

Лабораторная работа №1
по дисциплине «Компьютерные сети»

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I. Построение общей схемы топологии «Общая шина» с поддержкой 6 хостов.

Установка IP адреса для компьютера №1:

PC0

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 000C.85B0.D537

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 192.168.0.1

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ Automatic

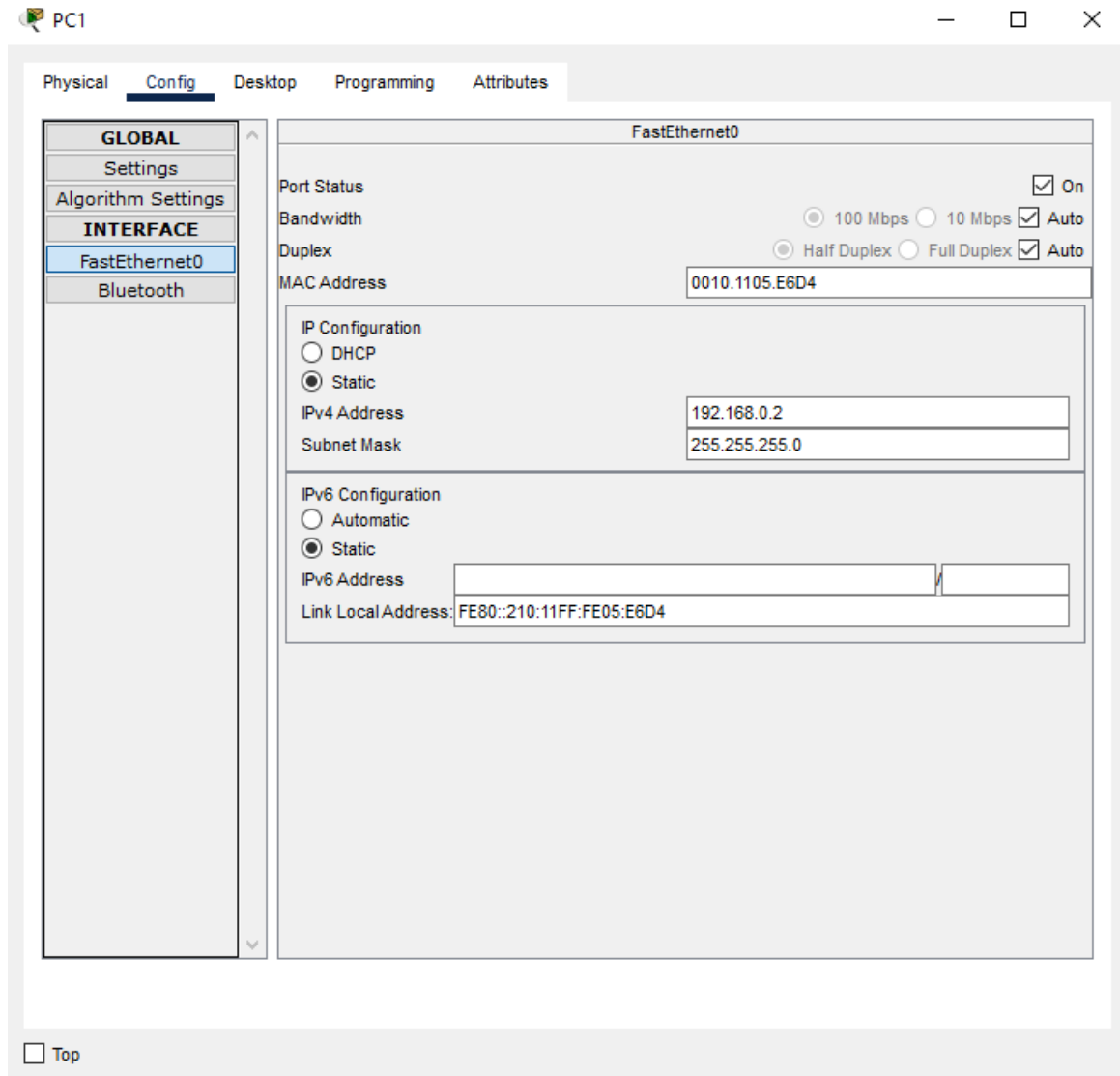
☒ Static

IPv6 Address

Link Local Address FE80::20C:85FF:FE80:D537

☐ Top

Установка IP адреса для компьютера №2:



