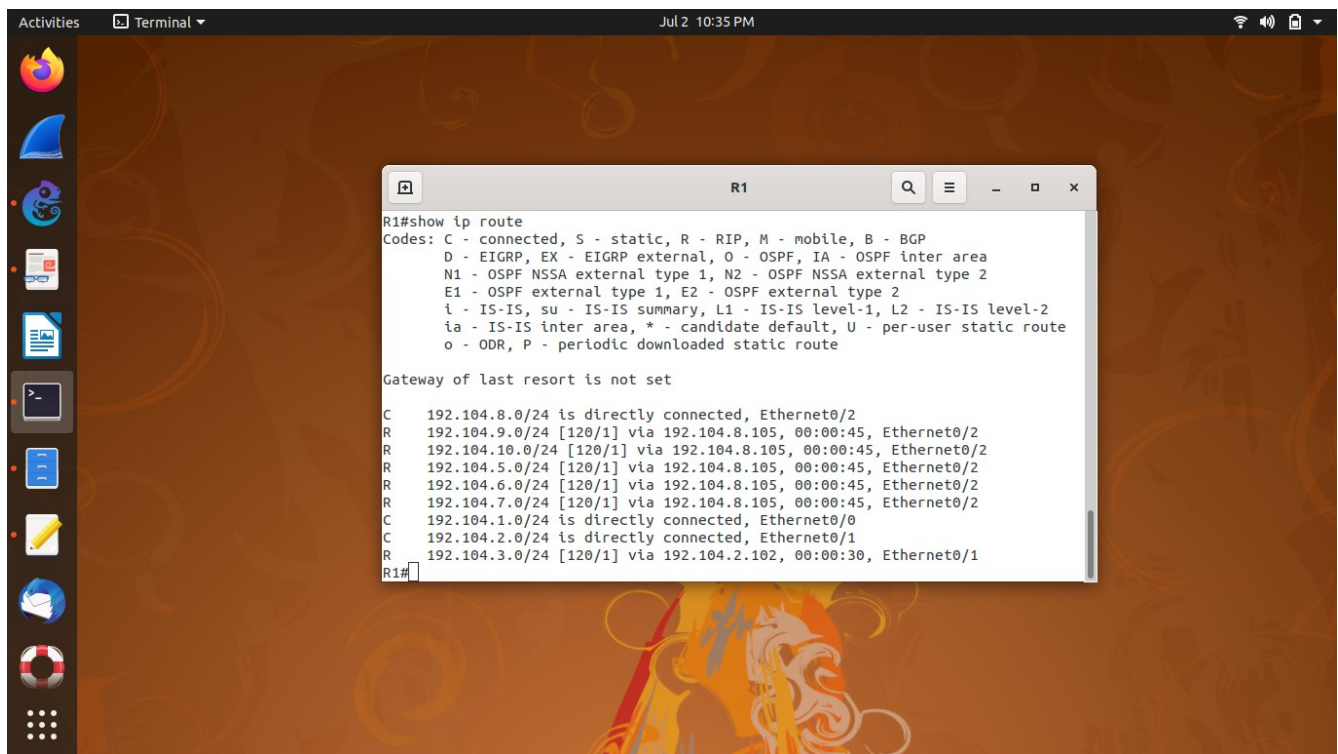


Show ip route :-

1) R1 :



```
R1#show ip route
Codes: 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
       I - IS-IS, su - IS-IS summary, 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

C    192.104.8.0/24 is directly connected, Ethernet0/2
R    192.104.9.0/24 [120/1] via 192.104.8.105, 00:00:45, Ethernet0/2
R    192.104.10.0/24 [120/1] via 192.104.8.105, 00:00:45, Ethernet0/2
R    192.104.5.0/24 [120/1] via 192.104.8.105, 00:00:45, Ethernet0/2
R    192.104.6.0/24 [120/1] via 192.104.8.105, 00:00:45, Ethernet0/2
R    192.104.7.0/24 [120/1] via 192.104.8.105, 00:00:45, Ethernet0/2
C    192.104.1.0/24 is directly connected, Ethernet0/0
C    192.104.2.0/24 is directly connected, Ethernet0/1
R    192.104.3.0/24 [120/1] via 192.104.2.102, 00:00:30, Ethernet0/1
R1#
```

