IMPORTANCE OF DATA COMMUNICATION AND NETWORKING IN THE GLOBAL WORLD

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IMPORTANCE OF DATA COMMUNICATION AND NETWORKING IN THE GLOBAL WORLD

By

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In

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CERTIFICATION

This is to certify that this project was carried out by Miss AMORIGHOYE KEMI MERCY(06/031) of the Department of Computer Science, Abraham Adesanya Polytechnic Ijebu-Igbo under my supervision.

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21ST SEPT. 2009
Date

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Date

DEDICATION

This project is dedicated to the glory of Almighty God for sparing my soul and protecting me throughout my National Diploma at Abraham Adesanya Polytechnic Ijebu-Igbo.

Also, it is dedicated to my loving parent Mr. and Mrs. Godfrey Amorighoye. Whom can go to any length to get me educated and self-sustained and their word of advice serves as a cold water to my thirst. They shall leave long to reap what they have sown. (Amen)

Also, to the members of my family for their influencing support throughout my stay in school.

ACKNOWLEDGEMENT

All praise is due to Almighty God, the creator of the Heaven and Earth, the giver of Wisdom, knowledge and understanding for making it possible for me to start and complete this project successfully, it was just by his grace.

I express my profound gratitude to my caring and loving parents Mr. and Mrs. Amorighoye for their physical, moral and financial support. I will always remember your spirited effort that was put in place to ensure my success. I love you.

Kudos, to my admirable Supervisor Odumosu Adesola A. (MRS.) for her kindness and good gestures in supervising this project. Her constructive criticisms make positive impact on this write-up, Thank you Ma, god will lift you up and meet you at the point of your needs.

I also appreciate the important role of the following Mr. and Mrs. Ogunmola, Mr. and Mrs. Ayeni, Mr. Sunday Olotu, Mr. Mola Eguado for their financial support during my tenure in school. And my Honourable Lecturers Mr. Banjo, Mrs. A.A Odumosu, Mr. Alowosile, Mr. Ayo Osinubusi, Mr. Odulaja G.O and Mr. Shina Adekunle of blessed memory.

To my lovely siblings, Amorighoye Stella, Amorighoye Benjamin, my entire family, relatives and well wishers.

I also appreciate the supports of my friends Abosede Adeshina, Damilola, Tunji, Kehinde, Peter, Bidemi, Funke, Bolatito, Bukky, God bless you all.

I am certainly constrained by the limited space, but as glory of the sun is greater than the glory of the moon and stars so shall the glory of all who made life worth living for me and the contributors to this historic achievement shine more than the glory of their peers. Amen.

ABSTRACT

This project studies the importance of data communication and networking system in the global world.

Analysis of the result revealed that the alternative hypothesis drawn up for the study were accepted and validated, one of the hypothesis is that there is a significant different between the importance and attitude of the system users of the data communication and networking system.

Consequently, it was discovered that the personal interest of each system user determines the importance and civilization of the data communication and networked system in the global world. It also discovered that freedom of practices would enhance the usability of the network service.

This project recommends some ways by which the Government, service providers and the stakeholder can direct the interest of the people toward computer literate.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Data communication is the task of communicating data from one computer to another by connecting a computer through communication channels such as standard telephone lines.

It is also the means of transmitting data and information electronically or optically from one point to another using telephone, radio, microware transmission device, laser beams optical cables and direct wiring. That is data communication is transmission of data (movement of data) from on location to another.

Networking system is a set of devices often referred to as nodes connected by media links. It can also be used to describe a very large and complicated set of equipment.

A data communication is the exchange of data between two devices via some form of transmission medium such as a wire cable for data and communication to occur, the communicating devices must be part of a communication.

The word network system is the physical joining of two or more computers and their associated peripherals connected by a communication medium. We can connect several computer in a network. This is differs from time – sharing.

Network typically but not always, involve on-line storage of great quantities of data.

Data communication and networking are changing the world scenario. Business, and other internet works.

These studies present a means of refreshing the importance of Data Communication and networking system in the global world.

1.2 STATEMENT OF THE PROBLEM

This present is interested in the importance of Data Communications and networking system GLO mobile network, MTN mobile network.

More specifically, this project wants to find answer to the following.

(1) The level of accessibility of the Data Communication and networking by the users.

(2) The techniques required in advancing the performance of data communication and network.

1.3 OBJECTIVE OF THE STUDY

These are certain objectives, which are mapped out to be achieved at the end of this project.

The objectives are as follows.

i To view the data communication and network Resource Discovery System.

ii To examine the availability and utilization of Data Communication and networking system.

iii Analyze various application impact of the users.

iv To enhance communication networking.

v To achieved good and stress less work with the help of networking.

1.4 RESEARCH HYPOTHESIS

In order to provide solution to the problem of the study, the following null hypotheses are set:

H1 (NULL HYPOTHESIS): Data Communications and networking systems contribute positively to information technology in the global world.

H_i: (ALTERNATIVE HYPOTHESIS): Data Communication and networking system do no contribute positively to information technology in the global world.

Hypothesis Two

H_o: (NULL HYPOTHESIS): Service provided by the Data Communication and networking system service providers is good enough in the global world system.

H_i: (ALTERNATIVE HYPOTHESIS): Service provided by the Data communication and networking system service providers is not good enough in the global world system.

1.5 SCOPE OF THE STUDY

The scope of the study is to know the importance, of data communication and networking system in the Global world.

Chapter one of this study emphasized on the introduction, background of the study, statement of the problem, limitations of the study and research hypothesis.

Chapter two on literature review and reviewing of other related data communications and network in Glo Mobile network MTN mobile network.

Chapter three is the research design, population, sample and sampling method, data connection procedure.

Chapter four is on the presentation of result and importance of Data Communication and Network System.

Chapter five is the summary, conclusion and recommendations.

1.6 LIMITATION OF THE STUDY

The study is based on importance of data communication and networking system. The study is limited only to data communication and networking system. The problem that might likely be faced in the course of this research includes:

(1) Financial constraint as regards printing and distributing of questionnaire.

(2) Time allocated to each respondent in answering question cannot be enforce since it is voluntary.

(3) Cooperation of respondent, some of the chosen respondent in an attempt to keep the "secret" may not want to give true and genuine responses.

1.7 DEFINITION OF TERMS

(1) **MULTIPLEXER:** Multiplexing in communication is a technique where by two or more independent messages or information-bearing signals are come by a single common medium or channel.

(2) **COAXIAL CABLE:** It consist of a relatively which central conductor shielded by several layers of insulation.

(3) **COMMUNICATION SATELLITE:** It is a form of microware transmission but span the globe.

(4) **MODEM:** This is a device used in data transmission system, which alts as encoder and decoder signals.

(5) **SERVER:** This is a central computer that contains share information.

(6) **TRANSMITTER:** This is a device or groups devices that receive data.

(7) **FIBRE OPTICS:** Is relatively new technology applied more and more in data communication.

(8) **PROFOCE:** These are agreement on how communication component and data terminal equipments are to communicate with each other.

(9) **CHANNEL:** this is the path that data with pass through before reaching the receiver.

(10) **ROUTERS:** Are internetworking device that connect similar and heterogeneous networks segments into Internet works.

CHAPTER TWO

LITERATURE REVIEW

There has been a substantial amount of recent research on the design and efficient implementation of various features of data communication and network system. As the Global World grows increasing rate, efforts to make the technology more manageable are highly in demand.

Their aim and objective is to make each person to examine the importance, availability and utilization of data communication and networking system.

2.1 NETWORKING SYSTEM

The work network can be used to describe a very large and complicated set of equipment. In it most accurate and simplest definition a network refers to the cables and electronics component that amplify the signals going through the cables.

