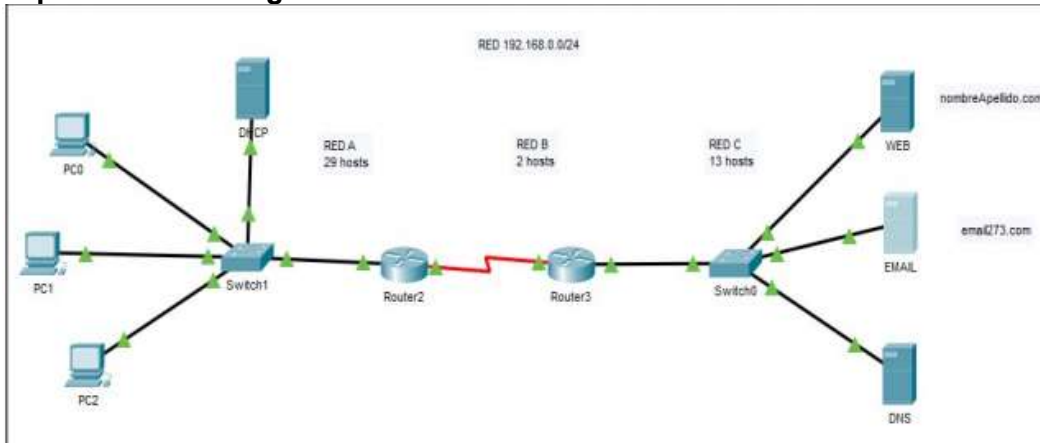
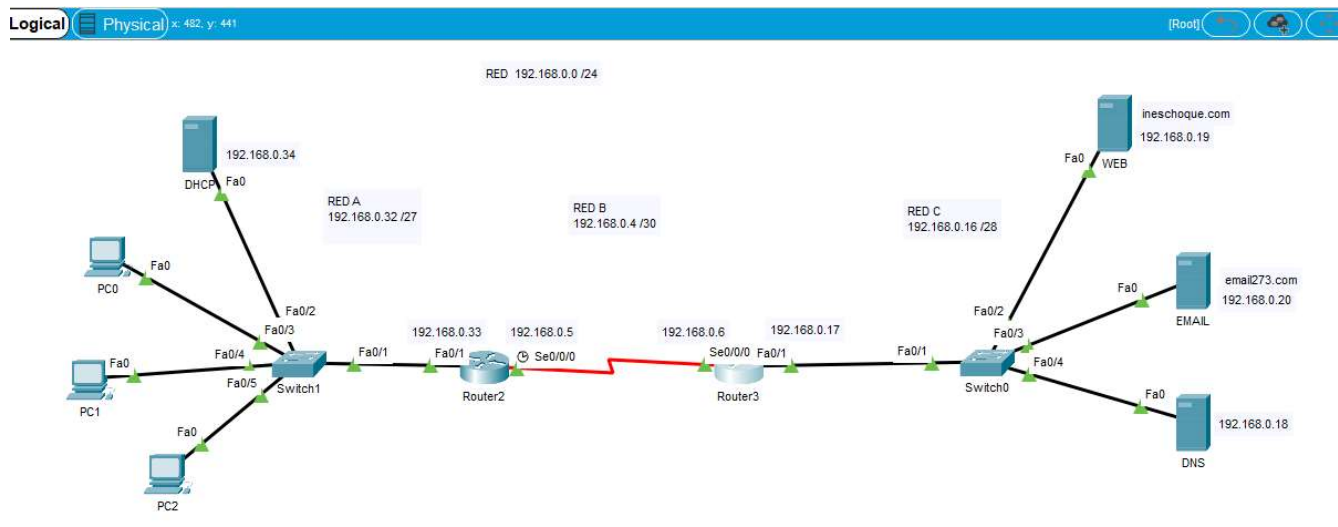
	UNIVERSIDAD MAYOR DE SAN ANDRÉS	
	FACULTAD DE CIENCIAS PURAS Y NATURALES	
	CARRERA DE INFORMATICA	
	Laboratorio de telemática	LAB-273
	Docente: M.Sc. Franz Ramiro Gallardo Portanda Paralelo: A Estudiante: Univ. Choque Flores Ines Milenka C.I.: 6198216 L.P.	modulo N° 4 Fecha: 4/12/2020

Configuraciones Avanzadas

implementado la siguiente estructura



- La red 192.168.0.0/24 es subdivida en 3 subredes donde la red A necesita 29 hosts, la red B 2 hosts y la red C 13 hosts.
- La red A cuenta con un servidor DHCP el cual asigna ip dinámicamente a su red.
- La red B tendrá 2 routers los cuales permitirán la comunicación entre la red A y la red C, utilice enrutamiento estático.
- La red C cuenta con 3 servidores uno WEB el cual deberá tener como dominio nombreApellido.com, un servidor de CORREO el cual almacenará 3 cuentas de usuario user1, user2 y user3, por ultimo un servidor DNS que almacenara los dominios para el servidor web y el servidor de correo.



