UNIT 1 FUNDAMENTALS OF INTRANET

Structure **Page Nos.**

1.0 INTRODUCTION

The history of the Intranet starts right from the days when computer networks came in. However, it could find a name and place for itself quite late. The Websters dictionary defines a network as –

Network = "The sharing of resources between two or more people" - Websters

Sharing of Resources

It is well known that the Internet has been in existence since the mid 1970s, and was developed initially by the governments as a medium of communication channels at the time of war. It did not gain substantially in popularity until 1989, when for the first time Web Browser software was introduced and the use of the HTML (or Hypertext Markup Language) came in. Slowly the concept of websites and web hosting picked up. The system was designed, from the very start, to be very robust, quick, and easy to use. Additionally, the system was built to be available cross-platform, a fancy way of saying that all computer systems would be able to understand it.

Very quickly, this massive network was destined to become a milestone for the much talked about "information superhighway." This has led to an increasing number of commercial organisations struggling to use information technology services, and since the mid-1990, the number of businesses connecting to the Internet has multiplied several times.

Many of these are using the Internet as a source of information and reference material, browsing the World Wide Web (WWW) and Newsgroups for the latest gossip or sharing/knowing facts on a whole range of issues ranging from life style to technology and spirituality to current affairs. Others use the Internet for transfer of information through the use of messages and data files via e-mail, File Transfer Protocol (FTP) or Web sites.

World Wide Web

The latest has been Web commerce that is currently making big news, and many businesses are setting up electronic shops on the Internet in anticipation of safe/secure payment techniques poised to become widely available. This shall undoubtedly result in an increase in consumer confidence and in turn the customer would look forward to a better, reliable and quality service.

Some of those businesses are also using Internet technologies, such as Web browsers and Web servers, in order to provide easy and widespread access to company's information to internal users only. Such networks have been termed as "private Internets". They could be considered as having no connection to the outside world. They later became popular as "Intranets". Despite the fact that Intranets are for internal use only, the challenges of its use and maintenance are no different from those that can be found with the Internet itself. Indeed, building Intranets and connecting corporate networks to the Internet is not a simple task.

Companies are turning to the Internet as an established, easily available, yet cost-effective resource that will allow them to gain a competitive edge over other players in the field. The benefits of adopting Internet technology range from lower communications costs (since transporting data across the Internet can cost much less than using a private network) to greatly improved communication speeds. However, it is notable that there are many different risks involved in having an Intranet in place.

1.1 OBJECTIVES

In addition to the fundamentals of the Intranet, various other basic issues related to the Intranet such as the services offered on it, benefits and limitations, applications, etc. have been described thoroughly in this Unit. For the benefit of the novice, a list of common terms related to the Intranet has been placed at the end of this Unit.

After going through this Unit, you will be above to:

- understand the working of Intranet;
- differentiate between Internet and Intranet;
- explain the advantage of Intranet;
- explain different types of Intranet;
- explain software and hardware requirement for Intranet, and
- define application areas of Intranet.

1.2 THE INTRANET

The first Web browser was called Mosaic, and the HTML concept, although not a new one, has accelerated data access and research. In short, the idea was that although books presented information in a linear fashion, people more often than not have a need to follow it in a three dimensional pattern. Taking an example of a person who might be reading a paragraph on fractals, and then came across a reference to an XYZ Company using this technique for developing software on artificial life. A lot of desired material could be obtained and the person doesn't have to even know what the XYZ Company is.

Before the advent of HTML, either the person would have turned to the index page at the back of the book to look for XYZ Company, or even had to go to find another book to learn about the fractals. Now with the use of HTML, a simple click on the word XYZ Company would take him to an entirely different reference that explains what the company is and what it does. After reading, a hit on the back button would navigate him back to the exact place in the document he had been reading earlier.

Every portion of the Internet was designed with the forethought to make it robust and easy to use. Even though a number of mistakes had been made during the development and some backtracking has been necessary, but, generally speaking, Internet has proven to be one of the easiest way to use systems ever evolved. This could probably be the reason that the Internet has grown so fast and so vast. The Internet has grown to over 250 million users within 12 years and has already become an integral part of our daily lives.

The literal meaning of the term Intranet as given in various dictionaries is as follows:

In' tra net - ***n.***

1) a network connecting an affiliated set of clients using standard Internet protocols, especially TCP/IP and HTTP.

2) an IP-based network of nodes behind a firewall, or behind several firewalls connected by secure, possibly virtual networks.

An Intranet is the use of Internet technologies within an organisation (or company) to achieve better results than the conventional means of data access and transfer. The Intranet helps in cutting costs and easy and fast accessibility of day-to-day information. It could refer to a collection of networks at different locations, but catering to the requirements of the same organisation.

1.2.1 How does Intranet Work?

An Intranet can be defined as a private network which uses Internet tools. The principal tool is the Web browser, but there are other Internet tools such as ftp and telnet that are useful. The resources defined as private may be protected physically (with a firewall or a separate physical network), geographically (by restricting access to computers with a network address on the local network), or personally (by username and password).

Typically, resources will be private either because they are confidential to the organisation (for example, an internal telephone directory), or because they are covered by restrictive licenses (for example, if the Library subscribes to a bibliography whose license restricts its use to members of the University).

