

### Unit I

Internet Basics: Evolution of Internet, Basic internet terms and applications. ISP, Anatomy of an e-mail Message, basic of sending and receiving, E-mail Protocol; Mailing List- Subscribing, Unsubscribing

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#### Internet

Internet is defined as an Information super Highway, to access information over the web. However, It can be defined in many ways as follows:

- Internet is a world-wide global system of interconnected computer networks.
- Internet uses the standard Internet Protocol (TCP/IP).
- Every computer in internet is identified by a unique IP address.
- IP Address is a unique set of numbers (such as 110.22.33.114) which identifies a computer location.
- A special computer DNS (Domain Name Server) is used to give name to the IP Address so that user can locate a computer by a name.
- Internet is accessible to every user all over the world.

#### Evolution

The concept of Internet was originated in 1969 and has undergone several technological & Infrastructural changes as discussed below:

- The origin of Internet devised from the concept of **Advanced Research Project Agency Network (ARPANET)**.
- **ARPANET** was developed by United States Department of Defense.
- Basic purpose of ARPANET was to provide communication among the various bodies of government.
- Initially, there were only four nodes, formally called **Hosts**.
- By the time, with invention of new technologies such as TCP/IP protocols, DNS, WWW, browsers, scripting languages etc., Internet provided a medium to publish and access information over the web.

#### Advantages

Internet allows us to communicate with the people sitting at remote locations. There are various apps available on the web that uses Internet as a medium for communication. One can find various social networking sites such as:

- Facebook
  - Twitter
  - Yahoo
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- One can surf for any kind of information over the internet. Information regarding various topics such as Technology, Health & Science, Social Studies, Geographical Information, Information Technology, Products etc can be surfed with help of a search engine.
  - Apart from communication and source of information, internet also serves a medium for entertainment. Following are the various modes for entertainment over internet.
    - Online Television
    - Online Games
    - Songs
    - Videos
    - Social Networking Apps
  - Internet allows us to use many services like:
    - Internet Banking
    - Matrimonial Services
    - Online Shopping
    - Online Ticket Booking
    - Online Bill Payment
    - Data Sharing
    - E-mail
  - Internet provides concept of **electronic commerce**, that allows the business deals to be conducted on electronic systems

## Disadvantages

However, Internet has proved to be a powerful source of information in almost every field, yet there exists many disadvantages

- There are always chances to lose personal information such as name, address, credit card number. Therefore, one should be very careful while sharing such information. One should use credit cards only through authenticated sites.

- Another disadvantage is the **Spamming**. Spamming corresponds to the unwanted e-mails in bulk. These e-mails serve no purpose and lead to obstruction of entire system.
- **Virus** can easily be spread to the computers connected to internet. Such virus attacks may cause your system to crash or your important data may get deleted.
- Also a biggest threat on internet is pornography. There are many pornographic sites that can be found, letting your children to use internet which indirectly affects the children healthy mental life.
- There are various websites that do not provide the authenticated information. This leads to misconception among many people.

## **Internet and its application**

Internet is a network of computers linking many different types of computers all over the world. It is a network of networks sharing a common mechanism for addressing (identifying) computers, and a common set of communication protocols for communications between two computers on the network.

### **Applications of Internet**

#### **1. Communication**

Computer users around the world extensively use the email service on internet to communicate with each other. Pictures, documents and other files are sent as email attachments. Emails can be cc-ed to multiple email addresses. Internet telephony is another common communications service made possible by the creation of the Internet. VoIP stands for Voice-over-Internet Protocol, referring to the protocol that underlies all Internet communication.

#### **2. Job search**

Nowadays, many people search for their jobs online as it is quicker and there is a larger variety of job vacancies present. People can publish resume online for prospective job. Some of the web sites providing this service are naukri.com, monster.com, summerjob.com, recruitmentindia.com etc.

#### **3. Online Shopping**

The internet has also facilitated the introduction of a new market concept consisting of virtual shops. They provide information about products or services for sale through www servers. Using the internet services customers can submit specific product queries and request specific sales quotes.

**4. Stock market updates**

You can sell or buy shares while sitting on computer through internet. Several websites like ndtvprofit.com, moneypore.com, provide information regarding investment

**5. Travel**

One can use internet to gather information about various tourist place . it can be used for booking Holiday tours , hotels, train, bus, flights and cabs. Some of the web sites providing this service are goibibo.com, makemytrip.com, olacabs.com.

