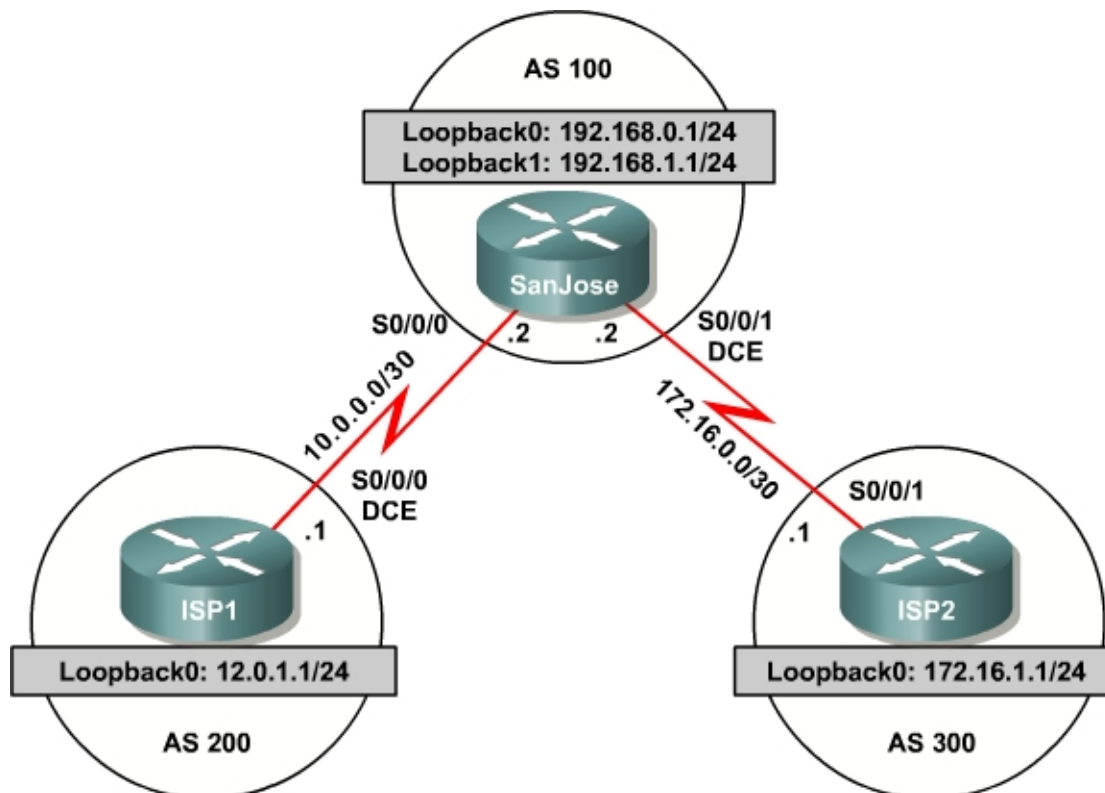


## Lab 6-1 Configuring BGP with Default Routing

### Topology Diagram



### Learning Objective

In this lab, you will configure BGP to exchange routing information with two Internet Service Providers (ISPs).

### Scenario

The International Travel Agency relies extensively on the Internet for sales. The company has contracted with two ISPs for Internet connectivity with fault tolerance. You need to configure BGP, which runs between the San Jose boundary router and the two ISP routers.

### Step 1: Assign IP Addresses

Configure the network according to the diagram, but do not configure a routing protocol. Configure a loopback interface with an IP address for each ISP route shown in the diagram. These loopbacks simulate real networks that can be reached through the ISP. Configure two loopback interfaces with the IP addresses for the San Jose router. These loopbacks simulate the connections between the core routers.

Use **ping** to test the connectivity between the directly connected routers.  
Note that router ISP1 cannot reach router ISP2.

