Lab 1: Experimenting OpenFlow with Mininet

Last update: 1/29/18 v2

Objectives

This lab intends to provide opportunities to learn a useful tool Mininet to design and evaluate OpenFlow based SDNs.

Procedure

~~1. Download and run VM (need a VM software such as VirtualBox, Vmware fusion, etc.)~~
   - ~~http://mininet.org/download/#option-1-mininet-vm-installation-easy-recommended~~

~~2. Setup VM~~
   - ~~http://mininet.org/vm-setup-notes/~~
   - ~~You will need to install X Servers (Ximg for Windows, or XQuartz on Mac OS) to enable X Window system. X Server is to allow remote display from your VM (VMware or VirtualBox) so that Wireshark and emacs can run.~~
   - ~~For Windows 10 users, you need to install both Xming and putty. Refer to this page regarding how to use putty for X forwarding~~
     ~~https://www.youtube.com/watch?v=QRsma2vkEQE~~

3. New steps regarding VM
   - Please use SDN Hub VM instead of mininet VM because SDN Hub VM has more preinstalled applications (mininet, pox, OpenDayLight and wireshark)

   http://sdnhub.org/tutorials/sdn-tutorial-vm/

4. Get familiar with Linux commands
   - cd, ls, pwd, cp, …

5. Mininet Walkthrough
   - http://mininet.org/walkthrough/

6. Create learning switch
   - https://github.com/mininet/openflow-tutorial/wiki/Create-a-Learning-Switch

   - You will need to read the below wiki page of POX controller to understand the available APIs for building your L2 learning switch
     https://openflow.stanford.edu/display/ONL/POX+Wiki

7. Read OpenFlow specification

Deliverables

1. A lab report that includes screen shots of Wireshark showing the capture of OpenFlow packets
2. The source code of a L2 Learning switch controller for POX

Due date

Please check the course schedule on piazza.com