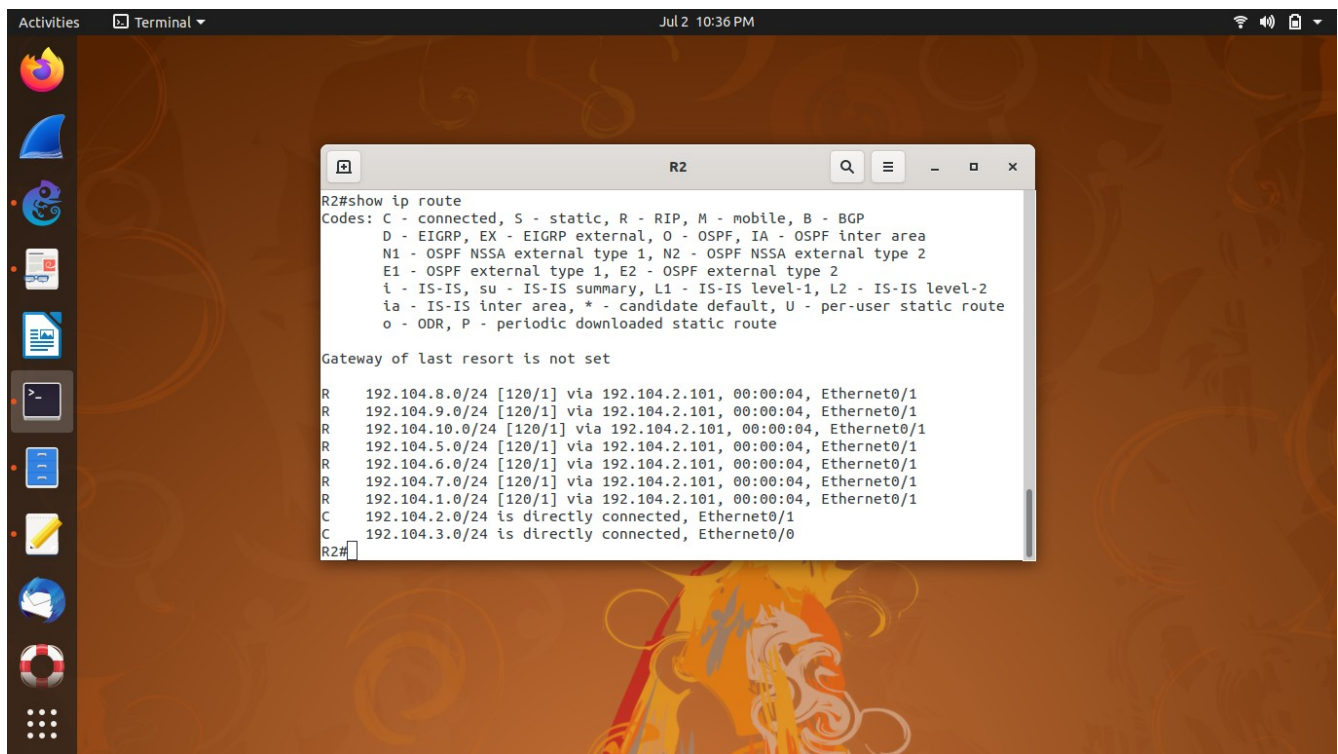
R1 is directly connected to PC1, R2, R5 via 192.104.1.101, 192.104.2.101 and 192.104.8.101 respectively.

I'll refer network 192.104.x.10y as network x.

Since the link of R2-R3 is shutdown, the only path to reach networks 5,6,7,9,10 is via 8, which passes through R5, and the only way to reach 3 is via 2, which passes through R2.

Thus, while earlier, R1 had 2 paths to every other network in the figure, but now, there is only 1 path to reach each network.

