

2)

A: sudo mn --custom topo_5switches_6hosts.py --topo mytopo

B:

```
mininet> net
h1 h1-eth0:s1-eth1
h2 h2-eth0:s2-eth2
h3 h3-eth0:s4-eth2
h4 h4-eth0:s4-eth3
h5 h5-eth0:s5-eth2
h6 h6-eth0:s5-eth3
s1 lo: s1-eth1:h1-eth0 s1-eth2:s2-eth1
s2 lo: s2-eth1:s1-eth2 s2-eth2:h2-eth0 s2-eth3:s3-eth1
s3 lo: s3-eth1:s2-eth3 s3-eth2:s4-eth1 s3-eth3:s5-eth1
s4 lo: s4-eth1:s3-eth2 s4-eth2:h3-eth0 s4-eth3:h4-eth0
s5 lo: s5-eth1:s3-eth3 s5-eth2:h5-eth0 s5-eth3:h6-eth0
c0
```

```
mininet> h1 ifconfig -a
h1-eth0  Link encap:Ethernet  HWaddr 00:00:00:00:00:01
         inet addr:192.168.0.1  Bcast:192.168.0.15  Mask:255.255.255.240
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo       Link encap:Local Loopback
         inet addr:127.0.0.1  Mask:255.0.0.0
         UP LOOPBACK RUNNING  MTU:65536  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

```
mininet> h2 ifconfig -a
h2-eth0  Link encap:Ethernet  HWaddr 00:00:00:00:00:02
         inet addr:192.168.0.2  Bcast:192.168.0.15  Mask:255.255.255.240
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo       Link encap:Local Loopback
         inet addr:127.0.0.1  Mask:255.0.0.0
         UP LOOPBACK RUNNING  MTU:65536  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

```
mininet> h3 ifconfig -a
h3-eth0  Link encap:Ethernet  HWaddr 00:00:00:00:00:03
         inet addr:192.168.0.3  Bcast:192.168.0.15  Mask:255.255.255.240
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo       Link encap:Local Loopback
         inet addr:127.0.0.1  Mask:255.0.0.0
         UP LOOPBACK RUNNING  MTU:65536  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

mininet> h4 ifconfig -a
h4-eth0  Link encap:Ethernet  HWaddr 00:00:00:00:00:04
         inet addr:192.168.0.4  Bcast:192.168.0.15  Mask:255.255.255.240
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo       Link encap:Local Loopback
         inet addr:127.0.0.1  Mask:255.0.0.0
         UP LOOPBACK RUNNING  MTU:65536  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

```

mininet> h4 ifconfig -a
h4-eth0  Link encap:Ethernet  HWaddr 00:00:00:00:00:04
         inet addr:192.168.0.4  Bcast:192.168.0.15  Mask:255.255.255.240
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

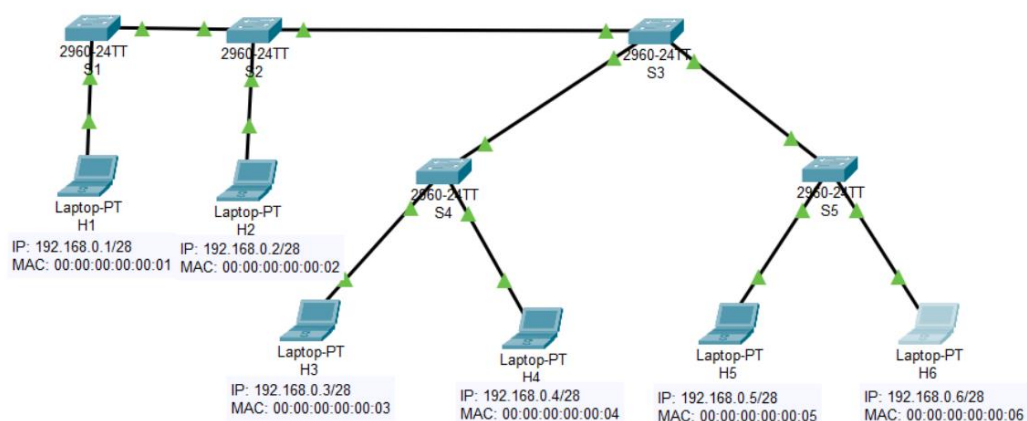
lo       Link encap:Local Loopback
         inet addr:127.0.0.1  Mask:255.0.0.0
         UP LOOPBACK RUNNING  MTU:65536  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

