

**КАФЕДРА ПРОГРАММНОЕ ОБЕСПЕЧЕНИЕ ЭВМ И ИНФОРМАЦИОННЫЕ
ТЕХНОЛОГИИ**

Отчет по лабораторной работе № 8

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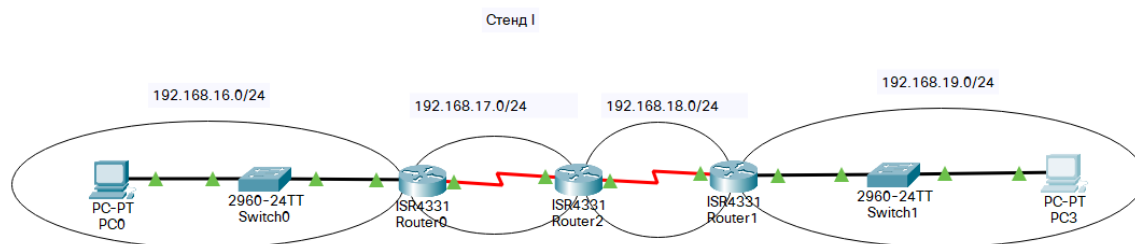
Москва, 2021

Задачи.

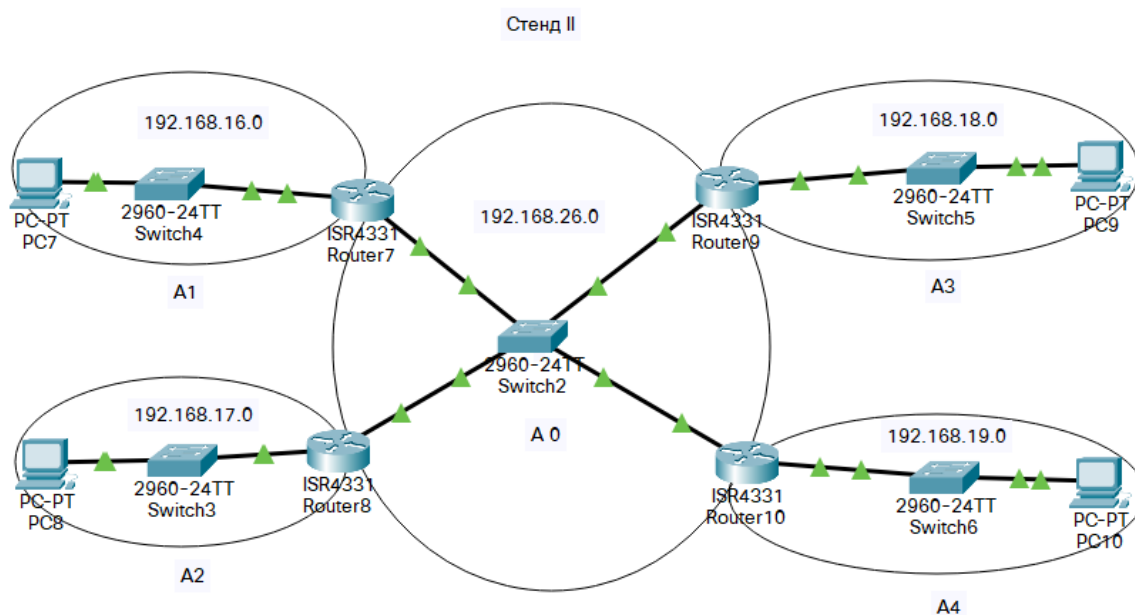
- I. Назначить адреса подсетей:
 - II. Подсеть 1: 192.168.x.0 /24
 - III. Подсеть 2: 192.168.x+1.0 /24
 - IV. Подсеть 3: 192.168.x+2.0 /24
 - V. Подсеть 4: 192.168.x+3.0 /24
 - VI. Подсеть 5 (В задаче III): 192.168.x+10.0 /24
- VII. Настроить динамическую маршрутизацию в прилагаемом .pkt файле на стенде I через протокол RIPv2 так, чтобы пинг любым хостом или маршрутизатором любого другого хоста или маршрутизатора был успешным.
Представить отдельным .pkt файлом.
- VIII. Настроить динамическую маршрутизацию в сети в прилагаемом .pkt файле на стенде II через протокол OSPF так, чтобы пинг любым хостом или маршрутизатором любого другого хоста или маршрутизатора был успешным. Разделить при этом сеть на области OSPF в соответствии со схемой. Выполнить указания в лабораторной работе.
Представить отдельным .pkt файлом.

