

LAB REPORT

LAB TITLE: Analyzing Data Link and Network Layer Traffic with Wireshark

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Course: IST 220

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Date: 2/16/2023

General Context

In today's lab, the prompt made us venture into new measures in the world of endless protocols and networking. Once again this lab took place in the PuTTY application, which would lead the user (network engineer) to log into the application Quagga for some command line interface configuration. I connected to the first router by initiating the PuTTY application, to do this you must type in the IP address of the specific router and make sure it is an SSH protocol used for the configuration. This instruction would be repeated to connect to the other routers as well.

Here comes the tricky part, actually having to connect the routers to one another. After a few tries, the routers were finally connected to each other. The reason it took more than one attempt is because the lab didn't specify how meticulous the user had to be with the command line input. However, this called for some resiliency on the users end to configure the routing tables and see the OSPF traffic for the packets as well. Once the user got familiar with the OSPF commands, it took some perseverance to modify the cost for the bandwidth on my own. This is what switches the OSPF route from the shorter to longer route.

Technical Context

As expected, this lab began to get extremely difficult once the instructions labeled the user as a "Senior Network Engineer." The acceleration of the lab was a difficult curve to cover which inflated the magnitude of the situation in each section. First, the user was prompted to use the dynamic routing protocol RIPv2 to start the configuration of the routing for the network. After the user got familiar with those commands in the command line interface, this escalated the user to use an OSPFv2 for the routers. To check if the IP addresses in the router connections were viable, I had to check using the IP routing table to confirm. The skillful portion in the lab came to the part where the network topology was displayed. Reading the topology chart carefully made this process a lot smoother than it would've been if the user didn't.

The shutdown for the specific interface hostname was the climax of this lab. This was the interface name (ens256) that had a direct connection to router1 and router3. Once the user shut those connections off, the ip routing table began to look a lot different. To insinuate this configuration, I had to first: configure the table. Next, I had to route the OSPF using the command *router ospf*. At this point the user would have to check the IP routes to see which interface and which IP address connected the networks together, once found the user would need to calculate the fastest route for bandwidth by adding the components from each network according to the route and the distance vector. This calculation was crucial for the convincing of the route to take. Using the command *ip ospf cost* I was able to change the bandwidth to make this route longer. After configuration of that OSPF route, the traceroute shown in the last screenshot took the route which was said to take longer (router1 > router3).

Section 1: Part 1: Configure RIPv2 on the routers

Make a screen capture showing the currently running RIP configuration on router1.

The screenshot shows a PuTTY session titled "172.30.0.1 - PuTTY". The terminal window displays the configuration of RIPv2 on a Cisco router. The configuration includes setting authentication strings and enabling RIP on specific interfaces (ens192, ens224, ens256) while disabling IPv6 neighbor discovery and link detection. It also defines a default route via interface lo0 and enables RIPv2 with version 2, specifying networks and a passive interface. A red box highlights the "FileZilla" section at the bottom, which lists IP addresses (172.20.0.0/24, 172.21.0.0/24, 172.30.0.0/24) connected under the RIP protocol. The system tray shows the date and time as 2023-02-28 16:24:30 and 1:24 PM 2/28/2023 respectively.

```
172.30.0.1 - PuTTY
Configuring a Layer 3 Network with Dynamic Routing Protocols.
vWorkstation 2023-02-28 16:24:30 MIRACLE Nwauche

interface ens192
 ip rip authentication mode text
 ip rip authentication string P@ssw0rd!
 ipv6 nd suppress-ra
 no link-detect

interface ens224
 ip rip authentication mode text
 ip rip authentication string P@ssw0rd!
 ipv6 nd suppress-ra
 no link-detect

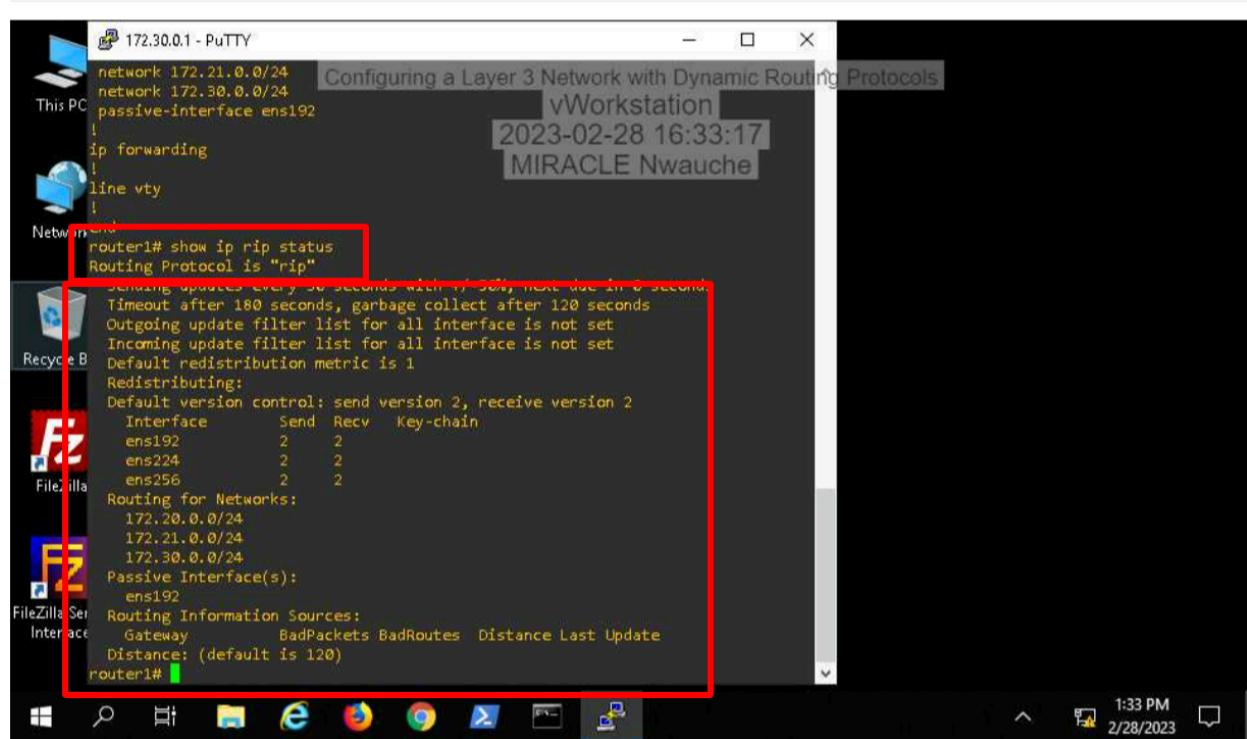
interface ens256
 ip rip authentication mode text
 ip rip authentication string P@ssw0rd!
 ipv6 nd suppress-ra
 no link-detect
!
interface lo0
 no link-detect

FileZilla
router rip
version 2
network 172.20.0.0/24
network 172.21.0.0/24
network 172.30.0.0/24
passive-interface ens192

FileZilla Setup forwarding
Interface]
line vty
!
```

Figure 1, Section 1, Part 1: This is the result of the commands inputted into the command line, this shows that the RIPv2 protocol has been configured and the interfaces have been connected to the router. The last red highlighted box shows all the IP addresses of the device connected under router RIP.

