

Department of Computer Engineering
University of Peradeniya
CO515 Computer Networks: Selected Topics

Lab Number: 04

Topic :

Secure SDN networks.

Objective:

The objective of this assignment is to,

1. Identify the security lapses in software-defined networks.
2. Analyze the vulnerabilities in the communication between switch and the controller.
3. Study the available solutions.
4. Implement encryption between the switch and the controller.
5. Compare the flow configuration delay over encrypted and unencrypted channels.

Submission:

Submit the given task in a zipped file named E14XXXLab1.zip/ E15XXXLab1.zip. Here XXX is your Registration number. The zip file should include the Wireshark traces renamed according to the student ID, and a pdf file containing a table comparing the encryption delays.

Deadline: two week after of resuming the academic program.

Lab Task:

1. Download OpenFlow 1.3 or later and install.
2. Configure two instances of OpenFlow one as the switch and the other as the controller.
(you may use any preferable SDN platform for this exercise. However, in the comparison you may need to use the same platform)
3. They shall be locally connected over 127.0.0.1.
4. Carefully study the online materials and identify how to secure the channel between the switch and the controller.
5. Use OpenSSL and create an application to obtain the certificates automatically.
6. Extend your application to fit into large networks of a significant number of devices.