[Michael Chillemi](mailto:chillemm@go.stockton.edu)

Hw 1

09/26/2021

**Chapter 1: 1.4, 1.8, 1.9, 1.11, and 1.112**

1.4 – To what aspects of networking does data communications refer?

* Data communications refer to low level technology for transmitting information.

1.8- What is a communication protocol? Conceptually, what aspects of communications does a protocol specify?

* A communication protocol specifies the details for one aspect of computer communication, including actions to be taken when errors or unexpected situations arise. The protocol can specify low level details or high level items.

1.9- What is a protocol suite, and what is the advantage of a suite?

* Instead of creating each protocol in isolation, protocols are designed in complete, cooperative sets called *suites* or *families*. The advantage is each protocol in a suite handles one aspect of communication; together, the protocols in a suite cover all aspects of com- munication, including hardware failures and other exceptional conditions. Furthermore, the entire suite is designed to allow the protocols to work together efficiently.

1.11 – List the layers in the TCP/IP model, and give a brief explanation of each. TCP/IP model has 5 layers.

* Application- top layer of the TCP/IP stack specify how a pair of applications interact when they communicate.
* Transport - provide for communication from an application program on one computer to an application program on another. Specifications that control the maximum rate a receiver can accept data, mechanisms to avoid network congestion, and techniques to ensure that all data is received in the correct order belong in layer 4.
* Internet- The Internet addressing structure, the format of In- ternet packets, the method for dividing a large Internet packet into smaller packets for transmission, and mechanisms for reporting errors belong in layer 3.
* Network Interface- Protocols in the *MAC* layer specify details about communication over a single network. It is where your router also tries to find the shortest route to the receiver.
* Physical- *Physical* layer specifies details about the underlying transmission medium and the associated hardware.

1.12- Explain how headers are added and removed as data passes through a layered protocol stack.

* Headers are added by protocol software as the data passes down through the layers on the sending computer. That is, the Transport layer prepends a header, and then the Internet layer prepends a header, and so on.

**Chapter 2: 2.2, 2.6, 2.7, 2.9, 2.10**

2.2—The plot in figure 2.1 shows that internet growth did not start until after 1995.Why is the figure misleading?

* The figure is misleading because they hide small details. In the textbook it states “ For example, the graph hides details about early Internet growth, making it appear that the Internet did not start to grow until approximately 1996 and that the majority of growth occurred in the last few years. In fact, the average rate of new computers added to the Internet reached more than one per second in 1998, ”

2.6- List the steps in the transition in graphics presentation from the early internet to the current internet?

* The list of the transition in graphics is text->Graphic Images->video clips -> high def video.

2.7- Describe the evolution in audio that has occurred on the internet.

* The evolution of audio is alert sounds -> human voice -> audio clips -> high fidelity music

2.9-What Internet technology is the telephone system using?

* The telephone system is using VoIP. Also they changed from analog to digital and adopted more internet technologies like applications.

2.10-Why is the switch from wired Internet access to wireless internet access significant?

* The switch is so significant because it supports taking computers everywhere with you on the go and is also essential for mobile users. It changed how we use a lot of our technology.