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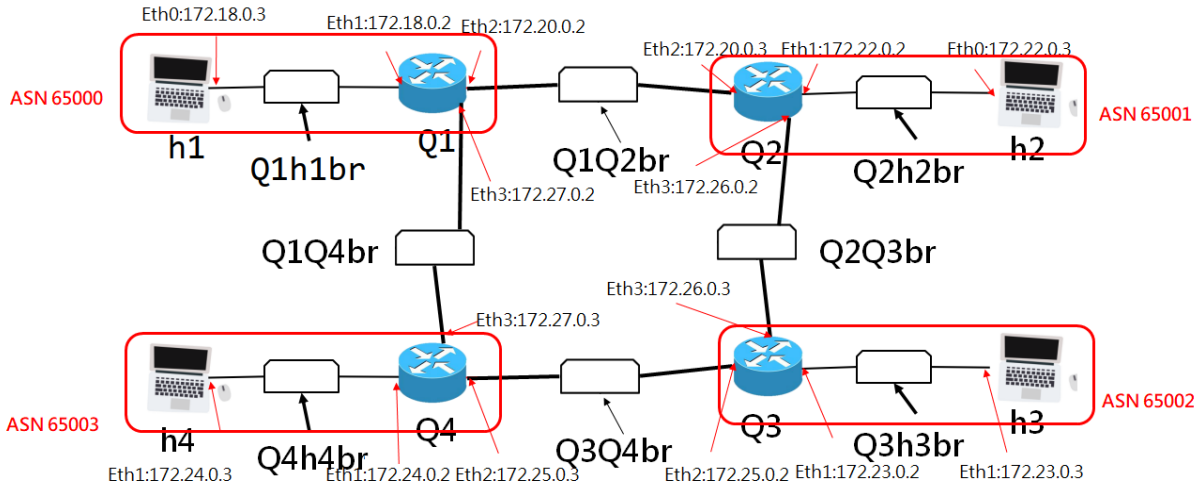
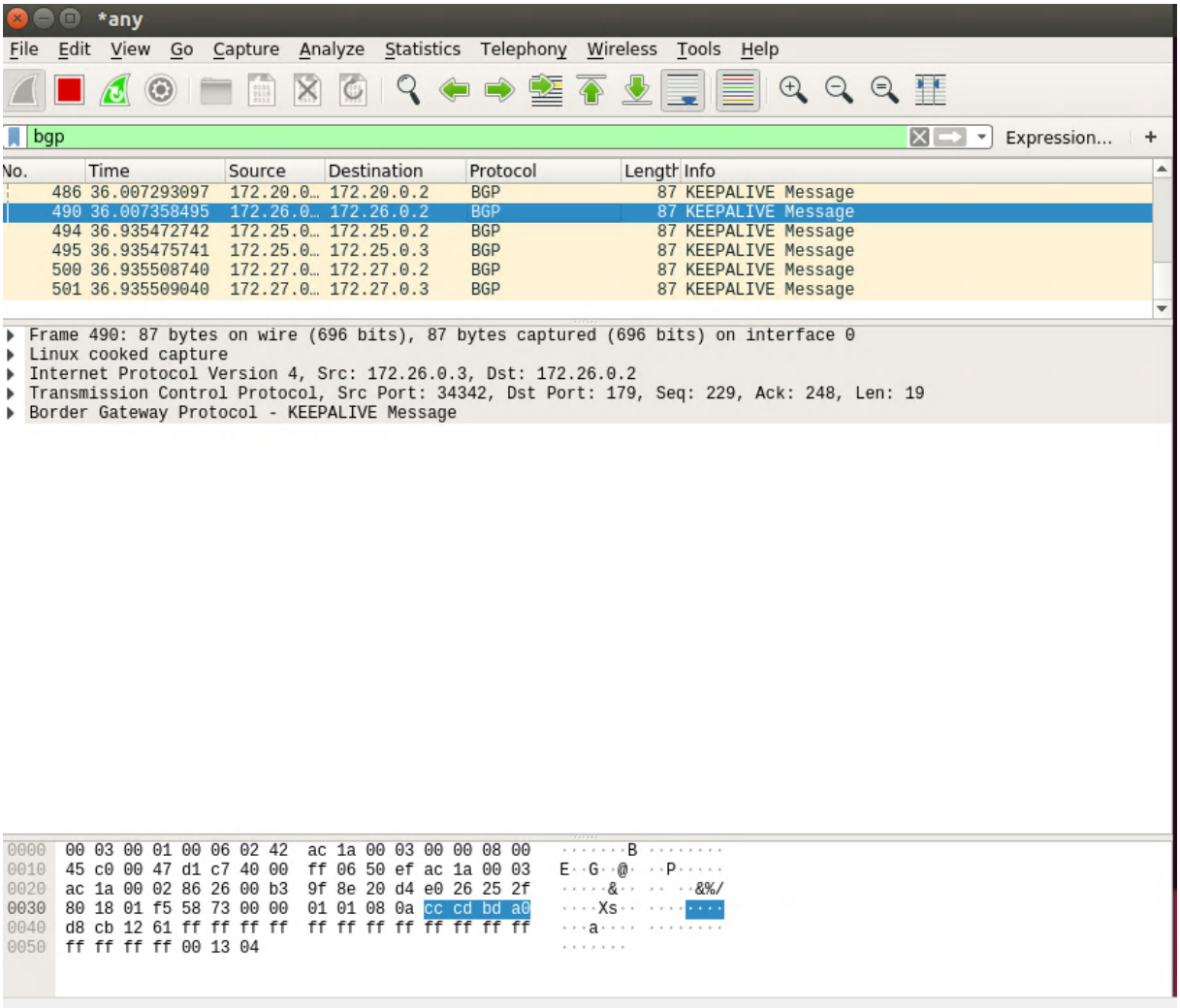
SDN-NFV Project5 report