Realizar lo siguiente:

a) Muestre la tabla VLSM para la división de la red.

192. 168. 0. 0
11000000. 10101000. 00000000. 00000000
24 bits

Lo que necesitamos:

Red A: 29E: 29 host $29E \rightarrow 2^5$
Red B: 2E : 2 nodos \rightarrow 1 red $2E \rightarrow 2^2, 1R \rightarrow 2^1$
Red C: 13E: 13 host $13E \rightarrow 2^4$

Red B: $2E \rightarrow 2^2, 1R \rightarrow 2^2$

192. 168. 0. 0
11000000. 10101000. 00000000. 00000000
24 bits

01
10
11 30 bits

11111100
255. 255. 255. 252 Mascara

00000100
192. 168. 0. 4 Red

00000011 MascInv.
00000111
192. 168. 0. 7 Broad

Red	192.168.0.4 / 30
Mascara	255.255.255.252
Broad	192.168.0.7
Rango	192.168.0.5 \rightarrow 192.168.0.6

Red A: $29E \rightarrow 2^5 = 32$

192. 168. 0. 0
11000000. 10101000. 00000000. 00000000
24 bits

001
...
111 27 bits

11100000
255. 255. 255. 224 Mascara

00100000
192. 168. 0. 32 Red

00011111 MascInv.
00111111
192. 168. 0. 63 Broad

Red	192.168.0.32 / 27
Mascara	255.255.255.224
Broad	192.168.0.63
Rango	192.168.0.33→ 192.168.0.62

Red C: $13E \rightarrow 2^4 = 16$

192. 168. 0. 0
 11000000. 10101000. 00000000. 00000000
 24 bits 0001
 ...
 1111 28 bits
 11110000
 240 Mascara
 00010000
 192. 168. 0. 16 Red
 00001111 MascInv.
 00011111
 192. 168. 0 31 Broad

0	1	
1	2	
2	4	
3	8	
4	16	
5	32	0
6	64	0
7	128	0

a	b	OR
1	1	1
1	0	1
0	1	1
0	0	0

Red	192.168.0.16 / 28
Mascara	255.255.255.240
Broad	192.168.0.31
Rango	192.168.0.17→ 192.168.0.30

RESUMEN

Red A: $29E \rightarrow 2^5 = 32$

Red	192.168.0.32 / 27
Mascara	255.255.255.224
Broad	192.168.0.63
Rango	192.168.0.33→ 192.168.0.62

Red B: $2E \rightarrow 2^2, 1R \rightarrow 2^2$

Red	192.168.0.4 / 30
Mascara	255.255.255.252
Broad	192.168.0.7
Rango	192.168.0.5→ 192.168.0.6

Red C: $13E \rightarrow 2^4 = 16$

Red	192.168.0.16 / 28
Mascara	255.255.255.240
Broad	192.168.0.31
Rango	192.168.0.17→ 192.168.0.30

RED A configuramos el servidor DHCP

DHCP

Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.43C8.EE84

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 192.168.0.34

Subnet Mask 255.255.255.224

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::201:43FF:FEC8:EE84

DHCP

Physical Config **Services** Desktop Programming Attributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

DHCP

Interface FastEthernet0 Service ☒ On ☐ Off

Pool Name serverPool

Default Gateway 192.168.0.33

DNS Server 192.168.0.18

Start IP Address : 192 168 0 35

Subnet Mask: 255 255 255 224

Maximum Number of Users : 28

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	192....	192....	192....	255....	28	0.0.0.0	0.0.0.

CONFIGURACION DE ROUTER2 QUE CONECTA CON EL SWITCH

The screenshot shows the Router2 configuration window with the 'Config' tab selected. The left sidebar shows a tree view with 'FastEthernet0/1' selected under the 'INTERFACE' section. The main area displays the configuration for 'FastEthernet0/1'.