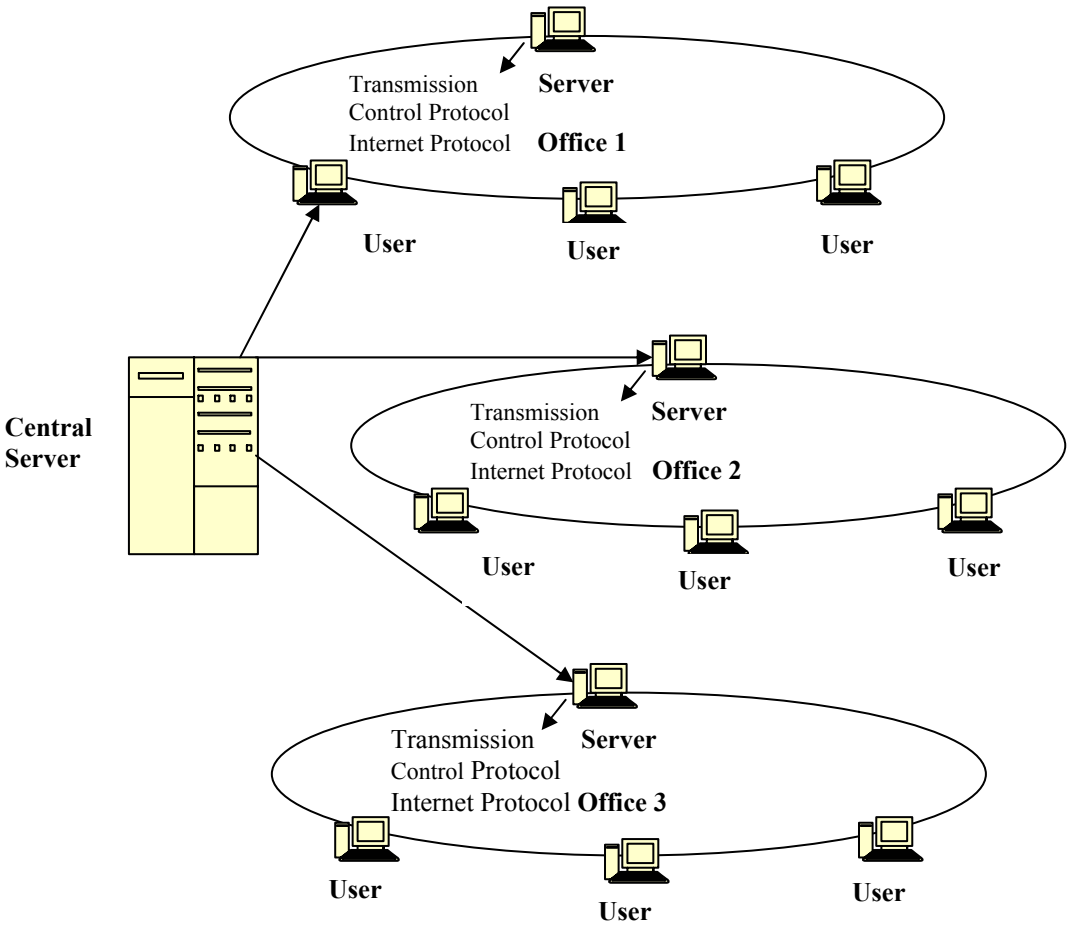


Figure 1: Intranet is more than a LAN but less than Internet

For an Intranet to work, all computers connected together in a network (as shown in *Figure 1)* must speak and understand the same language, or protocol. The language

used is HyperText Mark-up Language (HTML) and the protocol that both Intranets and the Internet use are called Transmission Control Protocol/Internet Protocol or TCP/IP. A network server supports all the activities of an Intranet. On the clients' side, a software, known as a browser, is used. (The browser is usually either Netscape Navigator or Internet Explorer.)

The browser, when invoked, seeks a server computer through the communication medium that has the first page or Home Page of the Intranet, which is usually seen in the folders as 'index.htm'. This is the default page for accessing the Intranet from any computer attached to an internal network. This is what automatically appears on the screen when a user logs in and clicks on the browser icon on the desktop for accessing the Internet also. The hyperlinks to specific files or databases requests for files send the control from anywhere on the network to the browser. The server accesses the file and sends back a copy of what it contains to the computer or client that has requested for it.

It is the simplicity of TCP/IP that makes Intranets so easy to set-up. Web browsers can be used to connect to virtually any information source, from Structured Query Language (SQL) databases to highly proprietary information systems.

1.2.2 How big can an Intranet be?

An Intranet can be as big as a community of interest. Scale is an important factor in web implementation, but it has no bearing on the logical association of clients that make up an Intranet. For example, a workgroup with one web server, a company with several hundred web-servers, and a professional organisation with ten thousand web servers can each be considered an Intranet.

While nothing constrains these webs to be "inside" or bounded in any physical sense, size is a significant consideration from a network design perspective.

1.2.3 How is it different from Internet?

Generally an Intranet is different from an Internet in the following ways:

i. Intranet is a network within the organisation whereas Internet is a worldwide network.
ii. Intranet has access to Internet but not vice- versa.

