BUILDING AN INTRANET IN A LAN

BY

ATA AROME HASSAN

(PGD/MCS/98/99/759)

A PROJECT SUBMITTED TO THE DEPARTMENT OF MATHEMATICS / COMPUTER SCIENCE FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE.

IN PARTIAL FULFILMENT OF THE REQUIREMENT OF POST-GRADUATE DIPLOMA IN COMPUTER SCIENCE.

SEPTEMBER 2000

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CERTIFICATION

THIS IS TO CERTIFY THAT THIS PROJECT WAS CARRIED OUT BY ATA AROME HASSAN PGD/MCS/98/99/759 OF THE DEPARTMENT OF MATHEMATICS/COMPUTER SCIENCE.

FEDERAL UNIVERSITY OF TECHNOLOGY MINNA. NIGER STATE, NIGERIA.

SIGN: _____ _____

PRO. K.R. ADEBOYE DATE

(SPERVISOR)

SIGN: _____ _____

DR. S.A. REJU DATE

(H.O.D)

SIGN: _____ _____

EXTERNAL EXAMINER DATE

DECLARATION

I hereby declare that this project has been written by me and it is a record of my personal efforts. It has not been presented before for the purpose of a first or higher degree.

ATA H.A. _____

(Student) Date

DEDICATION

This project is dedicated to our lord and saviour Jesus Christ and the entire Ata's family.

ACKNOWLEDGEMENT

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ABSTRACT

This project focuses on the dissemination of information within an organisation. It's main focus is to build an Intranet in an organisational network of computers, using the inexpensive protocols of Internet.

The project helps to design a web site through which organisation can pass information to members attached to the organisational network.

The web site contains seven pages, which are linked to one another. Any of the pages to be viewed, we double click it and it will be displayed.

The client computer connected to the network can access the web site by entering the address of the web site into the address box of the browser's used by the client.

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CHAPTER ONE

BASIC PRINCIPLES OF INTRANET

1.1 GENERAL INTRODUCTION

As a result of the increasing need and awareness about information sharing and communication, we have been witnessing a great development in the information technology industry recently.

This incredible technology advancement is providing unique business opportunities for individuals, communities, corporate bodies educational institutions, industries, governmental departments and world organizations.

The quest to bridge communication gap among students, lecturers offices, homes, towns, countries and satellites stations is providing everyday challenges to information technology experts, this brings the emergence of computer networks of communication networks.

Computer network is nothing more than two or more computers connected together by a cable so that they exchange information. The design and development of computers and their peripherals device are changing according to the innovations that form the data communication network.

The need for computer networks in any organisation often begins with a single desire to share a single printer between two personal computers or move a file from one person to another without copying the file on diskette. But the need could also be the ability to share expensive hardware and software resources.

The process of transferring data from one point to another with the help of computer forms the basis of computer communication networks.

This process of data called information is transmitted via computer networks, which depends on the geographical areas.

A network that spans a limited geographical area usually within a locality is referred to as the Local Area Network (LAN), that which covers a wide range referred to as Wide Area Network (WAN) and that covers the whole worlds is called internet.

1.2 Internet / Intranet

Internet is the integration and connection of many smaller units of computer network to form a larger unit that shares global resources of information among countless diverse communities.

Internet involves independence computer servers linked to the network via digital telecommunication lines and satellite station.

The World Wide Web (WWW) made the Internet accessible to people. The web uses a higher-level protocol called Hypertext Transport Protocol (HTTP) to send documents containing text, graphics etc. to other users on the Internet.

Access to information world- wide has bridged communication gap among students, lecturers, businessmen, policy makers and industries turning the world into a global information village through internet connectivity.

In order to create standard in any of the area networks, there is a network manager that manages the computer network.

In managing the computer network the manager takes care of the training of the resourceful personnel, sharing of the computing resources and providing security for the network.

Recently, ingenious network managers at large companies or organizations, figure out that although the web is interesting for disturbing, public information in the world, it is even better for disturbing private information within a company of organisation. Thus, the idea of intranet was born. These will enable the organisation to optimize the computer communication network, which is based on the evaluation of the performance of software, hardware and human resources in maximizing profit for the organisation.

The intranet is a closed-circuit network connection system that can only be viewed by those within the organisation that owns the system. Thus an Intranet can be defined as a network that's built using the same tools and protocols that are used by the global Internet but applied to only those connected to the internal network or LAN.

1.3 OBJECTIVES OF THE STUDY

A network is a communication system that links computer and computer resources, is the same way that a phone system links telephone and an intranet is a type of network or Local Area Network that uses tools and protocols of internets and this protocols inexpensive.

One of the goals of a network computing is to make it as easy to connect with another networks resources as it is to call another person over the phone, whether that resources is in the same building or in the other side of the globe. These may be printer, plotter or storage device.

Network minimizes distances and communication problems and gives users access to information anywhere in the network.

In most cases an organisation clearly has personal computers (PC's) minicomputers and other peripherals in place network provide a convenient way to tie the systems together into a combine communication system.

The objectives of this project is to use the inexpensive and easily available internet tools and protocols in a local area network to make the following available to the users of the network.

i. Program and file sharing

Network able versions of many popular software packages can be purchased at considerable cost saving when compared to buying individual licensed copies. The program and its data files can be stored on the server for access by any network user, while user can save files in the personal directories where the user can read and edit them. Database program is an ideal application for a network. Multiple users can access a single database file simultaneously, however a feature called "Record-Locking" ensures that no two users edit same record in a file simultaneously. This prevents other utilizing of data if two users attempt to make changes at the same time.

ii. Network resources sharing

Network resources including printers, plotters, storage devices and even other computing system such as minicomputers, mainframes these resources are easily shared through networks.

iii. Economical expansion of the base Networks

Provides an economical way to expand the number of computer in an organisation by using inexpensive diskless workstation that use the server filling system instead of a built in filling system. Through resources sharing several users can use printers and other devices.

iv. Ability to use network software

Database management software is a most commonly used on network however electronic mail is also important. A new class of groupware is becoming available. Groupware is designed for groups of users who have need to interact with each other over the network.

v. Security

Netware has advanced security features to ensure files are protected from unauthorized users. Diskless workstation can be used to prevent sensitive data from being downloaded to disk. Managers can prevent users from working outside their own assigned directories and login restriction can be applied. Fro example, a manager can assign a specific workstation to a user for a specific period of time. This prevents the user from logging on in an unsupervised area during an unauthorized time period.

vi. Centralized Management

Because most of the resources of a network are centred on the server, management makes easy backups and file system optimizations can be handled in one location.

vii. Creation of Workgroups

Group of users many work in a department or be assigned special directories and resources not accessible by other users. Manages and electronic mail can be sent to each member of the group by referring the group names.

1.4 SCOPES AND LIMITATION

Normally when embarking on a project there are things one must put into consideration these includes the extent and limit at which the project is made to do. This leads to the scope and limitation of the project.

Mention should be made of the practical consideration before embarking on the intranet bearing in mind that there is no one perfect solution for all environment. But in a standard situation of performing the project the following consideration. Suffix.

We need to consider the nature of transmission, how large is the organisation, what utilities to be shared to help select the speed of transmission.

We must determine the commutative distance to be spanned by the network making provision for future addition if possible.

Physical topology – Determine which cabling scheme will be better suited for the environment, linear bus or star.

Geographical consideration – Will it span many departments or buildings?

Ascertain whether splitting the network into several servers will be more advantageous than having one server.

Ease of maintenance – Will there be availability of replacement parts in case of faults.

Server memory – Hand disk size, number of files, number of directories etc. provide parameters for determining amount of memory the server needs for proper functionality.

Determine the best tool for your website.

The best browser to use in browsing your website must be determined.

Cabling: Determine the best cable to use in your network connection example coaxial or optics fibers.

Workstation: The numbers of workstation your intranet can support have to be determined.

Security: The form of security adopted for your network.

CHAPTER TWO

LOCAL AREA NETWORK (LAN)

2.1 A LAN OVERVIEW

A local area network (LAN) is a communication system much like a telephone system. Any connected device can use the network to send and receive information. As the name implies a LAN is a network that spans a limited geographical area usually within a department in an organisation or perhaps a building or cluster of buildings.

A client-server network is one where nodes (the servers) provide dedicated services example file services to other devices on the network, and the other workstations (the client) use the services provided.

A peer-to-peer network is where nodes may alternatively provide or receive non-dedicated services.

LAN can be wired using cables in a way or in a particular pattern called LAN topology and its can be without the use of cables (wireless) particularly in areas where cabling is difficult or hazardous.

People using the networked computers can share information. Without the LAN we would have to copy files to a floppy disk and walk the disk to another person in order to share files. This is described as sneaker net. The floppy disk method dues not unable several people to access the same file at the same time. A LAN does give this simultaneously-access capability as long as you are connected and use application software designed for multiples users. Even without simultaneous access, however a LAN is useful. In addition of easily sharing files, people on a LAN can share a printer a CD-ROM disk drive, a modem, fax machine or even software packages example Database Packages.

2.2 BASIC COMPONENTS OF A LAN

A LAN is made up of the following basic components – workstation, network adapter card server(s), cables and network operating system.

1. WORKSTATION

Workstations on a LAN are personal computers hooked onto the network file server to share network information and resources. We have intelligent

workstations and diskless workstation. The intelligent workstations are the workstations that have micro processor and can process their data irrespective of the LAN while diskless workstation do not have a disk drive of their own such workstations rely completely on the LAN for their file access.

When we use a workstation, it appears and behaves in almost all respects like a standalone personal computers. If we inspect a workstation closely, we observe the following characteristics that set it apart from a standalone computer.

i. Extra messages appear on-screen while the computer starts up. These messages inform you that network software is loading at the workstation.

ii. We have to give the network software identification, number and password before we can use the LAN. This is the login procedure.

2. NETWORK ADAPTER CARD

This is a communication hardware for LANs. It is a circuit with the components necessary for sending and receiving messages. The network adapter card is installed in workstations and file servers, which makes up the nodes where link up cables are connected.

Only two network adapters may communicate with each other at the same time on a LAN. This means that other workstations have to wait their turn if one person's workstation is currently accessing the file server. Fortunately such delays are usually not noticeable. The LAN give the appearance of many workstation accessing the file server simultaneously.

There are four main adapter used for LAN.

i. LANTASTIC ADAPTERS

The LANtastic adapter uses form conductors cables string out in a snaking part that connects to all the workstations and t operates at a rate of 2 megabits per second (2mbps). Installation is easy if you do not have to put the cables inside walls or ceiling.

ii. ETHERNET ADAPTERS

Ethernet enables you to inter connects a wide variety of equipment, including Unix computers, apple computers IBM PCs and IBM clones. Ethernet comes in

three varieties, ThinNet, UTP and ThickNet) depending on the thickness of the cable. Thick Net cables can span a greater distance but much more expensive. Ethernet provides fast interface to the file server, it operates at a rate of 10 megabits per second (10Mbps) but its performance can degrades as the network traffic increases.

iii. TOKEN RING ADAPTERS

Token ring is one of the most expensive type of LAN Adapter. Token ring uses shielded or unshielded twisted cables, and is used in large co-operations with large lans especially if the Lans are attached to mainframe computers. Token ring operates at a rate of 4 or 16 megabits per second (4 or 16 mbps).

