



Министерство науки и высшего образования Российской Федерации
Федеральное государственное бюджетное образовательное
учреждение
высшего образования
«Московский государственный технический университет
имени Н.Э. Баумана
(национальный исследовательский университет)»
(МГТУ им. Н.Э. Баумана)

ФАКУЛЬТЕТ ИНФОРМАТИКА И СИСТЕМЫ УПРАВЛЕНИЯ

КАФЕДРА «ПРОГРАММНОЕ ОБЕСПЕЧЕНИЕ ЭВМ И ИНФОРМАЦИОННЫЕ
ТЕХНОЛОГИИ» (ИУ7)

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О Т Ч Е Т

по лабораторной работе № 4

Дисциплина: Компьютерные сети

Студент

ИУ7-72Б
(Группа)

(Подпись, дата)

В.А. Иванов
(И.О. Фамилия)

Преподаватель

(Подпись, дата)

Н.О. Rogozin
(И.О. Фамилия)

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1) Присвоить портам устройств статические ipv4 адреса в соответствии с вариантом

The image displays four screenshots from the Cisco Packet Tracer application, illustrating the configuration of static IPv4 addresses on various devices.

Top Left: PC0 Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...: FE80::201:63FF:FE88:853A
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 10.1.7.1
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::

Bluetooth Connection:

    Connection-specific DNS Suffix...: 
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: 0.0.0.0

C:\>
```

Top Right: PC0 FastEthernet0 Configuration

GLOBAL Settings

Port Status: ☒ On

Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex: ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address: 0001.6398.853A

IP Configuration

☐ DHCP

☒ Static

IPv4 Address: 10.1.7.1

