

What is Network?

- A network is a group of connected, communicating devices. An internet is two or more networks that can communicate with each other.
- It connects millions of computers, webpages, websites and servers.
- Using the internet we can send emails, photos, videos, messages to ~~to~~ ~~to~~ user.
- The internet is an infrastructure

History of Internet?

- The idea of a global communication network can be traced back to the 1960s of MIT proposed the idea of a "Galactic Network" of computers that could communicate with each other.
- Concept of packet-switching
— RAND corporation
- Birth of ARPANET
- Development & Expansion
ARPANET, funded by the U.S. Department of Defense was est.

- TCP/IP protocol & 1 Domain Name System (DNS)

The TCP & IP were standardized in 1983, leading to the term TCP/IP, which became the foundation of the Internet.

- WWW
Jim - Berners Lee, website
- Broadband & social media
- Mobile Internet & the Internet of Things (IoT)

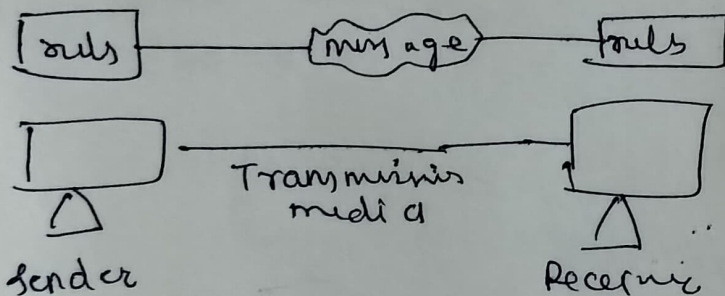
Protocols and Standards

- computer networks are dependent on protocols and standards which plays a vital role, which enables communication between different devices and systems with one another.

(1) Protocols :-

In order to make communication successful between devices, some rules and procedures should be agreed upon at the sending & receiving ends of the system.

- Such rules are called as protocols



Syntax : format of Data

Semantics : Meaning of each section of bits

Timing : When should be sent & how fast it can be sent.

(2) Standards :-

Guidelines to manufacturers, vendors and other service providers

There are two types :-

De facto :-

Not approved but widely used. Est. originally by manufacturers

De jure :-

Regulated by an officially recognized body.

Standards Organizations

- standards are developed through the cooperation of standards creation committees, forums, & government regulatory agencies.

Internet Stds

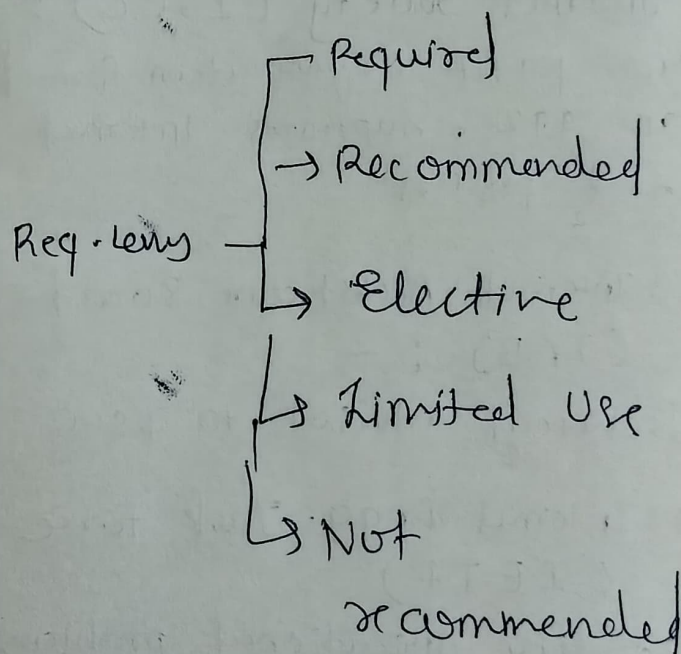
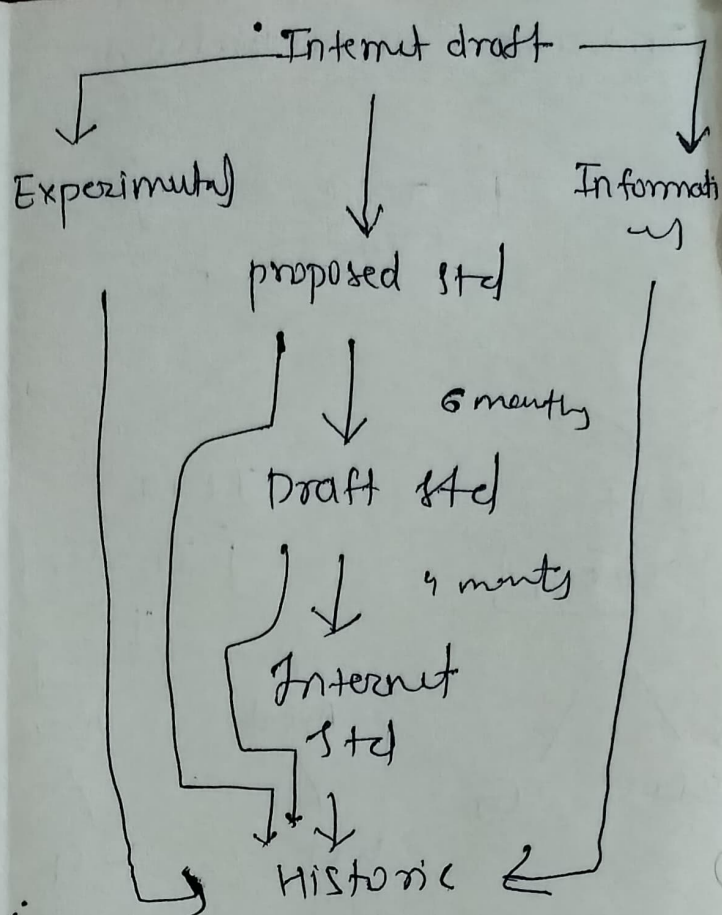
- An internet std is a thoroughly tested specification. There is a strict procedure by which a specification attains internet std status.