mininet> h6 ifconfig -a
h6-eth0  Link encap:Ethernet  HWaddr 00:00:00:00:00:06
         inet addr:192.168.0.6  Bcast:192.168.0.15  Mask:255.255.255.240
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo       Link encap:Local Loopback
         inet addr:127.0.0.1  Mask:255.0.0.0
         UP LOOPBACK RUNNING  MTU:65536  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

```

C:



D:

```
*** Ping: testing ping reachability
h1 -> h2 h3 h4 h5 h6
h2 -> h1 h3 h4 h5 h6
h3 -> h1 h2 h4 h5 h6
h4 -> h1 h2 h3 h5 h6
h5 -> h1 h2 h3 h4 h6
h6 -> h1 h2 h3 h4 h5
*** Results: 0% dropped (30/30 received)
```

```
root@mininet-vm:~# ping 192.168.0.2 -c4
PING 192.168.0.2 (192.168.0.2) 56(84) bytes of data.
 4 bytes from 192.168.0.2: icmp_seq=1 ttl=64 time=1.87 ms
 4 bytes from 192.168.0.2: icmp_seq=2 ttl=64 time=1.51 ms
 4 bytes from 192.168.0.2: icmp_seq=3 ttl=64 time=0.418 ms
 4 bytes from 192.168.0.2: icmp_seq=4 ttl=64 time=0.078 ms

--- 192.168.0.2 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3004ms
rtt min/avg/max/mdev = 0.078/0.970/1.871/0.742 ms
root@mininet-vm:~# ping 192.168.0.5 -c4
PING 192.168.0.5 (192.168.0.5) 56(84) bytes of data.
 4 bytes from 192.168.0.5: icmp_seq=1 ttl=64 time=7.69 ms
 4 bytes from 192.168.0.5: icmp_seq=2 ttl=64 time=6.01 ms
 4 bytes from 192.168.0.5: icmp_seq=3 ttl=64 time=0.573 ms
 4 bytes from 192.168.0.5: icmp_seq=4 ttl=64 time=0.055 ms

--- 192.168.0.5 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3004ms
rtt min/avg/max/mdev = 0.055/3.584/7.696/3.330 ms
root@mininet-vm:~#
```

```
root@mininet-vm:~# ping 192.168.0.1 -c4
PING 192.168.0.1 (192.168.0.1) 56(84) bytes of data.
64 bytes from 192.168.0.1: icmp_seq=1 ttl=64 time=8.92 ms
64 bytes from 192.168.0.1: icmp_seq=2 ttl=64 time=0.575 ms
64 bytes from 192.168.0.1: icmp_seq=3 ttl=64 time=0.085 ms
64 bytes from 192.168.0.1: icmp_seq=4 ttl=64 time=0.075 ms

--- 192.168.0.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3003ms
rtt min/avg/max/mdev = 0.075/2.416/8.929/3.765 ms
root@mininet-vm:~# ping 192.168.0.4 -c4
PING 192.168.0.4 (192.168.0.4) 56(84) bytes of data.
64 bytes from 192.168.0.4: icmp_seq=1 ttl=64 time=3.27 ms
64 bytes from 192.168.0.4: icmp_seq=2 ttl=64 time=22.9 ms
64 bytes from 192.168.0.4: icmp_seq=3 ttl=64 time=0.561 ms
64 bytes from 192.168.0.4: icmp_seq=4 ttl=64 time=0.131 ms

--- 192.168.0.4 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3005ms
rtt min/avg/max/mdev = 0.131/6.732/22.964/9.448 ms
root@mininet-vm:~#
```