On a token ring network, even there is no traffic, all the workstation continuously passing an electronic token among themselves if a workstation has nothing to send, as soon as it receives the token, it passes the token on the next down stream workstation. Only when a workstation receives the token can it send a message on the LAN. If the LAN is busy and you want your workstation or server, you must wait patiently for the token to come around, only then can your workstation send its messages. The token takes almost no time at all to circulate through a LAN, even with100 or 200 workstations.

iv. ARCNET ADAPTERS

ARCnet is a little slow, but has minor errors in installation. ARCnet is known for solid reliability and ARCnet cable and adapter problems and easy to diagnose. ARCnet operates something like token ring but at slower rate of 2.5 megabits per second (2.5 mbps) but it does not suffer performance degradation as traffic increases.

3. SERVERS

A server is a combination of hardware and software. The hardware may be a personal computer or a computer that's been designed specifically as a server. Although LANS may have a variety of different servers to manage various hardware and software resources example communication server to manage shared modems. Every LAN must have a file server.

In contrast to the workstation a file server is a computer that serves all the workstations primarily storing and retrieving data from files shared on its disks. A file server almost always has one or more fast expensive large memory hard disk(s). Server must be high-quality, heavy- duty machine because in serving the whole network, they do many times the work of an ordinary workstation computer. In particular, the file servers hard disk(s)s need to be durable and reliable. In some networks a server computer is a server computer and nothing else. It is dedicated solely to the task of providing shared resources such as disk drives and printers to be accessed by the workstation. Such a server is referred to as dedicated server because it can perform no other task besides network services. We also have computers working as servers and we can still use that same computer for other functions such as word processing. This type of server is referred to as client server.

4. CABLES

Cables are used in connectivity the workstations and servers together in order to enable communication with each other LAN cables come in different varieties.

i. Twisted-Pair Cables: Twisted-Pair is made up f pairs of wires insulated from each other and twisted together within an insulating sheet. The twisting of wire pairs produces a mutual shielding effect the cut down on absorption and radiation of electrical energy may be more enhanced by the twisted wires covered by an external aluminum foil or woven copper shield.

This type of wire called shielded twisted pair wire. The twisted-pair comes in a wide range of gauges and pairs. It is the least expensive network media its major limitations is, it lacks of speed and limit range, these have however been improved overtime.

ii. Coaxial Cable: Coaxial cables consist of a centre copper wire (either solid-wire or stranded) surrounded by an external shield of woven copper brand or metallic foil. Flexible plastic insulation separates the inner and outer conductors while another layer of insulation covers the out braid. The internal

and external shield reduces radiation and absorption of electrical signals from within and outside.

The type of insulation, distance between the two conductors and other factors give each type of cable a specific electrical characteristic called impedance.

Examples

RG - 62 – 93 ohms

RG - 58 – 50 ohms

RG - 57 – 75 ohms

The coaxial cable can also be group to either base band (single channel) or broadband (multiple channel) transmission. This option is the medium of choice for most local area network (LAN).

iii. Fiber Optics Cables: These are cables made of glass fiber rather than wire. They are the most advance in transmission technology for laws. In addition to its high data transmission rates over a distance of several kilometres without loss, it is immune to electromagnetic or radio frequency interference, thus providing greater through put. However, it is relatively very expensive for most network installation and also its sophisticated technology does not permit the addition of new workstation after the initial installation.

5. Network Operating System (NOS)

The network operating system is installed on network servers to control the network access to common shared peripherals and devices.

Just as we need DOS or some other operation system to manage application in a stand-done computer. We need a network operating system to control the flow of message between workstations and servers. In the simplest case this network software makes the shared resources on the server appear to be locally attached to every workstation. Here are some of network operating systems and their manufacturers.

Operating System	Manufacturer
Apple talk	Apple
LANtastic	Artisoft
Netware	Novell

Personal Netware	Novell
Windows NT advanced server	Microsoft
Windows for workgroup	Microsoft
Vines	Banyan
OS/2 LAN server	IBM
Network file system (NES)	Sun Microsystems
OS/2 LAN Manager	Microsoft

2.3 LAN Topology

Topology refers to the layout of the route data travels along the network; there are two basic forms logical topology and physical topology.

Logical Topology: The nodes on a LAN handles message from node to node in a sequential logical, topology (token passing) or sends the messages out to all stations simultaneously in a broadcast.

Physical Topology: The way and pattern of running cables physically to connect workstation and servers in a network is referred to as physical topology.

Theoretically, there are several ways of physically running cables connecting a group of computers. But in the real world you can only buy products conforming to one. The importance of topology in network cannot be over emphasized as it determine what effect a cable failure will have on the network, where nodes will be located, how much cable is needed and how additional nodes can be added to the network.

There are three basic topologies on which other topologies lie.

i. Linear bus Topology

The linear bus topology is a simple design with a single length of cable, known as the bus or tank. All devices on the LAN are attached to the bus and shared this single communication medium.

The linear bus topology is simple and economical. All the devices share the bus therefore the cost of wiring may be cheap. The failure of any network device has no effect on the network operation but failure of the cable (trunk) will shut

down the network. Cable failure can be extremely difficult to locate on large linear networks.

ii. Star topology

This is the most commonly used as well as the oldest network topology. It is based on the concept where there exists a central unit in the connection, which is the server, and each arm of the star is a cable leading from the server to the workstations or terminals. An obvious limitation would be the number of connections supported by the server. To correct this, an intelligent connection device known as hub, which routes the traffic to the server has replaced the centre of the star.

The star networks are cheap to install and yet they seam to be loosing their popularity. An important feature with this topology is that a fault with one or more of the workstations does not disrupt the whole network.

iii. Ring Topology

In the ring topology, computers are connected together without put of the first machine linking directly to the input of the next, to form a circle. This continues from computer to computer with the last machine closing the ring having its output connected to the first machine. The server in this type of network has no defined position. The disadvantage here is that a break down of one machine or workstations disrupts the whole network. A hub may and may not be used here.

2.4 MAKING NETWORK CONNECTIONS

Most Organisations already have PCs and peripherals in place, the equipment required to make connections to other system usually be purchased.

There are two basic ways of making network connections, the use of cables and hybrid network.

Cables Connection: In this case one need to determine the type of cabling and cabling connectors it will have, then it is appropriate to select the network adapter card that is most suitable.

Each type of cable has different physical characteristics, which the network adapter card must accommodate. Therefore, each card is built to accept a particular type of cable such as coaxial, twisted-pair or fiber optics.

Some network adapter cards have more than one interface connector. For example it is not uncommon for a network adapter card to have both a thinnet and thicknet connector or a twisted-pair and a thicknet connector. If a card has more than one interface connector, then the choice is ours.

Hybrid: This is a network that consists of wireless components communicating with a network that uses cables in a mixed component network.

The connection of this type can be done in areas having difficulty-implementing cables, such as.

i. Busy areas such as lobbies and reception areas.
ii. Isolated areas and buildings
iii. Departments where the physical setting changes frequently.
iv. Structure such, as historical buildings cabling, would be difficult.

The wireless networks on a LAN can be divided into two categories based on their technology. Local area networks and extended local area networks. Both categories use transmitters and receivers own by the company in which the network operates.

Local area network wireless categories a typical wireless, network that works and acts almost like a cable network except for the media. A wireless network adapter card with a transceiver is installed into each computer and users communicate with the network just as if they were at cabled. The extended local area network category uses a wireless LAN bridge for its connection.

2.5 ACCESS METHODS

The set of rules defining how a computer puts data onto the network cable and takes data from the cables is called an access method.

Multiple computers must share access to the cables. However, if two computers were to put data onto the cable at the same time, the data packets from one computer would collide with the packets from the other computer and both sets of data packets would be destroyed.

If data is to be sent over the network from one use to another or accessed from a from a server, there must be some way for the data to access the cable without running into other data and be accessed by the receiving computer with reasonable assurance that it has not been destroyed in a data collision during transmission.

Access methods need to be consistent in the way they handle data.

i. Carrier-sense multiple access with collision detection.

With the access method known as carried sense multiple access with collision detection (CSMA/CD) each computers on the network, including clients and servers, checks the cable for network traffic. That is a computer senses that the cable is free, there is no traffic on the cable before it can sends data.

ii. Carrier-sense Multiple access with collision avoidance (CSMA/CA) is not as popular as (CSMA/CD) or token passing. In CSMA/CA, each computer signals its intent to transmit before it actually transmits data. In this way, computers sense when a collision night occur and may avoid transmission collisions.

However, broadcasting the intent to transmit data increases the amount of traffic on the cable and slows down network performance Because CSMA/CA is a slower access method, it is less popular than CSMA/CD.

iii. Token passing in this all the clients continuously passing an electronics token among themselves only when a client receives the token can it send a message on the LAN. The workstation or server must wait patiently for the token to come around before it can send a data or message.

iv. Demand Priority

Demand priority is a relatively new access method designed for the 100 Mbps Ethernet standard called 100Vg-Any LAN.

This access method is based on the fact that repeaters and end nodes are the two components that make all 100 VG – Any LAN networks. The repeaters manage network access by doing round-robin searches for requests to send

form all nodes on the network. The repeaters or hub is responsible for rotting all addresses, links and end node, and verifying that they are all functioning.

The table below summarizes the major points for each access method.

Feature	CSMA/CD	CSMA/CA	Token passing	Demand priority
Type of communication	Broadcast Based	Broadcast Based	Token-based	Hub-based
Type of access method	Contention	Contention	Non-contention	Contention
Type of network	Ethernet	Local talks	Token ring ArcNet	100VG – any LAN

CHAPTER THREE

PROTOCOLS OF INTRANET

3.1 DIFFERENCES BETWEEN INTERNET AND INTRANET

Although the intranet uses the protocols of Internet, the intranet differs from Internet in the followings areas.

1. Ownership: There is no particular organisation or individual that owns the Internet. That is, it is not under the control of any persons or organisations, but the intranet is controlled by the organisations that built it.
2. Area Covered: The Internet is network of all networks. It is made up of millions of computers connected together world wide, but this is not the same as intranet, intranet spans a limited geographical area. It is restricted to only those within the organisation.
3. Connectivity: The Internet uses Internet service provider (ISP) but intranet does not need to be connected to the ISP because the information in the intranet is stored on the company's Internet.
4. Servers: The only differences between Internet servers and intranet servers are where and how there are used. Both servers perform exactly the same functions but they have difference audiences.

3.2 SOME INTERNET PROTOCOLS USED IN INTRANET

The intranet uses the protocols of Internet, below are some of the protocols.

1. WWW / HTTP

The World Wide Web (WWW, but referred to as the web) is the main method of accessing information on the Internet. It uses a higher level protocol called Hyper Text Transport Protocol (HTTP) to send documents containing text, graphics and links to other web documents called pages to users with web browser application.

As the web took off and many organisations began publishing information on the Internet, the utility of low-cost, low-band width information publishing and e-mail for internal use with private information become obvious.

2. TCP / IP

Transmission control protocol / Internet protocol is a set of protocols or programs that provide communication and file transfer capabilities between systems from different vendors.

Together, these allow for resources capacity and expense sharing in a very heterogeneous environment.

3. File Transfer Protocol (FTP)

The most common protocol used for sending files between computers is the file transfer protocol (FTP) FTP allows for transferring both text and files.

Both Microsoft Windows NT and Windows 95, the operating system of network include the traditional character based FTP client. This is one of the utilities that is copied onto the system when the TCP / IP protocol suite is installed.

4. MODEM

A modem is a device that makes it possible for computers to communicate over a telephone line.

When computers are too far apart to be joined by a standard computer cable, a modem can enable commination between networks or connecting to the world beyond the local network.

The modem at the sending end modulates digital signals into analog signals and a receiving modem demodulates analog signals back into digital signals.

