Instituto Tecnológico de Salina Cruz

Fundamentos de Redes

Semestre Enero – Julio 2015

Reporte de Practica

Practica n° 1

Unidad 5

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Objetivos:

Conocer a realizar la configuración del protocolo OSPF Y conocer características propias del protocolo entre ellas la distancia administrativa, la ruta más larga, etc.

Instrucciones:

1.- Realizar la tabla de ruteo.

2.- Realizar configuraciones iniciales.

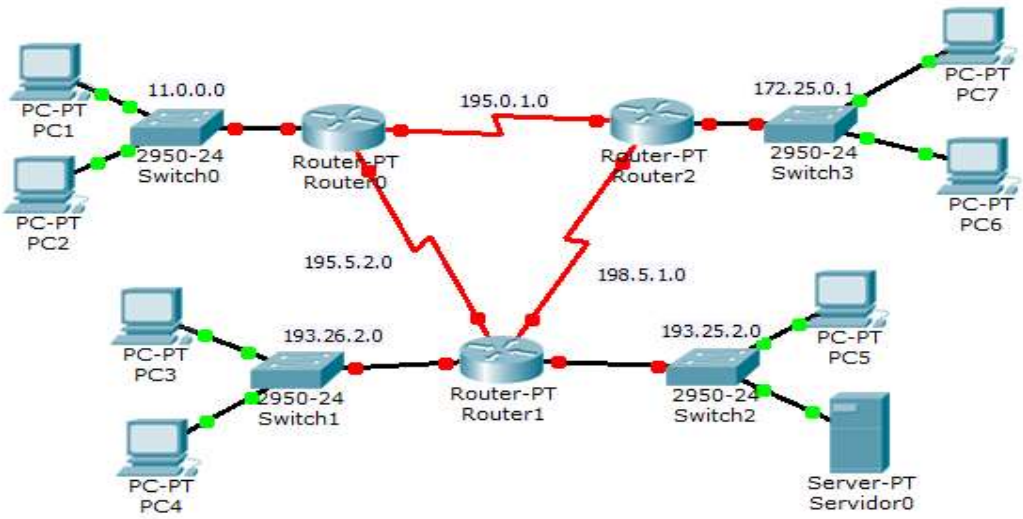
3.- Identificar comandos a utilizar.

4.- Realizar configuraciones del protocolo OSPF

Materiales:

- Computadoras.
- Cisco Packet Tracert.
- Silla.

Escenario:



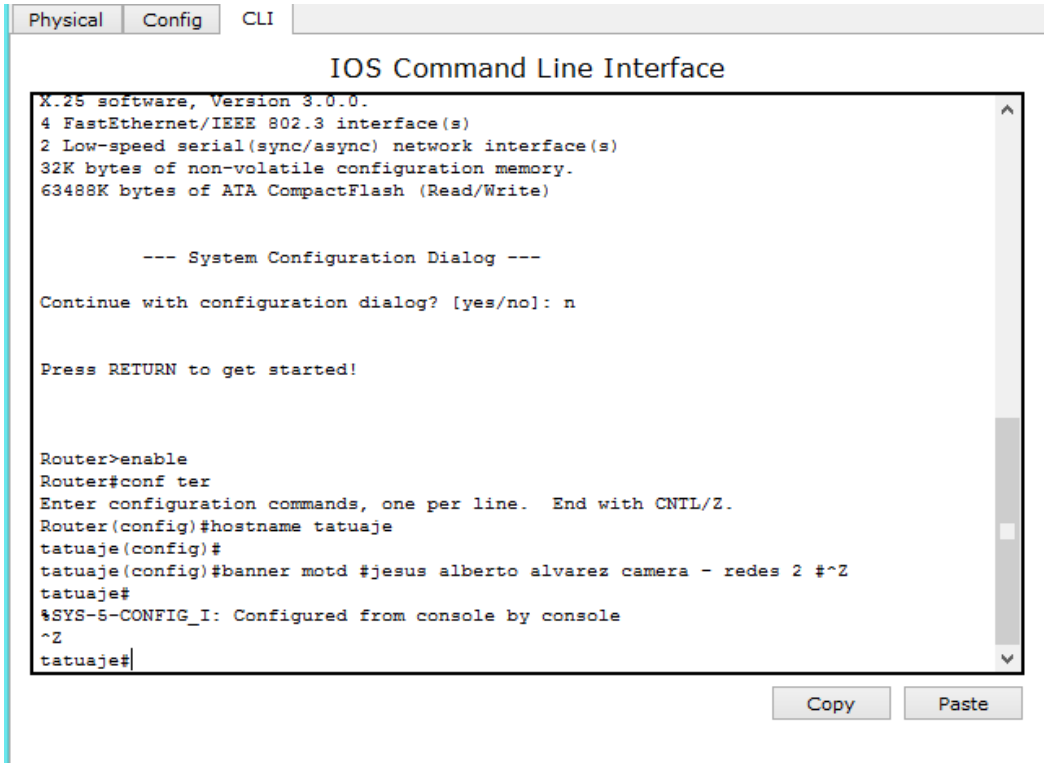
1.- creación de la tabla de enrutamiento.

