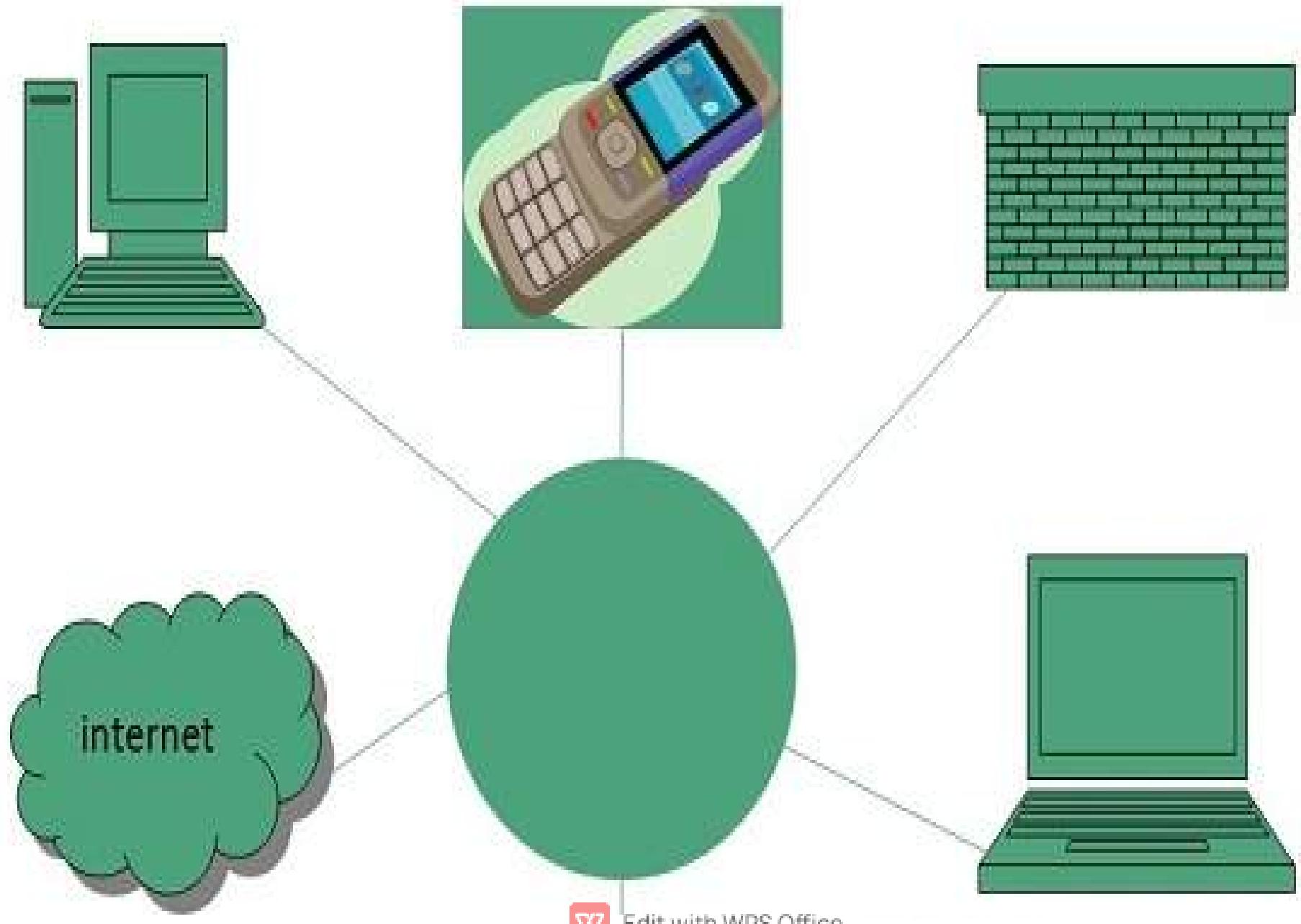


INTERNET AND WWW

Prepared by:
SHIVANI BHADORIYA



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TOPICS COVERED

- Introduction
- Evolution and History
- Types of internet:
- Intranet & extranet
- Internet Applications
- Internet tools
- Internet Protocols: TCP/IP, FTP, TELNET, HTTP, SMTP,
- Web browser
- Web server
- Web pages
- Search engine
- Video conferencing
- Working with an E-mail



What is Internet ??



The Internet is a global system of interconnected computer networks that use the standard Internet protocol suite (TCP/IP) to link several billion devices worldwide.

What is WWW and why is it important?

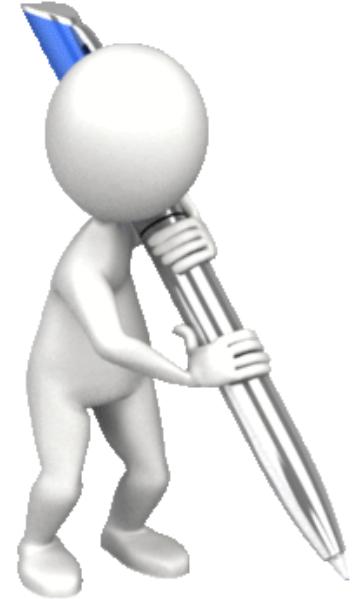
The internet is a huge network of computers all connected together. The world wide web ('www' or 'web' for short) is a collection of webpages found on this network of computers. Your web browser uses the internet to access the web.

What is Internet ??

- It is a network of networks that consists of millions of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies.
- The Internet carries an extensive range of information resources and services, such as the inter-linked hypertext documents and applications of the World Wide Web (WWW), the infrastructure to support email, and peer-to-peer networks for file sharing and internet telephony.
- **WWW – World Wide Web**
- An information system on the internet which allows documents to be connected to other documents by hypertext links, enabling the user to search for information by moving from one document to another.

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History of an Internet

- The Internet started in the 1960s as a way for government researchers to share information.
- The origins of the Internet date back to research commissioned by the United States government in the 1960s to build robust, fault-tolerant communication via computer networks.
- This work, combined with efforts in the United Kingdom and France, led to the primary precursor network, the [ARPANET](#), in the United States.
- On October 29, 1969, ARPAnet delivered its first message: a “node-to-node” communication from one computer to another.

ARPANET

- The Advanced Research Projects Agency Network (ARPANET) was an early packet-switching network.
- Both technologies became the technical foundation of the Internet.
- The ARPANET was initially founded by the Advanced Research Projects Agency (ARPA) of the United States Department of Defense

History of an Internet

- The interconnection of regional academic networks in the 1980s marks the beginning of the transition to the modern Internet.
- January 1, 1983 is considered the official birthday of the Internet. Prior to this, the various computer networks did not have a standard way to communicate with each other.
- A new communications protocol was established called Transfer Control Protocol/Internet Protocol (TCP/IP). This allowed different kinds of computers on different networks to "talk" to each other.
- From the early 1990s, the network experienced sustained exponential growth as generations of institutional, personal, and mobile computers were connected to it.



