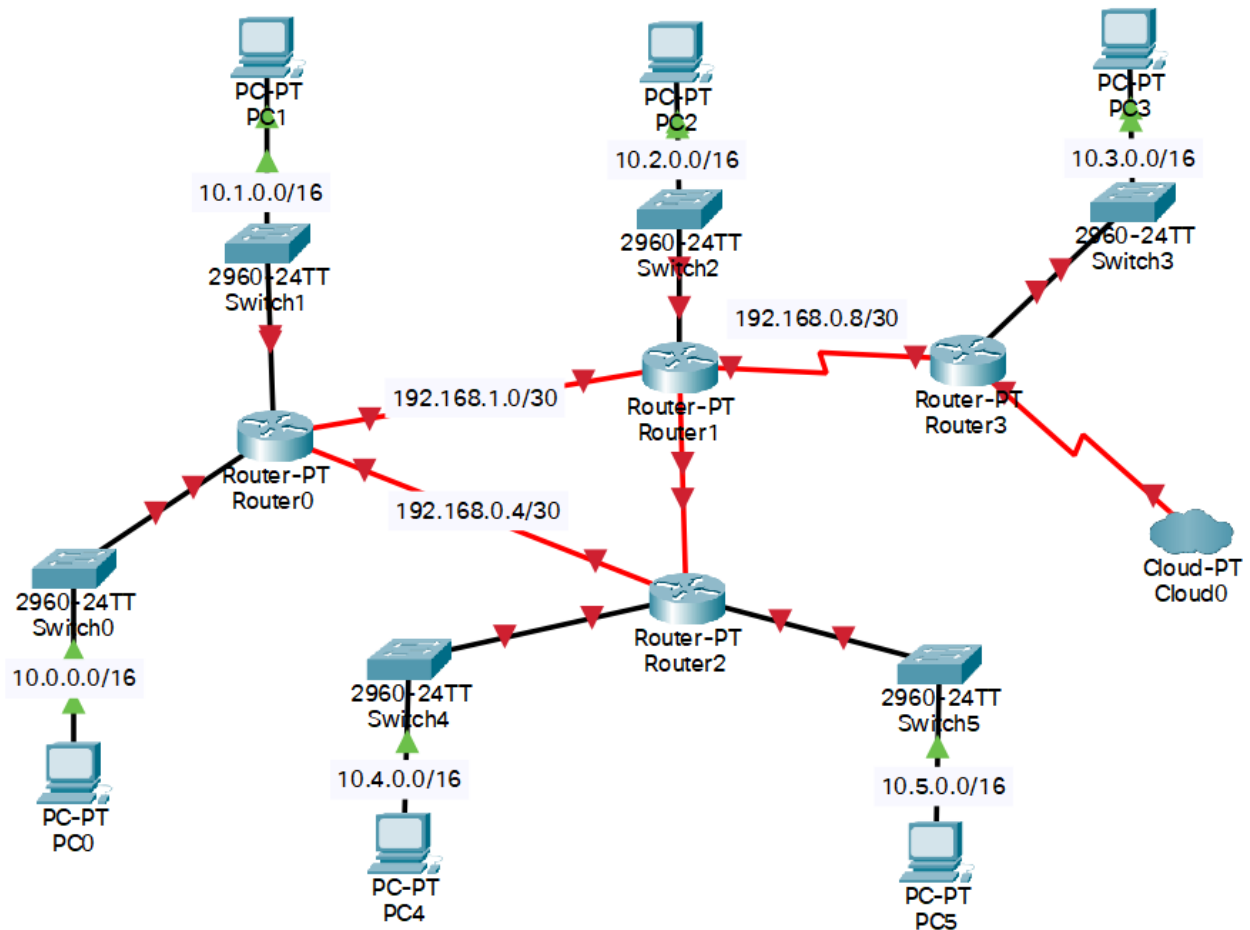Aaron Andal

17.04.22- M07 Xarxes

Activitat 2.3. Enrutament complex

1. Una taula resum de les adreces IP assignades a cada interfície de cadascun dels routers (Router / Interfície / Adreça IP)

Dispositiu	Interfície	Adreça IP
PC 0	FastEthernet0	10.0.0.2/16
R0	FastEthernet0/0	10.0.0.1/16
	FastEthernet1/0	10.1.0.1/16
	FastEthernet5/0	192.168.1.1/30
	FastEthernet4/0	192.168.0.5/30

PC 1	FastEthernet0	10.1.0.2/16	
R1	FastEthernet0/0	10.2.0.1/16	
	FastEthernet4/0	192.168.1.2/30	
	FastEthernet5/0		
	Serial0/2/0	192.168.0.9/30	
PC 2	FastEthernet0	10.2.0.2/16	
R2	FastEthernet0/0	10.4.0.1/16	
	FastEthernet1/0	10.5.0.1/16	
	FastEthernet4/0	192.168.0.6/30	
	FastEthernet5/0		
PC 3	FastEthernet0	10.0.0.2/16	
R3	FastEthernet0/0	10.3.0.2/16	
	Serial0/3/0 (Cloud)		
	Serial0/2/0	192.168.0.10/30	
PC 4	FastEthernet0	10.4.0.2/16	
PC 5	FastEthernet0	10.5.0.2/16	

