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CMPE 150
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Lab 3 Solutions

1. Pingall: This should fail, since ICMP traffic should be blocked

```
mininet@mininet-vm:~$ sudo ~/lab3.py
sudo: /home/mininet/lab3.py: command not found
mininet@mininet-vm:~$ sudo python ~/lab3.py
Unable to contact the remote controller at 127.0.0.1:6633
mininet> pingall
*** Ping: testing ping reachability
h1 -> X X X
h2 -> X X X
h3 -> X X X
h4 -> X X X
*** Results: 100% dropped (0/12 received)
mininet>
```

   a. Pingall does fail. It should only accept ARP and TCP traffic, nothing else. Since it's ICMP traffic, it is blocked.

2. Dpctl dump-flows: This should show a few entries. These are the entries that you installed into the switch with of_flow_mod. You'll need to do this within the timeout you specified in your of_flow_mod for the entries to show up!

```
mininet@mininet-vm:~$ sudo python ~/lab3.py
mininet> iperf
*** Iperf: testing TCP bandwidth between h1 and h4
*** Results: ['20.5 Gbits/sec', '20.5 Gbits/sec']
mininet> dpctl dump-flows
*** s1 ------------------------------------------------------------------------
NXST_FLOW reply (xid=0x4):
 cookie=0x0, duration=8.826s, table=0, n_packets=4, n_bytes=272, idle_timeout=25, hard_timeou
t=50, idle_age=8, tcp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:04,nw_sr
c=10.0.1.10,nw_dst=10.0.1.40,nw_tos=16,tp_src=54222,tp_dst=5001 actions=ALL
 cookie=0x0, duration=8.823s, table=0, n_packets=3, n_bytes=206, idle_timeout=25, hard_timeou
t=50, idle_age=8, tcp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00:00:00:01,nw_sr
c=10.0.1.40,nw_dst=10.0.1.10,nw_tos=0,tp_src=5001,tp_dst=54222 actions=ALL
 cookie=0x0, duration=8.815s, table=0, n_packets=207902, n_bytes=13721540, idle_timeout=25, h
ard_timeout=50, idle_age=3, tcp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00:00:0
0:01,nw_src=10.0.1.40,nw_dst=10.0.1.10,nw_tos=0,tp_src=5001,tp_dst=54223 actions=ALL
 cookie=0x0, duration=8.817s, table=0, n_packets=291213, n_bytes=12840420986, idle_timeout=25
, hard_timeout=50, idle_age=3, tcp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:00:0
0:00:04,nw_src=10.0.1.10,nw_dst=10.0.1.40,nw_tos=0,tp_src=54223,tp_dst=5001 actions=ALL
 cookie=0x0, duration=8.828s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout
=50, idle_age=8, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00:00:00:01,arp_sp
a=10.0.1.40,arp_tpa=10.0.1.10,arp_op=2 actions=ALL
 cookie=0x0, duration=8.831s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout
=50, idle_age=8, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=ff:ff:ff:ff:ff:ff,arp_sp
a=10.0.1.10,arp_tpa=10.0.1.40,arp_op=1 actions=ALL
mininet>
```

   a. If there were no flows, it should have shown no flows. There were flow replies. I used idle_timeout, which I set to 25, and hard_timeout,

which I set to 50. Originally I set them to 50 and 100 just to make sure they are working properly.

3. Iperf: This should succeed
    a. Screenshot shown in dpctl dump-flows shows that iperf ran correctly. Iperf is a tool to measure the bandwidth and the quality of a network link. As shown above, that is what happened, so Iperf succeeded.