2) R2:

A screenshot of a Linux desktop environment. The desktop background is a dark orange/brown pattern. On the left side, there is a vertical dock with several application icons: a web browser, a file manager, a terminal, and others. The top of the screen shows a panel with 'Activities', 'Terminal', and the date/time 'Jul 2 10:36 PM'. A terminal window titled 'R2' is open in the center, displaying the output of the 'show ip route' command. The output shows a list of routes for various networks, all learned via Ethernet0/1 from the neighbor 192.104.2.101. The routes include 192.104.8.0/24, 192.104.9.0/24, 192.104.10.0/24, 192.104.5.0/24, 192.104.6.0/24, 192.104.7.0/24, 192.104.1.0/24, 192.104.2.0/24, and 192.104.3.0/24. The terminal also shows a legend for route codes and a message that the gateway of last resort is not set.

```
R2#show ip route
Codes: 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
        I - IS-IS, su - IS-IS summary, 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

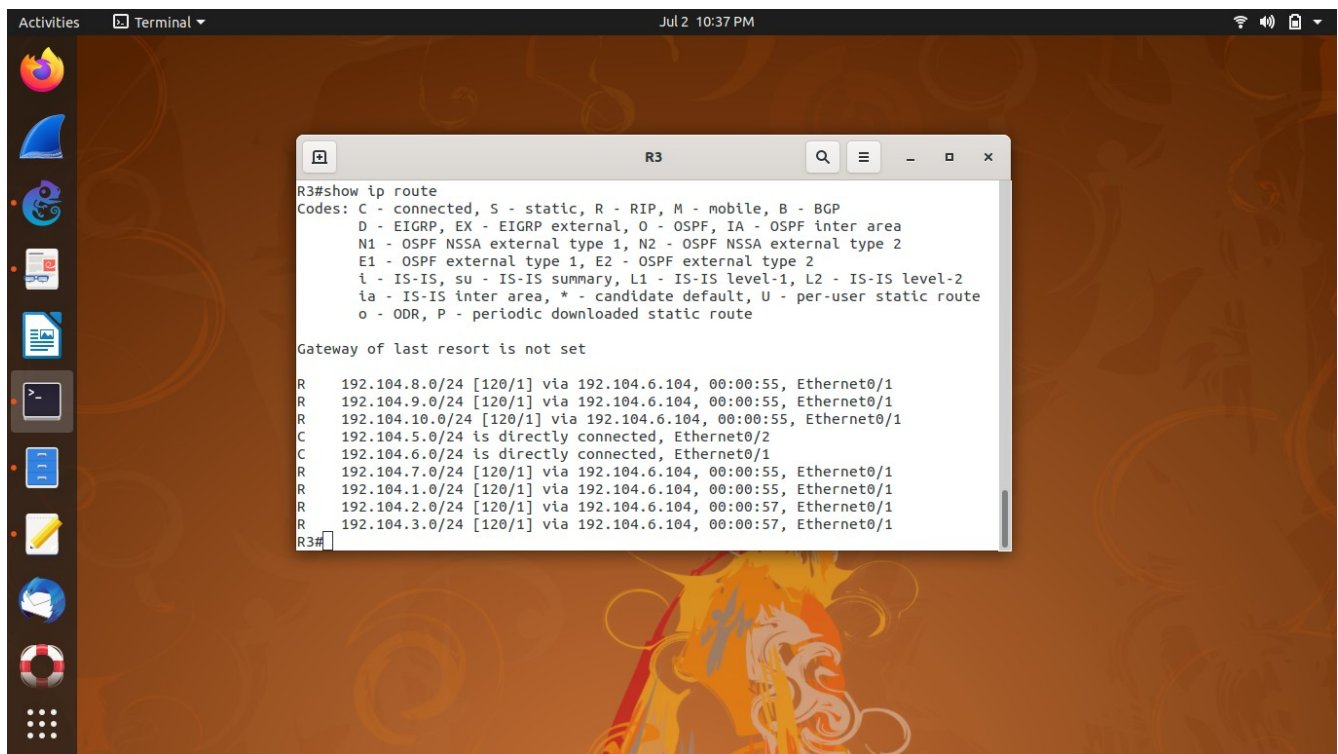
R    192.104.8.0/24 [120/1] via 192.104.2.101, 00:00:04, Ethernet0/1
R    192.104.9.0/24 [120/1] via 192.104.2.101, 00:00:04, Ethernet0/1
R    192.104.10.0/24 [120/1] via 192.104.2.101, 00:00:04, Ethernet0/1
R    192.104.5.0/24 [120/1] via 192.104.2.101, 00:00:04, Ethernet0/1
R    192.104.6.0/24 [120/1] via 192.104.2.101, 00:00:04, Ethernet0/1
R    192.104.7.0/24 [120/1] via 192.104.2.101, 00:00:04, Ethernet0/1
R    192.104.1.0/24 [120/1] via 192.104.2.101, 00:00:04, Ethernet0/1
C    192.104.2.0/24 is directly connected, Ethernet0/1
C    192.104.3.0/24 is directly connected, Ethernet0/0
R2#
```

R2 is directly connected to PC2, R1 via 192.104.3.102, 192.104.2.102 respectively.
I'll refer network 192.104.x.10y as network x.

