

Chapter 2

Web Services



Learning Objectives

By the end of this chapter, learner will be able to:

- List various web services.
- Define email.
- Understanding of protocol used in email services
- Define chatting, video conferencing.
- Understanding of E learning, E shopping
- Define social networking.

INTRODUCTION

Everyone is using internet irrespective of their background & interest. The types of services available on net are as diverse as the interest of the people. Web Services mean the services provided by World Wide Web. The World Wide Web provides services like chatting, emailing, video conferencing, e-learning, e-shopping, e-reservation, e-groups and social networking. These services may mean different things to different people but in simple words, they are the ways to communicate and here the communication takes place between two electronic devices.

When two persons are talking to each other, we say they are chatting. Likewise when two computers (or two electronic devices) exchange data and information, we say two computers are e-chatting. They communicate with each other with the help of technology and programming standards used on Internet.

Let us discuss the services provided by World Wide Web in detail in the following sections.

1. ELECTRONIC MAIL OR E MAIL

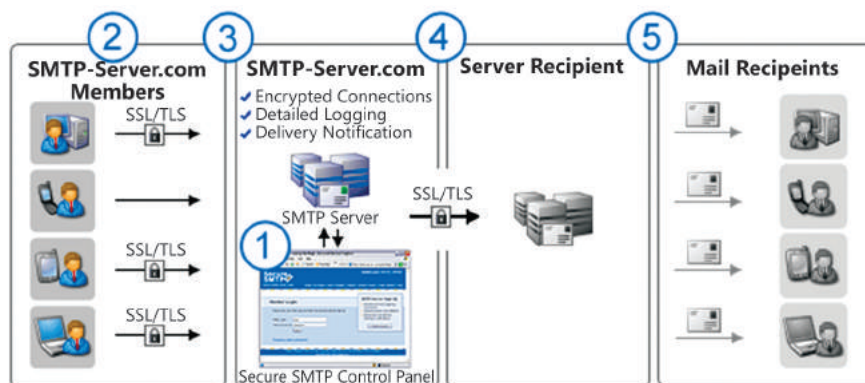
E-mail or Email is simply the short form of “electronic mail”. It is a system of receiving, sending, and storing electronic messages. An electronic message is text or a file prepared using software in computer and that travels through telephone lines from one computer to another. E-mail has



become a popular method of communication. Now, an e-mail is preferred for personal or business communication as compared to letter sent by traditional post. Electronic mail has gained universal popularity because a person from any age group and from any background can use it and the delivery of the message is instant. The speed is much higher than the speed of the traditional postal or the courier service.

1.1 How is E-mail service used?

Messages sent by electronic mail normally reach a recipient's account within seconds. The message can include text, images and numerous types of formatted documents. These days, it is no longer necessary to be sitting in front of a PC to send or receive an email. A variety of mobile devices, such as tablet computers and smart phones make it possible to send the message via E-mail. The following diagram displays how an e-mail moves from the sender to the receiver.



Schematic diagram How E mail is transferred

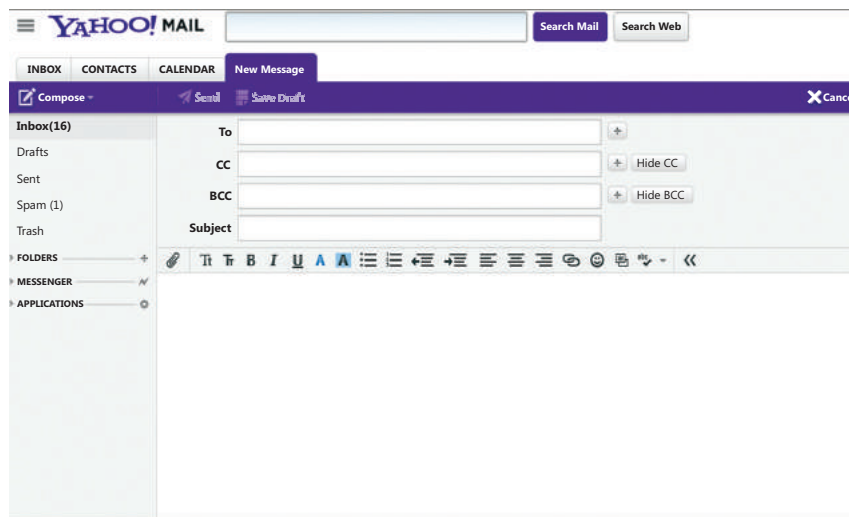
1.2 Protocols used in E-mail Service

Users receive and send messages using standardized protocols that make it possible for emails to travel between computers. A protocol is a set of rules that are needed for communication. Let us say, one computer is using 'a' software, the other computer is using 'b' software. Both of them want to communicate and exchange data. Computer 'a' will not be able to understand the message of computer 'b' and computer 'b' will not be able to understand the message of computer 'a'. here it becomes necessary that both the computers will agree upon standard set of rules to send or receive the message. Thus, standard or uniform protocols are needed so that different computers using different types of software can send or receive the information.

