UCF / FLR Workshop on Networking Topics
Hands-on Session 5: SDN Concepts, Controllers, Flow Tables

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Lab 6: Introduction to OpenFlow

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- The topology consists of:
  - The Open Network Operating System (ONOS) controller, an open source SDN controller
  - Open Virtual Switch (OVS) device; OVS is an open source SDN switch
  - Hosts, serving as the end-users
- Activities include
  - Configure OpenFlow switches using ovs-ofctl
  - Run ONOS controller and activate some of its applications
  - Inspect the flow entries installed by the activated ONOS applications
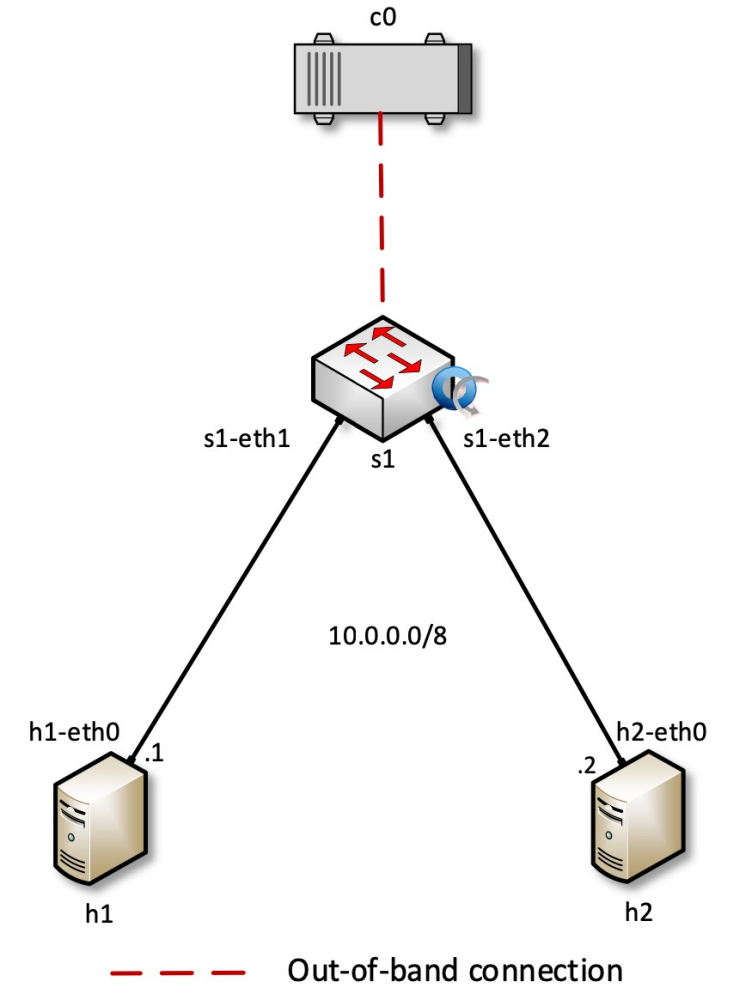 - Inspect the communication between the controller and the switch

c0

s1-eth1   s1   s1-eth2

10.0.0.0/8

h1-eth0   .1   .2   h2-eth0

h1   h2

— — —   Out-of-band connection
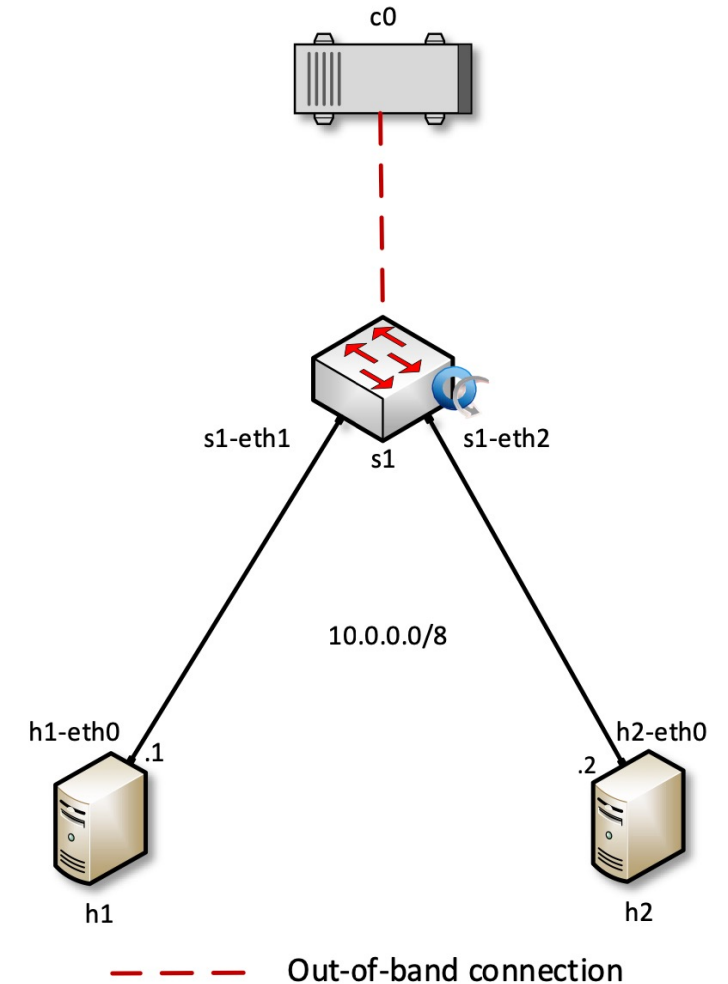
Activating the OpenFlow Application

