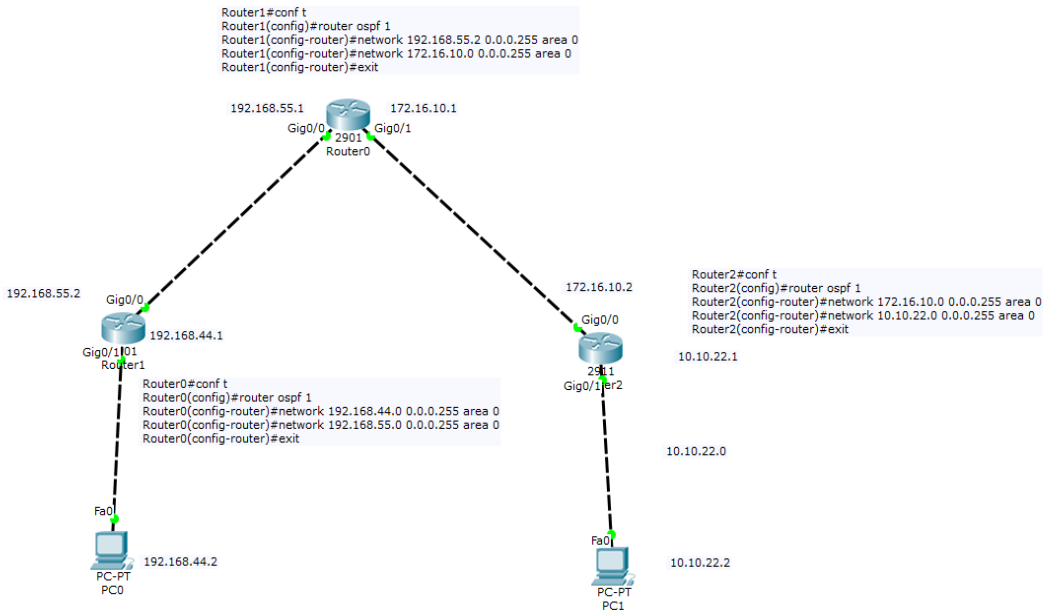
1. A Popular company is expanding their business across the globe with one head office at Hong Kong, Amsterdam and other at Barcelona, so they need to expand their network as well. To maintain the performance of the network it was decided that OSPF would be a suitable candidate for a routing protocol. Because the network at this moment is still small, propose a single area OSPF.



Router>enable
Router#conf t
Router(config)#hostname Router0
Router0(config)#interface gigabitEthernet 0/0
Router0(config-if)#ip address 192.168.44.1 255.255.255.0
Router0(config-if)#no shut
Router0(config-if)#exit Router0(config)#interface gigabitEthernet 0/1
Router0(config-if)#ip address 192.168.55.1 255.255.255.0
Router0(config-if)#no shutdown

Router1 IP Configuration:

Perform the same configuration as on above router with their IP scheme.

Router>enable
Router#conf t
Router(config)#hostname Router1
Router1(config)#interface gigabitEthernet 0/0

```
Router1(config-if)#ip address 192.168.55.2 255.255.255.0
Router1(config-if)#no shut
Router1(config-if)#exit Router1(config)#interface gigabitEthernet 0/1
Router1(config-if)#ip address 172.16.10.1 255.255.255.0
Router1(config-if)#no shutdown
```

Router2 IP and interface Configuration:

```
Router>enable
Router#conf t
Router(config)#hostname Router2
Router2(config)#int gigabitEthernet 0/0
Router2(config-if)#ip address 172.16.10.2 255.255.255.0
 Router2(config-if)#no shut
Router2(config-if)#exit Router2(config)#interface gigabitEthernet 0/1
Router2(config-if)#ip address 10.10.22.1 255.255.255.0
Router2(config-if)#no shutdown
```

PC1 Configuration:

Configure this workstation with following IPs:

IP address: 10.10.22.2

Subnet Mask: 255.255.255.0

Gateway: 10.10.22.1

PC2 Configuration:

Configure this workstation with following IPs:

IP address: 192.168.44.2

Subnet Mask: 255.255.255.0

Gateway: 192.168.44.1

Task2-Configure and verify Open Shortest Path First (OSPF) routing:

Router0 OSPF Configuration:

```
Router0#conf t
Router0(config)#router ospf 1
Router0(config-router)#network 192.168.44.0 0.0.0.255 area 0
Router0(config-router)#network 192.168.55.0 0.0.0.255 area
0 Router0(config-router)#exit
```

Router1 OSPF Configuration:

```
Router1#conf t
Router1(config)#router ospf 1
```

Router1(config-router)#network 192.168.55.2 0.0.0.255 area 0
Router1(config-router)#network 172.16.10.0 0.0.0.255 area
0 Router1(config-router)#exit

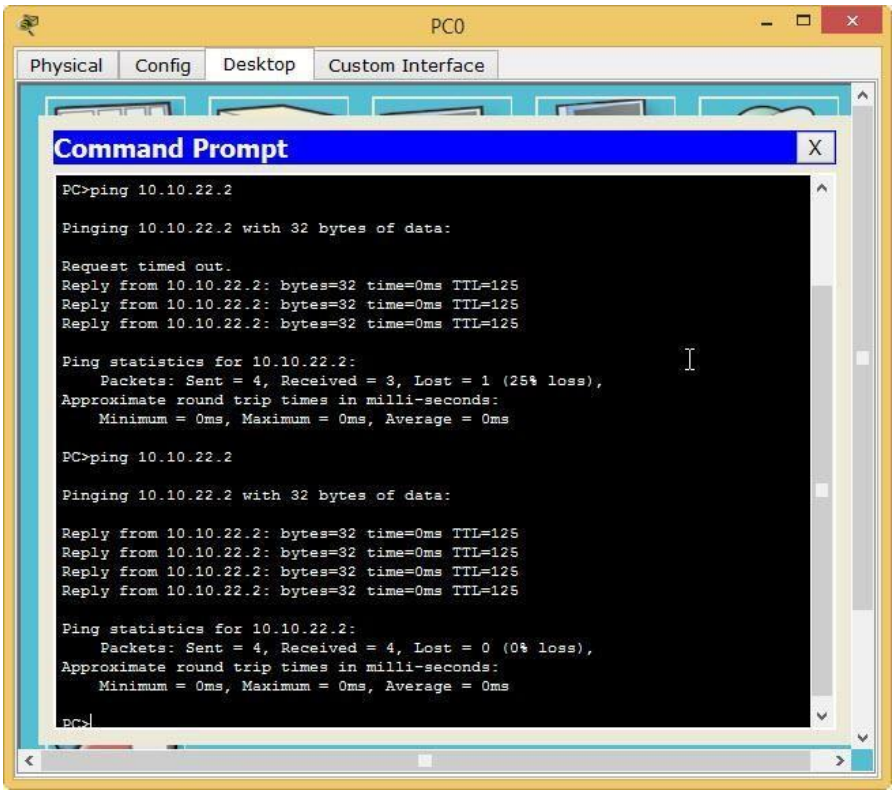
Router2 OSPF Configuration:

Router2#conf t
Router2(config)#router ospf 1
Router2(config-router)#network 172.16.10.0 0.0.0.255 area 0
Router2(config-router)#network 10.10.22.0 0.0.0.255 area
0 Router2(config-router)#exit

Testing for correct configuration:

You can ensure the correct configuration by following two ways:

1. end to end ping should be successful, this mean ping from PC0 to PC1 and vice versa should be successful. you can see the following image, we will have the same results in case of correct configurations.



2. Show ip route command will display all the OSPF routes (including the networks which are not connected to router). Screenshot of “Show ip route” on Router0 will have the following output in case of correct configurations