

Part 1: Hijacking

After giving the IP addresses to **h0** and **r1**, and announcing the network on **r1**, the following output is obtained on routers **r1-r5**:

```
r1 ip route list
```

```
10.0.1.0/24 dev r1-eth2 proto kernel scope link src 10.0.1.1
10.0.2.0/24 via 10.0.1.2 dev r1-eth2 proto zebra metric 20
10.0.3.0/24 via 10.0.1.2 dev r1-eth2 proto zebra metric 20
10.0.4.0/24 via 10.0.1.2 dev r1-eth2 proto zebra metric 20
10.0.10.0/24 dev r1-eth0 proto kernel scope link src 10.0.10.1
10.0.20.0/24 via 10.0.1.2 dev r1-eth2 proto zebra metric 20
10.0.30.0/24 via 10.0.1.2 dev r1-eth2 proto zebra metric 20
10.0.40.0/24 via 10.0.1.2 dev r1-eth2 proto zebra metric 20
10.0.50.0/24 dev r1-eth1 proto kernel scope link src 10.0.50.1
```

```
r2 ip route list
```

```
10.0.1.0/24 dev r2-eth1 proto kernel scope link src 10.0.1.2
10.0.2.0/24 dev r2-eth2 proto kernel scope link src 10.0.2.1
10.0.3.0/24 via 10.0.2.2 dev r2-eth2 proto zebra metric 20
10.0.4.0/24 via 10.0.2.2 dev r2-eth2 proto zebra metric 20
10.0.10.0/24 via 10.0.1.1 dev r2-eth1 proto zebra metric 20
10.0.20.0/24 dev r2-eth0 proto kernel scope link src 10.0.20.1
10.0.30.0/24 via 10.0.2.2 dev r2-eth2 proto zebra metric 20
10.0.40.0/24 via 10.0.2.2 dev r2-eth2 proto zebra metric 20
10.0.50.0/24 via 10.0.1.1 dev r2-eth1 proto zebra metric 20
```

```
r3 ip route list
```

```
10.0.1.0/24 via 10.0.2.1 dev r3-eth1 proto zebra metric 20
10.0.2.0/24 dev r3-eth1 proto kernel scope link src 10.0.2.2
10.0.3.0/24 dev r3-eth2 proto kernel scope link src 10.0.3.1
10.0.4.0/24 via 10.0.3.2 dev r3-eth2 proto zebra metric 20
10.0.10.0/24 via 10.0.2.1 dev r3-eth1 proto zebra metric 20
10.0.20.0/24 via 10.0.2.1 dev r3-eth1 proto zebra metric 20
10.0.30.0/24 dev r3-eth0 proto kernel scope link src 10.0.30.1
10.0.40.0/24 via 10.0.3.2 dev r3-eth2 proto zebra metric 20
10.0.50.0/24 via 10.0.3.2 dev r3-eth2 proto zebra metric 20
```

```
r4 ip route list
```

```
10.0.1.0/24 via 10.0.3.1 dev r4-eth1 proto zebra metric 20
10.0.2.0/24 via 10.0.3.1 dev r4-eth1 proto zebra metric 20
10.0.3.0/24 dev r4-eth1 proto kernel scope link src 10.0.3.2
10.0.4.0/24 dev r4-eth2 proto kernel scope link src 10.0.4.1
10.0.10.0/24 via 10.0.3.1 dev r4-eth1 proto zebra metric 20
10.0.20.0/24 via 10.0.3.1 dev r4-eth1 proto zebra metric 20
10.0.30.0/24 via 10.0.3.1 dev r4-eth1 proto zebra metric 20
10.0.40.0/24 dev r4-eth0 proto kernel scope link src 10.0.40.1
10.0.50.0/24 via 10.0.4.2 dev r4-eth2 proto zebra metric 20
```

```
r5 ip route list
10.0.1.0/24 via 10.0.4.1 dev r5-eth1 proto zebra metric 20
10.0.2.0/24 via 10.0.4.1 dev r5-eth1 proto zebra metric 20
10.0.3.0/24 via 10.0.4.1 dev r5-eth1 proto zebra metric 20
10.0.4.0/24 dev r5-eth1 proto kernel scope link src 10.0.4.2
10.0.10.0/24 via 10.0.4.1 dev r5-eth1 proto zebra metric 20
10.0.20.0/24 via 10.0.4.1 dev r5-eth1 proto zebra metric 20
10.0.30.0/24 via 10.0.4.1 dev r5-eth1 proto zebra metric 20
10.0.40.0/24 via 10.0.4.1 dev r5-eth1 proto zebra metric 20
10.0.50.0/24 dev r5-eth0 proto kernel scope link src 10.0.50.1
```

From the output, **r1** and **r2** can access **10.0.50.0/24** through their **eth1** interfaces. While **r3**, **r4** and **r5** are using the old path, which is through **eth2** interfaces. So, half of the internet is hijacked.

Part 2: BGP Anycast

From the output, **r1** is accessing the address **10.0.50.10** directly, which is **h0**:

```
r1 traceroute 10.0.50.10
traceroute to 10.0.50.10 (10.0.50.10), 30 hops max, 60 byte packets
1 10.0.50.10 (10.0.50.10)  0.051 ms  0.023 ms  0.052 ms
```

r2 is using the route through **r1** to access **10.0.50.10** address, which is **h0**:

```
r2 traceroute 10.0.50.10
traceroute to 10.0.50.10 (10.0.50.10), 30 hops max, 60 byte packets
1 10.0.1.1 (10.0.1.1)  0.048 ms  0.022 ms  0.019 ms
2 10.0.50.10 (10.0.50.10)  0.040 ms  0.033 ms  0.032 ms
```

r3 is using the route through **r4** and then **r5** to access the **10.0.50.10** address, which is **h5**:

```
r3 traceroute 10.0.50.10
```

```
traceroute to 10.0.50.10 (10.0.50.10), 30 hops max, 60 byte packets
```

```
1 10.0.3.2 (10.0.3.2)  0.047 ms  0.021 ms  0.020 ms
```

```
2 10.0.4.2 (10.0.4.2)  0.035 ms  0.029 ms  0.030 ms
```

```
3 10.0.50.10 (10.0.50.10)  0.048 ms  0.040 ms  0.040 ms
```

r4 is using the route through **r5** to access the **10.0.50.10** address, which is **h5**:

```
r4 traceroute 10.0.50.10
```

```
traceroute to 10.0.50.10 (10.0.50.10), 30 hops max, 60 byte packets
```

```
1 10.0.4.2 (10.0.4.2)  0.050 ms  0.021 ms  0.020 ms
```

```
2 10.0.50.10 (10.0.50.10)  0.037 ms  0.030 ms  0.037 ms
```

r5 is accessing **10.0.50.10** directly, which is **h5**:

```
r5 traceroute 10.0.50.10
```

```
traceroute to 10.0.50.10 (10.0.50.10), 30 hops max, 60 byte packets
```

```
1 10.0.50.10 (10.0.50.10)  0.049 ms  0.027 ms  0.026 ms
```