

Assignment 3 Modern network

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```
nithiroj@nithiroj-Nitro-AN515-57 ~$ sudo docker exec router1 vtysh -c "show ip ospf neighbor"
sudo docker exec router1 vtysh -c "show ip route"

Neighbor ID      Pri State           Up Time           Dead Time Address      Interface          RXmtL RqstL DBsmL
192.168.4.1       1 Full/Backup      49.982s           33.199s 172.20.0.3    eth0:172.20.0.2    0      0      0

Codes: K - kernel route, C - connected, L - local, S - static,
       R - RIP, O - OSPF, I - IS-IS, B - BGP, E - EIGRP, N - NHRP,
       T - Table, v - VNC, V - VNC-Direct, A - Babel, F - PBR,
       f - OpenFabric, t - Table-Direct,
       > - selected route, * - FIB route, q - queued, r - rejected, b - backup
       t - trapped, o - offload failure

IPv4 unicast VRF default:
K>* 0.0.0.0/0 [0/0] via 172.20.0.1, eth0, weight 1, 00:02:19
O 172.20.0.0/16 [110/10] is directly connected, eth0, weight 1, 00:02:00
C>* 172.20.0.0/16 is directly connected, eth0, weight 1, 00:02:19
L>* 172.20.0.2/32 is directly connected, eth0, weight 1, 00:02:19
O 192.168.1.0/24 [110/10] is directly connected, eth1, weight 1, 00:02:00
C>* 192.168.1.0/24 is directly connected, eth1, weight 1, 00:02:19
L>* 192.168.1.1/32 is directly connected, eth1, weight 1, 00:02:19
O 192.168.2.0/24 [110/10] is directly connected, eth1, weight 1, 00:02:00
C>* 192.168.2.0/24 is directly connected, eth1, weight 1, 00:02:19
L>* 192.168.2.1/32 is directly connected, eth1, weight 1, 00:02:19
O>* 192.168.3.0/24 [110/20] via 172.20.0.3, eth0, weight 1, 00:00:45
O>* 192.168.4.0/24 [110/20] via 172.20.0.3, eth0, weight 1, 00:00:45
```

Ospf router 1

```
nithiroj@nithiroj-Nitro-AN515-57 ~$ sudo docker exec router2 vtysh -c "show ip ospf neighbor"
sudo docker exec router2 vtysh -c "show ip route"

Neighbor ID      Pri State           Up Time           Dead Time Address      Interface          RXmtL RqstL DBsmL
192.168.2.1       1 Full/DR          1m17s             32.369s 172.20.0.2    eth0:172.20.0.3    0      0      0

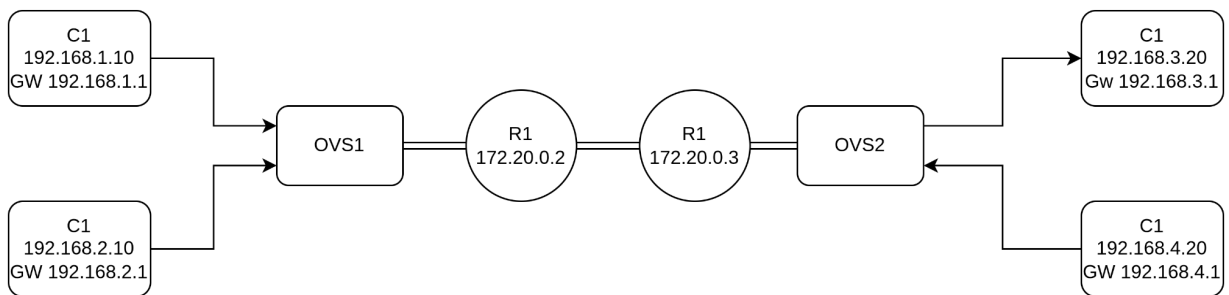
Codes: K - kernel route, C - connected, L - local, S - static,
       R - RIP, O - OSPF, I - IS-IS, B - BGP, E - EIGRP, N - NHRP,
       T - Table, v - VNC, V - VNC-Direct, A - Babel, F - PBR,
       f - OpenFabric, t - Table-Direct,
       > - selected route, * - FIB route, q - queued, r - rejected, b - backup
       t - trapped, o - offload failure

