Практическое задание №2

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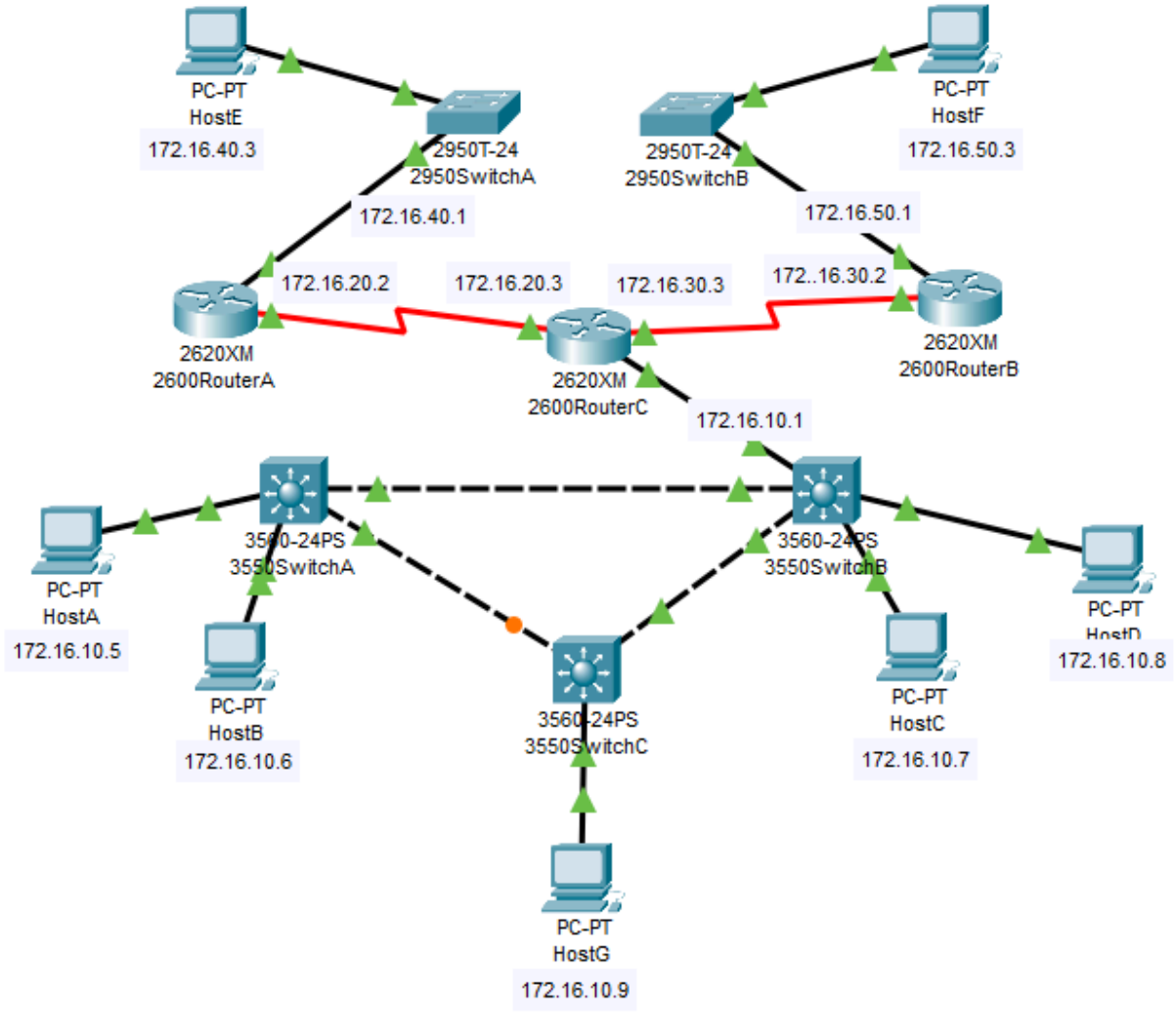


> Роутер 2600B

```
> Router>enable
> Router#config t
> Router(config)#hostname 2600B
> 2600B(config)#enable secret todd
> 2600B(config)#line console 0
> 2600B(config-line)#password todd
> 2600B(config-line)#login
```

```
> 2600B(config-line)#line vty 0 4
> 2600B(config-line)#password todd
> 2600B(config-line)#login
> 2600B(config-line)#interface fastethernet 0/0
> 2600B(config-if)#ip address 172.16.50.1 255.255.255.0
> 2600B(config-if)#description connection to LAN 50
> 2600B(config-if)#no shutdown
> 2600B(config-if)#interface serial 0/0
> 2600B(config-if)#ip address 172.16.30.2 255.255.255.0
> 2600B(config-if)#description connection to 2600C
> 2600B(config-if)#no shutdown
> 2600B(config-if)#exit
> 2600B(config)#banner motd # This is the 2600B router #
> 2600B(config)#exit
> 2600B#copy run start
> 2600B#
```

