NC 864: Software Defined Networks and Network Function Virtualization

Assignment-1

Name: M. Srichandan Teja

Roll No: MT2020015

- As part of this **Assignment-1**, created a custom topology of 4-switches and 11-hosts.
- Created the links with bandwidth ranges in between 0-5 Mbps and link delay of 2-30 milliseconds.
- Every link is given bandwidth and delays randomly from the given range.
- Assigned IP address from the subnet 10.0.0.x/24 subnet.
- The topology I, created as part of this assignment is **Ring,** with topology as below.

switch-1 <-> switch-2 <-> switch-3 <-> switch-4 <-> switch-1

- Assigned hosts to switches in such a way that there are at most 3-hosts per switch.

Flow Rules Configuration:

- For creation of flow rules, I have taken a scenario to drop the traffic coming from **host-h1**, I have written flow rules for the same on **switch-s2.**

- Commands for the same are
- **sh ovs-ofctl add-flow <switch id> <rules>** → to add flows

  ex:
  sh ovs-ofctl **add-flow** s2 dl_src=<src-mac>,dl_dst=<dst-mac>,actions=drop --protocols=OpenFlow13

- **sh ovs-ofctl dump-flows <switch-id>** → to view flows

  ex:

  sh ovs-ofctl dump-flows s1 --protocols=OpenFlow13

- **sh ovs-ofctl del-flows <switch-id>** → to delete flows

  ex:
  sh ovs-ofctl del-flows s1 --protocols=OpenFlow13

- On switch-s2, configured the flow-rules to drop all the traffic coming from the MAC address of host-h1.
- After configuring the rules for the above scenario, the **pings** for h4,h5,h6 from host-h1 won't be successful.
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- **pingall:** to ping all the hosts from all the hosts.
- **nodes:** displays list of all nodes
- **links:** displays all the links between all devices i.e both hosts and switches.
- **net:** this lists all the interfaces and their connections.
- **<host> ifconfig:** this to check the network configuration if given host.