

Role Of Electronics And Computer Devices In Third Wave Communication System

T. N. Murty*

Abstract

The author presents a paper entitled "Role of Electronics and Computer Devices in Third Wave Communication system" to the International Conference on Electrical & Computer Engineering -2003 (ICECE -2003) held in Bahir Dar University from 29 October to 1st Nov. 2003. The main theme of the paper is to know the role of electronics and computer devices in the modern communication system for prompt, quickly and timely decision making by the business or non-business organizations in the competitive World. The author interests to present and give his ideas on the role, importance and penetration of electronics and computer devices in the existing third wave communication system in the developed countries like USA, UK, Japan, Germany, Singapore, Taiwan, Australia, Canada, Netherlands, France, South Korea, Hong Kong, Italy, India etc., countries to the developing and under developed African countries. It is a fundamental fact that Million of the people on the globe at home and at work are communicating electronically using universal and open standards. Cellular phones, pagers, fax, Internet, website, web browsers, TCP/IP, telnet, Video Conferences, Intelligent network, satellite communication and electronic bulletin boards are some of the electronic and computer devices in the third wave communication. It is obvious that for quick and urgent transmission of messages- telegram, telex, and Fax have been in the use for quite sometime. The latest, cheapest and fastest means of transmission of communication/ information is the e-mail. Pagers are much cheaper and popular. It is expected that the cellular phones, video conferences and satellite communication system available in all the major cities in the world in the coming couple of years to reduce the distance of communication sharing among the people in the global village.

1 Introduction

Communication is an indispensable part of any management. It is a managerial skill based on human behavior and plays the same role in an organization as the nervous system of the human body. Managers spend seventy-five to ninety

of their working time in communicating with others. It is percent that good managers are good communicators and poor managers are poor communicators. As Norbert Wiener quoted that "communication is the cement that makes Organization".

A fundamental shift in the economics of information is underway - a shift that is less about the fact that a new behavior is reaching critical mass. Millions of people at home and at work are communicating electronically using universal, open standards. This explosion in connectivity is the latest - and for business strategists, the most important wave in the information revolution. Over the next decade, a new economics of information will precipitate changes in the structure of entire industries and in the ways companies compete. Technological changes will produce a tremendous impact on future management. Computerized operations, information processing, and the automated manufacturing process will dominate the work in many organizations especially in service areas such as universities, libraries and hospitals. With these technological changes, the future manager will have to judge their value and benefit to the enterprises and make the needed changes to acquire the advantages they offer. The computer technology makes it possible for us to tailor and control work and its environment. Third wave communication is an exchange of ideas, letters, diagram, illustration or message between two or more persons by using electronic and computer devices like cellular phones, fax, e-mail, web, video conferences, and satellite communication and so on. Closely associated with computerized MIS is the communication / information revolution sweeping across away from the world. Let us look at the wonderful electronic and computer devices/facilities which are available in the third wave communication on the globe.

2 Cellular phones

Cellular Phone is the rapid growing facility and very soon, it is expected to be available in all major cities in the world. Cellular phones are in the first place useful to rich businessmen, who travel a lot, are also useful to anyone who finds himself helpless without access to a conventional phone. In big cities like Hong-Kong, New Delhi, Newark, London, Tokyo, Mumbai, Chennai, Hyderabad, Washington,

*T. N. Murty is Lecturer in Department of Management, Bahir Dar University, Bahir Dar, Ethiopia, thamminaina@yahoo.com.

Bahir Dar University: Bahir Dar

Fax: 00251 - 8 - 202025

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and some other Middle East countries, even contract labors and waiters in the restaurants and drivers in the vehicles find it, difficult to manage without Cell phones. These phones work on batteries that are quite costly. Whether we make a call/ receive once we are using the system so we have to pay. Some companies like Noika, Tata, Idea, Hutch etc., are offering these services for a certain amount of free time.

3 Pagers

As compare to cell phones, pagers are much cheaper and much more popular in countries like India, USA, UK, Singapore, Japan, and Germany. These devices, usually clipped to our belt, enable a person to receive messages from anyone with access to a telephone. To send a message we just pick up a phone and dial a four digit multiple network operator, on getting a response, we dial the pager's numbers and give the message. The operator uses an elaborate network of computerized transmission dotting the city and within seconds the pagers receive the message. In India pagers first appeared in 1982 during the Asian Games. After the opening up of the economy they have become very popular.

4 Fax

Most of the organizations are going on for their own facsimile (Fax) machines for quick transmission of messages. Many companies have their fax stationary which resembles a memo in layout. As information about the sender and receiver appears at the top, traditional greetings are often omitted. Besides letter style messages, visual material like diagram, illustrations, photographs etc., can be transmitted easily and speedily.