Задание I.

Разделение на подсети на стенде I:

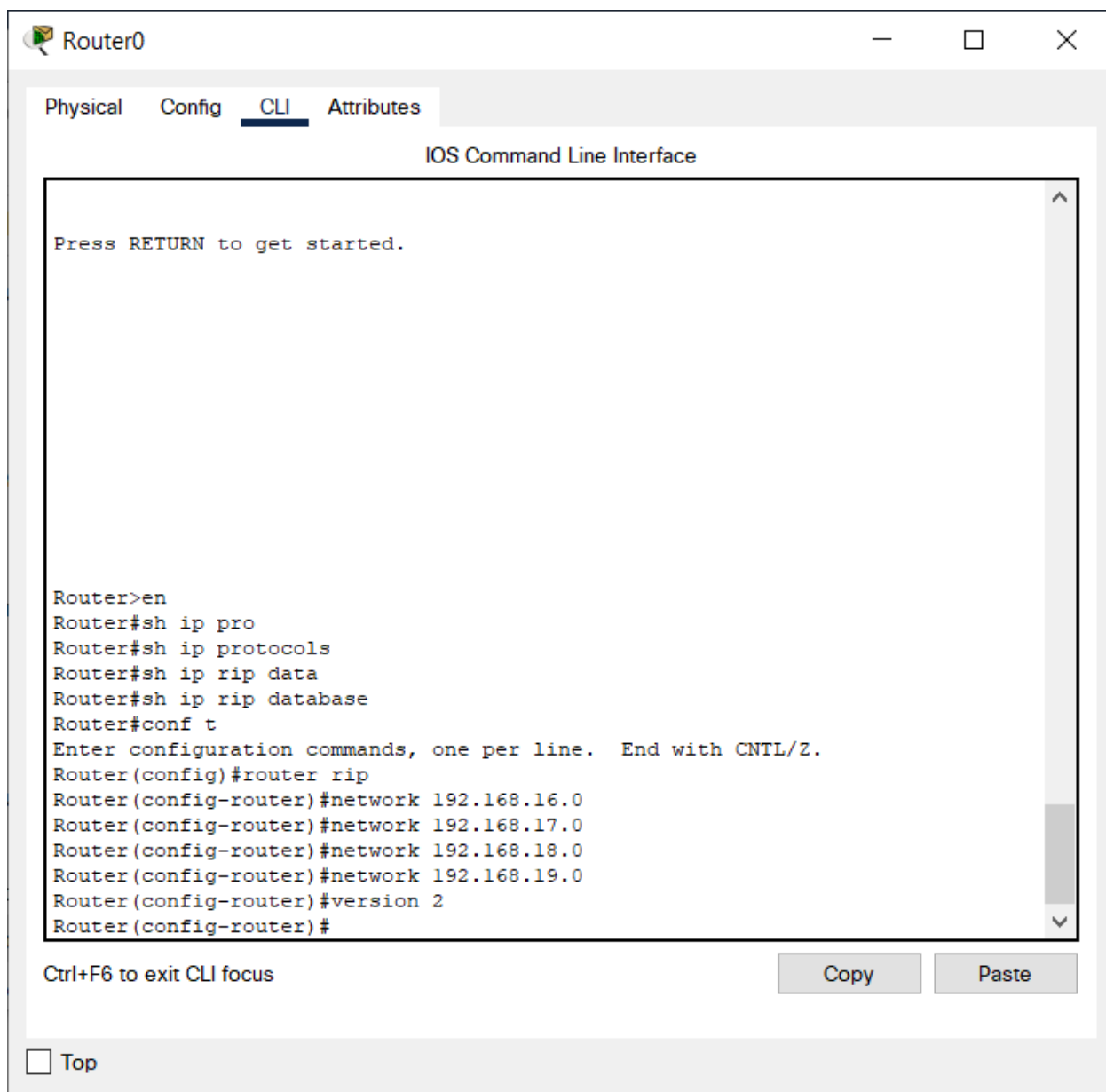