2. Una taula resum de les taules d'enrutament de cadascun dels routers (Router / AX

/ MX / IP$_{HOP}$)

Routing estátic

La pregunta és la mateixa:

==***Per anar a la Xarxa X hem de pasar per la Interfície Serial X. S'ha de fer també la tornada. Es crea un Túnel VPN.***==

Router	Per anar a la AX	Amb MX	Surts per IPHop
R0	10.2.0.0/16	255.255.0.0	192.168.1.2
	10.3.0.0/16	255.255.0.0	192.168.1.2
	10.4.0.0/16	255.255.0.0	192.168.0.6
	10.5.0.0/16	255.255.0.0	192.168.0.6
R1	10.1.0.0/16	255.255.0.0	192.168.1.1
	10.0.0.0/16	255.255.0.0	192.168.1.1
	10.4.0.0/16	255.255.0.0	192.168.1.1
	10.5.0.0/16	255.255.0.0	192.168.1.1
	10.3.0.0/16	255.255.0.0	192.168.0.10
R2	10.0.0.0/16	255.255.0.0	192.168.0.5
	10.1.0.0/16	255.255.0.0	192.168.0.5
	10.2.0.0/16	255.255.0.0	192.168.0.5
	10.3.0.0/16	255.255.0.0	192.168.0.5
R3	10.5.0.0/16	255.255.0.0	192.168.0.9
	10.4.0.0/16	255.255.0.0	192.168.0.9
	10.0.0.0/16	255.255.0.0	192.168.0.9
	10.1.0.0/16	255.255.0.0	192.168.0.9
	10.2.0.0/16	255.255.0.0	192.168.0.9

R0:

R0(config)#ip route 10.2.0.0 255.255.0.0 192.168.1.2

R0(config)#ip route 10.3.0.0 255.255.0.0 192.168.1.2

R0(config)#ip route 10.4.0.0 255.255.0.0 192.168.0.6

R0(config)#ip route 10.5.0.0 255.255.0.0 192.168.0.6

R1:

R1(config)#ip route 10.1.0.0 255.255.0.0 192.168.1.1

R1(config)#ip route 10.0.0.0 255.255.0.0 192.168.1.1

R1(config)#ip route 10.4.0.0 255.255.0.0 192.168.1.1

R1(config)#ip route 10.5.0.0 255.255.0.0 192.168.1.1

R1(config)#ip route 10.3.0.0 255.255.0.0 192.168.0.10

R2:

R2(config)#ip route 10.0.0.0 255.255.0.0 192.168.0.5

R2(config)#ip route 10.1.0.0 255.255.0.0 192.168.0.5

R2(config)#ip route 10.2.0.0 255.255.0.0 192.168.0.5

R2(config)#ip route 10.3.0.0 255.255.0.0 192.168.0.5

R3:

Router(config)#ip route 10.5.0.0 255.255.0.0 192.168.0.9

Router(config)#ip route 10.4.0.0 255.255.0.0 192.168.0.9

Router(config)#ip route 10.0.0.0 255.255.0.0 192.168.0.9

Router(config)#ip route 10.1.0.0 255.255.0.0 192.168.0.9

Router(config)#ip route 10.2.0.0 255.255.0.0 192.168.0.9

3. Les comandes utilitzades per a configurar els routers

PC0 a la PC5: Com no tenim DHCP les configurem manualment les IP (Segons la taula definida abans) I li posem el GATEWAY corresponent (Segons la taula definida abans).

R0:

R0>enable

R0#

R0#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

R0(config)#interface FastEthernet0/0

R0(config-if)#ip address 10.0.0.1 255.255.0.0

R0(config-if)#no shutdown

R0(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

R0(config-if)#exit

R0(config)#interface FastEthernet1/0

R0(config-if)#ip address 10.1.0.1 255.255.0.0

R0(config-if)#no shutdown

R0(config-if)#

%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

R0(config-if)#end

R0#copy running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

R0#

%SYS-5-CONFIG_I: Configured from console by console

R0#

R0#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

R0(config)#interface FastEthernet5/0

R0(config-if)#ip address 192.168.1.1 255.255.255.252

R0(config-if)#no shutdown

R0(config-if)#

R0(config-if)#exit

R0(config)#interface FastEthernet4/0

R0(config-if)#ip address 192.168.0.5 255.255.255.252

R0(config-if)#no shutdown

R0(config-if)#

%LINK-5-CHANGED: Interface FastEthernet4/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet4/0, changed state to