FastEthernet0/1 Configuration:

- Port Status: ☒ On
- Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto
- Duplex: ☒ Half Duplex ☐ Full Duplex ☒ Auto
- MAC Address: 0030.A302.0802
- IP Configuration:
 - IPv4 Address: 192.168.0.33
 - Subnet Mask: 255.255.255.224
- Tx Ring Limit: 10

Equivalent IOS Commands:

```
Router(config)#interface FastEthernet0/1
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to up
```

☐ Top

CONFIGURACION DE PC0, PC1 Y PC2

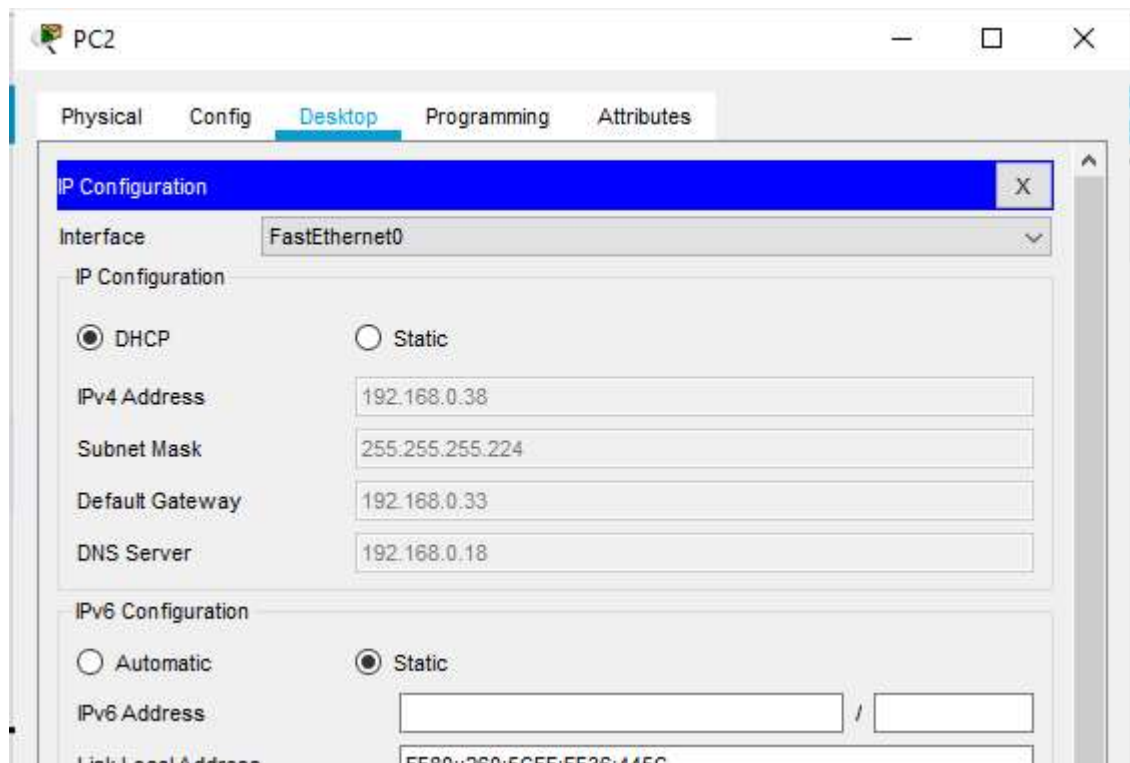
The screenshots show the configuration windows for PC0 and PC1. Both windows have the 'Desktop' tab selected, and the 'P Configuration' section is expanded.

PC0 Configuration:

- Interface: FastEthernet0
- IP Configuration:
 - ☒ DHCP ☐ Static
 - IPv4 Address: 192.168.0.36
 - Subnet Mask: 255.255.255.224
 - Default Gateway: 192.168.0.33
 - DNS Server: 192.168.0.18
- IPv6 Configuration:
 - ☐ Automatic ☒ Static
 - IPv6 Address: /
 - Link Local Address: FE80::260:5CFF:FE03:C336
 - Default Gateway: /

