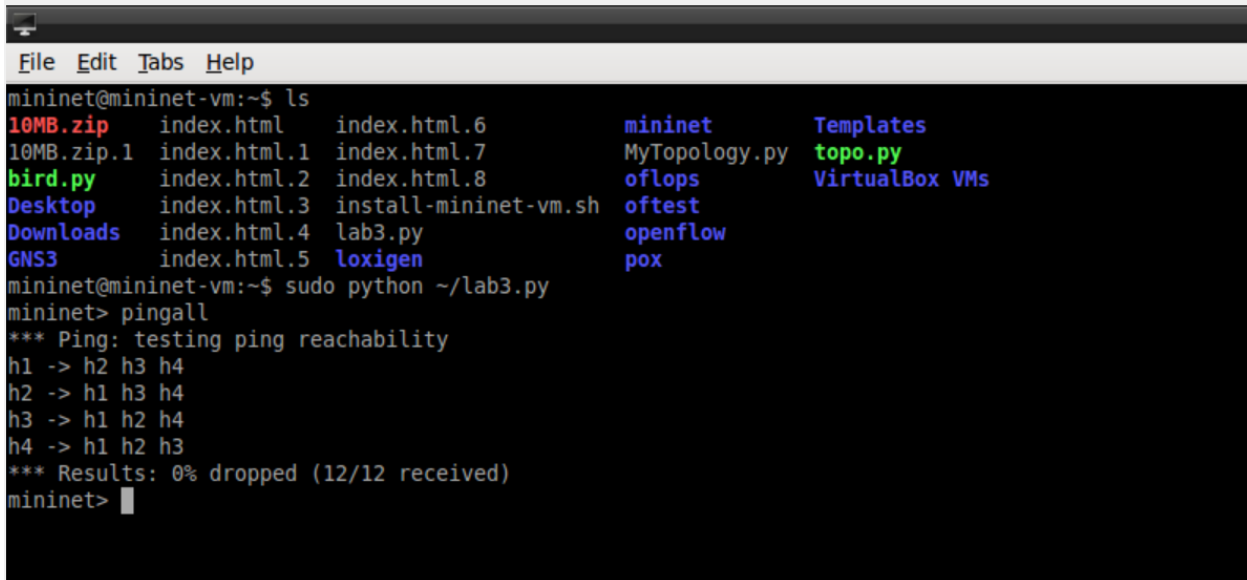Antoine Rocha

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<div align="center">**Lab 3**</div>
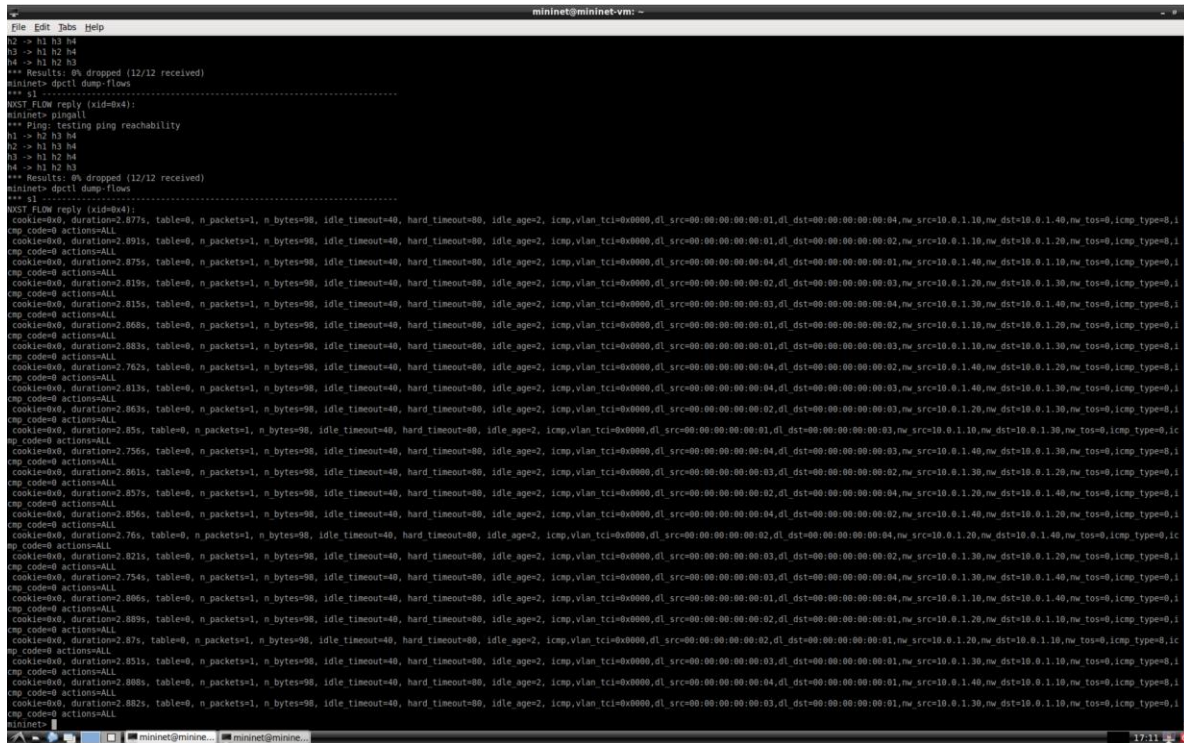
1. **[30 points]** pingall : This should succeed.

I got 12/12, because the pingall command uses internet Control Message Protocol (ICMP).Echo request and response are codes used by ICMP and since the firewall allows all ipv4 ICMP traffic to be accepted it resulted in 0% dropped packets.

```
File  Edit  Tabs  Help
mininet@mininet-vm:~$ ls
10MB.zip     index.html     index.html.6         mininet         Templates
10MB.zip.1   index.html.1   index.html.7         MyTopology.py   topo.py
bird.py      index.html.2   index.html.8         oflops          VirtualBox VMs
Desktop      index.html.3   install-mininet-vm.sh  oftest
Downloads    index.html.4   lab3.py              openflow
GNS3         index.html.5   loxigen              pox
mininet@mininet-vm:~$ sudo python ~/lab3.py
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>
```

2. dpctl dump-flows :
   I used a hard timeout time of 80 an idle timeout set to 40 which is shown in the screen shot below. The Dpctl command is a management utility that enables some control over the open control switch. This tool is possible to add flows to the flow table, query features and statuses. A flow table (aka forwarding/routing table) Is used by the router to forward packets to predetermined destinations listen in a table. The dump-flow portion of the command essentially dumps or lists all the flow/routing tables of our virtual switch.



3. iperf : This should fail, since TCP packets will be blocked.
   The iperf command is a tool that measures the maximum achievable bandwidth of an IP network. Iperf uses the TCP protocol and since my firewall only allows IPV4: ARP, ICMP traffic to pass the command within minnet is stuck in a loop as shown below. Essentially it hangs there because the firewall blocks all the TCP traffic which is needed for the Iperf command so its is trying to measure nothing and there isn't a timeout set so it sits in an endless loop.