Preparation for Lab5

Software-Defined Networking

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1 Introduction to SDN

Software Defined Networks In this last lab, you are going to get hands-on experience on Software Defined Networks (SDNs) and especially the OpenFlow Protocol [1]. To complete the lab, you need first to study carefully **sections 4.4 and 5.5** from the coursebook.

Preparatory Task 1. After reading the chapters, you should be able to answer in your own words the following questions:

(a) What is a Software Defined Network (SDN)?

(b) What is an SDN controller?

(c) What is an SDN switch?

(d) What is the *match-plus-action* paradigm and how is it different from *destination-based routing*?

Mininet In order to realistically simulate real-world networks, you will use the mininet network emulator:

> Mininet is a network emulator. It runs a collection of end-hosts, switches, routers, and links on a single Linux kernel.
>
> *A Mininet host behaves just like a real machine; you can run arbitrary programs (including anything that is installed on the underlying Linux system.)* The programs you run can send packets through what seems *like a real Ethernet interface, with a given link speed and delay.* Packets get processed by what looks like a real Ethernet switch, router, or middlebox, with a given amount of queueing.[2]

During the lab, you'll be able to enter Mininet's commands in a *special* terminal which will execute the commands on the simulated hosts. For example `h1 ping h2` will ping host h2 from host h1.

[1] https://www.opennetworking.org/technical-communities/areas/specification/open-datapath/

[2] Extract from https://github.com/mininet/mininet/wiki/Introduction-to-Mininet#what. Have a brief look over there for more information.