CS2007-Asssignment-5

Topology Code :

```
from mininet.net import Mininet

from mininet.node import Controller, OVSController

from mininet.cli import CLI

from mininet.link import TCLink

from mininet.log import setLogLevel, info


net = Mininet()


h1 = net.addHost( 'h1' )

h2 = net.addHost( 'h2' )

h3 = net.addHost( 'h3' )

h4 = net.addHost( 'h4' )

h5 = net.addHost( 'h5' )

h6 = net.addHost( 'h6' )

s1 = net.addSwitch( 's1' )

s2 = net.addSwitch( 's2' )

s3 = net.addSwitch( 's3' )


net.addLink( h1, s1, bw=20, delay='10ms' )

net.addLink( h2, s1, bw=20, delay='10ms' )

net.addLink( h3, s2, bw=20, delay='10ms' )

net.addLink( h4, s2, bw=20, delay='10ms' )

net.addLink( h5, s3, bw=20, delay='10ms' )

net.addLink( h6, s3, bw=20, delay='10ms' )
```

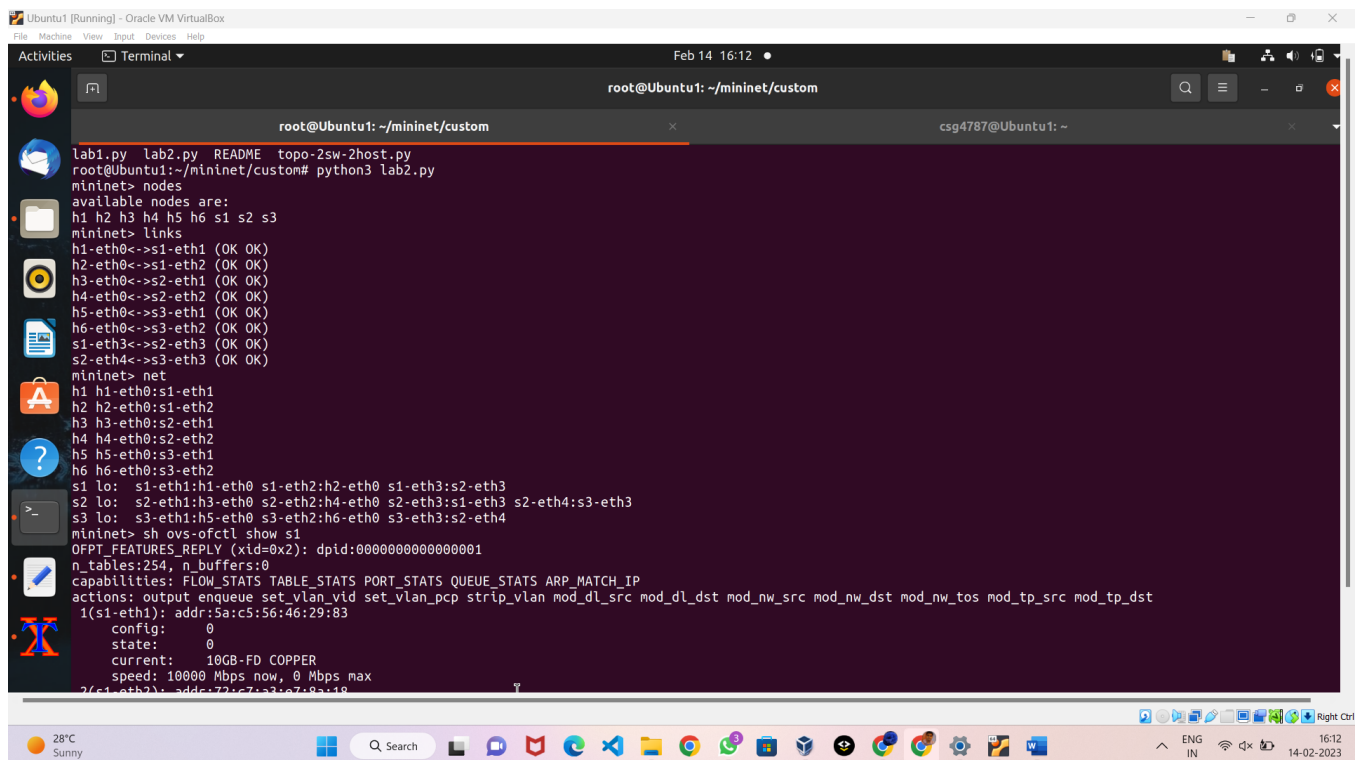net.addLink(s1, s2, bw=50, delay='10ms')

net.addLink(s2, s3, bw=50, delay='10ms')

net.start()

CLI(net)

net.stop()

```
mininet> sh ovs-ofctl add-flow s1 priority=500,in_port=2,actions=output:1
mininet> sh ovs-ofctl dump-flows s1
 cookie=0x0, duration=36.970s, table=0, n_packets=0, n_bytes=0, priority=500,in_port="s1-eth1" actions=output:"s1-eth2"
 cookie=0x0, duration=22.308s, table=0, n_packets=0, n_bytes=0, priority=500,in_port="s1-eth2" actions=output:"s1-eth1"
mininet> pingall
*** Ping: testing ping reachability
h1 -> h2 X X X X
h2 -> h1 X X X X
h3 -> X X X X X
h4 -> X X X X X
h5 -> X X X X X
h6 -> X X X X X