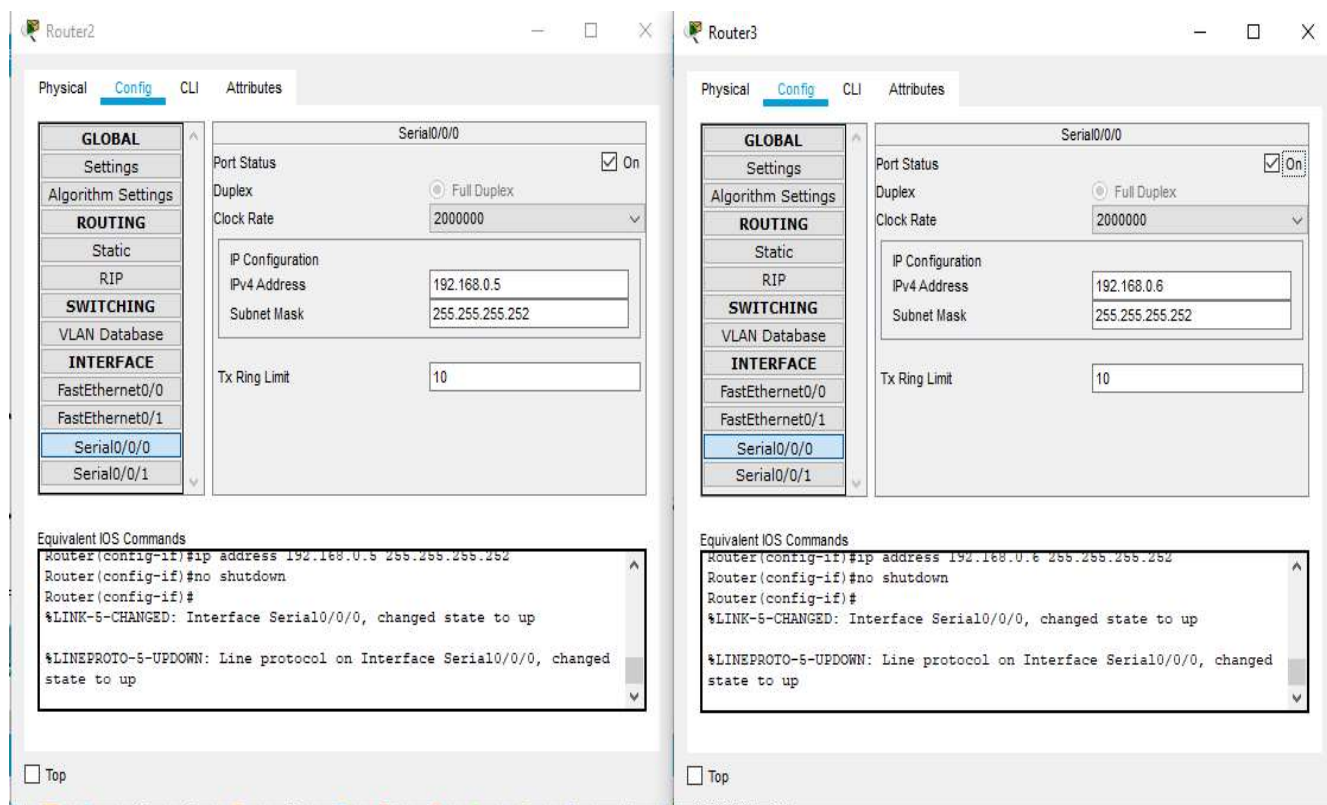
PC1 Configuration:

- Interface: FastEthernet0
- IP Configuration:
 - ☒ DHCP ☐ Static
 - IPv4 Address: 192.168.0.37
 - Subnet Mask: 255.255.255.224
 - Default Gateway: 192.168.0.33
 - DNS Server: 192.168.0.18
- IPv6 Configuration:
 - ☐ Automatic ☒ Static
 - IPv6 Address: /
 - Link Local Address: FE80::205:5EFF:FE70:8062
 - Default Gateway: /



RED B

Configuración de conexión entre router 2 y 3



Enrutamiento estático entre router 2 y 3

The image shows two side-by-side configuration windows for Router2 and Router3. Both windows are in the 'Config' tab, showing the 'Static Routes' configuration page. The left window (Router2) shows a static route being added with Network 192.168.0.16, Mask 255.255.255.240, and Next Hop 192.168.0.6. The right window (Router3) shows a static route being added with Network 192.168.0.32, Mask 255.255.255.224, and Next Hop 192.168.0.5. Both windows have a sidebar with a tree view showing the configuration hierarchy: GLOBAL, Settings, Algorithm Settings, ROUTING, Static (selected), RIP, SWITCHING, VLAN Database, INTERFACE, FastEthernet0/0, FastEthernet0/1, Serial0/0/0, and Serial0/0/1.

Router2 Configuration:

- Static Routes
- Network: 192.168.0.16
- Mask: 255.255.255.240
- Next Hop: 192.168.0.6
- Add button
- Network Address: 192.168.0.16/28 via 192.168.0.6
- Remove button

Router3 Configuration:

- Static Routes
- Network: 192.168.0.32
- Mask: 255.255.255.224
- Next Hop: 192.168.0.5
- Add button
- Network Address: 192.168.0.32/27 via 192.168.0.5
- Remove button

RED C

Configuración del puerto de enlace entre el switch0 y el router3

The image shows the configuration window for Router3, specifically the 'FastEthernet0/1' interface configuration page. The window is in the 'Config' tab, showing the 'FastEthernet0/1' configuration page. The left sidebar shows the configuration hierarchy: GLOBAL, Settings, Algorithm Settings, ROUTING, Static, RIP, SWITCHING, VLAN Database, INTERFACE, FastEthernet0/0, FastEthernet0/1 (selected), Serial0/0/0, and Serial0/0/1. The main configuration area shows the following settings:

- Port Status: ☒ On
- Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto
- Duplex: ☐ Half Duplex ☒ Full Duplex ☒ Auto
- MAC Address: 0004.9A45.1102
- IP Configuration:
 - IPv4 Address: 192.168.0.17
 - Subnet Mask: 255.255.255.240
- Tx Ring Limit: 10

Equivalent IOS Commands

CONFIGURACION DEL SERVIDOR WEB

WEB

Physical Config Services **Desktop** Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.0.19

Subnet Mask: 255.255.255.240

Default Gateway: 192.168.0.17

DNS Server: 192.168.0.18

IPv6 Configuration

WEB

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

HTTP

HTTP: ☒ On ☐ Off

HTTPS: ☒ On ☐ Off

File Manager

	File Name	Edit	Delete
1	copyrights.html	(edit)	(delete)
2	cscoptlogo177x111.jpg		(delete)
3	helloworld.html	(edit)	(delete)
4	image.html	(edit)	(delete)
5	index.html	(edit)	(delete)

WEB

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA

File Name: index.html

```
<html>
<center><font size='+2' color='blue'>AUXILIATURA LAB273
<hr> modulo 4.</font></center>

<p>INES MILENKA CHOQUE FLORES
<BR> CI: 6198216 LP
</html>
```


CONFIGURA SERVIDOR EMAIL

The image displays two screenshots of a network configuration interface, likely for a MikroTik device, showing the setup of email services.

Top Screenshot: IP Configuration

The interface shows the "EMAIL" window with the "Desktop" tab selected. The "IP Configuration" section is expanded, showing the following settings:

- IP Configuration:**
 - ☐ DHCP
 - ☒ Static
 - IPv4 Address: 192.168.0.20
 - Subnet Mask: 255.255.255.240
 - Default Gateway: 192.168.0.17
 - DNS Server: 192.168.0.18
- IPv6 Configuration:**
 - ☐ Automatic
 - ☒ Static
 - IPv6 Address: (empty field)

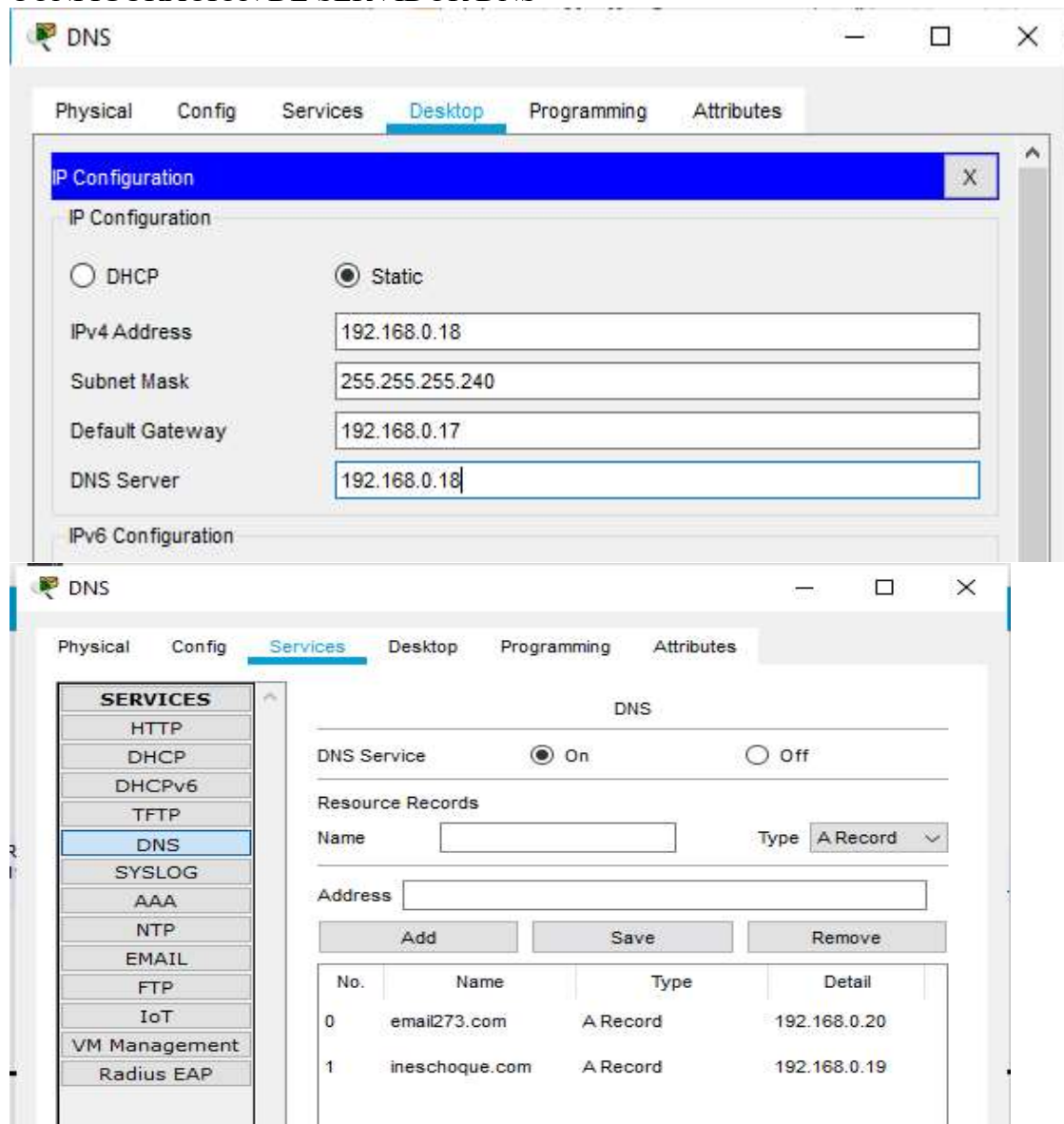
Bottom Screenshot: Services Configuration