Subnet Mask: 255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address:

Link Local Address: FE80::201:63FF:FE88:853A

Bottom Left: DNS server FastEthernet0 Configuration

GLOBAL Settings

Port Status: ☒ On

Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex: ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address: 00E0.F7CE.C728

IP Configuration

☐ DHCP

☒ Static

IPv4 Address: 192.168.7.1

Subnet Mask: 255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address:

Link Local Address: FE80::2E0:F7FF:FECE:C728

Bottom Right: HTTP Server FastEthernet0 Configuration

GLOBAL Settings

Port Status: ☒ On

Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex: ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address: 000A.F38E.AE8B

IP Configuration

☐ DHCP

☒ Static

IPv4 Address: 172.16.7.1

Subnet Mask: 255.255.255.0

IPv6 Configuration

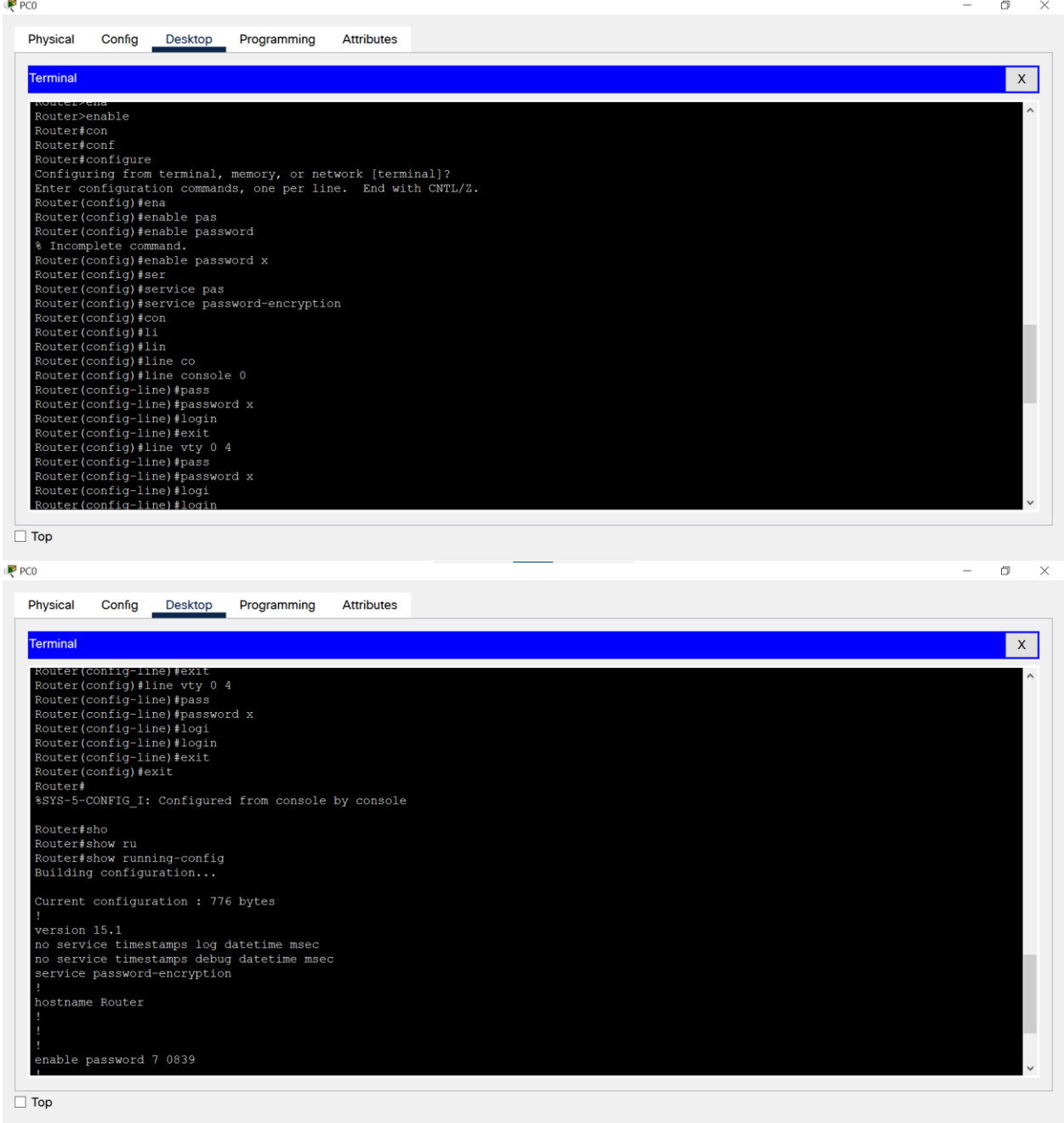
☐ Automatic

☒ Static

IPv6 Address:

Link Local Address: FE80::20A:F3FF:FE8E:AE8B

2) Настроить безопасный доступ к коммутаторам и маршрутизатору



The image displays two screenshots of a PC0 terminal window, showing the configuration of a router for secure access.

Top Screenshot: The terminal shows the initial configuration steps. The user enters `enable` to enter privileged EXEC mode, then `configure` to enter global configuration mode. The user sets the console password to `x` and enables password encryption. Then, the user enters `line console 0` to enter line configuration mode for the console, sets the password to `x`, and enables login. Finally, the user enters `exit` to return to global configuration mode.