Since the link of R2-R3 is shutdown, the only path to reach networks 1,2,5,6,7,8,9,10 is via 2, which passes through R1.

Thus, while earlier, R2 could reach networks 5,6,7,9 via 4, now, it can reach all the other networks via only 1 path, passing through 2. This is because network 4 is shutdown.

3) R3:



```
Activities Terminal Jul 2 10:37 PM
R3#show ip route
Codes: 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
       i - IS-IS, su - IS-IS summary, 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

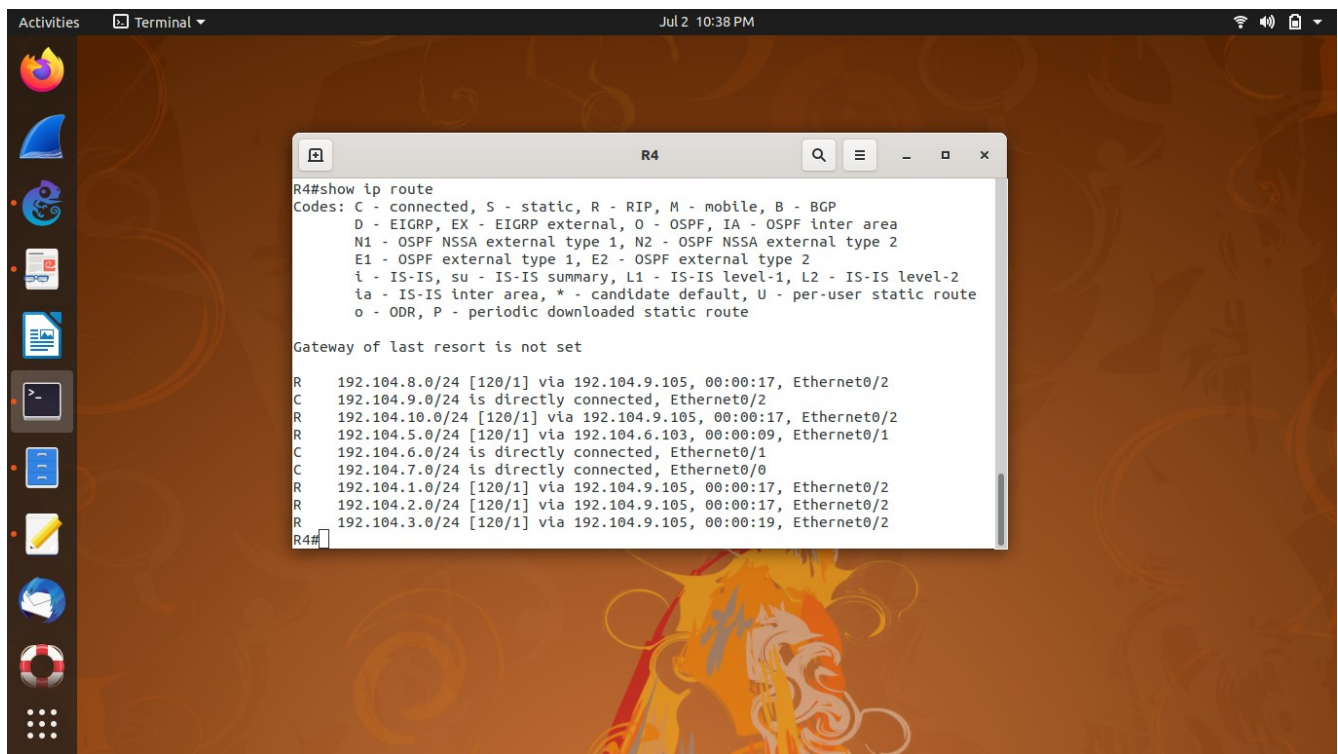
R    192.104.8.0/24 [120/1] via 192.104.6.104, 00:00:55, Ethernet0/1
R    192.104.9.0/24 [120/1] via 192.104.6.104, 00:00:55, Ethernet0/1
R    192.104.10.0/24 [120/1] via 192.104.6.104, 00:00:55, Ethernet0/1
C    192.104.5.0/24 is directly connected, Ethernet0/2
C    192.104.6.0/24 is directly connected, Ethernet0/1
R    192.104.7.0/24 [120/1] via 192.104.6.104, 00:00:55, Ethernet0/1
R    192.104.1.0/24 [120/1] via 192.104.6.104, 00:00:55, Ethernet0/1
R    192.104.2.0/24 [120/1] via 192.104.6.104, 00:00:57, Ethernet0/1
R    192.104.3.0/24 [120/1] via 192.104.6.104, 00:00:57, Ethernet0/1
R3#
```