24. Make a screen capture showing the output of the `show ip rip status` command.



```
172.30.0.1 - PuTTY      Configuring a Layer 3 Network with Dynamic Routing Protocols, vWorkstation
This PC
network 172.21.0.0/24
network 172.30.0.0/24
passive-interface ens192
!
ip forwarding
!
line vty
!
Networks:
router1# show ip rip status
Routing Protocol is "rip"
  Sending updates every 30 seconds with a 30% max due in 8 seconds
  Timeout after 180 seconds, garbage collect after 120 seconds
  Outgoing update filter list for all interface is not set
  Incoming update filter list for all interface is not set
  Default redistribution metric is 1
  Redistributing:
    Default version control: send version 2, receive version 2
      Interface      Send   Recv   Key-chain
      ens192          2       2
      ens224          2       2
      ens256          2       2
  Routing for Networks:
    172.20.0.0/24
    172.21.0.0/24
    172.30.0.0/24
  Passive Interface(s):
    ens192
  Routing Information Sources:
    Gateway        BadPackets BadRoutes Distance Last Update
    Distance: (default is 120)
router1#
```

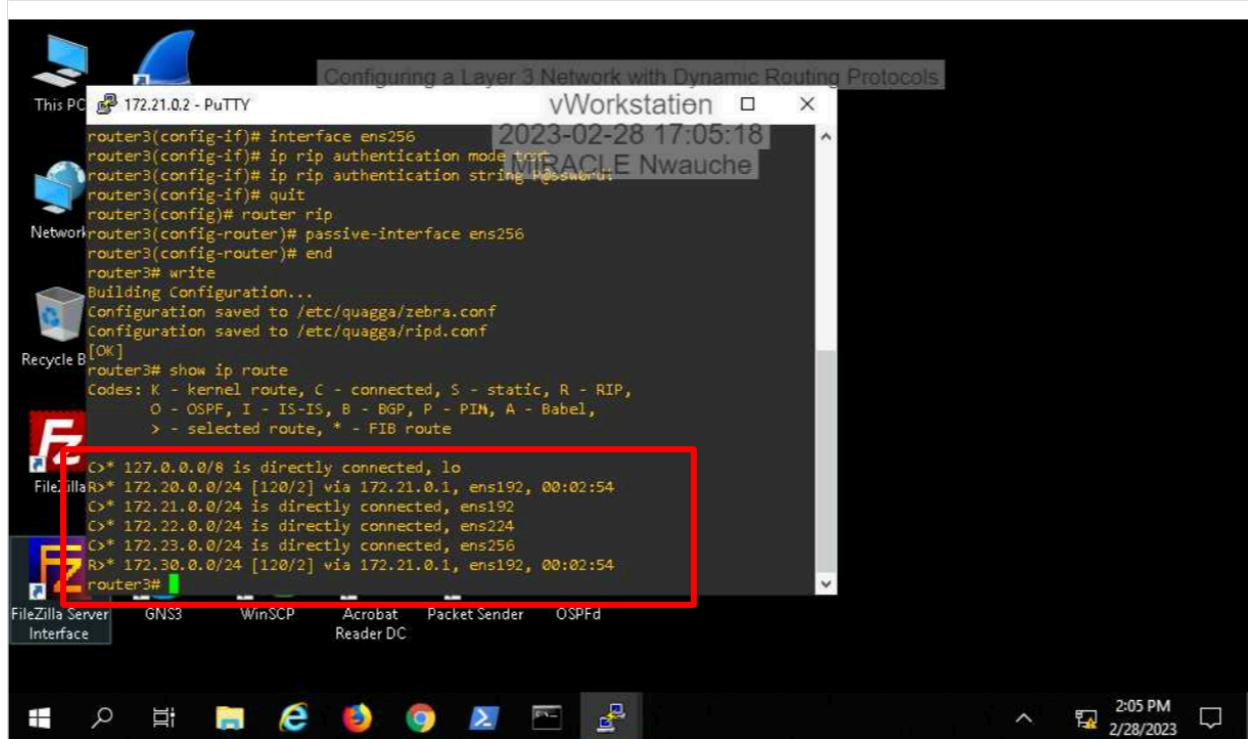
Figure 2, Section 1, Part 1: After the `show ip rip status` command is executed, the routing table appears on the screen. The routing table entails sending updates every -, timeout after(180), garbage collect after, and distance value. All of which have their own default times to do their functions.

30. Make a screen capture showing the currently running RIP configuration on router 2

```
ip rip authentication string P@ssw0rd
ipv6 nd suppress-ra
no link-detect
!
interface ens256
 ip rip authentication mode text
 ip rip authentication string P@ssw0rd!
 ipv6 nd suppress-ra
 no link-detect
!
interface lo
 no link-detect
!
router rip
 version 2
 network 172.20.0.0/24
 network 172.22.0.0/24
!
line vty
!
end
router2#
```

Figure 3, Section 1, Part 1: Pictured is the repeated process of configuring a RIP command for this router which is specifically router 2. The same commands were typed and executed for this router and router 1, the only difference was some of the interface names.