Разделение на подсети на стенде II:



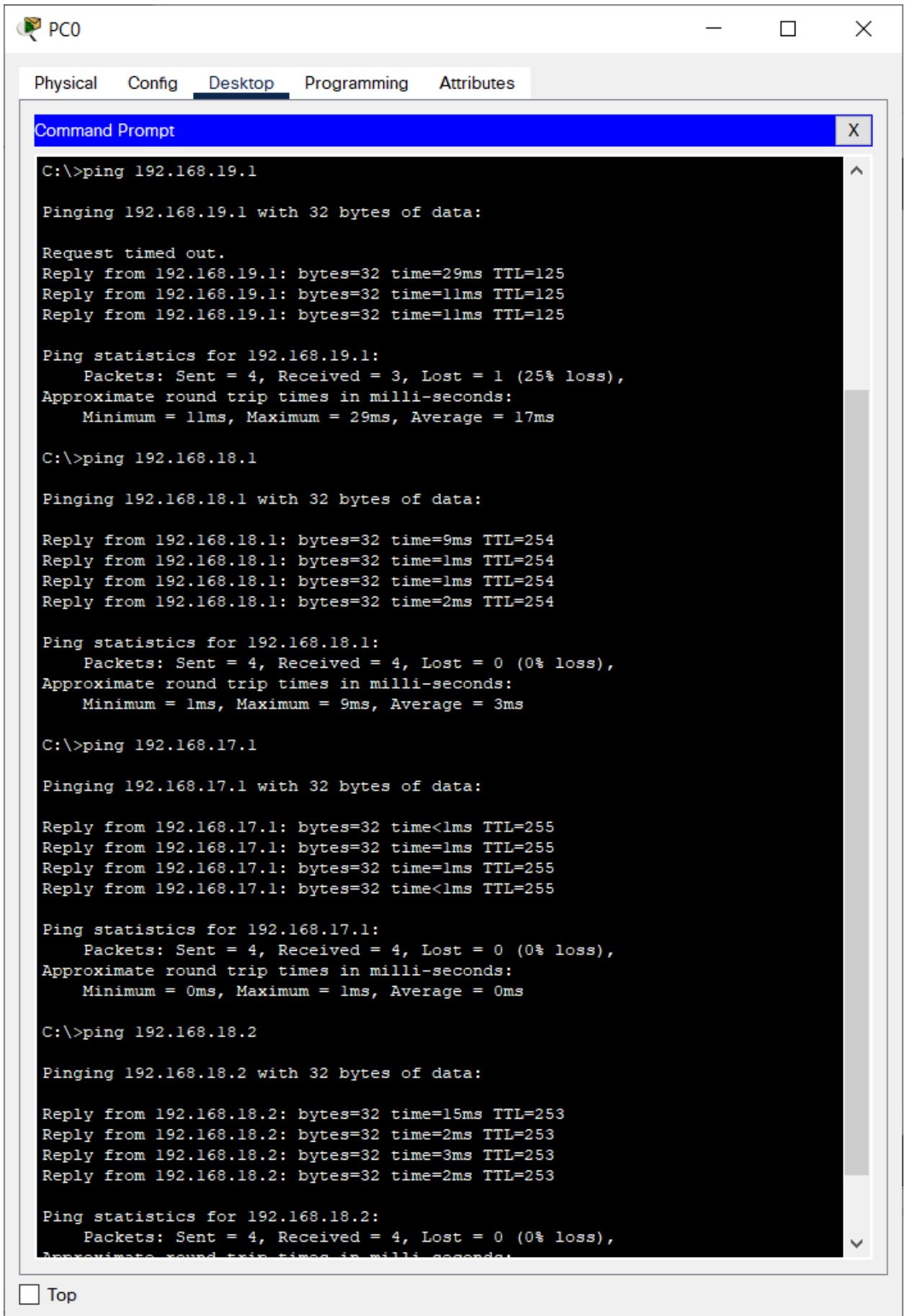
Задание II.