```
root@mininet-vm:~# ping 192.168.0.1 -c4
PING 192.168.0.1 (192.168.0.1) 56(84) bytes of data.
64 bytes from 192.168.0.1: icmp_seq=1 ttl=64 time=12.1 ms
64 bytes from 192.168.0.1: icmp_seq=2 ttl=64 time=0.903 ms
64 bytes from 192.168.0.1: icmp_seq=3 ttl=64 time=0.110 ms
64 bytes from 192.168.0.1: icmp_seq=4 ttl=64 time=0.123 ms

--- 192.168.0.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3003ms
rtt min/avg/max/mdev = 0.110/3.321/12.150/5.107 ms
root@mininet-vm:~# ping 192.168.0.3 -c4
PING 192.168.0.3 (192.168.0.3) 56(84) bytes of data.
64 bytes from 192.168.0.3: icmp_seq=1 ttl=64 time=2.00 ms
64 bytes from 192.168.0.3: icmp_seq=2 ttl=64 time=0.482 ms
64 bytes from 192.168.0.3: icmp_seq=3 ttl=64 time=0.079 ms
64 bytes from 192.168.0.3: icmp_seq=4 ttl=64 time=0.093 ms

--- 192.168.0.3 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3001ms
rtt min/avg/max/mdev = 0.079/0.665/2.009/0.792 ms
root@mininet-vm:~#
```

```
root@mininet-vm:~# ping 192.168.0.6 -c4
PING 192.168.0.6 (192.168.0.6) 56(84) bytes of data.
64 bytes from 192.168.0.6: icmp_seq=1 ttl=64 time=10.1 ms
64 bytes from 192.168.0.6: icmp_seq=2 ttl=64 time=1.68 ms
64 bytes from 192.168.0.6: icmp_seq=3 ttl=64 time=4.13 ms
64 bytes from 192.168.0.6: icmp_seq=4 ttl=64 time=0.055 ms

--- 192.168.0.6 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3009ms
rtt min/avg/max/mdev = 0.055/4.000/10.121/3.821 ms
root@mininet-vm:~# ping 192.168.0.1 -c4
PING 192.168.0.1 (192.168.0.1) 56(84) bytes of data.
64 bytes from 192.168.0.1: icmp_seq=1 ttl=64 time=7.82 ms
64 bytes from 192.168.0.1: icmp_seq=2 ttl=64 time=2.67 ms
64 bytes from 192.168.0.1: icmp_seq=3 ttl=64 time=0.302 ms
64 bytes from 192.168.0.1: icmp_seq=4 ttl=64 time=0.042 ms

--- 192.168.0.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3005ms
rtt min/avg/max/mdev = 0.042/2.710/7.820/3.123 ms
root@mininet-vm:~#
```

```
root@mininet-vm:~# ping 192.168.0.6 -c4
PING 192.168.0.6 (192.168.0.6) 56(84) bytes of data.
64 bytes from 192.168.0.6: icmp_seq=1 ttl=64 time=10.1 ms
64 bytes from 192.168.0.6: icmp_seq=2 ttl=64 time=1.68 ms
64 bytes from 192.168.0.6: icmp_seq=3 ttl=64 time=4.13 ms
64 bytes from 192.168.0.6: icmp_seq=4 ttl=64 time=0.055 ms

--- 192.168.0.6 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3009ms
rtt min/avg/max/mdev = 0.055/4.000/10.121/3.821 ms
root@mininet-vm:~# ping 192.168.0.1 -c4
PING 192.168.0.1 (192.168.0.1) 56(84) bytes of data.
64 bytes from 192.168.0.1: icmp_seq=1 ttl=64 time=7.82 ms
64 bytes from 192.168.0.1: icmp_seq=2 ttl=64 time=2.67 ms
64 bytes from 192.168.0.1: icmp_seq=3 ttl=64 time=0.302 ms
64 bytes from 192.168.0.1: icmp_seq=4 ttl=64 time=0.042 ms

--- 192.168.0.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3005ms
rtt min/avg/max/mdev = 0.042/2.710/7.820/3.123 ms
root@mininet-vm:~#
```

```
root@mininet-vm:~# ping 192.168.0.4 -c4
PING 192.168.0.4 (192.168.0.4) 56(84) bytes of data.
64 bytes from 192.168.0.4: icmp_seq=1 ttl=64 time=1.41 ms
64 bytes from 192.168.0.4: icmp_seq=2 ttl=64 time=0.581 ms
64 bytes from 192.168.0.4: icmp_seq=3 ttl=64 time=0.127 ms
64 bytes from 192.168.0.4: icmp_seq=4 ttl=64 time=0.093 ms

