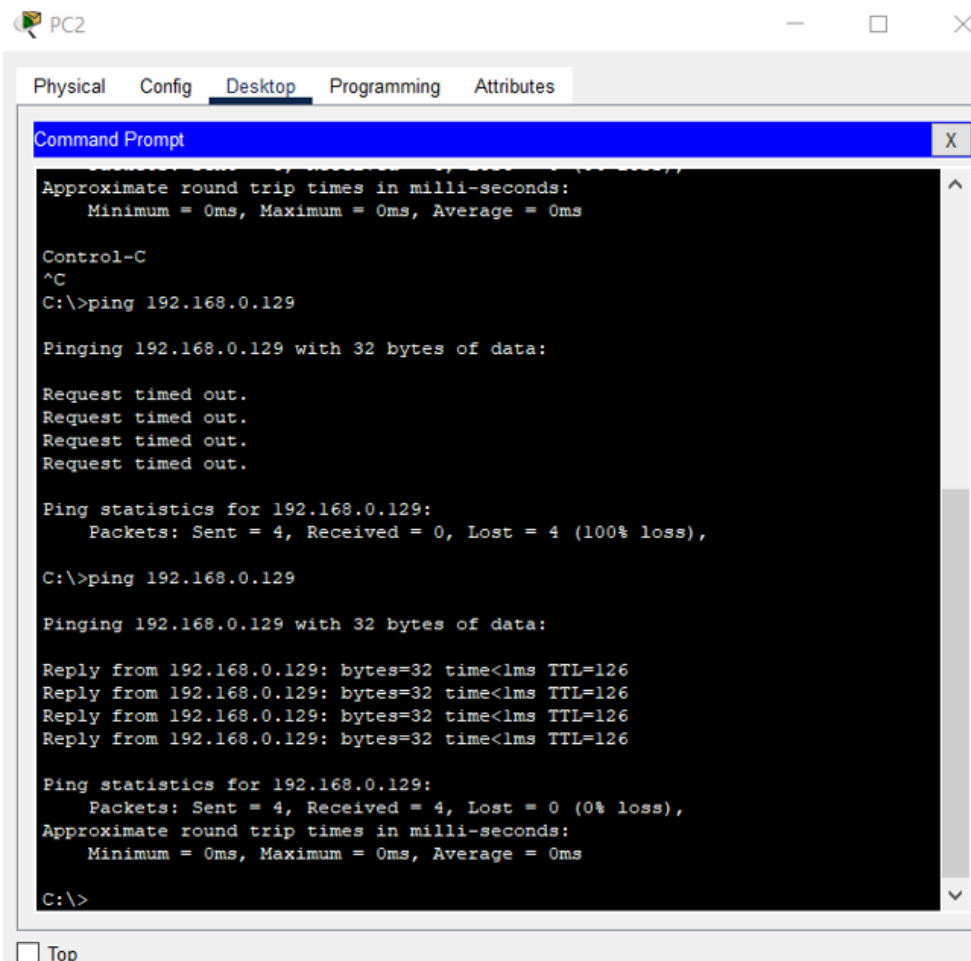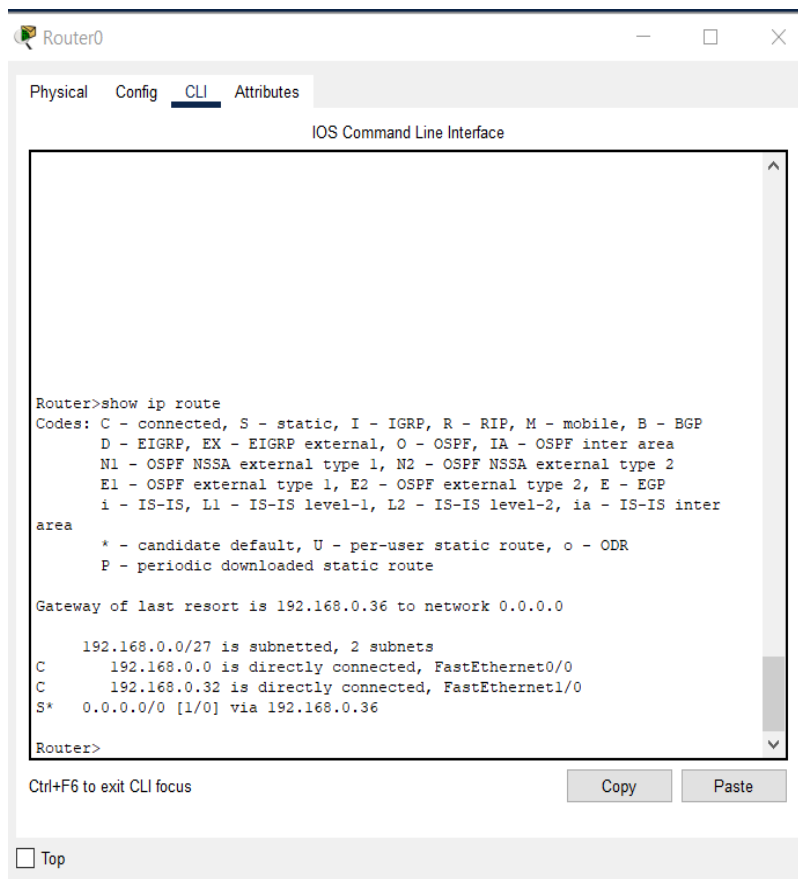
Ctrl+F6 to exit CLI focus   Copy   Paste

Router1

Physical | Config | CLI | Attributes

IOS Command Line Interface

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed
state to up


Press RETURN to get started!



Press RETURN to get started!



Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 192.168.0.0 255.255.255.244 192.168.0.35
%Inconsistent address and mask
Router(config)#ip route 192.168.0.2 255.255.255.244 192.168.0.35
%Inconsistent address and mask
Router(config)#ip route 192.168.0.0 255.255.255.224 192.168.0.35
Router(config)#exi
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#exit
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

PC0

Physical | Config | Desktop | Programming | Attributes

Command Prompt   X

```
Ping statistics for 192.168.0.129:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.0.97

Pinging 192.168.0.97 with 32 bytes of data:

Request timed out.
Reply from 192.168.0.97: bytes=32 time=13ms TTL=125
Reply from 192.168.0.97: bytes=32 time<1ms TTL=125
Reply from 192.168.0.97: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.0.97:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 13ms, Average = 4ms

C:\>ping 192.168.0.129

Pinging 192.168.0.129 with 32 bytes of data:

Reply from 192.168.0.129: bytes=32 time<1ms TTL=125
Reply from 192.168.0.129: bytes=32 time=1ms TTL=125
Reply from 192.168.0.129: bytes=32 time=1ms TTL=125
Reply from 192.168.0.129: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.0.129:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

☐ Top

Таблицы маршрутизации:


```
Router>show 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 192.168.0.36 to network 0.0.0.0

     192.168.0.0/27 is subnetted, 2 subnets
C       192.168.0.0 is directly connected, FastEthernet0/0
C       192.168.0.32 is directly connected, FastEthernet1/0
S*   0.0.0.0/0 [1/0] via 192.168.0.36

Router>
```

Router1

Physical Config **CLI** Attributes

IOS Command Line Interface

```
state to up


Router>ping 192.168.0.71

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.71, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms

Router>show 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 not set

     192.168.0.0/27 is subnetted, 5 subnets
S       192.168.0.0 [1/0] via 192.168.0.35
C       192.168.0.32 is directly connected, FastEthernet1/0
C       192.168.0.64 is directly connected, FastEthernet0/0
S       192.168.0.96 [1/0] via 192.168.0.71
S       192.168.0.128 [1/0] via 192.168.0.72

Router>
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Router2

Physical Config **CLI** Attributes

IOS Command Line Interface

```
C       192.168.0.96 is directly connected, FastEthernet1/0
S       192.168.0.128 [1/0] via 192.168.0.72

Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0 192.168.0.70
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show 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 192.168.0.70 to network 0.0.0.0

     192.168.0.0/27 is subnetted, 3 subnets
C       192.168.0.64 is directly connected, FastEthernet0/0
C       192.168.0.96 is directly connected, FastEthernet1/0
S       192.168.0.128 [1/0] via 192.168.0.72
S*   0.0.0.0/0 [1/0] via 192.168.0.70

Router#
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Router3 — □ ✕

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0 192.168.0.70
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show 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 192.168.0.70 to network 0.0.0.0

     192.168.0.0/27 is subnetted, 3 subnets
C       192.168.0.64 is directly connected, FastEthernet0/0
S       192.168.0.96 [1/0] via 192.168.0.71
C       192.168.0.128 is directly connected, FastEthernet1/0
S*   0.0.0.0/0 [1/0] via 192.168.0.70

Router#
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Часть 3:
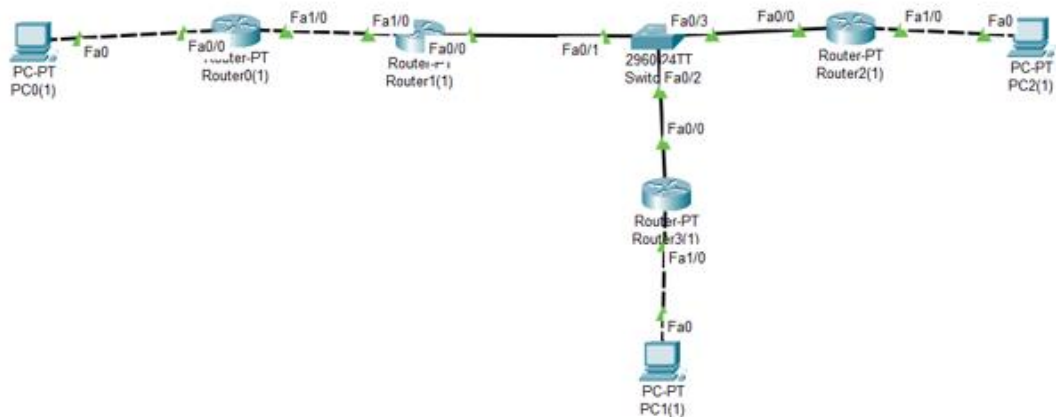
Router1(1)

Physical   Config   CLI   Attributes

GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
INTERFACE
FastEthernet0/0
FastEthernet1/0
Serial2/0
Serial3/0
FastEthernet4/0
FastEthernet5/0

Static Routes

Network

Mask

Next Hop

Add

Network Address

Remove

Equivalent IOS Commands

```
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#no ip route 192.168.0.0 255.255.255.224 192.168.0.35
Router(config)#no ip route 192.168.0.96 255.255.255.224 192.168.0.71
Router(config)#no ip route 192.168.0.128 255.255.255.224 192.168.0.72
Router(config)#
```

Top

Router3(1)

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#ip address 192.168.1.150 255.255.255.224
Router(config-if)#ip address 192.168.1.150 255.255.255.224
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#no ip route 0.0.0.0 0.0.0.0 192.168.0.70
Router(config)#no ip route 192.168.0.96 255.255.255.224 192.168.0.71
Router(config)#
Router(config)#
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#ping 192.168.1.129

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.129, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/1 ms

Router#ping 192.168.1.129

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.129, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms

Router#
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Router0(1)

Physical Config **CLI** Attributes

IOS Command Line Interface

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

Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show 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 not set

     192.168.1.0/27 is subnetted, 2 subnets
C       192.168.1.0 is directly connected, FastEthernet0/0
C       192.168.1.32 is directly connected, FastEthernet1/0

Router#enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#passive-interface fa0/0
Router(config-router)#network 192.168.1.0
Router(config-router)#
```
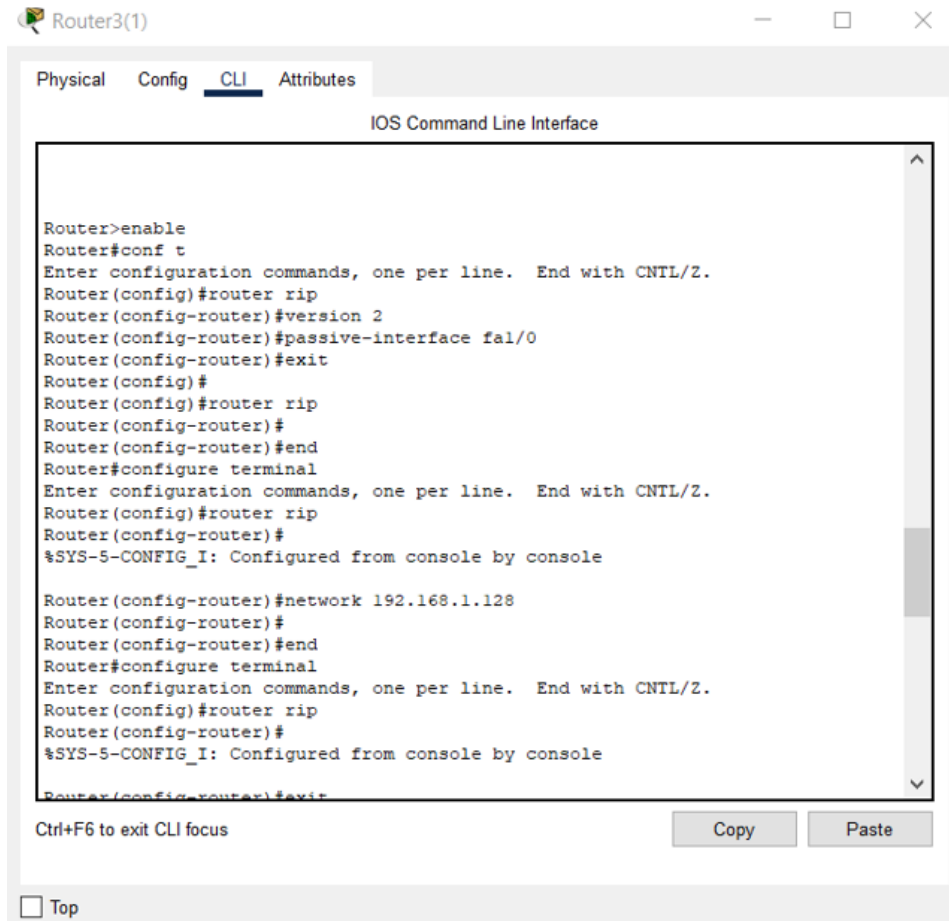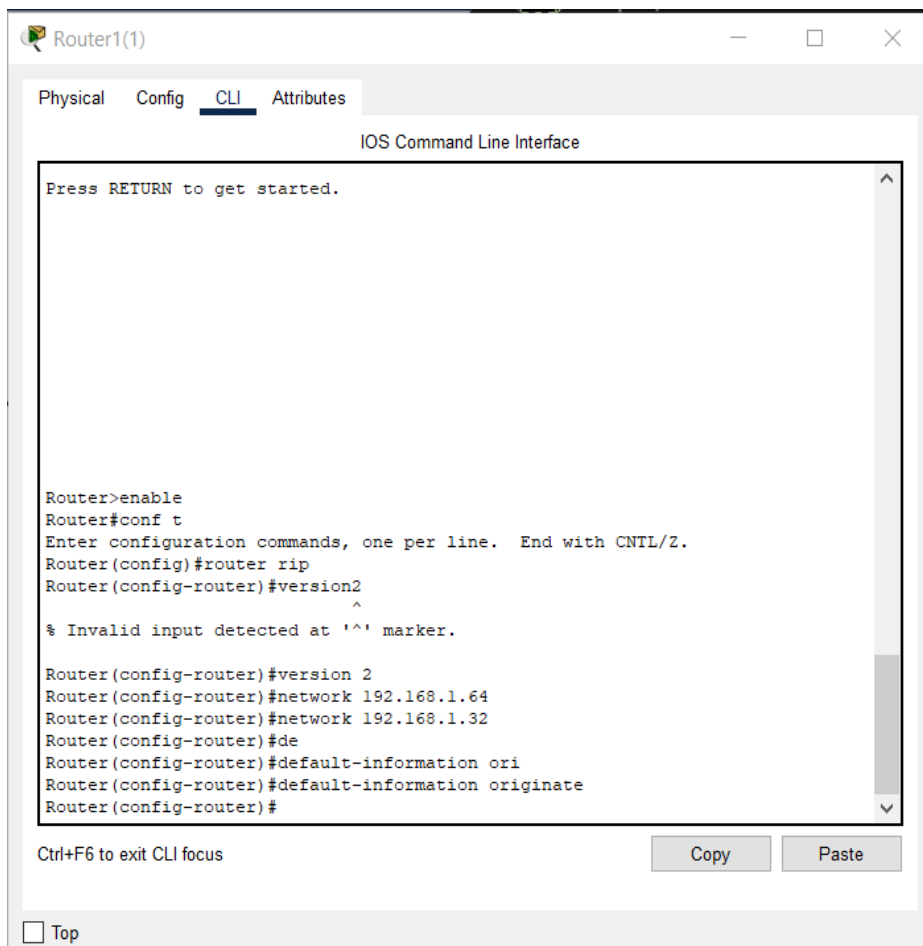
Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Router1(1)

