LAB 5: Static Routing Implementation

Objective(s)

- To understand the Static Routing, its Advantages and Drawbacks

Background

Static Routing

Static routing is useful in small network where numbers of routes are limited. In static routing we need to add route manually with IP route command. Like other routing methods static routing also has its pros and cons.

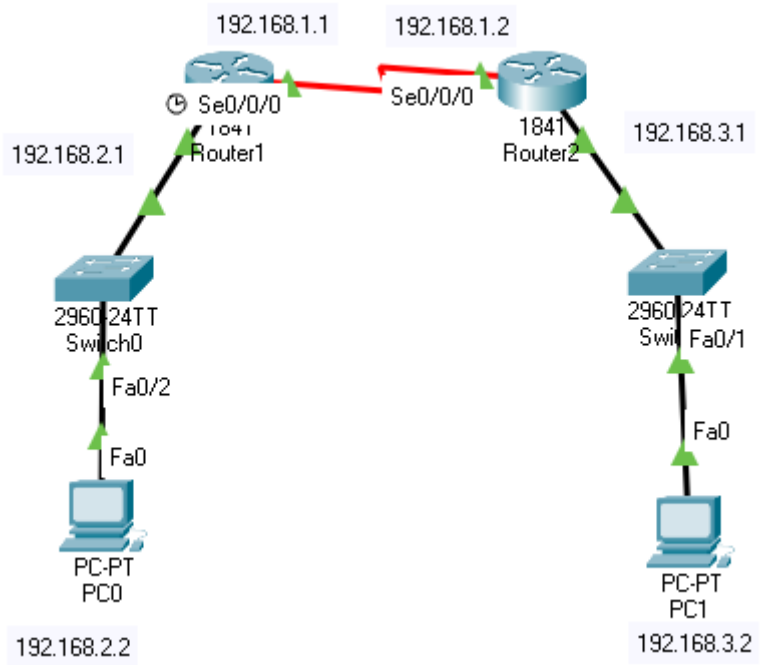
Advantage of static routing

- It is easy to implement.
- It is most secure way of routing, since no information is shared with other routers.
- It puts no overhead on resources such as CPU or memory.

Disadvantage of static routing

- It is suitable only for small network.
- If a link fails static route cannot reroute the traffic.

Configuration



1. Router Basic Configuration

Router 1

Router>enable
Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#hostname r1
r1(config)#enable password cisco
r1(config)#enable secret class

r1(config)#line console 0
r1(config-line)#password cisco
r1(config-line)#login
r1(config-line)#
r1(config-line)#line vty 0 15
r1(config-line)#password cisco
r1(config-line)#login
r1(config-line)#
r1(config-line)#line aux 0
r1(config-line)#password cisco
r1(config-line)#login
r1(config-line)#
r1(config-line)#exit

r1(config)#service password-encryption

Router 2

Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#hostname r2
r2(config)#enable password cisco
r2(config)#enable secret class

r2(config)#line console 0
r2(config-line)#password cisco
r2(config-line)#login
r2(config-line)#
r2(config-line)#line vty 0 15
r2(config-line)#password cisco
r2(config-line)#login
r2(config-line)#
r2(config-line)#line aux 0
r2(config-line)#password cisco
r2(config-line)#login
r2(config-line)#

r2(config-line)#exit

r2(config)#service password-encryption

2. Router Interface Configuration

Router 1

Serial Link
r1(config)#interface serial 0/0/0
r1(config-if)#description Link to R2
r1(config-if)#ip address 192.168.1.1 255.255.255.0
r1(config-if)#clock rate 64000
r1(config-if)#no shutdown
r1(config-if)#
Fast Ethernet
r1(config-if)#
r1(config)#interface fastethernet 0/0
r1(config-if)#ip address 192.168.2.1 255.255.255.0
r1(config-if)#no shutdown
r1(config-if)#exit

