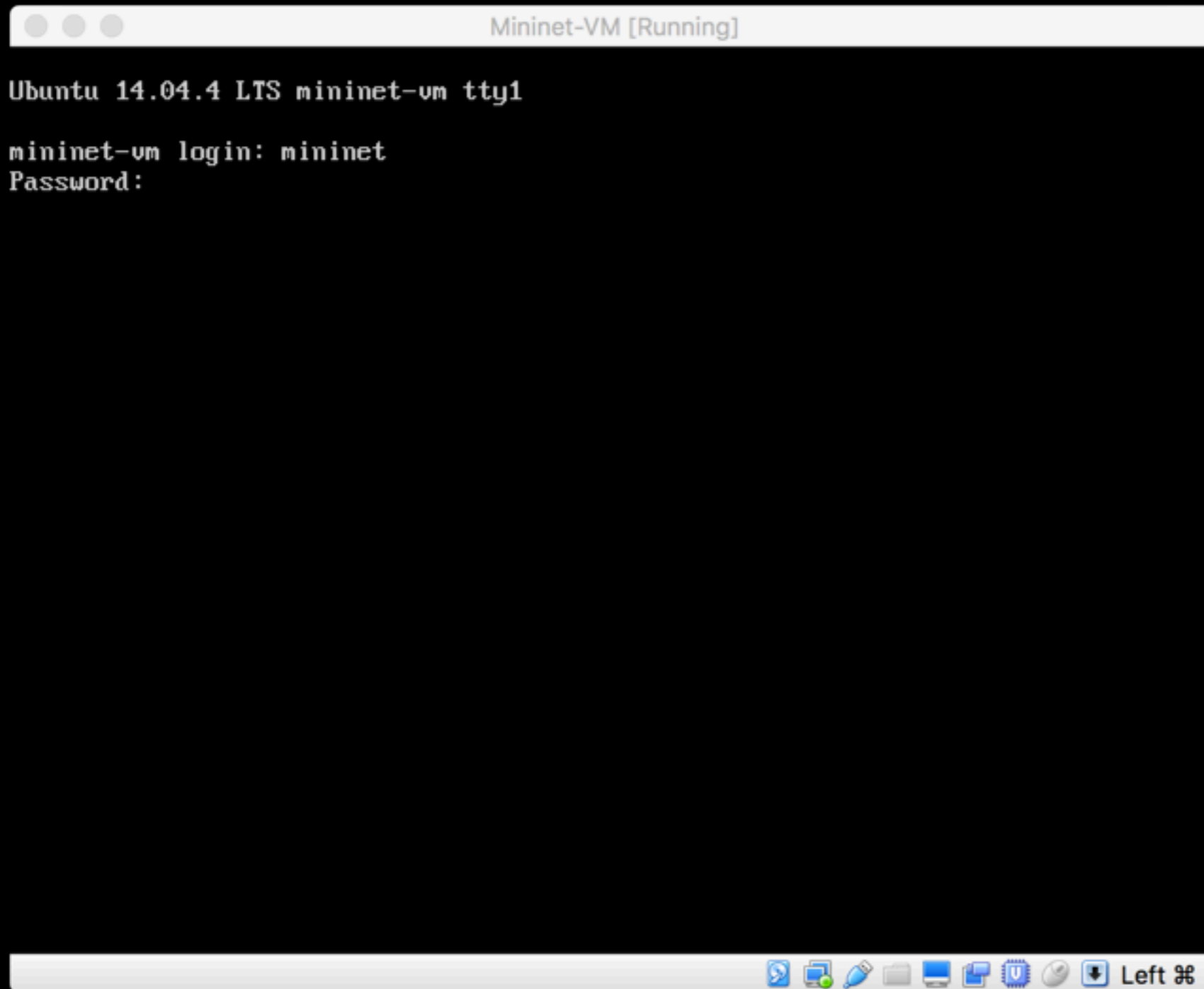


CSE461 SECTION

LOGIN

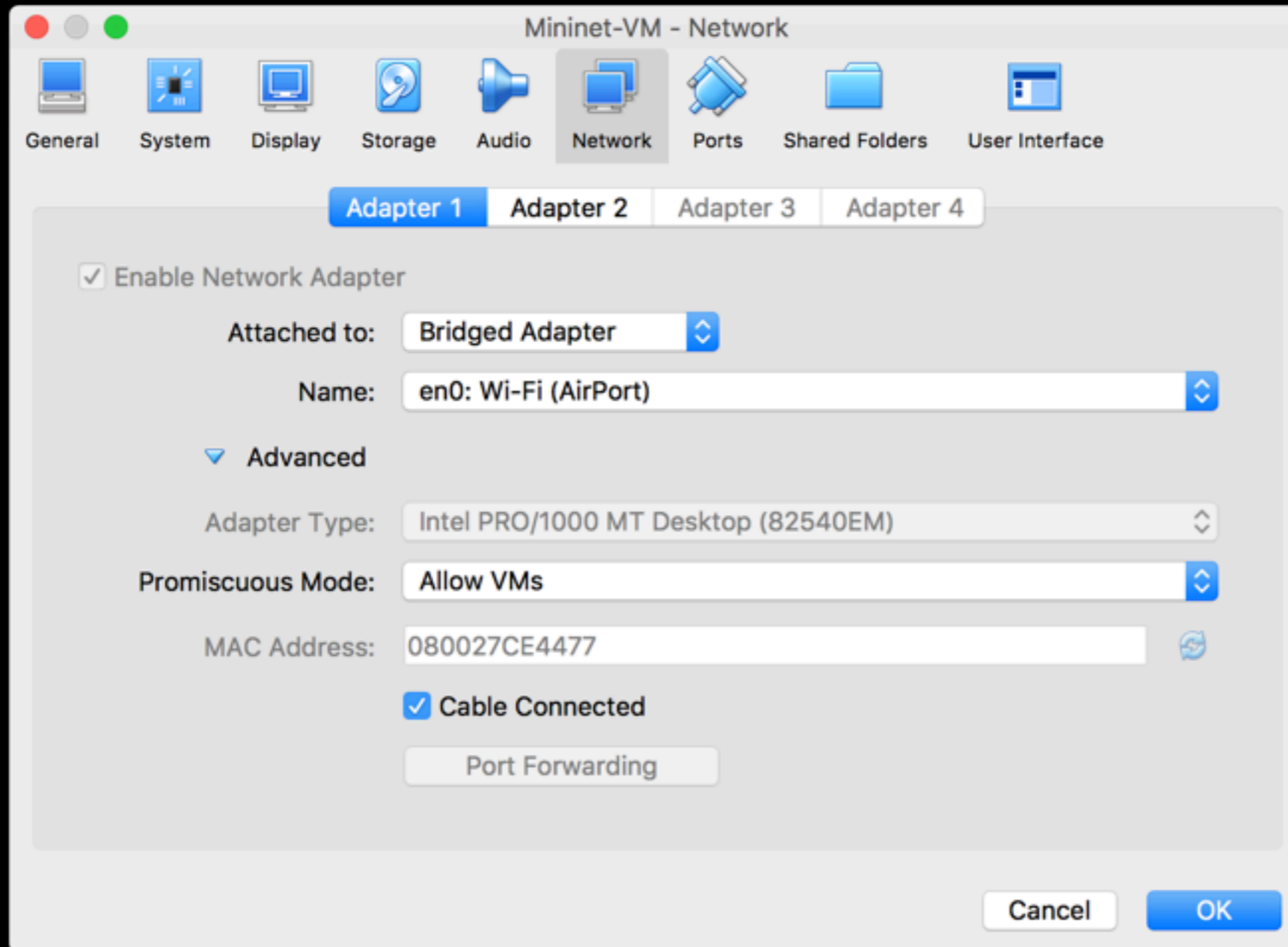


uname: mininet
pw: mininet

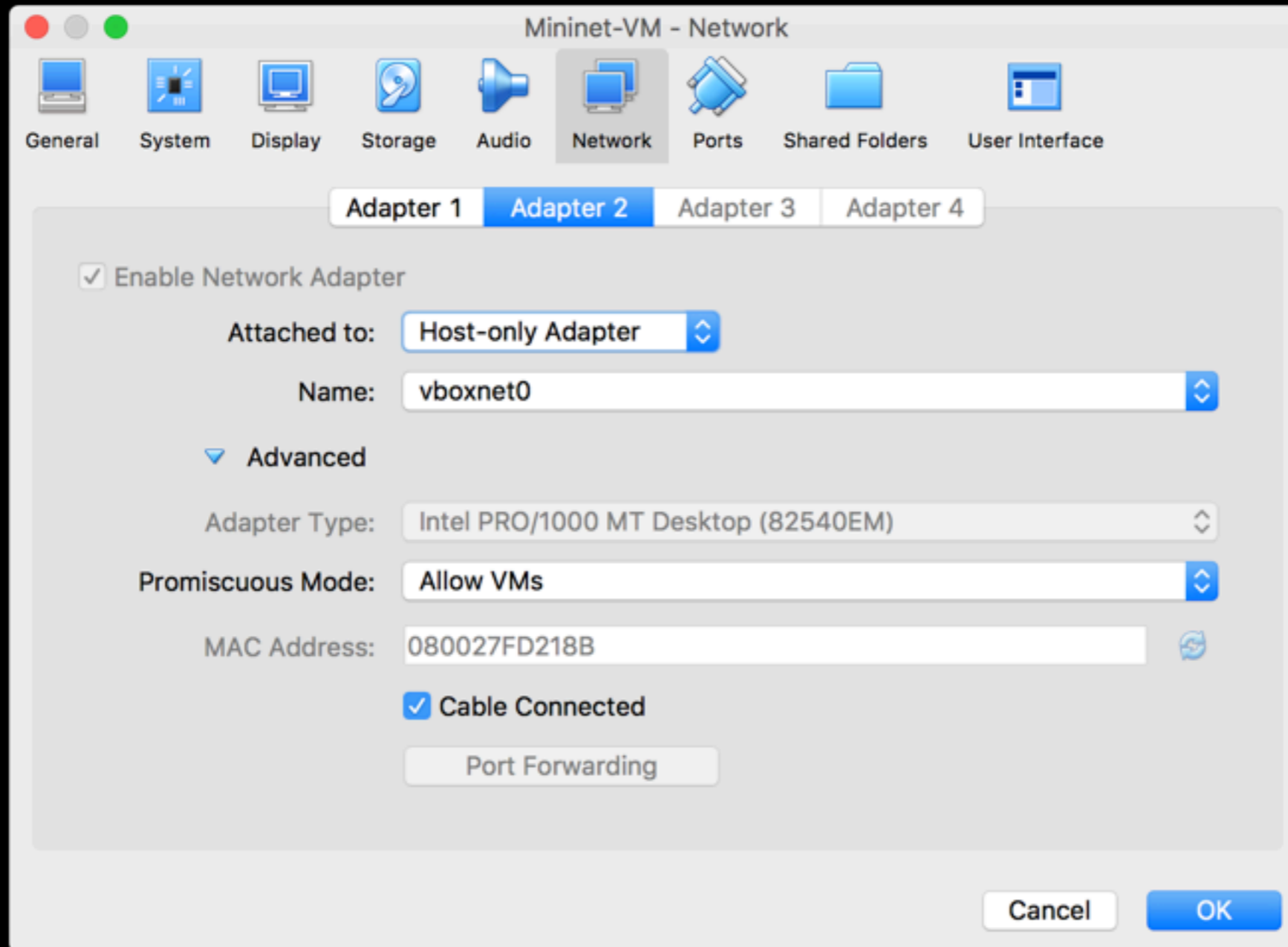
Enable SSH so your host can login to your VM

Easy to run multiple processes at once

Bridge host Internet connection -> VM



Allow host to connect to VM



```
mininet@mininet-vm:~$ ifconfig -a
```

```
eth0      Link encap:Ethernet  HWaddr 08:00:27:fd:21:8b  
          inet addr:192.168.99.100  Bcast:192.168.99.255  Mask:  
255.255.255.0  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:2 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:2 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:1180 (1.1 KB)  TX bytes:684 (684.0 B)
```

```
eth1      Link encap:Ethernet  HWaddr 08:00:27:ce:44:77  
          BROADCAST MULTICAST  MTU:1500  Metric:1  
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

```
lo        Link encap:Local Loopback  
          inet addr:127.0.0.1  Mask:255.0.0.0  
          UP LOOPBACK RUNNING  MTU:65536  Metric:1  
          RX packets:152 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:152 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:0  
          RX bytes:12144 (12.1 KB)  TX bytes:12144 (12.1 KB)
```

The SSH connection could be eth0 or eth1

Try to SSH at the 192.x.x.x address under eth0 and eth1 on your host IF it exists:

```
ssh -X mininet@192.x.x.x
```

```
eth1      Link encap:Ethernet  HWaddr 08:00:27:ce:44:77  
          BROADCAST MULTICAST  MTU:1500  Metric:1  
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

