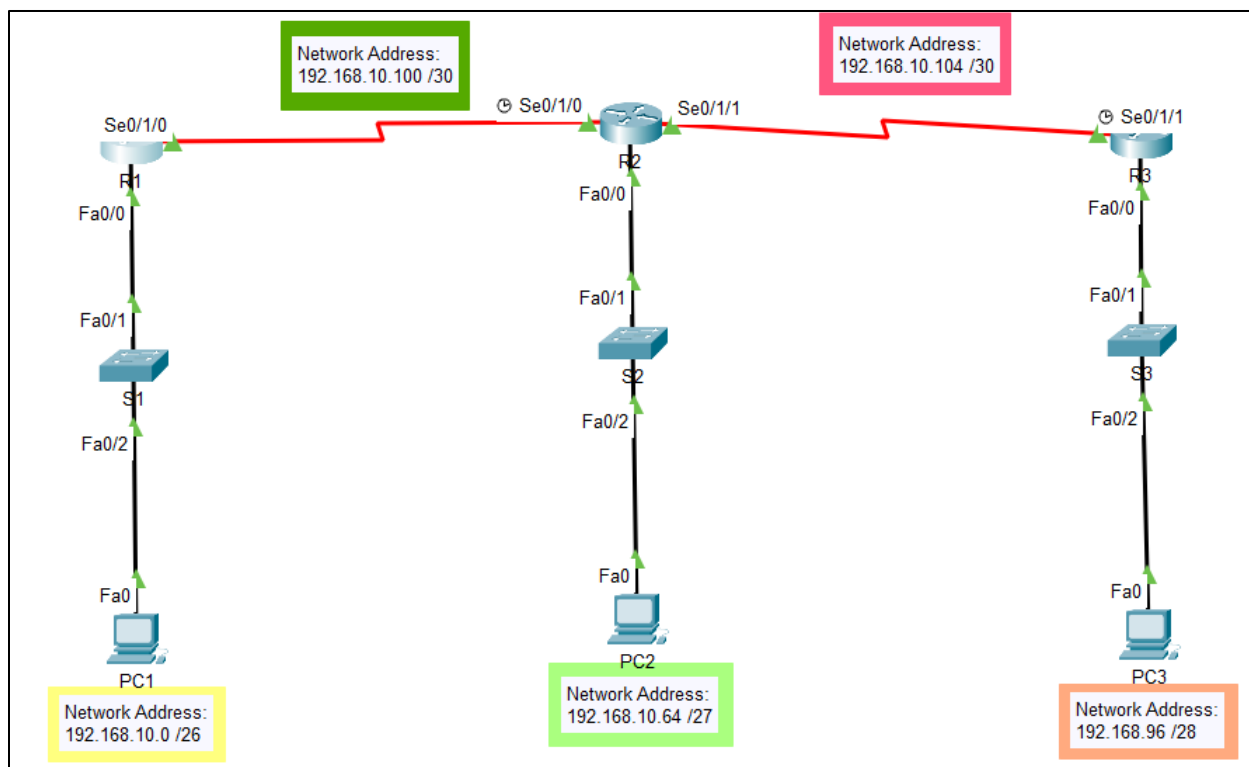


Lab 3: Routing Protocols



Network Area	Device Name	IP Address	Subnet Mask
LAN 1	R1	192.168.10.1	255.255.255.192
	PC1	192.168.10.2	255.255.255.192
LAN 2	R2	192.168.10.65	255.255.255.224
	PC2	192.168.10.66	255.255.255.224
LAN 3	R3	192.168.10.97	255.255.255.252
	PC3	192.168.10.98	255.255.255.252
WAN 1	R1	192.168.10.101	255.255.255.252
	R2	192.168.10.102	255.255.255.252
WAN 2	R3	192.168.10.105	255.255.255.252
	R2	192.168.10.106	255.255.255.252