Once the difference has been defined, the immediate possible question in everyone's mind would be: Is an Intranet faster than getting data over the Internet? The answer to this would be a mix of features of the local area network (LAN) as well as those of the Internet. A clear answer depends on the possible ways of connecting the client to the network that could be as follows:

- If the network is totally contained within a LAN, then it will get LAN speeds. i.e., the web server is connected via LAN to the client computers.
- If users are connecting remote locations, and use the Internet as the backbone / transport, then the speed becomes dependent on the Internet itself, and the speeds by which it is connected.
- If performance is really the issue, users could also run the Intranet over private lines, such as frame relay. Then it can actually contract with the phone company for actual performance levels of speed, i.e., 56 kbps, 256 kbps, etc.
- Approximately the Intranet operates at 10 Mbps – 100 Mbps internal and 33.6 kbps for remote access employees.

The answer to the question, "Which is right for business, the Intranet or the Internet?" purely depends on how the application is viewed. The major difference between the Internet and an Intranet is the focus: An Internet site looks outward from the company, and an Intranet site is usually for internal use only.

1.2.4 Intranet vs Internet vs LAN

It is certainly possible that both Intranets and the Internet can coexist. As spelt theoretically, the entire Intranet could be located at a remote site and users who are spread over a number of geographical locations can be permitted to access the data using secure links. Though cutting off the Intranet from outside world physically would make it function like a local network, it has its own advantages. The main advantage being a higher level of security. The immediate disadvantage is that if the organisation has remote locations it will have to evolve methods for permitting the employees or users to log on to the Intranet.

When it comes to comparison between the Intranet and LAN, it can be clearly observed that an Intranet is a network within the organisation whereas LAN is a campus wide network; geography plays a vital role. Intranet may be considered as a group of LAN's of an organisation connected together as shown in *Figure 2*. They could be connected through a WAN architecture. Naturally, all the facilities that are available in client/server architecture are also applicable here.

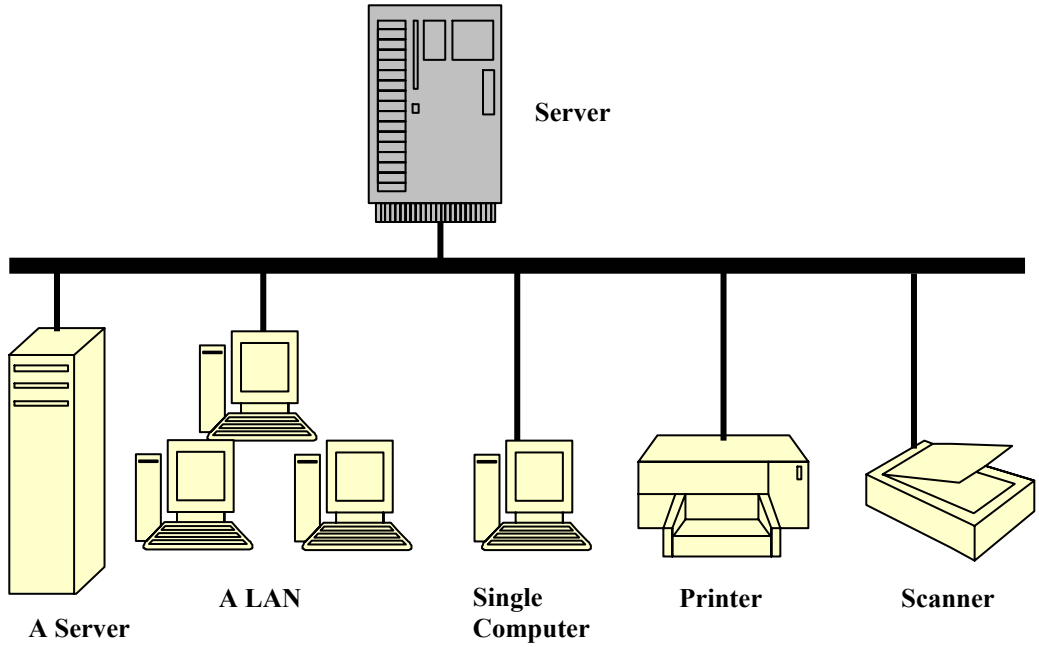


Figure 2: Intranet is a group of LANs interconnected (may be at different locations)

1.3 ADVANTAGES OF THE INTRANET

The most easily noticeable difference between an Internet server and an Intranet server such as Lotus Notes is their design philosophy. The Lotus Notes provides a collaborative computing solution and has been designed as a proprietary system for areas lacking proper connectivity. It uses a proprietary database structure, which replicates data and does not provide quick access to remote databases.

The real-world benefits and applications of Intranets can be many in number. One major benefit of Intranets is that it could be used to enhance communication, which in turn could lead to improved linkages within the organisation. This communication could happen between various workgroups, departments, or even within entire organisation, simply by hosting the contents on the Intranet server.