**6. Research**

Research papers are present online which helps in the researcher doing a literature review

**7. Video Conferencing:**

It enables direct face-to-face communication across networks via web cameras, microphones, and other communication tools. Video conferencing can enable individuals in distant locations to participate in meetings on short notice, with time and money savings.

**8. E-Commerce**

E-commerce (electronic commerce or EC) is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the Internet. These business transactions occur either business-to-business, business-to-consumer, consumer-to-consumer or consumer-to-business.

**9. On-line payments**

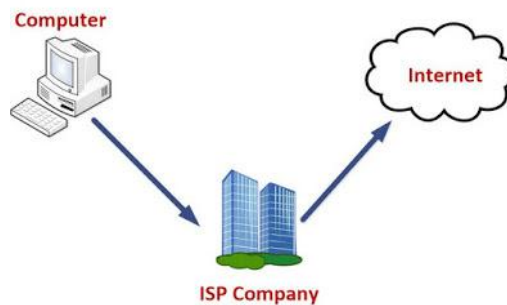
The rising boom of online payments in India has given way to many new entrants in the industry such as Paytm, Mobikwik, oxigen etc who are majorly wallet driven payment companies.

**10. Social networking**

Social networking is the use of internet-based social media programs to make connections with friends, family, classmates, customers and clients. Social networking can be done for social purposes, business purposes or both.

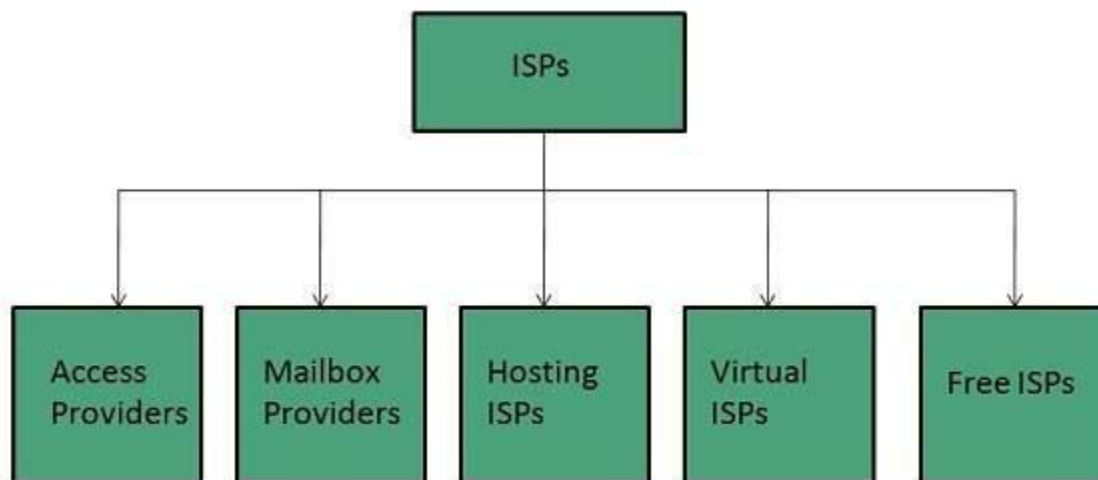
## ISP

An Internet service provider (ISP) is a company that provides customers with Internet access. Data may be transmitted using several technologies, including dial-up, DSL, cable modem, wireless or dedicated high-speed interconnects.



An Internet service provider is also known as an Internet access provider (IAP). They offer various services:

- Internet Access
- Domain name registration
- Dial-up access
- Leased line access



### *Access providers*

They provide access to internet through telephone lines, cable wi-fi or fiber optics.

### *Mailbox Provider*

Such providers offer mailbox hosting services.

### *Hosting ISPs*

Hosting ISPs offers e-mail, and other web hosting services such as virtual machines, clouds etc.

### *Virtual ISPs*

Such ISPs offer internet access via other ISP services.

### *Free ISPs*

Free ISPs do not charge for internet services.

## Email

Email is a service which allows us to send the message in electronic mode over the internet. It offers an efficient, inexpensive and real time mean of distributing information among people.

