Adjacencies

- IGP routing protocols are configured under global configuration mode and then enabled on individual interfaces

- When the routing protocol is enabled on an interface the router will look for other devices on the link which are also running the routing protocol

- The router does this by sending out and listening for hello packets

- When a matching peer is found, the routers will form an adjacency with each other

- They will then exchange routing information

Adjacencies

- Modern routing protocols use multicast for the hello packets
- This is more efficient than broadcast which was used by earlier protocols
- Only routers which are running the same routing protocol will process the packet
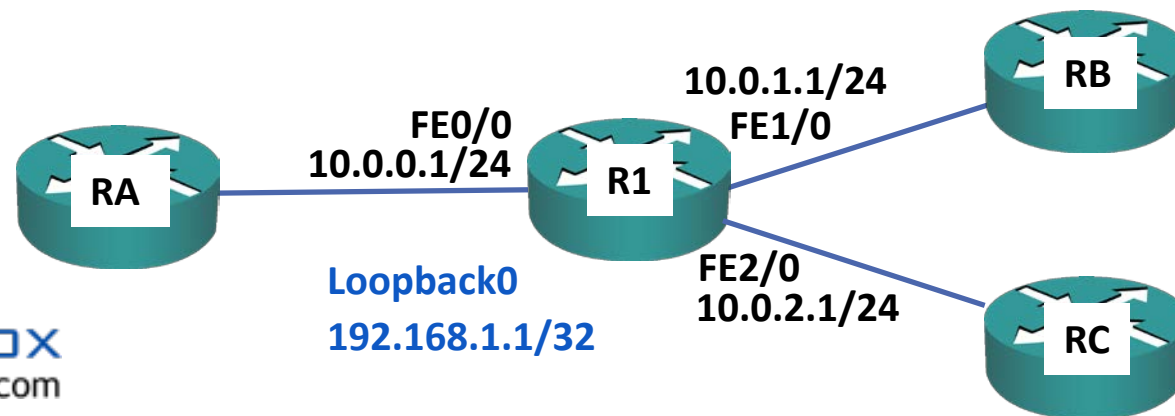
Adjacency Example

- The IP subnets configured on the interfaces which are enabled for the routing protocol will be included in its updates

- For example, R1 has a routing protocol enabled on the Loopback0 interface and FastEthernet0/0 and 1/0

- The routing protocol is not enabled on FastEthernet2/0

- RC belongs to a partner organisation we do not want to send internal network information to
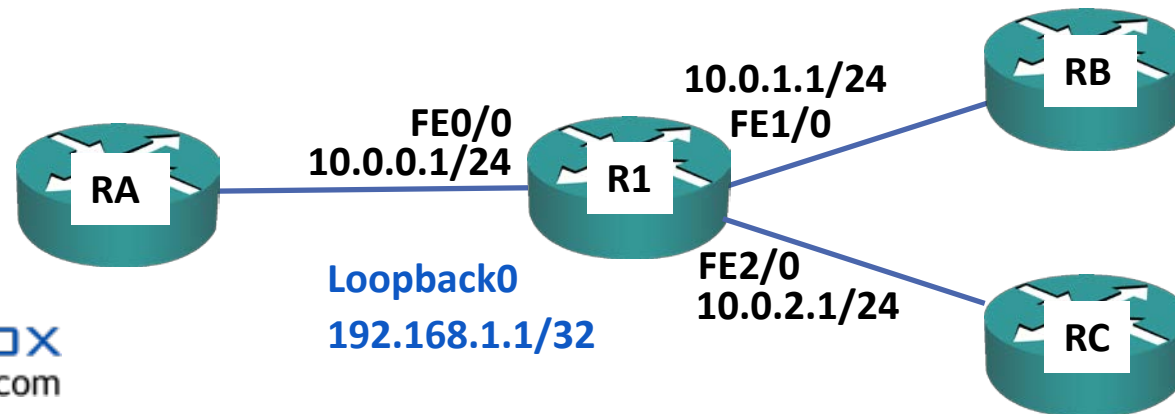
Adjacency Example

- R1 will send out and listen for hello packets on the Loopback0 interface and FastEthernet0/0 and 1/0

- It will form adjacencies with any routers running the same protocol on those links – RA and RB

- It will not send out or listen for hello packets on FastEthernet2/0

- It will not form an adjacency with RC

- (We will use static routes for the extranet traffic with RC)

RB

10.0.1.1/24
FE1/0

FE0/0
10.0.0.1/24

RA

R1

Loopback0
192.168.1.1/32

FE2/0
10.0.2.1/24

RC

Adjacency Example

- R1 will advertise IP subnets to RA and RB:

  10.0.0.0/24

  10.0.1.0/24

  192.168.1.1/32

- It will not advertise 10.0.2.0/24

- RA and RB will not learn routes to 10.0.2.0/24


FLACKBOX
www.flackbox.com
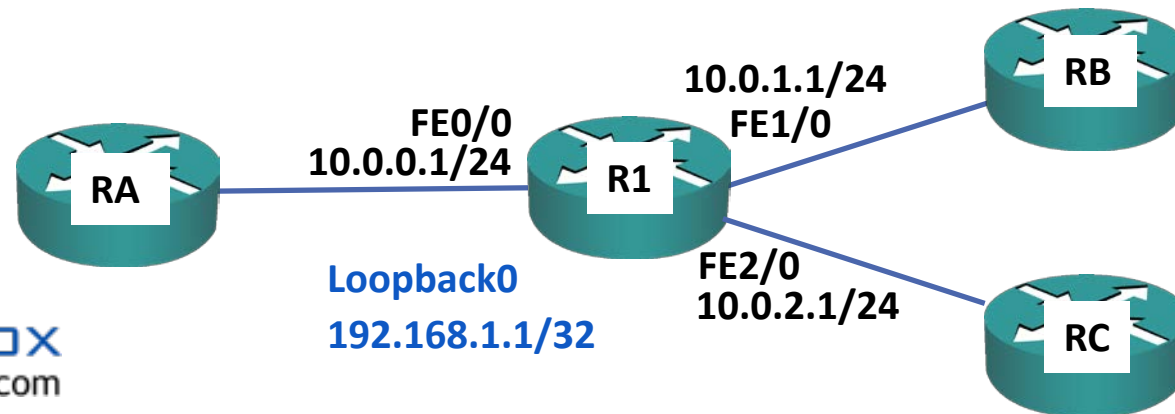
Passive Interfaces

- Passive interfaces allow you to include an IP subnet in the routing protocol without sending updates out of the interface
- If FastEthernet2/0 is configured as a passive interface, RA and RB will learn routes to 10.0.2.0, but internal network information will not be sent to RC

RB

10.0.1.1/24
FE1/0

FE0/0
10.0.0.1/24

RA   R1

Loopback0   FE2/0
192.168.1.1/32   10.0.2.1/24

RC
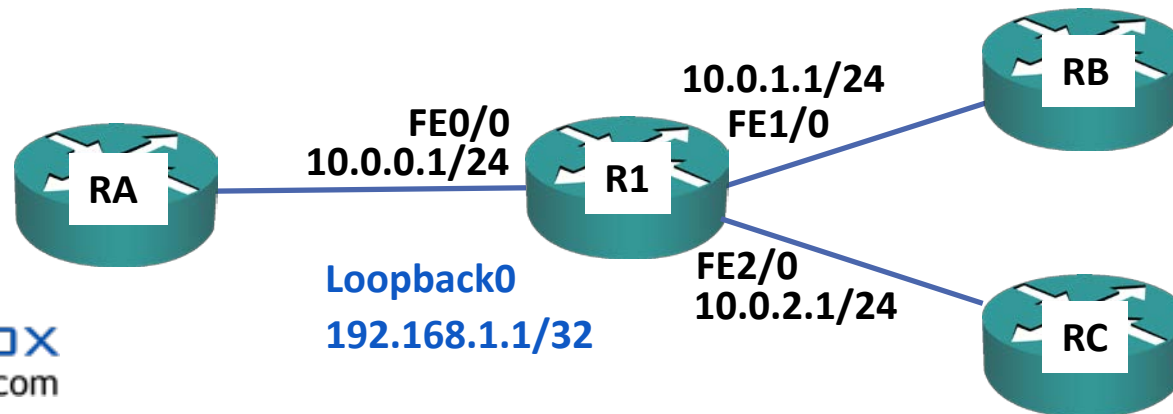
Passive Interfaces

- It is best practice to configure loopback interfaces as passive interfaces
- It is impossible to form an adjacency on a loopback interface because they are not physical interfaces
- Making the loopback passive means that it will be advertised by the routing protocol but it will not waste resources sending out and listening for hello packets

RA

FE0/0
10.0.0.1/24

R1

10.0.1.1/24
FE1/0

RB

FE2/0
10.0.2.1/24

RC

Loopback0
192.168.1.1/32
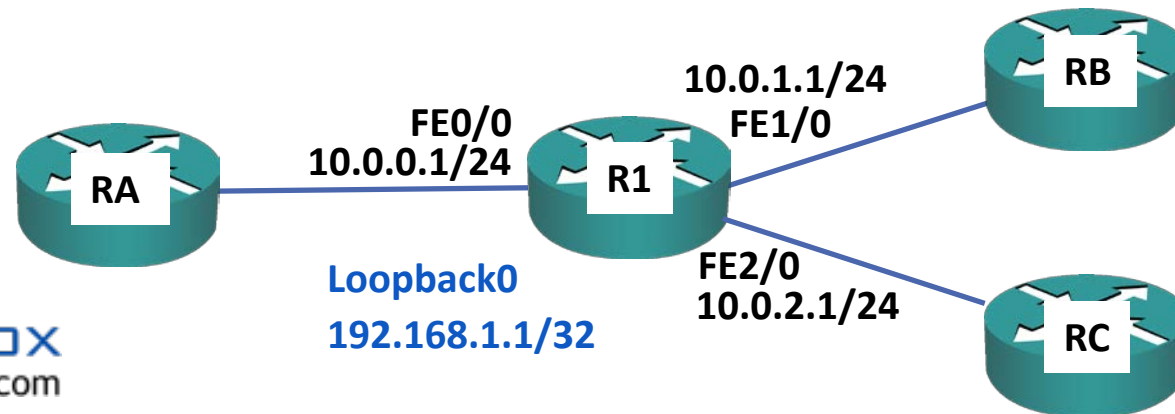
Passive Interface Use Cases

- Passive interfaces are used on:

  - Loopback interfaces

  - Physical interfaces where the device on the other side belongs to another organisation. We do not want to send routing information out but we do want our internal devices to know about the link

Lab