Loopback Interfaces

- Loopback interfaces are logical interfaces

- They allow you to assign an IP address to a router or L3 switch, which is not tied to a physical interface

- Because they don't have any physical attributes which can fail, loopback interfaces never go down

- Loopbacks are logical so they cannot be physically in the same subnet as other devices, so they are usually assigned a /32 subnet mask to avoid wasting IP addresses

Loopback Interface Uses

- It is best practice to assign a loopback interface to your routers
- The loopback is commonly used for traffic that terminates on the router itself
- This could be management traffic, Voice over IP, BGP peering etc.
- This provides redundancy if there are multiple paths to the router
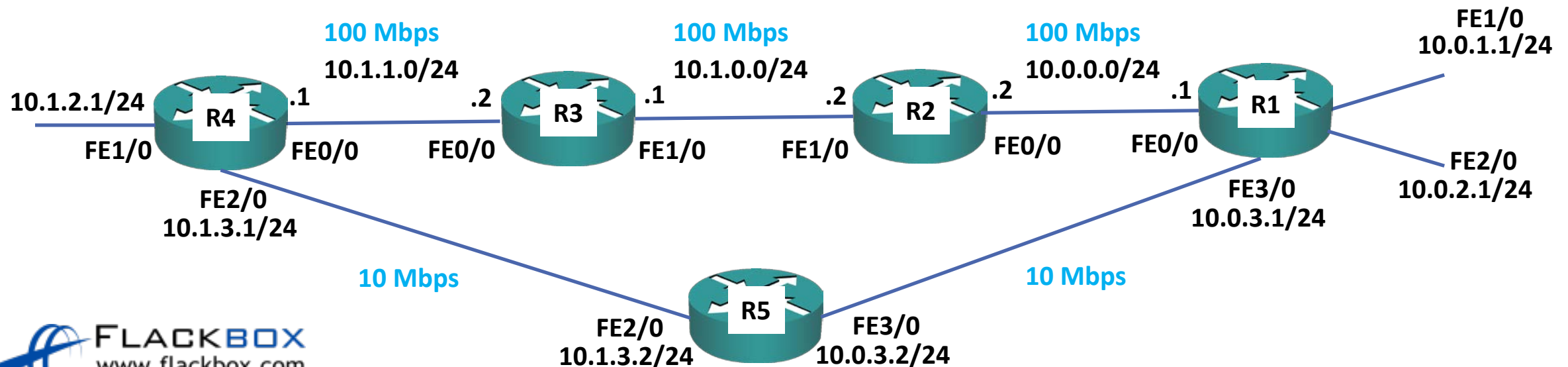- The loopback is also used to identify the router (Router ID) in OSPF

Loopback Interface Uses

- The same loopback interface is usually used for multiple tasks (for example management and BGP)

- Multiple loopbacks can be configured. This is not common and only usually done where another, separate loopback is required for a special use case
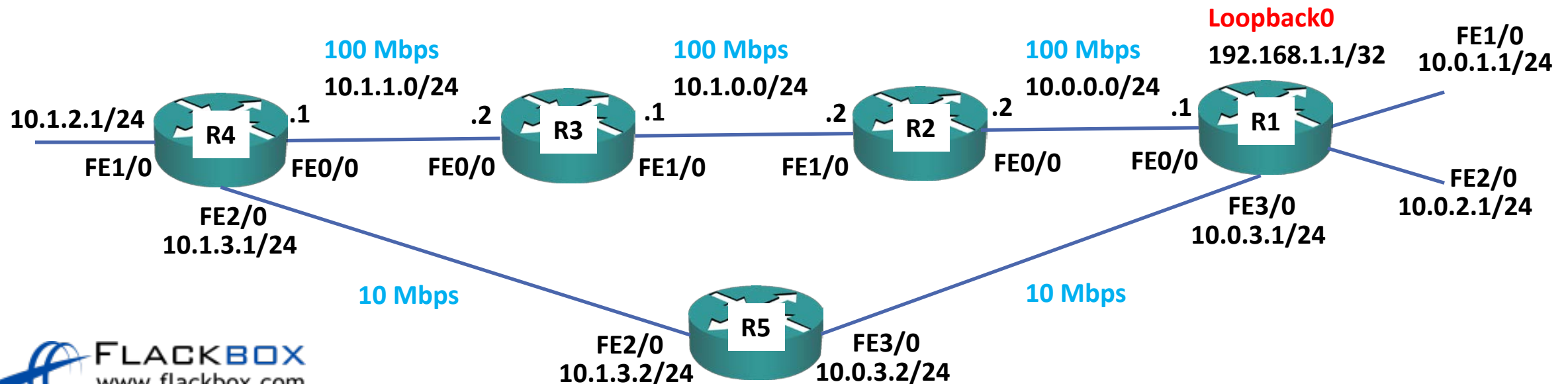
Loopback Interfaces

- For example, my PC is on the 10.1.2.0 subnet and I want to connect to R1 to manage it

- If the top path goes down, I cannot connect to 10.0.0.1

- If the bottom path goes down, I cannot connect to 10.0.3.1

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   R4   .1   .2   R3   .1   .2   R2   .2   .1   R1

FE1/0   FE0/0   FE0/0   FE1/0   FE1/0   FE0/0   FE0/0

FE2/0 10.1.3.1/24

FE3/0 10.0.3.1/24

FE2/0 10.0.2.1/24

10 Mbps   R5   **10 Mbps**

FE2/0 10.1.3.2/24   FE3/0 10.0.3.2/24

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Loopback Interfaces

- I add interface Loopback 0 with the IP address 192.168.1.1/32
- I advertise 192.168.1.1/32 in my routing protocol
- R4 learns the two paths to 192.168.1.1
- I can still connect to 192.168.1.1 even if either path goes down

Lab