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Press RETURN to get started.




Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#version2
                             ^
% Invalid input detected at '^' marker.

Router(config-router)#version 2
Router(config-router)#network 192.168.1.64
Router(config-router)#network 192.168.1.32
Router(config-router)#de
Router(config-router)#default-information ori
Router(config-router)#default-information originate
Router(config-router)#
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Router3(1)

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#passive-interface fal/0
Router(config-router)#exit
Router(config)#
Router(config)#router rip
Router(config-router)#
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#
%SYS-5-CONFIG_I: Configured from console by console

Router(config-router)#network 192.168.1.128
Router(config-router)#
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#
%SYS-5-CONFIG_I: Configured from console by console

Router(config-router)#exit
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Physical   Config   Desktop   Programming   Attributes

Command Prompt   X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.129

Pinging 192.168.1.129 with 32 bytes of data:

Reply from 192.168.1.129: bytes=32 time=11ms TTL=125
Reply from 192.168.1.129: bytes=32 time<1ms TTL=125
Reply from 192.168.1.129: bytes=32 time<1ms TTL=125
Reply from 192.168.1.129: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.1.129:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 11ms, Average = 2ms

C:\>
```

☐ Top

Таблицы маршрутизации:


```
Router0(1)                                              —    □    ×

  Physical   Config   CLI   Attributes

                        IOS Command Line Interface

Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#passive-interface fa0/0
Router(config-router)#network 192.168.1.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show 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 192.168.1.36 to network 0.0.0.0

     192.168.1.0/27 is subnetted, 5 subnets
C       192.168.1.0 is directly connected, FastEthernet0/0
C       192.168.1.32 is directly connected, FastEthernet1/0
R       192.168.1.64 [120/1] via 192.168.1.36, 00:00:05, FastEthernet1/0
R       192.168.1.96 [120/2] via 192.168.1.36, 00:00:05, FastEthernet1/0
R       192.168.1.128 [120/2] via 192.168.1.36, 00:00:05, FastEthernet1/0
R*   0.0.0.0/0 [120/1] via 192.168.1.36, 00:00:05, FastEthernet1/0

Router#

Ctrl+F6 to exit CLI focus                         Copy        Paste

□ Top
```

```
Router1(1)                                              —    □    ×

  Physical   Config   CLI   Attributes

                        IOS Command Line Interface

  ICMP mask replies are never sent
  IP fast switching is disabled
  IP fast switching on the same interface is disabled
  IP Flow switching is disabled
  IP Fast switching turbo vector
  IP multicast fast switching is disabled
  IP multicast distributed fast switching is disabled
  Router Discovery is disabled

Router#show ip ro
Router#show 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 not set

     192.168.1.0/27 is subnetted, 5 subnets
R       192.168.1.0 [120/1] via 192.168.1.35, 00:00:20, FastEthernet1/0
C       192.168.1.32 is directly connected, FastEthernet1/0
C       192.168.1.64 is directly connected, FastEthernet0/0
R       192.168.1.96 [120/1] via 192.168.1.71, 00:00:21, FastEthernet0/0
R       192.168.1.128 [120/1] via 192.168.1.72, 00:00:13, FastEthernet0/0

