Justin Sterlacci
Internetworking
Professor Cannistra
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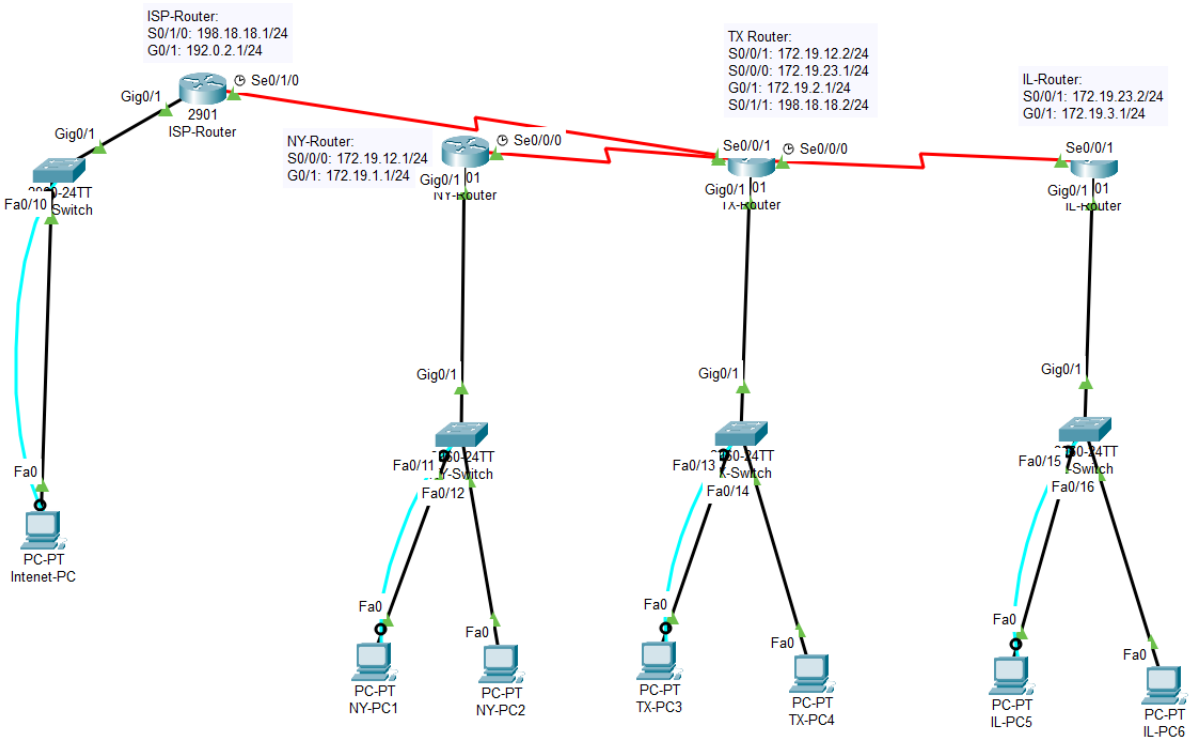
Lab 7 Lab Report

Lab Description:
Set up a network utilizing OSPF Routing as well as an Internet PC, Switch, and ISP Router.

Topography:



Syntax:

CLI Command	Description	Mode of Cisco OIS
ping	Used to ping ip addresses from a PC. You can ping other PC's or switches with this.	Windows CMD
Logging synchronous	Forces error messages to be on its own line, rather than interrupt a line that you're typing on.	Console Line
Enable	Enter Privileged Mode	User Mode
Conf t	Enter Global Configurator Mode	Privileged Mode
Line con 0	Enter the Console Line	Global Configurator Mode