Intranet can largely eliminate paper-based documents, which otherwise become outdated over passage of time. Increased communication will also lead to tremendous reduction in expenditure for numerous publishing services such as creating, printing, and distributing information for internal use. Besides these benefits, Web and conferencing technologies can be easily provided to improve synergy amongst the employees; still further, collaboration can be enhanced by use of internal newsgroups

and mailing lists. Information posted to the newsgroups and distributed via mailing lists can be made available to selected groups within the organisation and archived as a repository of information.

Using Internet technologies on an Intranet means that organisations can deploy integrated applications that connect public and private networks using the same applications and data. Hence, straightaway standardisation of activities or processes will find its place. It could be possible that all users have to use the same standard process that may lead to loss of freedom and lack of application of creative minds of individuals.

Examples of successful Intranet applications

Bharat Petroleum Corporation Limited (BPCL), a major oil company of India (http://www.bharatpetroleum.com/), uses an Intranet to provide their employees with an efficient way to share the internal company information and let a number of workgroups to share and work on various projects. However, using the Internet, they also distribute financial data and news announcements to customers, shareholders, and others outside the company. The BPCL Web site also offers prospective customers an opportunity to conveniently apply for its Petro credit cards and to purchase merchandise offered in their Web-based catalogue.

The product development teams at Maruti Udyog Limited, India's leading car manufacturer (http://www.marutiudyog.com/) use the company's Intranet to get their products to market conveniently and faster. The Intranet also facilitates communications between sales, service, and remote field teams around the world, allowing the company to capitalise on areas of expertise in various locations. As with BPCL, the MUL employs Internet technologies in addition to Intranet solutions to educate customers and their worldwide sales force about new products. Prospective customers can easily find product information including photographs, datasheets, comparison of various models and success stories, as well as check on the availability of the latest car releases. Back in the server room, the Intranet runs safely behind their firewall, the company connects its dealers and vendors to use the benefits of Intranet for minute-to-minute update of inventory levels for maintaining a balance of supply-demand chain. The company publishes an electronic sales guide with important information regarding their sales network can use to sell their products.

Broadly speaking, the benefits can be enumerated as follows:

- **Cheaper:** Use of client browsers with one standard Window interface, offers easy integration with a number of other applications, such as electronic mail, faxes, videoconferencing, calendaring, and linkages within messages. As a single interface to a variety of information sources, the browser is cost-effective, highly efficient, uses minimal resources, and is very easy to use.

- **Versatile:** An Intranet server eliminates the need to replicate database by providing users with easy access to source data. A single WWW server platform can support both internal and external applications for both internal information-sharing and external marketing on the Internet. In contrast, the Lotus Notes application is costlier and purely an internal application.

- **Flexible:** The Intranet provides the users with access to centralised information resources on a single point-and-click basis through the browser, which is available on a variety of client platforms (Windows, Mac, Unix, etc.), at any location. With Notes, data distribution is in realtime, on an as-requested basis, over a public (or private) network.

Intranets obviously have many advantages to both the organisation and its personnel.

- The most obvious advantage is that everyone with access to a computer terminal connected to the Intranet can obtain the entire store of information that

can be easily updated by the network administrator at regular intervals. It is essential to note that even a simple database like an organisation telephone directory gets outdated quickly, sometimes even before it is printed on paper whereas an on-line directory can be updated immediately whenever there is a change needed.

- Intranets encourage integration of applications; such as the simple word-processing application could be easily linked with e-mail services, and as such this redefining of the ways and possibilities could be used more efficiently and effectively.
- Intranets provide access to electronic databases, documents, electronic training manuals, office circulars, internal job vacancies, etc. Any type of information the company feels is informative and useful can be hosted on the central server or databases, which can be extracted by browsers when needed without the employees having to leave their work area. This feature provides a further benefit, i.e., freedom from the work area. The employee is free to travel anywhere without having to worry about what are lying on his desktop, since every information required is available on the Intranet site which could be easily hooked up from his laptop computer and a mobile modem.
- The ease of use of the end user would be the most noticeable because of the similarity of Intranets to the Internet. Since the Intranet technology is based purely upon the user-friendly atmosphere of the World Wide Web (WWW), the system is very easy to use. It does not matter that users do not necessarily understand the intricacies of how the information flows up and down to their workstation or to the centralised server; it is the ease of obtaining the required right information at the right time, which matters the most.

Several other factors contribute to increasing the profitability of a business. For companies that are highly dynamic and rapid in action, the primary factors among those are:

- Increased market share
- Increased product margins
- Cutting expenses
- Utilising existing resources more efficiently.

Increasing market share and product margins are left to the Marketing and Purchasing Personnel. The cost cutting, however, can be attributed to the Central Office or Headquarters. The last factor is crucial to the company's Planning department as profitability is the company's most crucial consideration. Most companies today are suffering from inefficiencies, redundant operations, and unproductive tasks. Many of these can be greatly reduced or eliminated with a well-designed Intranet.

Building up a well designed Intranet can help the companies in the following activities that would improve their overall performance and profitability.

- Improved and more efficient in-house training of employees.
- Decreased orientation time before new employees become productive
- Improved employee morale
- Better project management
- Increased inter-departmental communication channels
- Faster and improved dissemination of information to all departments
- Inter-department collaborative efforts
- Decreased production costs.