1



2



3

Q1

```
R1zebra> show ip route bgp
Codes: K - kernel route, C - connected, S - static, R - RIP,
       O - OSPF, I - IS-IS, B - BGP, P - PIM, A - Babel,
       > - selected route, * - FIB route

B>* 172.22.0.0/16 [20/0] via 172.20.0.3, eth2, 10:35:00
B>* 172.23.0.0/16 [20/0] via 172.27.0.3, eth3, 10:35:01
B>* 172.24.0.0/16 [20/0] via 172.27.0.3, eth3, 10:35:01
R1zebra>
```

```
R1> show ip bgp summary
BGP router identifier 172.27.0.2, local AS number 65000
RIB entries 7, using 784 bytes of memory
Peers 2, using 9136 bytes of memory

Neighbor        V         AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
172.20.0.3      4 65001   12719   12722        0    0    0 10:35:48        3
172.27.0.3      4 65003   12720   12720        0    0    0 10:35:49        3

Total number of neighbors 2
R1>
```

```
root@d042f0c1e360:/# route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         172.20.0.1      0.0.0.0         UG    0      0        0 eth2
172.17.0.0      *               255.255.0.0     U     0      0        0 eth0
172.18.0.0      *               255.255.0.0     U     0      0        0 eth1
172.20.0.0      *               255.255.0.0     U     0      0        0 eth2
172.22.0.0      Q2.Q1Q2br       255.255.0.0     UG    0      0        0 eth2
172.23.0.0      Q4.Q1Q4br       255.255.0.0     UG    0      0        0 eth3
172.24.0.0      Q4.Q1Q4br       255.255.0.0     UG    0      0        0 eth3
172.27.0.0      *               255.255.0.0     U     0      0        0 eth3
root@d042f0c1e360:/#
```

Q2

```
R2zebra> show ip route bgp
Codes: K - kernel route, C - connected, S - static, R - RIP,
       O - OSPF, I - IS-IS, B - BGP, P - PIM, A - Babel,
       > - selected route, * - FIB route

B>* 172.18.0.0/16 [20/0] via 172.20.0.2, eth2, 10:36:51
B>* 172.23.0.0/16 [20/0] via 172.26.0.3, eth3, 10:42:04
B>* 172.24.0.0/16 [20/0] via 172.26.0.3, eth3, 10:36:53
R2zebra>
```

```
R2> show ip bgp summary
BGP router identifier 172.26.0.2, local AS number 65001
RIB entries 7, using 784 bytes of memory
Peers 2, using 9136 bytes of memory

Neighbor        V         AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
172.20.0.2      4 65000   12865   12869        0    0    0 10:37:24        3
172.26.0.3      4 65002   12856   12862        0    0    0 10:42:37        3

Total number of neighbors 2
R2>
```

```
root@e6cb545f9646:/# route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         172.20.0.1      0.0.0.0         UG    0      0        0 eth2
172.17.0.0      *               255.255.0.0     U     0      0        0 eth0
172.18.0.0      Q1.Q1Q2br       255.255.0.0     UG    0      0        0 eth2
172.20.0.0      *               255.255.0.0     U     0      0        0 eth2
172.22.0.0      *               255.255.0.0     U     0      0        0 eth1
172.23.0.0      Q3.Q2Q3br       255.255.0.0     UG    0      0        0 eth3
172.24.0.0      Q3.Q2Q3br       255.255.0.0     UG    0      0        0 eth3
172.26.0.0      *               255.255.0.0     U     0      0        0 eth3
root@e6cb545f9646:/#
```