## Step 2: Configure the ISPs

Configure the ISP routers, and the International Travel Agency's boundary router, San Jose. On the ISP1 router, enter the following configuration:

```
ISP1(config)#router bgp 200
ISP1(config-router)#neighbor 10.0.0.2 remote-as 100
ISP1(config-router)#network 12.0.1.0 mask 255.255.255.0
```

On ISP2, configure BGP:

```
ISP2(config)#router bgp 300
ISP2(config-router)#neighbor 172.16.0.2 remote-as 100
ISP2(config-router)#network 172.16.1.0 mask 255.255.255.0
```

## Step 3: Configure SanJose BGP

Configure the San Jose router to run BGP with both providers:

```
SanJose(config)#router bgp 100
SanJose(config-router)#neighbor 10.0.0.1 remote-as 200
SanJose(config-router)#neighbor 172.16.0.1 remote-as 300
SanJose(config-router)#network 192.168.0.0
SanJose(config-router)#network 192.168.1.0
```

To verify the configuration, check the routing table for SanJose with the **show ip route** command:

```
SanJose#show ip route

Gateway of last resort is not set

      172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.16.0.0/30 is directly connected, Serial0/0/1
B       172.16.1.0/24 [20/0] via 172.16.0.1, 00:00:03
      10.0.0.0/30 is subnetted, 1 subnets
C       10.0.0.0 is directly connected, Serial0/0/0
C       192.168.0.0/24 is directly connected, Loopback0
      12.0.0.0/24 is subnetted, 1 subnets
B       12.0.1.0 [20/0] via 10.0.0.1, 00:00:42
C       192.168.1.0/24 is directly connected, Loopback1
```

SanJose has routes to the loopback networks at each ISP router. Verify that SanJose has connectivity to these networks by pinging each loopback address from its console. One way to do this is to create your own TCL script. If these pings are not successful, troubleshoot.

## Step 4: Verify BGP on the SanJose Router

To verify the operation of SanJose, issue the **show ip bgp** command:

```
SanJose#show ip bgp
BGP table version is 5, local router ID is 192.168.1.1
```

Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal  
 Origin codes: i - IGP, e - EGP, ? - incomplete

Network	Next Hop	Metric	LocPrf	Weight	Path
*> 12.0.1.0/24	10.0.0.1	0		0	200 i
*> 172.16.1.0/24	172.16.0.1	0		0	300 i
*> 192.168.0.0	0.0.0.0	0		32768	i
*> 192.168.1.0	0.0.0.0	0		32768	i

What is the local router ID?

Which table version is displayed?

An asterisk (\*) next to a route indicates that it is the best route. An angle bracket (>) indicates that the route is inserted into the routing table.

On the ISP1 router, issue the **shutdown** command on Loopback 0. Then on SanJose, issue the **show ip bgp** command again.

Which table version is displayed?

The **shutdown** command causes a routing table update, so the version should be one higher than the last.

Bring ISP1 router Loopback0 back up by issuing the **no shutdown** command.

On SanJose, issue the **show ip bgp neighbors** command. The following is a partial sample output of the command:

```
BGP neighbor is 172.16.0.1, remote AS 300, external link
Index 2, Offset 0, Mask 0x4
BGP version 4, remote router ID 172.16.1.1
BGP state = Established, table version = 5, up for 00:02:24
Last read 00:00:24, hold time is 180
```

Based on the output of this command, what is the BGP state between this router and ISP2?

How long has this connection been up?

## Step 5: Filter Routes

Check ISP2's routing table using the **show ip route** command. ISP2 should have a route that belongs to ISP1, network 12.0.1.0.

If SanJose advertises a route belonging to ISP1, ISP2 installs that route in its table. ISP2 might then attempt to route transit traffic through the International Travel Agency. Configure the SanJose router so that it advertises only International Travel Agency networks 192.168.0.0 and 192.168.1.0 to both providers. On the SanJose router, configure the following access list:

```
SanJose(config)#access-list 1 permit 192.168.0.0 0.0.1.255
```

Then apply this access list as a route filter using the **distribute-list** keyword with the BGP **neighbor** statement:

```
SanJose(config)#router bgp 100
SanJose(config-router)#neighbor 10.0.0.1 distribute-list 1 out
SanJose(config-router)#neighbor 172.16.0.1 distribute-list 1 out
```

After you configured the route filter, check the routing table for ISP2 again. The route to 12.0.1.0, ISP1, should still be in the table.

Return to SanJose and issue the **clear ip bgp \*** command. Wait until the routers reach the Established state, which might take several moments, and then recheck the ISP2 routing table. The route to ISP1 should no longer be in the routing table.

The route to ISP2, network 172.16.1.0, should not be in the routing table for ISP1.

## Step 6: Configure the Primary and Backup Routes Using Floating Static Routes

Now that bidirectional communication has been established with each ISP via BGP, it is time to configure the primary and backup routes. This can be done with floating static routes or BGP.