Результат соединения (ping):

```
C:\>ping 192.168.0.2

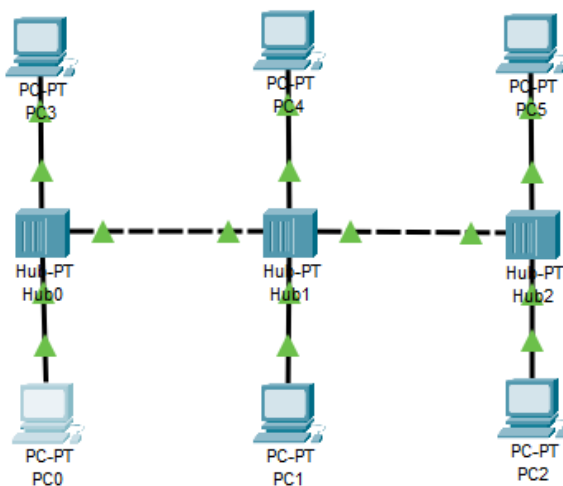
Pinging 192.168.0.2 with 32 bytes of data:

Reply from 192.168.0.2: bytes=32 time<1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Типология «Общая шина»:



Результат соединения (ping):

```
C:\>ping 192.168.0.6

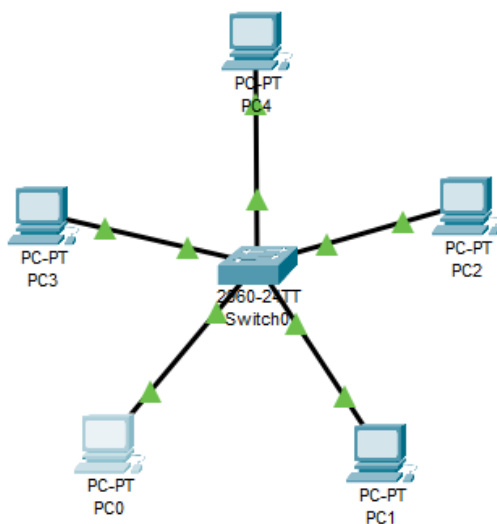
Pinging 192.168.0.6 with 32 bytes of data:

Reply from 192.168.0.6: bytes=32 time<1ms TTL=128
Reply from 192.168.0.6: bytes=32 time<1ms TTL=128
Reply from 192.168.0.6: bytes=32 time<1ms TTL=128
Reply from 192.168.0.6: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

II. Построение общей схемы топологии «Звезда» с поддержкой 5 хостов.

Типология «Звезда»:



Результат соединения (ping):

```
C:\>ping 192.168.0.5

Pinging 192.168.0.5 with 32 bytes of data:

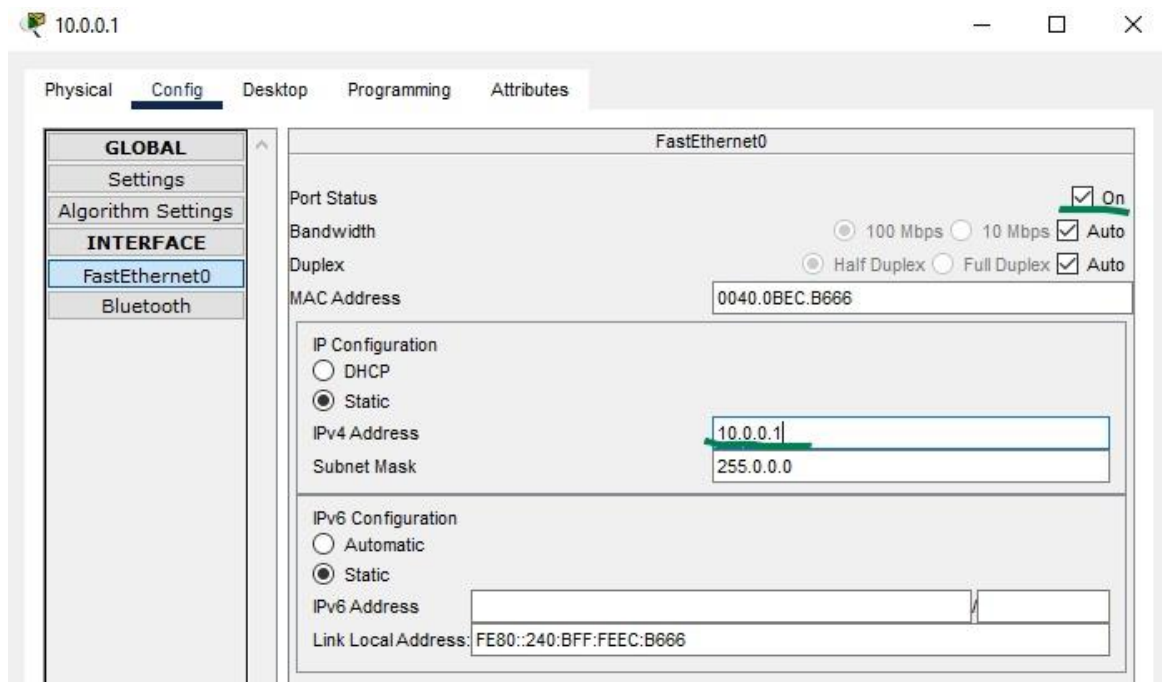
Reply from 192.168.0.5: bytes=32 time<1ms TTL=128
Reply from 192.168.0.5: bytes=32 time<1ms TTL=128
Reply from 192.168.0.5: bytes=32 time<1ms TTL=128
Reply from 192.168.0.5: bytes=32 time=14ms TTL=128

Ping statistics for 192.168.0.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 14ms, Average = 3ms
```