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Uses of Internet

- 1. Electronic mail.** At least 85% of the inhabitants of cyberspace send and receive e-mail. Some 20 million e-mail messages cross the Internet every week.
- 2. Research.**
- 3. Downloading files.**
- 4. Discussion groups.** These include public groups, such as those on Usenet, and the private mailing lists that ListServ manages.
- 5. Interactive games.** Who hasn't tried to hunt down at least one game?
- 6. Education and self-improvement.** On-line courses and workshops have found yet another outlet.
- 7. Friendship.** You may be surprised at the number of electronic "personals" that you can find on the World Wide Web.

Uses of Internet

- 8. Electronic newspapers and magazines.** This category includes late-breaking news, weather, and sports. We're likely to see this category leap to the top five in the next several years.
- 9. Job-hunting.** Classified ads are in abundance, but most are for technical positions.
- 10. Shopping.** It's difficult to believe that this category even ranks. It appears that "cybermalls" are more for curious than serious shoppers.

Who owns the internet?

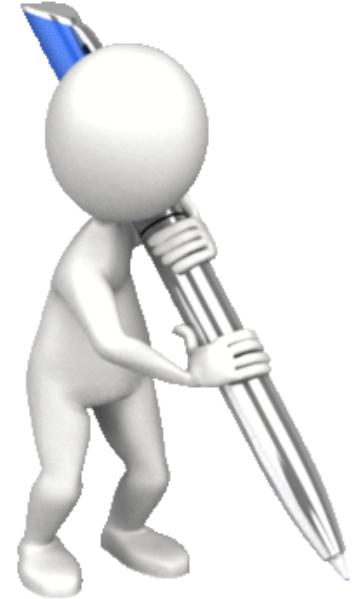
- No one actually owns the Internet, and no single person or organization controls the Internet in its entirety.
- The Internet has no centralized governance in either technological implementation or policies for access and usage; each constituent network sets its own policies.
- If you think of the Internet as a unified, single entity, then no one owns it.
- There are organizations that determine the Internet's structure and how it works, but they don't have any ownership over the Internet itself.
- No government can lay claim to owning the Internet, nor can any company.
- The Internet is like the telephone system -- no one owns the whole thing

Who owns the internet?

- The technical underpinning and standardization of the core protocols (IPv4 and IPv6) is an activity of the Internet Engineering Task Force(IETF), a non-profit organization of loosely affiliated international participants that anyone may associate with by contributing technical expertise.
- Corporation for Assigned Names and Numbers (ICANN) is the authority that coordinates the assignment of unique identifiers for use on the Internet, including domain names, Internet Protocol (IP) addresses, application port numbers in the transport protocols, and many other parameters.
- Globally unified name spaces, in which names and numbers are uniquely assigned, are essential for maintaining the global reach of the Internet.
- ICANN headquarters are located in Los Angeles, California.

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Types Of Internet



- Before understanding Intranet and Extranet, lets understand the internet first.
- **Internet:**
- What is Internet?
- It is a Global network of computers which may be server or client that exchanges information.
- It can be defined as a "network of networks" which can be linked through copper wires, wireless connections, and other technologies.
- This is the world-wide network of computers accessible to anyone who knows their Internet Protocol (IP) address.

- **What is Intranet?**
- The term Intranet is derived from two words: 'Intra' which means within and 'net' which means group of interconnected computers.
- It is a private computer network that uses Internet protocols and network connectivity to securely share any part of an organization's information or operational systems with its employees.
- In short, an intranet is a private network,
- An intranet is a private network contained within an enterprise that is used to securely share company information and computing resources among employees.
- Intranets encourage communication within an organization. They let employees easily access important information, links, applications, forms and databases of company records.

How intranet is different from Internet?

- The technologies used in Intranet and Internet may be same but the main difference between them is that
 - The information shared in intranet can be accessed only by authorized persons especially members or employees of the organization or company
 - Whereas in internet the information is shared world wide with any public user
 - To explain in simple terms, intranet is private, within the organization while internet is public available for global access



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What is Extranet?

- It is an intranet for outside authorized users using same internet technologies.
- The outside users are trusted partners of the organization who have access to information of their interest & concern.
- It extends the intranet concept to provide a network that connects a company's network to the networks of its business partners, selected customers, or suppliers.



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How extranet is different from Internet?



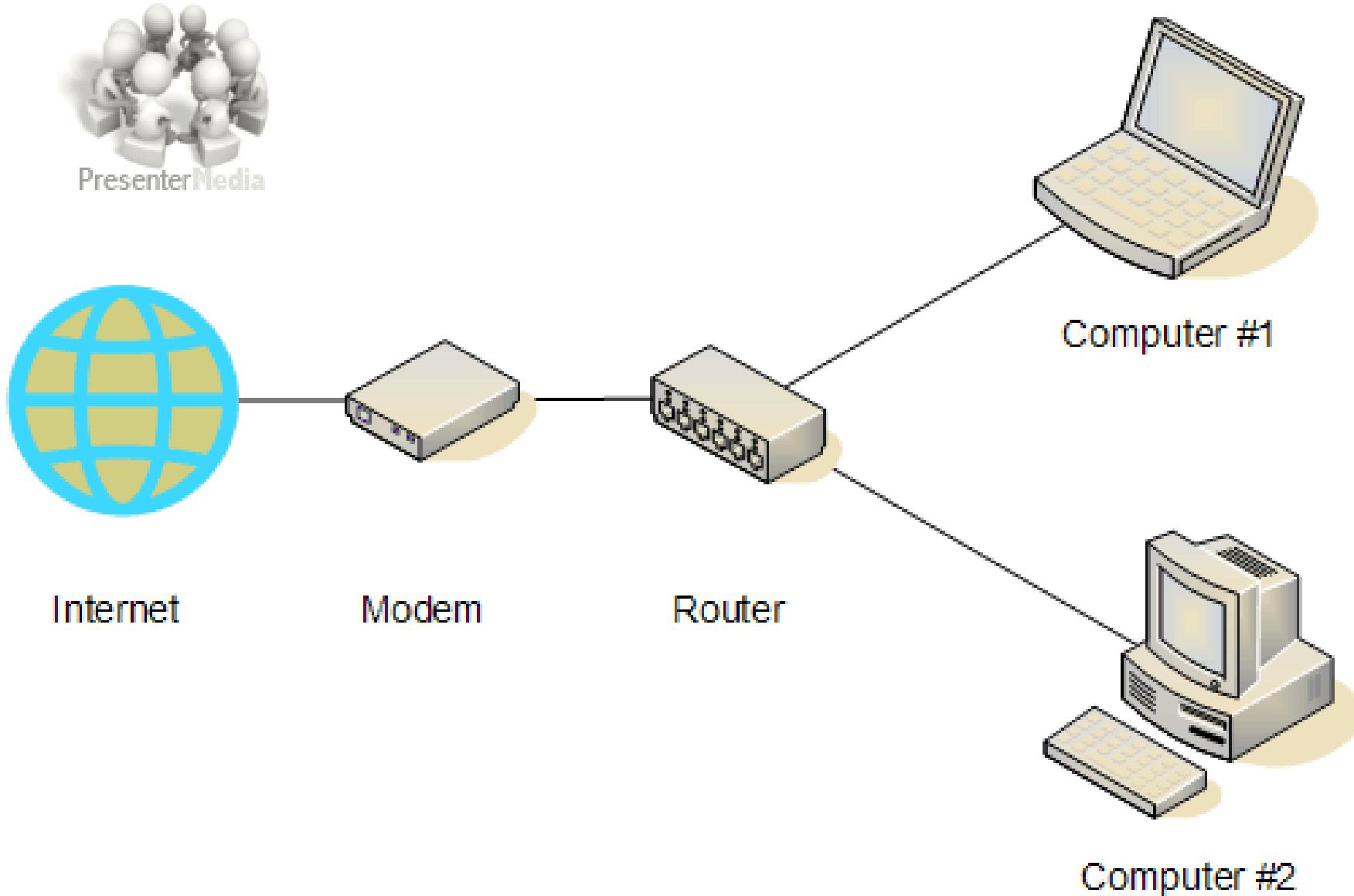
How Extranet is different from Intranets?