Router#

Ctrl+F6 to exit CLI focus                         Copy        Paste

□ Top
```

Router2(1)

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router>show ip r
Router>show ip r
Router>show 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 192.168.1.70 to network 0.0.0.0

     192.168.1.0/27 is subnetted, 5 subnets
R       192.168.1.0 [120/2] via 192.168.1.70, 00:00:14, FastEthernet0/0
R       192.168.1.32 [120/1] via 192.168.1.70, 00:00:14, FastEthernet0/0
C       192.168.1.64 is directly connected, FastEthernet0/0
C       192.168.1.96 is directly connected, FastEthernet1/0
R       192.168.1.128 [120/1] via 192.168.1.72, 00:00:08, FastEthernet0/0
R*    0.0.0.0/0 [120/1] via 192.168.1.70, 00:00:14, FastEthernet0/0

Router>
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Router3(1)

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Gateway of last resort is not set

     192.168.1.0/27 is subnetted, 5 subnets
R       192.168.1.0 [120/2] via 192.168.1.70, 00:00:03, FastEthernet0/0
R       192.168.1.32 [120/1] via 192.168.1.70, 00:00:03, FastEthernet0/0
C       192.168.1.64 is directly connected, FastEthernet0/0
R       192.168.1.96 [120/1] via 192.168.1.71, 00:00:01, FastEthernet0/0
C       192.168.1.128 is directly connected, FastEthernet1/0

Router>show 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 192.168.1.70 to network 0.0.0.0

     192.168.1.0/27 is subnetted, 5 subnets
R       192.168.1.0 [120/2] via 192.168.1.70, 00:00:14, FastEthernet0/0
R       192.168.1.32 [120/1] via 192.168.1.70, 00:00:14, FastEthernet0/0
C       192.168.1.64 is directly connected, FastEthernet0/0
R       192.168.1.96 [120/1] via 192.168.1.71, 00:00:15, FastEthernet0/0
C       192.168.1.128 is directly connected, FastEthernet1/0
R*    0.0.0.0/0 [120/1] via 192.168.1.70, 00:00:14, FastEthernet0/0

Router>
```
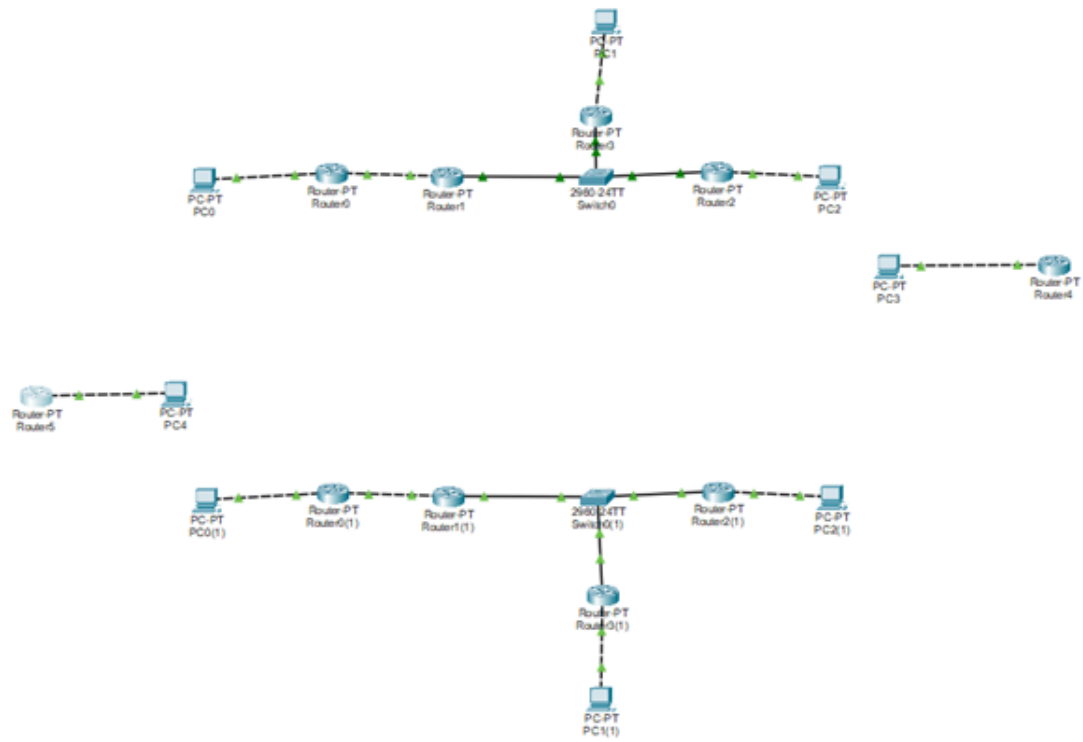
Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Часть 4:

PC4 — FastEthernet0

Physical | Config | Desktop | Programming | Attributes

GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth

FastEthernet0

Port Status ☑ On
Bandwidth ○ 100 Mbps ○ 10 Mbps ☑ Auto
Duplex ○ Half Duplex ○ Full Duplex ☑ Auto
MAC Address 0010.1101.A029

IP Configuration
○ DHCP
● Static
IPv4 Address 192.168.3.2
Subnet Mask 255.255.255.0

IPv6 Configuration
○ Automatic
● Static
IPv6 Address _____ /
Link Local Address: FE80::210:11FF:FE01:A029

PC4 — Global Settings

Physical | Config | Desktop | Programming | Attributes

GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth

Global Settings

Display Name PC4
Interfaces FastEthernet0

Gateway/DNS IPv4
○ DHCP
● Static
Default Gateway 192.168.3.1
DNS Server

Gateway/DNS IPv6
○ Automatic
● Static
Default Gateway
DNS Server

Router5 — □ ×

Physical | Config | CLI | Attributes

GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
INTERFACE
FastEthernet0/0
FastEthernet1/0
Serial2/0
Serial3/0
FastEthernet4/0
FastEthernet5/0

FastEthernet0/0

Port Status   ☑ On
Bandwidth   ○ 100 Mbps ○ 10 Mbps ☑ Auto
Duplex   ○ Half Duplex ○ Full Duplex ☑ Auto
MAC Address   00D0.587D.71BE

