Assignment

OSI and TCP Layered Models

Conventionally, packet orientated digital communication systems employ a layered model. In essence, a layered model takes the large problem of communicating a message from one location to another and breaks it into a series of smaller related problems. Each of these smaller problems represents a layer. To complete the model we define the boundary between the layers and the format of the information that is permitted to cross this boundary.

Layered communications models follow specific rules. One rule is that each layer can only communicate with its adjacent layers. For example when sending information, the Transport Layer receives information from the Session layer, manipulates it, and then passes it on to the Network Layer. In contrast, when receiving packets, the Transport Layer gets data from the Network Layer, manipulates it, and then passes it on to the Session layer.

In a similar way, the boundary between layers only accepts information in a specific format. This makes the internal processes of each layer independent of the layer's function. This enables us to treat each layer as a black box. In class, we will see that this rule has important consequences.

For this assignment, you will view several online videos. First, view "The OSI Model Demystified" from Eli the Computer Guy at:

http://www.elithecomputerguy.com/2010/07/09/the-osi-model-demystified/

Then, view "The TCP/IP Model" from Professor Messor at:

http://www.professormesser.com/n10-005/the-tcpip-model/

Once you have a grasp of OSI and TCP/IP, you should view Eli's "Introduction to Networking" tutorial at:

http://www.elithecomputerguy.com/2009/11/30/intro-to-networking/

After viewing those videos, you will create two tables. One table will describe the International Organization for Standardization/Open System (ISO/OSI) Interconnection Model and the other table will describe the Transmission Control Protocol/Internet Protocol (TCP/IP).

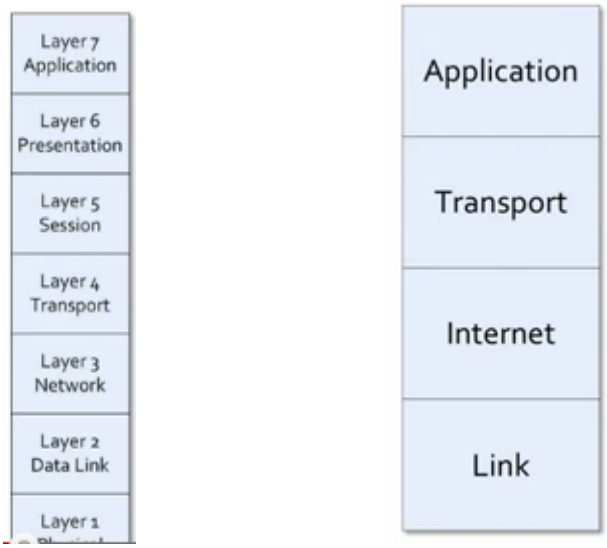

Figure One: OSI and TCP/IP Models

In contrast to the tables in Figure One, each of your tables should have four columns. Like Figure One, the first column should name each layer. The table that you make will include several additional columns.

Your table's second column should briefly describe each layer's function. The third column should list a few of the protocols that operate at that particular OSI level. For the lower three OSI layers, a fourth column that lists the hardware in which that that particular layer is implemented. Hint, if you're not sure where to start, you might want to refer to the Textbook's Chapter 1 Slides.

Once you have completed the two tables, save your work in a file.

Answer the questions below. Save your answers in the same file as your two tables. (Note that you may have to Google to find the correct answers.)

Complete the vocabulary table that follows. Add that to your file that contains the tables and the answers.

Save your work. If you can, upload the file to your online portfolio. (If you are not familiar with the online portfolio, review that section from the class support site.)

Questions

1. List the major standards group(s) that make the standard for each OSI layer.

2. Briefly describe, by OSI layer, how information from your computer gets out to the Internet. In your description, be sure to mention each layer's function.

3. Go to speedtest.net and test your Internet connection speed. Capture the graphic that reports your speed and include it in your assignment.

Vocabulary Table

Term	Definition or Description
ANSI	
Backbone Network	
Broadband	
Circuit	
Client	
Data Link Layer	
Extranet	
FCC	
Firewall	
IEEE	
IETF	
ITU	
Internet	
Intranet	
ISP	
KB	
Kb	
LAN	
Logical	
Modem	
Open System	
Physical	
RFC	
Router	
Client	
Switch	
VPN	
WAN	
Wireless Access Point	