- Intranets differ from extranet in that the former are generally restricted to employees of the organization while extranets may also be accessed by customers, suppliers, or other approved parties.
- Extranets extend a private network onto the Internet with special provisions for access, authorization and authentication.

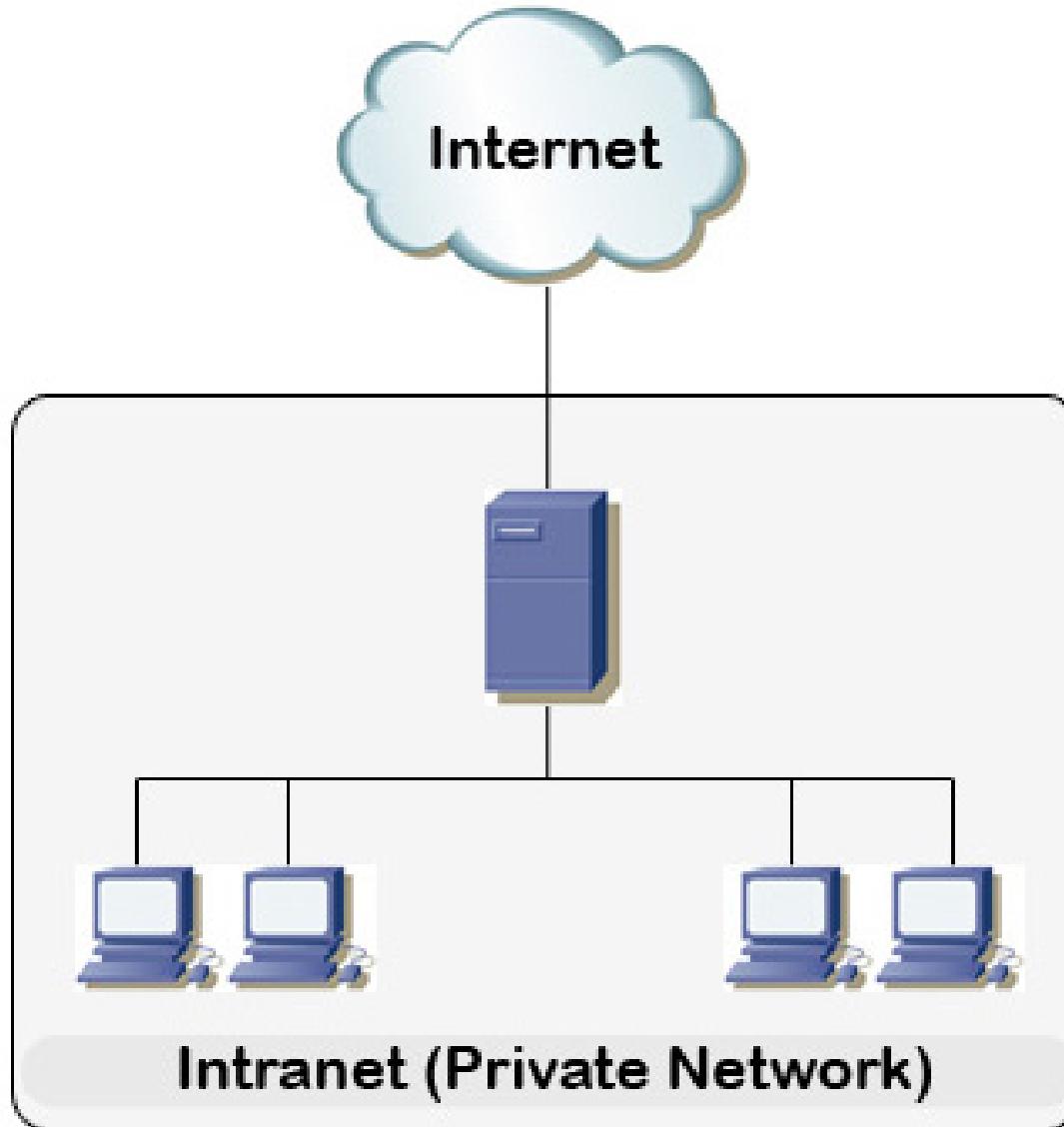