Настройка RIPv2 для Router0:



Настройка остальных маршрутизаторов аналогична.

Проверка пингов:



The screenshot shows a PC window titled "PC0" with tabs for Physical, Config, Desktop, Programming, and Attributes. The "Desktop" tab is active, displaying a "Command Prompt" window. The Command Prompt shows the results of four ping commands executed from the C:\ directory.

```
C:\>ping 192.168.19.1

Pinging 192.168.19.1 with 32 bytes of data:

Request timed out.
Reply from 192.168.19.1: bytes=32 time=29ms TTL=125
Reply from 192.168.19.1: bytes=32 time=11ms TTL=125
Reply from 192.168.19.1: bytes=32 time=11ms TTL=125

Ping statistics for 192.168.19.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 11ms, Maximum = 29ms, Average = 17ms

C:\>ping 192.168.18.1

Pinging 192.168.18.1 with 32 bytes of data:

Reply from 192.168.18.1: bytes=32 time=9ms TTL=254
Reply from 192.168.18.1: bytes=32 time=1ms TTL=254
Reply from 192.168.18.1: bytes=32 time=1ms TTL=254
Reply from 192.168.18.1: bytes=32 time=2ms TTL=254

Ping statistics for 192.168.18.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 9ms, Average = 3ms

C:\>ping 192.168.17.1

Pinging 192.168.17.1 with 32 bytes of data:

Reply from 192.168.17.1: bytes=32 time<1ms TTL=255
Reply from 192.168.17.1: bytes=32 time=1ms TTL=255
Reply from 192.168.17.1: bytes=32 time=1ms TTL=255
Reply from 192.168.17.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.17.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.18.2

Pinging 192.168.18.2 with 32 bytes of data:

Reply from 192.168.18.2: bytes=32 time=15ms TTL=253
Reply from 192.168.18.2: bytes=32 time=2ms TTL=253
Reply from 192.168.18.2: bytes=32 time=3ms TTL=253
Reply from 192.168.18.2: bytes=32 time=2ms TTL=253

Ping statistics for 192.168.18.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
```

☐ Top

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
Router#ping 192.168.19.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.19.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/8/25 ms

Router#ping 192.168.19.254
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.19.254, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/5/20 ms

Router#ping 192.168.16.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.16.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms

Router#ping 192.168.17.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.17.2, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/8 ms

Router#ping 192.168.18.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.18.2, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/4/14 ms

Router#
```

Ctrl+F6 to exit CLI focus

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Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
Router#ping 192.168.16.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.16.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/8 ms

Router#ping 192.168.19.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.19.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/9 ms

Router#ping 192.168.16.254
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.16.254, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/4/16 ms

Router#ping 192.168.19.254
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.19.254, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/3/15 ms

Router#ping 192.168.17.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.17.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/5/13 ms

Router#ping 192.168.18.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.18.2, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/3/14 ms

Router#
```

