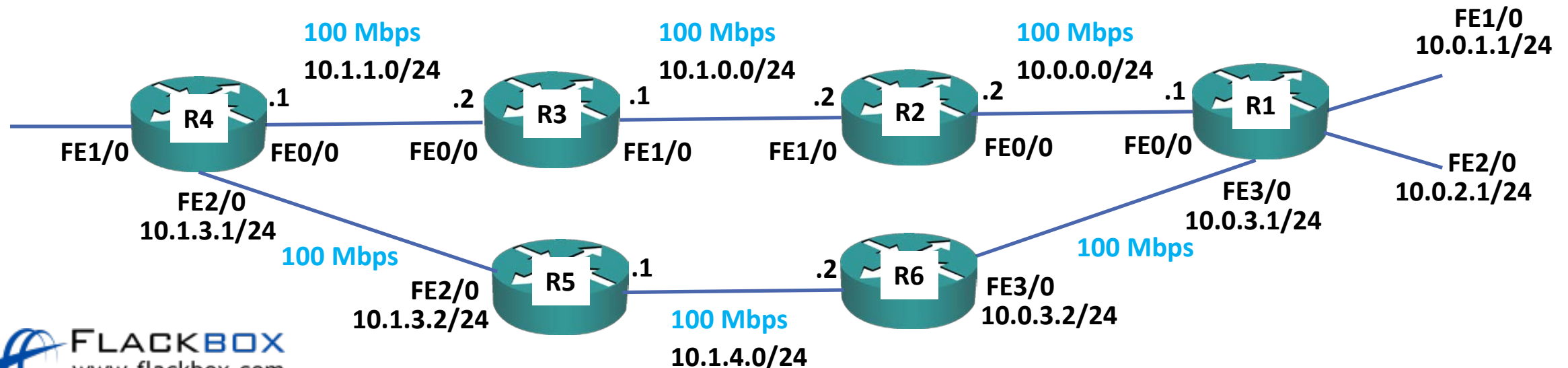# Equal Cost Multi Path (ECMP)

- If multiple paths to a destination have an equal metric, the router will enter all of the paths into the routing table

- Equal Cost Multi Path will load balance the outbound traffic to the destination over the different paths

- All IGP routing protocols will perform ECMP by default

- EIGRP is the only routing protocol which is capable of UnEqual Cost Multi Path. It must be manually configured to support this.

Equal Cost Multi Path

- Both routes to 10.0.1.0/24 will be installed in Router 4's routing table
- Half the traffic will take path R4>3>2>1
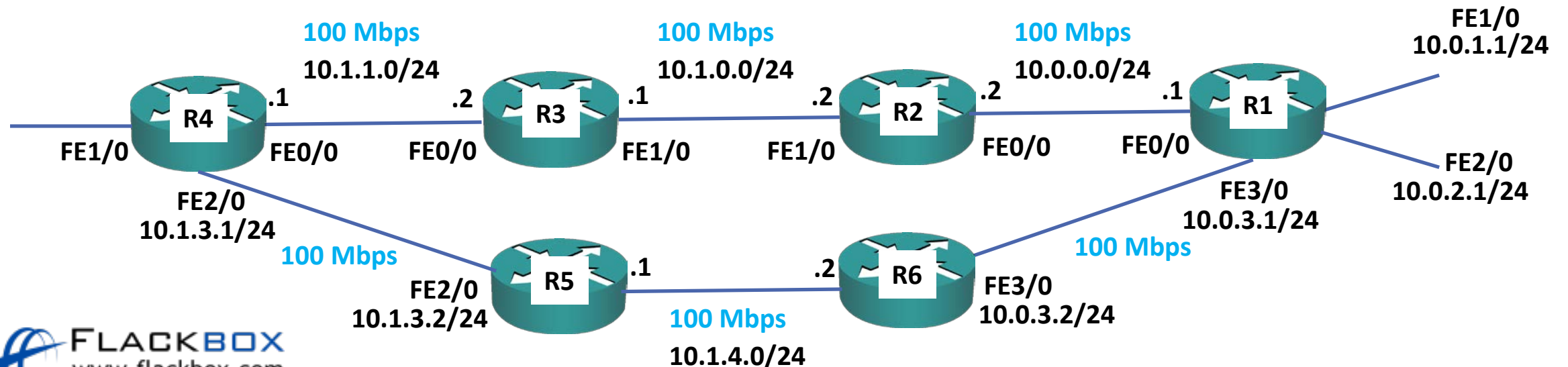- Half the traffic will take path R4>5>6>1
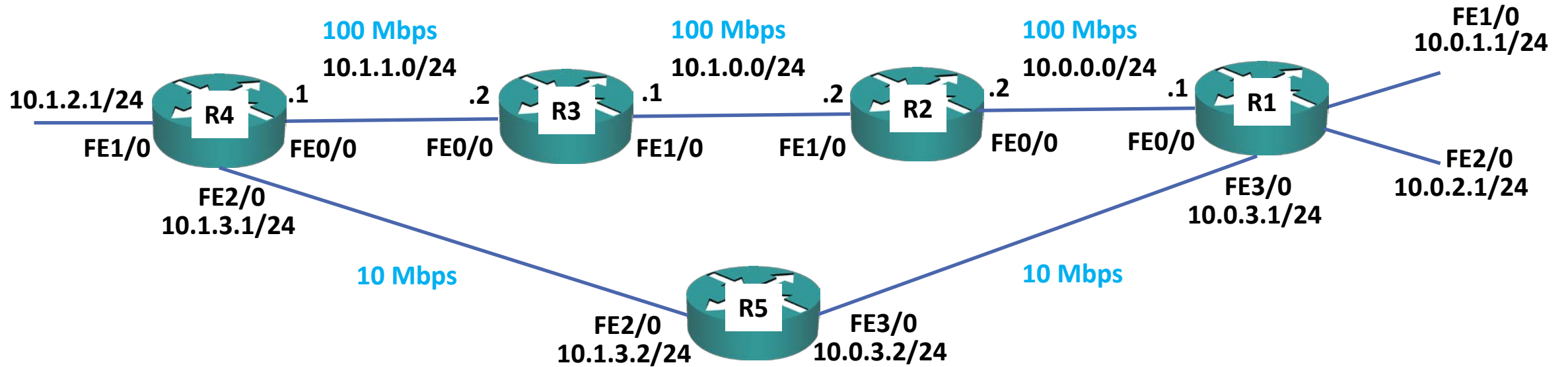
Equal Cost Multi Path

- You can also achieve load balancing with static routes

```
R4(config)# ip route 10.0.1.0 255.255.255.0 10.1.1.2
R4(config)# ip route 10.0.1.0 255.255.255.0 10.1.3.2
```

Lab

100 Mbps
10.1.1.0/24

100 Mbps
10.1.0.0/24

100 Mbps
10.0.0.0/24

FE1/0
10.0.1.1/24

10.1.2.1/24

.1

R4

.2

R3

.1

.2

R2

.2

.1

R1

FE1/0
FE0/0

FE0/0

FE1/0

FE1/0

FE0/0

FE0/0

FE2/0
10.0.2.1/24

FE2/0
10.1.3.1/24

FE3/0
10.0.3.1/24

10 Mbps

R5

10 Mbps

FE2/0
10.1.3.2/24

FE3/0
10.0.3.2/24

Lab