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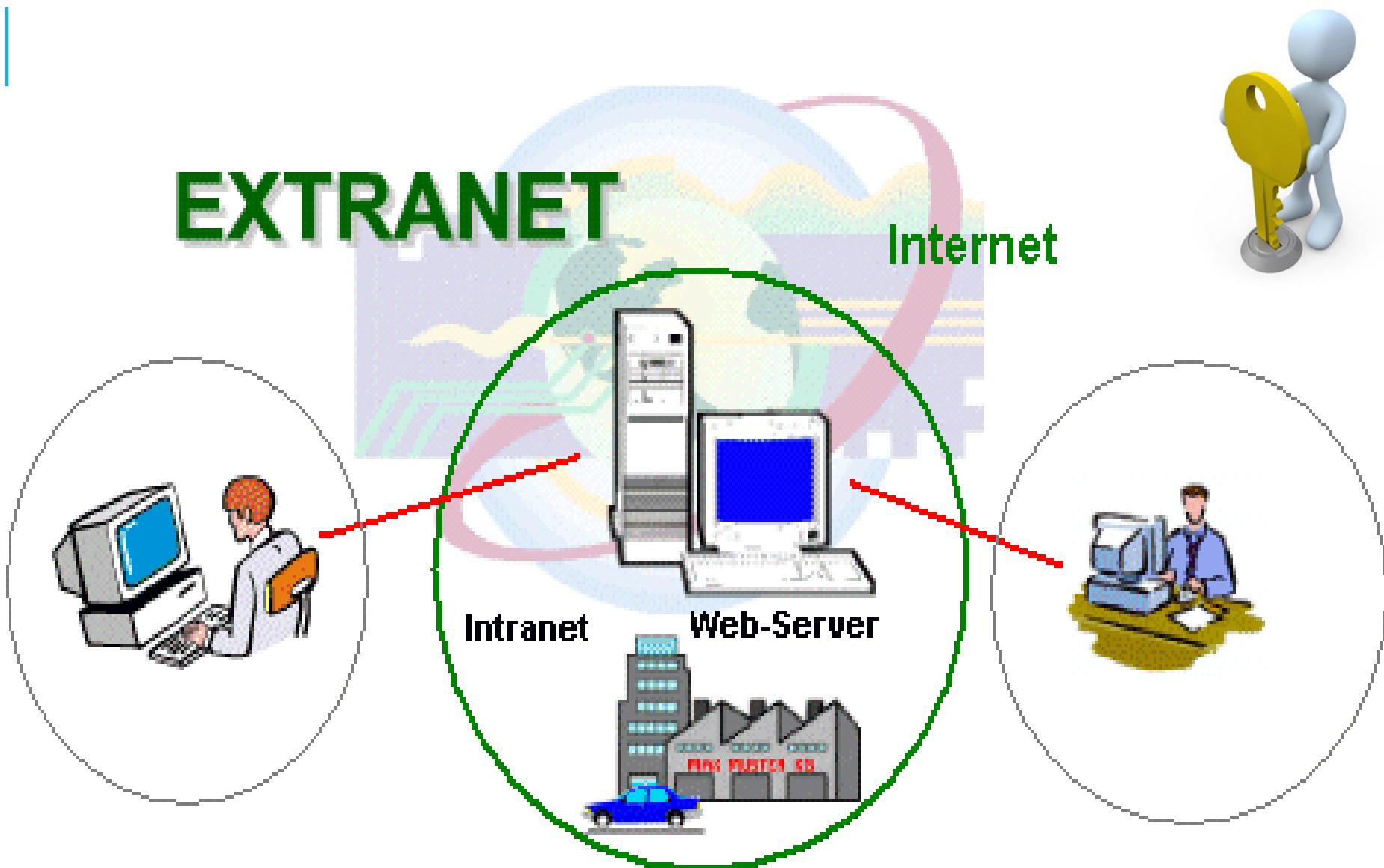
Internet



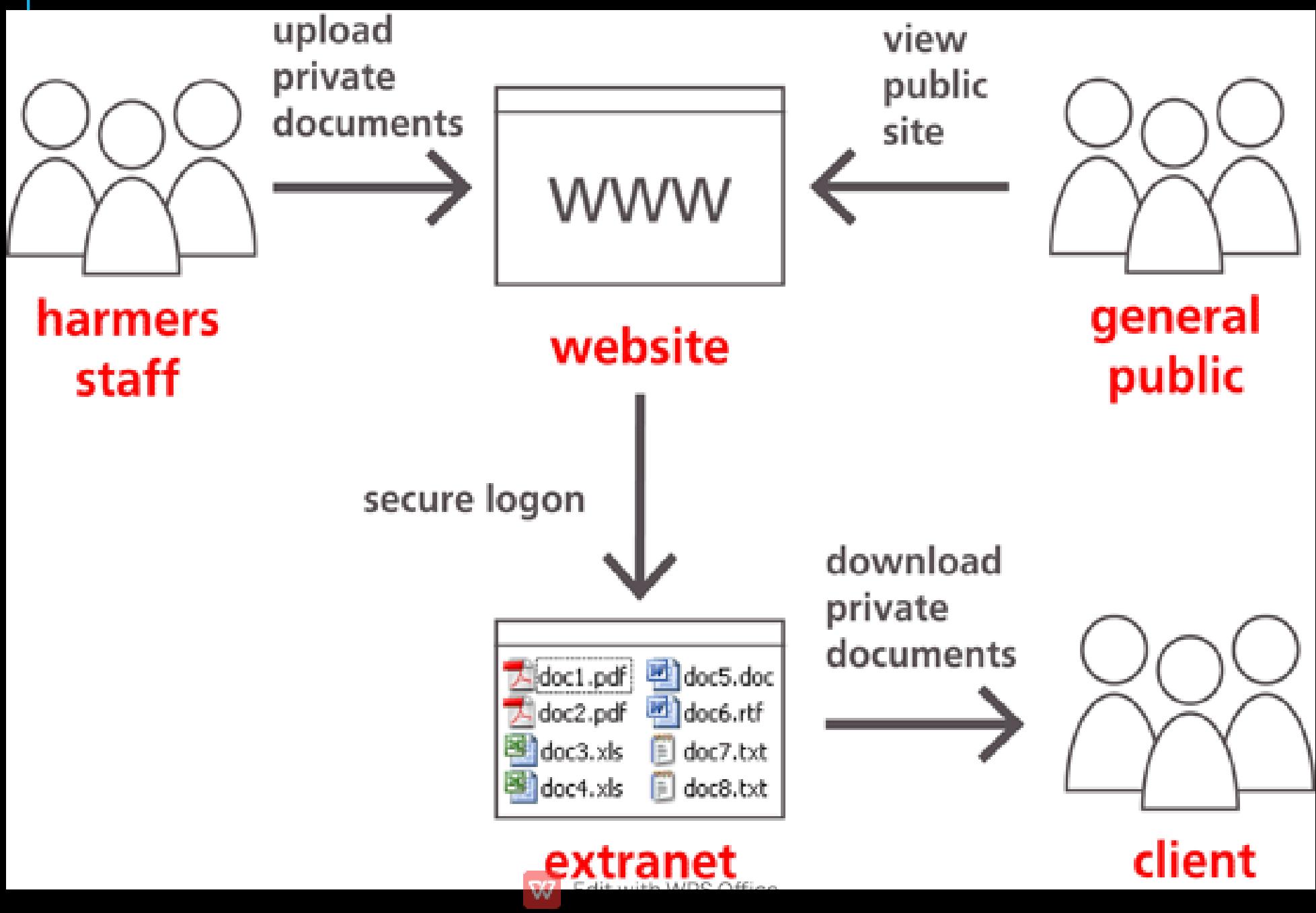
Intranet



Extranet



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Self Learning Exercise

•Differentiate the following

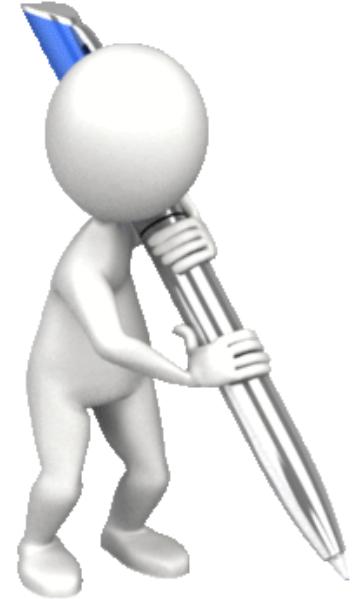
1. Internet v/s Intranet
2. Intranet v/s Extranet