Router 2

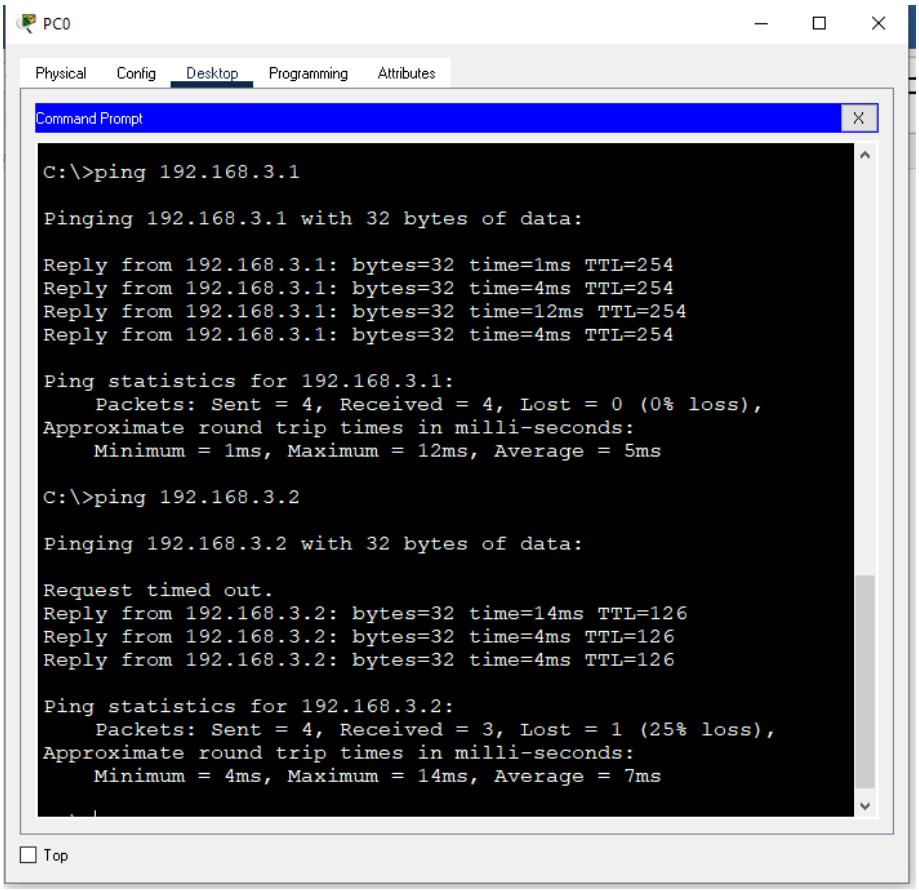
Serial Link
r2(config)#interface serial 0/0/0
r2(config-if)#des link from LAN to internet
r2(config-if)#ip address 192.168.1.2 255.255.255.0
r2(config-if)#no shutdown
r2(config-if)#exit

Fast Ethernet
r2(config-if)#interface fastethernet 0/0
r2(config-if)#ip address 192.168.3.1 255.255.255.0
r2(config-if)#no shutdown
r2(config-if)#exit

3. Routes Configuration

Router 1
r1(config)#ip route 192.168.3.0 255.255.255.0 192.168.1.2
Router 2
r2(config)#ip route 192.168.2.0 255.255.255.0 192.168.1.1

4. Result


PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>ping 192.168.3.1
Pinging 192.168.3.1 with 32 bytes of data:
Reply from 192.168.3.1: bytes=32 time=1ms TTL=254
Reply from 192.168.3.1: bytes=32 time=4ms TTL=254
Reply from 192.168.3.1: bytes=32 time=12ms TTL=254
Reply from 192.168.3.1: bytes=32 time=4ms TTL=254
Ping statistics for 192.168.3.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 12ms, Average = 5ms
C:\>ping 192.168.3.2
Pinging 192.168.3.2 with 32 bytes of data:
Request timed out.
Reply from 192.168.3.2: bytes=32 time=14ms TTL=126
Reply from 192.168.3.2: bytes=32 time=4ms TTL=126
Reply from 192.168.3.2: bytes=32 time=4ms TTL=126
Ping statistics for 192.168.3.2:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 4ms, Maximum = 14ms, Average = 7ms
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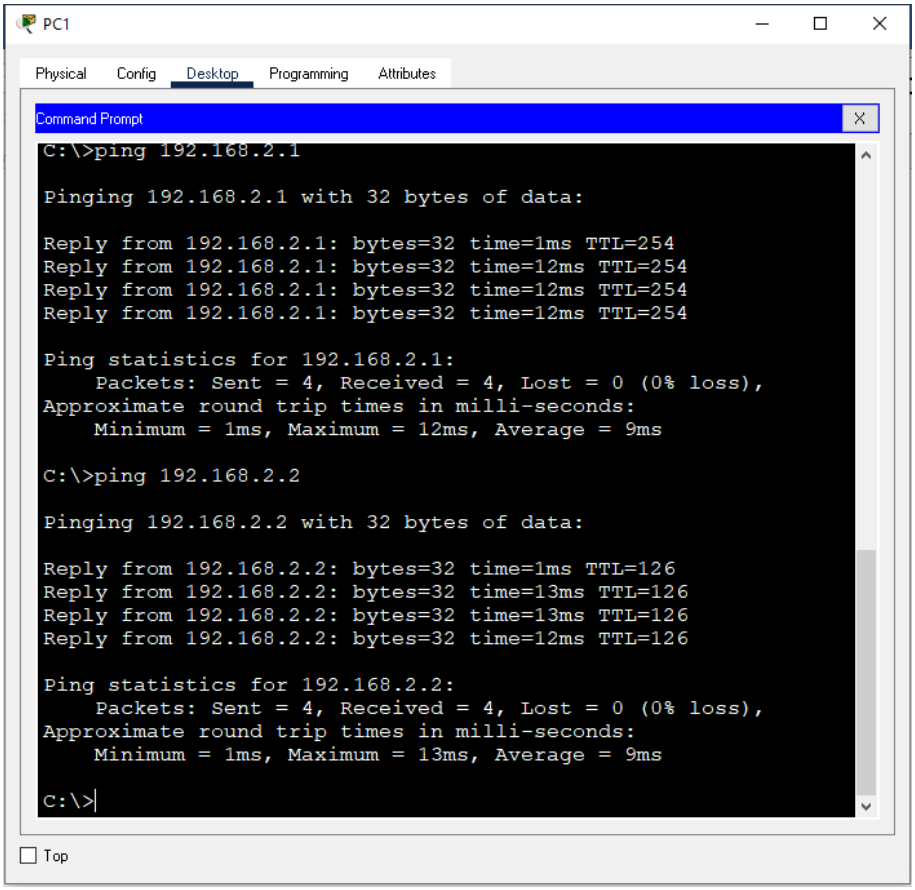
PC1
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>ping 192.168.2.1
Pinging 192.168.2.1 with 32 bytes of data:
Reply from 192.168.2.1: bytes=32 time=1ms TTL=254
Reply from 192.168.2.1: bytes=32 time=12ms TTL=254
Reply from 192.168.2.1: bytes=32 time=12ms TTL=254
Reply from 192.168.2.1: bytes=32 time=12ms TTL=254
Ping statistics for 192.168.2.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 12ms, Average = 9ms
C:\>ping 192.168.2.2
Pinging 192.168.2.2 with 32 bytes of data:
Reply from 192.168.2.2: bytes=32 time=1ms TTL=126
Reply from 192.168.2.2: bytes=32 time=13ms TTL=126
Reply from 192.168.2.2: bytes=32 time=13ms TTL=126
Reply from 192.168.2.2: bytes=32 time=12ms TTL=126
Ping statistics for 192.168.2.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 13ms, Average = 9ms
C:\>
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