

MRA DAV PUBLIC SCHOOL, SOLAN

Class XII (Informatics Practices)

Topic: Introduction to Internet

Learning Objectives

- Learning about Internet
- Learning about expansion of network to make internet
- Learning about how internet works
- Learning about difference between internet and web
- Learning about Applications of Web, Web-terminologies

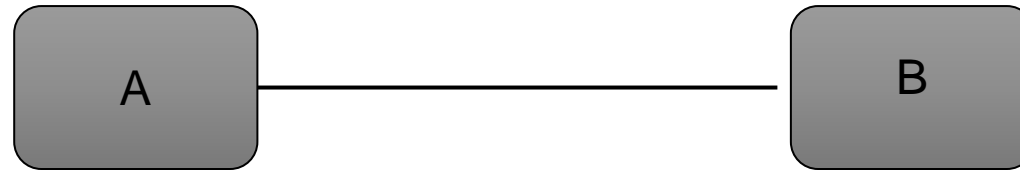
The Internet is the backbone of the Web, the technical infrastructure that makes the Web possible. At its most basic, the Internet is a large network of computers which communicate all together.

“A network of networks”

How internet works?

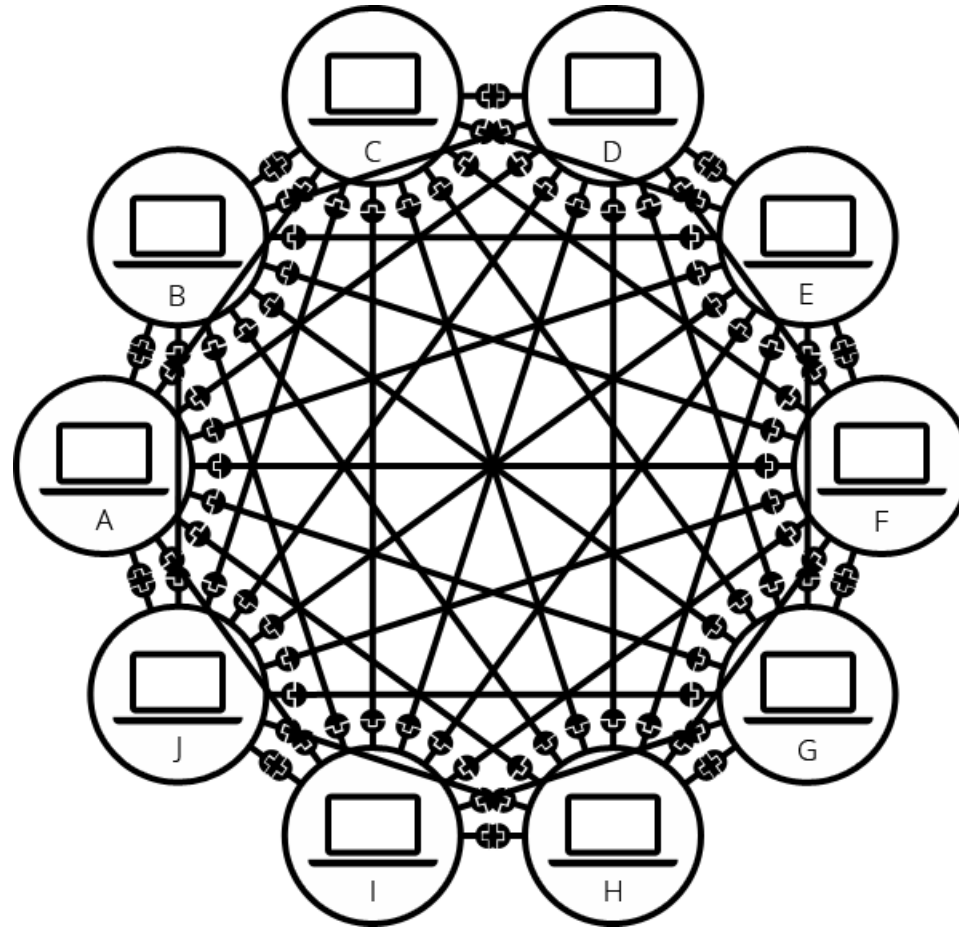
□ How internet works

When two computers need to communicate, you have to link them, either physically (usually with an Ethernet cable) or wirelessly (for example with WiFi or Bluetooth systems)