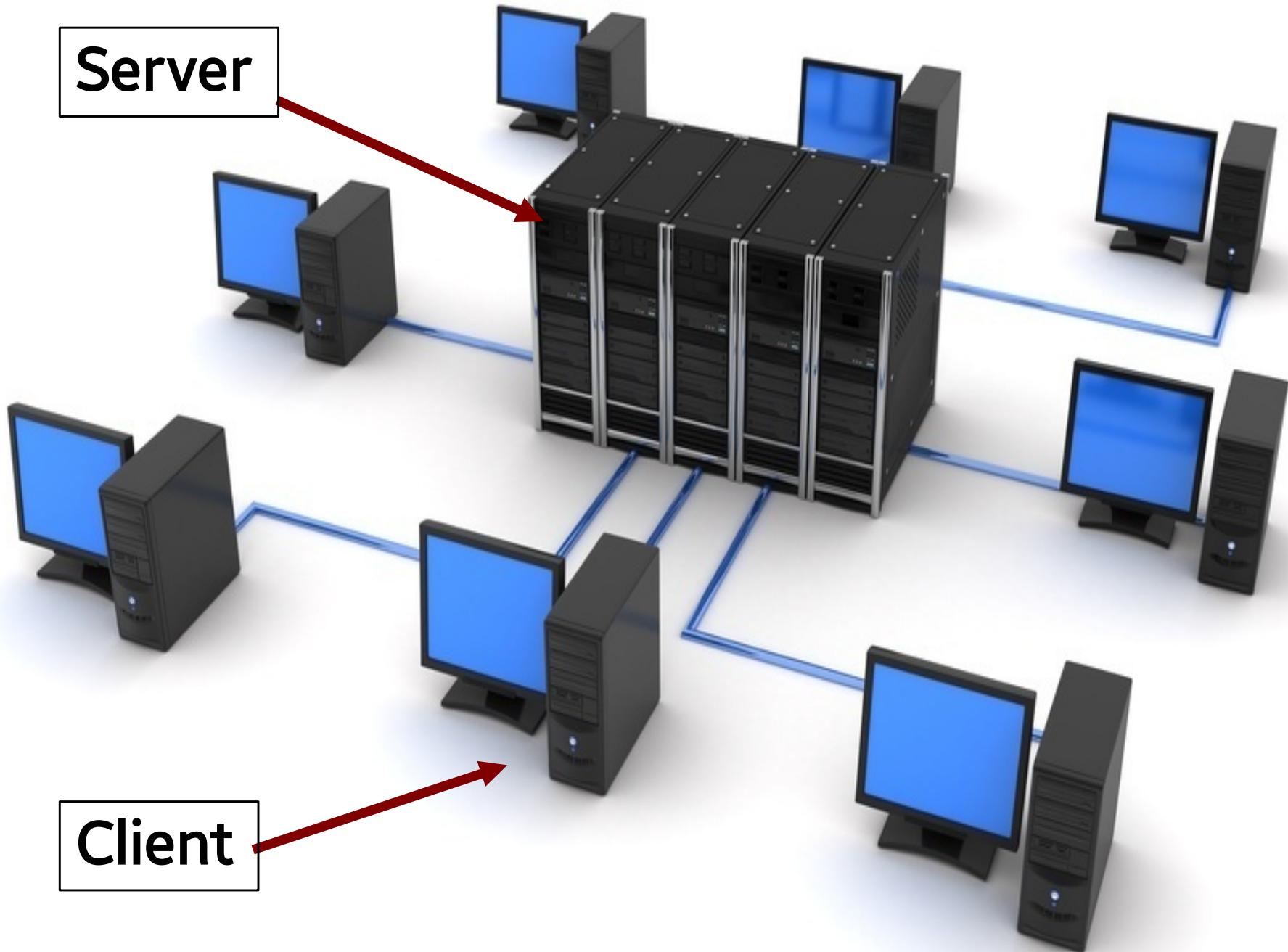
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Server



Client

INTERNET APPLICATION

- An Internet application, sometimes called a rich Internet application (RIA), is typically an interactive program that can be accessed through a web browser.
- These applications share many characteristics with desktop programs, but instead of a designated user interface, they use Internet browsers as tools to relay information.
- These applications often use plug-ins such as Java, Silverlight or Flash to make it easier for users to input information.



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INTERNET APPLICATION

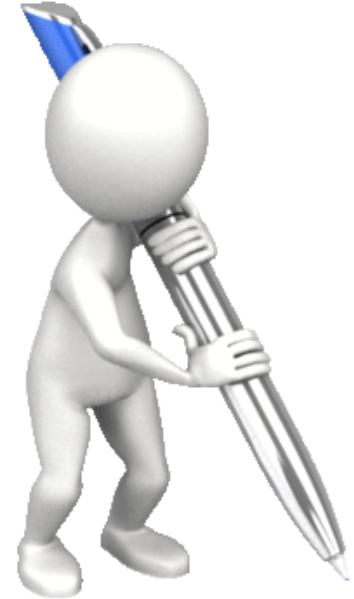
- Internet applications are based on remote servers, which means that the programs that accept and process information are not run locally on the user's machine.
- This is the key difference between Internet and desktop applications, where all processing is done locally.
- For Internet applications, processing on the user's machine is typically minimal.
- When information is entered into the Internet application, it is sent along telecommunication lines to the server, where it is then processed and recorded.
- The server then sends revised information back to the Internet application for the user to review.



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INTERNET TOOLS

1. Email
2. Telnet
3. Gopher
4. FTP
5. TCP/IP
6. WWW

e-mail



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e-mail

- Electronic mail, most commonly referred to as email or e-mail since 1993, is a method of exchanging digital messages from an author to one or more recipients.
- Email operates across the Internet or other computer networks.
- Some early email systems required the author and the recipient to both be online at the same time, in common with instant messaging.
- Today's email systems are based on a store-and-forward model.
- Email servers accept, forward, deliver, and store messages.
- Neither the users nor their computers are required to be online simultaneously; they need connect only briefly, typically to a mail server, for as long as it takes to send or receive messages.