- A specification begins as an Internet draft, working document with no official status & a six-month

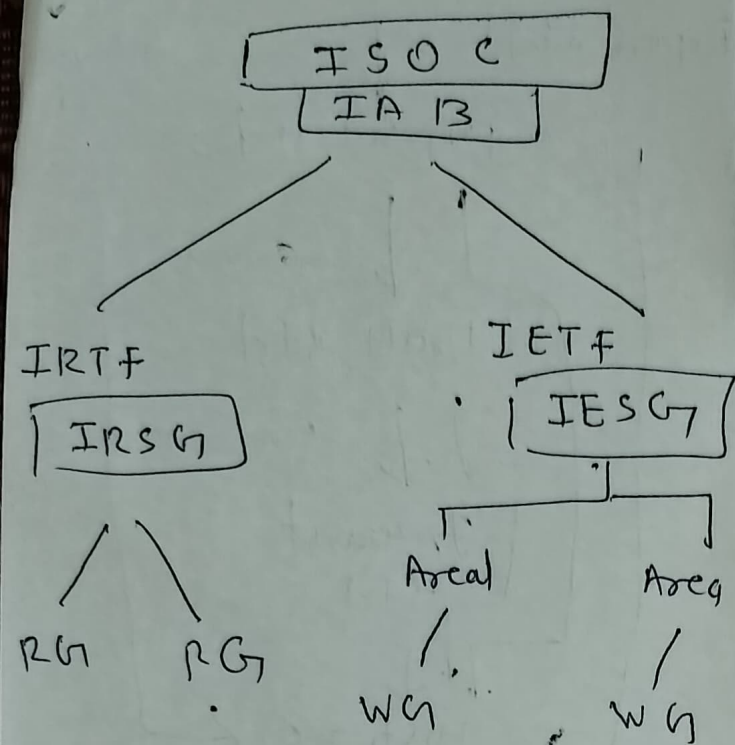
- A draft may be published as a Request for Comment (RFC)

Maturity Levels

Requirement Levels



Internet Administration



(5) Internet Assigned Number Authority (IANA)

Responsible for domain names & addresses.

(6) NIC (Network Information Center)

Responsible for collecting & distributing information about TCP/IP protocols.

(1) Internet Society (ISOC) :-
Non-profit organization formed in 1992, supports internet std process

(2) Internet Architecture Board (IAB) :-
Technical advisor to ISOC

(3) Internet Engg. Task Force (IETF)
Identify operational problems and propose the solutions.

(4) Internet Research Task Force (IRTF)
Forum of working groups. focus on long term research.