R3 is directly connected to PC3, R4 via 192.104.5.103, 192.104.6.103 respectively.
I'll refer network 192.104.x.10y as network x.

Since the link of R2-R3 is shutdown, the only path to reach networks 1,2,3,7,8,9,10 is via 6, which passes through R4.

Thus, while earlier, R3 could reach networks 1,2,3,8,10 via 4, now, it can reach all the other networks via only 1 path, passing through 6. This is because network 4 is shutdown. Thus, there is only 1 path to all networks, as loop has been removed.

4) R4:



```
R4#show ip route
Codes: 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
       I - IS-IS, su - IS-IS summary, 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

R    192.104.8.0/24 [120/1] via 192.104.9.105, 00:00:17, Ethernet0/2
C    192.104.9.0/24 is directly connected, Ethernet0/2
R    192.104.10.0/24 [120/1] via 192.104.9.105, 00:00:17, Ethernet0/2
R    192.104.5.0/24 [120/1] via 192.104.6.103, 00:00:09, Ethernet0/1
C    192.104.6.0/24 is directly connected, Ethernet0/1
C    192.104.7.0/24 is directly connected, Ethernet0/0
R    192.104.1.0/24 [120/1] via 192.104.9.105, 00:00:17, Ethernet0/2
R    192.104.2.0/24 [120/1] via 192.104.9.105, 00:00:17, Ethernet0/2
R    192.104.3.0/24 [120/1] via 192.104.9.105, 00:00:19, Ethernet0/2
R4#
```

R4 is directly connected to PC4, R3, R5 via 192.104.7.104, 192.104.6.104 and 192.104.9.104 respectively.

I'll refer network 192.104.x.10y as network x.

Since the link of R2-R3 is shutdown, the only path to reach networks 1,2,3,8,10 is via 9, which passes through R5, and the only path to reach network 5 is via 6, which passes through R3.

Thus, while earlier, R4 could reach networks 1,2,3,8,4,5 via 6, now, the only network it connects to via 6, is network 5. Earlier, networks 8,10 were reached via 9, while now, the networks 1,2,3,8,10 can be reached via 9. This is because network 4 is shutdown. Thus, there is only 1 path to all networks, as loop has been removed.

5) R5:

```
R5#show ip route
Codes: 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
       i - IS-IS, su - IS-IS summary, 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

C    192.104.8.0/24 is directly connected, Ethernet0/1
C    192.104.9.0/24 is directly connected, Ethernet0/2
C    192.104.10.0/24 is directly connected, Ethernet0/0
R    192.104.5.0/24 [120/1] via 192.104.9.104, 00:00:09, Ethernet0/2
R    192.104.6.0/24 [120/1] via 192.104.9.104, 00:00:09, Ethernet0/2
R    192.104.7.0/24 [120/1] via 192.104.9.104, 00:00:09, Ethernet0/2
R    192.104.1.0/24 [120/1] via 192.104.8.101, 00:00:05, Ethernet0/1
R    192.104.2.0/24 [120/1] via 192.104.8.101, 00:00:05, Ethernet0/1
R    192.104.3.0/24 [120/1] via 192.104.8.101, 00:00:08, Ethernet0/1
R5#
```

R5 is directly connected to PC5, R1, R4 via 192.104.10.105, 192.104.8.105 and 192.104.9.105 respectively.