IP Configuration
IPv4 Address   192.168.3.1
Subnet Mask   255.255.255.0

Tx Ring Limit   10

Equivalent IOS Commands

```
Press RETURN to get started!


Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top

Часть 5:
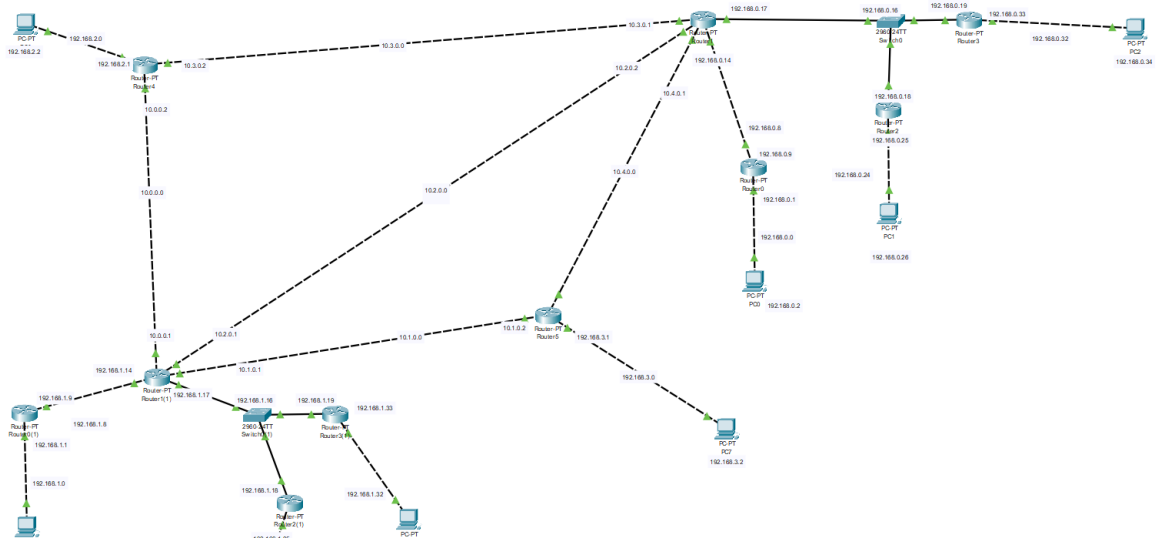
Настройка системы AS100:

router bgp 100

neighbor 10.0.0.14 remote-as 103

neighbor 10.0.0.18 remote-as 101

neighbor 10.0.0.11 remote-as 102

bgp log-neighbor-changes

network 192.168.0.0 MASK 255.255.255.248

network 192.168.0.8 MASK 255.255.255.248

network 192.168.0.16 MASK 255.255.255.248

network 192.168.0.24 MASK 255.255.255.248

network 192.168.0.32 MASK 255.255.255.248

Таблицы маршрутизации:

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Router>
Router>
Router>show 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 not set

     10.0.0.0/30 is subnetted, 3 subnets
C       10.0.0.0 is directly connected, FastEthernet2/0
C       10.0.0.12 is directly connected, FastEthernet3/0
C       10.0.0.16 is directly connected, FastEthernet4/0
     192.168.0.0/29 is subnetted, 5 subnets
S       192.168.0.0 [1/0] via 192.168.0.9
C       192.168.0.8 is directly connected, FastEthernet0/0
C       192.168.0.16 is directly connected, FastEthernet1/0
S       192.168.0.24 [1/0] via 192.168.0.18
S       192.168.0.32 [1/0] via 192.168.0.19
     192.168.1.0/29 is subnetted, 5 subnets
B       192.168.1.0 [20/0] via 10.0.0.18, 00:00:00
B       192.168.1.8 [20/0] via 10.0.0.18, 00:00:00
B       192.168.1.16 [20/0] via 10.0.0.18, 00:00:00
B       192.168.1.24 [20/0] via 10.0.0.18, 00:00:00
B       192.168.1.32 [20/0] via 10.0.0.18, 00:00:00
     192.168.2.0/30 is subnetted, 1 subnets
B       192.168.2.0 [20/0] via 10.0.0.18, 00:00:00
     192.168.3.0/30 is subnetted, 1 subnets
B       192.168.3.0 [20/0] via 10.0.0.14, 00:00:00

Router>
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Router>
Router>
Router>show 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 not set

     10.0.0.0/30 is subnetted, 3 subnets
C       10.0.0.4 is directly connected, FastEthernet2/0
C       10.0.0.8 is directly connected, FastEthernet3/0
C       10.0.0.16 is directly connected, FastEthernet4/0
     192.168.0.0/29 is subnetted, 5 subnets
B       192.168.0.0 [20/0] via 10.0.0.17, 00:00:00
B       192.168.0.8 [20/0] via 10.0.0.17, 00:00:00
B       192.168.0.16 [20/0] via 10.0.0.17, 00:00:00
B       192.168.0.24 [20/0] via 10.0.0.17, 00:00:00
B       192.168.0.32 [20/0] via 10.0.0.17, 00:00:00
     192.168.1.0/29 is subnetted, 5 subnets
R       192.168.1.0 [120/1] via 192.168.1.9, 00:00:20, FastEthernet0/0
C       192.168.1.8 is directly connected, FastEthernet0/0
C       192.168.1.16 is directly connected, FastEthernet1/0
R       192.168.1.24 [120/1] via 192.168.1.18, 00:00:19, FastEthernet1/0
R       192.168.1.32 [120/1] via 192.168.1.19, 00:00:27, FastEthernet1/0
     192.168.2.0/30 is subnetted, 1 subnets
B       192.168.2.0 [20/0] via 10.0.0.5, 00:00:00
     192.168.3.0/30 is subnetted, 1 subnets
B       192.168.3.0 [20/0] via 10.0.0.10, 00:00:00

Router>
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

AS 102

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Router>
Router>
Router>
Router>show 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 not set

     10.0.0.0/30 is subnetted, 2 subnets
C       10.0.0.0 is directly connected, FastEthernet0/0
C       10.0.0.4 is directly connected, FastEthernet1/0
     192.168.0.0/29 is subnetted, 5 subnets
B       192.168.0.0 [20/0] via 10.0.0.6, 00:00:00
B       192.168.0.8 [20/0] via 10.0.0.6, 00:00:00
B       192.168.0.16 [20/0] via 10.0.0.6, 00:00:00
B       192.168.0.24 [20/0] via 10.0.0.6, 00:00:00
B       192.168.0.32 [20/0] via 10.0.0.6, 00:00:00
     192.168.1.0/29 is subnetted, 5 subnets
B       192.168.1.0 [20/0] via 10.0.0.6, 00:00:00
B       192.168.1.8 [20/0] via 10.0.0.6, 00:00:00
B       192.168.1.16 [20/0] via 10.0.0.6, 00:00:00
B       192.168.1.24 [20/0] via 10.0.0.6, 00:00:00
B       192.168.1.32 [20/0] via 10.0.0.6, 00:00:00
     192.168.2.0/30 is subnetted, 1 subnets
C       192.168.2.0 is directly connected, FastEthernet2/0
     192.168.3.0/30 is subnetted, 1 subnets
B       192.168.3.0 [20/0] via 10.0.0.6, 00:00:00

Router>
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

AS 103

Physical   Config   CLI   Attributes

IOS Command Line Interface

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

Router>show 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 not set

     10.0.0.0/30 is subnetted, 2 subnets
C       10.0.0.8 is directly connected, FastEthernet1/0
C       10.0.0.12 is directly connected, FastEthernet0/0
     192.168.0.0/29 is subnetted, 5 subnets
B       192.168.0.0 [20/0] via 10.0.0.13, 00:00:00
B       192.168.0.8 [20/0] via 10.0.0.13, 00:00:00
B       192.168.0.16 [20/0] via 10.0.0.13, 00:00:00
B       192.168.0.24 [20/0] via 10.0.0.13, 00:00:00
B       192.168.0.32 [20/0] via 10.0.0.13, 00:00:00
     192.168.1.0/29 is subnetted, 5 subnets
B       192.168.1.0 [20/0] via 10.0.0.9, 00:00:00
B       192.168.1.8 [20/0] via 10.0.0.9, 00:00:00
B       192.168.1.16 [20/0] via 10.0.0.9, 00:00:00
B       192.168.1.24 [20/0] via 10.0.0.9, 00:00:00
B       192.168.1.32 [20/0] via 10.0.0.9, 00:00:00
     192.168.2.0/30 is subnetted, 1 subnets
B       192.168.2.0 [20/0] via 10.0.0.9, 00:00:00
     192.168.3.0/30 is subnetted, 1 subnets
C       192.168.3.0 is directly connected, FastEthernet2/0

Router>
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Physical   Config   Desktop   Programming   Attributes

Command Prompt   X

```
C:\>tracert 192.168.1.1

Tracing route to 192.168.1.1 over a maximum of 30 hops:

  1    1 ms       0 ms       0 ms       192.168.0.2
  2    0 ms       0 ms       0 ms       192.168.0.10
  3    0 ms       0 ms      25 ms       10.0.0.18
  4    0 ms       0 ms       0 ms       192.168.1.9
  5    0 ms       0 ms       0 ms       192.168.1.1

Trace complete.

C:\>tracert 192.168.1.34

Tracing route to 192.168.1.34 over a maximum of 30 hops:

  1    0 ms       0 ms       1 ms       192.168.0.2
  2    0 ms       0 ms       0 ms       192.168.0.10
  3    0 ms       0 ms       0 ms       10.0.0.18
  4    0 ms       1 ms       0 ms       192.168.1.19
  5    0 ms       0 ms       0 ms       192.168.1.34

Trace complete.