Роутер 2600C

```
> Router>enable
> Router#config t
> Router(config)#hostname 2600C
> 2600C(config)#enable secret todd
> 2600C(config)#line console 0
> 2600C(config-line)#password todd
> 2600C(config-line)#login
> 2600C(config-line)#line vty 0 4
> 2600C(config-line)#password todd
> 2600C(config-line)#login
> 2600C(config-line)#interface fastethernet 0/0
> 2600C(config-if)#ip address 172.16.10.1 255.255.255.0
> 2600C(config-if)#description connection to LAN 10
> 2600C(config-if)#no shutdown
> 2600C(config-if)#interface serial 0/0
> 2600C(config-if)#ip address 172.16.20.3 255.255.255.0
> 2600C(config-if)#description connection to 2600A
> 2600C(config-if)#no shutdown
> 2600C(config-if)#interface serial 0/1
> 2600C(config-if)#ip address 172.16.30.3 255.255.255.0
```

```
> 2600C(config-if)#description connection to 2600B
> 2600C(config-if)#no shutdown
> 2600C(config-if)#exit
> 2600C(config)#banner motd # This is the 2600C router #
> 2600C(config)#exit
> 2600C#copy run start
> 2600C#
```

Также нужно добавить IP routing для всех роутеров.

Для 2600A

2600B(config)#ip route 172.16.10.0 255.255.255.0 172.16.20.3
2600B(config)#ip route 172.16.50.0 255.255.255.0 172.16.20.3

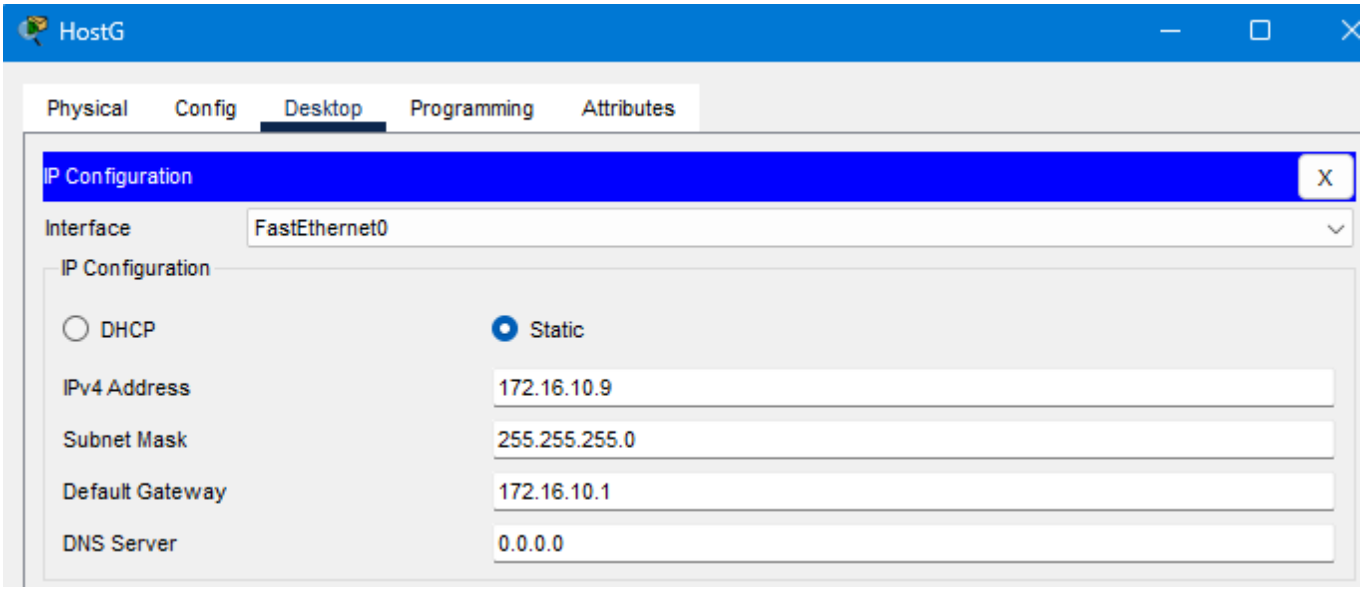
2600B

2600B(config)#ip route 172.16.10.0 255.255.255.0 172.16.30.3
2600B(config)#ip route 172.16.40.0 255.255.255.0 172.16.30.3