Specimen copy of Fax is as follows: If you do not receive all pages, please advise us as soon as possible

5 Internet and Electronic Mail

Worldwide Computer network is called Internet. Any two computers on the internet can communicate to each other. Each computer on the internet has an address which is universally recognized throughout the network. Web, also called World Wide Web (WWW) is a collection of resources that one can access, from anywhere in the world, over the Internet. These resources can provide textual documents, static graphic images, video clips, programs, database or

any other kind of information. Web is just one of the many services available on the Internet. The services available on the Internet other than Web are: E-Mail mailing lists, Usenet news and articles Chat sessions, etc. The WWW is a vast library of information, art, science, engineering, commerce and so on. On internet exchange of information takes place on client/ server model. A client is a computer which receives information from the server. A server is a computer which gives information to other computers on Internet. Servers and clients communicate through a protocol, HTTP (Hyper Text Transfer Protocol). The set of rules for information exchange between server and client is called protocol. Today, we keep on hearing about the things like the NET, the WEB, INTERNET, Surfing on the NET etc.,. There is no single definition to study Internet.

5.1 What is Internet?

Some people say that, "Internet is a set of computer talking over fiber optic cables, phone lines, satellite links and other media". It is virtually an ocean of resources waiting to be mines/ explored / tapped. Business Men say that, "Internet is a service which provides unlimited commercial opportunity". Technically/ Factually Speaking:

- Internet is the network formed by the co-operative interconnections of computer networks.
- Use protocols (TCP/IP) Transmission Control Protocol/ Internet Protocol.
- Protocols are the rules that networks follow to understand each other.
- Set the technical specification.

Types of Usage:

- Information Sharing.
- Sending and receiving message.
- Advertising.
- Marketing. "Instantaneous personal communication" Internet Relay Chat (IRC).

5.2 Sending and Receiving Message (E- Mail)

E-mail/ Electronic mail refers to the electronic transmission of messages, letters, documents and other materials. The e-mail includes point to point services such as telegraph facsimile (Fax) systems. The e-mail has become the cheapest form of communication and fastest. Worldwide services like HOTMAIL, YAHOO, REDFFIMAIL, FREEMAIL, FAST-MAIL etc give free e-mail services to its users. The author is presenting important terminology's, which is related to Internet, hereunder:

5.3 URL (Universal Resource Locator)

It is pronounced as earl. It is a descriptive address for a web page or any other file on the Internet. An example is `http://www.intel.com/Pentium III /`

This address is to obtain information regarding Pentium III microprocessor from Intel Corporation. A simple URL for a web page includes:

- a. The name of the web protocol (`http`)
- b. A colon,
- c. Two forward slashes,
- d. WWW dot,
- e. A domain name and
- f. A final slash. The domain name is the Internet name of the server which serves information.

5.4 HTML (Hyper Text Markup Language)

It is a computer language to prepare WEB page. Hypertext is a text with extra features like formatting, images, multimedia and links to other documents. Markup is the process of adding extra symbols to ordinary text. Each symbol that is used in HTML has its own syntax, slang, and rules. It is not a programming language. It is markup language. It classifies the parts of a document according to their function. In other words it indicates which part is title, which part is a subheading, which part is the name of the author, and so on.

Web site: The web server is known as web site.

Web page or Home page: It is an information written in HTML, which can be put on a web server. It may give information about a person, a company, a group of people, an organization, a product, and so on. Web pages provide easy and efficient methods for distributing information, files and software.

Web Browser: The client software package called web browser accesses. The web contacts a server computer on the Internet and exchanges information with the server. It understands how to communicate to a web server through HTTP protocol, displays information and gives a way to represent hypertext links. The two most popular web browsers are: Netscape Navigator and Microsoft's Internet Explorer (IE). These web browsers use graphical user interface. Other services can also be used from a web browser such as Usenet, FTP, etc. The server computer is also provided with proper software to facilitate the exchange of information. Such software is known as Web Server Software. Netscape's Navigator and Internet Explorer also allow user to use other services on the Internet, such as E-mail, to download files from FTP servers, read and post articles to Usenet newsgroups, etc.

Some other web browsers are: Lynx (a text- only browser), Mosaic (the first graphical browser on which Navigator and IE are based), Web TV (runs on a television set), Amaya, UdiWWW, Gnus cape, Oera, Arena, DosLnx, etc.

Usenet News: It is forum for online discussion or exchange of information. Information may be on any topic. News client programs such as Microsoft's Internet News, Netscape News, etc are available, which allow you to get news or information or article on any topic from news servers through Usenet. Netscape News comes with Netscape Navigator. The Usenet Service is available on Internet. NNTP (Network News Transfer Protocol) is used to distribute news on Internet.