The interface shows the "EMAIL" window with the "Services" tab selected. The "SERVICES" list on the left includes HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL (highlighted), FTP, IoT, VM Management, and Radius EAP.

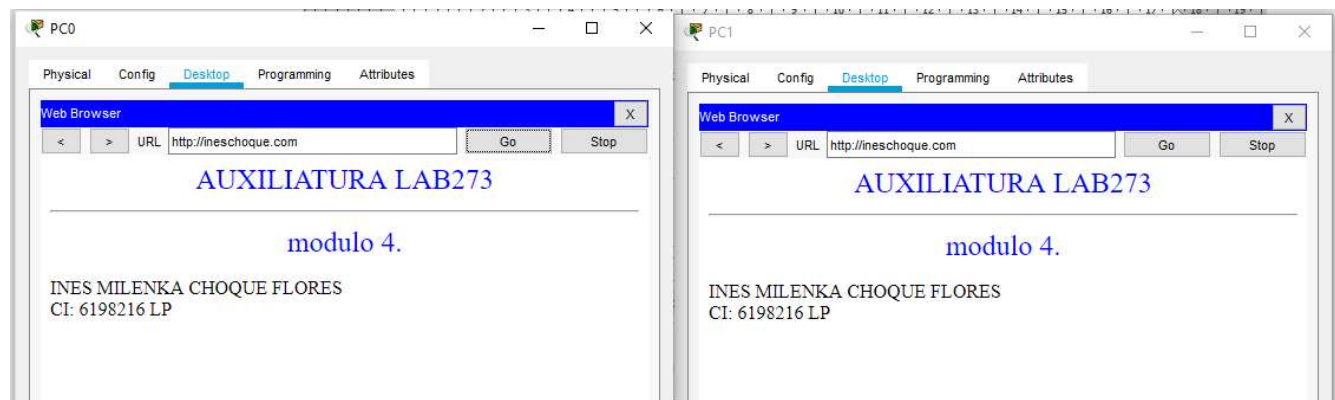
The "EMAIL" service configuration is shown on the right:

- SMTP Service:** ☒ ON, ☐ OFF
- POP3 Service:** ☒ ON, ☐ OFF
- Domain Name:** email273.com (Set button)
- User Setup:**
 - User: (empty field)
 - Password: (empty field)
 - Users listed: user1, user2, user3
 - Buttons: +, -, Change, Password