41. Make a screen capture showing the routes known by router3.

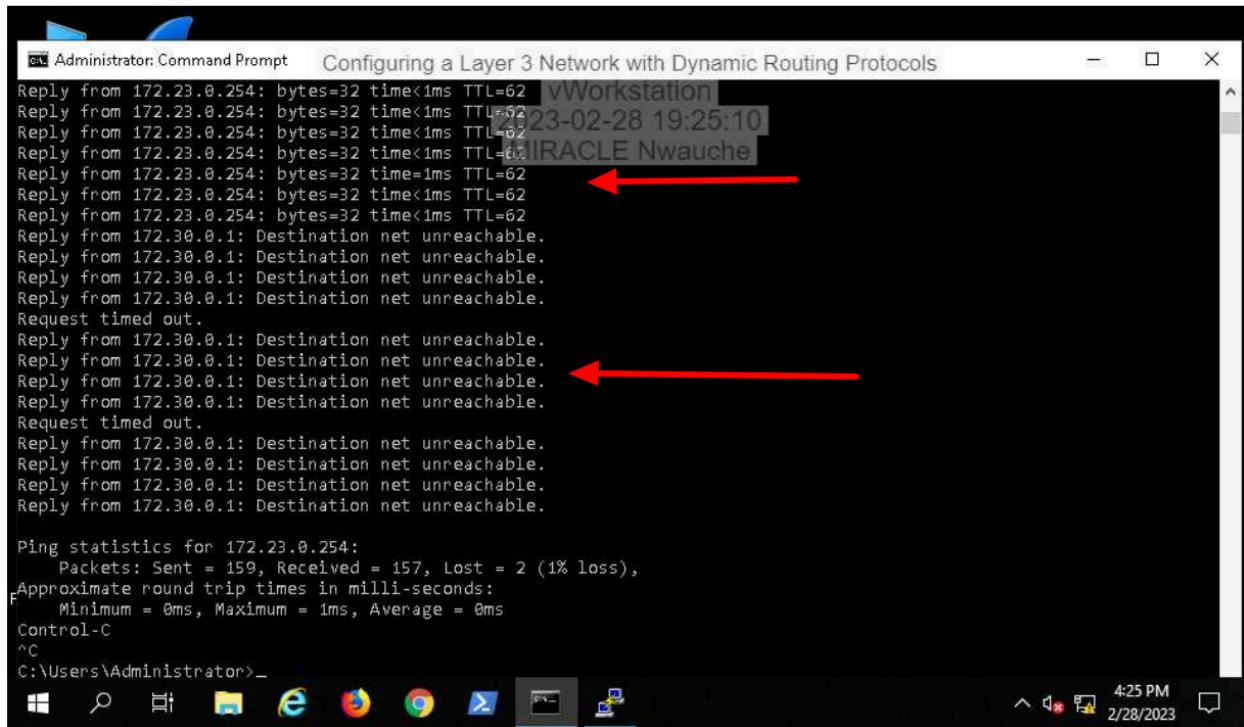


```
Configuring a Layer 3 Network with Dynamic Routing Protocols
vWorkstation 2023-02-28 17:05:18 MIRACLE Nwauche
This PC 172.21.0.2 - PuTTY
router3(config-if)# interface ens256
router3(config-if)# ip rip authentication mode md5
router3(config-if)# ip rip authentication string password
router3(config-if)# quit
router3(config)# router rip
Network router3(config-router)# passive-interface ens256
router3(config-router)# end
router3# write
Building Configuration...
Configuration saved to /etc/quagga/zebra.conf
Configuration saved to /etc/quagga/ripd.conf
[OK]
router3# show ip route
Codes: K - kernel route, C - connected, S - static, R - RIP,
      O - OSPF, I - IS-IS, B - BGP, P - PIM, A - Babel,
      > - selected route, * - FIB route
C>* 127.0.0.0/8 is directly connected, lo
FileZillaR>* 172.20.0.0/24 [120/2] via 172.21.0.1, ens192, 00:02:54
C>* 172.21.0.0/24 is directly connected, ens192
C>* 172.22.0.0/24 is directly connected, ens224
C>* 172.23.0.0/24 is directly connected, ens256
R>* 172.30.0.0/24 [120/2] via 172.21.0.1, ens192, 00:02:54
router3#
```

Figure 4, Section 1, Part 1: Here are the connected and alternative routes in the network that are connected from router to router. Some of the IP addresses state they are directly connected and others determine themselves as RIP, which means they could be classified as the alternative routes for the network.

Part 2: Test the RIPv2 Configuration

15. Make a screen capture showing the “Destination net unreachable” messages, including the successful responses that preceded and succeeded them.

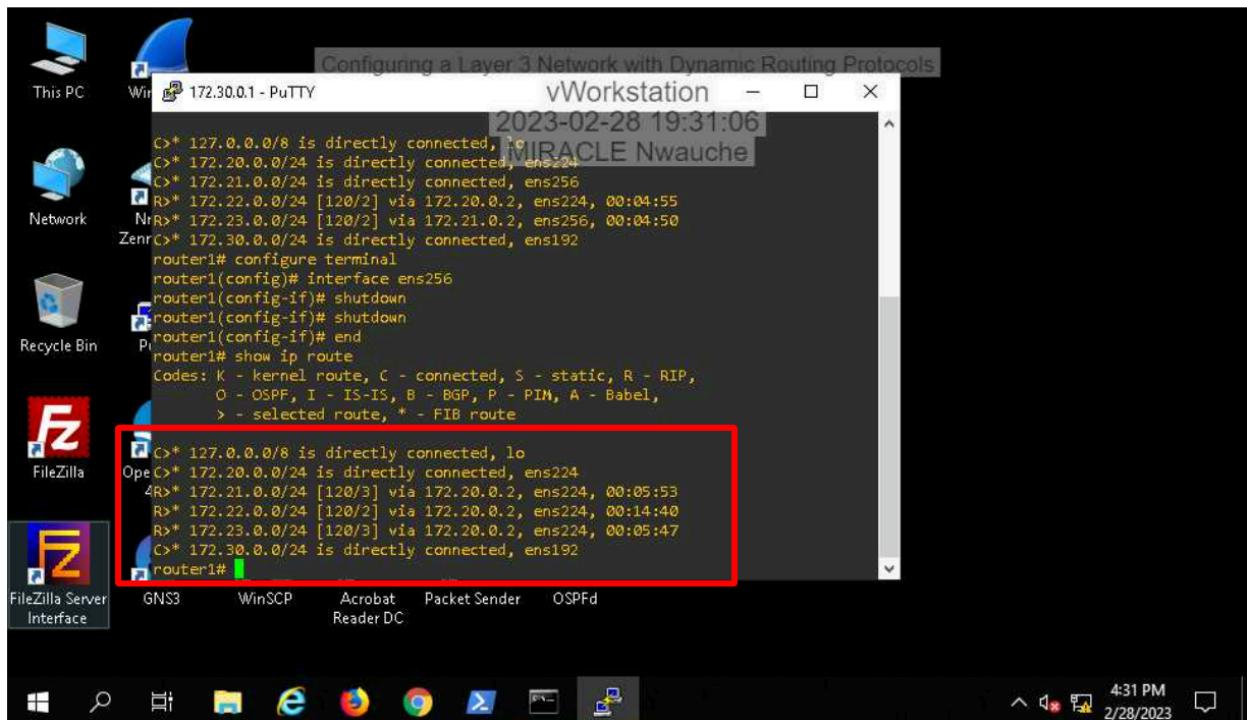


```
Administrator: Command Prompt  Configuring a Layer 3 Network with Dynamic Routing Protocols
Reply from 172.23.0.254: bytes=32 time<1ms TTL=62
Reply from 172.23.0.254: bytes=32 time=1ms TTL=62 ←
Reply from 172.23.0.254: bytes=32 time<1ms TTL=62
Reply from 172.23.0.254: bytes=32 time<1ms TTL=62
Reply from 172.23.0.254: bytes=32 time<1ms TTL=62
Reply from 172.30.0.1: Destination net unreachable. ←
Reply from 172.30.0.1: Destination net unreachable.
Reply from 172.30.0.1: Destination net unreachable.
Reply from 172.30.0.1: Destination net unreachable.
Request timed out.
Reply from 172.30.0.1: Destination net unreachable.
Request timed out.
Reply from 172.30.0.1: Destination net unreachable.

Ping statistics for 172.23.0.254:
    Packets: Sent = 159, Received = 157, Lost = 2 (1% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
Control-C
^C
C:\Users\Administrator>
```