However, computer network is the physical going of two or more computers and their associated peripherals connected by a communication medium. We can connect several computers in a network. This differs from time sharing. The ability of several computers to communicate with each other depends largely on the operating system that coordinates the transfer and storage of data.

Networks typically, but not always, involve on line storage of great quantities of data. One computer, known as the hast or slave, serves as a controller, providing access to mass storage and powerful processing resources to each of the other computers in the system. The controller is called file server when its work is not more than to coordinate the delivery of data to the other computers.

Computer network involves computer system which Internet with one another. Each system in the network is referred to as node each connection between systems is described.

2.1.1 NETWORKING TOPOLOGIES

In networking, the term topology refers to the layout of connected services on a network. In other word "topology" refers to the way in which the network of computer is connected hence, topology could be regarded as a networks "shape" but this shape does not necessarily correspond to the actual physical layout of the devices on the network.

Computers switches and terminal interconnected by network links are collectively called nodes. The purpose of the network control is to provide a connecting between nodes, each with its own advantages and drawbacks. Network topology has to fit the structure of the organisation unit that will use the network, and this topology should also be adapted to the units communication traffic pattern and to the way the database will be store in order to facilitate access to them.

In reality, few networks conform to the star or bus form most networks are hybrids network that combine more than one forms of network.

2.1.2 USES OF NETWORK

Networking affords the users of computer the opportunity of connecting different computers together and share resources such as printers or hard disk space. Networking can make a user get all home of office computers into the Internet, simultaneously without upgrading modems, spending money on extra phone lines. That is, home/office networking consists of two concepts. He first involves the network of computer to another. The second involves how that network is connected to the Internet.

Files and prints sharing services have been available to home and office based networked computer. The service allows computers connected together to have access to file on each other's hard drive, floppy drive, CD-ROM drive and to each other's connected printers. Hence, an organization with many PC can decide to acquire the printer for by multiple users on their individual computers.

Internet connection sharing provides secure access to the Internet for all computers connected to the home/office networking through a single computer's Internet connection. His means that several users can connect to the Internet individually or at the same time help only on phone lines. Each connected computer has the ability to use virtually any of the Internet services, it would normally access of connected directly. This connection sharing allow:

- Email Services
- Web surfing - allowing some one to open web pages and see websites on the Internet
- Updating virus definitions on workstation
- Allowing some one to log into the network.

2.1.3 ADVANTAGES OF NETWORK

There are many possible advantages in wiring network. These are:

1. The sharing of resources and information through the computers and staff.
2. The provision of local facilities without the wide area network system (WANS) of the central control.
3. The even distribution of work and processing load.
4. Improved and more economic communication in the modern linkage. Modern organizations today are widely spread with offices located all over the country and to the world.

Many of the computer and terminal located at the site, need to exchange information and data often on a daily basis. Network provides the means to examine and data available to the people of the organsation.

2.1.4 THE DISADVANTAGES OF NETWORKING

Networking has a few drawbacks that balance against its many posture aspects; sitting up a network has costs in hardware software, maintenance and administration. It is also necessary to manage a network to keep it running smoothly, and to address possible misuse or abuse. Data security also become a much bigger concern when computer are connected together here are a few of the items that balance against the advantages of networking.

2.1.5 TYPES OF NETWORKING

These are three types of computer networking. These are:

- **LOCAL AREA NETWORK (LAN):** This is a collection of computers connected within a small/close geographical location. For example home office-building, institution etc.
- **METROPOLITAN AREA NETWORK (MAN):** This is the collection of computers connected together in a large city.
- **WIDE AREA NETWORK (WAN):** This is a collection if computers connected over a wide range of geographical location. For examples state to state country to country.

Today, the LAN and WAN are the main recognized network types. Also, the purpose of networking as discussed in the data communication benefit. In reality computer networking provides lot of improvement, it adds values and enhance developmental type of information technology.

2.1.6 COMPONENTS OF COMPUTER NETWORKING

1. **SERVER:** This is a central computer that containing shared information. It can also be referred to as "HOST". Its work is to provide necessary shared resources to other users on the network. Hence, it does the type of a servant, serving others as they request. Most common type is the 'file server'. Since multiple users access a file server, high microprocessor performance is needed for

server with larger hard disk and memory capacities. All network users can access printer attached to the file server.

Server can be dedicated or non-dedicated. A dedicated server is a PC that is used as a file server and nothing else while a non-dedicated server could be a server and workstation at the same time.

2. **WORK STATION/CLIENT:** A computer that connects to the network and uses shared resources is called a client or workstation or nodes. While the file server delivers files to be processed only, workstation does the processing. Workstation could be

i. **INTELLIGENT WORKSTATION:** This workstation includes VEU, keyboard and system unit or processor.

ii. **DUMB WORKSTATION OR TERMINAL:** This includes only VDU, keyboard and the system unit in the far away server.

In both server and workstation, we can have

I. **HOMOGENOUS COMPUTER:** This is when the same computers of the same manufacturer are used.

II. **HETEROGENEOUS COMPUTER:** This is when computers from different manufacturers are used.

3. **NETWORK OPERATING SYSTEM (NOS)** - Along with additional software, the computers to be networked must have certain software components to communicate with the network. Hence, before the server can interact with the workstation, the workstation communication system must be installed.

Software needed to connect a computer to a network includes the following.

i. **CLIENT:** This allows a computer to connect to the server.

ii. **A PROTOCOL:** This is the essentially the language a computer uses to communicate over the network.

iii. **SERVICE SOFTWARE:** It allows s file and print sharing.

NETWORK TOPOLOGIES

Network topologies are categorized into the following types:

1. **BUS NETWORK:** it used a common link or backbone to connect all devices. A single cable, the backbone functions as a shared communication medium, that device attach or tap into with an interface connector. A device wanting to communicate with another device on the network sends a broadcast message into the wire that all other devices, but only the intended recipient actually accepts and processes the message.

A Bus is a common pathway across which data can travel with a computer in LAN. This path way is used for complication and can be established between OAL and more computers.

2. **RING NETWORK:** Each mode in a ring network is connected to its neighbours for communication purposes. Hence, all messages travel through a ring in the same direction (effectively either "clockwise" or counter clockwise").

The modes are usually close to on another this topology is frequently used on LAN. When one node sends a message to another, the message passes through each intermediate mode, which restores the signal in transmission. A failure in any cable or device breaks the loop and can get down the entire network.

Therefore, if a node fails, the ring is out of service unless the ring contains two channels transmitting in opposite directions. Ring are found in some office buildings or school campuses.

3. **STAR NETWORK:** In a star network, a nub computer or switch interconnected a number of workstations. The computers are the nuts acts as the 'central connection' called a Grub, providing access to the shared database and software. Devices are typically connected to the nub with unshielded twisted pair (NTP) Ethernet. All communication between the workstations must go through this central node.

Compared to the bus topology, a star network generally requires network access and not the entire LAN. However, if the nub fails, the entire network also

fails. The star network is rather easy to manage and expand, since in both cases at is largely the single central node that is affected in an expansion of a processing capacity. But this central node is also a locus of vulnerability. It may be overloaded or it may fail, disturbing the entire network or it may fail, disturbing the networks use the star topology.

4. **TREE:** tree topologies integrate multiple star topologies together into a bus. In its simplest form, only nub devices connect directly to the tree bus and each nub functions as the "root" of a tree of devices. This bus/star hybrid approach supports future expandability of the network much better than a bus (limited in the number of devices due to the broadcast traffic it generates) or a star limited by the number of hub ports) alone.

2.1.7 STRUCTURE OF NETWORK

A network consists of the following:

(a) Application Process

(b) Data terminal equipment

(c) Data communication equipment

(d) Protocol

(A) **APPLICATION PROCESS:** Is the user application consists of such as a computer programmed.

(B) **DATA TERMINAL EQUIPMENT:** This is a general term used to describe the end user machine, which is usually a computer (terminal).

