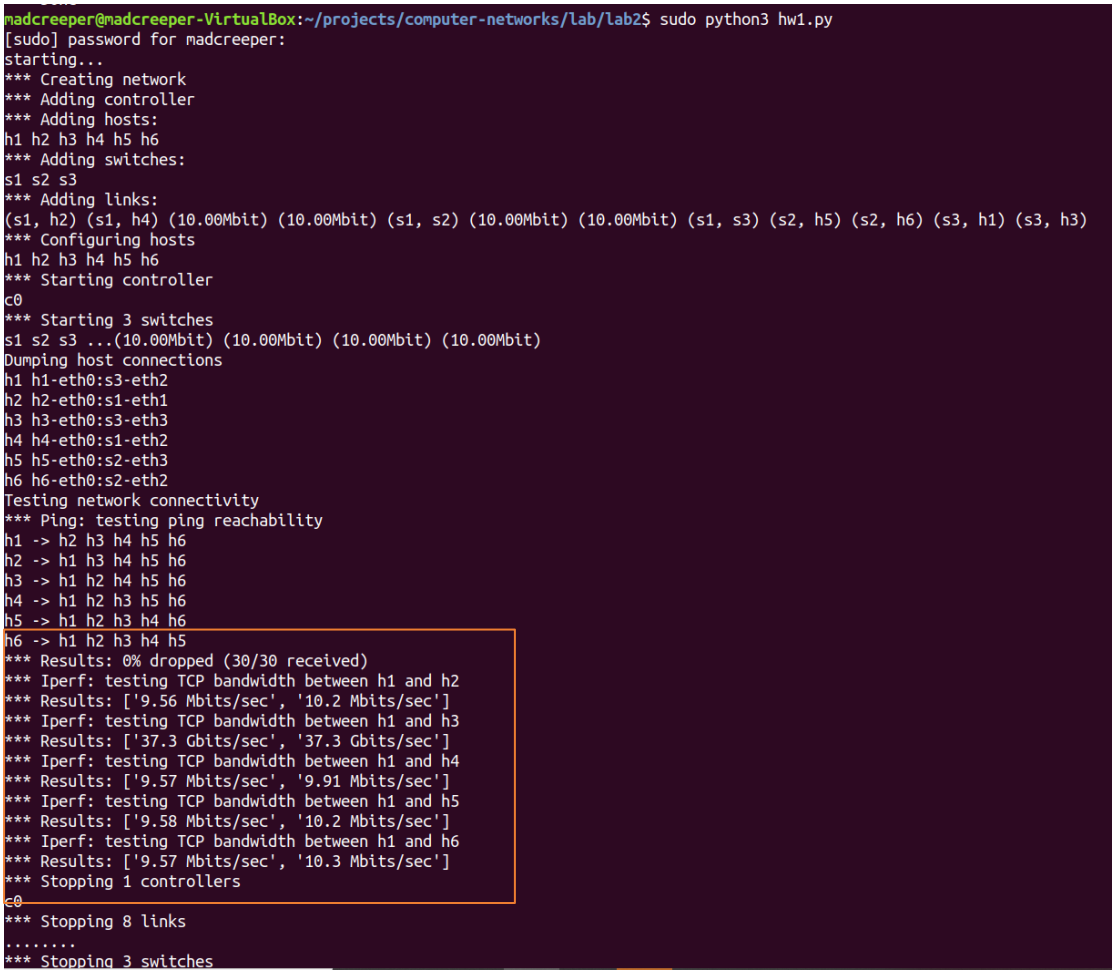
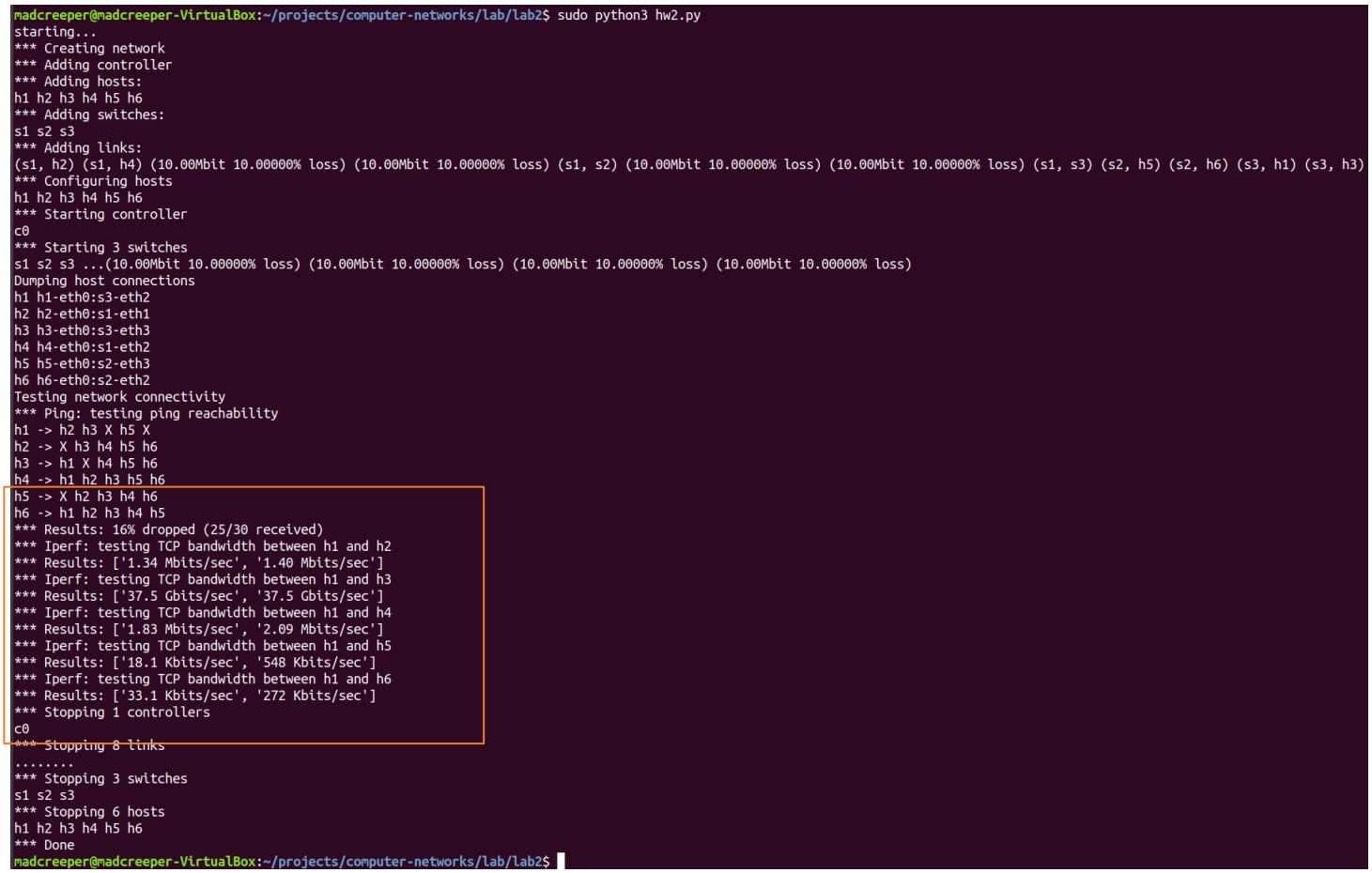
Lab2 Mininet