10/16/2022



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e-mail Components

1. Compose
2. Inbox
3. Sent Items
4. Drafts
5. Trash



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e-mail

- Remember all these while sending an email

To

CC

BCC

Subject

Message

- Addressing An Email

- When you send an email, you have three field choices: "to", "cc", and "bcc". Here is how to use each field:
 - To: enter the email addresses of the people the email is targeted to
 - Cc: (Carbon Copy) enter the email addresses of the people you want to know about the email (remember that everyone will see their names)
 - Bcc: (Blind Carbon Copy) enter the email addresses of the people you want to know about the email but not announce to everyone else that they are getting a copy.
- Subject: Subject of your email
- Message: Body part of your message



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2. telnet

- A terminal emulation program for TCP/IP networks such as the Internet.
- The Telnet program runs on your computer and connects your PC to a server on the network.
- Telnet is a “TeleCommunication Network”.

- You can then enter commands through the Telnet program and they will be executed as if you were entering them directly on the server console.
- This enables you to control the server and communicate with other servers on the network.
- To start a Telnet session, you must log in to a server by entering a valid username and password.
- Telnet is a common way to remotely control Web servers.





```
else if ( diff > 180 && diff < 270 ) {
```

mTCP Telnet by M Brutman (mbbrutman@yahoo.com) (C)opyright 2009
Version: Dec 27 2009

Commands: Alt-H Help Alt-R Refresh Alt-X Exit

Toggles: Alt-E Local Echo On/Off

Alt-W Wrap at right margin On/Off

Alt-B Send Backspace as Delete On/Off

Term Type: ANSI Virtual buffer pages: 4

Echo: Off Wrap: Off Send Backspace as Delete: On

Tcp: Sent 852 Rcvd 535 Retrans 0 Seq/Ack errs 0 Dropped 0

Packets: Sent: 853 Rcvd: 594 Dropped: 0 LowFreeBufCount: 15

Press a key to go back to your session ...

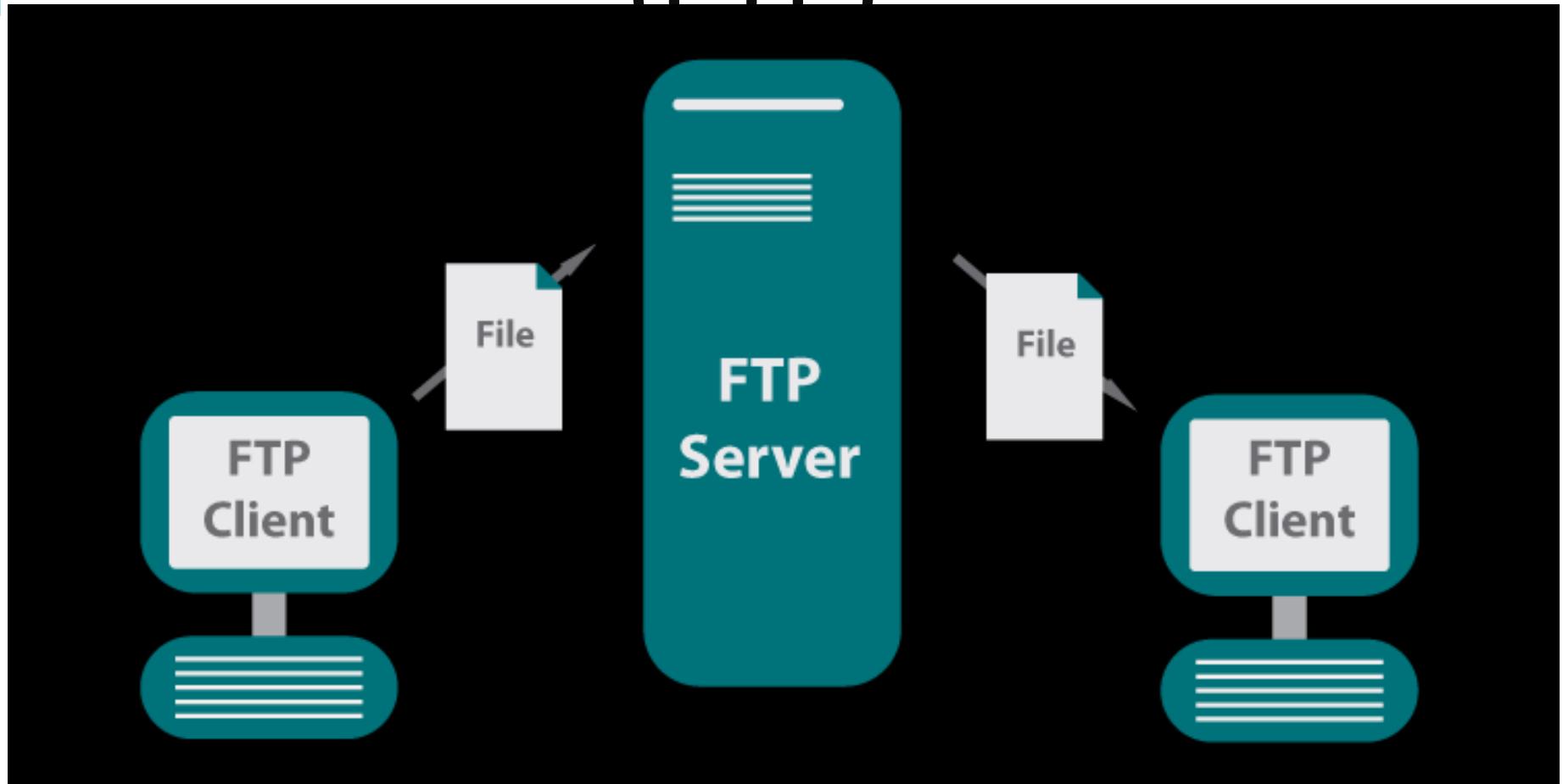
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int main( int argc, char *argv[] ) {  
  