Figure 5, Section 1, Part 2: *Destination unreachable*, In this particular frame in the command prompt we see what happened to the router when the connection was shut off. Due to the command in the puTTY system, the configuration in the Command line shows the user that the destination is now unreachable. The top arrow of the picture is showing the successful attempts as well.

20. Make a screen capture showing the new routing table on router1 that resulted from the ens256 link removal.



```
Configuring a Layer 3 Network with Dynamic Routing Protocols
vWorkstation - 2023-02-28 19:31:06
MIRACLE Nwauche
2023-02-28 19:31:06
C>* 127.0.0.8 is directly connected, lo
C>* 172.20.0.0/24 is directly connected, ens224
C>* 172.21.0.0/24 is directly connected, ens256
R>* 172.22.0.0/24 [120/2] via 172.20.0.2, ens224, 00:04:55
N>R>* 172.23.0.0/24 [120/2] via 172.21.0.2, ens256, 00:04:50
Zenc>* 172.30.0.0/24 is directly connected, ens192
router1# configure terminal
router1(config)# interface ens256
router1(config-if)# shutdown
router1(config-if)# shutdown
router1(config-if)# end
router1# show ip route
Codes: K - kernel route, C - connected, S - static, R - RIP,
      O - OSPF, I - IS-IS, B - BGP, P - PIM, A - Babel,
      > - selected route, * - FIB route
C>* 127.0.0.8 is directly connected, lo
OpeC>* 172.20.0.0/24 is directly connected, ens224
4R>* 172.21.0.0/24 [120/3] via 172.20.0.2, ens224, 00:05:53
R>* 172.22.0.0/24 [120/2] via 172.20.0.2, ens224, 00:14:40
R>* 172.23.0.0/24 [120/3] via 172.20.0.2, ens224, 00:05:47
C>* 172.30.0.0/24 is directly connected, ens192
router1#
```

Figure 6, Section 1, Part 2: The results from the ens256 interface link removal are as shown. All the routes for the network seem to only be able to pass through the router2. You can see in all the connections, they all show the interface name ens224 (besides the last one). All routes also share the IP address destination 172.20.0.2

26. Make a screen capture showing the updated routing table on router1.

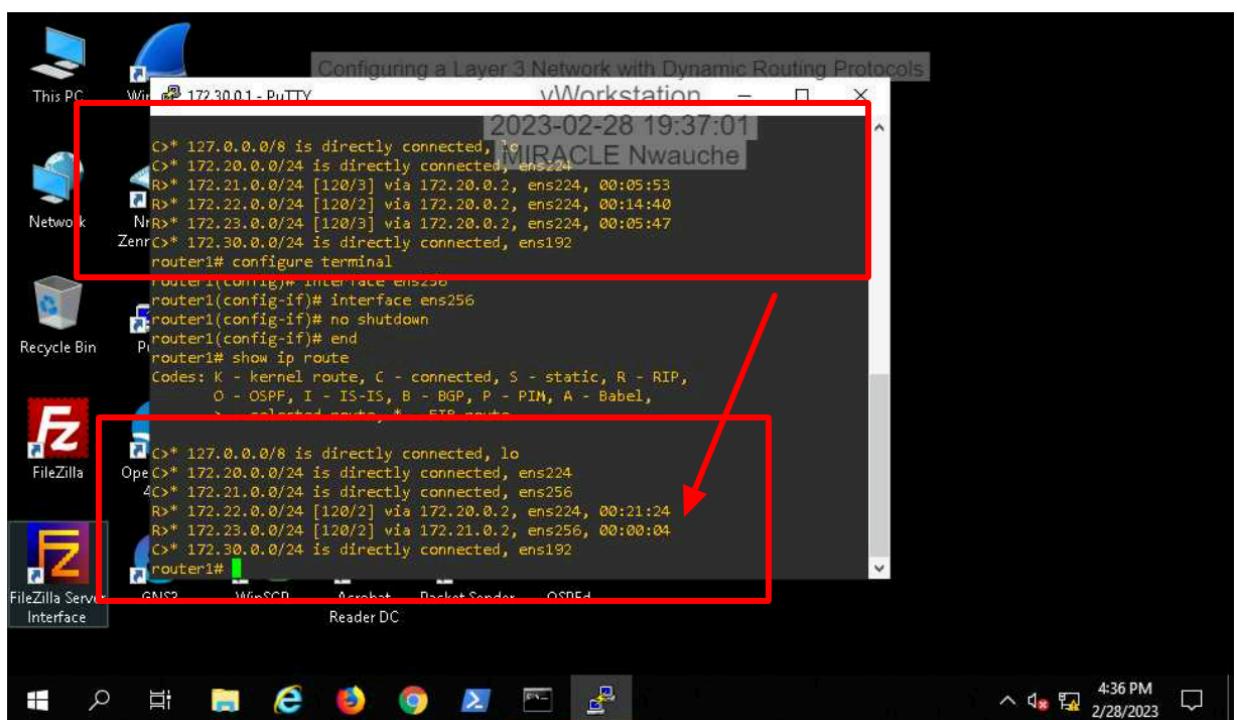
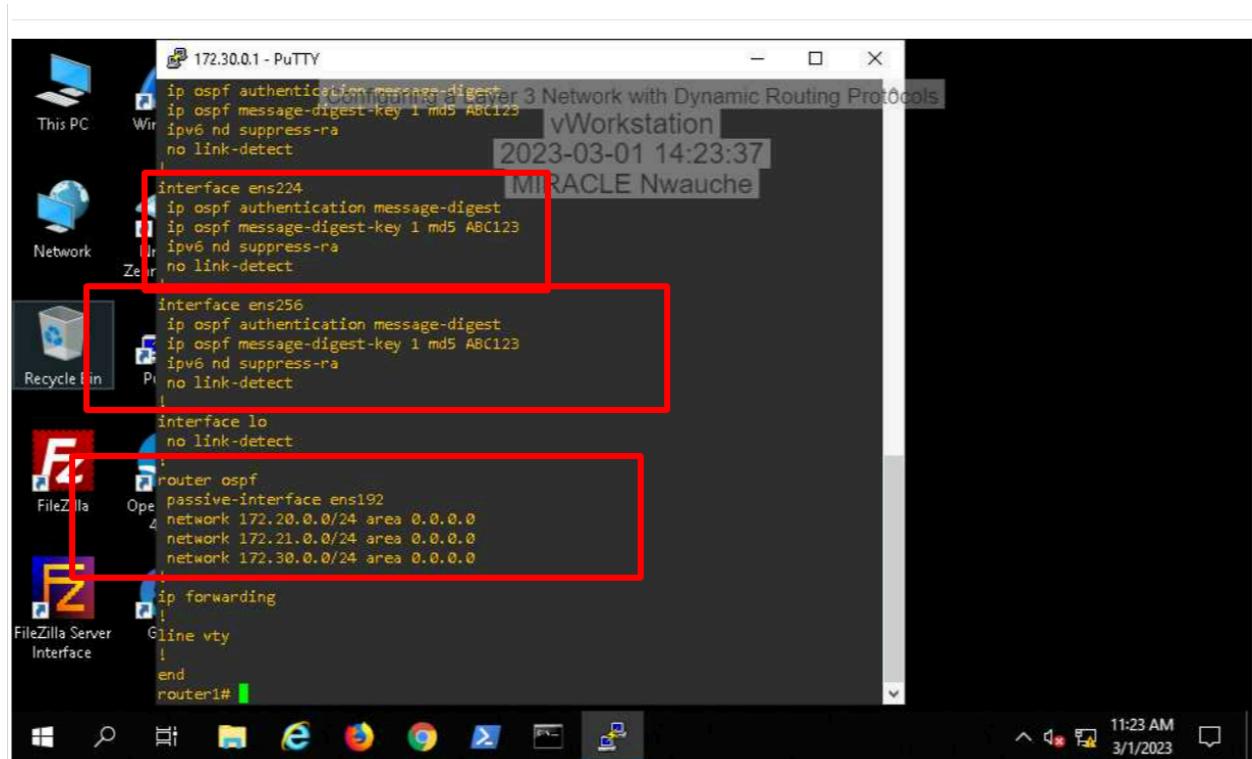