CONFIGURACION DE SERVIDOR DNS

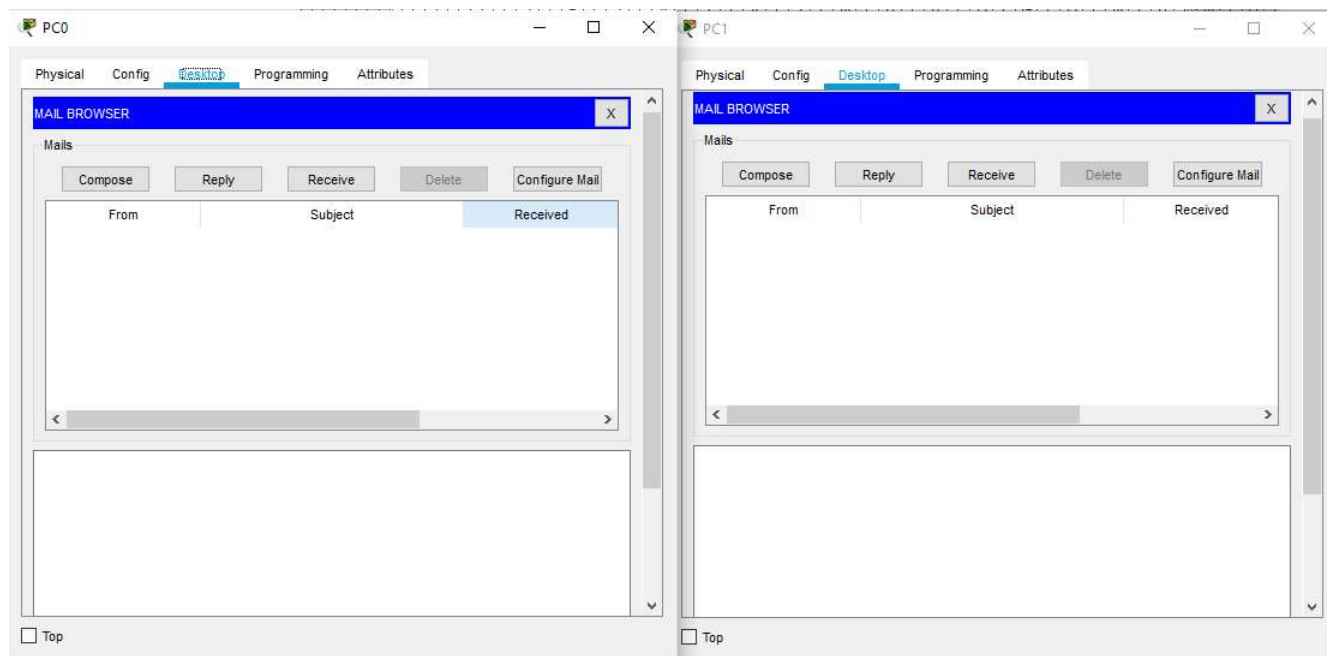
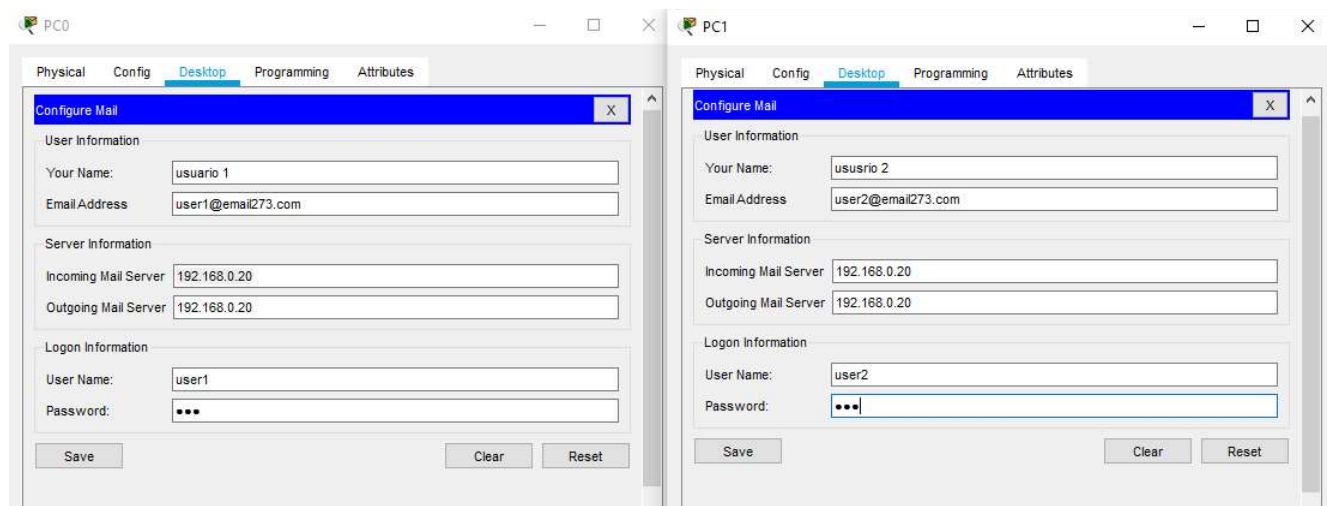


b) Ingrese a su página web (nombreApellido.com) desde cada una de las Pcs (mostrar las capturas por cada PC).





c) Envíe mensajes con las cuentas de correo entre las Pcs (mostrar capturas).



PC2

Physical Config **Desktop** Programming Attributes

Configure Mail X

User Information

Your Name:

Email Address:

Server Information

Incoming Mail Server:

Outgoing Mail Server:

Logon Information

User Name:

Password:

Save Clear Reset

PC2

Physical Config **Desktop** Programming Attributes

MAIL BROWSER X

Mails

Compose Reply Receive Delete Configure Mail

From	Subject	Received
------	---------	----------

< >

PC0

Physical Config **Desktop** Programming Attributes

Compose Mail X

Send

To:

Subject:

PC0

Physical Config **Desktop** Programming Attributes

Sending mail to user2@email273.com , with subject : saludos de la pc0 a pc1 ... Mail Server: 192.168.0.20
Send Success.