C:\>tracert 192.168.2.1

Tracing route to 192.168.2.1 over a maximum of 30 hops:

  1   13 ms       0 ms       0 ms       192.168.0.2
  2    0 ms       0 ms       0 ms       192.168.0.10
  3    0 ms       0 ms       0 ms       10.0.0.18
  4    0 ms       0 ms       0 ms       10.0.0.5
  5    0 ms       0 ms       0 ms       192.168.2.1

Trace complete.

C:\>tracert 192.168.3.2

Tracing route to 192.168.3.2 over a maximum of 30 hops:

  1    0 ms       0 ms       0 ms       192.168.0.2
  2    0 ms       0 ms       1 ms       192.168.0.10
  3    0 ms       0 ms       0 ms       10.0.0.14
  4    0 ms       0 ms       0 ms       192.168.3.2

Trace complete.

C:\>
```

PC2 — □ ✕

Physical   Config   Desktop   Programming   Attributes

Command Prompt   X

```
C:\>tracert 192.168.1.1

Tracing route to 192.168.1.1 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.0.33
  2    0 ms      0 ms      0 ms      192.168.0.17
  3    0 ms      0 ms      1 ms      10.0.0.18
  4    0 ms      0 ms      9 ms      192.168.1.9
  5    0 ms      0 ms      0 ms      192.168.1.1

Trace complete.

C:\>tracert 192.168.1.34

Tracing route to 192.168.1.34 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.0.33
  2    0 ms      0 ms      0 ms      192.168.0.17
  3    0 ms      0 ms      0 ms      10.0.0.18
  4    0 ms      0 ms      0 ms      192.168.1.19
  5    0 ms      0 ms      0 ms      192.168.1.34

Trace complete.

C:\>tracert 192.168.2.1

Tracing route to 192.168.2.1 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.0.33
  2    0 ms      0 ms     14 ms      192.168.0.17
  3    0 ms      0 ms      0 ms      10.0.0.18
  4    0 ms      0 ms      0 ms      10.0.0.5
  5    0 ms      0 ms      0 ms      192.168.2.1

Trace complete.

C:\>tracert 192.168.3.2

Tracing route to 192.168.3.2 over a maximum of 30 hops:

  1   20 ms      0 ms      0 ms      192.168.0.33
  2    0 ms      0 ms      0 ms      192.168.0.17
  3    0 ms      0 ms      0 ms      10.0.0.14
  4   10 ms      0 ms      0 ms      192.168.3.2

Trace complete.
```

☐ Top

PC0(1) — □ X

Physical Config **Desktop** Programming Attributes

Command Prompt   X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>tracert 192.168.0.1

Tracing route to 192.168.0.1 over a maximum of 30 hops:

  1   0 ms      0 ms      0 ms      192.168.1.2
  2   0 ms      0 ms      0 ms      192.168.1.10
  3   0 ms      0 ms      0 ms      10.0.0.17
  4   0 ms      0 ms      0 ms      192.168.0.9
  5   0 ms      0 ms      0 ms      192.168.0.1

Trace complete.

C:\>tracert 192.168.0.33

Tracing route to 192.168.0.33 over a maximum of 30 hops:

  1   0 ms      0 ms      0 ms      192.168.1.2
  2   0 ms      0 ms      0 ms      192.168.1.10
  3   0 ms      0 ms      0 ms      10.0.0.17
  4   0 ms      0 ms      0 ms      192.168.0.33

Trace complete.

C:\>tracert 192.168.2.1

Tracing route to 192.168.2.1 over a maximum of 30 hops:

  1   0 ms      0 ms      0 ms      192.168.1.2
  2   0 ms      0 ms      0 ms      192.168.1.10
  3   0 ms      0 ms      0 ms      10.0.0.5
  4   0 ms      0 ms      0 ms      192.168.2.1

Trace complete.

C:\>tracert 192.168.3.2

Tracing route to 192.168.3.2 over a maximum of 30 hops:

  1   0 ms      0 ms      0 ms      192.168.1.2
  2   0 ms      0 ms      0 ms      192.168.1.10
  3   0 ms      0 ms      0 ms      10.0.0.10
  4   0 ms      1 ms      0 ms      192.168.3.2

Trace complete.

C:\>
```

☐ Top

Physical   Config   Desktop   Programming   Attributes

Command Prompt

```
C:\>tracert 192.168.0.1

Tracing route to 192.168.0.1 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.1.33
  2    0 ms      0 ms      0 ms      192.168.1.17
  3    0 ms      0 ms      0 ms      10.0.0.17
  4    0 ms      0 ms      8 ms      192.168.0.9
  5    0 ms      0 ms      0 ms      192.168.0.1

Trace complete.

C:\>tracert 192.168.0.34

Tracing route to 192.168.0.34 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.1.33
  2   10 ms      0 ms      0 ms      192.168.1.17
  3    0 ms      0 ms      0 ms      10.0.0.17
  4    0 ms      0 ms      0 ms      192.168.0.19
  5    0 ms      0 ms      0 ms      192.168.0.34

Trace complete.

C:\>tracert 192.168.2.1

Tracing route to 192.168.2.1 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.1.33
  2    0 ms      0 ms      0 ms      192.168.1.17
  3    0 ms      0 ms      0 ms      10.0.0.5
  4    0 ms      0 ms      0 ms      192.168.2.1

Trace complete.

C:\>tracert 192.168.3.2

Tracing route to 192.168.3.2 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.1.33
  2    0 ms      0 ms      0 ms      192.168.1.17
  3    0 ms      0 ms      0 ms      10.0.0.10
  4    0 ms      0 ms      0 ms      192.168.3.2

Trace complete.

C:\>
```