	INTERFAZ	DIRECCION IP	MASCARA DE SUBRED	GATEWAY POR DEFECTO
Tatuaje	fa0/0	11.0.0.1	255.0.0.0	n/a
	S2/0	195.5.2.1	255.255.255.0	n/a
	S3/0	195.0.1.1	255.255.255.0	n/a
Tribal	Fa0/0	193.26.2.1	255.255.255.0	n/a
	Fa1/0	193.25.2.1	255.255.255.0	n/a
	S2/0	195.5.2.2	255.255.255.0	n/a
	S3/0	195.5.1.1	255.255.255.0	n/a
cumpleaños	Fa0/0	172.25.0.1	255.255.0.0	n/a
	S2/0	195.5.1.2	255.255.255.0	n/a
	S3/0	195.0.1.2	255.255.255.0	n/a
PC1	NIC	11.0.0.5	255.0.0.0	11.0.0.1
PC2	NIC	11.0.0.6	255.0.0.0	11.0.0.1
PC3	NIC	193.26.2.5	255.255.0.0	193.26.2.1
PC4	NIC	193.26.2.6	255.255.0.0	193.26.2.1
SERV0	NIC	193.25.2.5	255.255.0.0	193.25.2.1
PC5	NIC	193.25.2.6	255.255.0.0	193.25.2.1
PC6	NIC	172.25.0.5	255.255.255.0	172.25.0.1
PC7	NIC	172.25.0.6	255.255.255.0	172.25.0.1

Como primer paso se le asignara una dirección IP a cada una de las maquinas interconectadas en la zona de simulación de Packet Tracer, aquí solo se mostraran a dos pc's pero hacer lo mismo con las que falten.

Una vez realizado el paso anterior, se procede a configurar los routers.

Router 1



Levantamiento de los puertos fa0/0 y s2/0

```
UNISTMO(config)#interface fa0/0
UNISTMO(config-if)#ip address 11.0.0.1
% Incomplete command.
UNISTMO(config-if)#ip address 11.0.0.1 255.0.0.0
UNISTMO(config-if)#no shut

UNISTMO(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

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

UNISTMO(config-if)#exit
UNISTMO(config)#interface s2/0
UNISTMO(config-if)#ip address 195.5.2.1 255.255.255.0
UNISTMO(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
UNISTMO(config-if)#exit
```

Router 2

Physical | Config | CLI

IOS Command Line Interface

```
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)


         --- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: n


Press RETURN to get started!



Router>enable
Router#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname tribal
tribal(config)#banner motd # jesus alberto alvarez camera - redes de comp 2#^Z
tribal#
%SYS-5-CONFIG_I: Configured from console by console
^Z
tribal#
```

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Levantamiento de puertos fa0/0 y s2/0

```
UMAR(config)#interface fa1/0
UMAR(config-if)#ip address 193.26.2.1 255.255.255.0
UMAR(config-if)#no shut

UMAR(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

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

UMAR(config-if)#exit
UMAR(config)#interface s2/0
UMAR(config-if)#ip address 196.6.2.2 255.255.255.0
UMAR(config-if)#no shut

UMAR(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

UMAR(config-if)#exit
UMAR(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

UMAR(config)#interface s3/0
UMAR(config-if)#ip address 196.6.1.1 255.255.255.0
UMAR(config-if)#no shut
```