FTP (File Transfer Protocol): It is a service used on internet to exchange files. Files may be text files, programs or images. There are FTP servers. FTP client can access a FTP server.

Telnet: A program that allows remote login to another computer. It is protocol to connect users to database, library catalogue and other information resources on the Internet. WINDOWS - 95 has telnet program that can be used to access telnet servers on the internet. Neither Navigator nor IE includes telnet.

Gopher: It is an Internet service that allows users to access gopher servers on the Internet. A few gopher servers still exist on the Internet, but it is almost extinct now.

5.5 TCP/IP (Transmission control Protocol/ Internet protocol):

TCP works with IP. They are simply different layers of control. They work on both LAN's and WAN's. They provide error checking, flow control (to prevent swamping of a user by another faster or more powerful user), and status and synchronization contr. TCP is a transport layer. IP is a net work layer which handles routing and delivery. To connect a computer to the Internet, TCP/IP is installed. Then ISP or online service is required to connect the computer to the Internet. TCP/IP includes standards for many common applications including E-mail, FTP, remote login, etc.

5.6 ISP (Internet Service Provider)

In India Videsh Samachar Nigam Limited (VSNL) provides access to the Internet through the Gateway Omtermet Access (GIAS). Some other companies are also ISP, for example, Satyam, MTNL (Mahanagar Telephone Nigam Ltd, Bharti BT, etc.

Search Engine: A search engine is a program that looks through its database for information that matches your request. Information in the database is about web sites and their contents. Examples of search engines are: Alta Vista, Yahoo, Hot java, Excite, Info seek, AOL Net Find, Lycos,

Hot Bot, Look Smart, SEARCH.COM, search lot, Goggle etc,

Engines are: Jadoo, Khoj, AL Love India, 123 India etc. Alta Vista is for WEB and Usenet. Yahoo is for WEB, Usenet, E-mail addresses, current news, people search, city maps and stocks. Yahoo is not a search engine. It has a huge list of web sites, stored into categories. Yahoo Provides links to search engine. Hot Bot is good to find site which use a particular technology, such as JavaScript or VRML. Hat java is written in Java. It has been developed by SUN Microsystems. It is available for SPARC/ Solaris platform as well as WINDOWS- 95,98 and WINDOWS-NT.

Intranet: A corporate or organizational network which uses the same protocol, (namely TCP/IP) as used on the Internet to share files and send E-mail, is called intranet. An intranet is cut off from the outside world. It permits its users to access the Internet, but it prevents outside access to internal files by hiding behind a security system known as a firewall. In many large organizations Intranet is a wide area network.

Extra Net:When computers of many organizations are connected through TCP/IP protocol, such as network is called Extra Net.

5.7 Using E-mail

STEPS.

A. To Send an Mail

1. Logon - connectivity to a computer network/ e-mail program
2. We choose the receivers of our messages - we need to know the e- mail address of our recipient.
3. We compose the messages.
4. We instruct the program to send the message.

B. To Read an e- mail

1. Logon.
2. Look at the test of our new mail
3. Choose the message we want to read.
4. Handle the current message by deleting, storing, printing, forming or replying.

6 Video Conferencing

Videoconference is the conference of online by using two way video systems. Now a day, it is so popular, easy, cheap media of sharing the information among the publics concerned in educational institutions, governmental departments in the state, and services and non-services organizations. Intelligent network, satellite communication, citizen

band radio and electronic bulletin board are also playing a vital role in sharing the quick information to the public and decision making concerned.

7 Conclusion

We are at the dawn of an age of net world will be able renewed intelligence - an age that is giving birth to a new economy, anew politics, and new society. Businesses, and individuals will be able to reinvent themselves - all with the help of communication/ information Technology. No doubt, in drafting telegram or using telephone / telex messages each word, or each minute or each second or each pulse worth cost. Telegram, telex and fax have been in the use for quite some time. So, it is clear that the latest, cheapest and fastest means of transmission is the electronic mail or e-mail. Finally, it is the right time for the author to suggest the scientists, technicians, engineers, philanthropists and democratic leaders of the developing and under developed countries to sit tighter on a particular venue and deliberate their ideas on the importance and penetration of electronic and computer devices in communication system and to follow the imputes of the existing third wave communication system of the developed countries. It is obvious that to reduce the distance of sharing the information and to make universal peace, cooperation and mutual understanding among the countries on the globe. This will lead to develop any country in terms of technological and industrially in the present LPG (Liberalization, Privatization and Globalization) concept by connecting the communication links/ networks among the various houses and homes in the global village.

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