To look at the floating static route method, issue the **show ip route** command on the SanJose router:

```
Gateway of last resort is not set

172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C    172.16.0.0/30 is directly connected, Serial0/0/1
B    172.16.1.0/24 [20/0] via 172.16.0.1, 00:07:37
    10.0.0.0/30 is subnetted, 1 subnets
C    10.0.0.0 is directly connected, Serial0/0/0
C    192.168.0.0/24 is directly connected, Loopback0
    12.0.0.0/24 is subnetted, 1 subnets
B    12.0.1.0 [20/0] via 10.0.0.1, 00:07:42
C    192.168.1.0/24 is directly connected, Loopback1
```

Notice that there is no Gateway of Last Resort defined. This is a huge problem, because SanJose is the border router for the corporate network. Assume that

ISP1 is the primary provider, and ISP2 acts as the backup. Configure static routes to reflect this policy:

```
SanJose(config)#ip route 0.0.0.0 0.0.0.0 10.0.0.1 210
SanJose(config)#ip route 0.0.0.0 0.0.0.0 172.16.0.1 220
```

Now verify that a default route is defined using the **show ip route** command:

```
Gateway of last resort is 10.0.0.1 to network 0.0.0.0

    172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.16.0.0/30 is directly connected, Serial0/0/1
B       172.16.1.0/24 [20/0] via 172.16.0.1, 00:16:34
    10.0.0.0/30 is subnetted, 1 subnets
C       10.0.0.0 is directly connected, Serial0/0/0
C       192.168.0.0/24 is directly connected, Loopback0
    12.0.0.0/24 is subnetted, 1 subnets
B       12.0.1.0 [20/0] via 10.0.0.1, 00:16:39
C       192.168.1.0/24 is directly connected, Loopback1
S*    0.0.0.0/0 [210/0] via 10.0.0.1
```

Test this default route by creating an unadvertised loopback on the router for ISP1:

```
ISP1#config t
ISP1(config)#int loopback 100
ISP1(config-if)#ip address 210.210.210.1 255.255.255.0
```

Issue the **clear ip bgp 10.0.0.1** command to reestablish a conversation with the 10.0.0.1 BGP speaker:

```
SanJose#clear ip bgp 10.0.0.1
```

Wait until the BGP conversation is reestablished with the 10.0.0.1 host.

Issue the **show ip route** command to insure that the newly added 210.210.210.0 /24 network does not appear in the routing table:

```
SanJose#show ip route

Gateway of last resort is 10.0.0.1 to network 0.0.0.0

    172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.16.0.0/30 is directly connected, Serial0/0/1
B       172.16.1.0/24 [20/0] via 172.16.0.1, 00:27:40
    10.0.0.0/30 is subnetted, 1 subnets
C       10.0.0.0 is directly connected, Serial0/0/0
C       192.168.0.0/24 is directly connected, Loopback0
    12.0.0.0/24 is subnetted, 1 subnets
B       12.0.1.0 [20/0] via 10.0.0.1, 00:27:45
C       192.168.1.0/24 is directly connected, Loopback1
S*    0.0.0.0/0 [210/0] via 10.0.0.1
```

Ping the 210.210.210.1 loopback interface originating from the 192.168.1.1 SanJose interface:

```
SanJose#ping
Protocol [ip]:
Target IP address: 210.210.210.1
```

```

Repeat count [5]:
Datagram size [100]:
Timeout in seconds [2]:
Extended commands [n]: y
Source address or interface: 192.168.1.1
Type of service [0]:
Set DF bit in IP header? [no]:
Validate reply data? [no]:
Data pattern [0xABCD]:
Loose, Strict, Record, Timestamp, Verbose[none]:
Sweep range of sizes [n]:
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 210.210.210.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 32/32/36 ms

```

## Step 7: Configure Primary and Backup Routes Using Static Routes

Another method for configuring primary and backup routes is to use the **default-network** command instead of a 0.0.0.0/0 route.

Remove the floating static routes configured in Step 6:

```

SanJose(config)#no ip route 0.0.0.0 0.0.0.0 10.0.0.1 210
SanJose(config)#no ip route 0.0.0.0 0.0.0.0 172.16.0.1 220

```

The network that was added in the last step, 210.210.210.0/24, should now be advertised on the ISP1 router.

```

ISP1(config)#router bgp 200
ISP1(config-router)#network 210.210.210.0

ISP1#clear ip bgp 10.0.0.2