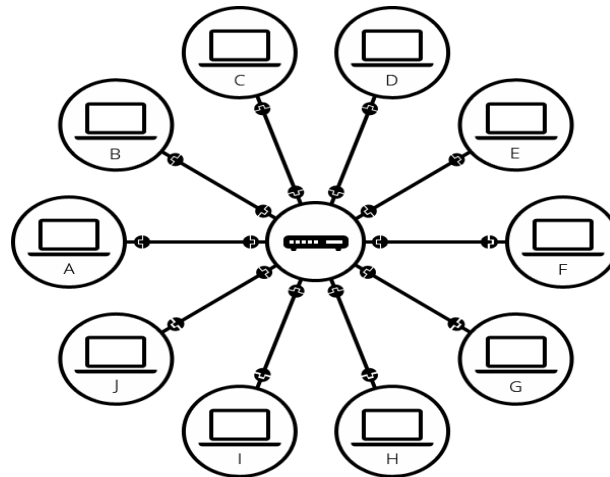
A network is not limited to two computers. You can connect as many computers as you wish. But it gets complicated quickly. If you're trying to connect, say, ten computers, you need 45 cables, with nine plugs per computer!

How internet works?



How internet works?

To solve this problem, each computer on a network is connected to a special device called a router. This router makes sure that a message sent from a given computer arrives at the right destination computer. To send a message to computer B, computer A must send the message to the router, which in turn forwards the message to computer B and makes sure the message is not delivered to computer C.

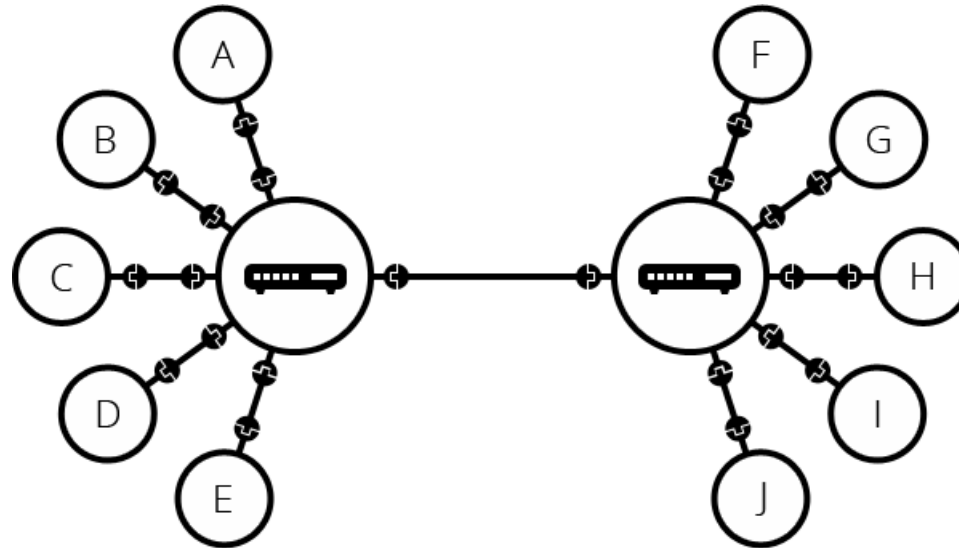


Once we add a router to the system, our network of 10 computers only requires 10 cables: a single plug for each computer and a router with 10 plugs.

How internet works?