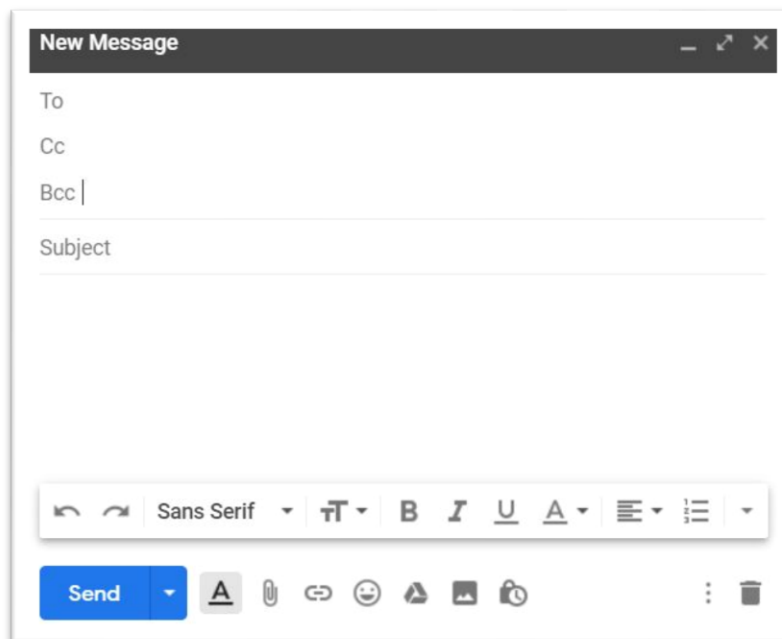
Each user of email is assigned a unique name for his email account. This name is known as E-mail address. Different users can send and receive messages according to the e-mail address.

E-mail is generally of the form username@domainname.

- The username and the domain name are separated by @ (**at**) symbol.
- E-mail addresses are not case sensitive.
- Spaces are not allowed in e-mail address.

## E-mail Message Components

E-mail message comprises of different components: E-mail Header, Greeting, Text, and Signature.



### E-mail Header

The first five lines of an E-mail message is called E-mail header. The header part comprises of following fields:

- From
- Date
- To
- Subject
- CC
- BCC

### From

The **From** field indicates the sender's address i.e. who sent the e-mail.

### Date

The **Date** field indicates the date when the e-mail was sent.

### To

The **To** field indicates the recipient's address i.e. to whom the e-mail is sent.

### Subject

The **Subject** field indicates the purpose of e-mail. It should be precise and to the point.

### CC

**CC** stands for Carbon copy. It includes those recipient addresses whom we want to keep informed but not exactly the intended recipient.

### BCC

**BCC** stands for Black Carbon Copy. It is used when we do not want one or more of the recipients to know that someone else was copied on the message.

### Greeting

Greeting is the opening of the actual message. Eg. Hi Sir or Hi Guys etc.

### Text

It represents the actual content of the message.

### Signature

This is the final part of an e-mail message. It includes Name of Sender, Address, and Contact Number.

## Advantages

E-mail has proved to be powerful and reliable medium of communication. Here are the benefits of **E-mail**:

- Reliable
- Convenience
- Speed
- Inexpensive
- Printable
- Global
- Generality

### Reliable

Many of the mail systems notify the sender if e-mail message was undeliverable.

### Convenience

There is no requirement of stationary and stamps. One does not have to go to post office. But all these things are not required for sending or receiving an mail.

### Speed

E-mail is very fast. However, the speed also depends upon the underlying network.



### Inexpensive

The cost of sending e-mail is very low.

### Printable

It is easy to obtain a hardcopy of an e-mail. Also an electronic copy of an e-mail can also be saved for records.

### Global

E-mail can be sent and received by a person sitting across the globe.

### Generality

It is also possible to send graphics, programs and sounds with an e-mail.

## Disadvantages

Apart from several benefits of E-mail, there also exists some disadvantages as discussed below:

- Forgery
- Overload
- Misdirection
- Junk
- No response

### Forgery

E-mail doesn't prevent from forgery, that is, someone impersonating the sender, since sender is usually not authenticated in any way.

### Overload

Convenience of E-mail may result in a flood of mail.

### Misdirection

It is possible that you may send e-mail to an unintended recipient.

### Junk

Junk emails are undesirable and inappropriate emails. Junk emails are sometimes referred to as spam.