(C) **DATA COMMUNICATION EQUIPMENT:** Its primary functions are to provide an interface of data network such as modern. For example (modulation demodulation)

(D) **PROTOCOL:** These are agreement on how communication component and data terminal equipments are to communicate with each other.

2.2 DATA COMMUNICATION CHANNEL

This refers to the direction of data flow during communication. Communication channel is a pathway over which data can be conveyed. It may be defined by a physical wire that connects communicating devices, or by a radio, laser, or other radiated energy source that has no obvious physical presence. Data communication channel is also the component of data communication system over which is sent. Data sent through a communications channels has a source from which the information originates and a destination to which the information is delivered.

Although, information originates from a single source, there may be more than one destination, depending upon how many receive status are linked to the channel and how much energy the transmitted signal possesses.

Any communication channel has a direction associated with it, which are:

- **SIMPLEX CHANNEL:** The message source is the transmitter, and the destination is the receiver. A channel whose direction of transmission is unchanged is referred to as a simplex channel. Data in a simplex channel is always one way.

Simplex channels are not often used because they are not possible to send back error or control signals to the transmit end, it's like a one-way street. An example of simplex is television or radio because always transmits the signal to the listener and never allows them to transmit back.

- **HALF DUPLEX CHANNEL:** A half duplex channel is a single physical channel in which direction may be reversed where one can send and receive data. Message may flow in two directions, but never at the same time, in half-duplex system. It's like a on-lane bridge where two-way traffic must give in other to cross. Only one end transmits at a time, the other end receives. An example of half-duplex is talk-back radio. You might have seen movies where 'truckies' (drivers of very big trucks) communicate to each other. And when they want the other person to speak they say "over". This is because only one person can talk at a time.

❖ **FULL DUPLEX CHANNEL:** Full duplex channel allows simultaneous message exchange in both directions. It really consists of two simple channels a forward and a reverse channel, linking the same points. Since data can travel in both directions simultaneously in full duplex channel there is no need to switch from transmit receiver mode like in half duplex. It is like a two lane bridge on a two-lane highway. Have you ever watched this television talk show, where the host has a number of people on the show and they all try to talk at once?

Well, that's full duplex of course, in the world of data communications full duplex allows both way communications simultaneously.

There are a number of different types of communication channels the type of communication channel used depends on the type of network in use or the distance ever which data is to be transmitted by the capacity of a channel is rate by the number of bits that can be transmitted per second, this is measured in bands.

2.2.1 TELEPHONE LINES

Transmission facilities used for telephone conversation transmission data communication companies, data communication via telephone line may use.

- Narrow band lines
- Low quality lines
- Voice grade line use for normal voice transmission.

Telephone wires are the most common communication channels use in data communication system because of its low cost and availability. The existing telephone line comes such a great path of the world. It is both easier and more. Economical to use the existing lines rather than design and build alternative channels. Thus telephone lines carry more data transmission today than any of the alternative transmission.

2.2.2 MICROWAVE SYSTEMS

Microware systems operate without any physical correction between transmitter and receiver instead high frequency radio signals carry data from point to point. It provides advantages over phone line and coaxial cable because it does not require stringing wire, but instead readily station are built at every 20 or 30 miles to compensate for the converter of the earth and in other places, to transmits around obstacles blocking the signals since radio signals travels on a straight line.

The construction of a microware communication system is relatively expensive, but coast are decline over the years because more system are built over the advantages of transmission speed and total control of privately owned system have made this type of channel will suited for medium distance between

2.2.3 SATELITES

Satellites communications channels are essentially the same as microware system the satellite simply act as a very tall ready tower. The satellite contain several receiver, amplifier/transmitter contains several receiver / amplifier / transmitter section called TRANSPANDIERS.

A transponder receive the signal from a simple transmitter, then amplifiers it and re-transmit it toward earth on a different frequency. It is noted that transmitting earth station sends to only one transponder on a simple satellite, while the satellite send station any or all down link receiving earth stations on its area of coverage called footprint.

2.3 DATA COMMUNICATION PROTOCOL

A data communication protocol is an agreed upon convention that defines the order and meaning of bits in a serial transmission. It may also specify a procedure for exchanging messages. A protocol will define how many data bits compose a message unit, the framing and formatting bots, any error-detecting bits that may e added and other information that governs control of the communication hardware.

Channels efficiency is determined by the protocols design rather than digital hardware consideration. Note that there is a trade off between channels efficiency and reliability, protocols that provide great immunity to noise by adding error-detecting and correcting codes must necessarily become less efficient.

The sole purpose of the protocol is to provide guidance to the communication channels and to promote harmonious connectivity between the many network components. Protocols work at the electronic level. They are initiated and controlled by advance subroutines built into each NIC (Network Interface Card).

2.3.1 DATA COMMUNICATION MEDIA

There are different communication media available in data transmission. These are:

1. **COAXIAL CABLE:** This consists of a relatively which central conductor shielded by several layers of instillation. Coaxial cables are group of specially wrapped and insulated wire line that can transmit data at high rate. It is a bounded medium in Local Area network (LAN).
2. **MICROWAVE TOWER:** This medium involves radio transmission employed for lag distance telecommunications. Its signals travel in straight lines and therefore the transmitter and receiver must be in a direct line of sight.

Hence, the transmitters and receivers are placed on tower or high buildings to ensure a range of up to 30 miles.

3. **COMMUNICATION SATELLITE:** This is a form of microware transmission but span the global. Earth attitudes of about 22,000 miles transmit a cro-wave signal. The satellite appears stationery since its speed matches that of the earth rotation. A single satellite can transmit more than one third of the earth. Satellites communications do sometime encounters significant delays.

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2.4 TRANSMISSION OF DATA IN A NETWORK

Transmission of data involves the manner in which two signals are transmitted over the transmission medium from byte. Data transmission occurs between transmitter and receiver over some transmission medium. Transmission media may be classified as guided or unguided. In both cases, communication is in the form of electromagnetic wares. With guided media, the waves are guided along a physical path. Examples of guided medial are twisted pair, coaxial cable, and optical fiber.

Unguided media, are called wireless, proved a means for transmitting electromagnetic wave but do not guided them.

The term direct link is used to refer to the transmission pat between two devices in which signal propagates directly form transmitter to receiver with no intermediate device, other than amplifiers to repeaters used to increase signal strength.

A guided transmission medium is point to point if it provides a direct link between two devices and those are only devices sharing medium. In a multipoint-guided configuration more than two device share the same medium.

Basically, we define data as entities that convey meaning or information. Signals electric or electromagnetic representation of data.

Signally, is the physical propagation of the signal along a suitable medium. Transmission is the communication of data by the propagation and processing of signals. Now, let discuss the modes of processing data.

2..4.1 TRANSMISSION

The successful transmission of data depends principally on two factors:

i. The quality of the signal being transmitted.

ii. The characteristic of the transmission medium.

A transmission maybe simplex transmission mode, half duplex and full-duplex transmission mode.

2.4.2 SIMPLEX TRANSMISSION

In simplex transmission, signals are transmitted in only one direction, the message source is the transmitter, and the destination is the receiver.

A channel whose direction of transmission is unchanged is referred to as a simplex channel data is a simplex channel is always one way.

Simplex channels are not often used because they are not possible to send back error or control signals to the transmitted. It's like a one way street. An example of simplex transmission is television or radio because it always transmits the signal to its listeners and never allows them to transmit back.

2.4.3 HALF-DUPLEX TRANSMISSION

A half-duplex transmission, data communication is two way but not simultaneous at any instead one machine may transmit, if one machine is transmitting, the other receives and is temporarily prohibited from transmitting.

