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CMPE 150/L
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Lab 1: Installing and Using Mininet

1. After setting up the 4 hosts with 1 switch

```
mininet@mininet-vm:~/mininet/custom$ sudo mn --custom ~/mininet/custom/topo-4sw-
1host.py --topo mytopo
*** Creating network
*** Adding controller
*** Adding hosts:
h1 h2 h3 h4
*** Adding switches:
s1
*** Adding links:
(h1, s1) (h2, s1) (h3, s1) (h4, s1)
*** Configuring hosts
h1 h2 h3 h4
*** Starting controller
c0
*** Starting 1 switches
s1 ...
*** Starting CLI:
mininet>
```

2. The dump command and pingall command:

```
*** Adding controller
*** Adding hosts:
h1 h2 h3 h4
*** Adding switches:
s1
*** Adding links:
(h1, s1) (h2, s1) (h3, s1) (h4, s1)
*** Configuring hosts
h1 h2 h3 h4
*** Starting controller
c0
*** Starting 1 switches
s1 ...
*** Starting CLI:
mininet> dump
<Host h1: h1-eth0:10.0.0.1 pid=7141>
<Host h2: h2-eth0:10.0.0.2 pid=7144>
<Host h3: h3-eth0:10.0.0.3 pid=7146>
<Host h4: h4-eth0:10.0.0.4 pid=7148>
<OVSSwitch s1: lo:127.0.0.1,s1-eth1:None,s1-eth2:None,s1-eth3:None,s1-eth4:None
pid=7153>
<Controller c0: 127.0.0.1:6633 pid=7134>
mininet> pingall
*** Ping: testing ping reachability
h1 -> h2 h3 h4
h2 -> h1 h3 h4
h3 -> h1 h2 h4
h4 -> h1 h2 h3
*** Results: 0% dropped (12/12 received)
mininet>
```

3. iperf command gave me a connection speed of 22.7 Gb/sec

```
mininet> iperf
*** Iperf: testing TCP bandwidth between h1 and h4
.*** Results: ['22.7 Gbits/sec', '22.7 Gbits/sec']
mininet>
```

4. After running wireshark:

4b. The command "h1 ping -c 5 h2" had 5 of_packet_in messages.

4c. The of_packet_in has 4 different sources, 2 being 10.0.0.2 the host that the ping was sent to. The destination is either the host sources or host destination. For OFT_PACKET_OUT the source and destination is the ip address of the virtual machine, this was found by clicking on the of_packet_out and looking at the header information.
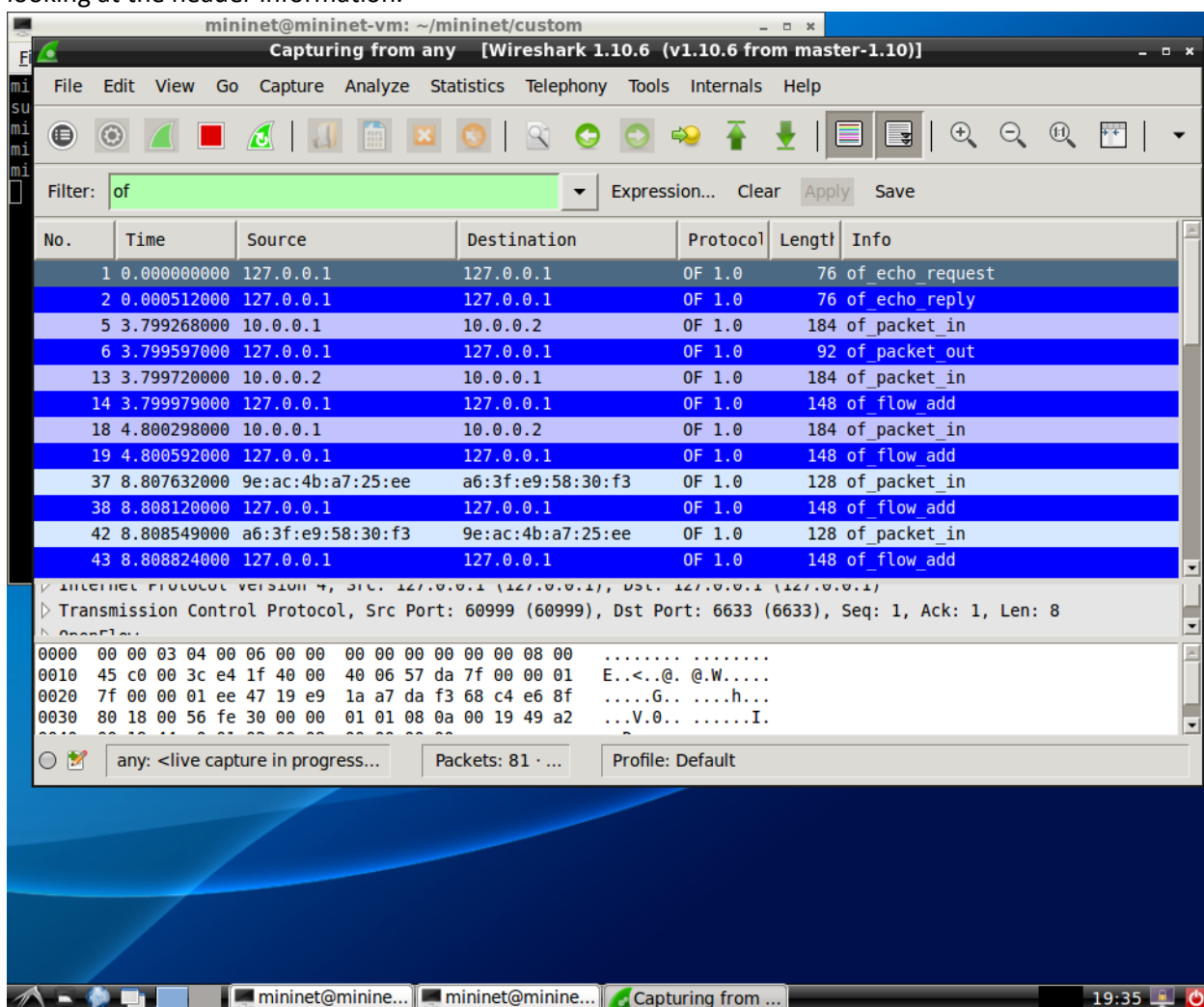
4e. After changing the filter to "icmp && not of"

There were 161 entries generated by Wireshark. There were two types of icmp messages, "Echo (ping) request" and "Echo (ping) reply"