3.3 HOSTING A WEBSITE

The organisation intranet hosts a Website for distributing private information within the organisation. This they do by creating web pages on the organisation server computer(s). The entire collection of web pages for a company or an individual is known as a website.

Web pages was usually created using text editor and the text had to include complicated formatting commands called HTML tags which is a rudimentary programming language that needs expertise.

These days web pages are created using now available point and click tools. Below are some of the development tools for creating these web pages that make up the web site.

1. Web-Enhanced Office Suites: Microsoft office, Lotus SmartSuite, and Corel office are now Internet enabled. That means, for example, that we can create a document in Microsoft Word and save it in HTML format suitable for publishing on the web. These applications are ideal when our intranet exists primarily as a means of making corporate publications (policy manuals, for example available.

2. HTML Editors: The better HTML editors offers a WYSIWYG (What you see is what you get) approach to creating HTML documents. One of the best known is Soft Quad's Hot metal.

3. Home page editors: These are easy to use programs that are designed to enable individuals or small businesses to create their own home pages. The best known is Microsoft's Front-page. Internet Explorer 4 comes with a free scaled-down version of front-page called Express. Although these programs are easy to use, they are also limited in their HTML capabilities.

3.4 SETTING UP A WEBSITE

To setup a website we need to dedicate a separate computer to act as a web server. All the information that is available via the website resides on this computer disk.

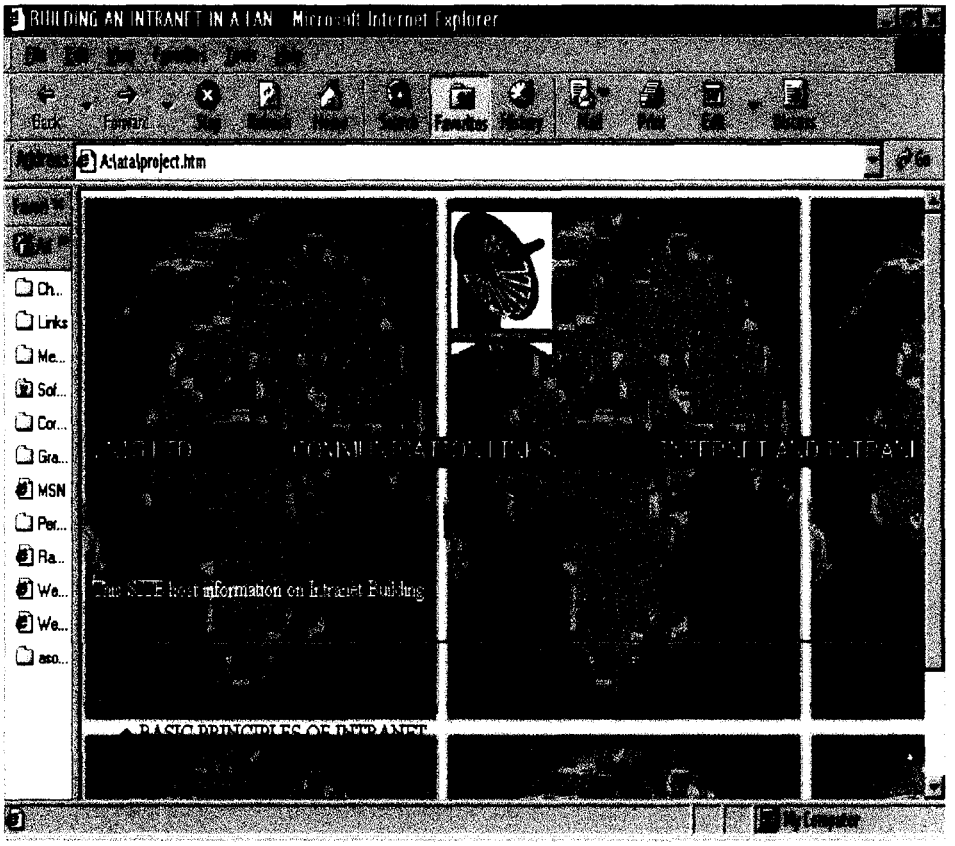
The web pages that make up website can be created using text editor and the text have to include complicated formatting commands called HTML.

As HTML documents is an ordinary text file but its ultimate appearance is controlled by sequence of characters scattered about the texts that is the documents real message.

Preparing a document in HTML is more like application development than desktop publishing because it involves endless cycle of modifying the HTML source in a text editor, loading the file into a web browser to see how it looks and figuring out what the problems are, then going back to the text editor to make further changes.

The website demo below is set up using text editor including HTML commands.

The picture is showing the home page of Ata Communications, which contains seven pages. Any of the pages we need to view, we just click on it and it will appear for viewing. This is called browsing the web.



3.5 SELECTING A WEB SERVER

To set up a website we need to dedicate a separate computer to act as a web server. All the information that is available via the website resides on this computers disk. In selecting a web server, the computer's disk needs to have plenty of disk storage and plenty of RAM we consider 32 MB to be the minimum.

As for operating systems we have two basic choices: Windows NT server of Unix. More websites run Unix than Windows NT, because Internet starts in the Unix world. However, Windows NT is gaining ground especially in intranet.

In addition to a server operating system we also need web server software. The following briefly describe the most popular web server software choices.

1. NCSA

NCSA is the most popular web server software on the Internet. NCSA stands for the national centre for supercomputing applications located at University of Illinois in Urbana, Illinois.

This web server is so popular for two reasons.

i. NCSA was the first web server. Infact NCSA invented the web.

ii. NCSA is free we can download it from hoohoo.ncsa.iliuc.edu.

2. APACHE

Apache is Unix-only web server that is available free of change. Apache is essentially an improved version of NCSA, and is almost as popular on the Internet. We can obtain Apache from the Internet at www.apache.org.

3. NETSCAPE WEB SERVERS

Netscape, one of the most successful Internet companies, markets several web server unlike NCSA or Apache, the Netscape servers run on UNIX or Windows NT server.

Netscape offers the following server products:

i. Netscape Enterprise Server – The latest and greatest version of netscape's web server, which includes support for Java. This server is also available as a part of a suite of server products called suitespot.

ii. Netscape Fast-Track Server – A user-friendly web server, which includes set-up wizards to make installation easier, as well as point-and-click tools for creating web pages.

4. MICROSOFT INTERNET INFORMATION SERVER

Internet information server or IIS is Microsoft's answer to Netscape's servers. Unlike Netscape, IIS runs only on Windows NT server. But also unlike Netscape, IIS is free we can download it from www.microsoft.com. or you can get it by purchasing Windows NT Server

CHAPTER FOUR

SETTING UP AN INTRANET

4.1 WHAT YOU NEED TO SET UP AN INTRANET

An intranet is fairly simple to set up. It does not require its own cabling, but it can operate on existing Ethernet LAN using twisted pair or coax wiring. Building an intranet needs various requirements.

1. A server computer that is dedicated to the intranet. This server computer must have plenty of RAM. (at least 32MB) and gigabytes (at least 2GB) of disk space, of course the more users the network has and more information intended to be placed on the server the more RAM disk storage will be needed.
2. The server computer needs to run an operating system; it should either be Windows NT server or Unix operating system, which is required by the web server software.
3. Programs to help create web pages. We have a list of them to choose from. Examples, HTML Editors, Web-Enhanced office suites, Home page Editors and many others.
4. Web server software for the server computer. (More information about web server software is in chapter three; "selecting a web server".)
5. We make sure that each client-computer that accesses the intranet has a good processor at least 8MBofRAM, 20Mb or more of free disk space and connection to LAN.
6. A web browser such as Netscape or internet explorer must be installed on each client computer. This is used by the client computer to browse or access organisational website.

4.2 CREATING A SMALL INTRANET WITH PERSONAL WEB SERVER.

One of the existing ways to create a small intranet is to use a free Microsoft program called personal web server. This program is included with Microsoft explorer 4 and we can also find it buried in the Microsoft office 97CD-ROM.

Personal web-server works with Windows 95. It is an ideal way to set up an Intranet on a small LAN, which can be accessed by just a few users.

Although personal web-server is distributed with Internet explorer 4 and is designed to work with other web browsers including Netscape's Navigator.

We take a look at steps to set up and use personal web-server.

1. Click the start button in the Windows 95 task bar and then click settings control panel.

   The control panel folder appears.

2. Double-click the personal web-server icon in the control panel folder.

   This launches the personal web-server properties dialogue box as shown in figure 4.1

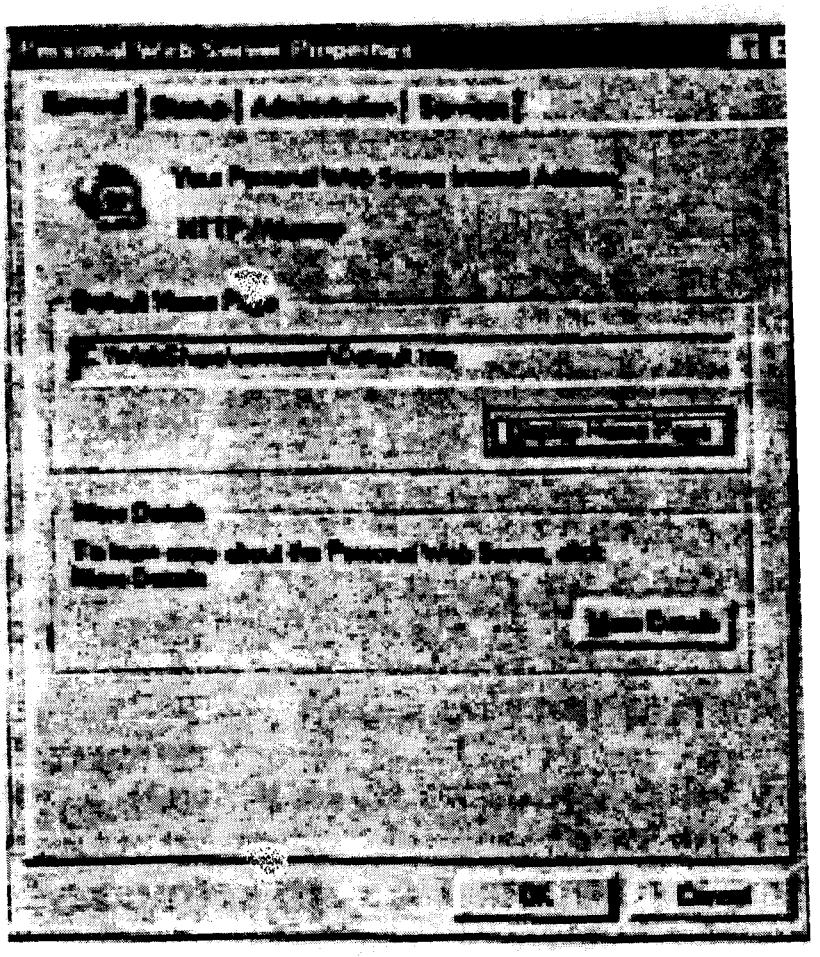


Figure 4.1

3. Click the startup tab at the top of the personal web server properties dialogue box.
   The startup options appears, as in figure 4.2