There are three types of protocols used by e-mail service. One is Simple message transfer protocol (SMTP), second is Post Office Protocol and third is IMAP (Internet Message

Access Protocol). The Simple message transfer protocol (SMTP) enables the actual sending of messages. The Post Office Protocol and IAMP allows the users to retrieve information instantly.

When we want to send a message using e-mail service, there are three important things that are to be kept in mind. The first is the body of the message. The second is the address of the person(s) to whom you want to send the message. The third is the fields associated to e-mail message. Let us discuss them in detail.



Message Body

The body of the message may consist of words, number, attachments, special characters or anything you want to insert in the letter.

E-mail Address

Let us look at the following example(s) to understand the e-mail address and its components.

Example:

editor@cbse.co.in

editor@cbse.com

An e-mail address consists of four parts:

1. The username
2. The symbol
3. The hostname
4. The top level domain

- 1 The username, here 'editor' which refers to the mailbox. The username is the name given by the user (the recipient) as per his/her choice, while preparing an e-mail address for him / her. While deciding a username, the recipient has to follow the naming conventions like use of underscore (_) or a dot (.) as a separator between two words, minimum or maximum number of character to be maintained etc.
2. The symbol, here '@'. This symbol is pronounced as 'at the rate' and this remains same in every email address.
3. The hostname, here 'cbse'. The hostname is also called the domain name. The domain name is the name of mail server whose representation appears in the client computer when he/she opens his/her inbox. This domain name is important to lead the message to the address of the mail server. The address is a unique IP address for easy identification on the Internet.
4. The top-level domain (TLD). The top-level domain may again get divided into two portions. Here "com" or "co" refers to commercial sites (the first portion) and "in" refers to India (the second portion). Thus, "co.in" together refers to commercial sites registered and residing in India.

1.3 Field Associated with an E mail Message:

An email client can be Outlook Express, Hotmail or Ymail. The email client may typically consist of four important fields. They are To;; Cc;; Bcc: and Subject:.

To: field is used to write the email address of the person to whom the message is to be sent.

Cc: field is optional and is used to send a message to multiple additional addresses.

Bcc: field is also optional and is used to send a message to multiple additional addresses. The difference between Cc and Bcc: field is decided in terms of visibility. The address in Bcc: field is termed as blind carbon copy, the addresses mentioned in this field are not visible to the recipients of the "To:" and the "Cc:" fields.

Subject: field is used to mention short title for what is included in the body of the message.

2. CHAT

The word chat as it literally means in English is communication between two or more people. The electronic chat is the communication between two or more individuals using their computers. Chat is only feasible when



both the users are on Internet at the same time. The communication occurs through typed text messages. Usually, this “talking” is the exchange of typed-in messages requiring one site as the repository for the messages (or “chat site”) and a group of users who take part from anywhere on the Internet.

The group chats can be ongoing or scheduled for a particular time and duration. Most chats are focused on a particular topic of interest and some involve guest experts or famous people who “talk” to anyone joining the chat. Alternatively two users can chat when they are using the Internet and the platform at the same time.

Several browser interfaces provide the chat facility these days such as Instant messaging, Windows, Skype and ICQ. With the invent of 3G technology not only text data but video data can also be streamlined at the same time

3. VIDEO CONFERENCING

The video conferencing is a conference between two or more people sitting at various remote locations around the world. They can talk to each other when they are connected to each other using Internet. Thus, they are able to transmit both the video and audio data.

In video conferencing, several computer networks relay the information through the Internet. Each of the end user has a camera known as Webcam as well microphone to capture the video data and the voice data in real time and this is transmitted over Internet. The participants can view each other over their monitors as well as hear the voice data over speakers of their laptop or desktop computers. These days equipment such as smart phones and tablets has the capability of capturing the video data as well voice data. Therefore, it is possible to conduct video conferencing from any part of the world not necessarily connected to Internet through wires.



Multipoint videoconferencing allows three or more participants to sit in virtual conference room and communicate, as though they are all sitting together. With the rapidly changing cost of the hardware and accessibility of Internet across the world, video conferencing is changing the way people conduct meetings. The business class all around the world consider video conferencing as a rapid tool to reduce the need for personal meetings and hence the need for all participants to get together at one location. The high speed of Internet connectivity not only allows the video and audio data but participants can open, review, share and discuss the documents.

