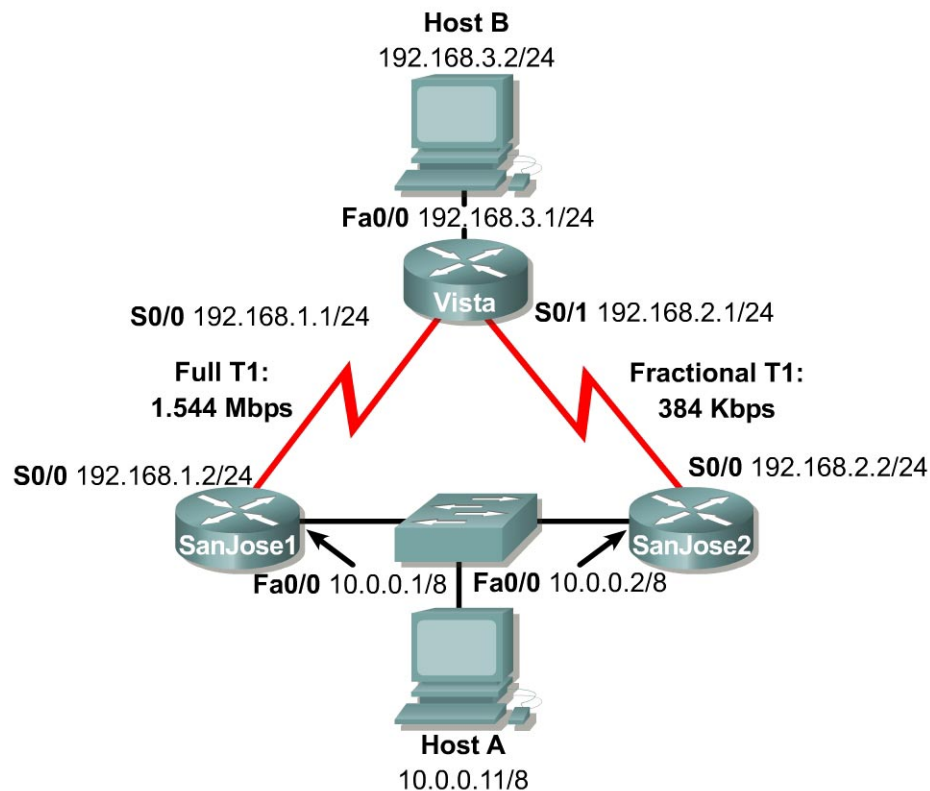


Lab 3.6.4 Configuring Floating Static Routes



Objective

In this lab, 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 key boundary routers, Vista, has two routes to the 10.0.0.0/8 network. Only one of these routes is advertised by RIP. If the other path is configured statically using the default administrative distance, the static route will be preferred over the RIP route. The lower administrative distance is preferred. However, ITA wants the RIP route to be preferred. This is because the RIP route has a higher bandwidth. Therefore, the default administrative distance of the static route must be overridden to create a floating static route.

Procedures

Before beginning this lab, it is recommended that each router be reloaded after erasing its startup configuration. This prevents problems caused by residual configurations. After the equipment is prepared, 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. If the configuration files are used from the previous lab, remove all routing protocols and static routes.

Use **ping** to verify that directly connected devices 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 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 the RIP route to the 10.0.0.0/8 network is verified as 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 Vista has been configured 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 routing table.

2. What happened to the RIP route?
-

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

Before a floating static route can be configured on Vista, 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 it has been verified that this static route is no longer part of Vista 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 integer 130 at the end of this command overrides the default administrative distance for the static route. By default, a static route has an administrative distance of 1. In this scenario, the administrative distance must be increased so that it is higher than the RIP administrative distance of 120. Only by increasing the default route administrative distance above 120 will the RIP route be preferred. Vista will install the static route only if the RIP route fails.

Add the following floating static route to SanJose1 in case the link between SanJose1 and Vista should fail:

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

Step 4

After reconfiguring the static route to be a floating static route, check the Vista routing table again. 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 the floating static route cannot be seen in the Vista table, it remains in the configuration file. Observe how Vista reacts to a link failure by issuing the following command:

```
Vista#debug ip routing
```

Verify that the routers are configured correctly, and disconnect the SanJose1 Ethernet connection to the 10.0.0.0/8 network. The **debug** output on Vista should send a change notification after a few seconds.

```
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 the Vista 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?