A half-duplex transmission is a single physical channel in which the direction may be reversed where one can send and receive data. Messages may flow in two direction, but never at the same time, in a half-duplex system. Its like a one lane bridge where two-way traffic must give way in order to cross, only on end transits at a time, the other end receives.

In some aspects, you can think of Internet surfing as being half-duplex. As a user issues a request for a web document, then the document is downloaded and displayed before the user issued another request. Anther example of half-duplex is talkback radio.

2.4.3 FULL-DUPLEX TRANSMISSION

A full-duplex transmission allows simultaneous message exchange in both directions. It really consists of two simplex transmissions a forward channel and a reverse channel linking the same points. The transmission rate of the reverse channel may be slower if is used only for flow control of the forward channel.

Since data can travel in both directions simultaneously in full-duplex channels, there is no need to switch form transmit to receive mode like half-duplex.

2.5 DATA TRANSMISSION MODES

2.5.1 SERIAL MODE

Most digital message are vastly longer than just a few bits. Because it is neither practical nor economic to transfer all bits of a long message simultaneously, the message is broken into smaller parts and transmitted sequentially.

Bit serial transmission conveys a message one bit at a time through a channel. Each bit represents a part of a message. The individual's bits are then reassembled at the destination to compose the message.

Byte-serial transmission conveys eight bits at a time through eight parallel channels. Although, the raw transfer rate is eight times faster than in bit-serial transmission, eight channels are needed, and the cost may be as much as eight times higher to transmit the message.

On the other hand, when communication with a time-sharing system over a modem, only a single channel is available and bit-serial transmission is required.

2.5.2 PARALLEL MODE

This mode of transmission uses the same number of channels as the number of bits in a character parity checking of transmitted bit. In the case, the total character is transmitted simultaneously.

The primary advantage of parallel transmission is need. Thus, all else being equal, parallel transmission can increase the transfer speed by a factor compared to serial transmission.

However, a parallel transmission has a obvious disadvantages also. This is manufacturing cost since a parallel transmission requires communication lines to

transmit the data stream because this is expensive, parallel transmission is usually limited to short distance.

2.5.3 ASYNCHRONOUS TRANSMISSION OF DATA

This is transmission of one character at a time on an irregular interval. Asynchronous transmission is characterized by star/stop bits, which mark the beginning and the end of the message. The strategy with this scheme is to avoid the timing problem by not sending long, uninterrupted streams of bits.

Asynchronous transmission is simple and cheap but requires an overhead of two to three bits per character. To achieve grater efficiency, a different form of synchronization, known as synchronous transmission is used.

2.5.4 SYNCHROUNOUS DATA TRANSMISSION

Serialized data is not generally sent at a uniform rate through channel instead, there is usually a burst of regularly spaced binary data bits followed by a pause, after which the data flow resumes. Packets of binary data are sent in this manner, possibly with variable length pause between packets, until the message have been fully transmitted.

Two basic techniques are employed to ensure corrects synchronization. In synchronous ensure corrects synchronization. In synchronous systems, a separate channel is used to transmit data and timing information. The timing channel transmits clock pulse, the receiver reads the data channel and latches the bit value found on the channel at that moment because the transmitter originates both the data and the timing pulses, the receiver will read the data channel only when told to do so by the transmitter and synchronization is guaranteed.

2.6 USES AND RELATIONSHIP BETWEEN SIMPLEX AND DUPLEX DATA COMMUNICATION

A communication network can provide many types of service. The most basic type of service known as simplex. The service provides one-way communication. Examples of this type of service are TV distribution, and the transmission of burglar alarm messages. Most networks transfer data in two directions and are known as duplex communication links. Duplex links are classified as either full duplex or half – duplex (also known as two-way alternate), depending upon whether one must wait for the other to finish before starting transmission.

A telephone line is capable of full duplex transmission, although most human users choose to adopt a half duplex procedure to listen to what the remote person has to say. Some networks are able to transmit a message to all nodes that are connected to the network (this is common in Local Area Network LANs) this is known as broadcast transmission. In addition to broadcast some network also allows simultaneous transmission on to a specific group of users, this is known as multicast transmission. An expel of multicast transmission is the use of the Internet protocol (IP) network which supports packet video allowing remote participation. In conferences across the Internet.

2.7 MEASURING SPEED OF TRANSMISSION

Speed is an important consideration in data communication because it affects cost. Bit rate would rate and bandwidths are the terms that describe the speed of transmission.

BIT AND BAUD RATES

The baud unit is named after Jean Maurice Emile Bauit, who was an officer in the French telegraph service. He is credited with devising the first uniform-length 5 – bit code for characters of the alphabet in the late 9th century. The baud rate refers to the signaling rate at which data is sent through a channel and is

measured in electrical transitions per second. That is, it refers to is modulation rate or the number of times per second that line changes state.

If two electrical transitions are require for each bit, as is the case in non-return to zero coding, then at a rate of 9600 baud, only 4800 bits per second could be conveyed. The channel efficiency is the number of bits of useful information passed through the channel per second. It does not include framing, formatting and error detecting bits that maybe added to the information bits before a message is transmit and will always be less than one. The data rate of a channel is often specified by its bit rate (often though erroneously to be the same as baud rate).

However, an equivalent measure channel capacity is bandwidth. In general, the highest data rate a channel can support is directly proportional to the channel noise level.

BANDWIDTH

Bandwidth is a measure of the range of signal frequencies that can be sent through a channel.

In essence, it is measure of the channel width. There are three phases generally uses to describe the bandwidth of a channel. The unit of measuring bandwidth is hertz (H_z).

- **NARROW BAND CHANNEL:** This is data transmission that operates in a frequency of only few hundred cycles per second (hertz). Data transmission speed is usually limited to about 150 bits per second (bps). The example of narrow band channel is telegram line.
- **VOICE-GRADE CHANNEL:** This channel operates at a data transmission speed up to 9,600 its per second and at a frequency range of 3,000H_z. Example is a standard wired phone line.
- **WIDE-BAND CHANNEL:** This channel operates on data transmission speed up to 50,000 bps with a frequency as high as 240,000H_z Example are special phone lines and microware links mostly used for internet connectivity.

2.8. MODES OF PROCESSING DATA

2.8.1 BATCH PROCESSING

Batch processing as the name implies data collected and ordered in group (batches), which are subsequently processed at some specific time. The time is pre-determined by the designer of the application and depends mainly on the operational role of batch of the data within the organization. The periodic processing may be done hour, weekly, monthly and so on.

Irrespective of the time intervals, the main objective is to collect data usually the same type. The computers process the data one after the other and eventually produce some result normally in the form of a report.

Batch processing was the earliest made used in commercial data processing and in some installation it remain on way of processing data with continuing advances in hardware and software, over the past 10/15 years, this processing by more advances techniques. Nevertheless, there are certain applications that are naturally suited to batch processing irrespective of what types of computer configuration are available.

2.8.2 REAL TIME PROCESSING

The processing of data in a sufficiently rapid manner so that the results of the processing are available in time to influence the current activity or processing being monitored or controlled the transaction are applied to the master file as they happen and information is obtained from the system on demand.

Real time processing requires dual purpose input and output devices such as terminals and visual display units.

2.9. WIDE AREA NETWORK SYSTEM (WAN)

This is a second type of network, which interconnect computer on a separate city or even separate countries. Networks can also be classified by their geographical scope and services provided. Local area networks link resources in

the same department or building. Metropolitan Networks (MAN) connect resources in the same city, while wide area network link computer systems thousands of kilometers apart or even in different regions of the world.

Wide area network (WAN) tend to use packet switching method or message switching and employs optical fiber media and satellite metropolitan network. It is also the connecting of multiple computer together which are situated some considerable distance

Apart and allowing any of them to communicate with each other realizing a WAN as much more difficult task compare with local area network. It also requires a very sophisticated data communication network to provide the facility of carrying data from one host computer to another because the network is physically spread over geographical area.