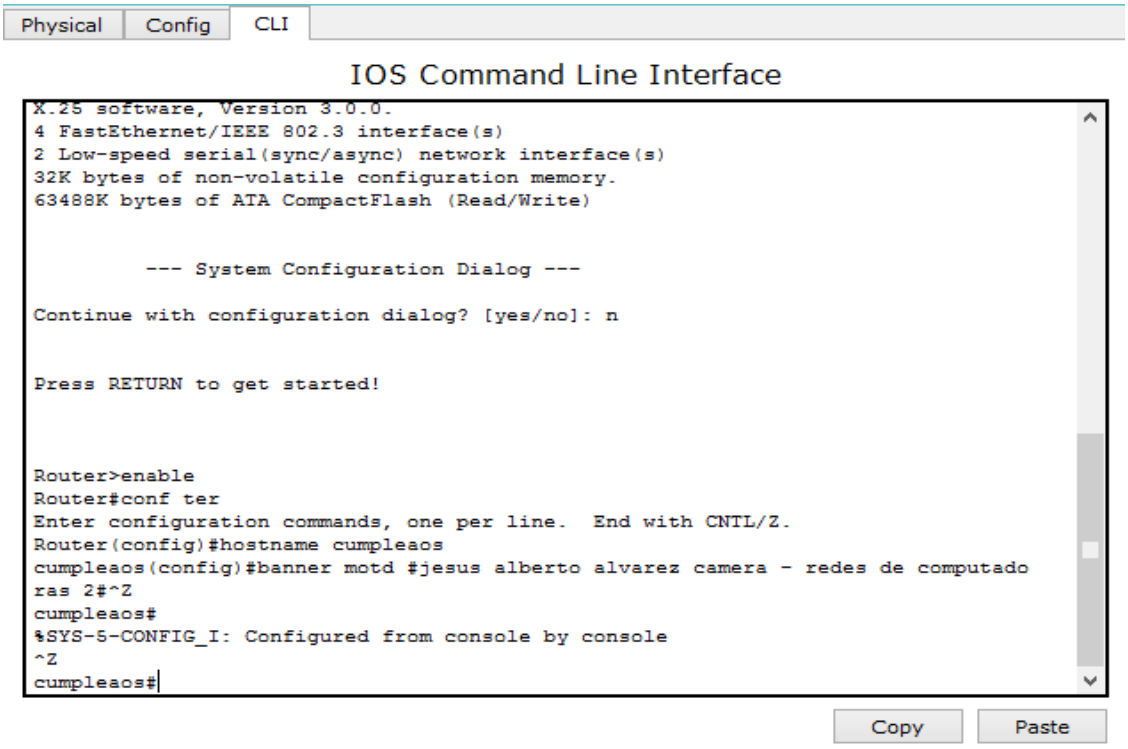
```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname UMAR
UMAR(config)#enable password 234
UMAR(config)#
"
UMAR(config)#interface fa0/0
UMAR(config-if)#ip address 193.26.2.1 255.255.255.0
UMAR(config-if)#no shut

UMAR(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

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

UMAR(config-if)#exit
```

Router 3



Levantando puertos fa0/0 y S2/0

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname UNSIJ
UNSIJ(config)#enable password 345
UNSIJ(config)#
UNSIJ(config)#interface fa0/0
UNSIJ(config-if)#ip address 172.25.0.1 255.255.0.0
UNSIJ(config-if)#no shut

UNSIJ(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

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

UNSIJ(config-if)#exit
UNSIJ(config)#interface s2/0
UNSIJ(config-if)#ip address 195.5.1.2 255.255.255.0
UNSIJ(config-if)#no shut

UNSIJ(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

UNSIJ(config-if)#exit



UNSIJ(config)#interface s3/0
UNSIJ(config-if)#ip address 195.0.1.2 255.255.255.0
UNSIJ(config-if)#no shut

UNSIJ(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

UNSIJ(config-if)#exit
UNSIJ(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
```

Una vez realizada la configuración inicial se procede a realizar la configuración del protocolo OSPF de la siguiente manera.

```
*** En hora buena, bienvenido ***

UNISTMO>enable
Password:
UNISTMO#config t
Enter configuration commands, one per line.  End with CNTL/Z.
UNISTMO(config)#router ospf 1
UNISTMO(config-router)#network 195.5.2.0 255.255.255.0 area 0
UNISTMO(config-router)#network 195.0.1.0 255.255.255.0 area 0
UNISTMO(config-router)#end
UNISTMO#
%SYS-5-CONFIG_I: Configured from console by console

UNISTMO#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
UNISTMO#
```

A continuación se procede a visualizar las direcciones ip conectadas al router haremos uso del comando “show ip route”, de la siguiente manera

Router 1

```
*** En hora buena, bienvenido ***

UNISTMO>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    11.0.0.0/8 is directly connected, FastEthernet0/0
C    195.0.1.0/24 is directly connected, Serial3/0
C    195.5.2.0/24 is directly connected, Serial2/0
UNISTMO>
```

Router 2

