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Lab 3
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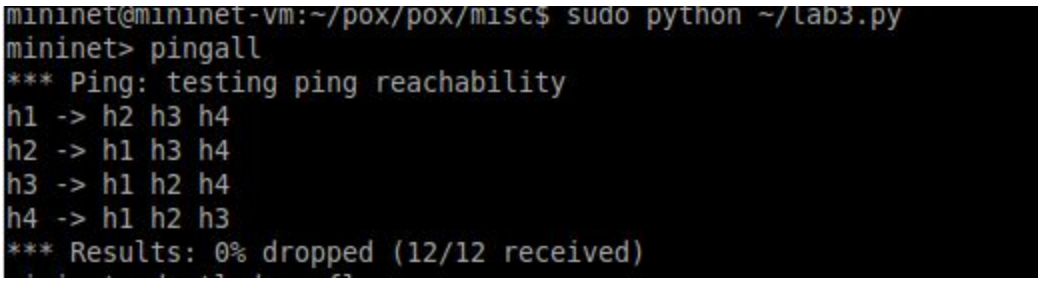
Pingall:



Pingall tests the connectivity between hosts. As you can see in my screenshot above, all of the hosts can reach each other and none of the packets are dropped. I essentially told the switch to let all of the packets through.

dcptl dump--flows:

```
mininet> dpctl dump-flows
*** s1 ------------------------------------------------------------------------
NXST_FLOW reply (xid=0x4):
 cookie=0x0, duration=7.327s, table=0, n_packets=1, n_bytes=98, idle_age=7, icm
p,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:04,nw_src=10.0
.1.10,nw_dst=10.0.1.40,nw_tos=0,icmp_type=8,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=7.357s, table=0, n_packets=1, n_bytes=98, idle_age=7, icm
p,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:02,nw_src=10.0
.1.10,nw_dst=10.0.1.20,nw_tos=0,icmp_type=8,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=7.325s, table=0, n_packets=1, n_bytes=98, idle_age=7, icm
p,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00:00:00:01,nw_src=10.0
.1.40,nw_dst=10.0.1.10,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=7.277s, table=0, n_packets=1, n_bytes=98, idle_age=7, icm
p,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=00:00:00:00:00:03,nw_src=10.0
.1.20,nw_dst=10.0.1.30,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=7.261s, table=0, n_packets=1, n_bytes=98, idle_age=7, icm
p,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:00:00:00:04,nw_src=10.0
.1.30,nw_dst=10.0.1.40,nw_tos=0,icmp_type=8,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=7.32s, table=0, n_packets=1, n_bytes=98, idle_age=7, icmp
,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:02,nw_src=10.0.
1.10,nw_dst=10.0.1.20,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=7.338s, table=0, n_packets=1, n_bytes=98, idle_age=7, icm
p,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:03,nw_src=10.0
.1.10,nw_dst=10.0.1.30,nw_tos=0,icmp_type=8,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=7.249s, table=0, n_packets=1, n_bytes=98, idle_age=7, icm
p,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00:00:00:02,nw_src=10.0
.1.40,nw_dst=10.0.1.20,nw_tos=0,icmp_type=8,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=7.259s, table=0, n_packets=1, n_bytes=98, idle_age=7, icm
p,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00:00:00:03,nw_src=10.0
.1.40,nw_dst=10.0.1.30,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=7.31s, table=0, n_packets=1, n_bytes=98, idle_age=7, icmp
,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=00:00:00:00:00:03,nw_src=10.0.
```

```
 cookie=0x0, duration=2.272s, table=0, n_packets=1, n_bytes=42, idle_age=2, arp
,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:00:00:00:02,arp_spa=10.0
.1.30,arp_tpa=10.0.1.20,arp_op=1 actions=FLOOD
 cookie=0x0, duration=7.332s, table=0, n_packets=1, n_bytes=42, idle_age=7, arp
,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=ff:ff:ff:ff:ff:ff,arp_spa=10.0
.1.10,arp_tpa=10.0.1.40,arp_op=1 actions=FLOOD
 cookie=0x0, duration=2.297s, table=0, n_packets=1, n_bytes=42, idle_age=2, arp
,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00:00:00:01,arp_spa=10.0
.1.40,arp_tpa=10.0.1.10,arp_op=1 actions=FLOOD
 cookie=0x0, duration=2.21s, table=0, n_packets=1, n_bytes=42, idle_age=2, arp,
vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00:00:00:03,arp_spa=10.0.
1.40,arp_tpa=10.0.1.30,arp_op=1 actions=FLOOD
 cookie=0x0, duration=7.36s, table=0, n_packets=1, n_bytes=42, idle_age=7, arp,
vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=00:00:00:00:00:01,arp_spa=10.0.
1.20,arp_tpa=10.0.1.10,arp_op=2 actions=FLOOD
 cookie=0x0, duration=2.205s, table=0, n_packets=1, n_bytes=42, idle_age=2, arp
,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:00:00:00:04,arp_spa=10.0
.1.30,arp_tpa=10.0.1.40,arp_op=2 actions=FLOOD
 cookie=0x0, duration=2.273s, table=0, n_packets=1, n_bytes=42, idle_age=2, arp
,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:00:00:00:01,arp_spa=10.0
.1.30,arp_tpa=10.0.1.10,arp_op=1 actions=FLOOD
 cookie=0x0, duration=7.363s, table=0, n_packets=1, n_bytes=42, idle_age=7, arp
,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=ff:ff:ff:ff:ff:ff,arp_spa=10.0
.1.10,arp_tpa=10.0.1.20,arp_op=1 actions=FLOOD
 cookie=0x0, duration=7.304s, table=0, n_packets=1, n_bytes=42, idle_age=7, arp
,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=ff:ff:ff:ff:ff:ff,arp_spa=10.0
.1.20,arp_tpa=10.0.1.40,arp_op=1 actions=FLOOD
 cookie=0x0, duration=2.282s, table=0, n_packets=1, n_bytes=42, idle_age=2, arp
,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00:00:00:02,arp_spa=10.0
.1.40,arp_tpa=10.0.1.20,arp_op=1 actions=FLOOD
mininet> iperf h1 h3
```

All of my entries are shown in the screenshot above. Each one in my mod_flow is a flood entry. These are the entries that I installed into my switch with flow_mod().

iperf:

```
mininet> iperf h1 h3
*** Iperf: testing TCP bandwidth between h1 and h3
*** Results: ['20.2 Gbits/sec', '20.2 Gbits/sec']
mininet> iperf h3 h1
*** Iperf: testing TCP bandwidth between h3 and h1
*** Results: ['16.1 Gbits/sec', '16.1 Gbits/sec']
mininet> iperf
*** Iperf: testing TCP bandwidth between h1 and h4
```

The only tcp packets that are allowed to flow through are the ones that go from h1 to h3 OR from h3 to h1. You can tell that no other packets are allowed through because *iperf* does not

return anything to the command line. My program also does an endless loop if you perform iperf with any host other than the ones mentioned above.