2.9.1 WAN TECHNOLOGIES

WAN connects workstations, personal computers, minicomputer, LAN and MAN. They use different telecommunications facilities to accomplish these connections. These include lines (also call dial-up) microware (radio) and satellite (VSAT) links.

Devices used for interconnection include switches, relaters, bridges and routers. Some common WAN technologies are described below.

INTEGRATED SERVICES DIGITAL NETWORK (ISDN): is architecture for worldwide communications. This service integrates voice, data and video communication through digital switching and transmission. The ISDN technologies now implemented are narrow band (base rate ISDN and broadband ISDN. Separate channels are used for customer information (B channels voice, data and video) and to send signals and control information channels).

DIGITAL SUBSCRIBER LINES (DSL): With this service, a network provider transports high-band width data multimedia and video over existing

twisted pair telephone. Tele communication line DSL is a dedicated point-to-point connection on the public network.

VIRTUAL PRIVATE NETWORKS (VPN): virtual private network extend the cooperate network out to distant offices, home workers, sale people and business partners. But rather than using expensive dedication lines, UPNs use worldwide IP services including the Internet and service provider backbones.

THE INTERNET: of course, the internet is a WAN technology that enables the connection of computers and computers, computers and networks irrespective of their location on the planet. The common string is that all the system and devices runs the TCP/IP protocol, which is the standard protocol used for the Internet.

WIRELESS NETWORK: Wireless network is an emerging and fast growing WAN that allows users to access information instantly via handheld devices such as mobile phones, papers, two-way radio, smart phones and communications. The protocol for this is referred to as wireless application protocol (WAP). WAP supports most wireless networks and is supported by all operating systems designed for handheld devices such as palmos, EPOC, window CE, FLEXOS, OS/09, AND Java OS. WAPS that use displays and access the internet run what are called micro browser. These are browsers with small file sizes that can accommodate the law memory constraints and the low bandwidth constraints to handheld devices.

FRAME RELAY: Frame relay is a faster and less expensive variant of packet switching. Frame delay is a shared network that packages data cuts" frame", that is similar to packet. Frame relay, however, dues hot perform on correction. This is because so many of today's digital lines are cleaner than in the past. It is essential used for transmitting data. Frame relay is considered as the replacement for X.25.

X.25: is an international standard that defines the interfaces between a computing devices and a packet switched data network. Packet switching breaks

blocks of data into small forced bundles of data (called packets) and routes them to their destruction in the most efficient man. X.25 implements point – to- point connections.

2.10 THE INTERNET

This is the world's biggest computer network and one of the fastest growing communication systems ever devised. It is a global network of interconnected computers. The word complicated set of equipment. The computers are called hosts or severs and are connected primarily by telephone lines, but sometimes also by microware (radio) and satellite (VSAT) links. It is also possible to connect to the internet using a growing number of devices such as mobile phones, interactive TVs (web TV), personal Digital Assistants (DDAS) and Kiosks (self service stores).

Technically, any one in the world with a PC and modem can connect to and Internet service provides and accesses the internet network to send messages, swap data (including pictures, video and sound files), access web site and trade electronically.

2.10.1 THE HISTORY OF THE INTERNET

The Internet was created on January 2, 1969 when United States computer scientist began researching computer networking. This research was founded by the advanced research project's agency (ARPA), which gave the Internet its firs name, the ARPANET. At the ARPANET was used to test the use of packet switched networks, which are computer networks that transfer information in the form of little packets that more independent of each other through various network until they reach their final destination.

The Department of defense immediately saw this networks as an idea communication weapon for example, if one test of communication lines was destroyed, the little packets for information could continue to find other lines. If

one of the packets fails to reach it good, the sending computer could simply send another packet.

Despite its military background, the ARPANET eventually become primarily a means of instant communications between computer researchers across the nation.

In 1983, the ARPANET was reserved for civilian use, while MILNET was created from military use. Communication between the two networks is possible, and this network came to be known as the Internet.

2.10.2. HOW THE INTERNET WORKS

The Internet is comprised of networks that connect to another via pathways, which allow the exchange of information, data, and files.

Being connected to the Internet means having access through these pathways to other computers connected to the Internet. Using these pathways, a computer can send and receives packets of data from other computers and networks.

The Internet is vast global network. No single person, group or organization runs the Internet. Instead, networks communicate with other using standard protocols, such as transmission control protocol (TCP) and Internet protocol (IP).

Network can be connected in different ways. The connection can be done through telephone lines, fiber optic cables, microware and satellite. The networks in a particle area are connected into a large regional network. Regional networks are connected to another via high backbones.

2.10.2 USES OF THE INTERNET

- Communication;

  Email, E-charts, conferencing, web radio and web TV

- Information;

  Browsing, checking of result.

- E-Business;

  E-Banking, E-commerce, E-tourism, E-adverts.
- E-Education;

  E-learning, E-Governance, Comp-Aided learning(CAL), Comp-Aided Institution(CAI)
- Entertainment;

  Music, game, movie, sound files.

2.10.3. TIPS AND PRECAUTIONS FOR SAFE INTERNET USE

- Self discipline
- Make wise choices
- Be a careful customer
- Awareness on internet supply

2.11 INTERNETWORKING DEVICE

ROUTERS

Routers are internetworking devices that connect similar and heterogeneous networks segments into internet works. Routers are layer 3 networking devices. In contrast repeaters operate at the physical layer while bridges (and switches) operate at the data link layer. The traditional view of the router is a box with two or more interfaces. The interface provides connections for a network and or point-to-point links.

- The original requirement for router as defined by the early designers of the and forwarding causes some delay, but newer switching and multiplayer switching techniques improve performance.
- Allows routers to drop packets in an overflow situation but rely on TCP raining end systems to determine that packets have been dropped (or lost)

- Routers do not maintain state information, which is information that can be used to connects

MODEM AND FAX CARD

Long before computer over became personal the mainframe and mini computer of the 19600 and 1970s needed to communicate over geographical distance that could sometimes stretch across town and sometimes around the world.

Designers face the problem of wining the computers together stringing a cable across over a few miles represents a serious logistical challenge. Instead of installing a network of new cabling, computers designers realized that they already had a sophisticated, worldwide winning system in places.

THE WORLD WIDE WEB

This is regarded as the most popular of the networking. The web is a type of data service operating on the Internet, which allows you to view texts and graphics on the Internet.

In 1969, when the NET had its genesis before the Macintosh showed the world how nice graphics could be, we don't have to learn how to use commands. The Internet has become much ever friendly, linking pages together. Web uses a different concept from the Internet through it stays on it, it uses the hypertext transfer protocol (HTTP).

This protocol allows you to link pages up with pages as references. The way of linking documents, setting up your own web pages and making the information available to any one on the internet is made incredibly easy, by using hypertext marked up language (HTML).

All the addresses on the Internet have a unique reference named called the universal resource locator (URL), which you can use to access a specific document containing certain information.

2.12 IMPORTANCE OF DATA COMMUNICATION AND NETWORKING SYSTEM IN GLOBAL WORLD

In the early days of computer, the communication of data and networking, or the conveying of information was not all that pronounce as we have it today. Although, computer data communication is dated back to 1950s, but the advance in ICT (Information and Communication Technology) that started in the early 1990s gives the boost to data communication and network, Today, no organization (business, banks finance house, educational institution, especially the mobile network companies like Glo mobile network, MTN mobile network etc. can survive without an efficient, effective an reliable data communication network.

These are some of the importance of data communication and networking to the Global world.

- It contributes positively to the enhancements of communication and networking to achieve good and stress less work with the help of networking.
- With the help of data communication and networking system in the global world, there is source of living.
- It helps to increase computer speed in global world.
- There is increase in Internet speed through data communication and networking system.
- Data communication and networking system improve application performance.
- The use of data communication and networking is more efficient in the global world.