*** Results: 93% dropped (2/30 received)
mininet> sh ovs-ofctl add-flow s2 priority=500,in_port=1,actions=output:2
mininet> sh ovs-ofctl add-flow s2 priority=500,in_port=2,actions=output:1
mininet> pingall
*** Ping: testing ping reachability
h1 -> h2 X X X X
h2 -> h1 X X X X
h3 -> X X h4 X X
h4 -> X X h3 X X
h5 -> X X X X X
h6 -> X X X X X
*** Results: 86% dropped (4/30 received)
mininet> sh ovs-ofctl add-flow s3 priority=500,in_port=1,actions=output:2
mininet> sh ovs-ofctl add-flow s3 priority=500,in_port=2,actions=output:1
mininet> pingall
*** Ping: testing ping reachability
h1 -> h2 X X X X
h2 -> h1 X X X X
h3 -> X X h4 X X
h4 -> X X h3 X X
h5 -> X X X X h6
h6 -> X X X X h5
*** Results: 80% dropped (6/30 received)
```



```
h3 -> X X h4 X X
h4 -> X X h3 X X
h5 -> X X X X h6
h6 -> X X X X h5
*** Results: 80% dropped (6/30 received)
mininet> sh ovs-ofctl add-flow s1 priority=500,dl_type=0x800,nw_src=10.0.0.1/24,nw_dst=10.0.0.1/24,actions=normal
mininet> sh ovs-ofctl add-flow s1 arp,nw_dst=10.0.0.6,actions=output:1
mininet> pingall
*** Ping: testing ping reachability
h1 -> h2 X X X X
h2 -> h1 X X X X
h3 -> X X h4 X X
h4 -> X X h3 X X
h5 -> X X X X h6
h6 -> X X X X h5
*** Results: 80% dropped (6/30 received)
mininet> sh ovs-ofctl add-flow s1 priority=800,dl_type=0x800,nw_src=10.0.0.6,nw_dst=10.0.0.1/24,actions=mod_nw_tos:184,nor mal
ovs-ofctl: 'add-flow' command takes at most 2 arguments
mininet> h1 ping h2
PING 10.0.0.2 (10.0.0.2) 56(84) bytes of data.