```
Router>enable
Router#con
Router#conf
Router#configure
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ena
Router(config)#enable pas
Router(config)#enable password
% Incomplete command.
Router(config)#enable password x
Router(config)#ser
Router(config)#service pas
Router(config)#service password-encryption
Router(config)#con
Router(config)#li
Router(config)#lin
Router(config)#line co
Router(config)#line console 0
Router(config-line)#pass
Router(config-line)#password x
Router(config-line)#login
Router(config-line)#exit
Router(config)#line vty 0 4
Router(config-line)#pass
Router(config-line)#password x
Router(config-line)#logi
Router(config-line)#login
Router(config-line)#login
```

Bottom Screenshot: The terminal shows the final configuration steps. The user enters `exit` to return to global configuration mode, then `line vty 0 4` to enter line configuration mode for the vty lines, sets the password to `x`, and enables login. Finally, the user enters `exit` to return to global configuration mode. The terminal then displays the current configuration and the running configuration.

```
Router(config-line)#exit
Router(config)#line vty 0 4
Router(config-line)#pass
Router(config-line)#password x
Router(config-line)#logi
Router(config-line)#login
Router(config-line)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#sho
Router#show ru
Router#show running-config
Building configuration...

Current configuration : 776 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname Router
!
!
!
enable password 7 0839
!
```

3) Указать адреса портов маршрутизатора как адрес шлюза по умолчанию для конечных узлов

GigabitEthernet0/0	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	000C.CF82.0301
IP Configuration	
IPv4 Address	10.1.7.254
Subnet Mask	255.255.255.0

GigabitEthernet0/1	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	000C.CF82.0302