Figure 7, Section 1, Part 2: The reverse shutdown command on the puTTy device was executed. It involved re - configuring the interface ens256 command with the same commands following it as well. When you get to the last line of the command, the reverse was executed by *no shutdown*, the updated configuration table is shown at the bottom. Like the shutdown never even happened.

SECTION 2, Part 1: Configure OSPFv2 on the Routers

17. Make a screen capture showing the running OSPF configuration on router1.



```
ip ospf authentication message-digest
ip ospf message-digest-key 1 md5 ABC123
ipv6 nd suppress-ra
no link-detect

interface ens224
ip ospf authentication message-digest
ip ospf message-digest-key 1 md5 ABC123
ipv6 nd suppress-ra
no link-detect

interface ens256
ip ospf authentication message-digest
ip ospf message-digest-key 1 md5 ABC123
ipv6 nd suppress-ra
no link-detect

interface lo
no link-detect

router ospf
passive-interface ens192
network 172.20.0.0/24 area 0.0.0.0
network 172.21.0.0/24 area 0.0.0.0
network 172.30.0.0/24 area 0.0.0.0

ip forwarding

Gline vty
!
end
router1#
```

Figure 8, Section 2, Part 1: *ospf configuration*: Using many of the same commands to configure the router, I added more commands that were specific to the OSPF area itself, which in this case was area 0. The message digest keys are displayed in the routing table as well, one thing that sticks out is where the table says “no link detect.”

20. Make a screen capture showing the current OSPF routing table on router1.

```
172.30.0.1 - PuTTY
Configuring a Layer 3 Network with Dynamic Routing Protocols
Router ID 172.30.0.1, Network Type BROADCAST, Cost: 1
Transmit Delay is 1 sec, State DR, Priority 1
Designated Router (ID) 172.30.0.1, Interface Address 172.21.0.1
No backup designated router on this network
Multicast group memberships: OSPFAllRouters OSPFDesignatedRouters
Timer intervals configured, Hello 10s, Dead 40s, Wait 40s, Retransmit 5
Hello due in 1.976s
Neighbor Count is 0, Adjacent neighbor count is 0
lo is up
ifindex 1, MTU 65536 bytes, BW 0 Kbit <UP,LOOPBACK,RUNNING>
OSPF not enabled on this interface
router1# showip ospf route
*0.0.0.0/0 [10] area: 0.0.0.0
  via 172.20.0.1, 00:00:00, FastEthernet0/0
  via 172.21.0.1, 00:00:00, FastEthernet0/1
  via 172.30.0.1, 00:00:00, GigabitEthernet0/2
*172.20.0.0/24 [10] area: 0.0.0.0
  directly attached to ens224
*172.21.0.0/24 [10] area: 0.0.0.0
  directly attached to ens256
*172.30.0.0/24 [10] area: 0.0.0.0
  directly attached to ens192
router1#
```

Figure 9, Section 2, Part 2: *ospf routing table*: In this capture, the user is shown the OSPF routing table which contains some critical information for the router that it was configured to. The [10] shows the cost that the OSPF has configured for the network based on which route it should take. This number is derived from the bandwidth value.

