Harvard University
CSCI S-40, Communication Protocols and Internet Architectures

Reading Assignment for Lecture 3

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Note that the textbook includes some code samples to explain things such as the algorithm for flow control. You should try to read this code (especially if you are a programmer), but this is not a programming course and you can learn all of the material in this course without being able to understand the code samples.

- Watch a short video on the history of Ethernet by Bob Metcalfe, one of its inventors.
  http://www.youtube.com/watch?v=g5MezxMcRmk

- In addition to the textbook written by Prof. Comer, we will be assigning a number of readings this term in another textbook written by Peterson and Davie called Computer Networks: a Systems Approach, 5th edition. This book is available online via the Harvard library system (called HOLLIS) and the publisher of the book is Safari Books Online. Note that this was the course textbook a few years ago and it is an excellent reference.
  * Read section 2.6 and 2.7 in Peterson and Davie
  * Read section 3.1 in Peterson and Davie

  Skip the material on the Spanning Tree Protocol (STP) and ATM in these sections
  Please note: although we have not run into a problem in the past, Harvard's license arrangement with Safari means that only a limited number of library users can simultaneously access a specific book. Therefore, if the book is not available online when you first try to access it, please check again at a later time.

- Read the following articles on LAN Switching and VLANs
  http://docwiki.cisco.com/wiki/Introduction_to_LAN_Protocols
  http://docwiki.cisco.com/wiki/Ethernet_Technologies (sections 1, 2, 3, 4, 5.0 and 5.1)
  http://docwiki.cisco.com/wiki/Transparent_Bridging
  http://docwiki.cisco.com/wiki/LAN_Switching_and_VLANs
  Skip the material on the Spanning Tree Protocol (STP) and ATM in these readings.

- Learning about LANs, ethernet and ethernet switching is a very important part of this course. Pick a number of topics of interest to you in these areas and do some research using one of the following web sites as a starting point. You can skip material on the Spanning Tree Protocol, ATM, or other non-Ethernet protocols at these websites since we will focus on the Ethernet LAN protocols in this course.
  http://www.ieee802.org/3/
  http://www.ieee802.org/
  http://www.iol.unh.edu/knowledgeBase/
  http://www.ethernetalliance.org
  https://en.wikipedia.org/wiki/Ethernet
  http://www.networkworld.com/category/lan-wan/

- One can never say that Ethernet is fast enough, or that the Ethernet standards work is done. A few years ago there was a lot of standards work done on 40 and 100 gigabit Ethernet, and this has been followed by work on a 400 gigabit and 800 gigabit Ethernet. There is also a lot of work being done for Ethernet in cars. The details of these technologies will not be covered in the class, but please review the articles below to understand how ethernet continues to evolve.

  http://tinyurl.com/kc6r6qn

  This link is for a whitepaper at http://www.ethernetalliance.org

  https://standards.ieee.org/events/automotive/index.html

- Reference Document (optional): this is an excellent history of Ethernet (from 2001) and a great reference document for your online library. There are almost 400 slides in this presentation.

  https://www.iol.unh.edu/sites/default/files/knowledgebase/ethernet/ethernet_evolution.pdf

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