☞ Check Your Progress 1

1) Which of the following was first web browser?

   i) Internet Explorer

   ii) Netscape

   iii) Mosaic

   iv) ARPANET Explorer

2) Internally the Intranet-operates at _____ approximately?

   i) 1 Mbps-10 Mbps

   ii) 10 Mbps -50 Mbps

   iii) 10 Mbps-100 Mbps

   iv) 100 Mbps-1000 Mbps

3) The main different between internet server and Intranet server is their _____.

   i) Connectivity

   ii) Design Philosophy

   iii) Computing Algorithem

   iv) Access methodology

4) TCP/IP protocol Unit is used by

   i) Intranet

   ii) Internet

   iii) Both Intranet and Internet

   iv) Neither Intranet nor internet.

1.4 TYPES OF INTRANET

Intranets have been broadly classified into three types based on their functionality, viz., the Bulletin Board, Database Management and Information Access.

- **Bulletin Board:** This type of Intranet in an organisation extends to everyone the capability to review or update information that would normally be placed on an organisation Bulletin Board, such as, a calendar of events, a status board, pictures of events or employees, policy changes, etc. It just acts like a broadcast system or notice board of the company in which updates may or may not be frequent.

- **Database Management:** This type of Intranet provides everyone in an organisation with the capability to maintain a "real-time" interactive database. The database can be used to support the tracking of products, inventories, bidding, or provide information on a particular subject any time of day, from any location. The information is updated as and when the need arises.

Bulletin Board

- **Information Access:** This type of Intranet is the type commonly found on the World Wide Web. The static web page may include information on any subject. The static page can then be accessed from a simple search engine provided free as part of the Internet.

Such "free service" networks are now-a-days making good money through advertisements. Even major newspaper companies and news agencies have, of late,

started using this type of Intranets for proper organisation of news items and finally hosting of entire content to the Internet with a click of the mouse button. Information access is the key to making the Intranet commercially feasible. While individuals within an organisation may have secure access to particular parts of an Intranet, the marketing and promotion of an organisation is the accepted norm. By advertising on the Internet the organisation is available to a broader customer base, via the global structure of the Internet.

Some experts have taken a lead and categorised Intranet into four different types based on their application or usage as well as its architecture. They are as follows:

- **The Communications Intranet:** Intranets of this type tend to feature in geographically dispersed organisations. The motivation for its implementation is greater efficiency and cost saving, through the reduction of fax and telephone calls. This Intranet is common with franchises or organisations that have a large number of sales people or agents in the field. Example, Maruti Udyog.
- **The Integrating Intranet:** These Intranets are designed to replace the complexity of in-house communications and processing systems that large organisations often use. Different interfaces commonly lack means of interconnection. Such Intranets offer organisations a common interface (through browser) that can link-up its different divisions through hypertext links. It follows that standardisation is paramount in an Integrating Intranet. For example, IGNOU.
- **The Catalogue Intranet:** Intranets of this type are often more accurately described as Extranets. They are designed to give access to a large catalogue of information, like a multimedia catalogue. For example, a news agency or companies offering search engines like the Yahoo.
- **The Single Sign-On Intranet:** This Intranet, if managed efficiently, allows maximum security by firewalling anyone from inappropriate sites automatically. For example, the Railways.

It would be notable that any of the above Intranets can be controlled or firewalled through passwords and user IDs to safeguard security throughout an organisation. The fourth type of Intranet dispenses with individual log-ins or passwords opting instead for a single sign-on for all users and letting each system look-up the appropriate access privileges for each user.

1.5 SOFTWARE AND HARDWARE REQUIREMENT FOR AN INTRANET

To develop an Intranet the first we should design a Client /Server model for our network. As you know clients are the computers those are connected with the cables, or any other medium like microwave, satellite to the server (which is a high-speed computer with large capacity and hard disk). The operating system must be installed properly on both server and client. This server can be your web server also, if it contents required web software. Also, it that case we need to have firewall and browser software on this server.

Web software allow server to support HTTP (Hypertext Transmission Protocol) so that it can exchange information with clients. Firewall Software will help your server to provide security from external world. Following are the hardwares and softwares required for developing an Intranet, but other functions can be provided by adding other hardware and software for security, speed, routing, internet access, searching authoring ad publishing document etc.

1.5.1 Hardware

To setup a WAN, one would need to have some type of communication between different sites. National ISDN, Very Small Aperture Terminal (VSAT) connectivity or a long distance Frame Relay could be the best choice. It will be essential to install a router at each site. Each router would connect back to a central site over dedicated phone lines. Note that the hardware should be configured for the following protocols/ services.

Protocol/Service	To be installed on
IP	Network
HTTP	Server
SMTP/POP3/IMAP4	Server
LDAP	Server
X509 Certificate	Server
Java	ORB (Object Request Broker)
Document Server	Server

Hardware Configuration for an Intranet

Component	System Requirements	
	Client	**Server**
Processor	866 MHz Pentium	2.0 Ghz Pentium
Memory	256 MB	For a 5-user system: 512 MB
Monitor	SVGA with 256 or more colors minimum 800x600 resolution	SVGA with 256 or more colors minimum 800x600 resolution
CD-ROM Drive	48X or 52X	48X or 52X
Free Disk Space	300 MB for application files	1GB

Scientists also describe how is the optimal performance of Intranets associated with a number of key hardware factors. In order to optimise performance, servers with fast processors and a large amount of memory are essential. They also noted how good multi-tasking and multi-threading abilities are also crucial for most of the Web applications. In addition, sufficient memory and disk capacity at the user workstation would improve performance through increased caching. The limitation of a large image files can also be considered important to improve performance, but images may be equally important to expand and illustrate data, and pages of text can be discouraging, especially in an educational context. Finally, the database itself, which forms the foundation of almost every Intranet, can have a significant effect on performance.