Q3

```
R3zebra> show ip route bgp
Codes: K - kernel route, C - connected, S - static, R - RIP,
       O - OSPF, I - IS-IS, B - BGP, P - PIM, A - Babel,
       > - selected route, * - FIB route

B>* 172.18.0.0/16 [20/0] via 172.25.0.3, eth2, 10:38:14
B>* 172.22.0.0/16 [20/0] via 172.26.0.2, eth3, 10:43:29
B>* 172.24.0.0/16 [20/0] via 172.25.0.3, eth2, 10:38:24
R3zebra>
```

```
R3> show ip bgp summary
BGP router identifier 172.26.0.3, local AS number 65002
RIB entries 7, using 784 bytes of memory
Peers 2, using 9136 bytes of memory

Neighbor        V         AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
172.25.0.3      4 65003   12886   12889        0    0    0 10:38:59        2
172.26.0.2      4 65001   12885   12887        0    0    0 10:44:04        2

Total number of neighbors 2
R3>
```

```
root@b184407a5ce0:/# route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         172.26.0.1      0.0.0.0         UG    0      0        0 eth3
172.17.0.0      *               255.255.0.0     U     0      0        0 eth0
172.18.0.0      Q4.Q3Q4br       255.255.0.0     UG    0      0        0 eth2
172.22.0.0      Q2.Q2Q3br       255.255.0.0     UG    0      0        0 eth3
172.23.0.0      *               255.255.0.0     U     0      0        0 eth1
172.24.0.0      Q4.Q3Q4br       255.255.0.0     UG    0      0        0 eth2
172.25.0.0      *               255.255.0.0     U     0      0        0 eth2
172.26.0.0      *               255.255.0.0     U     0      0        0 eth3
root@b184407a5ce0:/#
```

Q4

```
R4zebra> show ip route bgp
Codes: K - kernel route, C - connected, S - static, R - RIP,
       O - OSPF, I - IS-IS, B - BGP, P - PIM, A - Babel,
       > - selected route, * - FIB route

B>* 172.18.0.0/16 [20/0] via 172.27.0.2, eth3, 10:39:45
B>* 172.22.0.0/16 [20/0] via 172.25.0.2, eth2, 10:39:52
B>* 172.23.0.0/16 [20/0] via 172.25.0.2, eth2, 10:39:52
R4zebra>
```

```
R4> show ip bgp summary
BGP router identifier 172.27.0.3, local AS number 65003
RIB entries 7, using 784 bytes of memory
Peers 2, using 9136 bytes of memory

Neighbor        V         AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
172.25.0.2      4 65002   12806   12809        0    0    0 10:40:16        2
172.27.0.2      4 65000   12804   12808        0    0    0 10:40:09        2

Total number of neighbors 2
R4>
```

```
root@b9092b1a20ca:/# route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         172.27.0.1      0.0.0.0         UG    0      0        0 eth3
172.17.0.0      *               255.255.0.0     U     0      0        0 eth0
172.18.0.0      Q1.Q1Q4br       255.255.0.0     UG    0      0        0 eth3
172.22.0.0      Q3.Q3Q4br       255.255.0.0     UG    0      0        0 eth2
172.23.0.0      Q3.Q3Q4br       255.255.0.0     UG    0      0        0 eth2
172.24.0.0      *               255.255.0.0     U     0      0        0 eth1
172.25.0.0      *               255.255.0.0     U     0      0        0 eth2
172.27.0.0      *               255.255.0.0     U     0      0        0 eth3
root@b9092b1a20ca:/#
```

在這次的Project中，學習到了docker的基礎使用方式，也實際動手操作，了解整個BGP的實作方式。