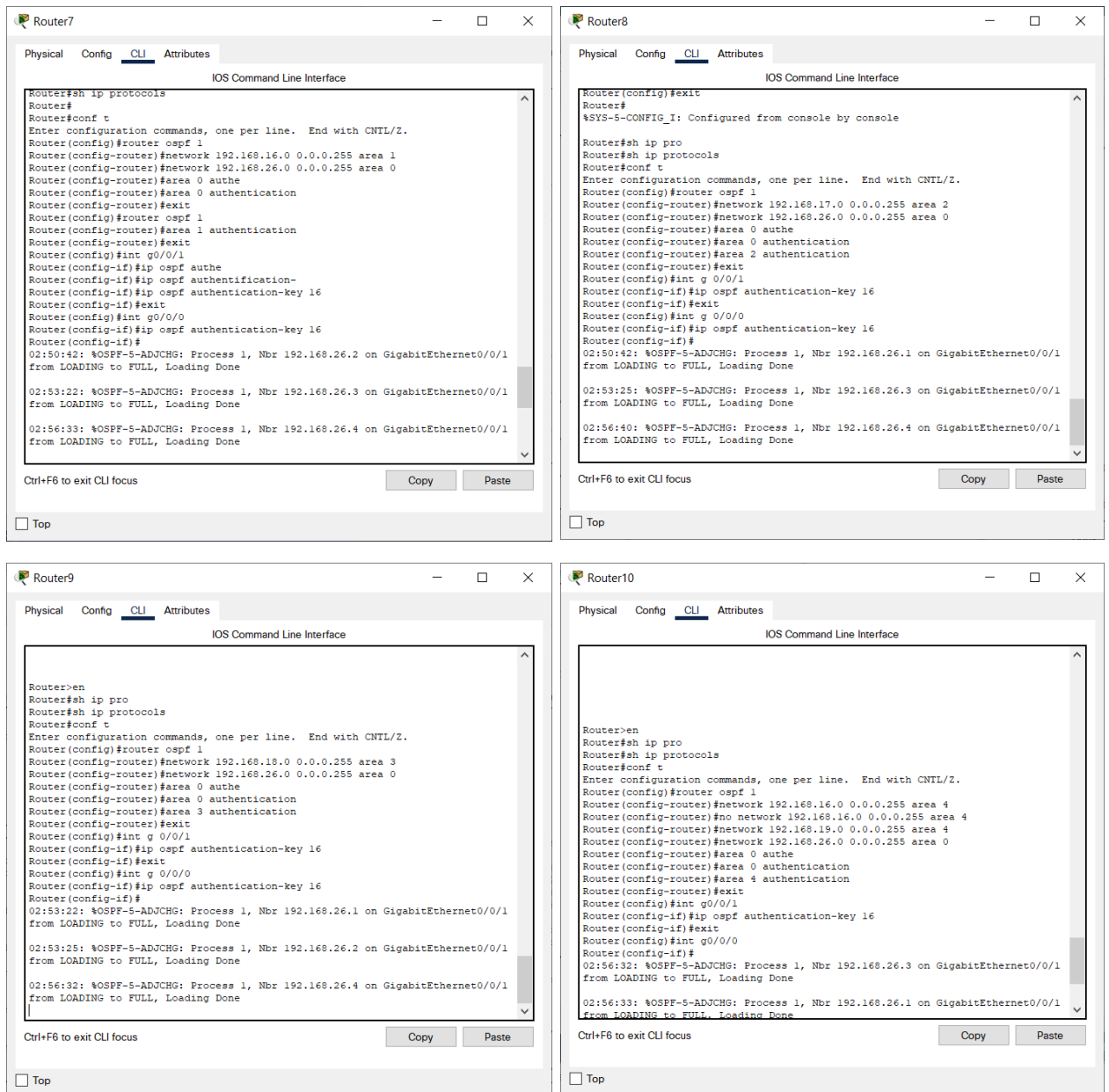
Ctrl+F6 to exit CLI focus

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Задание III.

Настройка OSPF для маршрутизаторов:



На рисунке, представленном ниже, видно, что роль DR получил Router10, BDR – Router7. Роль ABR получили все маршрутизаторы, так как каждый из них является граничным.