Hostname	Used to name a switch or PC	Privileged Mode
Password	Used to set a password	Privileged Mode
Login	Used to require the password to utilize User Mode	Global Configurator Mode
Enable password	Used to set an unencrypted Privileged Password	Global Configurator Mode
Show ip interface brief (sh ip int brief)	Displays a brief list of all interfaces	Privileged Mode
vtp domain INETLAB	Renames the VTP domain from NULL to INETLAB	Global Configurator Mode
Vtp password cisco	Set a password within the VTP Domain	Global Configurator Mode
Vtp mode server/client	Sets the vtp mode between server or client, in the case of this lab.	Global Configurator Mode
Switchport mode access	Changes the mode of a switchport to access mode	Line configuration Mode (within a vlan)
Switchport trunk encapsulation dot1q	Sets up the switch to switch connect to use IEEE 802.1Q encapsulation	Within a vlan with a multi-Connection switch
Switchport mode trunk	Sets the mode for the switchport to trunk	Within a vlan
Spanning-tree vlan xx root primary	Setting up a spanning tree within a vlan, and setting it to root primary	Privileged mode
Encapsulation dot1q xx	Sets up a VLAN in IEEE 802.1Q within a router	ROUTER Line Configuration Mode(within a sub interface)
Ip route (ip) (SM) (ip)	Sets up a static IP Route	Interface Mode
Router rip	Sets the Router into RIP mode	Global Configuration
Version 2	Sets the RIP version to version 2	Global Configuration
Network (ip address)	Sets the Network for RIPv2 networking	Global Configuration

Verification:

B)

```
NY-Router(config-if)#do sh int g0/1
GigabitEthernet0/1 is up, line protocol is up (connected)
  Hardware is CN Gigabit Ethernet, address is 0000.0c51.c802 (bia 0000.0c51.c802)
  Internet address is 172.19.1.1/24
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Full-duplex, 100Mb/s, media type is RJ45
  output flow-control is unsupported, input flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00,
  Last input 00:00:08, output 00:00:05, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: fifo
  Output queue :0/40 (size/max)
  5 minute input rate 1 bits/sec, 0 packets/sec
  5 minute output rate 2 bits/sec, 0 packets/sec
     9 packets input, 252 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 watchdog, 1017 multicast, 0 pause input
     0 input packets with dribble condition detected
     13 packets output, 476 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
```

NY-Router G0/1

```
NY-Router(config-if)#do sh int s0/0/0
Serial0/0/0 is up, line protocol is up (connected)
  Hardware is HD64570
  Internet address is 172.19.12.1/24
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set, keepalive set (10 sec)
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
     Conversations  0/0/256 (active/max active/max total)
     Reserved Conversations 0/0 (allocated/max allocated)
     Available Bandwidth 1158 kilobits/sec
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     12 packets input, 336 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     8 packets output, 224 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 output buffer failures, 0 output buffers swapped out
     0 carrier transitions
     DCD=up  DSR=up  DTR=up  RTS=up  CTS=up
```

NY-Router S0/0/0

```
NY-Router(config-if)#do sh ip int brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     unassigned      YES unset  administratively down down
GigabitEthernet0/1     172.19.1.1      YES manual up                    up
Serial0/0/0            172.19.12.1     YES manual up                    up
Serial0/0/1            unassigned      YES unset  administratively down down
Serial0/1/0            unassigned      YES unset  administratively down down
Serial0/1/1            unassigned      YES unset  administratively down down
Serial0/2/0            unassigned      YES unset  administratively down down
Serial0/2/1            unassigned      YES unset  administratively down down
Serial0/3/0            unassigned      YES unset  administratively down down
Serial0/3/1            unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
```

NY-Router Interfaces Brief

```
NY-Router(config-if)#do sh ip route
Codes: L - local, C - connected, S - static, 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

     172.19.0.0/16 is variably subnetted, 7 subnets, 2 masks
C       172.19.1.0/24 is directly connected, GigabitEthernet0/1
L       172.19.1.1/32 is directly connected, GigabitEthernet0/1
S       172.19.2.0/24 [1/0] via 172.19.12.2
S       172.19.3.0/24 [1/0] via 172.19.23.2
C       172.19.12.0/24 is directly connected, Serial0/0/0
L       172.19.12.1/32 is directly connected, Serial0/0/0
S       172.19.23.0/24 [1/0] via 172.19.12.2
```

NY-Router Routing Table

```
TX-Router(config)#do sh int g0/1
GigabitEthernet0/1 is up, line protocol is up (connected)
  Hardware is CN Gigabit Ethernet, address is 00e0.f9e6.2402 (bia 00e0.f9e6.2402)
  Internet address is 172.19.2.1/24
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Full-duplex, 100Mb/s, media type is RJ45
  output flow-control is unsupported, input flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00,
  Last input 00:00:08, output 00:00:05, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: fifo
  Output queue :0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     19 packets input, 532 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 watchdog, 1017 multicast, 0 pause input
     0 input packets with dribble condition detected
     9 packets output, 308 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
```