Add flows using ovs-ofctl

Show the flow table using ovs-ofctl

Activating the OpenFlow Application

Activate ONOS applications
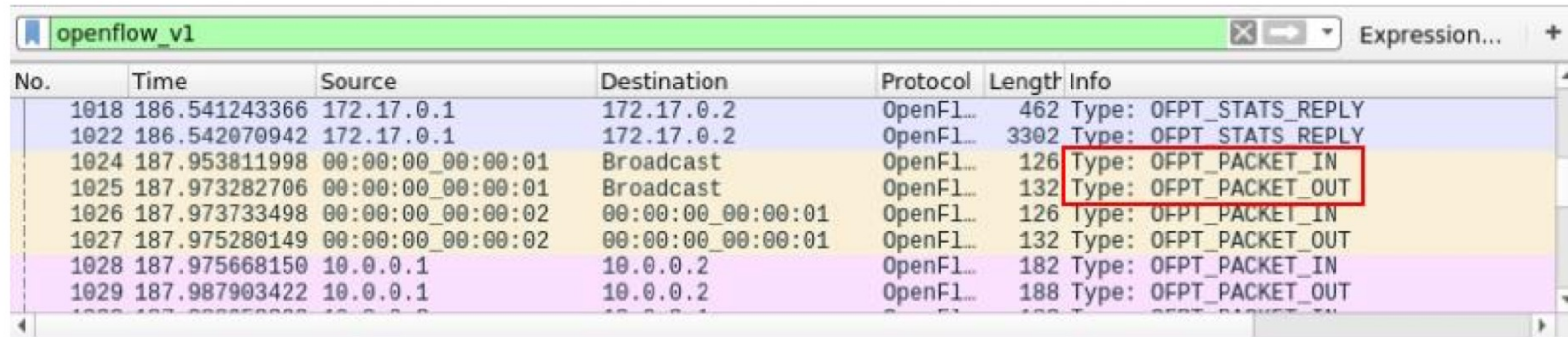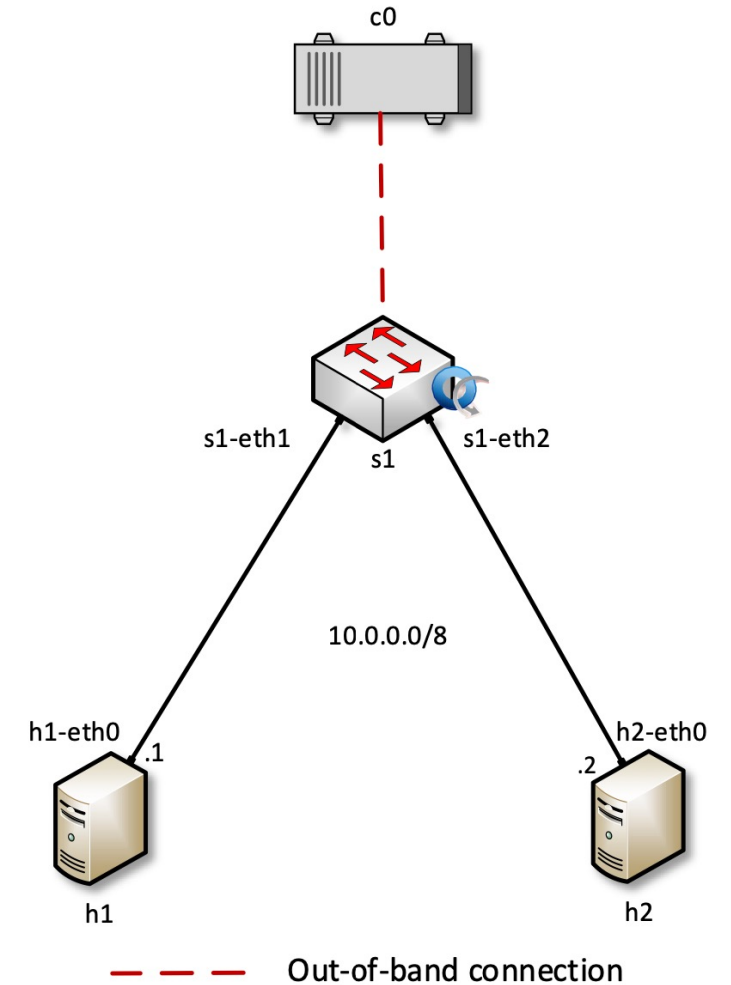

Show the flow entries installed by ONOS applications

Activating the OpenFlow Application

Capture and Inspect the communication (PACKET_IN and PACKET_OUT messages) between the controller and the switch using Wireshark

Additional Slides

ONOS GUI

Devices

Topology (ONOS GUI view)

Workshop on Networking Topics

- Webpage with PowerPoint presentations:

  http://ce.sc.edu/cyberinfra/workshop_2023_feb.html

- Hands-on sessions: to access labs for the hands-on sessions, use the following link:

  https://netlab.cec.sc.edu/

- Username: email used for registration
- Password: nsf2023