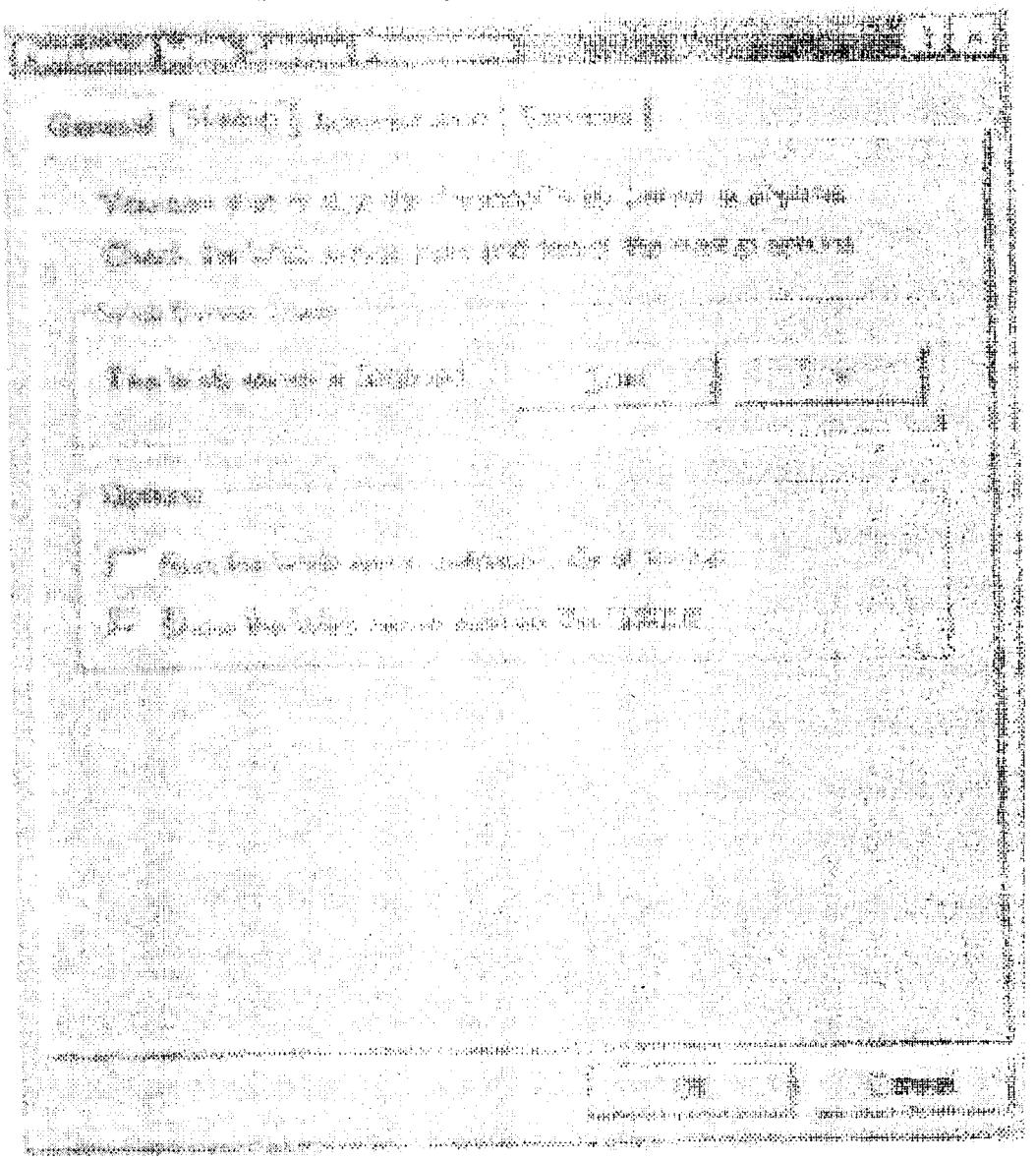


Figure 4.2

4. Click the start button.

   The personal web- server responds.

5. Click OK to dismiss the personal web-server properties dialogue box.

On the personal web-server properties dialogue box, there is the more details button. This is used to access the help file that comes with it. The help file contains a set of web pages that give an overview of how the web-server works and how you can manage it.

To post our HTML files to personal web-server, all we need to do is save the file in the c:\webserver\www root folder, because personal web-server, uses a folder named c:\webshare\www root as the root directory for our web pages.

4.3 ACCESSING THE INTRANET

When an intranet is built, it needs software known as a web browser for users in the network to use when accessing the intranet (network)

The web browser must be installed in each client computer.

Although we have many different web browsers to choose from, the two most popular programs are Netscape Navigator and microsoft internet explorer.

Let us briefly look accessing a web page on personal web server.

To access a page stored in personal web-server we need to know the internet address for our personal web-server icon in the windows 95 taskbar or the personal web-server icon in control panel. The personal web-sever properties dialogue box appears, click the general tab. The Internet address of the web-server is default. Html, and it has a folder name c:\webshare\www root as the root directory for WebPages. Thus we can create a file name default.html in c:\webshare\www root, we can display that page by entering personal web-server address in the address box of the browser's used

To display a different HTML file, type the file name after the Internet address separated by a slash.

4.4 BENEFIS OF AN INTRANET TO AN ORGANISATION

Intranet can distribute just about any type of information within an organisation. We have two basic types of intranet applications:

1. Publishing applications: Information is posted in the form of pages which can be viewed from any computer with access to the intranet. This type of Intranet application is commonly used for company newsletters, policy manuals, price list and so on.

The flow of information here is one way. The user requests some information and the Intranet system delivers it.

2. Transaction applications: Information here is gathered from users of the intranet. This is possible through the HTML feature called forms. Examples include filling on-line expense reports, sales, help-desk problem reporting and so on.

In transaction application information flows in both directions not only does the user request information from the intranet system, but also the intranet system itself requests information from the user.

4.4 NETWORK MANAGERS

The network that will run itself has not been invented. New users will need to be added, existing users will need to be deleted, new resources will need to be installed, shared and given the appropriate access permissions.

What all this means is that after a network has been installed, it needs to be maintained or managed properly. The network manager does this work of maintenance.

The most obvious duty of the network manager is managing the network itself. The network's hardware- the cables, network adapter cards, hubs, etc.

The network manager sees for the best performance of the network. Also the network manager takes care of the training of resourceful personnel and providing security for the network.

There are some utilities for network managers, some of these utilities are Microsoft Diagnostics (MSD), which comes with Microsoft office, the internet service manager that customizes and administers internet services.

The system that the network operating system is installed is the network manager's terminal or generally called the network manager.

CHAPTER FIVE

INTRANET SECURITY

5.1 IMPORTANCE OF SECURITY

When an Intranet is built in an organisation is like putting everyone's files in that organisation in one big container. So there is need to guide these files jealously.

There is a law by Murphy, which states that "If anything would go wrong it would". This is more so in computer science technology that calls for perfection and especially when data or information are shared as in the case of network environment.

The security of the program should be of utmost importance to the network manager, because if a mistake occurs, it is either that the program would not run or wrong output will be produced. And once an information is lost or destroyed, the cost, time and effort of recovery this information cannot be quantified and often than not, it involves re-entering or re-programming.

5.2 SECURITY MEASURES

Since many users are involved in a network, unless special provision are made for security and privacy, anyone can look at, modify files and any user can easily rifle through the electronic desk and personal papers of any user, including the president of the organisation.

We take a brief book at some of these provisions.

a) User Accounts

The first level of network security is the use accounts to allow only authorized users access to the network.

Everyone working on the network needs a user's name and log on parameters established for the user. This information is entered by the administrator and showed on the network by the operating system.

b) Password

One of the most important aspects of network security is the use of passwords. User's Accounts are not usually considered secret. Infact it is often necessary that network users know one another's user's accounts in order to use the

network users know one another's user accounts in order to use the network for electronic mail. Password is a secret word known only to the user.

User Rights

User accounts and passwords are only the front line of defence in the game of network security.

Rights can be given to users on the network on a directory-by-directory or server-by-server basis. With Netware, for example we can give a person the right to open and read files in a directory but restrict him or her from modifying those files.

And if we want to protect important files even from our own typing errors, we can mark files as read only so that we cannot delete or modify the files.

Firewalls.

Since the intranet host a website on a server computer, anybody having the address of the site can browse the site There is need to take extra security measures to prevent stealing top secret files, reading private e-mail or worse yet, formatting hard drive.

We use firewall, a security router that sits between our network and the rest of the world in effort to prevent them from getting in.

Power protection.

We do not only protect our networks from bad hawkers or users, there is also a need for guiding our data from being lost. This we do by placing our servers on an Uninterruptible power system (UPS). If the power fails, batteries will keep the server running for another 10 minutes enough time to gracefully shut down the server with out losing any file. Also a UPS isolates the server from spikes and sags in the supply of public power supply. These spikes and sags may reboot a computer or cause the computer to malfunction temporary. At times, very large spikes will permanently damage a computer. When there is power failure a UPS can tell the network operating system to close down the files without human intervention.

f) Back Up

No matter other security measures taken the need for Back-ups cannot be over-emphasized. Back-up should be done daily and the mode defends on how-large is the data or information.

5.3 Definition of terms

The purpose of this definition of terms is for ease of reference for the unique computer terms used in this project.

These terms are commonly sued in a network environment.

ROUTERS: Adapters and logic that introduce more sophistication over bridges with functions such as new addressing, frame formatting and isolation (sub networks) for inter LAN communications usually used for interconnecting LAN's using different protocols example Ethernet and token ring.

BPS: An instantaneous data rate, could mean bits per second or bytes per second, depending on its contents. Some prefer b to be bits and B for bytes.

ONLINE: Used to describe computer access via computer terminal to

i. an interactive session or

ii. a transaction.

PORT: An access points for example, a logical unit for data entry or exit.

PROTOCOL: A specification for the format and relative timing of information exchanged between communication parties.

ii. A set of semantics and syntactic rules that determine the behaviour of functional units in achieving communication.

iii. In SNA, the meanings of and the sequencing rules for requests and responses used for managing the network, transferring data and synchronizing the state of network components.

Note SNA: Systems Network Architecture, a network standard developed by IBM.

BACK UP: A Copy of important files made for save keeping in case something happens to the original files. This should be done everyday.

HTML: Hypertext make up language. The language used to compose pages which can be displayed via the world wide web (www).

HTTP: Hypertext transfer protocol. A protocol used by the World Wide Web for sending HTML pages from a server computer to a client computer.

LOGIN: The process of identity oneself to the network or a specific network server and gaining access to network resources.

LOGON: The same as Login.

WEB BROWSER: A program that enables us to display information retrieved from the Internets World Wide Web / intranet server.

BROWSER: Accessing information on the website.

PACKET: A set of data bits transmitted over a network.

INTRANET: Is a network that is built using the same tools and protocols of Internet, but applied to those connected to the internal network or LAN.

DOWNLOAD: To copy files from a website to a personal computer (PC)

ARCNET: Was developed by data point corporation. It provides a 2.5 mbits-per second. Token passing network using a distributed star topology over coaxial cable.

COMPUTER NETWORK: Computer Network is nothing more than two or more computers connected together by a cable so that they exchange information.

MAINFRAME: Large Computer that have the capability of working large volumes of data, at a very fast processing speed.

5.4 SUMMARY AND CONCLUSION

The computer network in any organisation is for sharing printer, CD-ROM and other peripherals device, and the importance of information sharing and communication brought the idea of internet.

Internet is a network of all Networks, this involves millions of interconnected computers world wide for the purpose of sharing informations.

Intranet is a term that's gained in popularity in recent years. It's similar to the internet, but with a twist, instead of connecting computers to millions of other computers around the world an intranet connects in the same company or organisation.

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Intranet is a term that's gained in popularity in recent years. It's similar to the Internet, but with a twist, instead of connecting computers to millions of other computers around the world an Intranet connects in the same company or organisation.