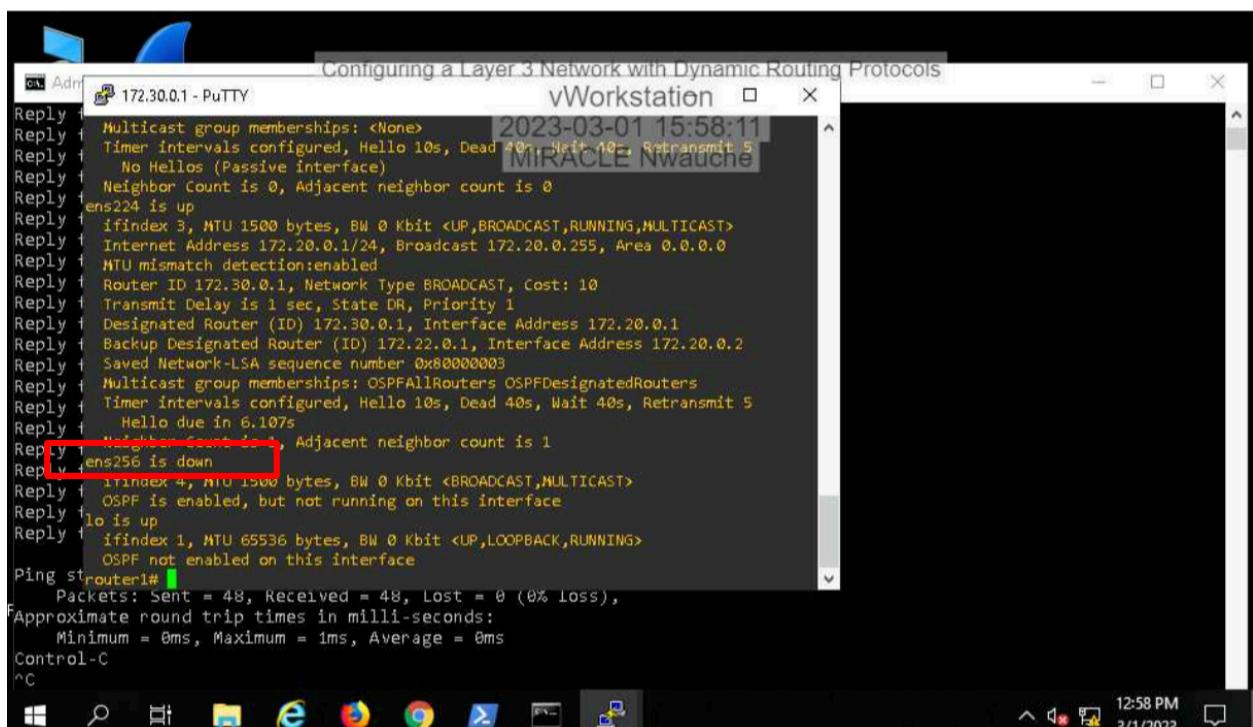
26. Make a screen capture showing the updated OSPF routing table on router1.

```
router1# show ip ospf route
OSPF network routing table
N 172.20.0.0/24 [10] area: 0.0.0.0
N 172.21.0.0/24 [10] area: 0.0.0.0
N 172.22.0.0/24 [20] area: 0.0.0.0
N 172.23.0.0/24 [20] area: 0.0.0.0
N 172.30.0.0/24 [10] area: 0.0.0.0
OSPF router routing table
OSPF external routing table
```

Figure 10, Section 2, Part 1: Here is the successful attachment of the routers together in the OSPF routing table. According to the network topology, this is how the network should look in the routing table, all the interface names and IP addresses are also stated in the table. Some of the bandwidth ([20]) lengths are now doubled which probably means they will not be considered the fastest route for the data.

Part 2: Test the OSPFv2 Configuration

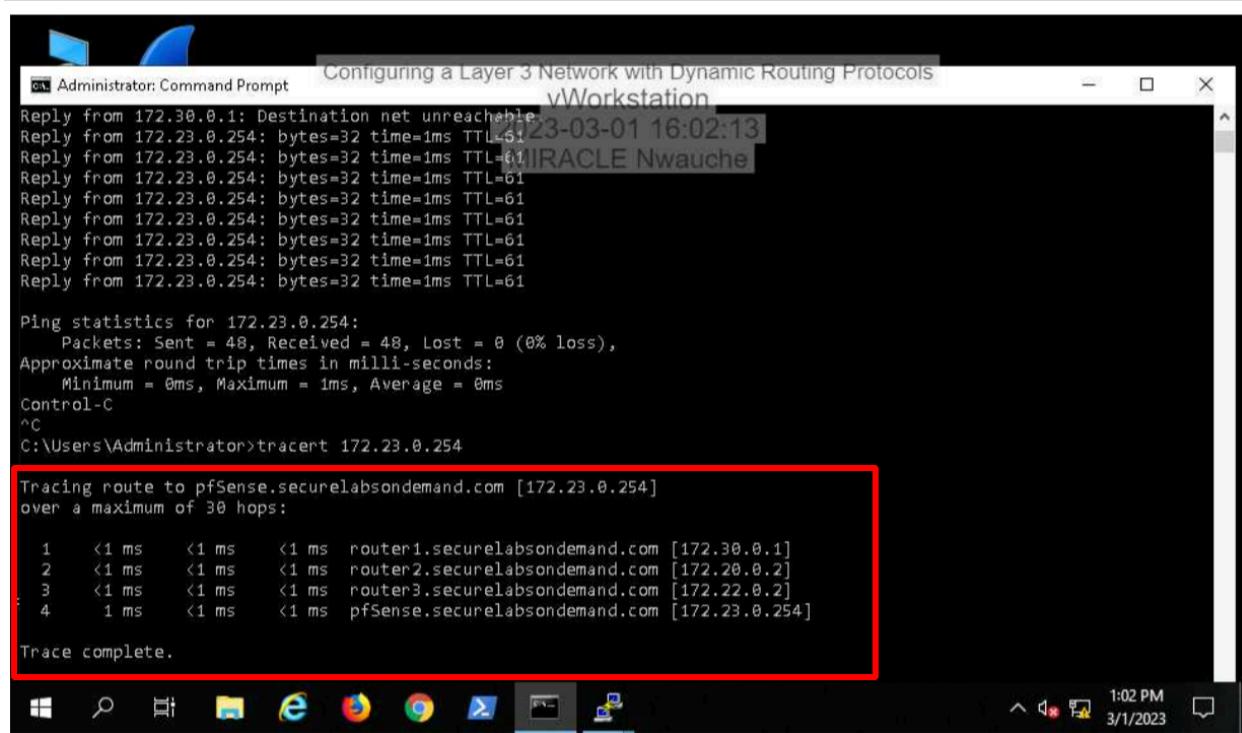
13. Make a screen capture showing that **ens256** is down per the OSPF interface output.



```
Configuring a Layer 3 Network with Dynamic Routing Protocols
vWorkstation 2023-03-01 15:58:11 MIRACLE Nwauche
Reply | Multicast group memberships: <None> 2023-03-01 15:58:11
Reply | Timer intervals configured, Hello 10s, Dead 40s, Wait 10s, Retransmit 5
Reply |     No Hellos (Passive interface)
Reply | Neighbor Count is 0, Adjacent neighbor count is 0
Reply | ens224 is up
Reply |     ifindex 3, MTU 1500 bytes, BW 0 Kbit <UP,BROADCAST,RUNNING,MULTICAST>
Reply |     Internet Address 172.20.0.1/24, Broadcast 172.20.0.255, Area 0.0.0.0
Reply |     MTU mismatch detection:enabled
Reply | Router ID 172.30.0.1, Network Type BROADCAST, Cost: 10
Reply | Transmit Delay is 1 sec, State DR, Priority 1
Reply | Designated Router (ID) 172.30.0.1, Interface Address 172.20.0.1
Reply | Backup Designated Router (ID) 172.22.0.1, Interface Address 172.20.0.2
Reply | Saved Network-LSA sequence number 0x80000003
Reply | Multicast group memberships: OSPFAllRouters OSPFDesignatedRouters
Reply | Timer intervals configured, Hello 10s, Dead 40s, Wait 40s, Retransmit 5
Reply |     Hello due in 6.107s
Reply |     Neighbor Count is 1, Adjacent neighbor count is 1
Reply | ens256 is down
Reply |     ifindex 4, MTU 1500 bytes, BW 0 Kbit <BROADCAST,MULTICAST>
Reply |     OSPF is enabled, but not running on this interface
Reply | lo is up
Reply |     ifindex 1, MTU 65536 bytes, BW 0 Kbit <UP,LOOPBACK,RUNNING>
Reply |     OSPF not enabled on this interface
Ping st<router1#>
Packets: Sent = 48, Received = 48, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
Control-C
^C 12:58 PM 3/1/2023
```

