CS607: Screenshot Report
Assignment 3 – Introduction to Mininet and Firewalls

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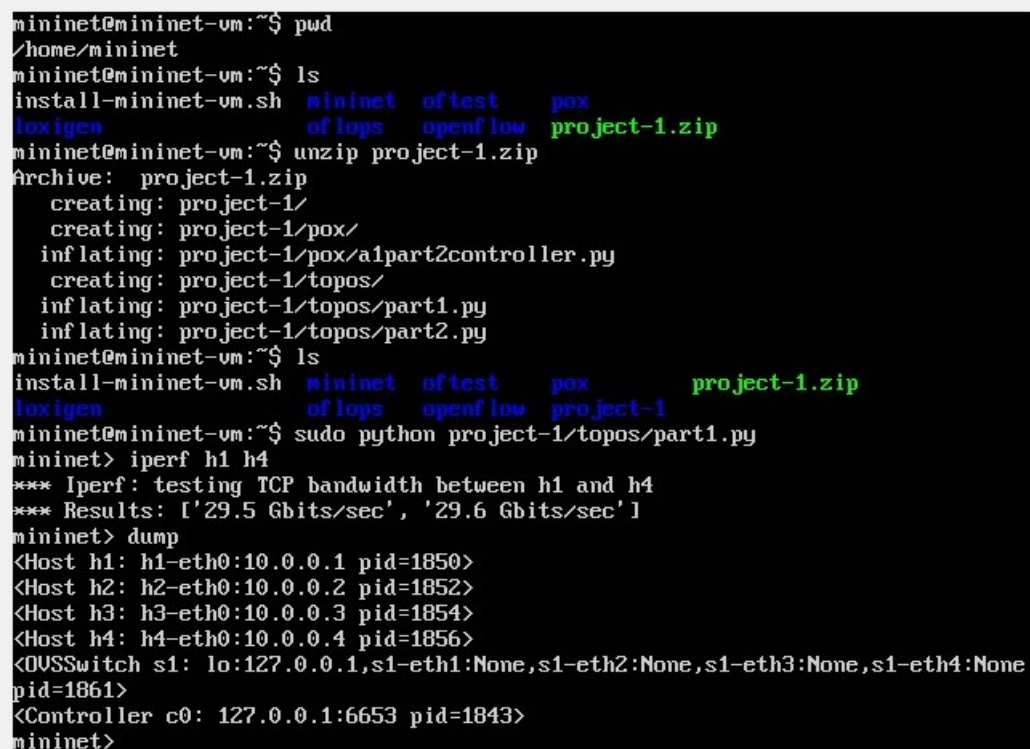
1 November 2023

1 Part 1: Mininet and Topology Setup

1.1 Deliverable 1: Modified `topos/part1.py` file

This is included in the respective directory, in this zip file (`project-1.zip`).

1.2 Deliverable 2: Output from different commands

Figure 1: `iperf`

```
Archive:  project-1.zip
   creating: project-1/
   creating: project-1/pox/
  inflating: project-1/pox/a1part2controller.py
   creating: project-1/topos/
  inflating: project-1/topos/part1.py
  inflating: project-1/topos/part2.py
mininet@mininet-vm:~$ ls
install-mininet-vm.sh  mininet  oftest      pox         project-1.zip
loxigen                        oflops   openflow  project-1
mininet@mininet-vm:~$ sudo python project-1/topos/part1.py
mininet> iperf h1 h4
*** Iperf: testing TCP bandwidth between h1 and h4
*** Results: ['29.5 Gbits/sec', '29.6 Gbits/sec']
mininet> dump
<Host h1: h1-eth0:10.0.0.1 pid=1850>
<Host h2: h2-eth0:10.0.0.2 pid=1852>
<Host h3: h3-eth0:10.0.0.3 pid=1854>
<Host h4: h4-eth0:10.0.0.4 pid=1856>
<OVSSwitch s1: lo:127.0.0.1,s1-eth1:None,s1-eth2:None,s1-eth3:None,s1-eth4:None
pid=1861>
<Controller c0: 127.0.0.1:6653 pid=1843>
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>
```

Figure 2: `dump` and `pingall` as well

2   Part 2: Firewall using POX

2.1   Deliverable 1: Output of some commands

```
mininet> pingall
*** Ping: testing ping reachability
h1 -> X X h4
h2 -> X h3 X
h3 -> X h2 X
h4 -> h1 X X
*** Results: 66% dropped (4/12 received)
mininet> iperf h1 h4
*** Iperf: testing TCP bandwidth between h1 and h4
```

Figure 3: `pingall` and `iperf h1 h4`

```
mininet> iperf h1 h4
*** Iperf: testing TCP bandwidth between h1 and h4
^C
Interrupt
mininet>
```

Figure 4: `iperf` command hangs

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2.2 Deliverable 2: Get list of inserted rules


```
mininet> dpctl dump-flows
*** s1 ------------------------------------------------------------------------
NXST_FLOW reply (xid=0x4):
 cookie=0x0, duration=187.818s, table=0, n_packets=8, n_bytes=784, idle_age=171,
 priority=10,icmp actions=FLOOD
 cookie=0x0, duration=187.781s, table=0, n_packets=10, n_bytes=420, idle_age=121
, priority=9,arp actions=FLOOD
 cookie=0x0, duration=187.781s, table=0, n_packets=7, n_bytes=518, idle_age=94,
priority=0 actions=drop
mininet>
```

Figure 5: `dpctl` command

2.3 Deliverable 3: Modified `pox/a1part2controller.py` file

This is included in the respective directory, in this zip file (`project-1.zip`).

3   Miscellaneous images


```
mininet> pingall
*** Ping: testing ping reachability
h1 -> X X h4
h2 -> X h3 X
h3 -> X h2 X
h4 -> h1 X X
*** Results: 66% dropped (4/12 received)
mininet> iperf h1 h4
*** Iperf: testing TCP bandwidth between h1 and h4
^C
Interrupt
mininet> dpctl dump-flows
*** s1 ------------------------------------------------------------------------
 cookie=0x0, duration=54.297s, table=0, n_packets=8, n_bytes=784, icmp actions=FLOOD
 cookie=0x0, duration=54.296s, table=0, n_packets=8, n_bytes=336, arp actions=FLOOD
 cookie=0x0, duration=54.296s, table=0, n_packets=3, n_bytes=222, actions=drop
mininet> _
```

Figure 6: Compilation of all part 2 commands


```
siddharth@DESKTOP-5490SID:/mnt/c/Users/bsidd/Desktop/CS607 ACN/Submissions/Assignment 3
 - Project/modified-files$ scp project-1.zip mininet@10.196.237.193:/home/mininet
mininet@10.196.237.193's password:
project-1.zip                                   100% 2693    98.5KB/s   00:00
siddharth@DESKTOP-5490SID:/mnt/c/Users/bsidd/Desktop/CS607 ACN/Submissions/Assignment 3
 - Project/modified-files$
```

Figure 7: `scp` for file transfer to Mininet VM

```
mininet@mininet-vm:~$ ls
install-mininet-vm.sh  mininet  oftest    pox        project-1.zip
loxigen                         oflops   openflow  project-1
mininet@mininet-vm:~$ pwd
/home/mininet
mininet@mininet-vm:~$ ln -s ~/project-1/pox/* ~/pox/pox/misc
```

Figure 8: Creating a link using `ln` for part 2

For other info, refer to `README.md` !