```

Configure the SanJose router a **default-network** statement to reestablish a Gateway of Last Resort. Make sure that the classful network 210.210.210.0 /24 appears in the routing table and is followed with the **ip default-network** statement:

```

Gateway of last resort is not set

B    210.210.210.0/24 [20/0] via 10.0.0.1, 00:04:51
     172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C    172.16.0.0/30 is directly connected, Serial0/0/1
B    172.16.1.0/24 [20/0] via 172.16.0.1, 00:21:19
     10.0.0.0/30 is subnetted, 1 subnets
C    10.0.0.0 is directly connected, Serial0/0/0
C    192.168.0.0/24 is directly connected, Loopback0
     12.0.0.0/24 is subnetted, 1 subnets
B    12.0.1.0 [20/0] via 10.0.0.1, 00:04:51
C    192.168.1.0/24 is directly connected, Loopback1

SanJose(config)#ip default-network 210.210.210.0

```

Wait a few moments, and then re-examine the routing table on SanJose:

```

Gateway of last resort is 10.0.0.1 to network 210.210.210.0

```

```

B* 210.210.210.0/24 [20/0] via 10.0.0.1, 00:04:28
    172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C    172.16.0.0/30 is directly connected, Serial0/0/1
B    172.16.1.0/24 [20/0] via 172.16.0.1, 00:20:56
    10.0.0.0/30 is subnetted, 1 subnets
C    10.0.0.0 is directly connected, Serial0/0/0
C    192.168.0.0/24 is directly connected, Loopback0
    12.0.0.0/24 is subnetted, 1 subnets
B    12.0.1.0 [20/0] via 10.0.0.1, 00:04:28
C    192.168.1.0/24 is directly connected, Loopback1

```

This establishes ISP1 as the only default route. This route can be manipulated with policy routing. Correct this by adding a backup route to the 172.16.0.1 host on ISP2:

```
SanJose(config)#ip route 0.0.0.0 0.0.0.0 172.16.0.1 220
```

EBGP learned routes have an administrative distance of 20 and are preferred to any routes with an administrative distance greater than 20, such as the default route defined above with an administrative distance of 220. The default route acts as a backup if the 210.210.210.0/24 network is unavailable because of a fault or misconfiguration, or during the short period after a **clear ip bgp 10.0.0.1** command is issued.

Verify that this newly added route establishes a consistent default route while the BGP conversation between SanJose and ISP1 reestablishes. Notice that the routing table includes two candidate default routes (\*), only one of which is used because of different administrative distances.

```

SanJose#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile,
B - BGP D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area N1
- OSPF NSSA external type 1, N2 - OSPF NSSA external
type 2 E1 - OSPF external type 1, E2 - OSPF external type 2,
E - EGP i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS
inter area * - candidate default, U - per-user static route, o - ODR P -
periodic downloaded static route

```

```
Gateway of last resort is 10.0.0.1 to network 210.210.210.0
```

```

B* 210.210.210.0/24 [20/0] via 10.0.0.1, 00:19:17
    172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C    172.16.0.0/30 is directly connected, Serial0/0/1
B    172.16.1.0/24 [20/0] via 172.16.0.1, 00:35:45
    10.0.0.0/30 is subnetted, 1 subnets
C    10.0.0.0 is directly connected, Serial0/0/0
C    192.168.0.0/24 is directly connected, Loopback0
    12.0.0.0/24 is subnetted, 1 subnets
B    12.0.1.0 [20/0] via 10.0.0.1, 00:19:17
C    192.168.1.0/24 is directly connected, Loopback1
S* 0.0.0.0/0 [220/0] via 172.16.0.1

```

```

SanJose#clear ip bgp 10.0.0.1
SanJose#show ip route

```

```
Gateway of last resort is 172.16.0.1 to network 0.0.0.0
```

```

    172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C    172.16.0.0/30 is directly connected, Serial0/0/1

```

```

B      172.16.1.0/24 [20/0] via 172.16.0.1, 00:45:31
      10.0.0.0/30 is subnetted, 1 subnets
C      10.0.0.0 is directly connected, Serial0/0/0
C      192.168.0.0/24 is directly connected, Loopback0
C      192.168.1.0/24 is directly connected, Loopback1
S*    0.0.0.0/0 [220/0] via 172.16.0.1

SanJose#show ip route
Gateway of last resort is 10.0.0.1 to network 210.210.210.0
B*    210.210.210.0/24 [20/0] via 10.0.0.1, 00:01:03
      172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C      172.16.0.0/30 is directly connected, Serial0/0/1
B      172.16.1.0/24 [20/0] via 172.16.0.1, 00:46:42
      10.0.0.0/30 is subnetted, 1 subnets
C      10.0.0.0 is directly connected, Serial0/0/0
C      192.168.0.0/24 is directly connected, Loopback0
      12.0.0.0/24 is subnetted, 1 subnets
B      12.0.1.0 [20/0] via 10.0.0.1, 00:01:03
C      192.168.1.0/24 is directly connected, Loopback1
S*    0.0.0.0/0 [220/0] via 172.16.0.1

```

As expected, while the BGP conversation was down between SanJose and ISP1, the route to ISP2 was added as the Gateway of Last Resort. However, once BGP reestablished the conversation between SanJose and ISP1, the default route of 210.210.210.0 was again set as the Gateway of Last Resort on SanJose.

## Appendix A: TCL Verification

```

ISP1#tclsh
ISP1(tcl)#
ISP1(tcl)#foreach address {
+>12.0.1.1
+>192.168.0.1
+>192.168.1.1
+>172.16.1.1
+>10.0.0.1
+>10.0.0.2
+>172.16.0.1
+>172.16.1.1
+>210.210.210.1
+>} {
+>ping $address }

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 12.0.1.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/28/32 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/28/28 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.1.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 56/58/64 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!

```



```

Success rate is 100 percent (5/5), round-trip min/avg/max = 28/28/32 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.0.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.1.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 210.210.210.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4 ms
ISP1(tcl)#tclquit

```

```

SanJose#tclsh
SanJose(tcl)#
SanJose(tcl)#foreach address {
+>12.0.1.1
+>192.168.0.1
+>192.168.1.1
+>172.16.1.1
+>10.0.0.1
+>10.0.0.2
+>172.16.0.1
+>172.16.1.1
+>210.210.210.1
+>} {
+>ping $address }

```

```

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 12.0.1.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/28/32 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.1.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/28/32 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/28/32 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 56/57/64 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.0.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/28/28 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.1.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/28/28 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 210.210.210.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/28/32 ms
SanJose(tcl)#tclquit

```

```

ISP2#tclsh
ISP2(tcl)#
ISP2(tcl)#foreach address {

```

```

+>12.0.1.1
+>192.168.0.1
+>192.168.1.1
+>172.16.1.1
+>10.0.0.1
+>10.0.0.2
+>172.16.0.1
+>172.16.1.1
+>210.210.210.1
+>} {
+>ping $address }

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 12.0.1.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/28/32 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/28/32 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.1.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.0.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 56/57/64 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.1.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 210.210.210.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
ISP2(tcl)#tclquit

```

## Final Configurations

```

ISP1#show run
!
hostname ISP1
!
interface Loopback0
 ip address 12.0.1.1 255.255.255.0
!
interface Loopback100
 ip address 210.210.210.1 255.255.255.0
!
interface Serial0/0/0
 ip address 10.0.0.1 255.255.255.252
 clock rate 64000
 no shutdown
!
router bgp 200
 no synchronization

```

```

network 12.0.1.0 mask 255.255.255.0
network 210.210.210.0
neighbor 10.0.0.2 remote-as 100
no auto-summary
!
end

SanJose#show run
!
hostname SanJose
!
interface Loopback0
 ip address 192.168.0.1 255.255.255.0
!
interface Loopback1
 ip address 192.168.1.1 255.255.255.0
!
interface Serial0/0/0
 ip address 10.0.0.2 255.255.255.252
 no shutdown
!
interface Serial0/0/1
 ip address 172.16.0.2 255.255.255.252
 clock rate 64000
 no shutdown
!
router bgp 100
 no synchronization
 network 192.168.0.0
 network 192.168.1.0
 neighbor 10.0.0.1 remote-as 200
 neighbor 10.0.0.1 distribute-list 1 out
 neighbor 172.16.0.1 remote-as 300
 neighbor 172.16.0.1 distribute-list 1 out
 no auto-summary
!
ip default-network 210.210.210.0
ip route 0.0.0.0 0.0.0.0 172.16.0.1 220
!
access-list 1 permit 192.168.0.0 0.0.1.255
!
end

ISP2#show run
!
hostname ISP2
!
interface Loopback0
 ip address 172.16.1.1 255.255.255.0
!
interface Serial0/0/1
 ip address 172.16.0.1 255.255.255.252
 no shutdown
!
router bgp 300
 no synchronization
 network 172.16.1.0 mask 255.255.255.0
 neighbor 172.16.0.2 remote-as 100
 no auto-summary
!
end

```