Intranet is a network that is built using the same tools and protocols that are used by the global internet, or simply it means hosting a web site in a server computer of a LAN.

LAN is a network that spanned a limited area especially a building or cluster of buildings. The component of LAN are workstation (client computers), cables, network interface cards (NIC), adapters and Network Operating System like windows NT, Unix Operating System etc.

The information on the Intranet is accessed via the browser, a protocol of an Internet. This make information on the web server of the organisation available to the works of the organisation connected to the network.

Since many users are involved there is need for security of data / information. This is provided by the Network Manager. Also the network manager trains resourceful personnel to manage the network.

The organisation web site needs to be maintained. If new informations are to be passed to the workers, the web site designers have to include information on

the site and at times the background color needs to be changed from time to time in order to draw attention to the site.

In conclusion the intranet has many benefits beside the benefits derived from networks. It can easily be connected to the Internet if the organisation wants to use their site for commercial purposes and they can also have transaction site where they can trade on the net.

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APPENDIX
PROGRAM OF THE WEB SITE DESIGN

```
<html xmlns:v="urn:schemas-microsoft-com:vml"
xmlns:o="urn:schemas-microsoft-com:office:office"
xmlns:w="urn:schemas-microsoft-com:office:word"
xmlns="http://www.w3.org/TR/REC-html40">

<head>
<..!SOURCE PROGRAM OF THE WEB SITE DESIGNED
<..!AUTHOR;ATA A.H
<..!SUPERVISOR;PROF.K.R ADEBOYE
<..!PURPOSE;FOR AWARD OF PGD COMPUTER SCIENCE
<meta http-equiv=Content-Type content="text/html;
charset=windows-1252">
<meta name=ProgId content=Word.Document>
<meta name=Generator content="Microsoft Word 9">
<meta name=Originator content="Microsoft Word 9">
<link rel=File-List href="./project_files/filelist.xml">
<link rel=Edit-Time-Data href="./project_files/editdata.mso">
<!--[if !mso]>
<style>
v\:* {behavior:url(#default#VML);}
o\:* {behavior:url(#default#VML);}
w\:* {behavior:url(#default#VML);}
.shape {behavior:url(#default#VML);}
</style>
<![endif]-->
<title>BUILDING AN INTRANET IN A LAN </title>
<style>
<!--
 /* Font Definitions */
@font-face
        {font-family:Tahoma;
        panose-1:2 11 6 4 3 5 4 4 2 4;
        mso-font-charset:0;
        mso-generic-font-family:swiss;
        mso-font-pitch:variable;
        mso-font-signature:16792199 0 0 0 65791 0;}
@font-face
        {font-family:Verdana;
        panose-1:2 11 6 4 3 5 4 4 2 4;
        mso-font-charset:0;
        mso-generic-font-family:swiss;
        mso-font-pitch:variable;
        mso-font-signature:647 0 0 0 159 0;}
 /* Style Definitions */
p.MsoNormal, li.MsoNormal, div.MsoNormal
        {mso-style-parent:"";
        margin:0in;
        margin-bottom:.0001pt;
        mso-pagination:widow-orphan;
        font-size:12.0pt;
        font-family:"Times New Roman";
        mso-fareast-font-family:"Times New Roman";}
```

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        mso-margin-bottom-alt:auto;
        margin-left:0in;
        mso-pagination:widow-orphan;
        mso-outline-level:1;
        font-size:24.0pt;
        font-family:"Times New Roman";
        mso-font-kerning:18.0pt;
        font-weight:bold;}
a:link, span.MsoHyperlink
        {color:green;
        text-decoration:underline;
        text-underline:single;}
a:visited, span.MsoHyperlinkFollowed
        {color:blue;
        text-decoration:underline;
        text-underline:single;}
p.MsoDocumentMap, li.MsoDocumentMap, div.MsoDocumentMap
        {margin:0in;
        margin-bottom:.0001pt;
        mso-pagination:widow-orphan;
        background:navy;
        font-size:12.0pt;
        font-family:Tahoma;
        mso-fareast-font-family:"Times New Roman";}
p
        {margin-right:0in;
        mso-margin-top-alt:auto;
        mso-margin-bottom-alt:auto;
        margin-left:0in;
        mso-pagination:widow-orphan;
        font-size:12.0pt;
        font-family:"Times New Roman";
        mso-fareast-font-family:"Times New Roman";}
@page Section1
        {size:8.5in 11.0in;
        margin:70.85pt 85.05pt 70.85pt 85.05pt;
        mso-header-margin:35.4pt;
        mso-footer-margin:35.4pt;
        mso-paper-source:0;}
div.Section1
        {page:Section1;}
 /* List Definitions */
@list l0
        {mso-list-id:1588802006;
        mso-list-type:hybrid;
        mso-list-template-ids:501629554 1947508592 377765774
-2125531740 1619040932 804281342 -1796575450 -2061463072 -90998
4086
981509218;}
```

```
@list l0:level1
        {mso-level-number-format:bullet;
        mso-level-text:\F0B7;
        mso-level-tab-stop:.5in;
        mso-level-number-position:left;
        text-indent:-.25in;
        mso-ansi-font-size:10.0pt;
        font-family:Symbol;}
ol
        {margin-bottom:0in;}
ul
        {margin-bottom:0in;}
-->
</style>
<!--[if gte mso 9]><xml>
 <o:shapedefaults v:ext="edit" spidmax="1027"/>
</xml><![endif]--><!--[if gte mso 9]><xml>
 <o:shapelayout v:ext="edit">
  <o:idmap v:ext="edit" data="1"/>
 </o:shapelayout></xml><![endif]-->
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path="m@4@5l@4@11@9@11@9@5xe"
 filled="f" stroked="f">
 <v:stroke joinstyle="miter"/>
 <v:formulas>
  <v:f eqn="if lineDrawn pixelLineWidth 0"/>
  <v:f eqn="sum @0 1 0"/>
  <v:f eqn="sum 0 0 @1"/>
  <v:f eqn="prod @2 1 2"/>
  <v:f eqn="prod @3 21600 pixelWidth"/>
  <v:f eqn="prod @3 21600 pixelHeight"/>
  <v:f eqn="sum @0 0 1"/>
  <v:f eqn="prod @6 1 2"/>
  <v:f eqn="prod @7 21600 pixelWidth"/>
  <v:f eqn="sum @8 21600 0"/>
  <v:f eqn="prod @7 21600 pixelHeight"/>
  <v:f eqn="sum @10 21600 0"/>
 </v:formulas>
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ect"/>
 <o:lock v:ext="edit" aspectratio="t"/>
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T
LOGO"/>
</v:shape><![endif]--><![if !vml]><img width=85 height=97
src="./project_files/image002.jpg"
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<p>  </p>

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3.75pt'>
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style='text-align:center;mso-line-height-alt:
  3.75pt'><b><span style='font-family:Verdana;color:yellow'><ma
rquee
bgcolor="#0000FF" height="21"><font face=bankgothic md bt> WELC
OME TO
ATA COMMUNICATIONS. NIG LTD          
 
    COMMUNICATION LINKS.        &
nbsp;
       INTERNET AND INTRANET SERVICES.
</font></marquee></span></b></p>
  </td>
 </tr>
</table>

<h1>Building An Intranet in a LAN</h1>

<p><span style='color:yellow'>This SITE host information on Int
ranet
Building</span>
</p>


<div class=MsoNormal align=center style='text-align:center'>

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</div>

<span style='font-size:12.0pt;font-family:"Times New
Roman";mso-fareast-font-family:
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href="PRE.HTM"><span
     style='color:maroon'>PRELIMINARY PAGES</span></a> </li>
 <li class=MsoNormal
style='mso-margin-top-alt:auto;mso-margin-bottom-alt:auto;
     mso-list:l0 level1 lfo3;tab-stops:list .5in'><a
href="BASIC.HTM">BASIC
     PRINCIPLES OF INTRANET</a> </li>
 <li class=MsoNormal
style='mso-margin-top-alt:auto;mso-margin-bottom-alt:auto;
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href="LAN.HTM">LOCAL AREA
     NETWORK (LAN)</a></li>
 <li class=MsoNormal
style='mso-margin-top-alt:auto;mso-margin-bottom-alt:auto;
     mso-list:l0 level1 lfo3;tab-stops:list .5in'><a
href="INTRANET.HTM">PROTOCOLS
     OF INTRANET</a></li>
 <li class=MsoNormal
style='mso-margin-top-alt:auto;mso-margin-bottom-alt:auto;
     mso-list:l0 level1 lfo3;tab-stops:list .5in'><a
href="SETUP.HTM">SETTING
     UP AN INTRANET</a></li>
 <li class=MsoNormal
style='mso-margin-top-alt:auto;mso-margin-bottom-alt:auto;
     mso-list:l0 level1 lfo3;tab-stops:list .5in'><a
href="END.HTM">INTRANET
     SECURITY</a></li>
 <li class=MsoNormal
style='mso-margin-top-alt:auto;mso-margin-bottom-alt:auto;
     mso-list:l0 level1 lfo3;tab-stops:list .5in'><a
href="REF.HTM">REFERENCE
     PAGE</a></li>
</ul>

</span></div>

</body>

</html>
```

```
<HTML>
<HEAD>
<META HTTP-EQUIV="Content-Type" CONTENT="text/html; charset=windows-
1252">
<META NAME="Generator" CONTENT="Microsoft Word 97">
<TITLE>BASIC PRINCIPLES OF IN  ANET</TITLE>
<META NAME="Template" CONTENT="C:\PROGRAM FILES\MICROSOFT
OFFICE\OFFICE\html.dot">
</HEAD>
<BODY LINK="#0000ff" VLINK="#800080" BACKGROUND="ATA3.JPG">