☐ Top

PC4 ☐ ✕

Physical | Config | Desktop | Programming | Attributes

Command Prompt [X]

```
Cisco Packet Tracer PC Command Line 1.0
C:\>tracert 192.168.0.1

Tracing route to 192.168.0.1 over a maximum of 30 hops:

  1   0 ms      0 ms      0 ms      192.168.2.2
  2   0 ms      0 ms      0 ms      10.0.0.6
  3   0 ms      0 ms      0 ms      10.0.0.17
  4   0 ms      0 ms      0 ms      192.168.0.9
  5   0 ms      0 ms      0 ms      192.168.0.1

Trace complete.

C:\>tracert 192.168.1.1

Tracing route to 192.168.1.1 over a maximum of 30 hops:

  1   0 ms      0 ms      0 ms      192.168.2.2
  2   0 ms      0 ms      0 ms      10.0.0.6
  3   0 ms      0 ms     16 ms      192.168.1.9
  4   0 ms      0 ms      0 ms      192.168.1.1

Trace complete.

C:\>tracert 192.168.3.2

Tracing route to 192.168.3.2 over a maximum of 30 hops:

  1   0 ms      0 ms      0 ms      192.168.2.2
  2  16 ms      0 ms      0 ms      10.0.0.6
  3   0 ms      0 ms      0 ms      10.0.0.10
  4   0 ms      0 ms      0 ms      192.168.3.2

Trace complete.

C:\>
```
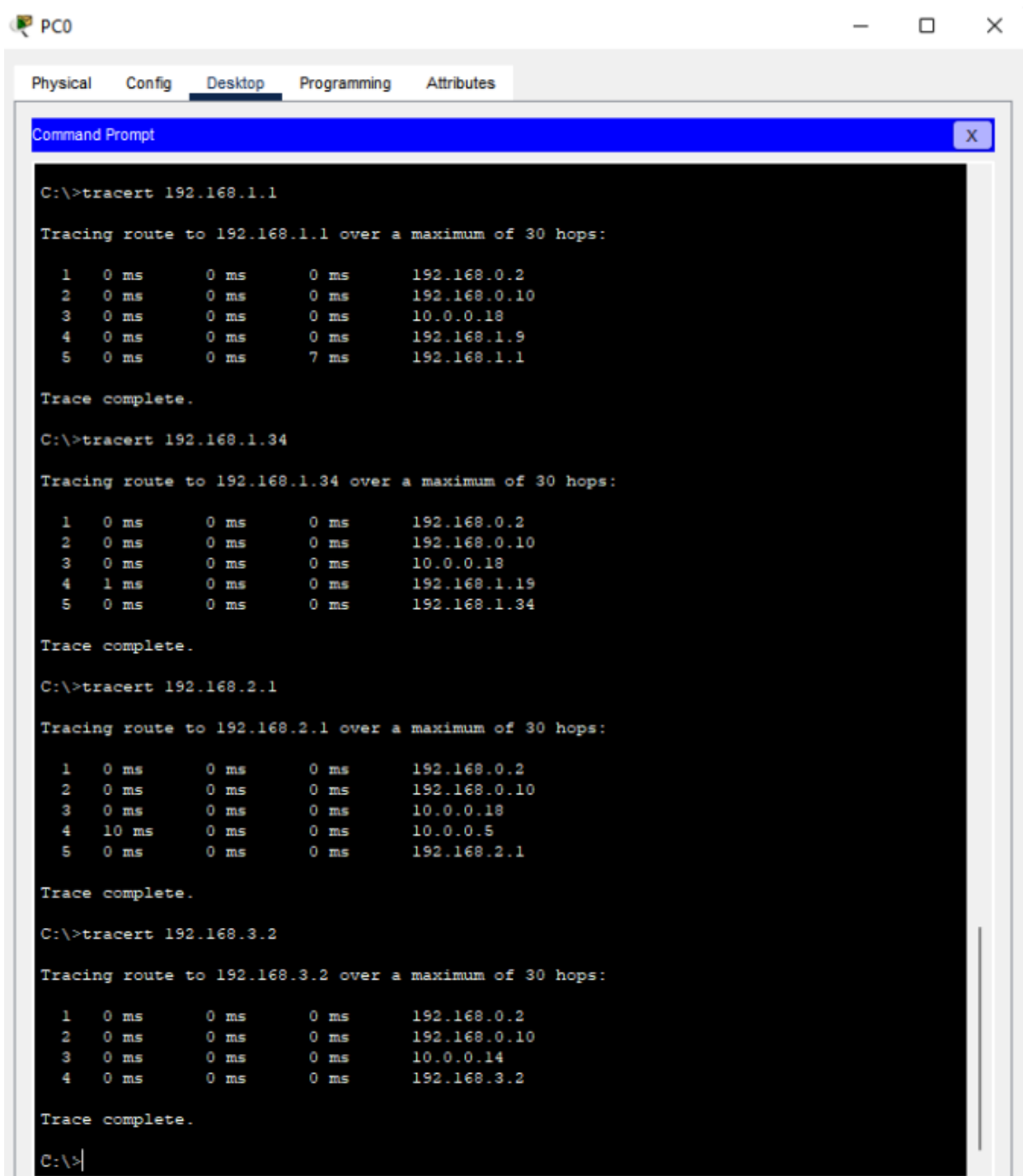
Трассировка после отключения линии:


```
PC0                                                    —  □  ×

 Physical    Config    Desktop    Programming    Attributes

 Command Prompt                                              X

  C:\>tracert 192.168.1.1

  Tracing route to 192.168.1.1 over a maximum of 30 hops:

    1    0 ms        0 ms        0 ms       192.168.0.2
    2    0 ms        0 ms        0 ms       192.168.0.10
    3    0 ms        0 ms        0 ms       10.0.0.18
    4    0 ms        0 ms        0 ms       192.168.1.9
    5    0 ms        0 ms        7 ms       192.168.1.1

  Trace complete.

  C:\>tracert 192.168.1.34

  Tracing route to 192.168.1.34 over a maximum of 30 hops:

    1    0 ms        0 ms        0 ms       192.168.0.2
    2    0 ms        0 ms        0 ms       192.168.0.10
    3    0 ms        0 ms        0 ms       10.0.0.18
    4    1 ms        0 ms        0 ms       192.168.1.19
    5    0 ms        0 ms        0 ms       192.168.1.34

  Trace complete.

  C:\>tracert 192.168.2.1

  Tracing route to 192.168.2.1 over a maximum of 30 hops:

    1    0 ms        0 ms        0 ms       192.168.0.2
    2    0 ms        0 ms        0 ms       192.168.0.10
    3    0 ms        0 ms        0 ms       10.0.0.18
    4   10 ms        0 ms        0 ms       10.0.0.5
    5    0 ms        0 ms        0 ms       192.168.2.1

  Trace complete.

  C:\>tracert 192.168.3.2

  Tracing route to 192.168.3.2 over a maximum of 30 hops:

    1    0 ms        0 ms        0 ms       192.168.0.2
    2    0 ms        0 ms        0 ms       192.168.0.10
    3    0 ms        0 ms        0 ms       10.0.0.14
    4    0 ms        0 ms        0 ms       192.168.3.2

  Trace complete.

  C:\>
```

PC2 — □ ×

Physical Config **Desktop** Programming Attributes

Command Prompt [X]

```
C:\>tracert 192.168.1.1

Tracing route to 192.168.1.1 over a maximum of 30 hops:

  1   0 ms      0 ms      0 ms      192.168.0.33
  2   0 ms      0 ms      0 ms      192.168.0.17
  3   0 ms      0 ms      0 ms      10.0.0.18
  4   0 ms      0 ms      0 ms      192.168.1.9
  5   0 ms      0 ms      0 ms      192.168.1.1

Trace complete.

C:\>tracert 192.168.1.34

Tracing route to 192.168.1.34 over a maximum of 30 hops:

  1   0 ms      0 ms      0 ms      192.168.0.33
  2   0 ms      0 ms      0 ms      192.168.0.17
  3   8 ms      0 ms      0 ms      10.0.0.18
  4   0 ms      0 ms      0 ms      192.168.1.19
  5   0 ms      0 ms      0 ms      192.168.1.34

Trace complete.

C:\>tracert 192.168.2.1

Tracing route to 192.168.2.1 over a maximum of 30 hops:

  1   0 ms      0 ms      0 ms      192.168.0.33
  2   0 ms      7 ms      7 ms      192.168.0.17
  3   0 ms      0 ms      0 ms      10.0.0.18
  4   0 ms      0 ms      0 ms      10.0.0.5
  5   0 ms      0 ms      0 ms      192.168.2.1

Trace complete.

C:\>tracert 192.168.3.2

Tracing route to 192.168.3.2 over a maximum of 30 hops:

  1   0 ms      0 ms      0 ms      192.168.0.33
  2   0 ms      0 ms      0 ms      192.168.0.17
  3   0 ms      0 ms      0 ms      10.0.0.14
  4   0 ms      0 ms      0 ms      192.168.3.2

Trace complete.

C:\>
```