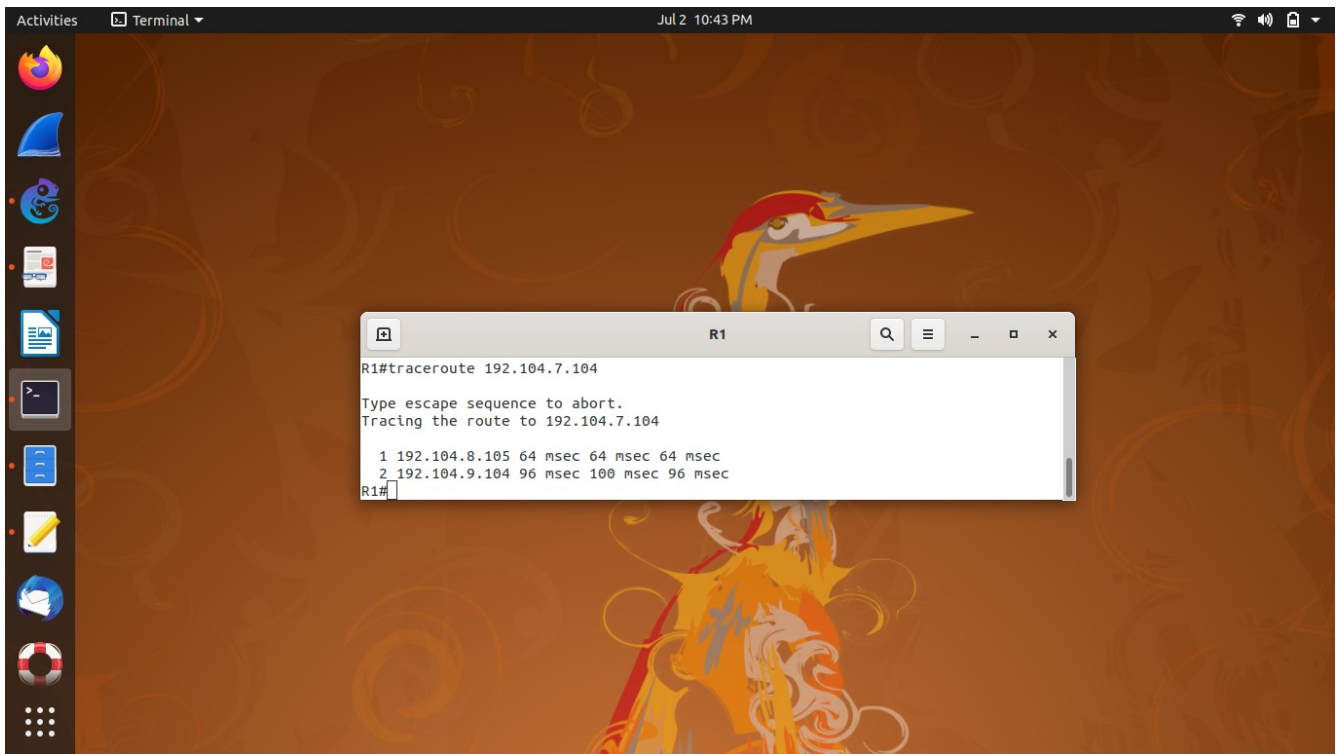
I'll refer network 192.104.x.10y as network x.

Since the link of R2-R3 is shutdown, the only path to reach networks 5,6,7 is via 9, which passes through R4, and the only path to reach networks 1,2,3 is via 8, which passes through R1.

Thus, while earlier, R5 could reach networks 1,2,3,4,5,6,7 via 9, now, the only networks it connects to via 9 are networks 5,6,7. Earlier, networks 1,2 were reached via 8, while now, the networks 1,2,3 can be reached via 8. This is because network 4 is shutdown. Thus, there is only 1 path to all networks, as loop has been removed.