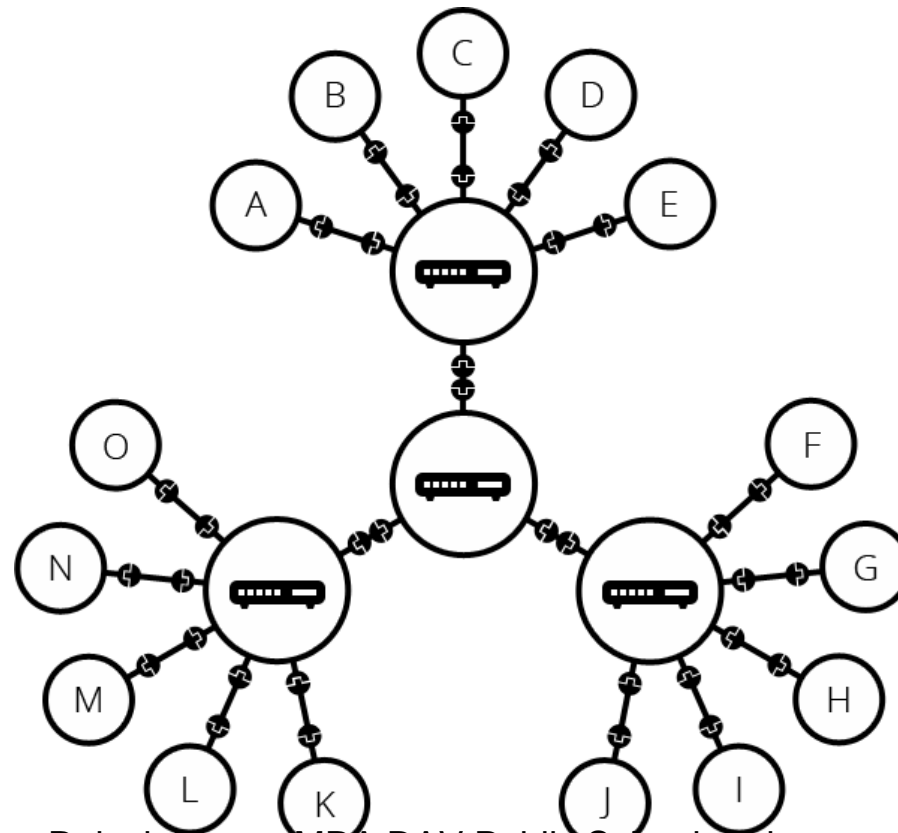
So far so good. But what about connecting hundreds, thousands, billions of computers?

Of course a single router can't scale that far, but, we can connect two routers...



How internet works?

By connecting computers to routers, then routers to routers, we are able to scale infinitely.



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How internet works?

Such a network comes very close to what we call the Internet, but we're missing something.

We built that network for our own purposes.

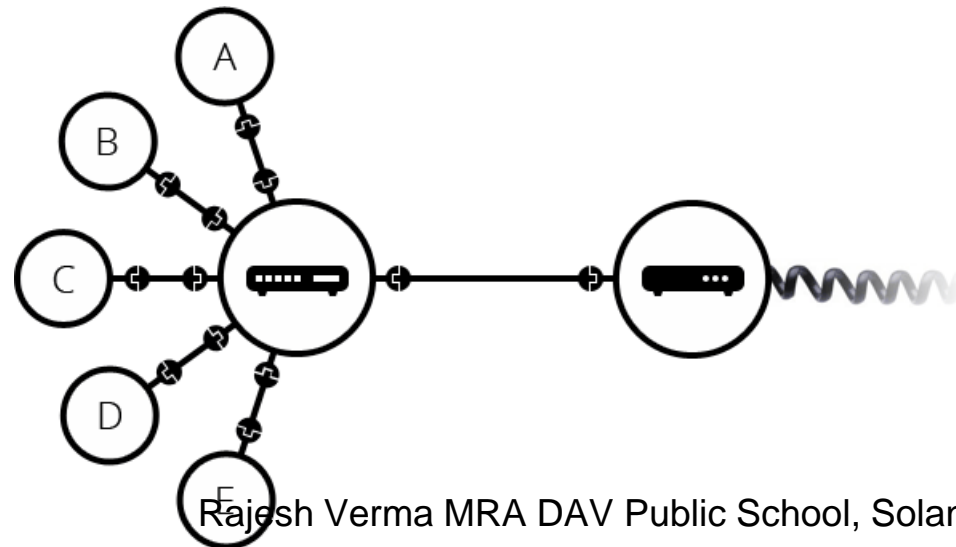
There are other networks out there: your friends, your neighbors, anyone can have their own network of computers. But it's not really possible to set cables up between your house and the rest of the world.