CHAPTER THREE

RESEARCH METHODOLOGY

The purpose of this chapter is to determine the importance of data communication and networking system in global world by some mobile network companies in Nigeria.

It is not meant to the specific hypothesis formulate for the research work. This chapter describes the research design, population, instrument used and the validity of the research works.

3.1 RESEARCH DESIGN

The design method in this project work is a descriptive research design that is scientifically inquisitive with the objective supporting the part of the research. It is in effect a survey.

3.2. POPULATION

In view of the global nature of the research work, the research population focused on GLO mobile network and MTN mobile network in Lagos state in Nigeria. Therefore the population of the Department consists of ten (10) Departments in each of the companies.

The Departments are as follows:

1. Networking Department
2. Programming Department
3. Engineering Department
4. Marketing Department
5. Customer Care Department
6. File Organization Department
7. Data Communication Department
8. Management Department
9. Editorial Department

10. Public Relations Department

3.3 SAMPLE AND SAMPLING TECHNIQUES

To get a convincing result in the research project, a systematic sampling technique is used. The choice of this is not far from the fact that it serves as a true representation of the population from, which it is drawn. This is done using random sampling technique. This contain the name of ten (10) Department in the GLO and MTN mobile network in Lagos State used for the data collection of this research work.

3.4 INSTRUMENT FOR DATA COLLECTION

This subsection contains the research instrument, which was used for collecting the data for the study. The instrument therefore used is the questionnaire administered to the workers.

3.5 DATA COLLECTION PROCEDURE

The data collection in the research work of the importance of data communication and networking system in Global world was collected through the administration of questionnaires. The data gathered in this research work would be analyzed using simple percentage and the chi-square test (x^2) methods.

This is because of the significant distribution needed in order to now the importance of data communication and networking system in the global world.

The formula in the computation of chi-square statistics is given as:

$$X^2 = \Sigma \frac{(0-E)^2}{E}$$

Where, O = observed frequency
E = Expected frequency
Σ = Summation
N =Number of items

3.6 VALIDITY OF THE RESEARCH

Here the questionnaires were validated by the researcher's supervisor. The study was also subjected to face content validity. Connections were made in the research instrument including addition of cognet items to make the questionnaire effective and efficient.

3.7 RELIABILITY OF RESEARCH INSTRUMENT

The instrument used in the research, work to know the importance of data communication and networking system in global world is effectively and efficiently correlated. A copy of the questionnaire used is attached to this project.

CHAPTER FOUR

REPRESENTATION OF RESULT AND DISCUSSION

This chapter presents the results of finding and the collection of data on the importance of Data Communication and Networking in the global world through the GlO and MTN mobile network companies in Lagos State. An attempt was made to analyze the data collected from the sample mobile network companies. The analysis was based on the mentioned research hypothesis in chapter one of this study as follows.

HYPOTHESIS ONE

H_o: (NULL HYPOTHESIS): Data communication and networking system contribute positively to information technology on the global world.

H_i: (ALTERNATIVE HYPOTHESIS): Data communication and networking system do not contribute positively to information technology in the global world.

HYPOTHESIS TWO

H_o: (NULL HYPOTHESIS): Service provided by the data communication and networking system service providers is good enough in the global world system.

H_i: (ALTERNATIVE HYPOTHESIS): Service provider by the data communication and networking system service providers is not good enough in the global world system.

4.1 DISCUSSION OF FINDINGS

Hence, the collection of the data and information received from the respondents at the two mobile network companies for the user's questionnaire is by percentage method.

However, to make it both dependable and reliable, the hypothesis shall be put to test, in order to test the validity of hypothesis and chi-square (X^2) method is used.

After using chi-square (X^2), their outcome would determine if there is conformity of responses. The chi-square test is used to assess whether a particular

set of observation is sufficiently reliable for purpose for which it has been collected.

The result of the questionnaires used for the survey variables observed, pattern frequently while the questions in the questionnaires were administered as related to the main study and hypothesis would have the total number of expected responses. In other words, there are some expected responses for each question constructed by the researcher which will be based on the number of option given to each respondent as a reply to the questions been asked. 250 questionnaires were distributed to the GLO and MTN mobile network companies in some selected Local Government Areas of Lagos State. In relevance to the research carried out by the questionnaire having, Agree, Strongly Agree, Strongly Disagree, Disagree (A, SA, SD, D) reply options, the questionnaire constructed has a total of 16 questions. The decision rule is to accept the null hypothesis, 1 (X^2) value calculated is less than (<) the table chi-square value are to be rejected the null hypothesis if the (X^2) calculated value is greater than (>) the table chi-square.

Formula: $(X^2) = \frac{(O-E)^2}{E}$ is it's sum or expected frequency

Where E = Sum

O = Observed frequency

E = Expected frequency

N = Number of options

Critical value which determine the degree of freedom (k) is calculated as follows

K = (r-1) (c-1)

Therefore K = Degree of freedom

Where r = row, C = Column

Level of significant 5% = 0.05

Calculated chi-square value = X^2_c

Table chi-square value = X^2_t

4.2 DATA ANALYSIS

The collection and analysis of data and information received from the respondents to the importance of data communication and networking system in the global world. Findings gathered from the questionnaires are presented below with the use of simple percentage method.

SECTION A

Respondent on the importance of data communication and networking system in the global world. (System user's response)

1. Networking Department
2. Programming Department
3. Engineering Department
4. Marketing Department
5. Customer Care Department
6. File Organization Department
7. Data Communication Department
8. Management Department
9. Editorial Department
10. Public Relation Department

INTERPRETATION

The above listed Departments shows that 10% systems users of the Departments each companies response in some select Local Government Area of Lagos State, on the importance of Data communication and Networking System in the global world respectively.

TABLE 2: RESPONDENTS GENDERS ANALYSIS

SEX	RESPNDENT TYPE: SYSTEM USERS	PERCENTAGE
MALE	100	40%
FEMALE	150	60%
TOTAL	250	100%

INTERPRETATION

The above table depicts that 40% of the respondents were male, while 60% were female

TABLE 3: RESPONDENTS AVERAGE AGE ANALYSIS

AGE	RESPONDENT TYPE: SYSTEM USER'S	PERCENTAGE
16-25	80	32%
26-35	80	32%
36-45	90	36%
TOTAL	250	100%

INTERPRETATION

The above table review that 32% of the respondents were 16-25 years of age, 32% of the respondents were 26-25 years while 36% of the respondents were 36-45 years of age respectively

TABLE 4: RESPONDENTS QUALIFICATIONS ANALYSIS

QUALIFICATION	RESPONDENT TYPE: SYSTEM USER'S	PERCENTAGE
S.S.C.E	25	10%
N.C.E.	40	16%
O.N.D.	50	20%
H.N.D	55	22%
1ST DEGREE & OTHER	80	32%
TOTAL	250	100%

INTERPRETATION

The above table state clearly that 10% of the respondents have SSCE qualification, 16% have NCE, 20% have OND and 22% have HND, while 32% have 1st Degree and above.

SECTION B

In order to interpret the data collected agree and strongly agree were merged together while disagree and strongly disagree were also merged together.

Question 1: Government makes vital contribution to the development of computer literacy in the country.

TABLE 5:

OPTION	RESPONDENTS	PERCENTAGE
Agree	80	32%
Strongly Agree	100	40%
Disagree	30	12%
Strongly Disagree	40	16%
Total	250	100%

INTERPRETATION

The above table depicts that 72% of the respondents agreed that government makes vital contribution to the development of computer literacy in the country while 28% disagreed.

IMPLICATION:

From investigation that the researcher gathered, vital contribution s of government toward the development of computer literacy enhance the progress of the nation toward standard of living once you are ready to be a computer literate.