<P>CHAPTER ONE </P>
<P><HR></P>
<H3>BASIC PRINCIPLES OF INTRANET</H3>
<H4>1.1 GENERAL INTRODUCTION</H4>
<P>As a result of the increasing need and awareness about information
sharing and communications , we have been witnessing a great
development in the information technology industry recently. </P>
<P>This incredible technology advancement is providing unique business
opportunities for individuals, communities, corporate bodies,
educational institutions, industries, governmental departments and
world organisations.</P>
<P ALIGN="JUSTIFY">The quest to bridge communication gap among
students, lecturers offices, homes, towns, countries and satellites
stations is providing everyday challenges to information technology
experts, this brings the emergence of computer networks of
communication networks.</P>
<P ALIGN="JUSTIFY">Computer network is nothing more than two or more
computers connected together by a cable so that they exchange
information. The design and development of computers and their
peripherals device are changing according to the innovation that form
the data communication network.</P>
<P ALIGN="JUSTIFY">The need for computer networks in any organisation
often begins with a single desire to share a single printer between two
personal computers or move a file from one person to another without
copying the file on diskette. But the need could also be the ability to
share expensive hardware and software resources.</P>
<P ALIGN="JUSTIFY">The process of transferring data from one point to
another with the help of computer, forms the basis of computer
communication networks.</P>
<P ALIGN="JUSTIFY">This process of data called information are
transmitted via computer networks which depends on the geographical
areas.</P>
<P>A network that spans a limited geographical area usually within a
locality is referred to as the Local Area Network (LAN), that which
covers a wide range referred to as Wide Area Network (WAN) and that
covers the whole worlds is called internet.</P>
<H4>1.2 DEFINITION OF INTERNET/INTRANET</H4>
<P ALIGN="JUSTIFY">Internet is the integration and connection of many
smaller units of computer network to form a larger unit that shares
global resources of information among countless diverse
communities.</P>
<P ALIGN="JUSTIFY"><A HREF="end.htm#internet">Internet</A> involves
independence computer servers linked to the network via digital
telecommunication lines and satellite station.</P>
<P ALIGN="JUSTIFY">The World Wide Web (<A HREF="end.htm#www">WWW</A>)
made the internet accessible to people. The web uses a higher-level <A
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HREF="end.htm#protocol">protocol</A> called Hypertext Transport Protocol (<A HREF="end.htm#http">HTTP</A>) to send documents containing text graphics etc. to other users on the internet.</P>
<P ALIGN="JUSTIFY">Access to information world- wide has bridged communication gap among students, lecturers, businessmen, policy makers and industries turning the world into a global information village through internet connectivity.</P>
<P ALIGN="JUSTIFY">In order to create standard in any of the area networks, there is a network manager that manages the computer network.
</P>
<P ALIGN="JUSTIFY">In managing the computer network the manager takes care of the training of the resourceful personnel, sharing of the computing resources and providing security for the network.</P>
<P ALIGN="JUSTIFY">Recently, ingenious network managers at large companies or organizations, figure out that although the web is interesting for disturbing, public information in the world, it is even better for disturbing private information within a company of organisation. Thus, the idea of <A HREF="end.htm#intranet">intranet</A> was born. These will enable the organisation to optimize the computer communication network which is based on the evaluation of the performance of software, hardware and human resources in maximizing profit for the organisation.</P>
<P>The intranet is a closed-circuit network connection system which can only be viewed by those within the organisation that owns the system. Thus an Intranet can be defined as a network that's built using the same tools and protocols that are used by the global internet, but applied to only those connected to the internal network or LAN.</P>
<H4>1.3 OBJECTIVES OF THE STUDY</H4>
<P ALIGN="JUSTIFY">A network is a communication system that links computer and computer resources, is the same way that a phone system links telephone and an intranet is a type of network or Local Area Network that uses tools and protocols of internets and this protocols inexpensive.</P>
<P ALIGN="JUSTIFY">One of the goals of a network computing is to make it as easy to connect with another networks resources as it is to call another person over the phone, whether that resources is in the same building or in the other side of the globe.</P>
<P ALIGN="JUSTIFY">These may be printer, plotter or storage device.</P>
<P ALIGN="JUSTIFY">Network minimize distances and communication problems and give users access to information anywhere in the network.</P>
<P ALIGN="JUSTIFY">In most cases an organisation clearly has personal computers (PC's) minicomputers and other peripherals in place network provide a convenient way to tie the systems together into a combine communication system.</P>
<P ALIGN="JUSTIFY">The objectives of this project is to use the inexpensive and easily available internet tools and protocols in a local area network to make the following available to the users of the network.</P>
<B><P ALIGN="JUSTIFY">i.	Program and file sharing</P>
</B><P ALIGN="JUSTIFY">Networkable versions of many popular software packages can be purchased at considerable cost saving when compared to buying individual licensed copies. The program and its data files can be stored on the server for access by any network user, while user can save files in the personal directories where the user can read and edit them. Database program is an ideal application for a network. Multiple users can access a single database file simultaneously, however a

feature called "Record-Locking" ensures that no two users edit same record in a file simultaneously. This prevent other utilizing of data if two users attempt to make changes at the same time.</P>
<B><P ALIGN="JUSTIFY">ii.	Network resources sharing</P>
</B><P ALIGN="JUSTIFY">Network resources including printers, plotters, storage devices and even other computing system such as minicomputers, mainframes these resources are easily shared through networks.</P>
<B><P ALIGN="JUSTIFY">iii.	Economical expansion of the base Networks</P>
</B><P ALIGN="JUSTIFY">Provides an economical way to expand the number of computer in an organisation by using inexpensive diskless workstation that use the server filling system instead of a built in filling system. Through resources sharing several users can printers and other devices.</P>
<B><P ALIGN="JUSTIFY">iv.	Ability to use network software</P>
</B><P ALIGN="JUSTIFY">Database management software is most commonly used on networks however electronic mail is also important. A new class of groupware is becoming available. Groupware is designed for groups of users who have need to interact with each other over the network.</P>
<B><P ALIGN="JUSTIFY">v.	Security</P>
</B><P ALIGN="JUSTIFY">Netware has advanced security features to ensure files are protected from unauthorized users. Diskless workstation can be used to prevent sensitive data from being download to disk. Managers can prevent users from working outside their own assigned directories and login restriction can be applied. For example, a manager can assign a specific workstation to a user for a specific period of time. This prevents the user from logging on in an unsupervised area during an unauthorized time period.</P>
<B><P ALIGN="JUSTIFY">vi.	Centralized Management </P>
</B><P ALIGN="JUSTIFY">Because a most of the resources of a network are centred around the server, management makes easy backups and file system optimizations can be handled in one location.</P>
<B><P ALIGN="JUSTIFY">vii.	Creation of Workgroups </P>
</B><P>Group of users many work in a department or be assigned special directories and resources not accessible by other users. Manages and electronic mail can be sent to each member of the group by referring the group names.</P>
<H4>1.4 SCOPE AND LIMITATIONS</H4>
<P ALIGN="JUSTIFY">Normally when embarking on a project there are things one must put into consideration these includes the extent and limit at which the project is made to do. This leads to the scope and limitation of the project.</P>
<P ALIGN="JUSTIFY">Mention should be made of the practical consideration before embarking on the intranet bearing in mind that there is no one perfect solution for all environment. But in a standard situation of performing the project the following consideration. Suffix.</P>
<P ALIGN="JUSTIFY">We need to consider the nature of transmission, how large is the organisation, what utilities to be shared to help select the speed of transmission.</P>
<P ALIGN="JUSTIFY">We must determine the commutative distance to be spanned by the network making provision for future addition if possible.</P>
<P ALIGN="JUSTIFY">Physical topology - Determine which cabling scheme will be better suited for the environment, linear bus or star.</P>
<P ALIGN="JUSTIFY"> </P>

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<P ALIGN="JUSTIFY">Geographical consideration - Will it span many
departments or buildings.</P>
<P ALIGN="JUSTIFY">Ascertain whether splitting the network into several
servers will be more advantageous than having one server.</P>
<P ALIGN="JUSTIFY">Ease of maintenance - Will there be availability of
replacement parts in case of faults.</P>
<P ALIGN="JUSTIFY">Server memory - Hand disk size, number of files,
number of directories etc. provide parameters for determining amount of
memory the server needs for proper functionality.</P>
<P ALIGN="JUSTIFY">Determine the best tool for your web site.</P>
<P ALIGN="JUSTIFY">The best browser to use in browsing your web site
must be determined.</P>
<P ALIGN="JUSTIFY">Cabling: Determine the best cable to use in your
network connection example coaxial or optics fibers.</P>
<P ALIGN="JUSTIFY">Workstatic : The numbers of workstation your
intranet can support have to be determined.</P>
<P ALIGN="JUSTIFY">Security: The form of security adopted for your
network.</P>
<FONT SIZE=4><P ALIGN="JUSTIFY"> </P>
</FONT><P> </P>
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<P>CHAPTER TWO</P>
<P><HR></P>
<H4 ALIGN="CENTER">LOCAL AREA NETWORK (LAN)</H4>
<H4>2.1 A LAN OVERVIEW</H4>
<P ALIGN="JUSTIFY">A local area network (LAN) is a communication system
much like a telephone system. Any connected device can use the network
to send and receive information. As the name implies a LAN is a network
that spans a limited geographical area usually within a department in
an organisation or perhaps a building or cluster of buildings.</P>
<P ALIGN="JUSTIFY">&#9;A client-server network is one where nodes (the
servers) provide dedicated services example file services to other
devices on the network, and the other workstations (the client) use the
services provided.</P>
<P ALIGN="JUSTIFY">&#9;A peer-to-peer network is where nodes may
alternatively provide or receive non-dedicated services.</P>
<P ALIGN="JUSTIFY">&#9;LAN can be wired using cables in a way or in a
particular pattern called lan topology and its can be without the use
of cables (wireless) particul[illegible]ly in areas where cabling is difficult
or hazardous.</P>
<P ALIGN="JUSTIFY">&#9;People using the networked computers can share
information. Without the LAN we would have to copy files to a floppy
disk and walk the disk to another person in order to share files. This
is described as sneakernet. The floppy disk method dues not unable
several people to access the same file at the same time. A LAN does
give this simultaneously-access capability as long as you are connected
and use application software designed for multiples users. Even without
simultaneous access, however a LAN is useful. In addition of easily
sharing files, people on a LAN can share a printer a CD-ROM disk drive,
a modem, fax machine or even software packages example Database
Packages.</P>
<H4>2.2 BASIC COMPONENTS OF LAN</H4>
<P ALIGN="JUSTIFY">A LAN is made up of the following basic components -
workstation, network adapter card server(s), cables and network
operating system.</P>
<B><P ALIGN="JUSTIFY">1.&#9;WORKSTATION</P>
</B><P ALIGN="JUSTIFY">&#9;Workstation on a LAN are personal computers
hooked onto the network file [illegible]rver to share network information and
resources. We have intelligent workstations and diskless workstation.
The intelligent workstations are the workstations that have micro
processor and can process their data irrespective of the LAN while
diskless workstation do not have a disk drive of their own such
workstations rely completely on the LAN for their file access.</P>
<P ALIGN="JUSTIFY">&#9;When we use a workstation, it appears and
behaves in almost all respects like a standalone personal computers. If
we inspect a workstation closely, we observe the following
characteristics that set it apart from a standalone computer.</P><DIR>
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<DIR>

<P ALIGN="JUSTIFY">i.	Extra messages appear on-screen while the computer starts up. These messages inform you that network software is loading at the workstation.</P>
<P ALIGN="JUSTIFY">ii.	We have to give the network software identification, number and password before we can use the lan. This is the login procedure.</P></DIR>
</DIR>

<B><P ALIGN="JUSTIFY">2.	NETWORK ADAPTER CARD</P>
</B><P ALIGN="JUSTIFY">	This is a communication hardware for LANs. It is a circuit with the components necessary for sending and receiving messages. The network adapter card is installed in workstations and file servers which makes up the nodes where link up cables are connected.</P>
<P ALIGN="JUSTIFY">	Only two network adapters may communicate with each other at the same time on a LAN. This means that other workstations have to wait their turn if one person's workstation is currently accessing the file server. Fortunately such delays are usually not noticeable. The LAN give the appearance of many workstation accessing the file server simultaneously.</P>
<P ALIGN="JUSTIFY">	There are four main adapter used for LAN.</P>
<B><P ALIGN="JUSTIFY">i.	LANTASTIC ADAPTERS</P>
</B><P ALIGN="JUSTIFY">	The LANtastic adapter uses form conductors cables string out in a snaking part that connects to all the workstations and t operates at a rate of 2 megabits per second (2<A HREF="end.htm#mbps">mbps</A>). Installation is easy if you do not have to put the cables inside walls or ceiling.</P>
<B><P ALIGN="JUSTIFY">ii.	ETHERNET ADAPTERS</P>
</B><P ALIGN="JUSTIFY">	Ethernet enables you to inter connects a wide variety of equipment, including Unix computers, apple computers IBM PCs and IBM clones. Ethernet comes in three varieties, ThinNet, UTP and ThickNet) depending on the thickness of the cable. Thick Net cables can span a greater distance but much more expensive. Ethernet provides fast interface to the file server, it operates at a rate of 10 megabits per second (10Mbps) but its performance can degrades as the network traffic increases.</P>
<B><P ALIGN="JUSTIFY">iii.	TOKEN RING ADAPTERS</P>
</B><P ALIGN="JUSTIFY">	Token ring is one of the most expensive type of LAN Adapter. Token ring uses shielded or unshielded twisted cables, and is used in large co-operations with large lans especially if the Lans are attached to mainframe computers. Token ring operates at a rate of 4 or 16 megabits per second (4 or 16 mbps).</P>
<P ALIGN="JUSTIFY">	On a token ring network, even there is no traffic, all the workstation continuously passing an electronic token among themselves if a workstation has nothing to send, as soon as it receives the token, it passes the token on the next down stream workstation. Only when a workstation receives the token can it send a message on the LAN. If the LAN is busy and you want your workstation or server, you must wait patiently for the token to come around, only then can your workstation send its messages. The token takes almost no time at all to circulate through a LAN, even with100 or 200 workstations.</P>
<B><P ALIGN="JUSTIFY">iv.	ARCNET ADAPTERS</P>
</B><P ALIGN="JUSTIFY">	ARCnet is a little slow, but has minor errors in installation. ARCnet is known for solid reliability and