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    double wd = atof( argv[4] );
```

3. gopher

- Gopher is an Internet application that allows you to browse many different kinds of resources by looking at menus or listings of information available.
- Its function is easy to remember because of its name: you use Gopher to "go fer" information that is on other computers all over the world.
- The menus in the Gopher system allow you to see what information is there; the Gopher client on your system then brings the information you want to your computer screen.
- The Gopher servers of the world are all interconnected and have been compared to a large library full of resources.
- The design of the Gopher protocol and user interface is menu-driven, and presented an alternative to the World Wide Web in its early stages.
- The Gopher ecosystem is often regarded as the effective predecessor of the World Wide Web.

4. FTP

FILE TRANSFER PROTOCOL (FTP)



4. FTP

- A File Transfer Protocol (FTP) is a standard network protocol used to transfer computer files from one host to another host over a TCP-based network, such as the Internet.
- FTP works in the same way as HTTP for transferring Web pages from a server to a user's browser and SMTP for transferring electronic mail across the Internet in that, like these technologies, FTP uses the Internet's TCP/IP protocols to enable data transfer.
- FTP is most commonly used to download a file from a server using the Internet or to upload a file to a server (e.g., uploading a Web page file to a server).



5. TCP/IP

- Transmission Control Protocol/Internet Protocol (TCP/IP) is the language a computer uses to access the internet.
- It consists of a suite of protocols designed to establish a network of networks to provide a host with access to the internet.
- Nearly all computers today support TCP/IP.
- TCP/IP is not a single networking protocol – it is a suite of protocols named after the two most important protocols or layers within it – TCP and IP



5. TCP/IP

- As with any form of communication, two things are needed: a message to transmit and the means to reliably transmit the message. The TCP layer handles the message part.
- The message is broken down into smaller units, called packets, which are then transmitted over the network.
- The packets are received by the corresponding TCP layer in the receiver and reassembled into the original message.
- The IP layer is primarily concerned with the transmission portion.
- This is done by means of a unique IP address assigned to each and every active recipient on the network.

6. www



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6. WWW

- The World Wide Web (abbreviated as the Web or WWW) is a system of Internet servers that supports hypertext to access several Internet protocols on a single interface.
- Almost every protocol type available on the Internet is accessible on the Web.
- This includes e-mail, FTP, Telnet, and Usenet News. In addition to these, the World Wide Web has its own protocol: HyperText Transfer Protocol, or HTTP
- The World Wide Web provides a single interface for accessing all these protocols.
- This creates a convenient and user-friendly environment. It is no longer necessary to be conversant in these protocols within separate, command-level environments.
- The Web gathers together these protocols into a single system.
- Because of this feature, and because of the Web's ability to work with multimedia and advanced programming languages, the Web is the fastest-growing component of the Internet.

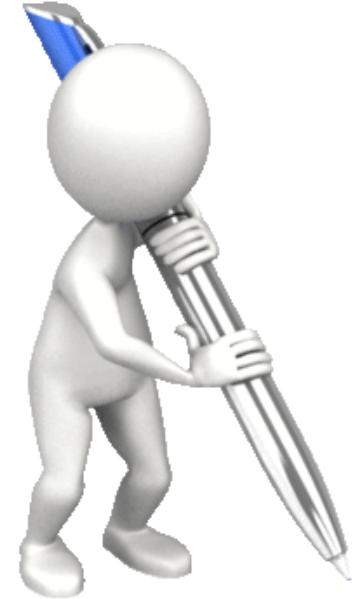


6. WWW

- The operation of the Web relies primarily on hypertext as its means of information retrieval.
- HyperText is a document containing words that connect to other documents.
- These words are called links and are selectable by the user.
- A single hypertext document can contain links to many documents. In the context of the Web, words or graphics may serve as links to other documents, images, video, and sound

TOPICS COVERED

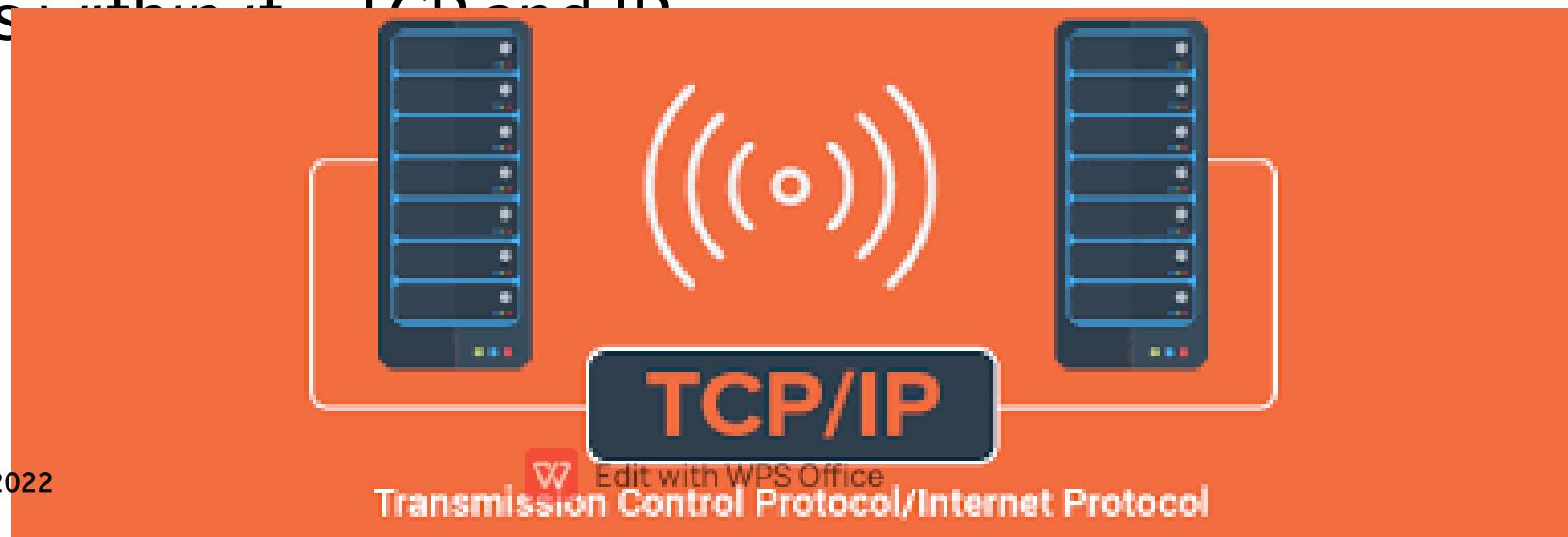
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Internet Protocols – TCP/IP

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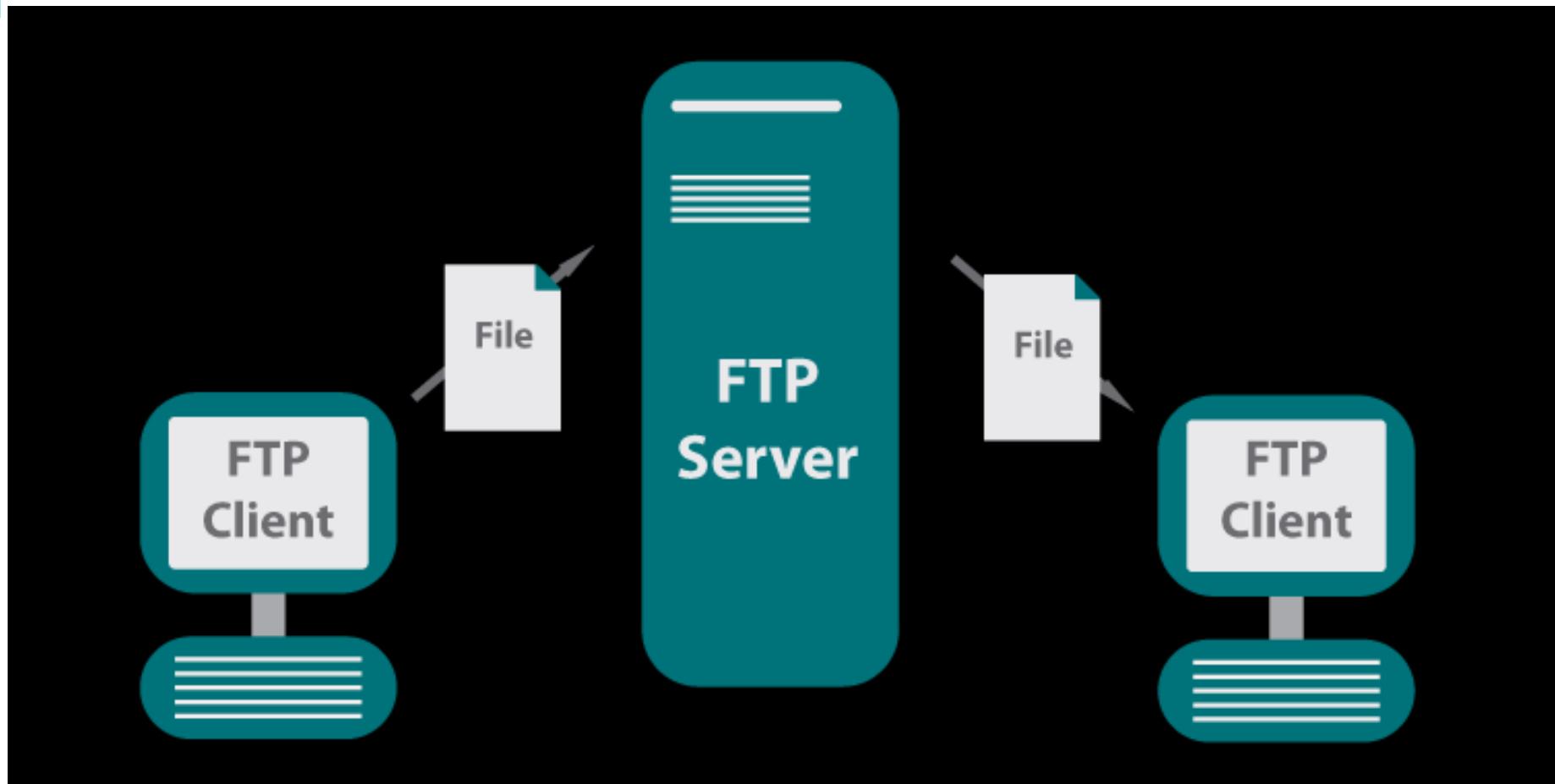


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Internet Protocols - FTP

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Internet Protocols - TELNET

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- Telnet is a common way to remotely control Web servers.



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DOSBox 0.72, Cpu Cycles: 3000, Frameskip 0, Program: TELNET