--- 192.168.0.4 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3002ms
rtt min/avg/max/mdev = 0.093/0.553/1.413/0.532 ms
root@mininet-vm:~# ping 192.168.0.2 -c4
PING 192.168.0.2 (192.168.0.2) 56(84) bytes of data.
64 bytes from 192.168.0.2: icmp_seq=1 ttl=64 time=2.33 ms
64 bytes from 192.168.0.2: icmp_seq=2 ttl=64 time=3.32 ms
64 bytes from 192.168.0.2: icmp_seq=3 ttl=64 time=0.192 ms
64 bytes from 192.168.0.2: icmp_seq=4 ttl=64 time=0.041 ms

--- 192.168.0.2 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3003ms
rtt min/avg/max/mdev = 0.041/1.472/3.324/1.402 ms
root@mininet-vm:~#
```

```

root@mininet-vm:~# ping 192.168.0.2 -c4
PING 192.168.0.2 (192.168.0.2) 56(84) bytes of data.
64 bytes from 192.168.0.2: icmp_seq=1 ttl=64 time=8.70 ms
64 bytes from 192.168.0.2: icmp_seq=2 ttl=64 time=0.695 ms
64 bytes from 192.168.0.2: icmp_seq=3 ttl=64 time=0.086 ms
64 bytes from 192.168.0.2: icmp_seq=4 ttl=64 time=0.040 ms

--- 192.168.0.2 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3001ms
rtt min/avg/max/mdev = 0.040/2.382/8.709/3.662 ms
root@mininet-vm:~# ping 192.168.0.3 -c4
PING 192.168.0.3 (192.168.0.3) 56(84) bytes of data.
64 bytes from 192.168.0.3: icmp_seq=1 ttl=64 time=3.00 ms
64 bytes from 192.168.0.3: icmp_seq=2 ttl=64 time=4.48 ms
64 bytes from 192.168.0.3: icmp_seq=3 ttl=64 time=0.522 ms
64 bytes from 192.168.0.3: icmp_seq=4 ttl=64 time=0.095 ms

--- 192.168.0.3 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3005ms
rtt min/avg/max/mdev = 0.095/2.027/4.489/1.803 ms
root@mininet-vm:~# █

```

E:

```

--- 192.168.0.2 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3003ms
rtt min/avg/max/mdev = 0.030/0.243/0.824/0.336 ms
root@mininet-vm:~# ping 192.168.0.6 -c4
PING 192.168.0.6 (192.168.0.6) 56(84) bytes of data.
64 bytes from 192.168.0.6: icmp_seq=1 ttl=64 time=0.378 ms
64 bytes from 192.168.0.6: icmp_seq=2 ttl=64 time=0.101 ms
64 bytes from 192.168.0.6: icmp_seq=3 ttl=64 time=0.092 ms
64 bytes from 192.168.0.6: icmp_seq=4 ttl=64 time=0.101 ms

--- 192.168.0.6 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2999ms
rtt min/avg/max/mdev = 0.092/0.168/0.378/0.121 ms
root@mininet-vm:~# sudo ovs-ofctl dump-flows s1
NXST_FLOW reply (xid=0x4):
  cookie=0x0, duration=1148.224s, table=0, n_packets=9, n_bytes=826, idle_age=167
, dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:02 actions=output:2
  cookie=0x0, duration=1127.179s, table=0, n_packets=9, n_bytes=826, idle_age=167
, dl_src=00:00:00:00:00:02,dl_dst=00:00:00:00:00:01 actions=output:1
  cookie=0x0, duration=1093.896s, table=0, n_packets=10, n_bytes=868, idle_age=14
1, dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:06 actions=output:2
  cookie=0x0, duration=1068.729s, table=0, n_packets=10, n_bytes=868, idle_age=14
1, dl_src=00:00:00:00:00:06,dl_dst=00:00:00:00:00:01 actions=output:1
root@mininet-vm:~# █

```

