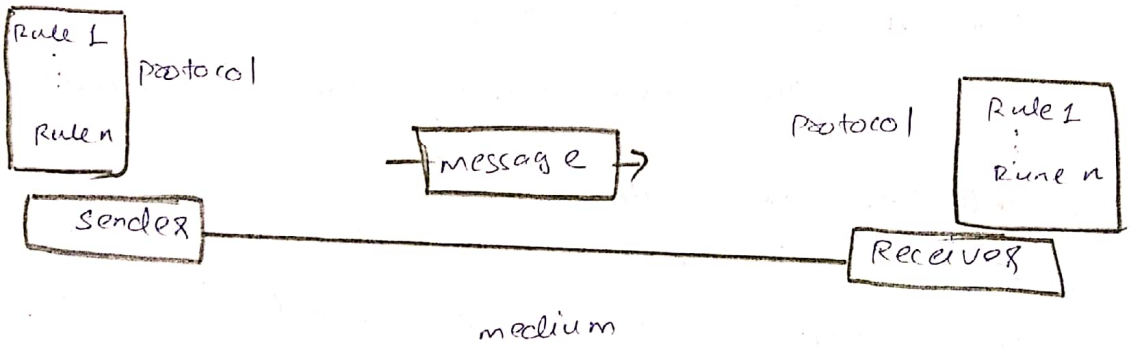
05-10-20

COMPUTER NETWORKS

VINCE JOSEPH
S3 MCA
Roll: 59

2.) Basic communication model



Components

a.) **message** : it is the actual information (data) to be communicated.

b.) **sender** : is a device that sends the data (message)
It can be a computer, workstation, telephone handset etc.

c) **Receiver** : is a device that receives the message.

d.) **Transmission medium** : is the physical path by which messages travel from sender to destination. eg: wired & wireless mediums

e.) **Protocols** : is a set of rules that govern data communications. Without protocols, two devices may be

connected but not communicating.

1) The layered concept was developed to accomodate changes in technology. Each layer in a network model has its own responsibilities (functions) Each layer will pass information up and down to the next subsequent layer as data is processed.

The main benefits are: by separating network communications into smaller pieces, simplicity can be achieved. Also the underlying structure of the participating nodes won't affect the data communicated.

5) OSI reference modal

OSI stands for Open systems interconnection model. It was first introduced in late 1970s. This is an ISO standard which covers all aspects of network communications.

The purpose of OSI model is to show how to facilitate communication b/w different systems without requiring changes to the logic of the underlying hardware and s/w.

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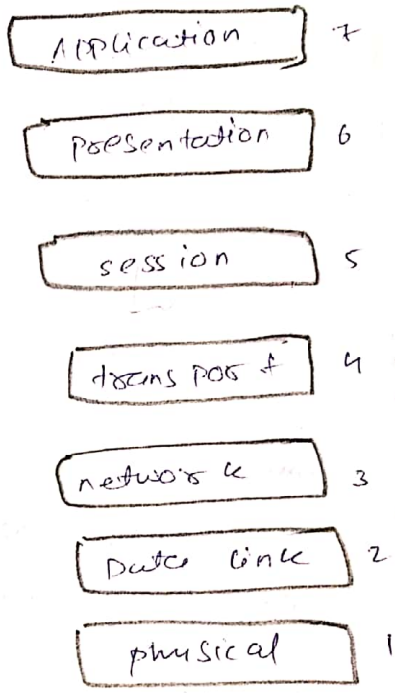
Layers in OSI model

OSI model is composed of 7 ordered layers:

within a single machine, each layer ~~calls~~ calls upon the services of the layer just below it.

The seven layers can be thought of as belonging to 3 subgroups



1st group

physical, data link and network

2nd group

transport layer

3rd group

Application, presentation and session layer.

functions of layers

a) physical layer

The lowest layer of OSI is physical layer. It is responsible for actual physical connection b/w devices.

physical layer contains information in form of bits.

Responsible for transmitting individual bits from one node to another.

On receiver side this layer converts the signals back to bits.

b) Data link layer.

Responsible for node to node delivery of msg.

main functions are to make sure data transfer is error free.

DLL is divided into 2 sub layers

i) Logical link control

ii) Media access control.

Main functions of DLL can be as follows:

i) Framing

dividing the stream of bits received from nlw layer into manageable data units ~~&~~ called frames

ii) flow control

imposes flow control mechanism to avoid overwhelming the receiver.

iii) Error control

Achieved normaly by adding a trailer to end of the frame

iv) Access control

Determines and controls which device has control over the link at any time.

c) network layer

Responsible for source to destination delivery of packets possibly across multiple networks.

This layer also controls packet routing. ie selecting the shortest path. The sender's and receiver's IP address are placed in the header by this layer.

Functions

Routing

determines which route is suitable for source to destination transmission.

Logical addressing

Adding sender and receiver IP addresses to the packet header.

d) Transport layer

Responsible for process to process delivery of entire msg. This layer ensures that the whole msg arrives intact and in order, by overseeing both error control and flow control at source-destination level.

Functions

service point addressing

transporting the msg to correct process on destinating destination.

segmentation and reassembly

Adds segment numbers to segments to be able to rearrange correctly on receiver side.

d) connection control

e) flow control

f) Error control

e) Session layer

This is a n/w dialog controller. This layer establishes, maintains and synchronizes interaction among communicating sims.

functions

Dialog control : allows two sims to enter into a dialog.

Synchronisation

f.) Presentation layer

concerned with syntax and semantics of information exchanged.

functions

Translation : Responsible for interoperability b/w two different encoding methods. so this layer converts data in to a common format

Encryption

compression

5) Application layer

Enables users, human or sw to access the nlw. It provides user interfaces and support for services such as mail, remote file access and transfer etc. higher level protocols like HTTP, FTP, SNTP are present here.

7) Cookies

An HTTP cookie is a small type (piece) of data stored on the user's computer by the web browser while browsing a website. They are designed to be a reliable mechanism for websites to remember stateful information to record the user's activities.

Types

Session cookies (temporary cookies)

used to manage a session. This cookies persist only to a session and the data get lost after

permanent cookies

Remains even if the browser is closed they store login details etc.

Third Party cookies

installed by 3rd parties with the aim of collecting data from web users.

Zombie cookies

Automatically recreates after user has deleted them. These are dangerous.

h) Proxy servers

A proxy server is a server application that acts as a bridge btw requests from clients to servers. This acts like a gateway btw users & internet. This servers provides varying levels of functionalities security and privacy.

i) Static and dynamic web documents

Static documents

This type documents contains / written in HTML Javascript, CSS etc. This type documents remains same (content) until someone changes it manually. The server sends these documents without needing any additional efforts.

Dynamic web documents

These are written using AJAX, ASP, ASP.NET etc. The contents of these documents differ for different visitors. This pages takes more time to load than the static ones.

UNIT

S.static	dynamic
1) Remains same until some one changes it manually.	1) page contents differs from user to user
2) pages are simple	2) pages are complicated.
3) Information changes rarely.	3) information is changed frequently
4) fastes loading time	4) takes more time to load.
5) No database required	5) databases are used.
6) Requires less work and cost to maintain	6) may contains application programs for different services.