

Lab Assignments for Chapter 13

We have created one lab assignments for this chapter, Lab13-1. We have also included one lab-report sheet, which means that each lab should be reported in a separate sheet. The assignment is about the Ethernet protocol. It is assumed that you have done the lab assignment for Chapter 1, which told you how to install the Wireshark software and how to use it.

13.1 ETHERNET

In this lab, we examine the contents of an Ethernet frame sent by the data-link layer. We find the value of different fields such as destination and source link-layer addresses, the value of the protocol field, which shows which payload is being carried by the frame, and so on.

13.1.1 Assignment

- Start your web browser and clear the browser's cache memory, but do not access any website yet.
- Open the Wireshark and start capturing.
- Go to your browser and retrieve any file from a website. Wireshark starts capturing packets.
- After enough packets have been captured, stop capturing and save the captured file.

Part I: Frame

In the packet list pane, select any packet that is initiated from your computer. In the packet detail pane, expand the Frame (packet at the data-link layer).

Questions

Note that the Ethernet filters the preamble and FSD fields; they are not passed to Wireshark. Also most Ethernet interfaces either do not supply the CRC to Wireshark or are not configured by their driver to do so. You may notice that the Wireshark can capture

padding bytes in request messages, but not in the reply messages. Using the captured information, answer the following question in your lab-report sheet.

1. What is the frame size?
2. What is the payload size (data and padding)?
3. From the answer to question 2, can you say that there is padding in the payload?
4. Try to find a frame that is exactly 60 bytes (without counting the CRC bytes). Using the total payload length, find the number of padded bytes.

Part II: Ethernet Header

In the list packet pane, select a packet. In the packet detail pane, select the Ethernet.

Questions

Using the captured information, answer the following question in your lab-report sheet.

1. From the hexdump, determine
 - a. destination link-layer address.
 - b. source link-layer address.
 - c. upper layer protocol.
2. Using the packet detail pane, verify your answers to the first question.
3. Is the destination link-layer address unicast or multicast?
4. Does the source link-layer address define your network? Explain.
5. Is there a relationship between the destination link-layer address and the destination IP address?

13.1.2 Documents to Turn in

1. A copy of Lab13-1 report sheet that contain answered questions.
2. A printout of the supporting captured information.