

Answer to Homework 01

1. A **host** (also known as "network host") is a computer or other device that communicates with other hosts on a network. Hosts on a network include clients and servers -- that send or receive data, services or applications.

Network Device is a physical equipment or component that are required for communication and interaction between hardware on a computer network.

A **peripheral device** is an external device that is used to connect to and work with a computer to either put information into it and get information out of it.

Guide Media is a type of transmission media that are using a physical link such as twist pair cable, coaxial cable and optic fibre cable to transmit data.

Unguided Media is another type of transmission media that are using non-physical link such as wireless to transmit data.

2. Calculate propagation delay of the link :

Formula : propagation delay = distance / speed

Distance = 36000 km = 36×10^6 meter

Speed = 2.4×10^8 meter/sec

$$\text{So : Propagation delay} = \frac{36 \times 10^6}{2.4 \times 10^8} = 15 \times 10^{-2} \text{ sec}$$

Calculate Bandwidth delay product :

Formula : Bandwidth delay product = *Propagation delay* \times *microwave link capacity*

Microwave link capacity = 10 Mbps

$$\text{So : Bandwidth delay} = 15 \times 10^{-2} \times 10^7 = 15 \times 10^5 \text{ bits} = 1.5 \text{ Mb}$$

Calculate maximum value of x that is denoted the size of photo:

Every minute the satellite takes a digital photo and sends it to the base station

$$\text{So minimum value of x} = \text{transmission rate} \times 60 \text{ sec} = 10^7 \times 60 = 6 \times 10^8 \text{ bits}$$

3. **Protocols and standards** make networks work together. Protocols make it possible for the various components of a network to communicate with each other, and standards make it possible for different manufacturers' network components to work together.
4. Five layer on the internet protocols and its responsibility :
 1. Application : is responsible for providing service to the user.
 2. Transport : is responsible for delivery of an entire message from an application program on the source device to a similar application program on the destination device.
 3. Network : is responsible for delivery of packets across multiple networks.
 4. Data Link : is responsible for the delivery of individual packets from the source host to the destination host.
 5. Physical : is responsible for movements of individual bits from on hop(node) to the next.
5. **Internet Exchange Point (IX)** is the physical infrastructure through which Internet service providers (ISPs) and content delivery networks (CDNs) exchange Internet traffic between their networks.
6. **Wireshark tool** is used to monitor and analysis. And we can captures packets from a network connection, such as from your computer to your home office or the internet.