On the television, we see a number of times that the program host is conducting the interview among several participants sitting in different cities or countries. This is done with the technology used in video conferencing. The participants are not only able to hear each other but can see and talk to each other live. The entire proceedings of the interview such as the data transmission between or among participants across the world can be seen clearly by the viewers of the television.

Advantages of Video Conferencing

1. **Reduced traveling cost:** In the global world where businesses are being conducted across continents, the travelling cost and the time that is wasted during travel is reduced to a greater extent. The video conferencing lowers the distance by showing the receiver on the monitor and it takes least amount of time to conduct talks between the two users.
2. **Increased productivity:** The people meet in the virtual world where the discussions takes place instantly without meeting each other and the decisions about a problem are thus made faster. This leads to increased productivity.
3. **Going Green:** Since conferencing between people is possible even without travelling from one place to another through video conferencing, a lot of petrol or fuel is saved. One can therefore say, that it is an eco-friendly initiative.

But there are some disadvantages of video conferencing as well:

1. Technical issues- Since the video conferencing depends heavily on the availability of a high speed internet connection, the technical issues of such types can delay the discussions among the participants sitting in different locations.
2. Lack of personal contact- All types of discussions cannot be handled through video conferencing. Discussion between an employer and prospective employee or the assessment of a candidate is possible most of the time through the personal interview i.e. face to face interaction. It is difficult to judge a person through the video or a virtual interview.

4. E-LEARNING

As computer and usage of Internet has made the life of the business people easy, companies from across the world have started to consider the fact that information and knowledge can be imparted to people using technology. E-Learning is one such method in this direction.



The E-Learning is a method of providing guidance and/or delivering information to students of university or the employees of companies. Several universities and companies design the courses that can be reviewed using laptop, desktops or other smart devices. These programs are developed in such a way that the individuals don't need to come to a classroom but can review all the data from any place convenient to them. It can be their home or their office.

Such courses are designed in such a way that people can progress slowly or at a pace, they can manage. These courses help an individual to assess their knowledge online. This is done using the built in evaluation tools like quizzes or multiple choice questions.

These courses are sometimes, stored in a directory or a server, from where the students can access and copy them on the compact disc or other data storage device. In either case, the program is developed in such a way that the student needs minimal interaction with a human tutor to understand the information being shared.

The biggest advantage of E-learning is that it helps to provide information to a large group of individuals who cannot attend an institution. It also reduces the need for one to go to a specific place to learn or to share information. The E- Learning provides an opportunity to the student to complete the course at their speed. Several product development companies develop programs for E-learning the business in schools and universities. Today even a young child from an elementary school knows how to use a smart device, a device that helps in interactive learning. The universities from across the globe keep offering the on-line courses. This is possible through e-learning. The e-learning may even provide the students a the platform to share their thoughts and have live or online discussions for clarifications.

The following are the advantages of online or computer-based learning:

1. Class work can be scheduled around work and family
2. Reduces travel time and travel costs for off-campus students
3. Students may have the option to select learning materials that meets their level of knowledge and interest

4. Students can study anywhere; they only need access to a computer and Internet connection
5. Self-paced learning modules allow students to work at their own speed
6. Flexibility to join discussions in the bulletin board threaded discussion areas at any hour, or visit with classmates and instructors remotely in chat rooms
7. E-Learning can accommodate different learning styles and facilitate learning through a variety of activities
8. Develops knowledge of the Internet and computer skills that will help learners in their career

Disadvantages of online or computer-based learning

1. Learners with low motivation or bad study habits may fall behind
2. Without the routine structures of a traditional class, students may get lost or confused about course activities and deadlines
3. Students may feel isolated from the instructor and classmates
4. Instructor may not always be available when students are studying or need help
5. Slow Internet connections or old computers may make accessing course materials frustrating
6. Managing computer files and online learning software can sometimes seem complex for students with beginner level computer skills
7. Lab work is difficult to simulate in a virtual classroom

5. E-RESERVATION

E-Reservation System is an online reservation system that enables hotels, resorts, property owners, operators, theater operators and transport companies to maximize revenues without having to put human booking agents.

This system works with the Web and the Internet helps provide an access to a user/customer to book a ticket, room etc. without ever having to go to the booking office. Since such systems are internally integrated with the database of the companies, the booking system helps to monitor access to the client as long as there is availability of the seats/rooms etc. The diagram below shows the process of e-reservation in case of a hotel room booking.