2600C

2600C(config)#ip route 172.16.40.0 255.255.255.0 172.16.20.2
2600C(config)#ip route 172.16.50.0 255.255.255.0 172.16.30.2

Добавил 3500SwitchC і подключил к нему HostG



3550SwitchA

```
Switch>enable
Switch#config t
Enter configuration commands, one per line.  End with CN
Switch(config)#hostname 3550A
3550A(config)#enable secret todd
3550A(config)#line console 0
3550A(config-line)#password todd
3550A(config-line)#login
3550A(config-line)#line vty 0 4
3550A(config-line)#password todd
3550A(config-line)#login
3550A(config-line)#exit
3550A(config)#banner motd # This is the 3550A switch
Enter TEXT message.  End with the character '#'.
#

3550A(config)#exit
3550A#
%SYS-5-CONFIG_I: Configured from console by console
```

```
3550A(config)#spanning-tree mode rap
3550A(config)#spanning-tree mode rapid-pvst
3550A(config)#int range fa0/1 - fa0/2
3550A(config-if-range)#switchport mode access
3550A(config-if-range)#spanning-tree portfast
%Warning: portfast should only be enabled on ports connected to a single
host. Connecting hubs, concentrators, switches, bridges, etc... to this
```

```
3550A(config)#interface fastEthernet 0/3
3550A(config-if)#spanning-tree vlan 1 cost 10
3550A(config-if)#interface fastEthernet 0/4
3550A(config-if)#spanning-tree vlan 1 cost 20
```

3550SwitchB (root)

```
3550B(config)#spanning-tree mode rapid-pvst
3550B(config)#spanning-tree vlan 1 root pri
3550B(config)#spanning-tree vlan 1 root primary
```

```
3550B(config-if-range)#interface range fa0/1 - fa0/2
3550B(config-if-range)#switchport mode access
3550B(config-if-range)#spanning-tree portfast
%Warning: portfast should only be enabled on ports connected to a single
```

```
3550B(config)#interface fa0/3
3550B(config-if)#span
3550B(config-if)#spanning-tree
3550B(config-if)#spanning-tree vlan 1 cost 10
3550B(config-if)#exit
3550B(config)#interface fa0/4
3550B(config-if)#spanning-tree vlan 1 cost 15
```

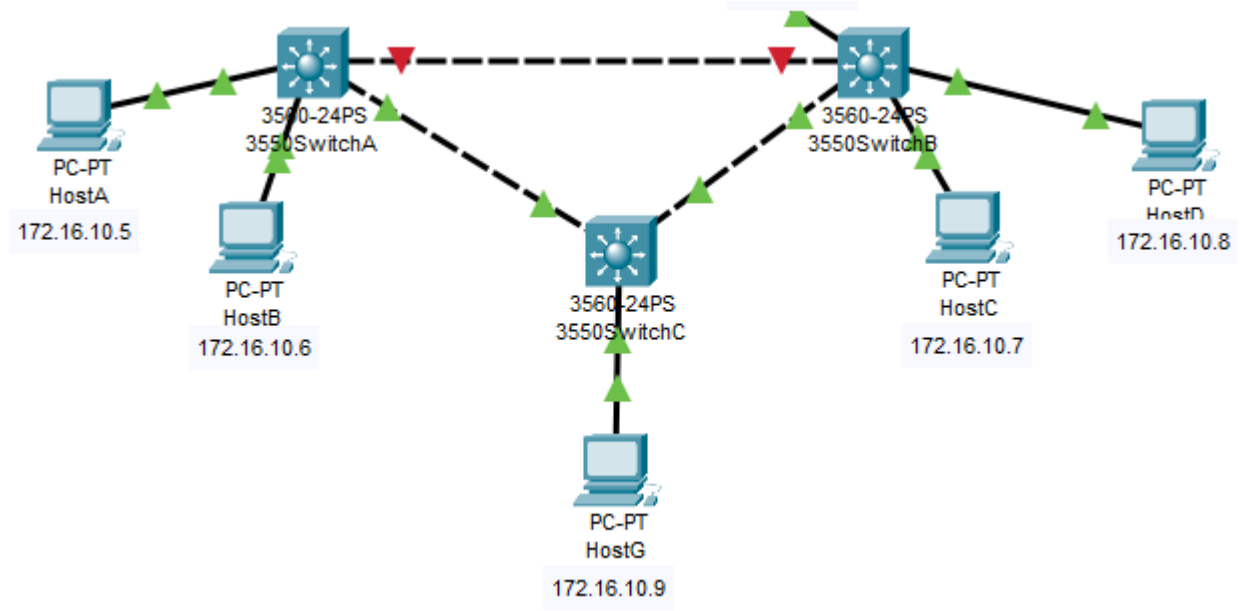
3550SwitchC (secondary)

```
3550C#
3550C#config t
Enter configuration commands, one per line.  End with CN
3550C(config)#spanning-tree mode rapid-pvst
3550C(config)#spanning-tree vlan 1 root se
3550C(config)#spanning-tree vlan 1 root secondary
3550C(config)#interface fa0/3
3550C(config-if)#switchport mode access
3550C(config-if)#spanning-tree portfast
```

```
3550C(config)#interface fa0/2
3550C(config-if)#spanning-tree vlan 1 cost 15
3550C(config-if)#inter
3550C(config-if)#exit
3550C(config)#interface fa0/1
3550C(config-if)#spanning-tree vlan 1 cost 20
```