So how can you handle this?

Well, there are already cables linked to your house.

Electric power and telephone.

The telephone infrastructure already connects your house with anyone in the world so it is the perfect wire we need. To connect our network to the telephone infrastructure, we need a special piece of equipment called a **modem**. This modem turns the information from our network into information manageable by the telephone infrastructure and vice versa.



How internet works?

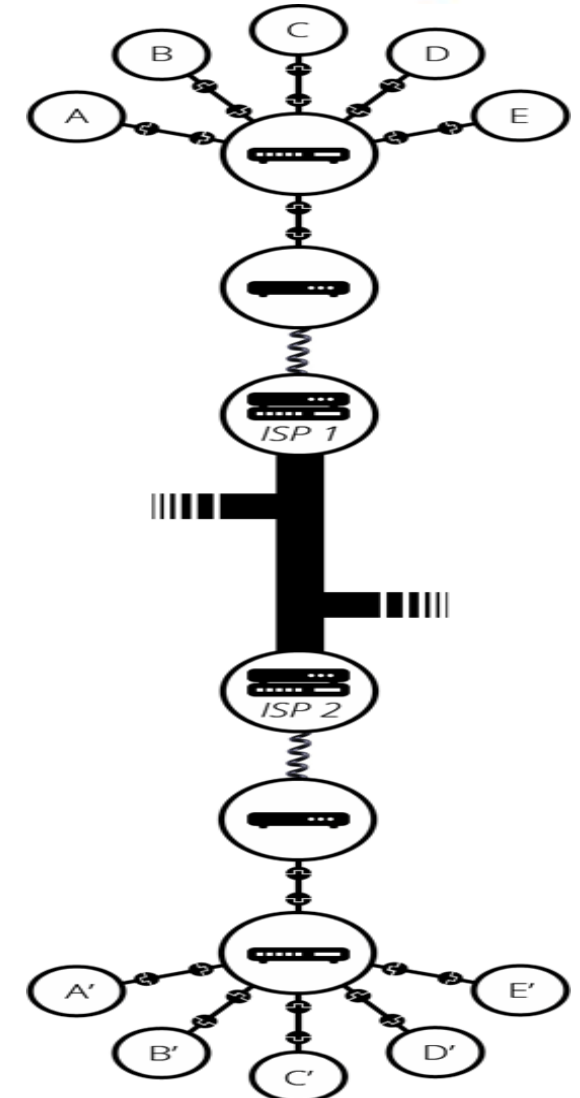
So we are connected to the telephone infrastructure.

What's next...?

The next step is to send the messages from our network to the network we want to reach. To do that, we will connect our network to an Internet Service Provider (ISP).

(An ISP is a company that manages some special routers that are all linked together and can also access other ISPs' routers. So the message from our network is carried through the network of ISP networks to the destination network)

ISPs then connect to larger ISPs which maintain fibre optic backbones for an entire region. Backbones around the world are connected through fibre optic lines, undersea cables or satellite links



How internet works?

□ Finding Computers

If you want to send a message to a computer, you have to specify which one.

Thus any computer linked to a network has a unique address that identifies it, called an **"IP address"** (where IP stands for **Internet Protocol**). It's an address made of a series of four numbers separated by dots, for example: **192.168.2.10**

That's perfectly fine for computers, but we human beings have a hard time remembering that sort of address.

To make things easier, we can alias an IP address with a human readable name called a **domain name**. For example (at the time of writing; IP addresses can change) **google.com** is the domain name used on top of the IP address **173.194.121.32**. So using the domain name is the easiest way for us to reach a computer over the Internet.

Internet ?

So, The Internet is a technical infrastructure which allows billions of computers to be connected all together.

World Wide Web

The World Wide Web (WWW), commonly known as the Web, is an information system where documents and other web resources are identified by Uniform Resource Locators (URLs, such as <https://www.example.com/>), which may be interlinked by hypertext, and are accessible over the Internet.

