

Mininet:

```
(h1, s1) (h2, s1) (h3, s1) (h4, s1)
*** Configuring hosts
h1 h2 h3 h4
*** Starting controller
c0
*** Starting 1 switches
s1 ...
*** Starting CLI:
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> dump
<Host h1: h1-eth0:10.0.0.1 pid=264787>
<Host h2: h2-eth0:10.0.0.2 pid=264792>
<Host h3: h3-eth0:10.0.0.3 pid=264794>
<Host h4: h4-eth0:10.0.0.4 pid=264796>
<OVSSwitch{'protocols': 'OpenFlow13'} s1: lo:127.0.0.1,s1-eth1:None,s1-eth2:None,s1-eth3:None,s1-eth4:None pid=264801>
<RemoteController{'ip': '127.0.0.1'} c0: 127.0.0.1:6653 pid=264781>
mininet> links
h1-eth0<->s1-eth1 (OK OK)
h2-eth0<->s1-eth2 (OK OK)
h3-eth0<->s1-eth3 (OK OK)
h4-eth0<->s1-eth4 (OK OK)
mininet> 
```

Controller and Openflow capture:

```
student@VM2:~$ sudo ovs-vsctl show
[sudo] password for student:
91003b0f-45e5-4b62-b5a6-287898f1e785
    Bridge s1
        Controller "ptcp:6654"
        Controller "tcp:127.0.0.1:6653"
        is_connected: true
        fail_mode: secure
        Port s1-eth3
            Interface s1-eth3
        Port s1-eth2
            Interface s1-eth2
        Port s1-eth4
            Interface s1-eth4
        Port s1-eth1
            Interface s1-eth1
        Port s1
            Interface s1
        type: internal
    ovs_version: "2.13.3"
```

```
student@VM2:~$ sudo ovs-ofctl -O OpenFlow13 dump-flows s1
cookie=0x0, duration=404.304s, table=0, n_packets=44, n_bytes=3464, priority=0
actions=CONTROLLER:65535
```

```
student@VM2:~$ sudo ovs-ofctl -O OpenFlow13 dump-flows s1
```

```
actions=CONTROLLER:65535
```

```
student@VM2:~$ sudo ovs-ofctl -O OpenFlow13 dump-flows s1
cookie=0x0, duration=730.245s, table=0, n_packets=3, n_bytes=238, priority=1,
n_port="s1-eth2",dl_src=00:00:00:00:00:02,dl_dst=00:00:00:00:00:01 actions=output:"s1-eth1"
cookie=0x0, duration=730.241s, table=0, n_packets=2, n_bytes=140, priority=1,
n_port="s1-eth1",dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:02 actions=output:"s1-eth2"
cookie=0x0, duration=730.234s, table=0, n_packets=3, n_bytes=238, priority=1,
n_port="s1-eth3",dl_src=00:00:00:00:00:03,dl_dst=00:00:00:00:00:01 actions=output:"s1-eth1"
cookie=0x0, duration=730.233s, table=0, n_packets=2, n_bytes=140, priority=1,
n_port="s1-eth1",dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:03 actions=output:"s1-eth3"
cookie=0x0, duration=730.229s, table=0, n_packets=3, n_bytes=238, priority=1,
n_port="s1-eth4",dl_src=00:00:00:00:00:04,dl_dst=00:00:00:00:00:01 actions=output:"s1-eth1"
cookie=0x0, duration=730.227s, table=0, n_packets=2, n_bytes=140, priority=1,
n_port="s1-eth1",dl_src=00:00:00:00:00:01,dl_dst=00:00:00:00:00:04 actions=output:"s1-eth4"
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ut: "s1-eth4"
cookie=0x0, duration=730.219s, table=0, n_packets=3, n_bytes=238, priority=1,
n_port="s1-eth3",dl_src=00:00:00:00:00:03,dl_dst=00:00:00:00:00:02 actions=output:"s1-eth2"
cookie=0x0, duration=730.218s, table=0, n_packets=2, n_bytes=140, priority=1,
n_port="s1-eth2",dl_src=00:00:00:00:00:02,dl_dst=00:00:00:00:00:03 actions=output:"s1-eth3"
cookie=0x0, duration=730.213s, table=0, n_packets=3, n_bytes=238, priority=1,
n_port="s1-eth4",dl_src=00:00:00:00:00:04,dl_dst=00:00:00:00:00:02 actions=output:"s1-eth2"
cookie=0x0, duration=730.212s, table=0, n_packets=2, n_bytes=140, priority=1,
n_port="s1-eth2",dl_src=00:00:00:00:00:02,dl_dst=00:00:00:00:00:04 actions=output:"s1-eth4"
cookie=0x0, duration=730.202s, table=0, n_packets=3, n_bytes=238, priority=1,
n_port="s1-eth4",dl_src=00:00:00:00:00:04,dl_dst=00:00:00:00:00:03 actions=output:"s1-eth3"
cookie=0x0, duration=730.200s, table=0, n_packets=2, n_bytes=140, priority=1,
n_port="s1-eth3",dl_src=00:00:00:00:00:03,dl_dst=00:00:00:00:00:04 actions=output:"s1-eth4"
cookie=0x0, duration=1224.527s, table=0, n_packets=70, n_bytes=5116, priority=
0 actions=CONTROLLER:65535
student@VM2:~$
```

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