Businesses benefit from E-reservation as:

1. Increases direct sales as immediate confirmation is provided
2. Reduces administrative costs as less human agents are required
3. Helps manage inventory better as more visibility to the customer
4. Provides global access to the customers without the capital expenditure to set up local offices

6. E-SHOPPING

On-line shopping is the purchase of products and services over the Internet using a desktop or laptop or other smart device. With the access of Internet everywhere On-line shopping is gaining popularity as it is convenient to fast paced life style of the people these days. More and more business firms are offering these opportunities because it also helps them to reduce the infrastructure costs setting up stores, hiring sales employees and merchandising.



Products such as clothes, shoes, groceries, books and larger products as furniture and home décor are offered through online shopping.

Benefits of E-Shopping:

1. Reduces time for customers as they can do a search from the comfort of their home and compare prices
2. Reduces major infrastructure cost to the businesses
3. Helps move products faster as the products move from manufacturer to the customer skipping unnecessary storage.
4. Businesses benefit from immediate funds availability and mostly customers pay for the product through e-payment online.

Disadvantages of E shopping:

1. Customers are not able to touch and feel the products
2. Businesses have to manage the logistics of delivering products just-in-time
3. The access of this shopping depends entirely on availability of Internet. This limits a large population who does not know to use the technology i.e. the remote areas.
4. Businesses have to continually protect against fraud and returning of the products sold.

There are several e-shopping portals available worldwide. Some of them are local to a specific region or country. Some portals provide with a global access. The examples of such portals are e-bay, amazon etc. In India there are other established e-shopping portals such as Home Shop 18, Naaptol .com, Yebhi.com etc...

The most important interface component of E-Shopping portal are:

1. Customer website interface
2. Order management and inventory control.
3. Shipment Interface with various logistics organizations
4. Payment gateway for financial interface for payment processing
5. Customer service and support with live agents for complaints and help

E-Shopping has not only changed the way consumers are shopping for the products but has also changed how the product moves from manufacturers to the end user. In the typical store-shopping model, the product moved from manufacturer to wholesalers to several intermediaries and finally to stores where customer may buy it. This model had several layers of transportations built in leading to costs. In the e-shopping model, the E-Shopping portal manages just-in-time inventory where product is obtained from manufacturer after the customer orders it from the website. This product is then shipped directly from the warehouse of the shopping portal provider to customer. This eliminates the intermediary and hence saves the cost of middleman.

6. SOCIAL NETWORKING



Social Networking is a platform that helps people to connect with others and build a social relation. The last 15 years has seen a splurge of social networking sites where people can search / choose to make friends, post pictures and photos, comment on each other's activities. Social networking has opened the doors where people can connect and share their lives and the activities by them without being close geographically. People can connect from anywhere in the world with the internet connection. They can become the member of one or other available social networking site.

Social networking site allows a user to share ideas, activities, events, and interests among the people. The individuals can also have the control of the content they share and the person with whom they are or want to communicate with. An individual can share text information, photos, data files or even videos. Many people now a days use social networking sites to market their business and thus reach the potential customer. Using an account of these sites they can showcase their product and services that the people interested can follow and review.

7. E GROUPS

E groups are a list of emails, users that can share information among each other. A single administrator can maintain that group and hence provide the entire set of users to communicate between each other. You can think of the administrator as a person who is controlling the E Group. For example most of the companies these days have an E Group structure where all employees can send email to each other, share files and access folders on their servers or view each other's calendar. The important fact is that only the users within the group have the access and any user who is not in the group will not get the permission to access.

The administrator of the group has the control on what level of access can the different users have. Mostly all users can send an email to each other, but some users may have access to all the files that the organization stores while others only to a specific folder.

Summary

- ❖ Web Services mean the services provided by World Wide Web. The World Wide Web provides services like chatting, emailing, video conferencing, e-learning, e-shopping, e-reservation, e-groups and social networking.
- ❖ E-mail or Email is simply the short form of "electronic mail". It is a system of receiving, sending, and storing electronic messages.

- ❖ There are three types of protocols used by e-mail service. One is Simple message transfer protocol (SMTP), second is Post Office Protocol and third is IMAP (Internet Message Access Protocol).
- ❖ The word chat as it literally means in English is communication between two or more people. The electronic chat is the communication between two or more individuals using their computers
- ❖ In video conferencing, several computer networks relay the information through the Internet. Each of the end user has a camera known as Webcam as well microphone to capture the video data and the voice data in real time.
- ❖ The E-Learning is a method of providing guidance and/or delivering information to students of university or the employees of companies..
- ❖ E-Reservation System is an online reservation system that enables hotels, resorts, property owners, operators, theater operators and transport companies to maximize revenues without having to put human booking agents.
- ❖ On-line shopping is the purchase of products and services over the Internet using a desktop or laptop or other smart device.
- ❖ Social Networking is a platform that helps people to connect with others and build a social relation.
- ❖ Social networking site allows a user to share ideas, activities, events, and interests among the people.
- ❖ E groups are a list of emails, users that can share information among each other.