PC0(1)   —   □   ×

Physical   Config   Desktop   Programming   Attributes

Command Prompt   X

```
Trace complete.

C:\>tracert 192.168.0.1

Tracing route to 192.168.0.1 over a maximum of 30 hops:

  1   0 ms       0 ms       0 ms       192.168.1.2
  2   0 ms       0 ms       0 ms       192.168.1.10
  3   0 ms       0 ms       0 ms       10.0.0.17
  4   0 ms       0 ms       0 ms       192.168.0.9
  5   0 ms      11 ms       0 ms       192.168.0.1

Trace complete.

C:\>tracert 192.168.0.33

Tracing route to 192.168.0.33 over a maximum of 30 hops:

  1   0 ms       0 ms       0 ms       192.168.1.2
  2   0 ms       0 ms       0 ms       192.168.1.10
  3   0 ms       0 ms       0 ms       10.0.0.17
  4   0 ms       0 ms       0 ms       192.168.0.33

Trace complete.

C:\>tracert 192.168.2.1

Tracing route to 192.168.2.1 over a maximum of 30 hops:

  1   0 ms       0 ms       0 ms       192.168.1.2
  2   0 ms       0 ms       0 ms       192.168.1.10
  3   0 ms       0 ms       0 ms       10.0.0.5
  4   0 ms       0 ms       0 ms       192.168.2.1

Trace complete.

C:\>tracert 192.168.3.2

Tracing route to 192.168.3.2 over a maximum of 30 hops:

  1   0 ms       0 ms       0 ms       192.168.1.2
  2   0 ms       0 ms       0 ms       192.168.1.10
  3   0 ms       0 ms       0 ms       10.0.0.10
  4   0 ms       0 ms       0 ms       192.168.3.2

Trace complete.

C:\>
```

PC2(1) — □ ×

Physical   Config   Desktop   Programming   Attributes

Command Prompt   X

```
C:\>tracert 192.168.0.1

Tracing route to 192.168.0.1 over a maximum of 30 hops:

  1    0 ms       0 ms       0 ms      192.168.1.33
  2    0 ms       0 ms       0 ms      192.168.1.17
  3    0 ms       0 ms       0 ms      10.0.0.17
  4    0 ms       0 ms       0 ms      192.168.0.9
  5    8 ms       0 ms       0 ms      192.168.0.1

Trace complete.

C:\>tracert 192.168.0.34

Tracing route to 192.168.0.34 over a maximum of 30 hops:

  1    0 ms       0 ms       0 ms      192.168.1.33
  2    0 ms       0 ms       0 ms      192.168.1.17
  3    0 ms       0 ms       0 ms      10.0.0.17
  4    0 ms       0 ms       0 ms      192.168.0.19
  5    0 ms       0 ms       0 ms      192.168.0.34

Trace complete.

C:\>tracert 192.168.2.1

Tracing route to 192.168.2.1 over a maximum of 30 hops:

  1    0 ms       0 ms       0 ms      192.168.1.33
  2    0 ms       0 ms       0 ms      192.168.1.17
  3    0 ms       0 ms       0 ms      10.0.0.5
  4    0 ms       0 ms       0 ms      192.168.2.1

Trace complete.

C:\>tracert 192.168.3.2

Tracing route to 192.168.3.2 over a maximum of 30 hops:

  1    0 ms       0 ms       0 ms      192.168.1.33
  2    0 ms       0 ms       1 ms      192.168.1.17
  3    0 ms       0 ms       0 ms      10.0.0.10
  4    0 ms       0 ms       0 ms      192.168.3.2

Trace complete.

C:\>
```

PC4   — □ ✕

Physical   Config   Desktop   Programming   Attributes

Command Prompt   X

```
Trace complete.

C:\>tracert 192.168.0.1

Tracing route to 192.168.0.1 over a maximum of 30 hops:

  1    0 ms       0 ms       0 ms       192.168.2.2
  2    0 ms       0 ms       0 ms       10.0.0.6
  3    0 ms       0 ms       0 ms       10.0.0.17
  4    0 ms       0 ms       0 ms       192.168.0.9
  5    0 ms       0 ms       0 ms       192.168.0.1

Trace complete.

C:\>tracert 192.168.1.1

Tracing route to 192.168.1.1 over a maximum of 30 hops:

  1    0 ms       0 ms       0 ms       192.168.2.2
  2    0 ms       0 ms       0 ms       10.0.0.6
  3    0 ms       0 ms       0 ms       192.168.1.9
  4    0 ms       0 ms       0 ms       192.168.1.1

Trace complete.

C:\>tracert 192.168.3.2

Tracing route to 192.168.3.2 over a maximum of 30 hops:

  1    0 ms       0 ms       0 ms       192.168.2.2
  2    0 ms       0 ms       0 ms       10.0.0.6
  3    0 ms       0 ms       0 ms       10.0.0.10
  4    0 ms       0 ms       0 ms       192.168.3.2

Trace complete.

C:\>
```

Physical   Config   Desktop   Programming   Attributes

PC3 — □ ×

Physical   Config   Desktop   Programming   Attributes

Command Prompt   X

```
Trace complete.

C:\>tracert 192.168.0.1

Tracing route to 192.168.0.1 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.3.1
  2    0 ms      0 ms      0 ms      10.0.0.13
  3    0 ms      0 ms      0 ms      192.168.0.9
  4    0 ms      0 ms      0 ms      192.168.0.1

Trace complete.

C:\>tracert 192.168.1.1

Tracing route to 192.168.1.1 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.3.1
  2    0 ms      0 ms      0 ms      10.0.0.9
  3    0 ms      0 ms      0 ms      192.168.1.9
  4    0 ms      0 ms      0 ms      192.168.1.1

Trace complete.

C:\>tracert 192.168.2.1

Tracing route to 192.168.2.1 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.3.1
  2    0 ms      0 ms      0 ms      10.0.0.9
  3    0 ms      0 ms      0 ms      10.0.0.5
  4    0 ms      0 ms      0 ms      192.168.2.1

Trace complete.

C:\>
```

Ответы на вопросы:

1. BGP маршрутизация хранит в себе все возможные маршруты, именно поэтому при удалении одного из маршрутов сети почти не нужно времени на перестраивание. Также можно отметить, что в случае rip к соседям мы подключаемся в явном виде, с помощью команды neighbor.

2. Чтобы проверить обновления BGP через консоль маршрутизатора, можно просмотреть таблицу BGP с помощью команды "show ip bgp", проверить сообщения BGP с помощью команды "debug ip bgp" или просмотреть сообщения syslog. Эти методы помогают отслеживать обновления BGP и обеспечивать правильную конфигурацию BGP.

3. BGP и RIP отличаются по своей конфигурации и работе. BGP настраивается вручную и использует сложные метрики для определения наилучшего пути для трафика в крупномасштабных сетях. RIP проще в настройке и использует метрику, основанную на количестве хопов, для небольших сетей. BGP оптимизирован для масштабируемости и стабильности, в то время как RIP предназначен для небольших сетей. Эти различия отражают различные потребности сетей разных размеров и архитектур.