Router9

Physical

Config

CLI

Attributes

IOS Command Line Interface

Press RETURN to get started.

Router>en
Router#sh ip ospf neighbor

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.26.1	1	FULL/BDR	00:00:32	192.168.26.1	GigabitEthernet0/0/1
192.168.26.2	1	2WAY/DROTHER	00:00:35	192.168.26.2	GigabitEthernet0/0/1
192.168.26.4	1	FULL/DR	00:00:30	192.168.26.4	GigabitEthernet0/0/1

Router#

Ctrl+F6 to exit CLI focus

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Проверка пингов:

Command Prompt

```
C:\>ping 192.168.19.1

Pinging 192.168.19.1 with 32 bytes of data:

Request timed out.
Reply from 192.168.19.1: bytes=32 time=11ms TTL=126
Reply from 192.168.19.1: bytes=32 time=1ms TTL=126
Reply from 192.168.19.1: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.19.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 11ms, Average = 4ms

C:\>ping 192.168.18.1

Pinging 192.168.18.1 with 32 bytes of data:

Request timed out.
Reply from 192.168.18.1: bytes=32 time=1ms TTL=126
Reply from 192.168.18.1: bytes=32 time=1ms TTL=126
Reply from 192.168.18.1: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.18.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.17.1

Pinging 192.168.17.1 with 32 bytes of data:

Request timed out.
Reply from 192.168.17.1: bytes=32 time=11ms TTL=126
Reply from 192.168.17.1: bytes=32 time=11ms TTL=126
Reply from 192.168.17.1: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.17.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 11ms, Average = 7ms

C:\>ping 192.168.26.4

Pinging 192.168.26.4 with 32 bytes of data:

Reply from 192.168.26.4: bytes=32 time<1ms TTL=254
Reply from 192.168.26.4: bytes=32 time<1ms TTL=254
Reply from 192.168.26.4: bytes=32 time=1ms TTL=254
Reply from 192.168.26.4: bytes=32 time<1ms TTL=254

Ping statistics for 192.168.26.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
```

Command Prompt

```
C:\>ping 192.168.16.1

Pinging 192.168.16.1 with 32 bytes of data:

Reply from 192.168.16.1: bytes=32 time<1ms TTL=126
Reply from 192.168.16.1: bytes=32 time=1ms TTL=126
Reply from 192.168.16.1: bytes=32 time=11ms TTL=126
Reply from 192.168.16.1: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.16.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 11ms, Average = 3ms

C:\>ping 192.168.17.1

Pinging 192.168.17.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.17.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.19.1

Pinging 192.168.19.1 with 32 bytes of data:

Reply from 192.168.19.1: bytes=32 time=2ms TTL=126
Reply from 192.168.19.1: bytes=32 time=11ms TTL=126
Reply from 192.168.19.1: bytes=32 time=11ms TTL=126
Reply from 192.168.19.1: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.19.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 11ms, Average = 6ms

C:\>ping 192.168.26.2

Pinging 192.168.26.2 with 32 bytes of data:

Reply from 192.168.26.2: bytes=32 time<1ms TTL=254
Reply from 192.168.26.2: bytes=32 time<1ms TTL=254
Reply from 192.168.26.2: bytes=32 time=1ms TTL=254
Reply from 192.168.26.2: bytes=32 time=1ms TTL=254

Ping statistics for 192.168.26.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

IOS Command Line Interface

```
Router#ping 192.168.26.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.26.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms

Router#ping 192.168.26.3

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.26.3, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms

Router#ping 192.168.26.4

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.26.4, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms

Router#ping 192.168.16.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.16.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms

Router#ping 192.168.17.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.17.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms

Router#ping 192.168.18.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.18.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

Router#ping 192.168.19.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.19.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/1/3 ms

Router#
```

Ctrl+F6 to exit CLI focus

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