Checking the IP Routing Table in R1:

```

R1>en
R1#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

    192.168.10.0/24 is variably subnetted, 2 subnets, 2 masks
       C       192.168.10.0/26 is directly connected, FastEthernet0/0
       C       192.168.10.100/30 is directly connected, Serial0/1/0
  
```

Checking the IP Routing Table in R2:

```
R2>en
R2#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

    192.168.10.0/24 is variably subnetted, 3 subnets, 2 masks
C       192.168.10.64/27 is directly connected, FastEthernet0/0
C       192.168.10.100/30 is directly connected, Serial0/1/0
C       192.168.10.104/30 is directly connected, Serial0/1/1

R2#
```

Checking the IP Routing Table in R3:

```
R3>en
R3#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

    192.168.10.0/30 is subnetted, 2 subnets
C       192.168.10.96 is directly connected, FastEthernet0/0
C       192.168.10.104 is directly connected, Serial0/1/1

R3#
```

R1 Configuring Static IP Routing:

```
R1(config)#ip route 192.168.10.64 255.255.255.224 192.168.10.102

R1(config)#ip route 192.168.10.104 255.255.255.252 192.168.10.102
R1(config)#exit
R1#

R3(config)#ip route 192.168.10.100 255.255.255.252 192.168.10.106
R3(config)#ip route 192.168.10.64 255.255.255.224 192.168.10.106
R3(config)#ip route 192.168.10.0 255.255.255.192 192.168.10.106
R3(config)#exit
R3#
$SYS-5-CONFIG_I: Configured from console by console

R3#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

    192.168.10.0/24 is variably subnetted, 5 subnets, 3 masks
S       192.168.10.0/26 [1/0] via 192.168.10.106
S       192.168.10.64/27 [1/0] via 192.168.10.106
C       192.168.10.96/30 is directly connected, FastEthernet0/0
S       192.168.10.100/30 [1/0] via 192.168.10.106
C       192.168.10.104/30 is directly connected, Serial0/1/1

R3#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
R3#
```

R2 Configuring Static IP Routing:

```
R2(config)#ip route 192.168.10.0 255.255.255.192 192.168.10.101

R2(config)#ip route 192.168.10.96 255.255.255.252 192.168.10.105
R2(config)#exit
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#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

      192.168.10.0/24 is variably subnetted, 5 subnets, 3 masks
S       192.168.10.0/26 [1/0] via 192.168.10.101
C       192.168.10.64/27 is directly connected, FastEthernet0/0
S       192.168.10.96/30 [1/0] via 192.168.10.105
C       192.168.10.100/30 is directly connected, Serial0/1/0
C       192.168.10.104/30 is directly connected, Serial0/1/1

R2#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
R2#
```

R3 Configuring Static IP Routing:

```
R3(config)#ip route 192.168.10.100 255.255.255.252 192.168.10.106
R3(config)#ip route 192.168.10.64 255.255.255.224 192.168.10.106
R3(config)#ip route 192.168.10.0 255.255.255.192 192.168.10.106
R3(config)#exit
R3#
%SYS-5-CONFIG_I: Configured from console by console





R3#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




      192.168.10.0/24 is variably subnetted, 5 subnets, 3 masks
S       192.168.10.0/26 [1/0] via 192.168.10.106
S       192.168.10.64/27 [1/0] via 192.168.10.106
C       192.168.10.96/30 is directly connected, FastEthernet0/0
S       192.168.10.100/30 [1/0] via 192.168.10.106
C       192.168.10.104/30 is directly connected, Serial0/1/1

R3#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
R3#
```





Verifying PC1 can reach other networks:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC1	PC2	ICMP		0.000	N	0	(edit)	
	Successful	PC1	PC3	ICMP		0.000	N	1	(edit)	

Verifying PC2 can reach other networks:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC2	PC1	ICMP		0.000	N	0	(edit)	
	Successful	PC2	PC3	ICMP		0.000	N	1	(edit)	

Verifying PC3 can reach other networks:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC3	PC1	ICMP		0.000	N	0	(edit)	
	Successful	PC3	PC2	ICMP		0.000	N	1	(edit)	