

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.

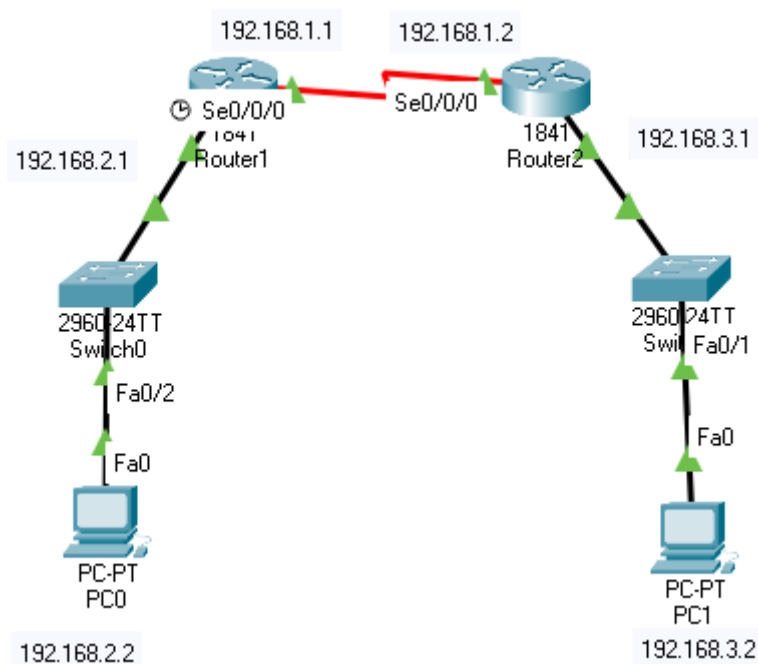
Advantage of static routing

- 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

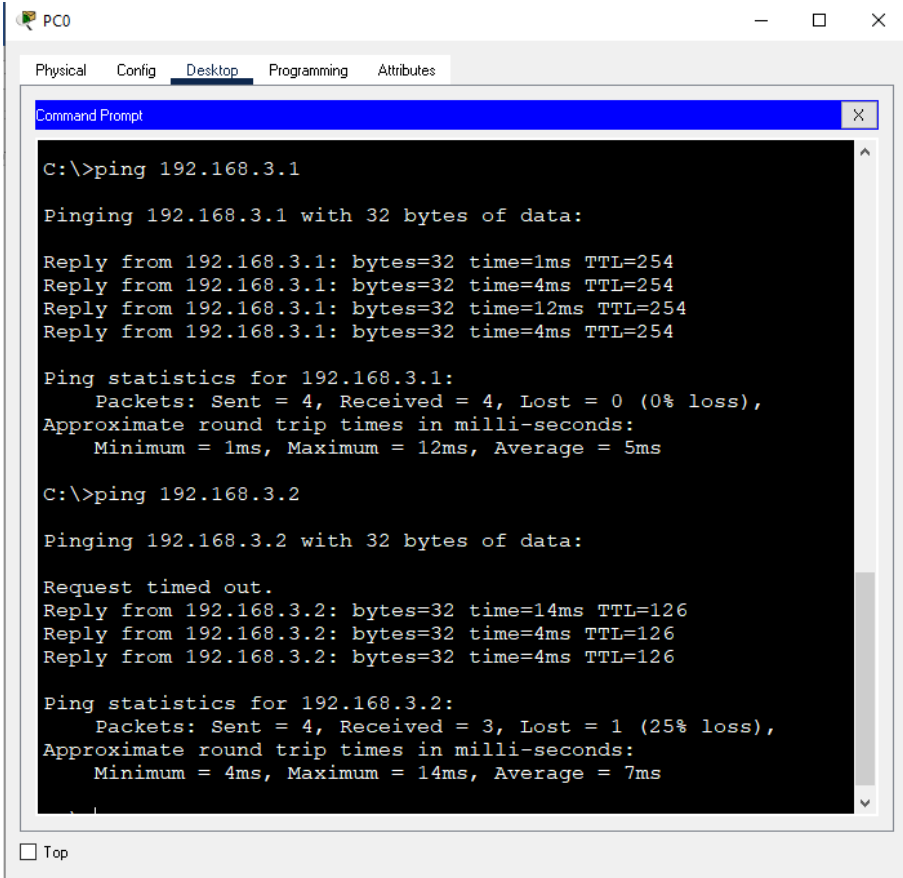
Router 1

```
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



The screenshot shows a window titled "PC0" with tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes". The "Desktop" tab is active, displaying a "Command Prompt" window. The Command Prompt shows the execution of two ping commands. The first command, "ping 192.168.3.1", shows four successful replies with varying times (1ms, 4ms, 12ms, 4ms) and a TTL of 254. The statistics for 192.168.3.1 show 4 packets sent, 4 received, 0 lost (0% loss), with round trip times of 1ms (minimum), 12ms (maximum), and 5ms (average). The second command, "ping 192.168.3.2", shows a "Request timed out" followed by three successful replies with times of 14ms, 4ms, and 4ms, and a TTL of 126. The statistics for 192.168.3.2 show 4 packets sent, 3 received, 1 lost (25% loss), with round trip times of 4ms (minimum), 14ms (maximum), and 7ms (average). A "Top" button is visible at the bottom left of the Command Prompt window.

```
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
```

The screenshot shows a window titled "PC1" with tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes". The "Desktop" tab is active, displaying a "Command Prompt" window. The Command Prompt shows the execution of two ping commands. The first command is "C:\>ping 192.168.2.1", which results in four successful replies from 192.168.2.1 with 32 bytes of data, times of 1ms, 12ms, 12ms, and 12ms, and a TTL of 254. The statistics for 192.168.2.1 show 4 packets sent, 4 received, 0 lost (0% loss), and approximate round trip times of 1ms (minimum), 12ms (maximum), and 9ms (average). The second command is "C:\>ping 192.168.2.2", which results in four successful replies from 192.168.2.2 with 32 bytes of data, times of 1ms, 13ms, 13ms, and 12ms, and a TTL of 126. The statistics for 192.168.2.2 show 4 packets sent, 4 received, 0 lost (0% loss), and approximate round trip times of 1ms (minimum), 13ms (maximum), and 9ms (average). The Command Prompt window has a scrollbar on the right side. At the bottom of the PC1 window, there is a "Top" button.

```
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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