Assignment – 2

Given Target Network: -

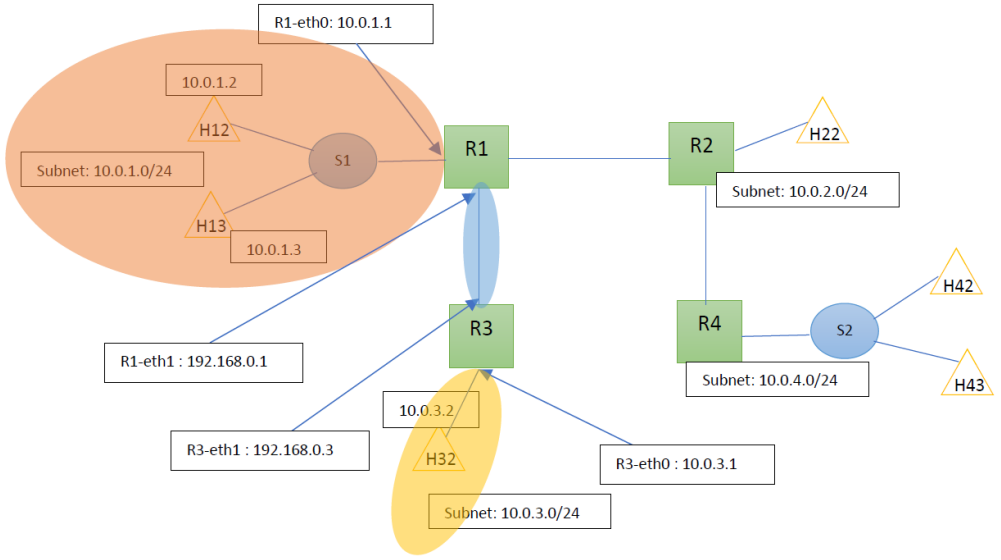

Figure 1- Given Target Network

After assigning suitable IP addresses, our target network looks like this: -

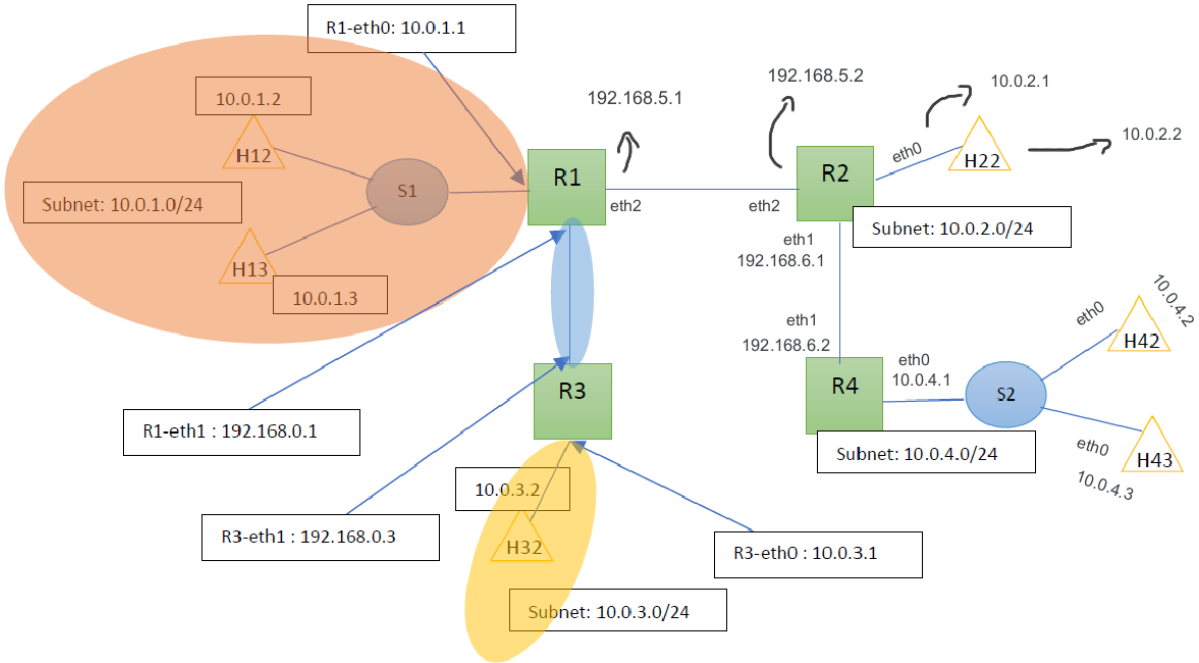

Figure 2 - Modified Target Network

Output: -

```
┌─[user@parrot]─[~/SDN_Assignment/Assignment_2]
└──╼ $sudo python3 assignment_2.py
mininet> pingall
*** Ping: testing ping reachability
h12 -> h13 h22 h32 h42 h43 r1 r2 r3 r4
h13 -> h12 h22 h32 h42 h43 r1 r2 r3 r4
h22 -> h12 h13 h32 h42 h43 r1 r2 r3 r4
h32 -> h12 h13 h22 h42 h43 r1 r2 r3 r4
h42 -> h12 h13 h22 h32 h43 r1 r2 r3 r4
h43 -> h12 h13 h22 h32 h42 r1 r2 r3 r4
r1 -> h12 h13 h22 h32 X X r2 r3 X
r2 -> h12 h13 h22 X h42 h43 r1 X r4
r3 -> h12 h13 X h32 X X r1 X X
r4 -> X X h22 X h42 h43 X r2 X
*** Results: 16% dropped (75/90 received)
mininet>
```