IP Configuration	
IPv4 Address	192.168.7.254
Subnet Mask	255.255.255.0

GigabitEthernet0/2	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	000C.CF82.0303
IP Configuration	
IPv4 Address	172.16.7.254
Subnet Mask	255.255.255.0

4) Настроить DNS сервер

DNS server

— □ ×

Physical

Config

Services

Desktop

Programming

Attributes

SERVICES ^

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Manager

Radius EAP

DNS

DNS Service ☒ On ☐ Off

Resource Records

Name Type **A Record** v

Address

Add

Save

Remove

No.	Name	Type	Detail
0	mail.ivanov.ru	A Record	172.16.7.2

DNS Cache

☐ Top

5) Указать адрес DNS сервера для конечных узлов

Global Settings

Display Name

Interfaces ▼

Gateway/DNS IPv4

☐ DHCP

☒ Static

Default Gateway

DNS Server

Global Settings

Display Name

Gateway/DNS IPv4

☐ DHCP

☒ Static

Default Gateway

DNS Server

Global Settings

Display Name

Gateway/DNS IPv4

☐ DHCP

☒ Static

Default Gateway

DNS Server

6) Настроить почтовый сервер SMTP и POP3

Email Server

Physical

Config

Services

Desktop

Programming

Attributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

EMAIL

SMTP Service

☒ ON ☐ OFF

POP3 Service

☒ ON ☐ OFF

Domain Name

mail.ivanov.ru

Set

User Setup

Use

pc2

Password

2

pc0

pc1

pc2

+

-

Change

Password

☐ Top

7) Добавить почтовые записи на DNS - сервер

DNS server

Physical

Config

Services

Desktop

Programming

Attributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Managemer

Radius EAP

DNS

DNS Service

On

Off

Resource Records

NameType

A Record

Address

Add

Save

Remove

No.	Name	Type	Detail
0	mail.ivanov.ru	A Record	172.16.7.2

DNS Cache

Top

8) Настроить почтовый клиент на всех ПК

PC0

Physical Config **Desktop** Programming Attributes

Configure Mail X

User Information

Your Name: p0

Email Address: p0@mail.ivanov.ru