ARCnet cable and adapter problems and easy to diagnose. ARCnet operates something like token ring but at slower rate of 2.5 megabits per second (2.5 mbps) but it does not suffer performance degradation as traffic increases.</P>
<B><P ALIGN="JUSTIFY">3.	SERVERS</P>
</B><P ALIGN="JUSTIFY">	A server is a combination of hardware and software. The hardware may be a personal computer or a computer that's been designed specifically as a server. Although LANS may have a variety of different servers to manage various hardware and software resources example communication server to manage shared modems. Every LAN must have a file server.</P>
<P ALIGN="JUSTIFY">	In contrast to the workstation a file server is a computer that serves all the workstations primarily storing and retrieving data from files shared on its disks. A file server almost always has one or more fast expensive large memory hard disk(s). Server must be high-quality, heavy- duty machine because in serving the whole network, they do many times the work of an ordinary workstation computer. In particular, the file servers hard disk(s)s need to be durable and reliable. In some networks a server computer is a server computer and nothing else. It is dedicated solely to the task of providing shared resources such as disk drives and printers to be accessed by the workstation. Such a server is referred to as dedicated server because it can perform no other task besides network services. We also have computers working as servers and we can still use that same computer for other functions such as word processing. This type of server is referred to as client server.</P>
<B><P ALIGN="JUSTIFY">4.	CABLES</P>
</B><P ALIGN="JUSTIFY">	Cables are used in connectivity the workstations and servers together in order to enable communication with each other LAN cables come in different varieties.</P>
<P ALIGN="JUSTIFY">i.	Twisted-Pair Cables: Twisted-Pair is made up f pairs of wires insulated from each other and twisted together within an insulating sheet. The twisting of wire pairs produces a mutual shielding effect the cut down on absorption and radiation of electrical energy may be more enhanced by the twisted wires covered by an external aluminum foil or woven copper shield.</P>
<P ALIGN="JUSTIFY">	This type of wire called shielded twisted pair wire. The twisted-pair comes in a wide range of gauges and pairs. It is the least expensive network media its major limitations is, it lacks of speed and limit range, these have however been improved overtime.</P>
<P ALIGN="JUSTIFY"> ii.	Coaxial Cable: Coaxial cables consists of a centre copper wire (either solid-wire or stranded) surrounded by an external shield of woven copper brand or metallic foil. Flexible plastic insulation separates the inner and outer conductors while another layer of insulation covers the out braid. The internal and external shields reduces radiation and absorption of electrical signals from within and outside.</P>
<P ALIGN="JUSTIFY">	The type of insulation, distance between the two conductors and other factors give each type of cable a specific electrical characteristics called impedance.</P>
<P ALIGN="JUSTIFY">Examples</P>
<P ALIGN="JUSTIFY">	RG - 62 - 93 ohms</P>
<P ALIGN="JUSTIFY">	RG - 58 - 50 ohms</P>
<P ALIGN="JUSTIFY">	RG - 57 - 75 ohms</P>
<P ALIGN="JUSTIFY">	The coaxial cable can also be group to either base band (single channel) or broad band (multiple channel)

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transmission. This option is the medium of choice for most local area
network (LAN).</P>
<P ALIGN="JUSTIFY">iii.&#9;Fiber Optics Cables: These are cables made
of glass fiber rather than wire. They are the most advance in
transmission technology for laws. In addition to its high data
transmission rates over a distance of several kilometres without loss,
it is immune to electromagnetic or radio frequency interference, thus
providing greater through put. However, it is relatively very expensive
for most network installation and also its sophisticated technology
does not permit the addition of new workstation after the initial
installation.</P>
<B><P ALIGN="JUSTIFY">5.&#9;Network Operating System (NOS)</P>
</B><P ALIGN="JUSTIFY">&#9;The network operating system is installed on
network servers to control the network access to common shared
peripherals and devices.</P>
<P ALIGN="JUSTIFY">&#9;Just as we need DOS or some other operation
system to manage application in a stand-done computer. We need a
network operating system to control the flow of message between
workstations and servers. In the simplest case this network software
makes the shared resources on the server appear to be locally attached
to every workstation. Here are some of network operating systems and
their manufacturers.</P>
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<P> </P>
<H4>2.3 LAN TOPOLOGY </H4>
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<P ALIGN="JUSTIFY">Topology refers to the layout of the route data travels along the network, there are two basic forms logical topology and physical topology.</P>
<P ALIGN="JUSTIFY">Logical Topology: The nodes on a LAN handles message from node to node in a sequential logical, topology (token passing) or sends the messages out to all stations simultaneously in a broadcast.</P>
<P ALIGN="JUSTIFY">Physical Topology: The way and pattern of running cables physically to connects workstation and servers in a network is referred to as physical topology.</P>
<P ALIGN="JUSTIFY">	Theoretically, there are several ways of physically running cables connecting a group of computers. But in the real world you can only buy products conforming to one. The importance of topology in network cannot be over emphasized as it determine what effect a cable failure will have on the network, where nodes will be located, how much cable is needed and how additional nodes can be added to the network.</P>
<P ALIGN="JUSTIFY">	There are three basic topologies on which other topologies lie.</P>
<B><P ALIGN="JUSTIFY">i.	Linear bus Topology</P>
</B><P ALIGN="JUSTIFY">	The linear bus topology is a simple design with a single length of cable, known as the bus or tank. All devices on the LAN are attached to the bus and shared this single communication medium.</P>
<P ALIGN="JUSTIFY">	The linear bus topology is simple and economical. All the devices share the bus therefore the cost of wiring may be cheap. The failure of any network device has no effect on the network operation but failure of the cable (trunk) will shut down the network. Cable failure can be extremely difficult to locate on large linear networks.</P>
<B><P ALIGN="JUSTIFY">ii.	Star topology</P>
</B><P ALIGN="JUSTIFY">	This is the most commonly used as well as the oldest network topology. It is based on the concept where there exists a central unit in the connection which is the server, and each arm of the star is a cable leading from the server to the workstations or terminals. An obvious limitation would be the number of connections supported by the server. To correct this, the centre of the star has been replaced by an intelligent connection device known as hub, which routes the traffic to the server.</P>
<P ALIGN="JUSTIFY">	The star networks are cheap to install and yet they seam to be loosing their popularity. An important feature with these topology is that a fault with one or more of the workstations does not disrupt the whole network.</P>
<B><P ALIGN="JUSTIFY">iii.	Ring Topology</P>
</B><P ALIGN="JUSTIFY">	In the ring topology, computers are connected together without put of the first machine linking directly to the input of the next, to form a circle. This continues from computer to computer with the last machine closing the ring having its output connected to the first machine. The server in this type of network has no defined position. The disadvantage here is that a break down of one machine or workstations disrupts the whole network. A hub may and may not be used here.</P>
<P> </P>
<H4>2.4 MAKING NETWORK CONNECTIONS</H4>
<P ALIGN="JUSTIFY">	Most Organisations already have PCs and peripherals in place, the equipment required to make connections to other system usually be purchased.</P>

<P ALIGN="JUSTIFY">	There are two basic ways of making network connections, the use of cables and hybrid network.</P>
<P ALIGN="JUSTIFY">Cables Connection: In this case one need to determine the type of cabling and cabling connects it will have, then it is appropriate to select the network adapter card that is most suitable.</P>
<P ALIGN="JUSTIFY">	Each type of cable has different physical characteristics which the network adapter card must accommodate. Therefore, each card is built to accept a particular type of cable such as coaxial, twisted-pair or fiber optics.</P>
<P ALIGN="JUSTIFY">	Some network adapter cards have more than one interface connector. For example it is not uncommon for a network adapter card to have both a thinnet and thicknet connector or a twisted-pair and a thicknet connector. If a card has more than one interface connector, then the choice is ours.</P>
<P ALIGN="JUSTIFY">Hybrid: This is a network that consists of wireless components communicating with a network that uses cables in a mixed component network.</P>
<P ALIGN="JUSTIFY">	The connection of this type can be done in areas having difficulty implementing cables, such as.</P>
<OL TYPE="i">

<P ALIGN="JUSTIFY"><LI>Busy areas such as lobbies and reception areas.</LI></P>
<P ALIGN="JUSTIFY"><LI>Isolated areas and buildings</LI></P>
<P ALIGN="JUSTIFY"><LI>Departments where the physical setting changes frequently.</LI></P>
<P ALIGN="JUSTIFY"><LI>Structure such as historical buildings cabling, would be difficult.</LI></P></OL>

<P ALIGN="JUSTIFY">The wireless networks on a LAN can be divided into two categories based on their technology. Local area networks and networks and extended local area networks. Both categories use transmitters and receivers own by the company in which the network operates.</P>
<P ALIGN="JUSTIFY">Local area network wireless categories a typical wireless, network that works and acts almost like a cable network except for the media. A wireless network adapter card with a transceiver is installed into each computer and users communicate with the network just as if they were at cabled. The extended local area network category uses a wireless LAN bridge for its connection.</P>
<P> </P>
<H4>2.5 ACCESS METHODS </H4>
<P ALIGN="JUSTIFY">	The set of rules defining how a computer puts data onto the network cable and takes data from the cables is called an access method.</P>
<P ALIGN="JUSTIFY">	Multiple computers must share access to the cables. However, if two computers were to put data onto the cable at the same time, the data packets from one computer would collide with the packets from the other computer and both sets of data packets would be destroyed.</P>
<P ALIGN="JUSTIFY">	If data is to be sent over the network from one use to another or accessed from a from a server, there must be some way for the data to access the cable without running into other data and be accessed by the receiving computer with reasonable assurance that it has not been destroyed in a data collision during transmission.</P>

