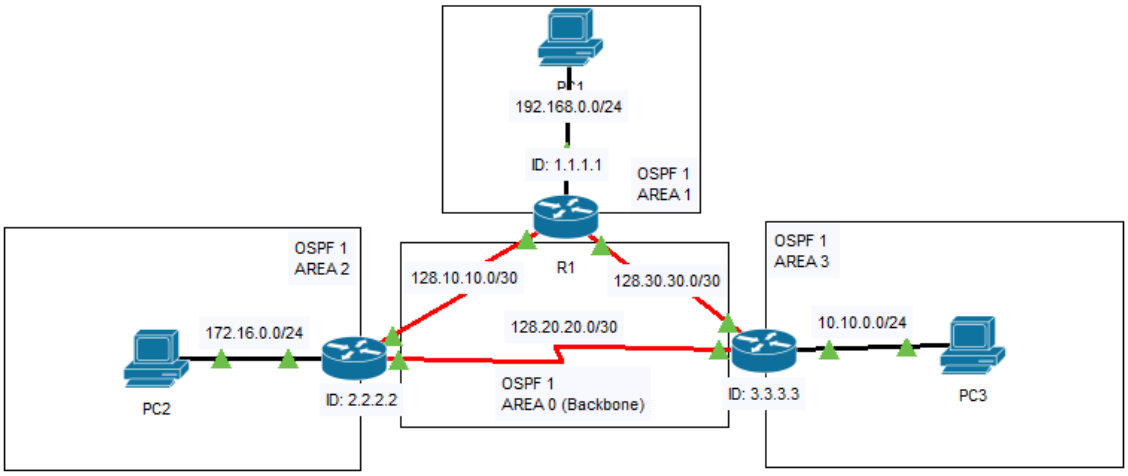
Configuración de OSPFv2.

"Topología de red Implementada"



Descripción: *En la siguiente imagen se muestran 3 Router Cisco ISR S4300 conectados directamente usando el protocolo de enrutamiento OSPFv2.*

¿Qué es OSPF?:

OSPF, o Protocolo de Enrutamiento de Estado de Enlace (Open Shortest Path First), es un protocolo de enrutamiento interior utilizado en redes de computadoras para determinar las rutas más eficientes para el envío de paquetes de datos. Fue diseñado para funcionar en redes IP y es uno de los protocolos de enrutamiento más ampliamente utilizados en redes empresariales y proveedores de servicios.

Configuración de OSPFv2

#Configurar las Interfaces#

```
R1>enable

R1#configure terminal

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

R1(config)#interface GigabitEthernet0/0/0

R1(config-if)#description ENLACE LAN
```

```
R1(config-if)#ip address 192.168.0.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#interface Serial0/1/0
R1(config-if)#description ENLACE HACIA R2
R1(config-if)#ip address 128.10.10.1 255.255.255.252
R1(config-if)#no shutdown
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down
R1(config-if)#exit
R1(config)#interface Serial0/1/1
R1(config-if)#description ENLACE HACIA R3
R1(config-if)#ip address 128.30.30.1 255.255.255.252
R1(config-if)#no shutdown
%LINK-5-CHANGED: Interface Serial0/1/1, changed state to down
R1(config-if)#exit
```

#Configurar OSPFv2#

```
R1(config)#router ospf 1
R1(config-router)#router-id 1.1.1.1
R1(config-router)#passive-interface GigabitEthernet0/0/0
R1(config-router)#network 192.168.0.0 0.0.0.255 area 1
R1(config-router)#network 128.10.10.0 0.0.0.3 area 0
R1(config-router)#network 128.30.30.0 0.0.0.3 area 0
```

```
R1(config-router)#exit

R1(config)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up


%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0,
changed state to up

R1(config)#
```

#Configurar las Interfaces#

```
R2>enable

R2#configure terminal

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

R2(config)#interface GigabitEthernet0/0/0

R2(config-if)#description ENLACE LAN

R2(config-if)#ip address 172.16.0.1 255.255.255.0

R2(config-if)#no shutdown

R2(config-if)#exit

R2(config)#interface Serial0/1/0

R2(config-if)#ip address 128.20.20.1 255.255.255.252

R2(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down

R2(config-if)#exit

R2(config)#interface Serial0/1/1
```