If there is no 192.x.x.x IP address at ethX type this

sudo dhclient ethX

```
eth1      Link encap:Ethernet  HWaddr 08:00:27:ce:44:77  
          inet addr:192.168.99.101  Bcast:192.168.99.255  Mask:  
          255.255.255.0  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:2884 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:63 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:609893 (609.8 KB)  TX bytes:5817 (5.8 KB)
```



```
mininet@mininet-vm:~$ sudo mn
*** Creating network
*** Adding controller
*** Adding hosts:
h1 h2
*** Adding switches:
s1
*** Adding links:
(h1, s1) (h2, s1)
*** Configuring hosts
h1 h2
*** Starting controller
c0
*** Starting 1 switches
s1 ...
*** Starting CLI:
mininet>
```

Default topology

```
mininet> pingall
*** Ping: testing ping reachability
h1 -> h2
h2 -> h1
*** Results: 0% dropped (2/2 received)
```

```
mininet> iperf h1 h2
*** Iperf: testing TCP bandwidth between h1 and h2
.*** Results: ['28.6 Gbits/sec', '28.6 Gbits/sec']
```

```
mininet> dump
<Host h1: h1-eth0:10.0.0.1 pid=1784>
<Host h2: h2-eth0:10.0.0.2 pid=1786>
<OVSSwitch s1: lo:127.0.0.1,s1-eth1:None,s1-eth2:None pid=1791>
<Controller c0: 127.0.0.1:6653 pid=1777>
```

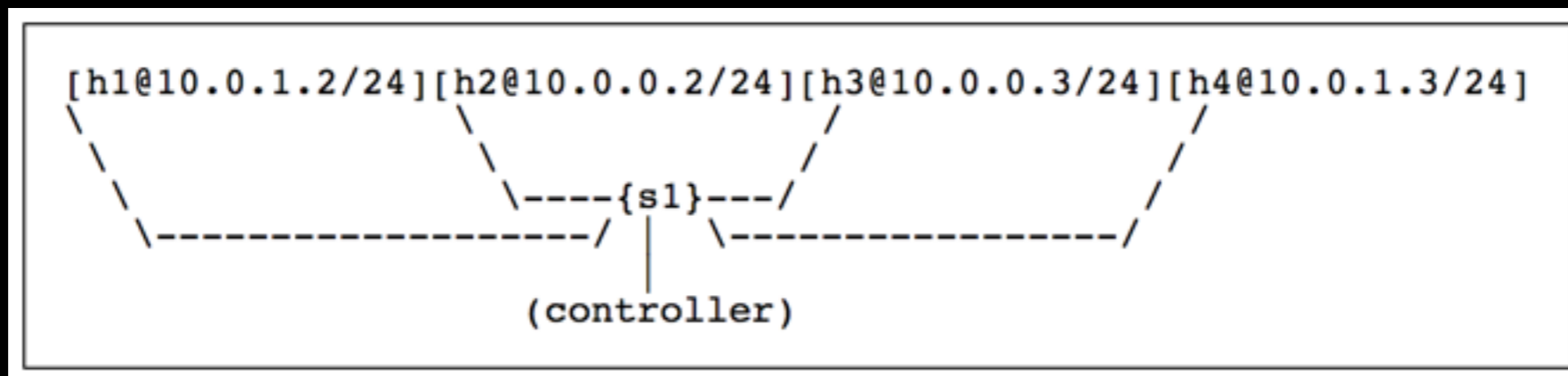
Part 1: Target topology

```
[ h1 ]-----{ s1 }-----[ h2 ]  
[ h3 ]-----/          \-----[ h4 ]
```

Part 2: Switch connects 2 subnets

10.0.1.x: h1, h4

10.0.0.x: h2, h3



src ip	dst ip	protocol	action
any ipv4	any ipv4	icmp	accept
any	any	arp	accept
any ipv4	any ipv4	-	drop

Part 3: Multiple switches, untrusted host

```
[h10@10.0.1.10/24]--{s1}--\  
[h20@10.0.2.20/24]--{s2}--{cores21}--{dcs31}--[serv1@10.0.4.10/24]  
[h30@10.0.3.30/24]--{s3}--/  
                                |  
                                [hnotrust1@172.16.10.100/24]
```

Switch id: connection.dpid

Run controller in one window

```
mininet@mininet-vm:~$ sudo ~/pox/pox.py misc.part2controller
```

Run network in another window

```
mininet@mininet-vm:~/sdn$ sudo python part2.py
```