```
UMAR>enable
Password:
UMAR#config t
Enter configuration commands, one per line.  End with CNTL/Z.
UMAR(config)#router ospf 1
UMAR(config-router)#network 195.5.2.0 255.255.255.0   area 0
UMAR(config-router)#network 195.5.2.0 255.255.255.0   area 0
UMAR(config-router)#network 195.5.1.0 255.255.255.0   area 0

UMAR(config-router)#end
UMAR#
%SYS-5-CONFIG_I: Configured from console by console

UMAR#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]

UMAR#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

O    11.0.0.0/8 [110/65] via 195.5.2.1, 00:02:45, Serial2/0
C    193.25.2.0/24 is directly connected, FastEthernet1/0
C    193.26.2.0/24 is directly connected, FastEthernet0/0
O    195.0.1.0/24 [110/128] via 195.5.2.1, 00:02:45, Serial2/0
C    195.5.1.0/24 is directly connected, Serial3/0
C    195.5.2.0/24 is directly connected, Serial2/0
UMAR#
```

Router 3

```
UNSIJ>
UNSIJ>enable
Password:
UNSIJ#config t
Enter configuration commands, one per line.  End with CNTL/Z.
UNSIJ(config)#router ospf 1
UNSIJ(config-router)#network 195.5.1.0 255.255.255.0 area 0
UNSIJ(config-router)#network 195.0.1.2 255.255.255.0 area 0
UNSIJ(config-router)#end
UNSIJ#
%SYS-5-CONFIG_I: Configured from console by console

UNSIJ#copy ru
02:28:44: %OSPF-5-ADJCHG: Process 1, Nbr 195.5.2.1 on Serial3/0 from LOADING to
FULL, Loading Done
UNSIJ#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
```

```
UNSIJ>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

O    11.0.0.0/8 [110/65] via 195.0.1.1, 00:01:24, Serial3/0
C    172.25.0.0/16 is directly connected, FastEthernet0/0
C    195.0.1.0/24 is directly connected, Serial3/0
C    195.5.1.0/24 is directly connected, Serial2/0
O    195.5.2.0/24 [110/128] via 195.5.1.1, 00:01:24, Serial2/0
                  [110/128] via 195.0.1.1, 00:01:24, Serial3/0
```

A continuación se procede a la Verificacion y resolucion de problemas con el comando “show ip protocols”

```
UNAR>show ip protocols

Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 195.5.2.2
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    195.5.2.0 0.0.0.255 area 0
    195.5.1.0 0.0.0.255 area 0
  Routing Information Sources:
    Gateway         Distance      Last Update
    195.5.1.2            110      00:21:37
    195.5.2.1            110      00:21:37
    195.5.2.2            110      00:21:37
  Distance: (default is 110)
```

Como paso final, Realizamos ping con el switch, como el siguiente ejemplo

PC1

```
PC>ping 11.0.0.1

Pinging 11.0.0.1 with 32 bytes of data:

Reply from 11.0.0.1: bytes=32 time=0ms TTL=255
Reply from 11.0.0.1: bytes=32 time=1ms TTL=255
Reply from 11.0.0.1: bytes=32 time=1ms TTL=255
Reply from 11.0.0.1: bytes=32 time=0ms TTL=255

Ping statistics for 11.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

SERV0

```
Packet Tracer SERVER Command Line 1.0
SERVER>ping 193.25.2.1

Pinging 193.25.2.1 with 32 bytes of data:

Reply from 193.25.2.1: bytes=32 time=1ms TTL=255
Reply from 193.25.2.1: bytes=32 time=0ms TTL=255
Reply from 193.25.2.1: bytes=32 time=0ms TTL=255
Reply from 193.25.2.1: bytes=32 time=0ms TTL=255

Ping statistics for 193.25.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

SERVER>
```

ahora se verifica la conexión que hay entre las pcs, y Routers de la siguiente manera, en el panel de simulación de Packet Tracer, enviando un mensaje.

Último Estado	Disparo	Origen	Destino	Tipo	Color	Tiempo (seg)	Periodo
Exitoso		tribal	tatuaje	ICMP		0.000	N
Exitoso		tribal	cumpleaño	ICMP		0.000	N

Conclusión

Durante la realización de esta práctica, se pudieron visualizar varias configuraciones fundamentales de un router cisco, como es el cambio de nombre, establecimiento de una contraseña y la colocación de un banner de bienvenida, cada vez que ingresemos a él nos mandara lo que colocamos en el banner. Así como también se estableció un protocolo, en este caso fue el protocolo OSPF el cual una vez configurado, se pudieron observar los protocolos que posee un router cisco gracias a líneas de comandos antes ya mencionados.