R2(config-if)#**description ENLACE HACIA R1**

R2(config-if)#**ip address 128.10.10.2 255.255.255.252**

R2(config-if)#**no shutdown**

R2(config-if)#exit

#Configurar OSPFv2#

R2(config)#**router ospf 1**

R2(config-router)#**router-id 2.2.2.2**

R2(config-router)#**passive-interface GigabitEthernet0/0/0**

R2(config-router)#**network 172.16.0.0 0.0.0.255 area 2**

R2(config-router)#**network 128.10.10.0 0.0.0.3 area 0**

R2(config-router)#**network 128.20.20.0 0.0.0.3 area 0**

R2(config-router)#exit

R2(config)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up

%LINK-5-CHANGED: Interface Serial0/1/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/1, changed state to up

```
03:16:38: %OSPF-5-ADJCHG: Process 1, Nbr 1.1.1.1 on Serial0/1/1 from
LOADING to FULL, Loading Done



R2(config)#
```

#Configurar las Interfaces#

```
R3>enable

R3#configure terminal

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

R3(config)#interface GigabitEthernet0/0/0

R3(config-if)#description ENLACE LAN

R3(config-if)#ip address 10.10.0.1 255.255.255.0

R3(config-if)#no shutdown

R3(config-if)#exit

R3(config)#interface Serial0/1/0

R3(config-if)#description ENLACE HACIA R2

R3(config-if)#ip address 128.20.20.2 255.255.255.252

R3(config-if)#no shutdown

R3(config-if)#exit

R3(config)#interface Serial0/1/1

R3(config-if)#description ENLACE R1

R3(config-if)#ip address 128.30.30.2 255.255.255.252

R3(config-if)#no shutdown

R3(config-if)#exit
```

#Configurar OSPFv2#

```
R3(config)#router ospf 1

R3(config-router)#router-id 3.3.3.3

R3(config-router)#passive-interface GigabitEthernet0/0/0

R3(config-router)#network 10.10.0.0 0.0.0.255 area 3

R3(config-router)#network 128.30.30.0 0.0.0.3 area 0

R3(config-router)#network 128.20.20.0 0.0.0.3 area 0

R3(config-router)#exit

%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up


%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0,
changed state to up


%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up


%LINK-5-CHANGED: Interface Serial0/1/1, changed state to up


%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/1, changed
state to up


%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed
state to up
```

```
03:17:15: %OSPF-5-ADJCHG: Process 1, Nbr 1.1.1.1 on Serial0/1/1 from
LOADING to FULL, Loading Done


03:17:15: %OSPF-5-ADJCHG: Process 1, Nbr 2.2.2.2 on Serial0/1/0 from
LOADING to FULL, Loading Done


R3(config)#
```

#Verificar procesos OSPF 1 en R1, R2 y R3#

R1#show ip ospf neighbor

Neighbor ID	Pri	State	Dead Time	Address	Interface
2.2.2.2	0	FULL/ -	00:00:31	128.10.10.2	Serial0/1/0
3.3.3.3	0	FULL/ -	00:00:31	128.30.30.2	Serial0/1/1

R2#show ip ospf neighbor

Neighbor ID	Pri	State	Dead Time	Address	Interface
3.3.3.3	0	FULL/ -	00:00:33	128.20.20.2	Serial0/1/0
1.1.1.1	0	FULL/ -	00:00:36	128.10.10.1	Serial0/1/1

