

The background of the page is decorated with a network diagram. It consists of numerous small diamond-shaped nodes, some of which are solid black and others are white with black outlines. These nodes are interconnected by thin, dashed black lines, forming a complex, web-like structure that spans the entire page. The lines and nodes are arranged in a way that suggests a computer network topology.

Computer Network

Assignment - 4

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```
root@MininetNew: /home/mininet/custom
root@MininetNew: /home/pox x root@MininetNew: /home/mininet/cus... x
*** Ping: testing ping reachability
h1 -> h2 h3 h4 h5 h6
h2 -> h1 h3 h4 h5 h6
h3 -> h1 h2 h4 h5 h6
h4 -> h1 h2 h3 h5 h6
h5 -> h1 h2 h3 h4 h6
h6 -> h1 h2 h3 h4 h5
*** Results: 0% dropped (30/30 received)
mininet> net
h1 h1-eth0:s1-eth1
h2 h2-eth0:s1-eth2 h2-eth1:s2-eth3 h2-eth2:s3-eth1
h3 h3-eth0:s2-eth1
h4 h4-eth0:s2-eth2
h5 h5-eth0:s3-eth2
h6 h6-eth0:s3-eth3
s1 lo: s1-eth1:h1-eth0 s1-eth2:h2-eth0 s1-eth3:s2-eth4
s2 lo: s2-eth1:h3-eth0 s2-eth2:h4-eth0 s2-eth3:h2-eth1 s2-eth4:s1-eth3 s2-eth5:
s3-eth4
s3 lo: s3-eth1:h2-eth2 s3-eth2:h5-eth0 s3-eth3:h6-eth0 s3-eth4:s2-eth5
c0
mininet>
```

Q1

```
root@MininetNew: /home/pox
root@MininetNew: /home/pox x root@MininetNew: /home/mininet/cus... x
8 3.9
WARNING:version:You're running Python 3.10.
WARNING:version:If you run into problems, try using a supported version.
INFO:core:POX 0.7.0 (gar) is up.
^CINFO:core:Going down...
INFO:core:Down.
root@MininetNew: /home/pox# ./pox.py forwarding.hub
POX 0.7.0 (gar) / Copyright 2011-2020 James McCauley, et al.
INFO:forwarding.hub:Proactive hub running.
WARNING:version:POX requires one of the following versions of Python: 3.6 3.7 3.
8 3.9
WARNING:version:You're running Python 3.10.
WARNING:version:If you run into problems, try using a supported version.
INFO:core:POX 0.7.0 (gar) is up.
INFO:openflow.of_01:[00-00-00-00-00-02 4] connected
INFO:forwarding.hub:Hubifying 00-00-00-00-00-02
INFO:openflow.of_01:[00-00-00-00-00-01 2] connected
INFO:forwarding.hub:Hubifying 00-00-00-00-00-01
INFO:openflow.of_01:[00-00-00-00-00-03 3] connected
INFO:forwarding.hub:Hubifying 00-00-00-00-00-03
```

```
root@MininetNew: /home/mininet/custom
You can paste the image from the clipboard.
root@MininetNew: /h... x vboxuser@MininetNe... x vboxuser@MininetNe... x
Testing network connectivity
*** Ping: testing ping reachability
h1 -> h2 h3 h4 h5 h6
h2 -> h1 h3 h4 h5 h6
h3 -> h1 h2 h4 h5 h6
h4 -> h1 h2 h3 h5 h6
h5 -> h1 h2 h3 h4 h6
h6 -> h1 h2 h3 h4 h5
*** Results: 0% dropped (30/30 received)
Testing bandwidth between h1 and h6
*** h1 : ('tcpdump -i h1-eth0 -w /tmp/h1_capture.pcap &',)
[1] 41476
*** Iperf: testing TCP bandwidth between h1 and h6
*** Results: ['9.3 Mbits/sec', '9.3 Mbits/sec']
*** Stopping 1 controllers
c0
*** Stopping 10 links
.....
*** Stopping 3 switches
s1 s2 s3
*** Stopping 6 hosts
h1 h2 h3 h4 h5 h6
*** Done
root@MininetNew: /home/mininet/custom#
```

Q2

Congestion Window Plot