1.



2.

Iperf passing links with packet loss is significantly slower.



3.

```
madcreeper@madcreeper-VirtualBox:~/projects/computer-networks/lab/lab2$ sudo python3 hw3.py
starting...
*** Creating network
*** Adding controller
*** Adding hosts:
h1 h2 h3 h4 h5 h6
*** Adding switches:
s1 s2 s3
*** Adding links:
(s1, h2) (s1, h4) (10.00Mbit 10.00000% loss) (10.00Mbit 10.00000% loss) (s1, s2) (10.00Mbit 10.00000% loss) (10.00Mbit 10.00000% loss) (s1,
 s3) (s2, h5) (s2, h6) (s2, s3) (s3, h1) (s3, h3)
*** Configuring hosts
h1 h2 h3 h4 h5 h6
*** Starting controller
c0
*** Starting 3 switches
s1 s2 s3 ...(10.00Mbit 10.00000% loss) (10.00Mbit 10.00000% loss) (10.00Mbit 10.00000% loss) (10.00Mbit 10.00000% loss)
Dumping host connections
h1 h1-eth0:s3-eth3
h2 h2-eth0:s1-eth1
h3 h3-eth0:s3-eth4
h4 h4-eth0:s1-eth2
h5 h5-eth0:s2-eth4
h6 h6-eth0:s2-eth3
*** Starting CLI:
mininet> pingall
*** Ping: testing ping reachability
h1 -> X X X X X
h2 -> X X X X X
h3 -> X X X X X
h4 -> X X X X X
h5 -> X X X X X
h6 -> X X X X X
*** Results: 100% dropped (0/30 received)
mininet> s1 sh hw3.sh
adding flow rules..
mininet> pingall
*** Ping: testing ping reachability
h1 -> h2 h3 h4 h5 h6
h2 -> h1 h3 h4 h5 h6
h3 -> h1 h2 X h5 h6
h4 -> h1 h2 h3 h5 h6
h5 -> h1 X h3 h4 h6
h6 -> h1 X h3 X h5
*** Results: 13% dropped (26/30 received)
mininet> exit
*** Stopping 1 controllers
c0
*** Stopping 9 links
```

After adding the new link, pingall shows all host pairs are unreachable. The new link generates a loop in the network, and without flow control the traffic can get stuck in the loop and never reach destination.

The solution: I added flow rules to s1 so that the traffic no longer loops. You can see after adding flow rules, the network now works as intended.

hw3.py U $ hw3.sh U ×

home > madcreeper > projects > computer-networks > lab > lab2 > $ hw3.sh

```
1  echo "adding flow rules.."
2  sudo ovs-ofctl add-flow s1 "in_port=3 actions=output:1,2"
3  sudo ovs-ofctl add-flow s1 "in_port=4 actions=output:1,2"
4
```