IPv4 unicast VRF default:
K>* 0.0.0.0/0 [0/0] via 172.20.0.1, eth0, weight 1, 00:01:38
O 172.20.0.0/16 [110/10] is directly connected, eth0, weight 1, 00:01:17
C>* 172.20.0.0/16 is directly connected, eth0, weight 1, 00:01:38
L>* 172.20.0.3/32 is directly connected, eth0, weight 1, 00:01:38
O>* 192.168.1.0/24 [110/20] via 172.20.0.2, eth0, weight 1, 00:01:12
O>* 192.168.2.0/24 [110/20] via 172.20.0.2, eth0, weight 1, 00:01:12
O 192.168.3.0/24 [110/10] is directly connected, eth1, weight 1, 00:01:24
C>* 192.168.3.0/24 is directly connected, eth1, weight 1, 00:01:38
L>* 192.168.3.1/32 is directly connected, eth1, weight 1, 00:01:38
O 192.168.4.0/24 [110/10] is directly connected, eth1, weight 1, 00:01:24
C>* 192.168.4.0/24 is directly connected, eth1, weight 1, 00:01:38
L>* 192.168.4.1/32 is directly connected, eth1, weight 1, 00:01:38
```

Ospf router 2

```
* nithiroj@nithiroj-Nitro-AN515-57 ~$ sudo docker exec -it router1 sh
/ # ping 172.20.0.3
PING 172.20.0.3 (172.20.0.3): 56 data bytes
64 bytes from 172.20.0.3: seq=0 ttl=64 time=0.060 ms
64 bytes from 172.20.0.3: seq=1 ttl=64 time=0.053 ms
^C
--- 172.20.0.3 ping statistics ---
2 packets transmitted, 2 packets received, 0% packet loss
round-trip min/avg/max = 0.053/0.056/0.060 ms
/ # exit
```

Router 1 ping router 2 ได้



Topology การสร้าง Network ตอนยังไม่มี vxlan

```

nithiroj@nithiroj-Nitro-AN515-57 ~$ sudo docker exec C1 ping 192.168.2.10 -c 5
PING 192.168.2.10 (192.168.2.10): 56 data bytes
64 bytes from 192.168.2.10: seq=0 ttl=63 time=0.076 ms
64 bytes from 192.168.2.10: seq=1 ttl=63 time=0.078 ms
64 bytes from 192.168.2.10: seq=2 ttl=63 time=0.078 ms
64 bytes from 192.168.2.10: seq=3 ttl=63 time=0.098 ms
64 bytes from 192.168.2.10: seq=4 ttl=63 time=0.072 ms

--- 192.168.2.10 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 0.072/0.080/0.098 ms
nithiroj@nithiroj-Nitro-AN515-57 ~$ sudo docker exec C1 ping 192.168.3.20 -c 5
PING 192.168.3.20 (192.168.3.20): 56 data bytes
64 bytes from 192.168.3.20: seq=0 ttl=62 time=0.099 ms
64 bytes from 192.168.3.20: seq=1 ttl=62 time=0.099 ms
64 bytes from 192.168.3.20: seq=2 ttl=62 time=0.097 ms
64 bytes from 192.168.3.20: seq=3 ttl=62 time=0.095 ms
64 bytes from 192.168.3.20: seq=4 ttl=62 time=0.100 ms