### No Response

It may be frustrating when the recipient does not read the e-mail and respond on a regular basis.

## E-Mail Protocols :

E-mail Protocols are set of rules that help the client to properly transmit the information to or from the mail server. Email protocols are **SMTP**, **POP**, and **IMAP**.

### SMTP

**SMTP** stands for **Simple Mail Transfer Protocol**. It was first proposed in 1982. It is a standard protocol used for sending e-mail efficiently and reliably over the internet.

#### Key Points:

- SMTP is application level protocol.
- SMTP is connection oriented protocol.
- SMTP is text based protocol.
- It handles exchange of messages between e-mail servers over TCP/IP network.
- Apart from transferring e-mail, SMTP also provides notification regarding incoming mail.
- When you send e-mail, your e-mail client sends it to your e-mail server which further contacts the recipient mail server using SMTP client.
- These SMTP commands specify the sender's and receiver's e-mail address, along with the message to be send.
- The exchange of commands between servers is carried out without intervention of any user.
- In case, message cannot be delivered, an error report is sent to the sender which makes SMTP a reliable protocol.

### IMAP

**IMAP** stands for **Internet Mail Access Protocol**. It was first proposed in 1986. There exist five versions of IMAP as follows:

1. Original IMAP
2. IMAP2
3. IMAP3
4. IMAP2bis
5. IMAP4

#### Key Points:

- IMAP allows the client program to manipulate the e-mail message on the server without downloading them on the local computer.
- The e-mail is hold and maintained by the remote server.
- It enables us to take any action such as downloading, delete the mail without reading the mail. It enables us to create, manipulate and delete remote message folders called mail boxes.
- IMAP enables the users to search the e-mails.
- It allows concurrent access to multiple mailboxes on multiple mail servers.

## POP

POP stands for Post Office Protocol. It is generally used to support a single client. There are several versions of POP but the POP 3 is the current standard.

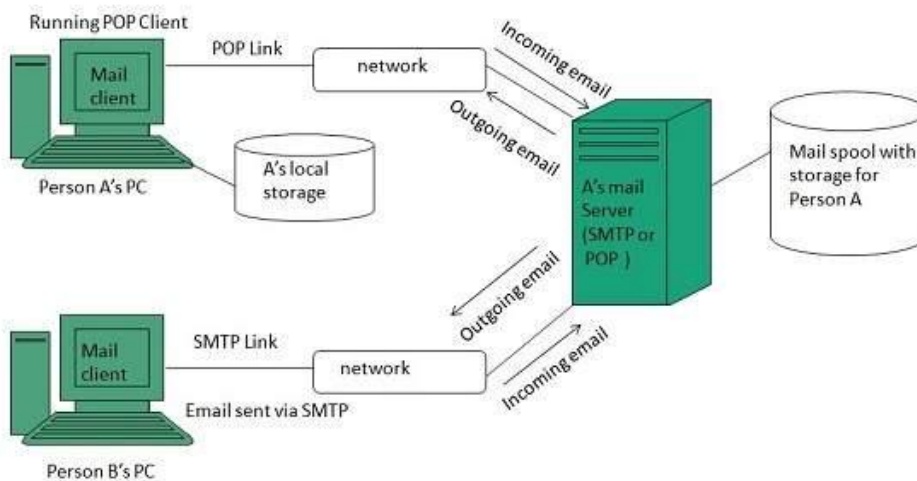
### Key Points

- POP is an application layer internet standard protocol.
- Since POP supports offline access to the messages, thus requires less internet usage time.
- POP does not allow search facility.
- In order to access the messaged, it is necessary to download them.
- It allows only one mailbox to be created on server.
- It is not suitable for accessing non mail data.
- POP commands are generally abbreviated into codes of three or four letters. Eg. STAT.

## Composing and Sending Email

Before sending an email, we need to compose a message. When we are composing an email message, we specify the following things:

- Sender's address in To field
- Cc (if required)
- Bcc (if required)
- Subject of email message
- Text
- Signature



## Reading Email

Every email program offers you an interface to access email messages. Like in Gmail, emails are stored under different tabs such as primary, social, and promotion. When you click one of tab, it displays a list of emails under that tab.

In order to read an email, you just have to click on that email. Once you click a particular email, it gets opened.

The opened email may have some file attached with it. The attachments are shown at the bottom of the opened email with an option called **download attachment**.