TX-Router G0/1

```
TX-Router(config)#do sh int s0/0/1
Serial0/0/1 is up, line protocol is up (connected)
  Hardware is HD64570
  Internet address is 172.19.12.2/24
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set, keepalive set (10 sec)
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
     Conversations  0/0/256 (active/max active/max total)
     Reserved Conversations 0/0 (allocated/max allocated)
     Available Bandwidth 1158 kilobits/sec
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     8 packets input, 224 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     12 packets output, 336 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 output buffer failures, 0 output buffers swapped out
     0 carrier transitions
     DCD=up  DSR=up  DTR=up  RTS=up  CTS=up
```

TX-Router S0/0/1

```
TX-Router(config)#do sh int s0/0/0
Serial0/0/0 is up, line protocol is up (connected)
  Hardware is HD64570
  Internet address is 172.19.23.1/24
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set, keepalive set (10 sec)
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
     Conversations  0/0/256 (active/max active/max total)
     Reserved Conversations 0/0 (allocated/max allocated)
     Available Bandwidth 1158 kilobits/sec
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     8 packets input, 296 bytes, 0 no buffer
     Received 4 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     11 packets output, 308 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 output buffer failures, 0 output buffers swapped out
     0 carrier transitions
     DCD=up  DSR=up  DTR=up  RTS=up  CTS=up
```

TX-Router S0/0/0

```
TX-Router(config)#do sh int s0/1/1
Serial0/1/1 is up, line protocol is up (connected)
  Hardware is HD64570
  Internet address is 198.18.18.2/24
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set, keepalive set (10 sec)
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
     Conversations  0/0/256 (active/max active/max total)
     Reserved Conversations 0/0 (allocated/max allocated)
     Available Bandwidth 1158 kilobits/sec
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     2 packets input, 56 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     1 packets output, 28 bytes, 0 underruns
     0 output errors, 0 collisions, 2 interface resets
     0 output buffer failures, 0 output buffers swapped out
     0 carrier transitions
     DCD=up  DSR=up  DTR=up  RTS=up  CTS=up
```

TX-Router S0/1/1

```
TX-Router(config)#do sh ip int br
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     unassigned      YES unset  administratively down down
GigabitEthernet0/1     172.19.2.1      YES manual up                    up
Serial0/0/0            172.19.23.1     YES manual up                    up
Serial0/0/1            172.19.12.2     YES manual up                    up
Serial0/1/0            unassigned      YES unset  administratively down down
Serial0/1/1            198.18.18.2     YES manual up                    up
Serial0/2/0            unassigned      YES unset  administratively down down
Serial0/2/1            unassigned      YES unset  administratively down down
Serial0/3/0            unassigned      YES unset  administratively down down
Serial0/3/1            unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
```

TX-Router Interfaces Brief

```
TX-Router(config)# do sh ip route
Codes: L - local, C - connected, S - static, 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 198.18.18.1 to network 0.0.0.0

     172.19.0.0/16 is variably subnetted, 8 subnets, 2 masks
S       172.19.1.0/24 [1/0] via 172.19.12.1
C       172.19.2.0/24 is directly connected, GigabitEthernet0/1
L       172.19.2.1/32 is directly connected, GigabitEthernet0/1
S       172.19.3.0/24 [1/0] via 172.19.23.2
C       172.19.12.0/24 is directly connected, Serial0/0/1
L       172.19.12.2/32 is directly connected, Serial0/0/1
C       172.19.23.0/24 is directly connected, Serial0/0/0
L       172.19.23.1/32 is directly connected, Serial0/0/0
     198.18.18.0/24 is variably subnetted, 2 subnets, 2 masks
C       198.18.18.0/24 is directly connected, Serial0/1/1
L       198.18.18.2/32 is directly connected, Serial0/1/1
S*   0.0.0.0/0 [1/0] via 198.18.18.1
```