Демонстрация STP

После разрыва линка **AB** (между **SwitchA** и **SwitchB**) **Spanning Tree Protocol (STP)** автоматически перестраивает топологию сети, чтобы обеспечить устойчивость соединения.




```
C:\>
C:\>ping 172.16.10.8

Pinging 172.16.10.8 with 32 bytes of data:

Reply from 172.16.10.8: bytes=32 time<1ms TTL=128
Reply from 172.16.10.8: bytes=32 time<1ms TTL=128
Reply from 172.16.10.8: bytes=32 time<1ms TTL=128
Reply from 172.16.10.8: bytes=32 time=13ms TTL=128
```

И после разрыва линка AB можно пинговать между HostA і HostD, пакеты проходят через линк AC - CB

Проверка Ping

HostA -> HostF

```
C:\>
C:\>ping 172.16.50.3

Pinging 172.16.50.3 with 32 bytes of data:

Reply from 172.16.50.3: bytes=32 time=13ms TTL=126
Reply from 172.16.50.3: bytes=32 time=15ms TTL=126
Reply from 172.16.50.3: bytes=32 time=6ms TTL=126
Reply from 172.16.50.3: bytes=32 time=3ms TTL=126

Ping statistics for 172.16.50.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% los
Approximate round trip times in milli-seconds:
    Minimum = 3ms, Maximum = 15ms, Average = 9ms
```

HostE -> HostD

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 172.16.10.8

Pinging 172.16.10.8 with 32 bytes of data:

Request timed out.
Reply from 172.16.10.8: bytes=32 time=5ms TTL=126
Reply from 172.16.10.8: bytes=32 time=8ms TTL=126
Reply from 172.16.10.8: bytes=32 time=2ms TTL=126

Ping statistics for 172.16.10.8:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 8ms, Average = 5ms

C:\>ping 172.16.10.8

Pinging 172.16.10.8 with 32 bytes of data:

Reply from 172.16.10.8: bytes=32 time=10ms TTL=126
Reply from 172.16.10.8: bytes=32 time=4ms TTL=126
Reply from 172.16.10.8: bytes=32 time=1ms TTL=126
Reply from 172.16.10.8: bytes=32 time=6ms TTL=126

Ping statistics for 172.16.10.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 10ms, Average = 5ms
```

HostF -> HostE

```
C:\>
C:\>ping 172.16.40.3

Pinging 172.16.40.3 with 32 bytes of data:

Reply from 172.16.40.3: bytes=32 time=27ms TTL=125
Reply from 172.16.40.3: bytes=32 time=20ms TTL=125
Reply from 172.16.40.3: bytes=32 time=19ms TTL=125
Reply from 172.16.40.3: bytes=32 time=16ms TTL=125

Ping statistics for 172.16.40.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 16ms, Maximum = 27ms, Average = 20ms
```

HostF -> HostG

```
Pinging 172.16.10.9 with 32 bytes of data:

Request timed out.
Reply from 172.16.10.9: bytes=32 time=1ms TTL=126
Reply from 172.16.10.9: bytes=32 time=7ms TTL=126
Reply from 172.16.10.9: bytes=32 time=1ms TTL=126

Ping statistics for 172.16.10.9:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 7ms, Average = 3ms
```

Составление IP плана