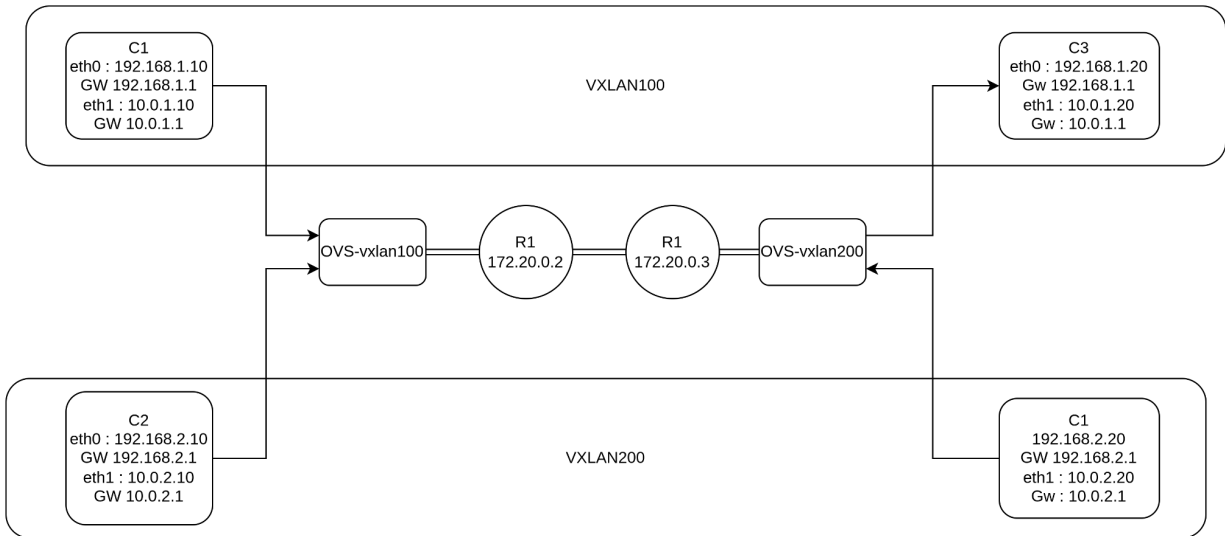
--- 192.168.3.20 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 0.095/0.098/0.100 ms
nithiroj@nithiroj-Nitro-AN515-57 ~$ sudo docker exec C1 ping 192.168.4.20 -c 5
PING 192.168.4.20 (192.168.4.20): 56 data bytes
64 bytes from 192.168.4.20: seq=0 ttl=62 time=0.088 ms
64 bytes from 192.168.4.20: seq=1 ttl=62 time=0.093 ms
64 bytes from 192.168.4.20: seq=2 ttl=62 time=0.092 ms
64 bytes from 192.168.4.20: seq=3 ttl=62 time=0.048 ms
64 bytes from 192.168.4.20: seq=4 ttl=62 time=0.091 ms

--- 192.168.4.20 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 0.048/0.082/0.093 ms
nithiroj@nithiroj-Nitro-AN515-57 ~$
  
```

C1 ping C2,C3,C4 ได้

Command ที่ใช้ Config แบบไม่มี vxlan

https://drive.google.com/file/d/1pngtL5KegEffKGm81MMddmydW6NLhpFF/view?usp=drive_link



Topology การทดลองใช้ vlanx แบ่ง

```

nithiroj@nithiroj-Nitro-AN515-57 > sudo docker exec C1 ping -c 3 10.0.1.20
PING 10.0.1.20 (10.0.1.20): 56 data bytes
64 bytes from 10.0.1.20: seq=0 ttl=64 time=0.268 ms
64 bytes from 10.0.1.20: seq=1 ttl=64 time=0.051 ms
64 bytes from 10.0.1.20: seq=2 ttl=64 time=0.048 ms

--- 10.0.1.20 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 0.048/0.122/0.268 ms
nithiroj@nithiroj-Nitro-AN515-57 > sudo docker exec C2 ping -c 3 10.0.2.20
PING 10.0.2.20 (10.0.2.20): 56 data bytes
64 bytes from 10.0.2.20: seq=0 ttl=64 time=0.301 ms
64 bytes from 10.0.2.20: seq=1 ttl=64 time=0.048 ms
64 bytes from 10.0.2.20: seq=2 ttl=64 time=0.060 ms

--- 10.0.2.20 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 0.048/0.136/0.301 ms
nithiroj@nithiroj-Nitro-AN515-57 > sudo docker exec C1 ping -c 3 -W 2 10.0.2.20 2>&1 || echo "✓ Failed as expected - different VXLAN"
PING 10.0.2.20 (10.0.2.20): 56 data bytes
ping: sendto: Network unreachable
✓ Failed as expected - different VXLAN
nithiroj@nithiroj-Nitro-AN515-57 > sudo docker exec C2 ping -c 3 -W 2 10.0.1.20 2>&1 || echo "✓ Failed as expected - different VXLAN"
PING 10.0.1.20 (10.0.1.20): 56 data bytes
ping: sendto: Network unreachable
✓ Failed as expected - different VXLAN
nithiroj@nithiroj-Nitro-AN515-57 >

```

C1 ping C3 && C2 ping C4

แต่ C1 ping C4 หรือ C2 ping C3 ไม่ได้

Command ที่ใช้ config vxlan https://drive.google.com/file/d/1eWVNsqghEpg9cmQFBJV-ahqep0Ynh0z4/view?usp=drive_link