1.5.2 Operating System for Server and Clients

Server

Since 1994, when the original pair of web servers – **NCSA HTTPd** and **CERN HTTPd**, were proposed, dozens of commercial and shareware programs have been developed.

While the Netscape Enterprise Server defines the commercial high end, the other is Microsoft's Internet Information Server (IIS), Netscape Enterprise Server and lightweight FastTrack Server.

Clients

All of the clients running popular operating systems such as Microsoft Windows, MacOS, Unix, etc., could be used to function as backbone software for the Intranets.

Only one software is sufficient for working with the Intranet viz., the browser software that should be loaded on all the clients. This software serves as a single interface to both the Intranet as well as the Internet. At present, Microsoft Internet Explorer and Netscape Navigator both remain the top Web browsers available. Apart from these, various other Web browsers are also available to access the information such as NCSA Mosaic.

1.5.3 Language Support

The Intranet works on the basis of scripts written in any of the following languages, viz., SGML, HTML, DHTML, XML, ASP, CGI, Perl, UML, VRML, etc. Though almost all are variants of the basic markup language or a development over it, all provide flexibility to program the needs of the organisations. It is essential to test minutely how the output looks when published on the central server, by using different browsers on different operating systems.

Software Requirement for an Intranet

Operating System for Client	Windows 98, or Windows ME, or Windows 2000 Professional, or Windows XP, Novell NetWare, Red Hat LINUX, UNIXWARE
Operating System Server	Windows 2000 Server, or Windows 2000-Advanced Server, or Windows 2003 Server or Linux.
Web Servers	Apache, Microsoft Internet Information Server, Netscape Enterprise Server, FastTrack Server, WebSite
Firewalls	Stronghold, JumpGate, Centri, Webtrends
Browsers	Netscape Navigator, Internet Explorer, HotJava Views
Internet Access	CompuServe, America Online
Search Tools	EXCITE, OpenText, Free WAIS, Harvest, WebSnake
Authoring & Publishing	FrontPage Express, MS Publisher, Fusion, WORD, WordPerfect
Collaboration	TeamFusion
Conferencing	Folio, DynaWeb, WebBoard
Databases	Oracle, Sybase, DB2
Database Access	Informix, ColdFusion, LiveWire, Saphire Web
Document Management	Basis, Saros, DynaBase
Web Site Management	FrontPage, COAST, WebMaster, SiteMill, NetObjects
Integration to Legacy Systems	NetDynamics, BusinessWeb
Project Management	SureTrak, MS Project 98, Project Manager

1.6 APPLICATION AREAS

The uses of an Intranet are only limited by imagination. Some of the larger sectors where the Intranet can be easily and successfully implemented are as follows:

- **Education Sector**
  - Universities
  - Colleges
  - Institutes
- **Industry Sector**
  - Small and large scale manufacturing
  - Automation and control
- **Service Sector**
  - Hotels
  - Tourism
  - Travel
  - Transportation
  - Communication

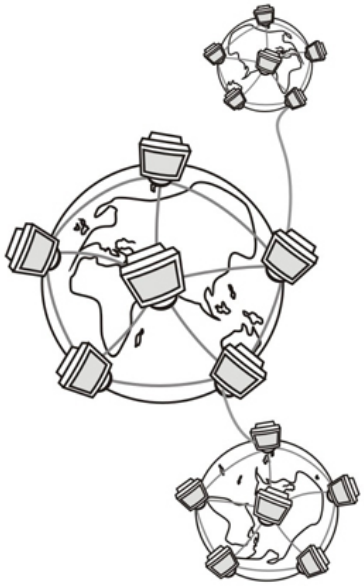
- **Research & Development**
  - Laboratories
  - Organisations
  - Space
- **Govt. Sector**
  - Ministries
  - Departments
  - States
  - Law & order

The following is a partial list of many potential users of the Intranet, both commonly used and not so commonly used.

- **Company Documents**
  - Manuals
  - Building Maps
  - Airport Directions to other Company locations
  - Approved Vendors list
  - Company Newsletters
  - Procedures Library
  - Product Manuals
  - Daily Bulletins
  - History Graphs
  - Knowledge Base
  - Competition products, news and web sites
- **Customer related**
  - Controlled Responses
  - Feedback Forum
  - Company Bulletin Boards
  - Company Store
  - News Flashes
  - Supplies Ordering
  - Database Queries
- **General Administration and Management**
  - Departmental Budgets
  - Departmental FAQs (Frequently Asked Questions)
  - Employee Attendance
  - Intercom any Chatting
  - Internal Postings
  - Employee Orientation
  - Online Collaboration Projects
  - Organisational Charts
  - Security Policies
  - Trend Graphs
  - Equipment Checkouts

- **Training**
  - Employee Proficiency Training
  - Training Materials
  - Video Training
- **Coordination and Control**
  - Form Routing
  - Forms Library
  - Help Desk submission forms
- **Meetings related**
  - Meeting Minutes
  - Meeting Schedules
  - Online Meetings
  - Meeting Room Schedules.