Question 9: The use of data communication and networking is more efficient in the global world.

TABLE 6:

OPTIONS	RESPONDENTS	PERCENTAGE
Agree	100	40%
Strongly Agree	70	28%
Disagree	50	20%
Strongly Disagree	30	12%
Total	250	100%

INTERPRETION

The above table shows that 68% of the respondents agreed that the use of data communication and networking is more efficient in the global world.

Question 9: Networking afford the users of computers the opportunity of connecting different computers together and share resources.

TABLE 7:

OPTIONS	RESPONDENTS	PERCENTAGE
Agree	80	32%
Strongly Agree	90	36%
Disagree	35	14%
Strongly Disagree	45	18%

INTERPRETATION

The above table shows that 68% of the respondents agreed that networking afford the users of computers the opportunity of connecting different computers together and share resources while 32% disagreed.

4.3 TEST OF HYPOTHESIS

To ascertain the validity of the hypothesis stated in chapter one, two operational hypotheses were tested. The perceptions of the respondents on the study of the importance of Data communication and networking system in the global world were measure on the related question from the questionnaires used for the efficiency of the data communication and networking system through the system user's questionnaire. The hypotheses for the study will be tested by using chi-square method and the level of significant will be 0.05.

RESEARCH HYPOTHESIS 1

H_o: (NULL HYPOTHESIS): Data communication and networking system do not contribute positively to information technology in the global world.

H_i: (ALTERNATIVE HYPOTHESIS): Data communication and networking system do not contribute positively to information technology in the global world.

Question 15: Data communication and networking system contribute positively to information technology in the global world.

TABLE 8

OPTIONS	RESPONDENTS	PERCENTAGE
Agree	70	28%
Strongly Agree	100	40%
Disagree	30	12%
Strongly Disagree	50	20%
Total	250	100%

OBJECTIVE: To test the hypothesis that data communication and networking system contribute positively to information technology in the global world or do not, using significance level of 0.05

OPTIONS	O	E	(O-E	$(O-E)^2$	$\frac{(O-E)^2}{E}$
Agree	70	62.5	7.5	56.25	0.9
Strongly Agree	100	62.5	37.5	1406.25	22.5
Disagree	30	62.5	-32.5	1056.25	16.9
Strongly Disagree	50	62.5	-12.5	156.25	2.5
Total	250	250	0	2675	$X^2_c = 42.8$

Expected Frequency

$E = \frac{0}{N} = \frac{250}{4} = 62.5$

Decision:

Degree of freedom

Number of options

DF = (N-1)

= (4-1

Df = 3

Level of significant 5% = 0.05

Table value $X^2_t = 7.82$, calculated value $X^2_c = 42.8$

PRESENTATION OF RESULTS

OPTION	O	E	X^2_c	Df	X^2_t	REMARK
Agree	70					
Strongly Agree	100	62.5	42.8	3	7.82	Rejected H_i
Disagree	30	62.5				
Strongly Disagree	50	62.5				

NOTE:

Significant at 0.05 with DF = 3, since $X^2_c > X^2_t$ i.e. 100>7.82, the result is rejected

The above analysis demonstrated that the calculated chi-square. Value is greater than the table value. (Data communication and networking system contribute positive to information technology in the global world).

Since $X^2_c > X^2_t$ i.e. 100>7.82, therefore, Null Hypothesis (H_i) is accepted.

RESEARCH HYPOTHESIS 2

H_o: (NULL HYPOTHESIS): Service provided by the data communication and networking system service providers is good enough for the global world system.

H_i: (ALTERNATIVE HYPOTHESIS): Service provided by the data communication and networking system service providers is not good enough in the global world system.

TABLE 9

OPTIONS	RESPONDENTS	PERCENTAG
Agree	85	34%
Strongly Agree	90	36%
Disagree	30	12%
Strongly Disagree	45	18%
Total	200	100%

OBJECTIVE: To test the hypothesis that service provided by the data communication networking system service providers is good enough in the global world system.

Expected frequency

$E = \frac{0}{N} = \frac{250}{4} = 62.5$

Decision:

Degree of freedom

Number of options

Df = (N-1)

= (4-1

Df = 3

Level of significant 5% = 0.05

Table value $X^2_t = 7.82$, calculated value $X^2_c = 38.8$

OPTION	O	E	X^2_c	Df	X^2_t
Agree	80	62.5	17.5	306.25	**4.9**
Strongly Agree	90	62.5	27.5	756.25	12.1
Disagree	30	62.5	-32.5	1056.25	16.9
Strongly Disagree	45	62.5	-17.5	306.25	4.9
Total	250	250	0	2425	X^2_c 38.8

PRESENTATION OF RESULT

OPTION	O	E	X^2_c	Df	X^2_t	REMARK
Agree	80	62.5	38.8	3	7.82	Rejected H_i
Strongly Agree	90	62.5				
Disagree	30	62.5				
Strongly Disagree	545	62.5				

NOTE:

Significant at 0.05 with df = 3

Since $X^2_c > X^2_t$ i.e. 80>7.82, the result is rejected

The above analysis demonstrate that the calculated value is greater than the table value

$X^2_c > X^2_t$ i.e. 80>7.82, (This simply means that service provided by the data communication and networking system service providers is good enough in global world system) therefore, the alternative hypothesis (H_i) is accepted while Null Hypotheses (H_o) if rejected.

4.4 SUMMARY OF FINDINGS

The main objectives of this research work, is to assess and look at the importance of data communication and networking system in the global world. To bring this to reality, hypotheses were proposed and tested. Analyses were made on the data collected through the questionnaires distribution to the mobile network companies and these were collected. From the study, the data communication and networking system play a vital role in the global world.

The following advantages can be achieved on the importance of data communication and networking system in the global world.

1. It is highly effective
2. It contributes positively to the enhancements of communication and networking to achieved good and stress less work.

HYPOTHESIS H_i: State that data communication and networking system contribute positively to information technology in the global world.

This was tested using chi-square method it was discovered that data communication and networking system is more important in the global world, in areas such as business transactions through internet services.

HYPOTHESIS H_2" States that service provided by the data communication and networking system service provided is good enough for the global world system. When tested using chi-square method.

CHAPTER FIVE
SUMMARY, RECOMMENDATIONS AND CONCLUSION

This study is concerned with the importance of data communication and networking system in the global world. The summary of findings of the study forms the basis from which conclusions wee drawn and some recommendations are made for further study.

5.1 SUMMARY

This project was carried out of the importance of data communication and networking system in the global world.

The research work also looked into networking system topologies, uses of network, types of networking system, component of computer networking data communication channel, data communication protocol, data communication media, transmission of data in a network, data transmission mode, uses and relationship between simplex and duplex data communication, mode of processing data, WAN technologies, internet services, uses of internet, internetworking devices, the world wide web and important of data communication and networking system in global world.

It also understood that the exercise helps to identify certain problems that often confronts the data communication and networking system among which were:

1. Inadequate power supply
2. Insufficient use of historical information

5.2 RECOMMENTION

In view of the findings from this project, the following actions are being recommended as ways of improving the importance of data communication and networking system in the global world.

- Telecommunication company should also invest in the training of skilled manpower of efficient development and effective maintenance of networking equipment.
- Government and the private bodies are also encouraged to provide adequate power supply to the country as a whole.
- Government are also encourage to invest more funds for the development of data communication and networking system, even more efficient data communication facilities such as the building of commercial transmission stations.

5.3 CONCLUSION

Data communication and networking system has reached an advanced stage. Originally data communications and networking strategies were designed by computer manufacturers only for customers using system manufacturer by some manufacturer. Example IBM developed the system network architecture (SNA), which allows several different type of IBM product or equipment to be connected in a network. But today, most network developed by manufacturers allow other system to be used.