64 bytes from 10.0.0.2: icmp_seq=1 ttl=64 time=0.332 ms
64 bytes from 10.0.0.2: icmp_seq=2 ttl=64 time=0.103 ms
64 bytes from 10.0.0.2: icmp_seq=3 ttl=64 time=0.089 ms
^C
--- 10.0.0.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2040ms
rtt min/avg/max/mdev = 0.089/0.174/0.332/0.111 ms
mininet> exit
root@Ubuntu1:~/mininet/custom# python3 lab2.py
mininet> sh ovs-ofctl add-flow s1 priority=500,dl_type=0x800,nw_src=10.0.0.1/24,nw_dst=10.0.0.6/24,actions=normal
mininet> sh ovs-ofctl add-flow s1 priority=800,dl_type=0x800,nw_src=10.0.0.6,nw_dst=10.0.0.1/24,actions=mod_nw_tos:184,nor mal
ovs-ofctl: 'add-flow' command takes at most 2 arguments
mininet> sh ovs-ofctl add-flow s1 priority=800,dl_type=0x800,nw_src=10.0.0.6,nw_dst=10.0.0.1/24,actions=normal
mininet> xterm h1 h6
Error: Cannot connect to display
```

```
rtt min/avg/max/mdev = 0.053/0.454/8.352/1.649 ms
mininet> h3 ping h4
ping: h4: Temporary failure in name resolution
mininet> h2 ping h1
PING 10.0.0.1 (10.0.0.1) 56(84) bytes of data.
64 bytes from 10.0.0.1: icmp_seq=1 ttl=64 time=1.09 ms
64 bytes from 10.0.0.1: icmp_seq=2 ttl=64 time=0.082 ms
64 bytes from 10.0.0.1: icmp_seq=3 ttl=64 time=0.050 ms
64 bytes from 10.0.0.1: icmp_seq=4 ttl=64 time=0.049 ms
64 bytes from 10.0.0.1: icmp_seq=5 ttl=64 time=0.053 ms
64 bytes from 10.0.0.1: icmp_seq=6 ttl=64 time=0.046 ms
64 bytes from 10.0.0.1: icmp_seq=7 ttl=64 time=0.079 ms
64 bytes from 10.0.0.1: icmp_seq=8 ttl=64 time=0.054 ms
64 bytes from 10.0.0.1: icmp_seq=9 ttl=64 time=0.079 ms
^C
--- 10.0.0.1 ping statistics ---
9 packets transmitted, 9 received, 0% packet loss, time 8399ms
rtt min/avg/max/mdev = 0.046/0.175/1.090/0.323 ms
mininet> h5 ping h6
ping: h6: Temporary failure in name resolution
mininet> h6 ping h5
ping: h5: Temporary failure in name resolution
mininet> h1 ping h3
ping: h3: Temporary failure in name resolution
mininet> py net.hosts
[<Host h1: h1-eth0:10.0.0.1 pid=3276> , <Host h2: h2-eth0:10.0.0.2 pid=3278> , <Host h3: h3-eth0:None pid=3350> , <Host h4: h4-eth0:None pid=3354> , <
Host h5: h5-eth0:None pid=3358> , <Host h6: h6-eth0:None pid=3362> ]
mininet> py h3.setIP('10.0.0.3')

mininet> py h4.setIP('10.0.0.4')

mininet> py h5.setIP('10.0.0.5')

mininet> py h6.setIP('10.0.0.6')

mininet> h3 ping h4
PING 10.0.0.4 (10.0.0.4) 56(84) bytes of data.
^C
--- 10.0.0.4 ping statistics ---
24 packets transmitted, 0 received, 100% packet loss, time 23566ms

mininet> h4 ping h3
PING 10.0.0.3 (10.0.0.3) 56(84) bytes of data.
^C
--- 10.0.0.3 ping statistics ---
24 packets transmitted, 0 received, 100% packet loss, time 23555ms
```



```
alienx@alienx-VirtualBox:~$ sudo -i
[sudo] password for alienx:
root@alienx-VirtualBox:~# sudo mn
*** Creating network
*** Adding controller
*** Adding hosts:
h1 h2
*** Adding switches:
s1
*** Adding links:
(h1, s1) (h2, s1)
*** Configuring hosts
h1 h2
*** Starting controller
c0
*** Starting 1 switches
s1 ...