1.7 FUTURE OF THE INTRANET



At present, the world of information technology is guided by the C^3 paradigm that stands for Command, Control and Communication, which is normally used for military applications and strategies. These techniques are poised to become obsolete with the advent of Intranets and shall no longer remain the driving forces in companies.

The talk of the day starts with another C^3 paradigm that stands for Coordination, Cooperation and Collaboration. And this is what is available in store for the future. It emphasises better support and interaction towards a common goal between various activities within an organisation.

And this is possible through the Intranet technology, which is helping in redefining the whole new world of computing thereby making integration a buzzword for everyone.

As stated by experts that it is "because the browser has evolved far beyond its original uses, it may well become the universal interface to all information resources in the future". As Internet technology expands, it follows that Intranets must necessarily benefit from these advances as the technology is shared. "The result will be the increased integration of corporate data-access systems with inter-corporate communication systems and corporate-customer communications".

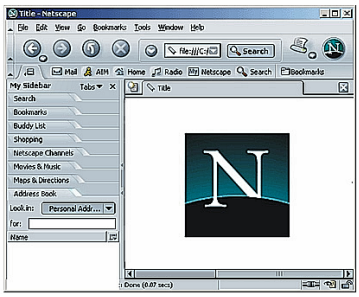
1.8 KEY INTRANET TERMS

Following is list of most widely used terms, which come in during the study of Intranets:

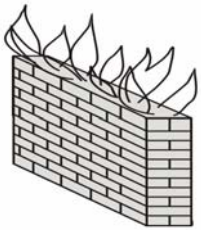
Applets: Little programs that can make the Web pages more aesthetically beautiful by means of animations, text, and graphics moving across the screen.

Bits, Bitmap: Many tiny dots, which are put together to make a picture. Bits are combined to make a graphic image called a bitmap. GIF and JPEG files are the most popular kinds of bitmap files.

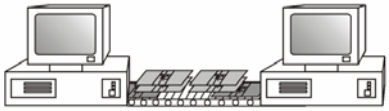
Bookmark: A list of pages a user likes to frequently visit. Netscape® Navigator and Explorer® have a "bookmark" menu item which allows users to add favourite sites via the Bookmark option. This term is equivalent to the conventional bookmark used by readers to indicate the position in a text book where they left it while reading it last time.



Netscape Browser



Firewall



File Transfer Protocol

IGNOU Home Page

Browser: A program that allows the user to access and read information on the World Wide Web. Netscape® Navigator and Microsoft Explorer® are the best known browsers.

Counter: A software code that indicates how many times a site has been visited. It gets automatically updated and is usually represented by a small rectangle with numbers normally visible at the bottom of web pages, something like the odometer of a car.

Cyberspace: The conceptual or virtual area where pages, data, images, and all the rest are stored. It is the area from where requests are accepted and fulfilled from computer to computer, user to user.

FAQs: Stands for Frequently Asked Questions. Common questions and their answers that occur regularly within a user group. FAQs also appear as a hot link on many Web sites and sometimes act as reservoir of knowledge about the company or its products. FAQs are a time-saving feature for all kinds of users.

Firewall: A protection of the internal company network against unauthorised access via the Internet.

Frame: A presentation format, which enables Web page designers and users to mark a part of the screen for links to other pages. Frames usually appear on the left side, top, and/or bottom of the screen. Frames contain icons and hot links.

FTP: File Transfer Protocol: A very common method of moving files between two Internet sites. FTP is a special way to log in to another Internet site for purposes of retrieving and/or sending files. There are many Internet sites that have established publicly accessible repositories of material that can be obtained using FTP by logging in using the account name anonymous. Thus, these sites are called anonymous FTP servers.

GIF: Graphics Interchange Format: A type of graphics file found frequently on the net. A picture of a vice-president, for example, may appear on the Intranet as a GIF.

Home Page: The primary Web page for an individual or organisation. These pages link to other related pages.

Hot Links: A connection from one Web page and another, a hypertext link. Hot links are frequently indicated by colored, underlined text and/or an icon. HTML

Hypertext Markup Language (HTML): The language used in writing pages for the World Wide Web. Knowledge of not HTML is not necessary for using the Intranet, or for maintaining pages.

HTTP: Hypertext Transfer Protocol: The way Web pages are transferred over the Internet or an Intranet.

Icon: A small picture or graphic used to represent a location in the inter- or Intranet (for example a flow-chart graphic to take the user to the departmental flow chart); an action (a mailbox as a place to send feedback); or a program (a W to indicate Microsoft Word).

Daemon: A daemon is a Unix background process that implements the server side of a protocol. Daemons are unique to Unix. For example, FTPd stands for the File Transfer Protocol daemon.