In Africa, most of the third would countries; data communication and networking system is still at infant stage because it is only just beginning to develop. Networking graphical still has a along way to go because most of the international organizations are yet to give in networking system.

With the improving of the telecommunications systems in the world. It is hoped that networking too will grow efficiently.

The Africa governments therefore should invest more funds for the development of data communication and networking system, even more efficient data communication facilities such as the building of commercial transmission stations should be introduced.

This project describes the importance of data communication and networking system in the global world. The analysis measured and compared the following network available and support functionality.

Hence availability of the Internet application and support is a critical measure of an operating system's utility to a business.

With the help of data communication and networking system Global world, we can communicate with friends and relatives within or outside the country through Glo and MTN to achieved good and stress less work.

MTN Nigeria is part of the MTN Group, Africa's leading cellular telecommunications company, on May 16, 2001, MTN became the first GSM network to make a call following the globally lauded Nigeria GSM auction conducted by the Nigerian communication commission earlier in the year.

MTN now provide services in 223 cities and towns, more than 10,000 villages and communities and a growing number of highways across the country spanning the 36 states of the Nigeria and the federal capital territory, Abuja.

MTN digital microware transmission backbone, the 3,400 kilometer Y'ello Bahn was commissioned by president Olusegun Obasanjo in January 2003 and is reputed to be the most extensive digital microware transmission infrastructure in all of Africa. The Y'ello Bahn has significantly helped to enhance call quality on MTN network.

Glo is the Second National Operator (SNO) in Nigeria, licensed to provide an array of telecommunication services since Globacom started operations on August 29, 2003, it has become a pacesetter in the telecommunications industry, introducing revolutionary changes that have afforded Nigerians the benefits of advances made in telecommunications and information technology.

In barely six years of operations, and starting two years after the commencement of GSM in Nigeria, Globacom has established a pedigree as the leader in the Nigerian telecommunication industry. Today, Globacom currently

has more than 25 million subscribers and is the fattest growing network in Africa and the Middle East.

In keeping with their ambition to build the biggest and best telecommunications network in Africa, Globacom has invested heavily in the Glo-1 submarine cable which will connect 14 countries in West Africa through Lisbon, Portugal to Buds in the United Kingdom on a mega capacity cable. Globacom has also won a license to provide GSM services in Ghana and will start operations in the country in 2009.

As a leader in high quality service delivery, Globacom has commissioned several routes of its optic fiber cable backbone, which it is building across Nigeria. The facility provides large bandwidth for individuals and corporate organizations.

The infrastructure is an information super highway that transmits voice and data at the speed of light. With it, individuals in the private, public and government sectors now have a better alternative than microware for their bulk voice and data transmission requirements.

As the market leads in innovative technology, Globacom in 2005 became the first Nigerian Network to introduce Blackberry, revolutionary tools for modern business solutions.

Today, Data communication and networking system has changed the world scenario.

Business and other daily affairs rely on computer network and Internet works through Data Communication and Networking System. It also contributes positively to information technology in the Global world.

GLO and MTN can now survive with an effective, efficient and reliable Data Communication Network with successful transmission of data.

Lastly the importance of Data Communication and Networking System help in sharing resources and information through computer, it also improve communication networking system in GLO and MTN.

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APPENDIX 1

ABRAHAM ADESANYA POLYTECHNIC

DEPARTMENT OF COMPUTER SCIENCE

COMPUTER USER'S QUESTIONNAIRE

This questionnaire is to asset the importance of data communication and networking system in the global world, in some selected Local Government Are of Lagos State.

SECTION A

NAME OF COMPANY: .....

SEX: .....AGE: .....

QUALIFICATION: .....

SECTION B

Tick the appropriate column ( ) to match your response to the items below.

SA = Strongly Agree

A = Agree

D = Disagree

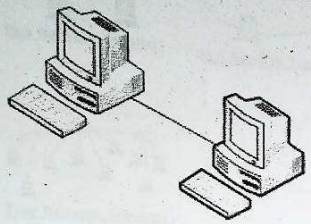
SD = Strongly Disagree

S/N	ITEM	SA	A	D	SD
1	Government makes vital contributions to the development of computer literacy in the country.				
2	Internet system has global user appeal in the network environment.				
3	The world wide web is regarded as the most popular in networking system.				
4	Without the data communication and networking in the Global world, there can't be a source of living.				
5	Does data communication and networking contribute positively in your company				

6	Government and Private organisation offer an enorinous breath of complex operation that cover all aspect of the communication services.				
7	The use of data communication and networking is more efficient in the global world.				
8	The successful transmission of data depends principally on the quality of the signal being transmitted.				
9	Networking affords the users of computers the opportunity of connecting different computers together and shave resources.				
10	Internet connection sharing provides secure access to the internet for all computers connected to the home/office networking.				
11	Satellites communications channels are essentially the same as microwave system.				
12	Can your organisation survive without an efficient, effective and reliable data communication network.				
13	Telephone wires are the most common communication channels use in data communication.				
14	In the global world, computer communication and networking system is still at infant stage.				
15	Data communication and networking system contribute positively to information technology in the global world.				
16	Service provided by the data communication and networking system service providers is good enough in the global world system.				

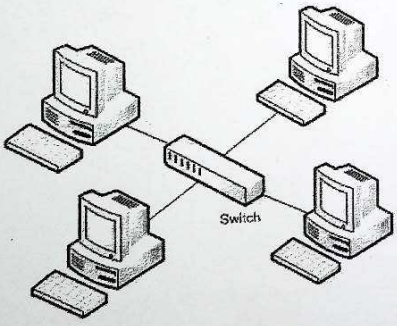
Bus

In the **bus topology** the PCs are daisy-chained together, with a cable running from one computer to the next. A very simple NIC-to-NIC (NIC stands for Network Interface Card) network follows this topology:



Star

In the **star topology** every computer (workstation, server) and printer is connected to a central hub (or switch), this gives it the look of a star, hence its name:

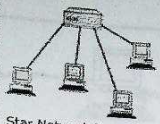


Computer Network Topologies - Topology Diagrams

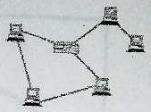
Enter Gallery

Bus Network Topology

Ring Network Topology



Star Network Topology

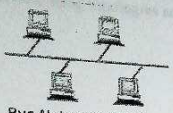


Mesh Network Topology

Tree Network Topology

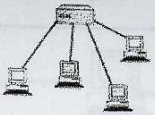
Computer Network Topologies - Topology Diagrams

Enter Gallery

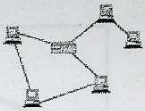


Bus Network Topology

Ring Network Topology



Star Network Topology

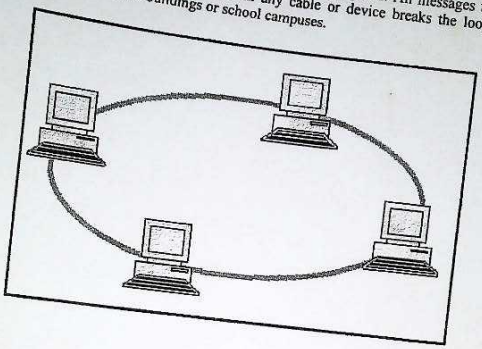


Mesh Network Topology

Tree Network Topology

Ring Topology

In a ring network, every device has exactly two neighbors for communication purposes. All messages travel through a ring in the sam
direction (either "clockwise" or "counterclockwise"). A failure in any cable or device breaks the loop and can take down the entir
network. Ring topologies are found in some office buildings or school campuses.



Star Topology

Many home networks use the star topology. A star network features a central connection point called a hub that may be a hub, switch
router. Devices typically connect to the hub with Unshielded Twisted Pair (UTP) Ethernet. Compared to the bus topology, a star networ
generally requires more cable, but a failure in any star network cable will only take down one computer's network access and not the entir
LAN.