<P ALIGN="JUSTIFY">	Access methods need to be consistent in the way they handle data.</P>
<P ALIGN="JUSTIFY">i.	Carrier-sense multiple access with collision detection.</P>
<P ALIGN="JUSTIFY">	With the access method known as carried sense multiple access with collision detection (CSMA/CD) each computers on the network, including clients and servers, checks the cable for network traffic. That is a computer senses that the cable is free, there is no traffic on the cable before it can sends data.</P>
<P ALIGN="JUSTIFY">ii.	Carrier-sense Multiple access with collision avoidance (CSMA/CA) is not as popular as (CSMA/CD) or token passing. In CSMA/CA, each computer signals its intent to transmit before it actually transmits data. In this way, computers sense when a collision night occur and may avoid transmission collisions.</P>
<P ALIGN="JUSTIFY">	However, broadcasting the intent to transmit data increases the amount of traffic on the cable and slows down network performance Because CSMA/CA is a slower access method, it is less popular than CSMA/CD.</P>
<P ALIGN="JUSTIFY">iii.	Token passing in this all the clients continuously passing an electronics token among themselves only when a client receives the token can it send a message on the lan. The workstation or server must wait patiently for the token to come around before it can send a data or message.</P>
<P ALIGN="JUSTIFY">iv.	Demand Priority</P>
<P ALIGN="JUSTIFY">	Demand priority is a relatively new access method designed for the 100 Mbps ethernet standard called 100Vg-Any LAN.</P>
<P ALIGN="JUSTIFY">	This access method is based on the fact that repeaters and end nodes are the two components that make all 100 VG - Any LAN networks. The repeaters manage network access by doing round-robin searches for requests to send form all nodes on the network. The repeaters or hub, is responsible for roting all addresses, links and end node, and verifying that they are all functioning. </P>
<P ALIGN="JUSTIFY">	The table below summarizes the major points for each access method.</P>
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</B><P ALIGN="JUSTIFY">&#9;NCSA is the most popular web server software
on the internet. NCSA stands for the national centre for supercomputing
applications located at University of Illinois in Urbana, Illinois.</P>
<P ALIGN="JUSTIFY">&#9;This web server is so popular for two
reasons.</P>
<OL TYPE="i">

<P ALIGN="JUSTIFY"><LI>NCSA was the first web server. Infact NCSA
invented the web.</LI></P></OL>

<H4>NCSA is free we can <A HREF="end.htm#download">download </A> it
from hoohoo.ncsa.iliuc.edu.
<P ALIGN="JUSTIFY">2.&#9;APACHE</P>
<P ALIGN="JUSTIFY">&#9;Apache is Unix-only web server which is
available free of change. Apache is essentially an improved version of
NCSA, and is almost as popular on the internet. We can obtain Apache
from the internet at www.apache.org.</P>
<P ALIGN="JUSTIFY">3.&#9;NETSCAPE WEB SERVERS</P>
<P ALIGN="JUSTIFY">&#9;Netscape, one of the most successful internet
companies, markets several web server unlike NCSA or Apache, the
Netscape servers run on UNIX or Windows NT server.</P>
<P ALIGN="JUSTIFY">&#9;Netscape offers the following server
products:</P>
<OL TYPE="i">

<P ALIGN="JUSTIFY"><LI>Netscape Enterprise Server - The latest and
greatest version of netscape's web server, which includes support for
Java. This server is also available as a part of a suite of server
products called suitespot.</LI></P>
<P ALIGN="JUSTIFY"><LI>Netscape Fast-Track Server - A user friendly web
server which includes set-up wizards to make installation easier, as
well as point-and-click tools for creating web pages.</LI></P></OL>

<P ALIGN="JUSTIFY">4.&#9;MICROSOFT INTERNET INFORMATION SERVER</P>
<H4>&#9;Internet information server or IIS is Microsoft's answer to
Netscape's servers. Unlike Netscape, IIS runs only on Windows NT
server. But also unlike Netscape, IIS is free we can download it from
www.microsoft.com. or you can get it by purchasing Windows NT Server.
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<P>CHAPTER FIVE </P>
<P><HR></P>
<H3>INTRANET SECURITY</H3>
<H4>5.1 IMPORTANCE OF SECURITY</H4>
<P>when an intranet is built in an organisation is like putting
everyone's files in that organisation in one big container. So there is
need to guide these files jelously. </P>
<P>There is a law by Murphy which states that "If anything would go
wrong it would". This is more so in computer science technology that
calls for perfection and especially when data or information are shared
as in the case of network environment. </P>
<P>The security of the program should be of ought most importance to
the network manager, because if a mistake occurs, it is either that the
program would not run or wrong output will be produced. And once an
information cannot be quantify and often than not it involves re-
entering or re-programming if a vialable. </P>
<H4>5.2 SECURITY MEASURES</H4>
<P>Since many users are involved in a network, unless special
provisions are made for security and privacy, anyone can look at,
modify files and any user can easily rifle through the electronic desk
and personnal papers of any user, including the president of the
organisation. </P>
<P>We take a brief look at some of these provisions. </P>
<H5>a. user accounts.</H5>
<P>The first level of network security is the use of user accounts to
allow only authorized users access to the network. </P>
<P>Every one working on the network needs a user account. An account is
composed of a user name and log on parameters established for the user.
This information is entered by the administrator and stored on the
network by the operating system. </P>
<H5>b. Password</H5>
<P>One of the most important aspects of network security is the use of
passwords. User accounts are not usually considered secret.Infact it is
often necessary that network users know one another`s user accounts
inorder to use the network for electronic mail. Password is a secret
word known only to the user. </P>
<H5>User Rights</H5>
<P>User accounts and passwords are only the front line of defence in
the game of network security. </P>
<P>Rights can be given to users on the network on a directory-by-
directory or server-by-server basis .With Netware, for example we can
give a person the right to open and read files in a directory but
restrict him or her from modifying those files. </P>
<P>And if we want to protect important files even from our own typing
errors, we can mark files as read only so that we cannot delecte or
modify the files. </P>
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<H5>Firewalls.</H5>
<P>Since the inranet host a website on a server computer, anybody having the address of the site can browse the site .Tere is need to take extra security measures to prevent stealing top secret files, reading private e-mail or worse yet, formatting hard drive. </P>
<P>We use firewall, a security router that sits between our network and the rest of the world in effort to prevent them from getting in. </P>
<H5>Power protection.</H5>
<P>We do not only protect our networks from bad hawkers or users, there is also a need for guiding our data from being lost. This we do by placing our servers on an uninterruptible power system (UPS).If the power fails, batteries will keep the server running for another 10 minutes enough time to gracefully shut down the server with out losing any file. Also a UPS isolates the server from spikes and sags in the supply of public power supply. These spikes and sags may reboot a computer or cause the computer to malfunction temporary. A times, very large spikes will permanently damage a computer. When there is power failure a UPS can tell the network operating system to close down the files without human intervention. </P>
<H5>Back up.</H5>
<P>No matter other security measures taken the need for Back up cannot be overemphasized. Back up should be done daily and the mode depends on how large is the data or information </P>
<H4>5.3 DEFINATION OF TERMS</H4>
<P>The purpose of this defination of terms is for ease of reference for the unique computer terms used in this project. </P>
<P>These terms are commonly used in a network environment. </P>
<H5>Routers:</H5>
<P>Adapters and logic that introduce more sophistication over bridges with functions such as new addressing, frame formatting and isolation (subnetworks) for inter LAN communications usually used for interconnecting LANs using different protocols, example ethernet and token ring. </P>
<H5><A NAME="MBPS">MBPS</A>:</H5>
<P>An instantaneous data rate, could mean mega bits per second or mega bytes per second, depending on its contents. Some prefer b to be bits and B for bytes. </P>
<H5>Online.</H5>
<P>Used to describe computer access via computer terminal to </P>
<P>i. an interactive session or</P>
<P>ii. a transaction. </P>
<H5>Port.</H5>
<P>An access point for example, a logical unit for data entry or exit. </P>
<H5><A NAME="protocol">Protocol.</A></H5>
<P>i. A specification for the format and relative timing of information exchanged between communication parties.</P>
<P>ii. A set of sematic and sytatic rules that determines the behaviour of functional units in achieving communication.</P>
<P>iii. In SNA, the meanings and the sequencing rules for requests and responces used for managing the network, trasfering data and synchronizing the state of network components. </P>
<P>Note SNA: Systems Network Architecture,a network standard developed by IBM. </P>
<H5>Backup.</H5>
<P>A Copy of important files made for save keeping in case something happens to the original files. This shoudl be done everyday. </P>

<H5>HTML.</H5>
<P>Hypertext make up language. The language used to compose pages which can be displayed via the world wide web (www). </P>
<H5><A NAME="http">HTTP.</A></H5>
<P>Hypertext transfer protocol. A protocol used by the world wide web for sending HTML pages froma server computer to a client computer. </P>
<H5>LOGIN.</H5>
<P>The process of identity onesilf to the network or a specific networkserver and gaining access to network resources. </P>
<H5>LOGON.</H5>
<P>The same as Login. </P>
<H5>WEB BROWSER.</H5>
<P>A program that enables us to display information retrieved from the internets world wide web / intranet server. </P>
<H5>BROWSE.</H5>
<P>Accessing information on the website. </P>
<H5>PACKET.</H5>
<P>A set of data bits transmitted over a network. </P>
<H5> </H5>
<H5>DOWNLOAD.</H5>
<P>To copy files from a website to a personal computer (PC) </P>
<H5>ARCNET.</H5>
<P>Was developed by data point corporation. It provides a 2.5 mbits-per second. Token passing network using a distributed star topology over coaxial cable. </P>
<H5>COMPUTER NETWORK.</H5>
<P>Computer Network is nothing more than two or more computers connected together by a cable so that they exchange information. </P>
<H5><A NAME=MAINFRAME>MAINFRAME</A>.</H5>
<P ALIGN="JUSTIFY">Large Computer that have the capability of working large volumes of data, at a very fast processing speed.</P>
<B><P ALIGN="JUSTIFY">5.4	SUMMARY AND CONCLUSION</P>
</B><P ALIGN="JUSTIFY">	The computer network in any organisation is for sharing printer, CD-ROM and other peripherals device, and the importance of information sharing and communication brought the idea of internet.</P>
<P ALIGN="JUSTIFY">	<A NAME=INTERNET>Internet</A> is a network of all Networks, this involves millions of interconnected computers world wide for the purpose of sharing informations.</P>
<P ALIGN="JUSTIFY">	Intranet is a term that's gained in popularity in recent years. It's similar to the internet, but with a twist, instead of connecting computers to millions of other computers around the world an intranet connects in the same company or organisation.</P>
<P ALIGN="JUSTIFY">	<A NAME=INTRANET>Intranet</A> is a network that is built using the same tools and protocols that are used by the global internet, or simply it means hosting a website in a server computer of a LAN.</P>
<P ALIGN="JUSTIFY">	<A NAME=LAN>LAN</A> is a network that spanned a limited area especially a building or cluster of buildings. The component of LAN are workstation (client computers), cables, network interface cards (NIC), adapters and Network Operating System like windows NT, Unix Operating System etc.</P>
<P ALIGN="JUSTIFY">	The information on the intranet is accessed via the browser, a protocol of an internet. This make information on the webserver of the organisation available to the works of the organisation connected to the network.</P>

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<P ALIGN="JUSTIFY">&#9;Since many users are involved there is need fro
security of data / information. This is provided by the Network
Manager. Also the network manager trains resourceful personel to manage
the network.</P>
<P ALIGN="JUSTIFY">&#9;The organisation website needs to be maintained.
If new informations are to be passed to the workers, the website
designers have to include information on the site and at times the
background color needs to be changed from time to time in order to draw
attention to the site.</P>
<P ALIGN="JUSTIFY">&#9;In conclusion the intranet has many benefits
beside the benefits derived from networks. It can easily be connected
to the internet if the organisation wants to use their site for
commercial purposes and they can also have transaction site where they
can trade on the net.</P>
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</B><P ALIGN="JUSTIFY">1</FONT>.&#9;Doug Lowe. Networking for Dummies
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<P ALIGN="JUSTIFY">9.&#9;Microsoft (R) Encarta (R) 96 Encyclopedia
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