Figure 11, Section 2, Part 2: *ens256 is down* : Once prompted to log back into the router1, the user is supposed to terminate the connection between ens256 and the router in the OSPF interface. After shutting down the connection, you can see in the details after executing *show ip ospf interface* the table above shows “ens256 is down.”

16. Make a screen capture showing the traceroute path through router2.



The screenshot shows a Windows Command Prompt window with the title "Configuring a Layer 3 Network with Dynamic Routing Protocols". The command entered was "tracert 172.23.0.254". The output shows several "Destination net unreachable" messages from various routers. It then provides ping statistics for the destination IP. Finally, it performs a traceroute to "pfSense.securelabsondemand.com [172.23.0.254]" over 30 hops, listing four routers: router1.securelabsondemand.com, router2.securelabsondemand.com, router3.securelabsondemand.com, and pfSense.securelabsondemand.com. A red box highlights the traceroute results.

```
Administrator: Command Prompt          Configuring a Layer 3 Network with Dynamic Routing Protocols
v\Workstation
Reply from 172.30.0.1: Destination net unreachable.
Reply from 172.23.0.254: bytes=32 time=1ms TTL=61

Ping statistics for 172.23.0.254:
  Packets: Sent = 48, Received = 48, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
Control-C
^C
C:\Users\Administrator>tracert 172.23.0.254

Tracing route to pfSense.securelabsondemand.com [172.23.0.254]
over a maximum of 30 hops:
1  <1 ms    <1 ms    <1 ms  router1.securelabsondemand.com [172.30.0.1]
2  <1 ms    <1 ms    <1 ms  router2.securelabsondemand.com [172.20.0.2]
3  <1 ms    <1 ms    <1 ms  router3.securelabsondemand.com [172.22.0.2]
4  1 ms     <1 ms    <1 ms  pfSense.securelabsondemand.com [172.23.0.254]

Trace complete.

1:02 PM
3/1/2023
```

Figure 12, Section 2, Part 2: *traceroute*: In the command line prompt, I executed the command to configure the traceroute for the given network. The details shown in the highlighted area show the connection to the router2 device and router3 ensuing that device as well. It ranks them in order from the fastest route to the slowest, since the ens256 connection was terminated shortly before.

23. Make a screen capture showing the full routing table on router1.

```
Configuring a Layer 3 Network with Dynamic Routing Protocols
vWorkstation  □  X
This PC  172.30.0.1 - PuTTY  2023-03-01 16:08:25
N  172.30.0.0/24      via 172.21.0.2, ens256
[10] area: 0.0.0.0
directly attached to ens256
MIRACLE Nwauche

Network
OSPF router routing table
OSPF external routing table

router1# show ip route
Codes: K - kernel route, C - connected, S - static, R - RIP,
       O - OSPF, I - IS-IS, B - BGP, P - PIN, A - Babel,
       > - selected route, * - FIB route
C>* 127.0.0.8 is directly connected, lo
O 172.20.0.0/24 [110/10] is directly connected, ens224, 00:43:44
C>* 172.20.0.0/24 is directly connected, ens224
O 172.21.0.0/24 [110/10] is directly connected, ens256, 00:00:40
C>* 172.21.0.0/24 is directly connected, ens256
FileZillaO>* 172.22.0.0/24 [110/20] via 172.20.0.2, ens224, 00:00:32
          * via 172.21.0.2, ens256, 00:00:32
O>* 172.23.0.0/24 [110/20] via 172.21.0.2, ens256, 00:00:32
O 172.30.0.0/24 [110/10] is directly connected, ens192, 00:43:44
C>* 172.30.0.0/24 is directly connected, ens192
router1#
```

Figure 13, Section 2, Part 2: *show ip route*: I executed the command to reverse the shutdown of the device connected to ens256, after the route was restored I proceeded to open the routing table. From what it displayed, there were many connected ports and OSPF related ports on the table, including ens256.

Record the minimum OSPF cost needed for the router1 > router3 link to convince OSPF that this path is less efficient than the router1 > router2 > router3 path. **Explain** how you calculated this value.

The minimum cost for the router1 > router 3 link is [50] because if you add the bandwidth from the networks associated with router1 (172.20.0.0, 172.21.0.0, 172.30.0.0) those combine to [21] because each of their cost are [10] then you will have to add the [20] directly from router3 , where as if you connect it through router1 > router2 > router3, router 2 already includes all of those connections from router 3 in its OSPF path which is the same price and before the connection to the last port (172.30.0.0) in the table

```
172.30.0.1 - PuTTY
O>* 172.22.0.0/24 [110/20] via 172.20.0.2, ens224, 00:00:32
  *          via 172.21.0.2, ens256, 00:00:32
O>* 172.23.0.0/24 [110/20] via 172.21.0.2, ens256, 00:00:32
O  172.30.0.0/24 [110/10] is directly connected, ens192, 00:43:44
C>* 172.30.0.0/24 is directly connected, ens192
router1# show ip ospf route
=====
OSPF network routing table =====
N  172.20.0.0/24      [10] area: 0.0.0.0
  ↓
N  172.21.0.0/24      [10] area: 0.0.0.0
  ↓
N  172.22.0.0/24      [20] area: 0.0.0.0
  ↓
  router 3 ←
  via 172.20.0.2, ens224
  via 172.21.0.2, ens256
  ↓
N  172.23.0.0/24      [20] area: 0.0.0.0
  via 172.21.0.2, ens256
N  172.30.0.0/24      [10] area: 0.0.0.0
  directly attached to ens192
=====
OSPF router routing table =====
=====
OSPF external routing table =====
router1#
```

Make a screen capture showing the new cost assignments on router1's OSPF routes.