TX-Router Routing Table

```
IL-Router(config)#do sh int g0/1
GigabitEthernet0/1 is up, line protocol is up (connected)
  Hardware is CN Gigabit Ethernet, address is 0002.16d5.cc02 (bia 0002.16d5.cc02)
  Internet address is 172.19.3.1/24
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Full-duplex, 100Mb/s, media type is RJ45
  output flow-control is unsupported, input flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00,
  Last input 00:00:08, output 00:00:05, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: fifo
  Output queue :0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 watchdog, 1017 multicast, 0 pause input
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
```

IL-Router G0/1

```
IL-Router(config)#do sh int s0/0/1
Serial0/0/1 is up, line protocol is up (connected)
  Hardware is HD64570
  Internet address is 172.19.23.2/24
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set, keepalive set (10 sec)
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
     Conversations  0/0/256 (active/max active/max total)
     Reserved Conversations 0/0 (allocated/max allocated)
     Available Bandwidth 1158 kilobits/sec
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 output buffer failures, 0 output buffers swapped out
     0 carrier transitions
     DCD=up  DSR=up  DTR=up  RTS=up  CTS=up
```

IL-Router S0/0/1

```
IL-Router(config)#do sh ip int brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     unassigned      YES unset  administratively down down
GigabitEthernet0/1     172.19.3.1      YES manual up                    up
Serial0/0/0            unassigned      YES unset  administratively down down
Serial0/0/1            172.19.23.2     YES manual up                    up
Serial0/1/0            unassigned      YES unset  administratively down down
Serial0/1/1            unassigned      YES unset  administratively down down
Serial0/2/0            unassigned      YES unset  administratively down down
Serial0/2/1            unassigned      YES unset  administratively down down
Serial0/3/0            unassigned      YES unset  administratively down down
Serial0/3/1            unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
```

IL-Router Interfaces Brief

```
IL-Router(config)#do sh ip route
Codes: L - local, C - connected, S - static, 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

     172.19.0.0/16 is variably subnetted, 7 subnets, 2 masks
S       172.19.1.0/24 [1/0] via 172.19.12.1
S       172.19.2.0/24 [1/0] via 172.19.23.1
C       172.19.3.0/24 is directly connected, GigabitEthernet0/1
L       172.19.3.1/32 is directly connected, GigabitEthernet0/1
S       172.19.12.0/24 [1/0] via 172.19.23.1
C       172.19.23.0/24 is directly connected, Serial0/0/1
L       172.19.23.2/32 is directly connected, Serial0/0/1
```

IL-Router Routing Table

H)

```
NY-Router#sh ip protocol

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 172.19.10.1
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    172.19.12.0 0.0.0.255 area 0
    172.19.1.0 0.0.0.255 area 0
    172.19.10.0 0.0.0.0 area 0
  Routing Information Sources:
    Gateway         Distance      Last Update
    172.19.10.1           110      00:18:05
    172.19.20.1           110      00:18:05
    172.19.30.1           110      00:18:05
  Distance: (default is 110)
```

NY-Router IP Protocol

```
TX-Router#sh ip protocol

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 172.19.20.1
  It is an autonomous system boundary router
  Redistributing External Routes from,
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    172.19.2.0 0.0.0.255 area 0
    172.19.12.0 0.0.0.255 area 0
    172.19.23.0 0.0.0.255 area 0
    172.19.20.0 0.0.0.0 area 0
  Routing Information Sources:
    Gateway         Distance      Last Update
    172.19.10.1           110      00:18:52
    172.19.20.1           110      00:18:52
    172.19.30.1           110      00:18:52
  Distance: (default is 110)
```

TX-Router IP Protocol

```
IL-Router#sh ip protocol

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 172.19.30.1
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    172.19.30.0 0.0.0.0 area 0
    172.19.23.0 0.0.0.255 area 0
    172.19.3.0 0.0.0.255 area 0
  Routing Information Sources:
    Gateway         Distance      Last Update
    172.19.10.1           110      00:19:22
    172.19.20.1           110      00:19:21
    172.19.30.1           110      00:19:21
  Distance: (default is 110)
```

IL-Router IP Protocol

I)

LSA is Link-State Advertisement, which is a basic means of communication for OSPF Routing Protocols. It allows the routers to communicate the routers local routing topology to all the other local routers within the same OSPF area.