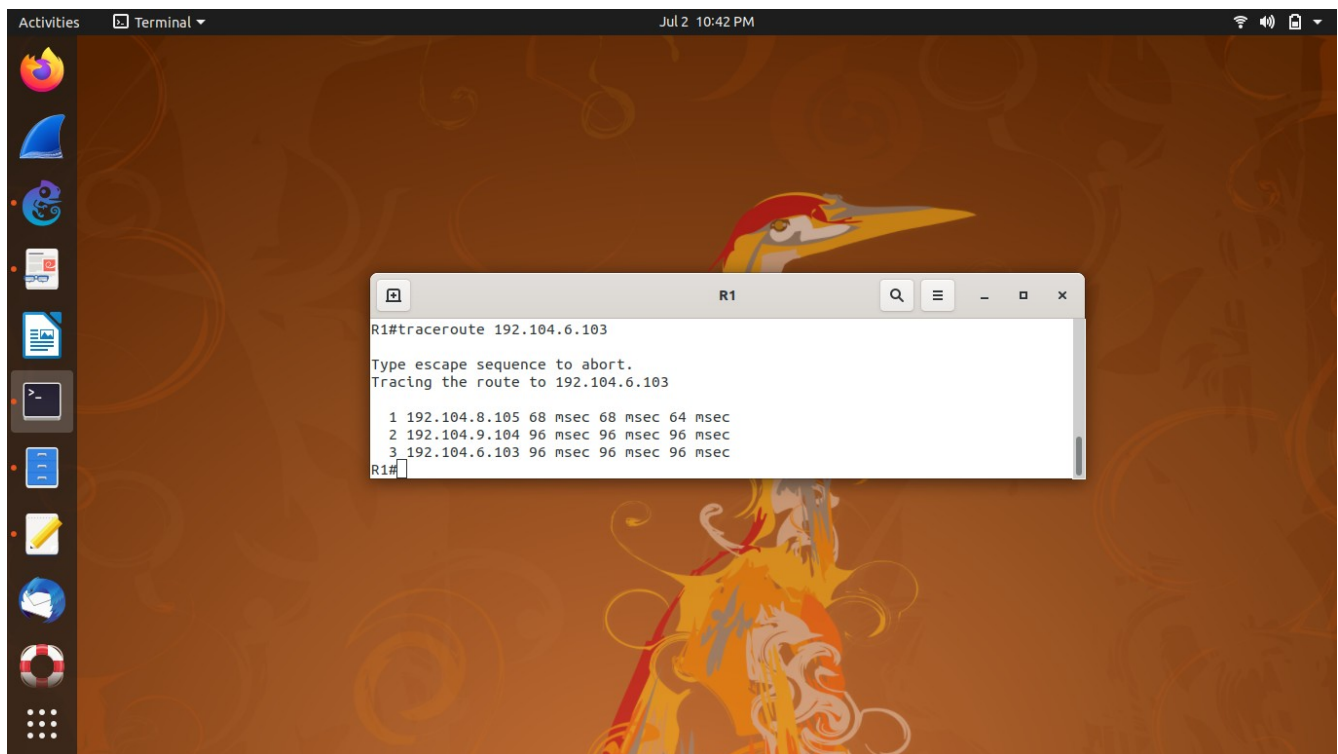
Traceroute :-

1) From R1 to R4's 192.104.7.104 :-



As the path to reach R4, via 192.104.2.102, 192.104.4.103, 192.104.6.104 is broken due to 192.104.4.103 not there(that is, network 4 is shutdown), so, the only other path is through 192.104.8.105 and then, through 192.104.9.104, to reach R4, which is directly connected to 192.104.7.104.

2) From R1 to 192.104.6.103:

A screenshot of a Linux desktop environment. The desktop background is a brownish-orange color with a stylized woodpecker illustration. On the left side, there is a vertical dock with several application icons. At the top, a panel shows 'Activities', 'Terminal', and the date 'Jul 2 10:42 PM'. A terminal window titled 'R1' is open in the center, displaying the output of a traceroute command. The output shows three hops: 1 to 192.104.8.105, 2 to 192.104.9.104, and 3 to 192.104.6.103, with associated latency values in milliseconds.

```
R1#traceroute 192.104.6.103
Type escape sequence to abort.
Tracing the route to 192.104.6.103
 0 192.104.8.105 68 msec 68 msec 64 msec
 1 192.104.9.104 96 msec 96 msec 96 msec
 2 192.104.6.103 96 msec 96 msec 96 msec
R1#
```

As the path to reach R3, via 192.104.2.102, 192.104.4.103 is broken due to 192.104.4.103 not there(that is, network 4 is shutdown), so, the only other path is through 192.104.8.105 and then, through 192.104.9.104, and then, through 192.104.6.103 to reach R3. Thus, this is a different path of 3 steps than previous assignment, which used 2 steps to reach 192.104.6.103 via network 2.