This PC 172.30.0.1 - PuTTY

Configuring a Layer 3 Network with Dynamic Routing Protocols.

vWorkstation 2023-03-01 17:23:08 MIRACLE Nwauche

```
router1# write
Building Configuration...
Configuration saved to /etc/quagga/zebra.conf
Configuration saved to /etc/quagga/ospfd.conf
[OK]

Network
router1# show ip ospf route
=====
N 172.20.0.0/24      [10] area: 0.0.0.0
                           directly attached to ens224
N 172.21.0.0/24      [10] area: 0.0.0.0
                           directly attached to ens256
Recycle B             [20] area: 0.0.0.0
                           via 172.20.0.2, ens224
                           via 172.21.0.2, ens256
N 172.23.0.0/24      [20] area: 0.0.0.0
                           via 172.21.0.2, ens256
N 172.30.0.0/24      [21] area: 0.0.0.0
                           directly attached to ens192
FileZilla
```

===== OSPF router routing table =====

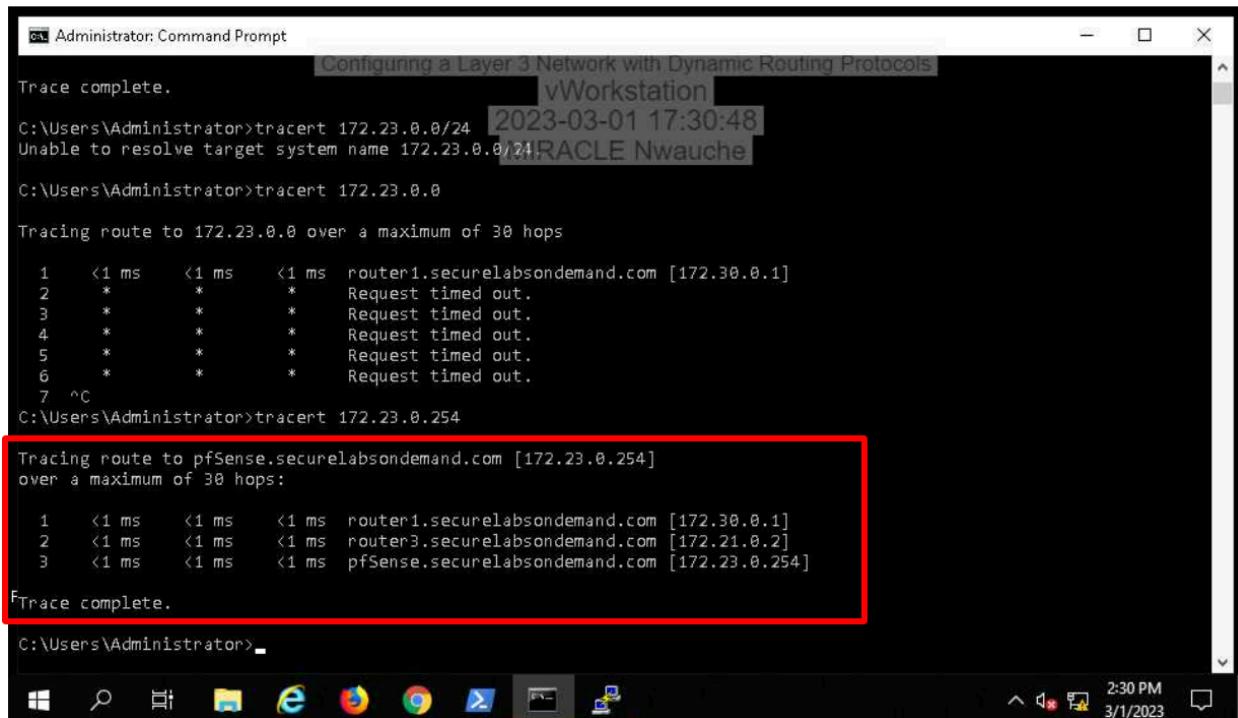
===== OSPF external routing table =====

FileZilla Server Interface GNS3 WinSCP Acrobat Reader DC Packet Sender OSPFd

2:23 PM 3/1/2023

Figure 14, Section 3, Part 2: *ospf cost*: Here is the new OSPF cost I configured into the ip OSPF route in the table above. The command I used to change the cost was *ip ospf cost 21*. This changed the cost in the table, which would inevitably convince the user to use a different route for the packets to be transferred to.

Make a screen capture showing the new path taken to reach the pfSense appliance.



```
Administrator: Command Prompt
Configuring a Layer 3 Network with Dynamic Routing Protocols
Trace complete.

C:\Users\Administrator>tracert 172.23.0.0/24          2023-03-01 17:30:48
Unable to resolve target system name 172.23.0.0/24 [ORACLE Nwauche]

C:\Users\Administrator>tracert 172.23.0.0

Tracing route to 172.23.0.0 over a maximum of 30 hops

 1  <1 ms    <1 ms    <1 ms  router1.securelabsondemand.com [172.30.0.1]
 2  *         *         *         Request timed out.
 3  *         *         *         Request timed out.
 4  *         *         *         Request timed out.
 5  *         *         *         Request timed out.
 6  *         *         *         Request timed out.
 7  ^C

C:\Users\Administrator>tracert 172.23.0.254

Tracing route to pfSense.securelabsondemand.com [172.23.0.254]
over a maximum of 30 hops:

 1  <1 ms    <1 ms    <1 ms  router1.securelabsondemand.com [172.30.0.1]
 2  <1 ms    <1 ms    <1 ms  router3.securelabsondemand.com [172.21.0.2]
 3  <1 ms    <1 ms    <1 ms  pfSense.securelabsondemand.com [172.23.0.254]

Trace complete.

C:\Users\Administrator>
```

Figure 14, Section 3, Part 3: *traceroute update*: Here is when we configure the traceroute for the OSPF and change it to the longer route after changing the cost. As you can see, instead of the previous route it took (found in the earlier captures) it would take this route, making the packets take longer in the transfer. Then after router1 > router3 the pfSense is next in line.