J)

```
TX-Router#sh ip route
Codes: L - local, C - connected, S - static, 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 198.18.18.1 to network 0.0.0.0

     172.19.0.0/16 is variably subnetted, 9 subnets, 2 masks
O       172.19.1.0/24 [110/65] via 172.19.12.1, 00:23:47, Serial0/0/1
C       172.19.2.0/24 is directly connected, GigabitEthernet0/1
L       172.19.2.1/32 is directly connected, GigabitEthernet0/1
O       172.19.3.0/24 [110/65] via 172.19.23.2, 00:23:47, Serial0/0/0
C       172.19.12.0/24 is directly connected, Serial0/0/1
L       172.19.12.2/32 is directly connected, Serial0/0/1
C       172.19.20.1/32 is directly connected, Loopback0
C       172.19.23.0/24 is directly connected, Serial0/0/0
L       172.19.23.1/32 is directly connected, Serial0/0/0
     198.18.18.0/24 is variably subnetted, 2 subnets, 2 masks
C       198.18.18.0/24 is directly connected, Serial0/1/1
L       198.18.18.2/32 is directly connected, Serial0/1/1
S*   0.0.0.0/0 [1/0] via 198.18.18.1
```

TX-Router Routing Table

K)

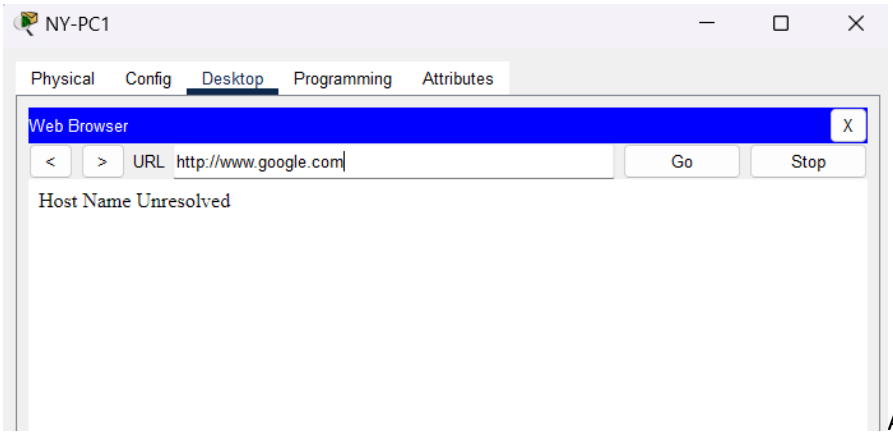
```
NY-Router#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, 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 172.19.12.2 to network 0.0.0.0

     172.19.0.0/16 is variably subnetted, 8 subnets, 2 masks
C       172.19.1.0/24 is directly connected, GigabitEthernet0/1
L       172.19.1.1/32 is directly connected, GigabitEthernet0/1
O       172.19.2.0/24 [110/65] via 172.19.12.2, 00:24:15, Serial0/0/0
O       172.19.3.0/24 [110/129] via 172.19.12.2, 00:24:15, Serial0/0/0
C       172.19.10.1/32 is directly connected, Loopback0
C       172.19.12.0/24 is directly connected, Serial0/0/0
L       172.19.12.1/32 is directly connected, Serial0/0/0
O       172.19.23.0/24 [110/128] via 172.19.12.2, 00:24:15, Serial0/0/0
O*E2 0.0.0.0/0 [110/1] via 172.19.12.2, 00:24:15, Serial0/0/0
```

NY-Router Routing Table

L)

What is occurring for the NY-Router's default route is that it will automatically send information to the other half of the 172.19.12.x network to see if, in this case, the TX-Router has the information to carry a message to another router, whether it is another PC or Router.

M)



Attempting to use Internet on NY-PC1.

Conclusion:

This lab was significantly more difficult to get functioning as compared to previous labs, with the primary point of trouble being that I was not able to ping the Internet-PC from any NY-PC or IL-PC, however was able to with TX-PC. This took a lot of trial and error, and I am not entirely sure what fixed it, as when I closed out of the lab and reopened it at a later time, it seemed to be functioning just fine.