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CMPE 150 Lab

Lab 1

Number 1, Number 2, and Number 3

After changing the topography, I have screenshotted the output of dump, pingall, and iperf onto a single screenshot shown below:

```
mininet> dump
<Host h1: h1-eth0:10.0.0.1 pid=1635>
<Host h2: h2-eth0:10.0.0.2 pid=1638>
<Host h3: h3-eth0:10.0.0.3 pid=1640>
<Host h4: h4-eth0:10.0.0.4 pid=1642>
<OVSSwitch s1: lo:127.0.0.1,s1-eth1:None,s1-eth2:None,s1-eth3:None,s1-eth4:None
pid=1647>
<Controller c0: 127.0.0.1:6633 pid=1628>
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> iperf
*** Iperf: testing TCP bandwidth between h1 and h4
*** Results: ['6.69 Gbits/sec', '6.70 Gbits/sec']
mininet>
```

The connect speed is [‘6.69 Gbits/sec’, 6.70 Gbits/sec’]

Number 4a and 4b

The command I have used to see the below information is h1 ping –c 5 h2
Using the screenshot below, I was able to see how many of_packet_in messages show up.
Here is the screenshot:

8	10.00177000(	127.0.0.1	127.0.0.1	OF 1.0	76	of_echo_reply
11	10.61250300(	26:ed:6e:dc:b3:92	Broadcast	OF 1.0	128	of_packet_in
12	10.61290500(	127.0.0.1	127.0.0.1	OF 1.0	92	of_packet_out
19	10.61307800(	f2:00:60:23:c2:8d	26:ed:6e:dc:b3:92	OF 1.0	128	of_packet_in
20	10.61333700(	127.0.0.1	127.0.0.1	OF 1.0	148	of_flow_add
23	10.61360800(	10.0.0.1	10.0.0.2	OF 1.0	184	of_packet_in
24	10.61384100(	127.0.0.1	127.0.0.1	OF 1.0	148	of_flow_add
27	10.61404500(	10.0.0.2	10.0.0.1	OF 1.0	184	of_packet_in
28	10.61426100(	127.0.0.1	127.0.0.1	OF 1.0	148	of_flow_add
47	14.99960300(	127.0.0.1	127.0.0.1	OF 1.0	76	of_echo_request
48	15.00125100(	127.0.0.1	127.0.0.1	OF 1.0	76	of_echo_reply
51	15.62431200(	f2:00:60:23:c2:8d	26:ed:6e:dc:b3:92	OF 1.0	128	of_packet_in
52	15.62589100(	127.0.0.1	127.0.0.1	OF 1.0	148	of_flow_add
56	15.62769200(	26:ed:6e:dc:b3:92	f2:00:60:23:c2:8d	OF 1.0	128	of_packet_in
57	15.62905600(	127.0.0.1	127.0.0.1	OF 1.0	148	of_flow_add
60	19.99883000(	127.0.0.1	127.0.0.1	OF 1.0	76	of_echo_request

From this picture, there are 6 of_packet_in messages.

Number 4c

For the of_packet_in

The source IP address is 10.0.0.1 and the destination IP address is 10.0.0.2

For the of_packet_out

The source IP address is 127.0.0.1 and the destination IP address is 127.0.0.1

Number 4d and 4e

=> After running pingall there were 48 entries

=> The two types of icmp entries are reply and request

This screenshot below shows the types of icmp entries but is not long enough to show the total number of entries:

7	9.205256000	10.0.0.1	10.0.0.2	ICMP	100	Echo (ping) request id=0x09c3, seq=1/256, ttl=64
11	9.205830000	10.0.0.1	10.0.0.2	ICMP	100	Echo (ping) request id=0x09c3, seq=1/256, ttl=64 (reply in 12)
12	9.205839000	10.0.0.2	10.0.0.1	ICMP	100	Echo (ping) reply id=0x09c3, seq=1/256, ttl=64 (request in 11)
13	9.206006000	10.0.0.2	10.0.0.1	ICMP	100	Echo (ping) reply id=0x09c3, seq=1/256, ttl=64
14	9.207593000	10.0.0.1	10.0.0.3	ICMP	100	Echo (ping) request id=0x09c4, seq=1/256, ttl=64
15	9.207645000	10.0.0.1	10.0.0.3	ICMP	100	Echo (ping) request id=0x09c4, seq=1/256, ttl=64 (reply in 16)
16	9.207653000	10.0.0.3	10.0.0.1	ICMP	100	Echo (ping) reply id=0x09c4, seq=1/256, ttl=64 (request in 15)
17	9.207761000	10.0.0.3	10.0.0.1	ICMP	100	Echo (ping) reply id=0x09c4, seq=1/256, ttl=64
18	9.209084000	10.0.0.1	10.0.0.4	ICMP	100	Echo (ping) request id=0x09c5, seq=1/256, ttl=64
19	9.209133000	10.0.0.1	10.0.0.4	ICMP	100	Echo (ping) request id=0x09c5, seq=1/256, ttl=64 (reply in 20)
20	9.209140000	10.0.0.4	10.0.0.1	ICMP	100	Echo (ping) reply id=0x09c5, seq=1/256, ttl=64 (request in 19)
21	9.209244000	10.0.0.4	10.0.0.1	ICMP	100	Echo (ping) reply id=0x09c5, seq=1/256, ttl=64
22	9.211098000	10.0.0.2	10.0.0.1	ICMP	100	Echo (ping) request id=0x09c6, seq=1/256, ttl=64
23	9.211163000	10.0.0.2	10.0.0.1	ICMP	100	Echo (ping) request id=0x09c6, seq=1/256, ttl=64 (reply in 24)
24	9.211172000	10.0.0.1	10.0.0.2	ICMP	100	Echo (ping) reply id=0x09c6, seq=1/256, ttl=64 (request in 23)
25	9.211289000	10.0.0.1	10.0.0.2	ICMP	100	Echo (ping) reply id=0x09c6, seq=1/256, ttl=64
26	9.212992000	10.0.0.2	10.0.0.3	ICMP	100	Echo (ping) request id=0x09c7, seq=1/256, ttl=64
27	9.213052000	10.0.0.2	10.0.0.3	ICMP	100	Echo (ping) request id=0x09c7, seq=1/256, ttl=64 (reply in 28)
28	9.213060000	10.0.0.3	10.0.0.2	ICMP	100	Echo (ping) reply id=0x09c7, seq=1/256, ttl=64 (request in 27)
29	9.213174000	10.0.0.3	10.0.0.2	ICMP	100	Echo (ping) reply id=0x09c7, seq=1/256, ttl=64
30	9.214678000	10.0.0.2	10.0.0.4	ICMP	100	Echo (ping) request id=0x09c8, seq=1/256, ttl=64
31	9.214774000	10.0.0.2	10.0.0.4	ICMP	100	Echo (ping) request id=0x09c8, seq=1/256, ttl=64 (reply in 32)