```

root@mininet-vm:~# sudo ovs-ofctl dump-flows s3
NXST_FLOW reply (xid=0x4):
root@mininet-vm:~# sudo ovs-ofctl add-flow s3 dl_src=00:00:00:00:00:01,dl_dst=0
0:00:00:00:00:06,actions=output:3
root@mininet-vm:~# sudo ovs-ofctl add-flow s3 dl_src=00:00:00:00:00:06,dl_dst=0
0:00:00:00:00:01,actions=output:1
root@mininet-vm:~# sudo ovs-ofctl dump-flows s3
NXST_FLOW reply (xid=0x4):
  cookie=0x0, duration=470.270s, table=0, n_packets=10, n_bytes=868, idle_age=162
, dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:06 actions=output:3
  cookie=0x0, duration=431.892s, table=0, n_packets=10, n_bytes=868, idle_age=162
, dl_src=00:00:00:00:00:06,dl_dst=00:00:00:00:00:01 actions=output:1
root@mininet-vm:~# █

```

```

0:00:00:00:00:06,actions=output:3
root@mininet-vm:~# sudo ovs-ofctl add-flow s2 dl_src=00:00:00:00:00:06,dl_dst=0
0:00:00:00:00:01,actions=output:1
root@mininet-vm:~# ping 192.168.0.1 -c4
PING 192.168.0.1 (192.168.0.1) 56(84) bytes of data.
64 bytes from 192.168.0.1: icmp_seq=1 ttl=64 time=0.324 ms
64 bytes from 192.168.0.1: icmp_seq=2 ttl=64 time=0.116 ms
64 bytes from 192.168.0.1: icmp_seq=3 ttl=64 time=0.043 ms
64 bytes from 192.168.0.1: icmp_seq=4 ttl=64 time=0.076 ms

--- 192.168.0.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3000ms
rtt min/avg/max/mdev = 0.043/0.139/0.324/0.110 ms
root@mininet-vm:~# sudo ovs-ofctl dump-flows s2
NXST_FLOW reply (xid=0x4):
  cookie=0x0, duration=908.385s, table=0, n_packets=9, n_bytes=826, idle_age=179,
dl_src=00:00:00:00:00:02,dl_dst=00:00:00:00:00:01 actions=output:1
  cookie=0x0, duration=875.695s, table=0, n_packets=9, n_bytes=826, idle_age=179,
dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:02 actions=output:2
  cookie=0x0, duration=652.364s, table=0, n_packets=10, n_bytes=868, idle_age=154
, dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:06 actions=output:3
  cookie=0x0, duration=610.335s, table=0, n_packets=10, n_bytes=868, idle_age=154
, dl_src=00:00:00:00:00:06,dl_dst=00:00:00:00:00:01 actions=output:1
root@mininet-vm:~# █

```



```

root@mininet-vm:~# sudo ovs-ofctl dump-flows s5
NXST_FLOW reply (xid=0x4):
root@mininet-vm:~# sudo ovs-ofctl add-flow s5 dl_src=00:00:00:00:00:01,dl_dst=0
0:00:00:00:00:06,actions=output:3
root@mininet-vm:~# sudo ovs-ofctl add-flow s5 dl_src=00:00:00:00:00:06,dl_dst=0
0:00:00:00:00:01,actions=output:1
root@mininet-vm:~# ping 192.168.0.1 -c4
PING 192.168.0.1 (192.168.0.1) 56(84) bytes of data.
64 bytes from 192.168.0.1: icmp_seq=1 ttl=64 time=0.206 ms
64 bytes from 192.168.0.1: icmp_seq=2 ttl=64 time=0.045 ms
64 bytes from 192.168.0.1: icmp_seq=3 ttl=64 time=0.042 ms
64 bytes from 192.168.0.1: icmp_seq=4 ttl=64 time=0.103 ms

