CS 254 - Computer Networks

Lab 8: Wireshark: Ethernet and ARP

Objective:

In this lab you use Wireshark to examine Ethernet traffic and ARP messaging to get an introduction to these protocols.

Background:

This lab is one of the Wireshark labs that supplement the networks textbook: Computer Networking: A Top-Down Approach, 7th ed., by Kurose and Ross.

In their lab the authors reference material in their textbook on Ethernet and ARP. The relevant sections from our text are sections 15.1 – 15.5 on Ethernet including the Ethernet frame format (Figure 15.1), and sections 23.4 – 23.7 on the ARP protocol including the ARP message format (Figure 23.4). Be sure you understand the principle of encapsulation which is explained somewhat in section 23.6.

Instructions:

1. Complete Wireshark Lab: Ethernet and ARP.

Notes:

- Please follow the instructions on page 4 of the lab which are quoted here: “Whenever possible, when answering a question you should hand in a printout of the packet(s) within the trace that you used to answer the question asked. Annotate the printout to explain your answer.” Annotate by highlighting the paper copy of the printout and referring to the highlighting in your lab write-up.

- You will encounter a couple of tasks that won’t work quite as described. For example, on a Windows system you need the command `arp –a` to display the contents of the ARP cache. Also the `arp –d *` command needs to be run as administrator – I can show how to do that. When asked to uncheck the IP box in Wireshark you will need to uncheck the IPv4 box.

Hand in:

Hand in the answers to the questions on analyzing Ethernet traffic and the questions on analyzing ARP traffic. There are 15 questions and two extra credit questions.

Help Policy:

Help Policy in Effect for This Assignment: Group Project with Limited Collaboration

In particular, you may discuss the assignment and concepts related to the assignment with the following persons, in addition to an instructor in this course: any member of your group; any St. Bonaventure Computer Science instructor; and any student enrolled in CS 254.

You may use the following materials produced by other students: materials produced by members of your group.