*** Starting CLI:
mininet> nodes
available nodes are:
c0 h1 h2 s1
mininet> py net.addHost('h3',ip='10.0.0.3')
<Host h3:  pid=3350>
mininet> py net.addHost('h4',ip='10.0.0.4')
<Host h4:  pid=3354>
mininet> py net.addHost('h5',ip='10.0.0.5')
<Host h5:  pid=3358>
mininet> py net.addHost('h6',ip='10.0.0.6')
<Host h6:  pid=3362>
mininet> py net.addSwitch('s2')
<OVSSwitch s2: lo:127.0.0.1 pid=3378>
mininet> nodes
available nodes are:
c0 h1 h2 h3 h4 h5 h6 s1 s2
mininet> py net.addSwitch('s3')
<OVSSwitch s3: lo:127.0.0.1 pid=3388>
mininet> nodes
available nodes are:
c0 h1 h2 h3 h4 h5 h6 s1 s2 s3
mininet> py net.addLink('h3','s2',bw='20',delay='10ms')
<mininet.link.Link object at 0x7f0a7e3bca90>
mininet> py net.addLink('h4','s2',bw='20',delay='10ms')
<mininet.link.Link object at 0x7f0a7e3bcc10>
mininet> py net.addLink('s1','s2',bw='50',delay='10ms')
<mininet.link.Link object at 0x7f0a7e3bcd90>
mininet> links
```

```
                                        root@alienx-VirtualBox: ~

rtt min/avg/max/mdev = 0.053/0.454/8.352/1.649 ms
mininet> h3 ping h4
ping: h4: Temporary failure in name resolution
mininet> h2 ping h1
PING 10.0.0.1 (10.0.0.1) 56(84) bytes of data.
64 bytes from 10.0.0.1: icmp_seq=1 ttl=64 time=1.09 ms
64 bytes from 10.0.0.1: icmp_seq=2 ttl=64 time=0.082 ms
64 bytes from 10.0.0.1: icmp_seq=3 ttl=64 time=0.050 ms
64 bytes from 10.0.0.1: icmp_seq=4 ttl=64 time=0.049 ms
64 bytes from 10.0.0.1: icmp_seq=5 ttl=64 time=0.053 ms
64 bytes from 10.0.0.1: icmp_seq=6 ttl=64 time=0.046 ms
64 bytes from 10.0.0.1: icmp_seq=7 ttl=64 time=0.079 ms
64 bytes from 10.0.0.1: icmp_seq=8 ttl=64 time=0.054 ms
64 bytes from 10.0.0.1: icmp_seq=9 ttl=64 time=0.079 ms
^C
--- 10.0.0.1 ping statistics ---
9 packets transmitted, 9 received, 0% packet loss, time 8399ms
rtt min/avg/max/mdev = 0.046/0.175/1.090/0.323 ms
mininet> h5 ping h6
ping: h6: Temporary failure in name resolution
mininet> h6 ping h5
ping: h5: Temporary failure in name resolution
mininet> h1 ping h3
ping: h3: Temporary failure in name resolution
mininet> py net.hosts
[<Host h1: h1-eth0:10.0.0.1 pid=3276> , <Host h2: h2-eth0:10.0.0.2 pid=3278> , <Host h3: h3-eth0:None pid=3350> , <Host h4: h4-eth0:None pid=3354> , <
Host h5: h5-eth0:None pid=3358> , <Host h6: h6-eth0:None pid=3362> ]
mininet> py h3.setIP('10.0.0.3')

mininet> py h4.setIP('10.0.0.4')

mininet> py h5.setIP('10.0.0.5')

mininet> py h6.setIP('10.0.0.6')

mininet> h3 ping h4
PING 10.0.0.4 (10.0.0.4) 56(84) bytes of data.
^C
--- 10.0.0.4 ping statistics ---
24 packets transmitted, 0 received, 100% packet loss, time 23566ms

mininet> h4 ping h3
PING 10.0.0.3 (10.0.0.3) 56(84) bytes of data.
^C
--- 10.0.0.3 ping statistics ---
24 packets transmitted, 0 received, 100% packet loss, time 23555ms
```