--- 192.168.0.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3000ms
rtt min/avg/max/mdev = 0.042/0.099/0.206/0.066 ms
root@mininet-vm:~# sudo ovs-ofctl dump-flows s5
NXST_FLOW reply (xid=0x4):
  cookie=0x0, duration=283.164s, table=0, n_packets=10, n_bytes=868, idle_age=16s
, dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:06 actions=output:3
  cookie=0x0, duration=252.824s, table=0, n_packets=10, n_bytes=868, idle_age=16s
, dl_src=00:00:00:00:00:06,dl_dst=00:00:00:00:00:01 actions=output:1
root@mininet-vm:~# █

```

F:

```

root@mininet-vm:~# ping 192.168.0.2 -c4
PING 192.168.0.2 (192.168.0.2) 56(84) bytes of data.
64 bytes from 192.168.0.2: icmp_seq=1 ttl=64 time=0.256 ms
64 bytes from 192.168.0.2: icmp_seq=2 ttl=64 time=0.051 ms
64 bytes from 192.168.0.2: icmp_seq=3 ttl=64 time=0.031 ms
64 bytes from 192.168.0.2: icmp_seq=4 ttl=64 time=0.031 ms

--- 192.168.0.2 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2997ms
rtt min/avg/max/mdev = 0.031/0.092/0.256/0.095 ms
root@mininet-vm:~# ping 192.168.0.6 -c4
PING 192.168.0.6 (192.168.0.6) 56(84) bytes of data.
64 bytes from 192.168.0.6: icmp_seq=1 ttl=64 time=0.502 ms
64 bytes from 192.168.0.6: icmp_seq=2 ttl=64 time=0.049 ms
64 bytes from 192.168.0.6: icmp_seq=3 ttl=64 time=0.091 ms
64 bytes from 192.168.0.6: icmp_seq=4 ttl=64 time=0.048 ms

--- 192.168.0.6 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3002ms
rtt min/avg/max/mdev = 0.048/0.172/0.502/0.191 ms
root@mininet-vm:~# █

```

```
root@mininet-vm:~# ping 192.168.0.1 -c4
PING 192.168.0.1 (192.168.0.1) 56(84) bytes of data.
64 bytes from 192.168.0.1: icmp_seq=1 ttl=64 time=1.23 ms
64 bytes from 192.168.0.1: icmp_seq=2 ttl=64 time=0.134 ms
64 bytes from 192.168.0.1: icmp_seq=3 ttl=64 time=0.095 ms
64 bytes from 192.168.0.1: icmp_seq=4 ttl=64 time=0.094 ms

--- 192.168.0.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3006ms
rtt min/avg/max/mdev = 0.094/0.390/1.238/0.489 ms
root@mininet-vm:~# █
```

```
root@mininet-vm:~# sudo ovs-ofctl dump-flows s3
NXST_FLOW reply (xid=0x4):
root@mininet-vm:~# sudo ovs-ofctl add-flow s3 dl_src=00:00:00:00:00:01,dl_dst=0
0:00:00:00:00:06,actions=output:3
root@mininet-vm:~# sudo ovs-ofctl add-flow s3 dl_src=00:00:00:00:00:06,dl_dst=0
0:00:00:00:00:01,actions=output:1
root@mininet-vm:~# sudo ovs-ofctl dump-flows s3
NXST_FLOW reply (xid=0x4):
  cookie=0x0, duration=470.270s, table=0, n_packets=10, n_bytes=868, idle_age=162
, dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:06 actions=output:3
  cookie=0x0, duration=431.892s, table=0, n_packets=10, n_bytes=868, idle_age=162
, dl_src=00:00:00:00:00:06,dl_dst=00:00:00:00:00:01 actions=output:1
root@mininet-vm:~# █
```

```
root@mininet-vm:~# ping 192.168.0.1 -c4
PING 192.168.0.1 (192.168.0.1) 56(84) bytes of data.
64 bytes from 192.168.0.1: icmp_seq=1 ttl=64 time=0.048 ms
64 bytes from 192.168.0.1: icmp_seq=2 ttl=64 time=0.034 ms
64 bytes from 192.168.0.1: icmp_seq=3 ttl=64 time=0.030 ms
64 bytes from 192.168.0.1: icmp_seq=4 ttl=64 time=0.104 ms

--- 192.168.0.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2998ms
rtt min/avg/max/mdev = 0.030/0.054/0.104/0.029 ms
root@mininet-vm:~# █
```