III. Анализ состояния сети. Устранение базовых неисправностей.

Исправления:

1. PC-PT 10.0.0.1



2. PC-PT 10.0.0.2

10.0.0.2

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 0060.3E80.0D2E

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.2

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::260:3EFF:FE80:D2E

3. PC-PT 10.0.0.3

10.0.0.3

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 000A.F375.B5EC

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.3

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::20A:F3FF:FE75:B5EC

4. PC-PT 10.0.0.4

10.0.0.4

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 0010.1133.B9E3

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.4

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::210:11FF:FE33:B9E3

5. PC-PT 10.0.0.5

10.0.0.5

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 0001.437B.D3E3

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.5

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::201:43FF:FE7B:D3E3

6. PC-PT 10.0.0.6

10.0.0.6

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 0009.7C30.9A7A

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.6

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::209:7CFF:FE30:9A7A

7. PC-PT 10.0.0.7

10.0.0.7

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 0090.0CA4.5869

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.7

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::290:CFF:FEA4:5869

8. PC-PT 10.0.0.8

10.0.0.8

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 0002.16B2.AC95

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.8

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::202:16FF:FEB2:AC95

9. PC-PT 10.0.0.9

10.0.0.9

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 0001.430E.7501

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.9

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::201:43FF:FE0E:7501

10. PC-PT 10.0.0.10

10.0.0.10

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 0009.7CB0.26EE

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.10

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::209:7CFF:FEB0:26EE

11. PC-PT 10.0.0.11

10.0.0.11

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 00D0.BAC3.7DA7

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.11

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::2D0:BAFF:FEC3:7DA7

12. PC-PT 10.0.0.12

10.0.0.12

Physical **Config** Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

GigabitEthernet0

Bluetooth

GigabitEthernet0

Port Status ☒ On

Bandwidth ☐ 1000 Mbps ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0060.47ED.580D