up

R0(config-if)#end

R0#copy running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

R0#

%SYS-5-CONFIG_I: Configured from console by console

R2

R2>enable

R2#conf

R2#configure ter

R2#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

R2(config)#inter

R2(config)#interface Fa

R2(config)#interface FastEthernet 0/0

R2(config-if)#ip address 10.4.0.1 255.255.0.0

R2(config-if)#no shutdown

R2(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

exit

R2(config)#interface Fa1/0

R2(config-if)#ip address 10.5.0.1 255.255.0.0

R2(config-if)#no shutdown

R2(config-if)#

%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

R2(config-if)#end

R2#

%SYS-5-CONFIG_I: Configured from console by console

R2#copy running-conf

R2#copy running-config start

R2#copy running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

R2#

R2#

R2#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

R2(config)#interface FastEthernet4/0

R2(config-if)#ip address 192.168.0.6 255.255.255.252

R2(config-if)#no shutdown

R2(config-if)#

%LINK-5-CHANGED: Interface FastEthernet4/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet4/0, changed state to

up

R2#copy running-conf

R2#copy running-config start

R2#copy running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

R2#

R1:

R1>enable

R1#

R1#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

R1(config)#interface FastEthernet0/0

R1(config-if)#ip address 10.2.0.1 255.255.0.0

R1(config-if)#no shutdown

R1(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

R1(config-if)#exit

R1(config)#interface FastEthernet4/0

R1(config-if)#ip address 192.168.1.2 255.255.255.252

R1(config-if)#no shutdown

R1(config-if)#

%LINK-5-CHANGED: Interface FastEthernet4/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet4/0, changed state to up

R1(config-if)#exit

R1(config)#interface Serial2/0

R1(config-if)#ip address 192.168.0.9 255.255.255.252

R1(config-if)#no shutdown

R1(config-if)#

R3:

Router>enable

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface FastEthernet0/0

Router(config-if)#ip address 10.3.0.1 255.255.0.0

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#

Router(config-if)#exit

Router(config)#interface Serial2/0

Router(config-if)#ip address 192.168.0.10 255.255.255.252

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#end

Router#copy running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

Router#

%SYS-5-CONFIG_I: Configured from console by console

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

4. Les comandes utilitzades per comprovar la connectivitat correcta de tota la xarxa

a) Un ping del PC3 al PC5

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.5.0.2

Pinging 10.5.0.2 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Reply from 10.5.0.2: bytes=32 time=4ms TTL=124

Ping statistics for 10.5.0.2:
    Packets: Sent = 4, Received = 1, Lost = 3 (75% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 4ms, Average = 4ms

C:\>ping 10.5.0.2

Pinging 10.5.0.2 with 32 bytes of data:

Reply from 10.5.0.2: bytes=32 time=9ms TTL=124
Reply from 10.5.0.2: bytes=32 time=23ms TTL=124
Reply from 10.5.0.2: bytes=32 time=6ms TTL=124
Reply from 10.5.0.2: bytes=32 time=4ms TTL=124

Ping statistics for 10.5.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 23ms, Average = 10ms

C:\>

b) Un traceroute I ping del PC3 al PC0

C:\>tracert 10.0.0.2

Tracing route to 10.0.0.2 over a maximum of 30 hops:

```
  1   0 ms      0 ms      0 ms      10.3.0.1

  2   0 ms      7 ms      0 ms      192.168.0.9

  3   0 ms      13 ms     9 ms      192.168.1.1

  4   *         2 ms      0 ms      10.0.0.2
```

Trace complete.

C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=7ms TTL=125

Reply from 10.0.0.2: bytes=32 time=10ms TTL=125

Reply from 10.0.0.2: bytes=32 time=4ms TTL=125

Reply from 10.0.0.2: bytes=32 time=4ms TTL=125

Ping statistics for 10.0.0.2:

    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 4ms, Maximum = 10ms, Average = 6ms

C:\>

b) Un traceroute I ping del PC5 al PC2

Cisco Packet Tracer PC Command Line 1.0

C:\>ping 10.2.0.2

Pinging 10.2.0.2 with 32 bytes of data:

Request timed out.

Reply from 10.2.0.2: bytes=32 time<1ms TTL=125

Reply from 10.2.0.2: bytes=32 time<1ms TTL=125

Reply from 10.2.0.2: bytes=32 time<1ms TTL=125

Ping statistics for 10.2.0.2:

    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),

Approximate round trip times in milli-seconds:

    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>tracert 10.2.0.2

Tracing route to 10.2.0.2 over a maximum of 30 hops:

1   0 ms   0 ms   0 ms   10.5.0.1

2   0 ms   0 ms   0 ms   192.168.0.5

3   0 ms   0 ms   0 ms   192.168.1.2

4   0 ms   0 ms   0 ms   10.2.0.2

Trace complete.

C:\>