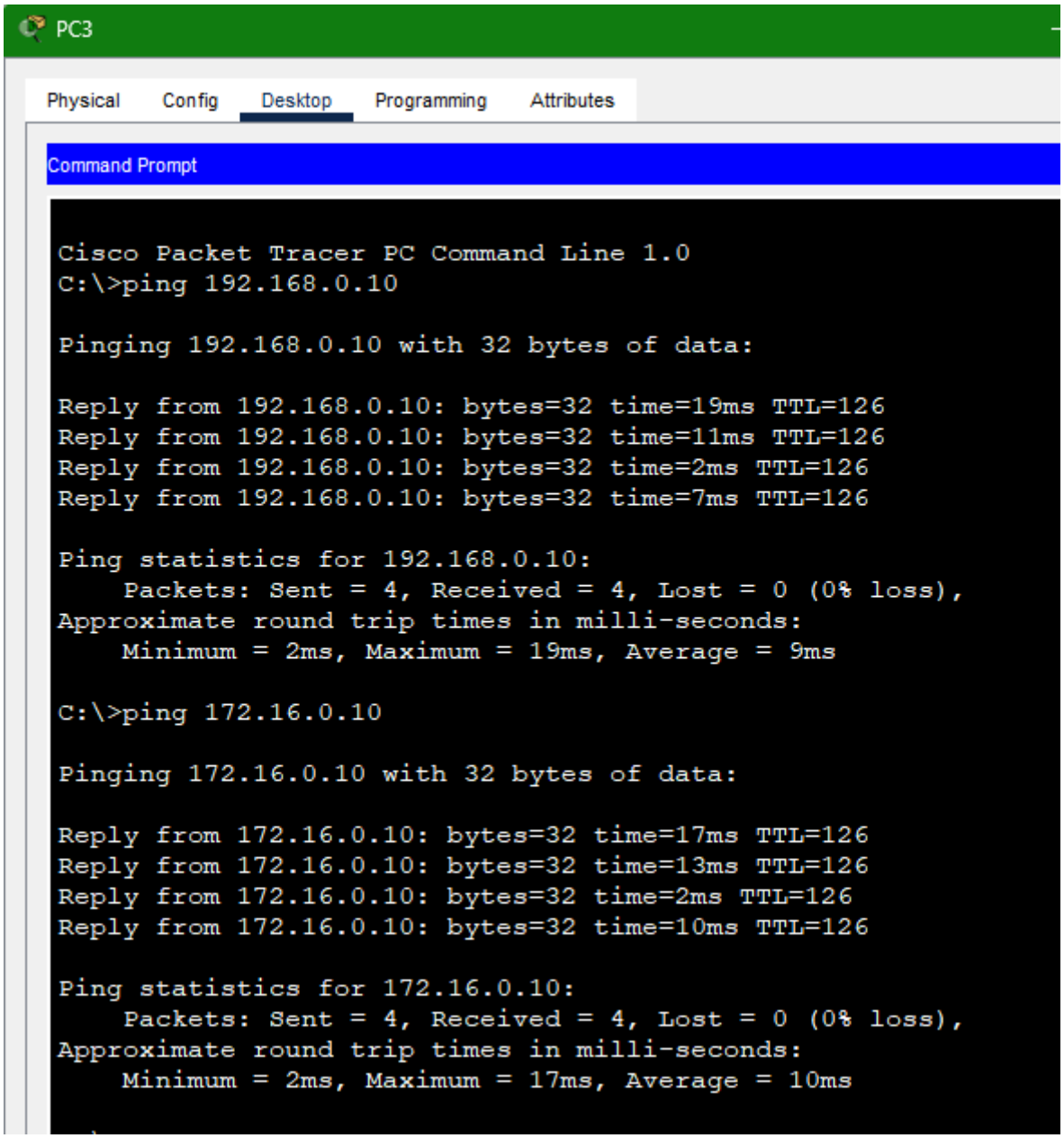
R3#show ip ospf neighbor

Neighbor ID	Pri	State	Dead Time	Address	Interface
2.2.2.2	0	FULL/ -	00:00:31	128.20.20.1	Serial0/1/0
1.1.1.1	0	FULL/ -	00:00:31	128.30.30.1	Serial0/1/1

Tabla de Direccionamiento

Nombre	IP	Red/Mask	Gateway	Interfaz	ID OSPF	ÁREA
R1	192.168.0.1	192.168.0.0/24	N/A	G0/0/0	1.1.1.1	1
R1	128.10.10.1	128.10.10.0/30	N/A	S0/1/0	1.1.1.1	0
R1	128.20.20.1	128.30.30.0/30	N/A	S0/1/1	1.1.1.1	0
R2	172.16.0.1	172.16.0.0/24	N/A	G0/0/0	2.2.2.2	2
R2	128.10.10.2	128.10.10.0/30	N/A	S0/1/1	2.2.2.2	0
R2	128.20.20.1	128.20.20.0/30	N/A	S0/1/0	2.2.2.2	0
R3	10.10.0.1	10.10.0.0/24	N/A	G0/0/0	3.3.3.3	3
R3	128.20.20.2	128.20.20.0/30	N/A	S0/1/0	3.3.3.3	0
R3	128.30.30.2	128.30.30.0/30	N/A	S0/1/1	3.3.3.3	0
PC1	192.168.0.10	192.168.0.0/24	192.168.0.1	Fa0	N/A	1
PC2	172.16.0.10	172.16.0.0/24	172.16.0.1	Fa0	N/A	2
PC3	10.10.0.10	10.10.0.0/24	10.10.0.1	Fa0	N/A	3

Prueba de Conectividad de PC3 a PC1 y PC2



Descarga aquí la topología (OSPFv2.pkt)