Cancel Send/Receive

☐ Top

PC1

Physical Config **Desktop** Programming Attributes

MAIL BROWSER X

Mails

Compose Reply Receive Delete Configure Mail

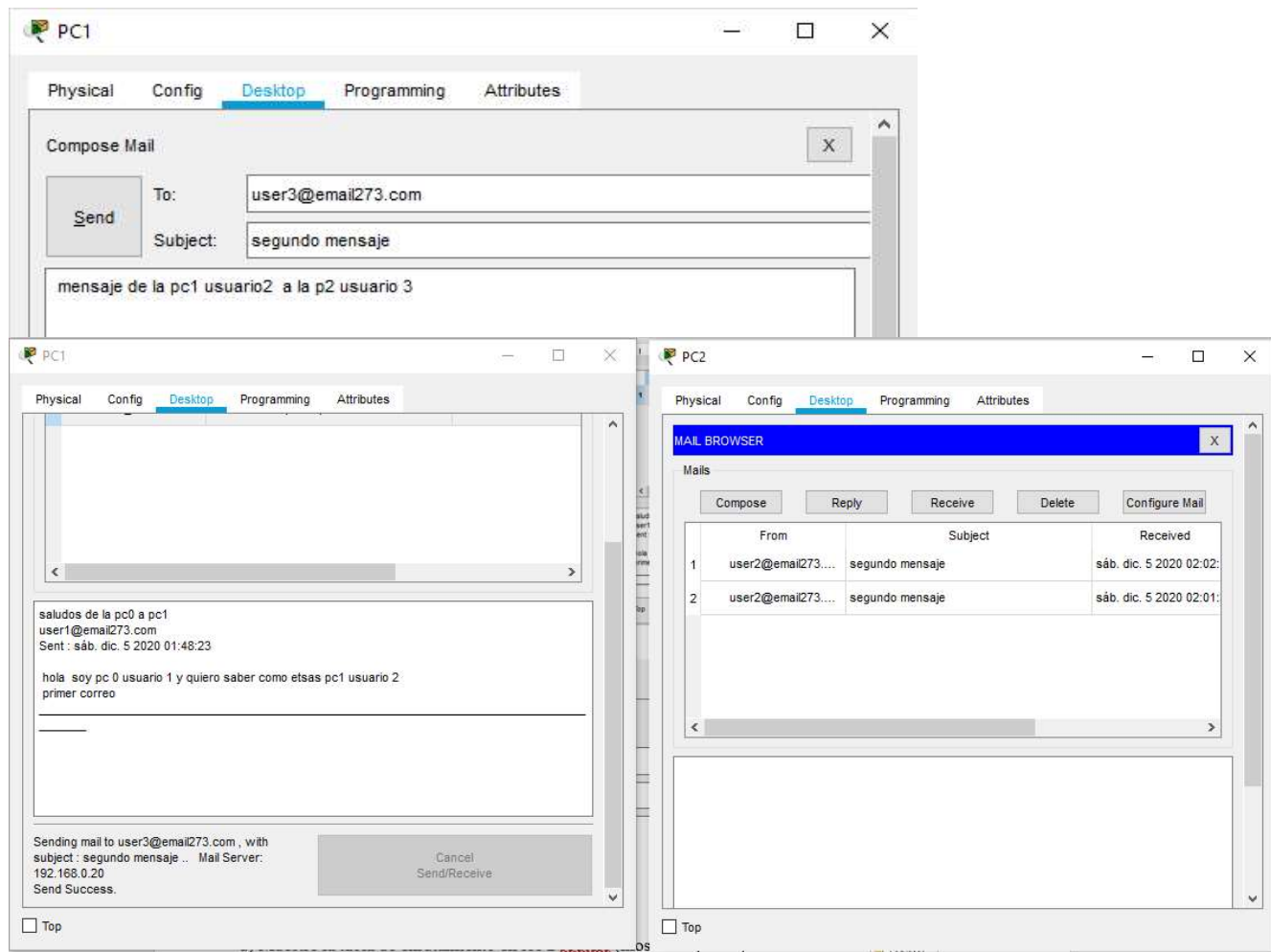
	From	Subject	Received
1	user1@email273....	saludos de la pc0 a pc1	sáb. dic. 5 2020 01:48:

< >

saludos de la pc0 a pc1
user1@email273.com
Sent : sáb. dic. 5 2020 01:48:23

hola soy pc 0 usuario 1 y quiero saber como etsas pc1 usuario 2 primer correo

☐ Top



d) Muestre la tabla de enrutamiento en los 2 routers (mostrar capturas).