Figure 3 - pingall (part1)

```
Parrot Terminal
File  Edit  View  Search  Terminal  Help
mininet> h12 traceroute h43
traceroute to 10.0.4.3 (10.0.4.3), 30 hops max, 60 byte packets
 1  10.0.1.1 (10.0.1.1)  1.166 ms  0.997 ms  0.986 ms
 2  192.168.5.2 (192.168.5.2)  1.029 ms  1.052 ms  1.024 ms
 3  192.168.6.2 (192.168.6.2)  1.175 ms  1.174 ms  1.152 ms
 4  10.0.4.3 (10.0.4.3)  1.698 ms  1.698 ms  1.689 ms
mininet>
```

Figure 4 - h12 traceroute h23

```
mininet> h32 traceroute h22
traceroute to 10.0.2.2 (10.0.2.2), 30 hops max, 60 byte packets
 1  10.0.3.1 (10.0.3.1)  0.028 ms  0.019 ms  0.002 ms
 2  192.168.0.1 (192.168.0.1)  0.012 ms  0.005 ms  0.004 ms
 3  192.168.5.2 (192.168.5.2)  0.012 ms  0.006 ms  0.005 ms
 4  10.0.2.2 (10.0.2.2)  0.012 ms  0.009 ms  0.006 ms
mininet>
```

Figure 5 - h32 traceroute h22

```
Parrot Terminal
File  Edit  View  Search  Terminal  Help
mininet> h22 traceroute h32
traceroute to 10.0.3.2 (10.0.3.2), 30 hops max, 60 byte packets
 1  10.0.2.1 (10.0.2.1)  0.024 ms  0.004 ms  0.003 ms
 2  192.168.5.1 (192.168.5.1)  0.010 ms  0.004 ms  0.004 ms
 3  192.168.0.3 (192.168.0.3)  0.012 ms  0.005 ms  0.005 ms
 4  10.0.3.2 (10.0.3.2)  0.012 ms  0.007 ms  0.007 ms
mininet>
```

Figure 6 - h22 traceroute h32

```
File  Edit  View  Search  Terminal  Help
┌─[user@parrot]─[~/SDN_Assignment/Assignment_2]
└──╼ $sudo python3 assignment_2_part2.py
mininet> pingall
*** Ping: testing ping reachability
h12 -> h13 X h32 h42 h43 r1 r2 r3 r4
h13 -> h12 h22 h32 h42 h43 r1 r2 r3 r4
h22 -> X h13 h32 h42 h43 r1 r2 r3 r4
h32 -> h12 h13 h22 h42 h43 r1 r2 r3 r4
h42 -> h12 h13 h22 h32 h43 r1 r2 r3 r4
h43 -> h12 h13 h22 h32 h42 r1 r2 r3 r4
r1 -> h12 h13 h22 h32 X X r2 r3 X
r2 -> h12 h13 h22 X h42 h43 r1 X r4
r3 -> h12 h13 X h32 X X r1 X X
r4 -> X X h22 X h42 h43 X r2 X
*** Results: 18% dropped (73/90 received)
mininet>
```

Figure 7 - pingall (part 2)

Notice here that h12 is not able to ping h22.

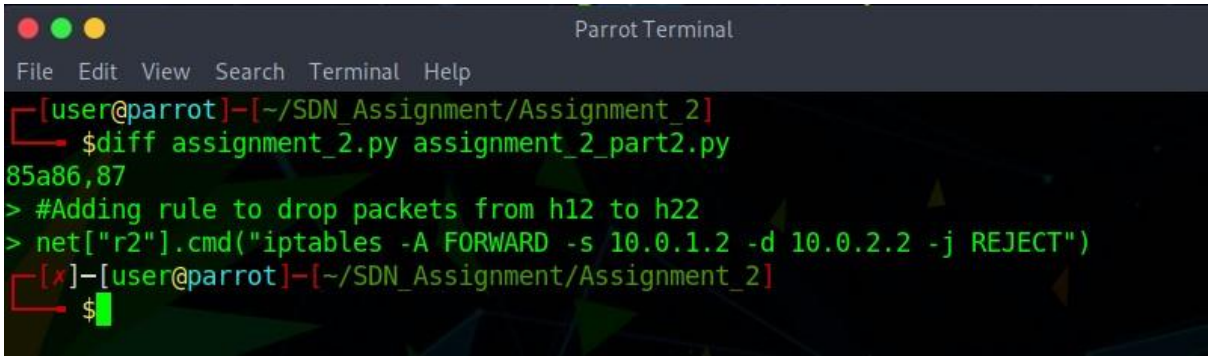

Figure 8 - diff between part 1 and part 2