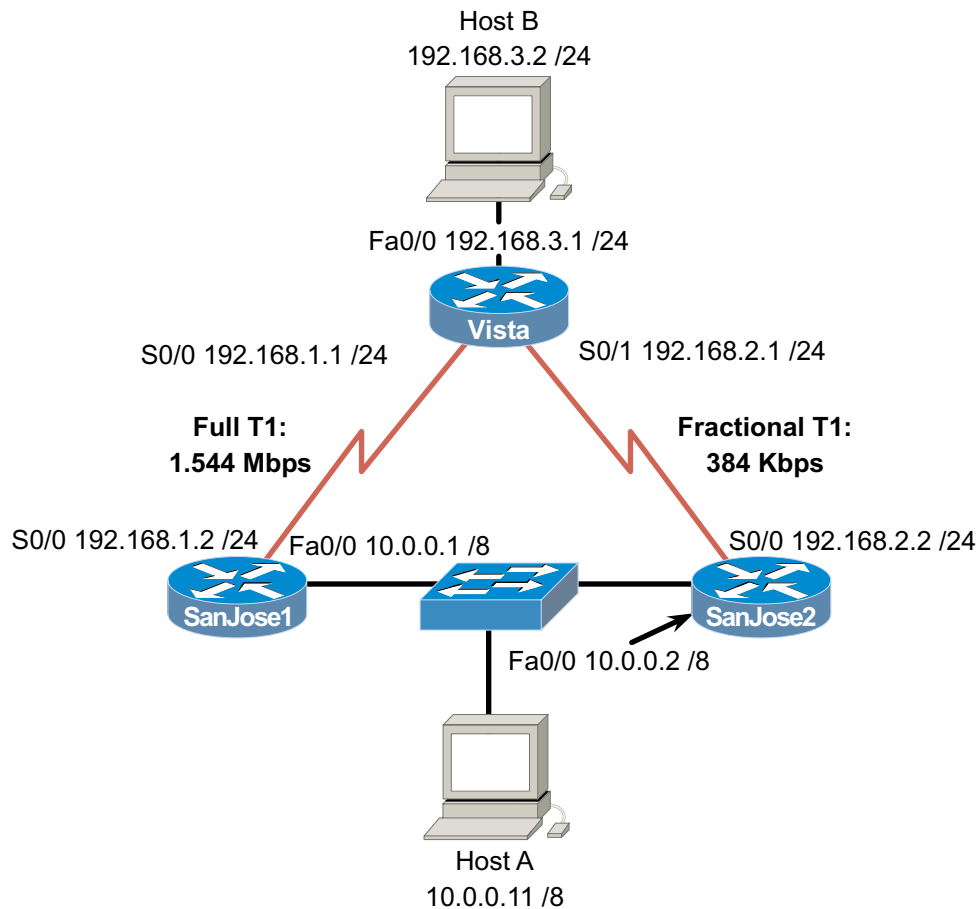


### 3.6.4: Configuring Floating Static Routes



#### Objective

In this lab, you configure a floating static route.

#### Scenario

International Travel Agency (ITA) uses a combination of static routing and RIP in the core of its network. One of ITA's key boundary routers, Vista, has two routes to the 10.0.0.0/8 network, but only one of these routes is advertised by RIP. If you configure the other path statically, using the default administrative distance, the static route will be preferred over the RIP route. However, ITA wants the RIP route to be preferred, because it has higher bandwidth. Therefore, you must override the default administrative distance of the static route to create a floating static route.

#### Procedures

Before you begin this lab, it is recommended that you reload each router after erasing its startup configuration. This prevents problems caused by residual configurations. After you have prepared the equipment, proceed with Step 1.

#### Step 1

Build and configure the network according to the diagram. Be sure to configure Host B. Do not configure a routing protocol.

Use ping to verify that directly connected link partners can reach each other.

## Step 2

Configure routing on the three routers. SanJose1 and Vista will run RIP, so issue the following commands on the appropriate router:

```
SanJose1(config)#router rip
SanJose1(config-router)#network 192.168.1.0
SanJose1(config-router)#network 10.0.0.0
...
Vista(config)#router rip
Vista(config-router)#network 192.168.1.0
Vista(config-router)#network 192.168.3.0
```

SanJose2 will reach Vista using a static route. Enter the following command on SanJose2:

```
SanJose2(config)#ip route 192.168.3.0 255.255.255.0 192.168.2.1
```

Verify that Host B can ping the serial interfaces of both SanJose1 (192.168.1.2) and SanJose2 (192.168.2.2). Troubleshoot, if necessary.

## Step 3

Check Vista's routing table. It should have a route to the 10.0.0.0/8 network.

1. Which interface will Vista use to reach the 10.0.0.0/8 network?

---

Now that you verified that the RIP route to the 10.0.0.0/8 network is operational, configure a static route on Vista that will use SanJose2 to get to 10.0.0.0/8, using the following command:

```
Vista(config)#ip route 10.0.0.0 255.0.0.0 192.168.2.2
```

When you have configured Vista with this static route, check its routing table using the **show ip route** command. Only the static route to the 10.0.0.0/8 network should be in Vista's routing table.

2. What happened to the RIP route?

---

Remember that ITA wants you to configure Vista to use the SanJose2 link to 10.0.0.0/8 only if the other route goes down. Thus, you must reconfigure the static route on Vista so that it floats; that is, it remains in the configuration but is not installed in the routing table until a route with a better metric is lost.

Before you configure a floating static route on Vista, you must remove the first static route using the following command:

```
Vista(config)#no ip route 10.0.0.0 255.0.0.0 192.168.2.2
```

When you have verified that this static route is no longer part of Vista's configuration, issue the following command to create a floating static route:

```
Vista(config)#ip route 10.0.0.0 255.0.0.0 192.168.2.2 130
```

The 130 at the end of this command overrides the default administrative distance for a static route. By default, a static route has an administrative distance of 1. In this scenario, you must increase the administrative distance so that it is higher than RIP's

administrative distance of 120. That way, the RIP route will be preferred. Vista will install the static route only if the RIP route fails.

As an extra precaution in case the link between SanJose1 and Vista should fail, add the following floating static route to SanJose1:

```
SanJose1(config)#ip route 192.168.3.0 255.255.255.0 10.0.0.2 130
```

#### Step 4

After you reconfigure the static route to be a floating static route, check Vista's routing table again. Now, only the RIP route to 10.0.0.0/8 should be in the table. Verify that routing is working by pinging Host A (10.0.0.11) from Host B. Troubleshoot, if necessary.

Although you cannot see your floating static route in Vista's table, it remains in the configuration file. You can observe how Vista reacts to a link failure by issuing the following command:

```
Vista#debug ip routing
```

Now verify that you have configured the routers correctly and disconnect SanJose1's Ethernet connection to the 10.0.0.0/8 network. You might have to wait a few seconds, but eventually the **debug** output on Vista should notify you of the change:

```
RT: del 10.0.0.0 via 192.168.1.2, rip metric [120/1]  
RT: delete network route to 10.0.0.0  
RT: add 10.0.0.0/8 via 192.168.2.2, static metric [130/0]
```

Check Vista's routing table to ensure that the static route has been installed. As a final test, ping 10.0.0.1 and 10.0.0.2 from Host B. The ping to 10.0.0.2 should be successful. Why is the ping to 10.0.0.1 not successful?

---