Lab 5

Circuit switched network - a sub-network in which a dedicated circuit is established between sender and receiver and all data passes over this circuit.

-Advantages

Continuous single transmission

The connection is only made when the two devices request to connect to each others

Since it’s using a circuit there is no packet lost and no need to wait for data since the data has already been prepared and sent

One single route so I/O from both side is using one single transmission line

-Disadvantages

Expensive (need a sub-network and dedicated circuit)

Need to establish a physical link before any possible transition

There can’t be any other connection made for that line (Old days where you need to stop internet to use the phone line)

Once established It can’t transfer any other type of date

One form of packet switched network is the datagram data is divided/split into packets and transferred in their own path

-Advantages

Can easily get around lost packets

Efficient at using the network

No need to setup (no connection, no stream, no dedicated bandwidth) since everything is already included in the packet details(full address of the sender)

-Disadvantages

High chances of lost packets

Network changes can lose or break the packets

Data is delivered in a unordered manner

There is no confirmation if the packet arrived at the correct place and have been received correctly

Waste a lot of data to specify the address carefully since once sent it will try and get to that specific address without change or update of information

Virtual packet switching

-Advantages

A stable connection will be established between the sender and receiver and data will only happens one way

Network is already allocated (prepare) at the time of the connection for the transition so that if there is bandwidth congestion it will still go through

-Disadvantages

Can’t have a back and forth data conversation

More expensive/costly since it need a powerful machine to allocated the calls. Allocate the size of the packages that will generate

4. Connection Oriented application requires both machine to request and accept to establish a connection with each other to transfer informations. Such as bitvise TCP. Connectionless applications does not requires to make connection instead the sender just compile the data and through the application send it through by having an address attached to the data. Such as Emails UDP

5.

A transmit: 00001111 ----++++

B transmit: 01010101 +-+-+-+-

S transmit: 02020202 0-20-2+20+20

6.

Frequency division multiplexing

Easy isolated frequencies so it won’t mixed with other data from different fequencies

Susceptible to noise distruption

Need a multiplexer and demultiplexer

Need multiple station to transmit on different frequencies

Time Division Multiplexing

Efficient can transmit multiples files at the same time

Long wait time for a singular file

Expensive need very accurate time between the multiplexer and demultiplexer

Data still to be transferred even if there is no data to transfer

Code Division Multiplexing

Very expensive

Reliable and do not lose data when transferring

Take or lot of data to transfer basic information

Theoratically can handle data from a lot of sources

OSI Model

|  |  |
| --- | --- |
| Application Service | |
| Transport | |
| Internet | |
| Network Access | Network Access/Interface |
| Physical |

|  |
| --- |
| Application |
| Presentation |
| Session |
| Transport |
| Network |
| Data link |
| Physical |

a. data compression Presentation

b. multiplexing Transport and physical

c. routing Network

d. definition of a signal’s electrical characteristics Physical

e. e-mail Application

f. error detection Data-link Transportation

g. end-to-end flow control Data-link Transport

9.No you can have multiple machines run the same service in a same port but you will use IP address to identify the machine.

10.