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.12

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::260:47FF:FEED:580D

13. PC-PT 10.0.0.13

10.0.0.13

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 0001.970A.B037

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.13

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::201:97FF:FE0A:B037

14. PC-PT 10.0.0.14

10.0.0.14

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 0002.16BE.01C3

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.14

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::202:16FF:FE0E:1C3

15. PC-PT 10.0.0.15

10.0.0.15

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 0001.636A.A178

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 10.0.0.15

Subnet Mask 255.0.0.0

IPv6 Configuration

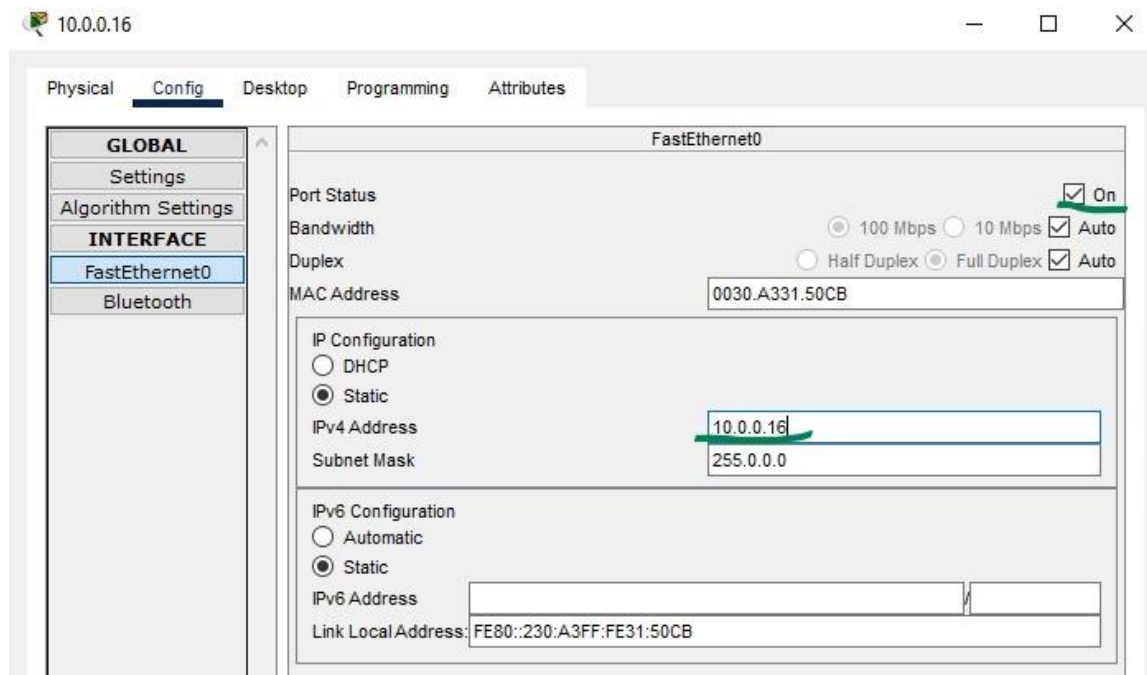
☐ Automatic

☒ Static

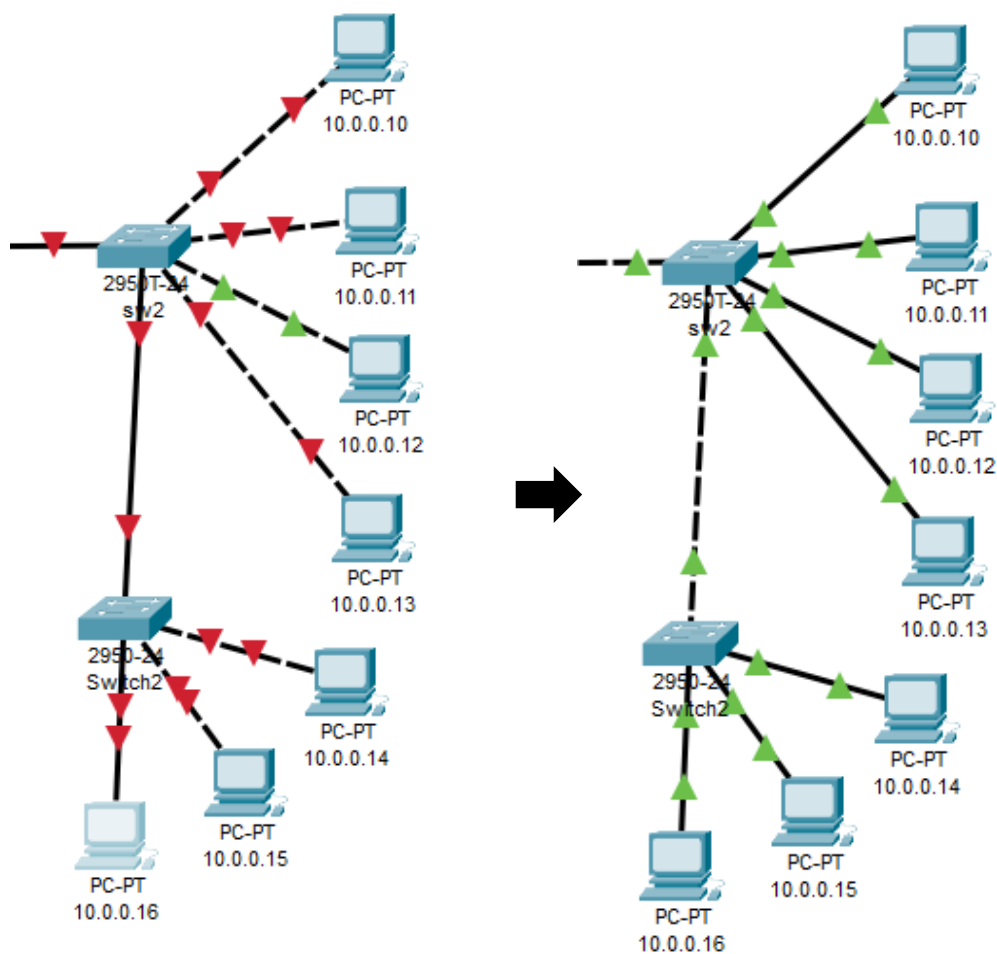
IPv6 Address

Link Local Address: FE80::201:63FF:FE6A:A178

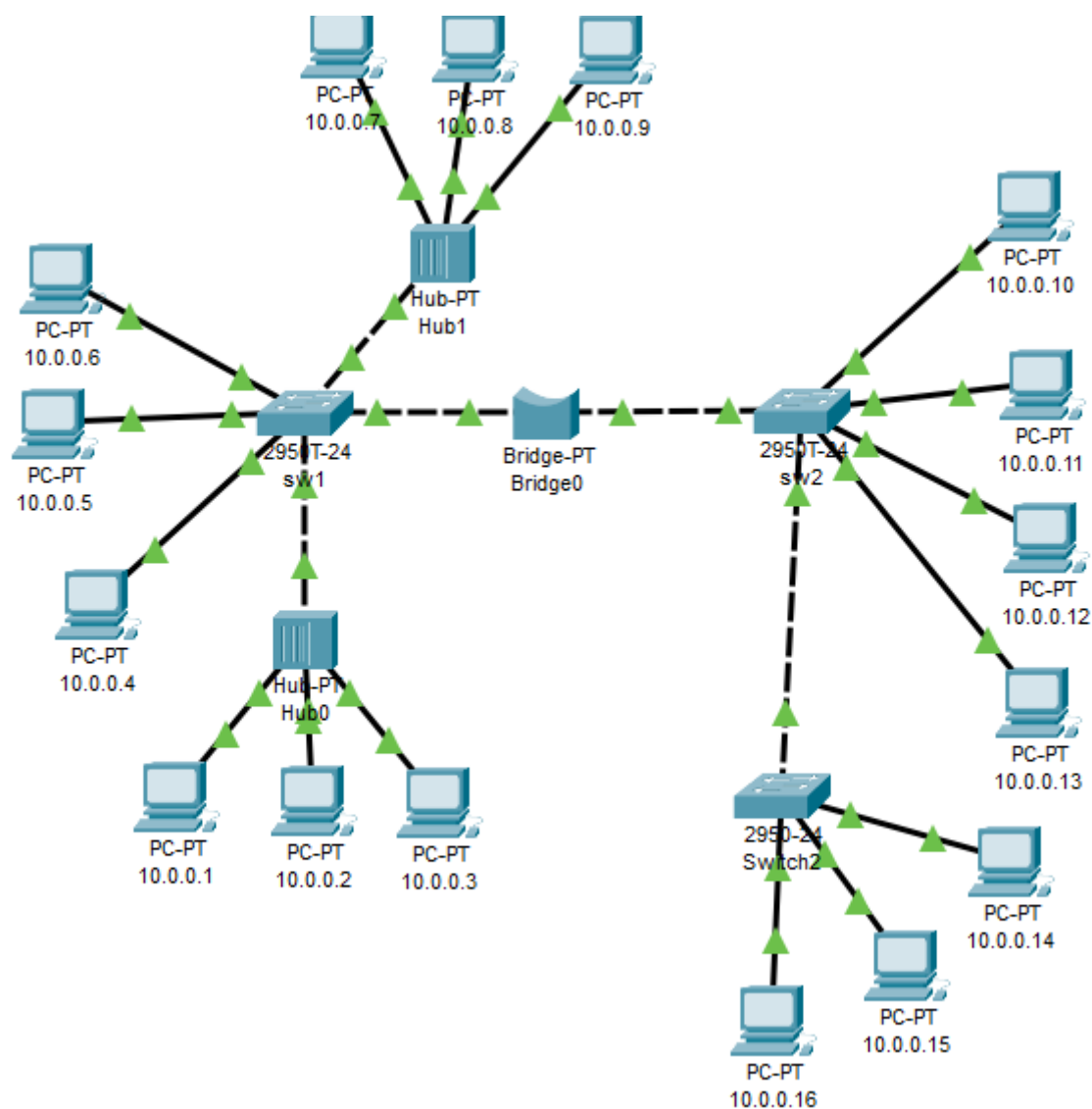
16. PC-PT 10.0.0.16



17. Замена перекрёстных кабелей на прямые:



18. Замена прямых кабелей на перекрёстные:



Результат соединения (ping):

```
Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=6ms TTL=128
Reply from 10.0.0.1: bytes=32 time=13ms TTL=128
Reply from 10.0.0.1: bytes=32 time=14ms TTL=128
Reply from 10.0.0.1: bytes=32 time=13ms TTL=128

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 6ms, Maximum = 14ms, Average = 11ms
```

Домены коллизий:

