

Vanier College

Computer Science Department

Advanced Networks

Lab #9

Title: Basic Routing

**Student Names: Marissa Gonçalves
Hao Yuan Zhang
Bryan Diego-Rivas**

Submitted to Florin Pilat

April 24, 2020

Book Exercises:

Exercise 18-1 (p. 639-641):

2.

```
2600-1#show interfaces
FastEthernet0/0 is up, line protocol is up (connected)
  Hardware is Lance, address is 00e0.f712.4975 (bia 00e0.f712.4975)
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set

Serial2/0 is up, line protocol is up (connected)
  Hardware is HD64570
  MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set, keepalive set (10 sec)
```

3.

```
2600-1#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 not set

C    192.168.1.0/24 is directly connected, FastEthernet0/0
     192.168.2.0/30 is subnetted, 1 subnets
C       192.168.2.0 is directly connected, Serial2/0
```

5.

```
2600-2#show interfaces
FastEthernet0/0 is up, line protocol is up (connected)
  Hardware is Lance, address is 0001.9711.8alc (bia 0001.9711.8alc)
  Internet address is 192.168.3.1/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
    reliability 255/255, txload 1/255, rxload 1/255

Serial3/0 is up, line protocol is up (connected)
  Hardware is HD64570
  Internet address is 192.168.2.2/30
  MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set, keepalive set (10 sec)
```

6.

```
2600-2#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 not set

```
R    192.168.1.0/24 [120/1] via 192.168.2.1, 00:00:07, Serial3/0
    192.168.2.0/30 is subnetted, 1 subnets
C    192.168.2.0 is directly connected, Serial3/0
C    192.168.3.0/24 is directly connected, FastEthernet0/0
```

7.

```
PC>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=18ms TTL=255
Reply from 192.168.1.1: bytes=32 time=14ms TTL=255
Reply from 192.168.1.1: bytes=32 time=14ms TTL=255
Reply from 192.168.1.1: bytes=32 time=12ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 12ms, Maximum = 18ms, Average = 14ms
```

8.

```
Packet Tracer PC Command Line 1.0
PC>ping 192.168.3.1

Pinging 192.168.3.1 with 32 bytes of data:

Reply from 192.168.3.1: bytes=32 time=20ms TTL=255
Reply from 192.168.3.1: bytes=32 time=10ms TTL=255
Reply from 192.168.3.1: bytes=32 time=10ms TTL=255
Reply from 192.168.3.1: bytes=32 time=5ms TTL=255

Ping statistics for 192.168.3.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 5ms, Maximum = 20ms, Average = 11ms
```

9.

```
PC>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

10.

```
2600-2#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 not set

R    192.168.1.0/24 [120/1] via 192.168.2.1, 00:00:05, Serial3/0
     192.168.2.0/30 is subnetted, 1 subnets
C      192.168.2.0 is directly connected, Serial3/0
C      192.168.3.0/24 is directly connected, FastEthernet0/0
```

11.

```
2600-2#configure t
Enter configuration commands, one per line.  End with CNTL/Z.
2600-2(config)#ip route 192.168.1.0 255.255.255.0 192.168.2.1
2600-2(config)#end
```

12.

```
2600-2#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 not set

S    192.168.1.0/24 [1/0] via 192.168.2.1
     192.168.2.0/30 is subnetted, 1 subnets
C      192.168.2.0 is directly connected, Serial3/0
C      192.168.3.0/24 is directly connected, FastEthernet0/0
```


13.

```
2600-1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
2600-1(config)#ip route 192.168.3.0 255.255.255.0 192.168.2.2
2600-1(config)#end
```

14.

```
2600-1#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 not set

C    192.168.1.0/24 is directly connected, FastEthernet0/0
     192.168.2.0/30 is subnetted, 1 subnets
C      192.168.2.0 is directly connected, Serial2/0
S    192.168.3.0/24 [1/0] via 192.168.2.2
```

15.

```
PC>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=16ms TTL=254
Reply from 192.168.1.1: bytes=32 time=16ms TTL=254
Reply from 192.168.1.1: bytes=32 time=17ms TTL=254
Reply from 192.168.1.1: bytes=32 time=15ms TTL=254

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 15ms, Maximum = 17ms, Average = 16ms
```

16.

```
PC>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time=31ms TTL=126
Reply from 192.168.1.10: bytes=32 time=32ms TTL=126
Reply from 192.168.1.10: bytes=32 time=35ms TTL=126
Reply from 192.168.1.10: bytes=32 time=34ms TTL=126

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 31ms, Maximum = 35ms, Average = 33ms
```

Review Questions:

p. 685

1. **ip route 192.168.1.0 255.255.255.0 192.168.2.2**
2. **A) 0.0.0.0**
3. **B) 1**
4. **network 192.168.1.0**
5. **B) 30**

p. 686

6. **C) 180**
7. **B) 15**
8. **D) six, equal-cost**
9. **A) It uses triggered updates.**
10. **show ip protocols**
11. **B) 0000.0C07.AC18**