Server Information

Incoming Mail Server: mail.ivanov.ru

Outgoing Mail Server: mail.ivanov.ru

Logon Information

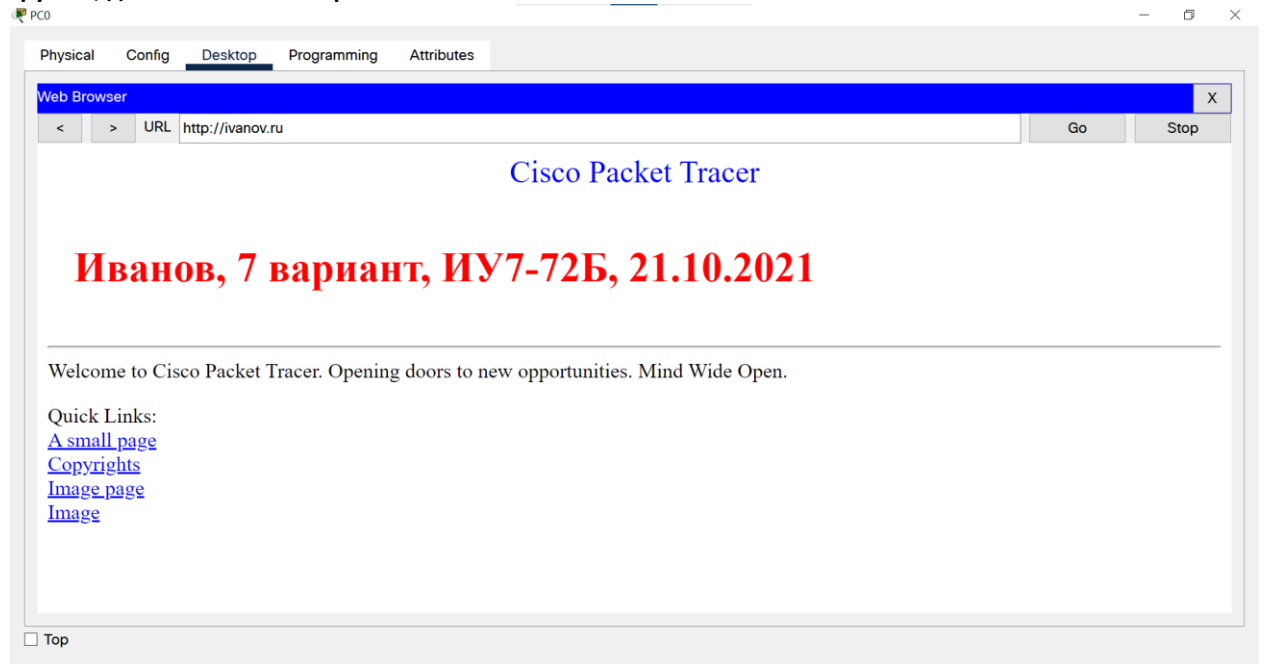
User Name: p0

Password: ●●

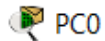
Save Clear Reset

☐ Top

9) Настроить HTTP сервер, разместить там тестовую страницу с номером варианта, фамилией, номером группы, датой выполнения работы.



- 10) Проверить корректное прохождение сигнала между всеми узлами сети, доступность настроенных сервисов со стороны клиентов на ПК



Physical Config **Desktop** Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping 10.1.7.2

Pinging 10.1.7.2 with 32 bytes of data:

Reply from 10.1.7.2: bytes=32 time<1ms TTL=128
Reply from 10.1.7.2: bytes=32 time<1ms TTL=128
Reply from 10.1.7.2: bytes=32 time<1ms TTL=128
Reply from 10.1.7.2: bytes=32 time<1ms TTL=128

Ping statistics for 10.1.7.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.7.1

Pinging 192.168.7.1 with 32 bytes of data:

Reply from 192.168.7.1: bytes=32 time<1ms TTL=127
Reply from 192.168.7.1: bytes=32 time<1ms TTL=127
Reply from 192.168.7.1: bytes=32 time<1ms TTL=127
Reply from 192.168.7.1: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.7.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

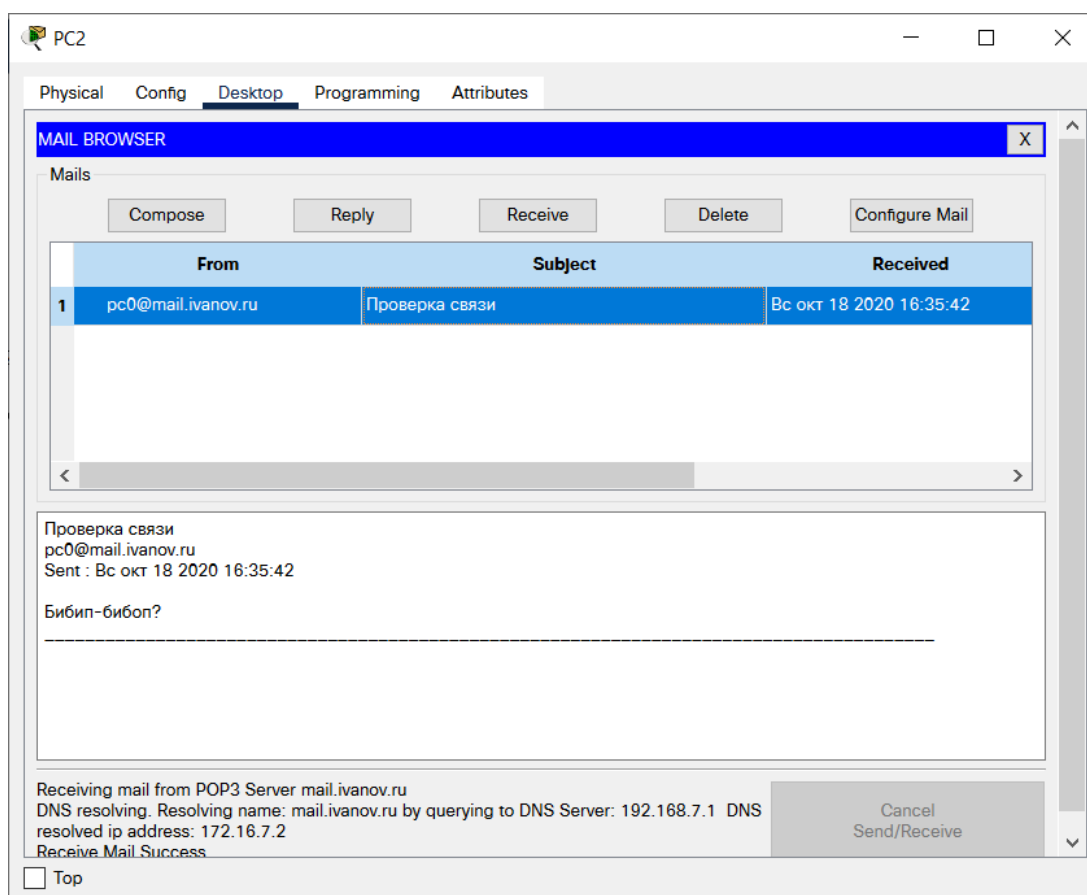
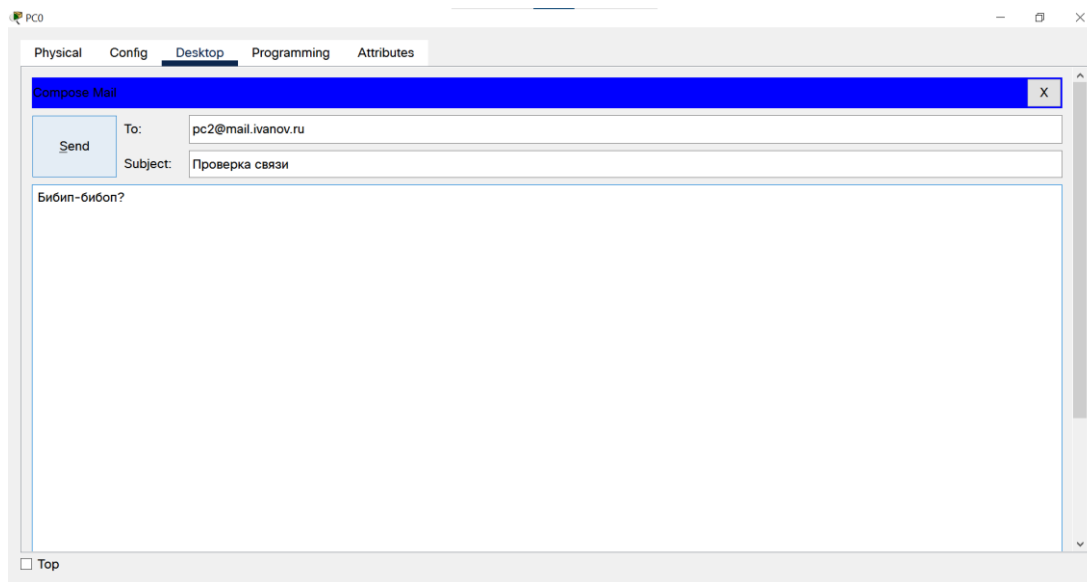
C:\>ping ivanov.ru

Pinging 172.16.7.1 with 32 bytes of data:

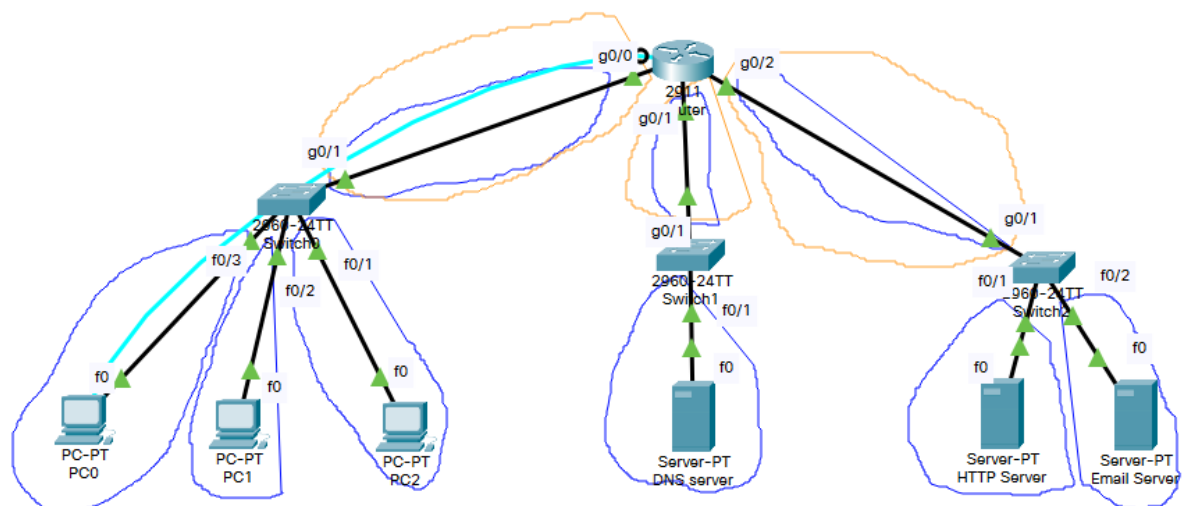
Reply from 172.16.7.1: bytes=32 time<1ms TTL=127
Reply from 172.16.7.1: bytes=32 time<1ms TTL=127
Reply from 172.16.7.1: bytes=32 time<1ms TTL=127
Reply from 172.16.7.1: bytes=32 time<1ms TTL=127

Ping statistics for 172.16.7.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```



11) Отметить широковещательные домены и домены коллизий на схеме



Синий контур – домены коллизий

Жёлтый контур – широковещательные домены