HTTPd: It stands for HTTP *daemon*. HTTPd is the program run on a Unix platform to establish a Web server. On other platforms, such as Microsoft Windows NT, the Web server is a background process implemented as a system service.

ISDN: Stands for Integrated Services Digital Network. It is a way to move more data over existing regular phone lines. ISDN is rapidly becoming available to almost every country, and every one who needs it, at desired data transfer rates. In most countries it

Java Technology

is available at a price comparable to standard analog phone line connectivity. It can provide speeds of roughly 128 kilobits per second (kbps) over regular phone lines.

Java: A programming language that allows browsers to download and run applets (very small programs allowing animations and the like).

JPEG: Stands for Joint Photographic Experts Group. A standard format of storing digitized, colour, or black-and-white photographs. JPEG files are smaller than corresponding GIF files.

LDAP: Stands for Lightweight Directory Access Protocol. LDAP is preferred for creating directories. LDAP provides a standard way for Internet clients, applications, and servers to access directory services using TCP/IP, regardless of the hardware/software platform.

Network: A number of computers connected together.

Internet: Lots of networks all over the world are connected to make the Internet.

Intranet: Lots of networks connected within an organisation (locations could be geographically distant) such as a university or company.

Search Engine: Software used to find information on the Web. Examples are Google, Lycos and Yahoo.

Server: A computer with the capacity to provide connectivity (sharing) to multiple personal computers or clients.

Surfing: Going from page to page, link to link, via a browser. Surfing can be called "clicking" for the mouse that makes the process possible, or "linking" for the program logic, which makes the process happen.

T-1: A leased-line connection capable of carrying data at 1,544,000 bits per second (1.544Mbps). Theoretically, a T-1 line could move a megabyte at maximum capacity in less than 10 seconds. This transfer rate is still not fast enough for full-screen, full-motion video, for which at least 10 Mega bits per second would be needed. T-1 is the fastest speed connection commonly used to connect networks to the Internet.

TCP/IP: Stands for Transmission Control Protocol/Internet Protocol. This is the group of protocols that define the Internet and communication method used by it. Originally designed for the UNIX operating system, TCP/IP software is now available for every major operating system. In order to be compatible to the Internet, the computer must have TCP/IP compatible software.

Uniform Resource Locator: Address of location for accessing Web pages. Clicking on an icon or "hot text" is the most common means of accessing and using a URL. Typing the URL in the "Location" on Netscape® Navigator or Internet Explorer®, (for example, {INTRANET NAME}@[COMPANY NAME]. com) is another way of getting to a Web page.

Web or Net: The World Wide Web (a server) consisting of a hypermedia system (linking sounds, text, pictures, video) that the computer (a client) can access.

Web Page: The basic Unit of the World Wide Web. Information on a Web page can include graphics, audio, and video. A number of properly linked Web pages make up an Intranet or Internet.

Web Server: A host computer that stores Web pages and responds to requests for viewing. Web servers communicate with Web browsers (by HTTP).

Webmaster: The supervisor ensuring that the system is up and running; the coordinator of access; the administrator for communications between users and hosts to sites.

☞ Check Your Progress 2

1) The browser when invoked seeks a server computer through the communication medium that has the first page or Home page of the Intranet, which is usually seen in the folder as _____

2) The most easily noticeable difference between an Internet Server and a "collaborative" computing solution such as Lotus Notes (also called groupware, could be used for Intranet server) is the _____

3) _____ allows everyone in an organisation to review or update information.

4) _____, if managed, efficiently, allows maximum security by firewalling anyone from inappropriate sites automatically.

5) VSAT stands for _____

1.9 SUMMARY

The Intranet is a network of networks meant exclusively for an organisation. The networks could be spread over a number of locations. The Intranet uses the concepts of client/server technology, Internet, WAN, LAN and many others. The establishment of an Intranet is not so expensive except the communication connectivity cost between different locations. Intranets support everything that the Internet supports but vice versa is not true. Users can connect to their company's Intranet through a Web browser, which provides a single interface to a reservoir of information. Though there are a number of strong advantages of using Intranets, security of information is a major concern as the information has to flow through WAN.

There are two ways of using specialised software on the Intranets, viz., through Intranet server software or through groupware. The latter is considered costly but has its own advantages.

In future, one can see a fusion between the Intranet and groupware, thereby bringing a lot of benefits. Similarly, the Intranets are expected to bring in better coordination and control within any company and, consequently, the existing work pattern of the employees is also likely to change.

1.10 SOLUTIONS/ANSWERS

Check Your Progress 1

1) Mosaic

2) 10-100 Mbps

3) Design Philosophy

4) Both Intranet & Internet

Check Your Progress 2

1) Index.htm

2) Design Philosophy

3) Bulletin Board

4) Single Sign-on Intranet

5) Very Small Aperture Terminal

1.11 FURTHER READINGS

1) *Intranet and Web Databases for Dummies* by Paul Litwin, Hungry Minds Inc. (Publisher).
2) *The ABCs of Intranets*, BPB Publications.
3) *Building the Corporate Intranet* by Steven L.Guengerich, John Wiley & Sons

Reference Websites

1) http://www.sun.com
2) http://www.microsoft.com
3) http://www.intel.com
4) http://www.motorola.com