EXERCISE

A. Multiple Choice Questions:

1. In web services, the communication takes place between-

(a) Two electronic devices.	(b) Two human beings
(c) Two spiders	(d) None of the above
2. Now a days, an email can be sent via,

(a) PC	(b) Tablet
(c) Smart phone	(d) All of the above
3. An e-mail address consists of four parts:

(a) The username	(b) The symbol
(c) The hostname	(d) The top level domain

4. The following is not the name of e-shopping portal:
 - (a) Amazon
 - (b) e-bay
 - (c) twitter
 - (d) naaptol
5. The benefit of E-learning is:
 - (a) Class work can be scheduled around work and family
 - (b) Reduces travel time and travel costs for off-campus students
 - (c) Students can study anywhere they have access to a computer and Internet connection
 - (d) All of the above

B. Fill in the blanks by using the words as under:

video	guidance	at the rate	Higher
World Wide Web	SMTP	e-mail	E groups
protocol	lower		

1. Web Services mean the services provided by _____.
2. _____ is simply the shortened form of “electronic mail”.
3. The speed of E-mail is much _____ than the speed of the emergent postal or the courier service.
4. A _____ is a set of rules that are needed for communication.
5. _____ enables the actual sending and receiving of messages.
6. The symbol, ‘@’ is pronounced as _____ and this remains same in every email address.
7. The participants can view each other over their monitors as well hear the voice data over speakers of their laptop or desktop computers.
8. _____ are a list of emails, users that can share information among each other.
9. E-Learning is a method of providing _____ and/or delivering information to students of university.
10. _____ conferencing is a conference between two or more people sitting at various locations around the world.

C. State True (T) or False (F)

1. Computers communicate with each other with the help of technology and programming standards used on Internet.
2. An e-mail is preferred for personal or business communication compared to letter sent by post.

3. Different protocols are needed so that different computers using different types of software can send or receive the information.
4. The body of the e-mail message may consist of words, number, attachments, special characters or anything you want to insert in the letter.
5. The domain name is the name of mail server whose representation appears in the client computer when he/she opens his/her inbox.
6. The address in Cc: field is not visible to the recipients of the "To:" and the "Bcc:" fields.
7. In an e-shopping there are a number of middlemen.
8. It is difficult to judge a person through the video or a virtual interview.

D. Multiple Choice Questions

Match the following

A	Video conferencing	1	On-line shopping is the purchase of products and services over the Internet using a desktop/laptop or other smart device.
B	E-Shopping	2	Each of the end user has a camera as well microphone to capture the video data and the voice data in real time and this is transmitted over Internet.
C	E-Mail	3	"Without ever having to go to the booking office"
D	E-Reservation	4	Self-paced learning modules allow students to work at their own speed
E	E-Learning	5	Messages normally reach a recipient's account within seconds.

E. Answer the following questions:

- Q.1. What is the meaning of web services? Discuss the various web-services in brief.
- Q.2. What are the benefits of E-mail services over the postal service?
- Q.3. How can you use the E-learning facility for the subjects that you study?
- Q.4. Write short notes on:
 - (a) E-shopping
 - (b) E-groups
- Q.5. Describe the structure of Email box.
- Q.6. Name the sites used for E-shopping.

- Q.7. What is the difference between the Chatting and Videoconferencing?
- Q.8. How is E-learning beneficial for a learner?
- Q.9. Mention few advantages and disadvantages of Social Networking.
- Q.10. What are the advantages and disadvantages of Video Conferencing?
- Q.11. How is twitter different from the facebook?

F. Lab Session

1. Make a list of different email addresses that you or your friends use and identify different Host names.
2. Search Internet for different e-learning programs that are available. List down the benefits derived by you. Which e-learning program is used by your school and find out the information derived by them.
3. Identify the local TV programs that are using Video conferencing. Can you make a list of advantages while watching the program? Also list what were the disadvantages of video conferencing that you notice.
4. Make a reservation of a ticket online and make a list of all the steps needed.
5. List all social media sites you are using. Identify what benefits you feel by their use. Also identify the restrictions these websites put on you as a user.
6. Create an account in facebook. How can you use the gaming facility on the facebook.