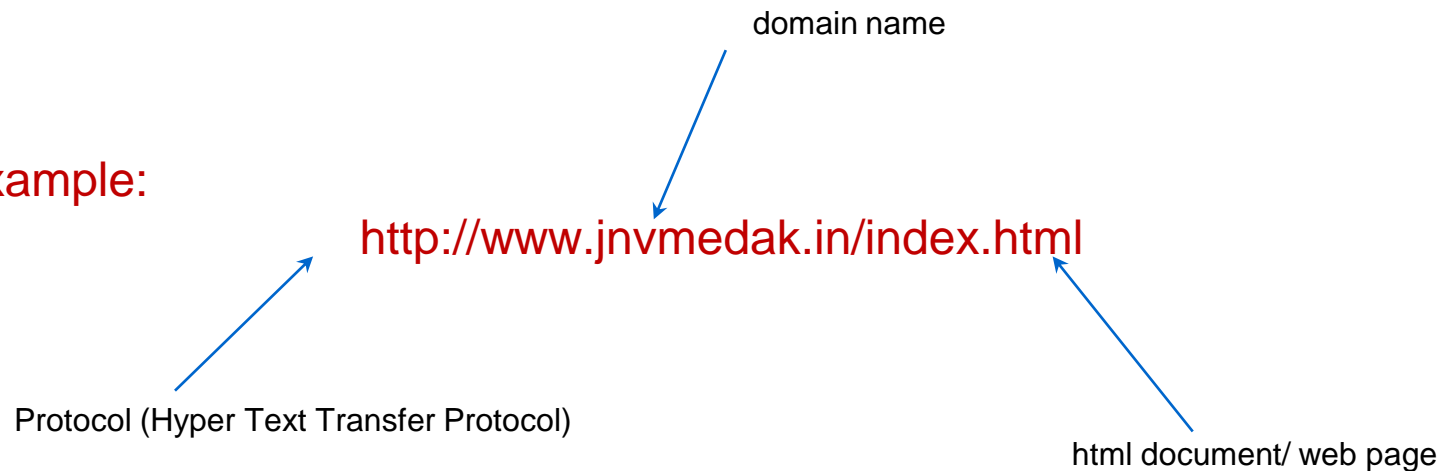
The resources of the WWW are transferred via HTTP/HTTPS, hosted by a web server and may be accessed by users by a software application called a web browser.

The Internet is an infrastructure, whereas the Web is a service built on top of the infrastructure.

Uniform Resource Locator (URL)

A Uniform Resource Locator (URL), sometimes also referred as a web address is a reference to a web resource that specifies its location on a computer network and a mechanism for retrieving it.

Example:



A URL is a specific type of Uniform Resource Identifier (URI)


Applications of WWW

Email: Electronic mail (email or e-mail) is a method of exchanging messages ("mail") between people using electronic devices. Messages are exchanged between hosts using the Simple Mail Transfer Protocol with software programs called mail transfer agents (MTAs); and delivered to a mail store by programs called mail delivery agents (MDAs, also sometimes called local delivery agents, LDAs). Accepting a message obliges an MTA to deliver it, and when a message cannot be delivered, that MTA must send a bounce message back to the sender, indicating the problem.

Users can retrieve their messages from servers using standard protocols such as POP or IMAP,

VoIP: Voice over Internet Protocol (VoIP), also called IP telephony, is a method and group of technologies for the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the Internet. It is a best-effort network without fundamental Quality of Service (QoS) guarantees.

In India, it is legal to use VoIP, but it is illegal to have VoIP gateways inside India. Foreign based VoIP server services are illegal to use in India.



Chat: Online chat may refer to any kind of communication over the Internet that offers a real-time transmission of text messages from sender to receiver. Chat messages are generally short in order to enable other participants to respond quickly.

The examples of chatting software are MSN Messenger, Yahoo Messenger, IRC (Internet Relay Chat) etc.

- Google
- MDN WebDoc
- Wikipedia