```
else if ( diff > 180 && diff < 270 ) {
```

mTCP Telnet by M Brutman (mbbrutman@yahoo.com) (C)opyright 2009
Version: Dec 27 2009

Commands: Alt-H Help Alt-R Refresh Alt-X Exit

Toggles: Alt-E Local Echo On/Off

Alt-W Wrap at right margin On/Off

Alt-B Send Backspace as Delete On/Off

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    double tc = atof( argv[2] );  
    double ws = atof( argv[3] );  
    double wd = atof( argv[4] );
```

82,1

59%



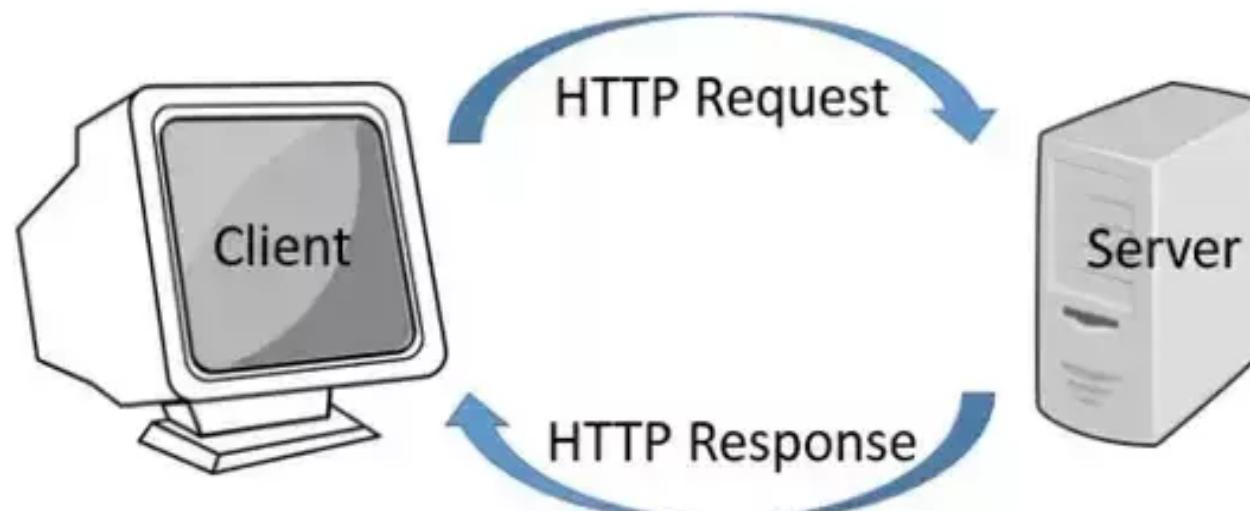
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4. HTTP



Internet Protocols - HTTP

- HTTP means HyperText Transfer Protocol.
- HTTP is the underlying protocol used by the World Wide Web and this protocol defines how messages are formatted and transmitted, and what actions Web servers and browsers should take in response to various commands.
- For example, when you enter a URL in your browser, this actually sends an HTTP command to the Web server directing it to fetch and transmit the requested Web page.



Internet Protocols - HTTP

- ***HTTP: A Stateless Protocol***
- HTTP is called a *stateless* protocol because each command is executed independently, without any knowledge of the commands that came before it.
- This is the main reason that it is difficult to implement Web sites that react intelligently to user input.
- This shortcoming of HTTP is being addressed in a number of new technologies, including ActiveX, java, JavaScript and cookies.



Internet Protocols – URL REGISTRATION

- Domain registration refers to the process of registering a domain name, which identifies one or more IP addresses with a name that is easier to remember and use in URLs to identify particular Web pages.
- The person or business that registers domain name is called the domain name registrant.
- Domain registration requires utilizing the services of a domain name registrar, an ICANN or national ccTLD accredited company that has the authority to register domain names.
- Registrars help individuals and organizations register a domain name that has an extension like .com, .org, .net, .info, .biz, .us, .mobi, .name, .pro, .tv, etc.

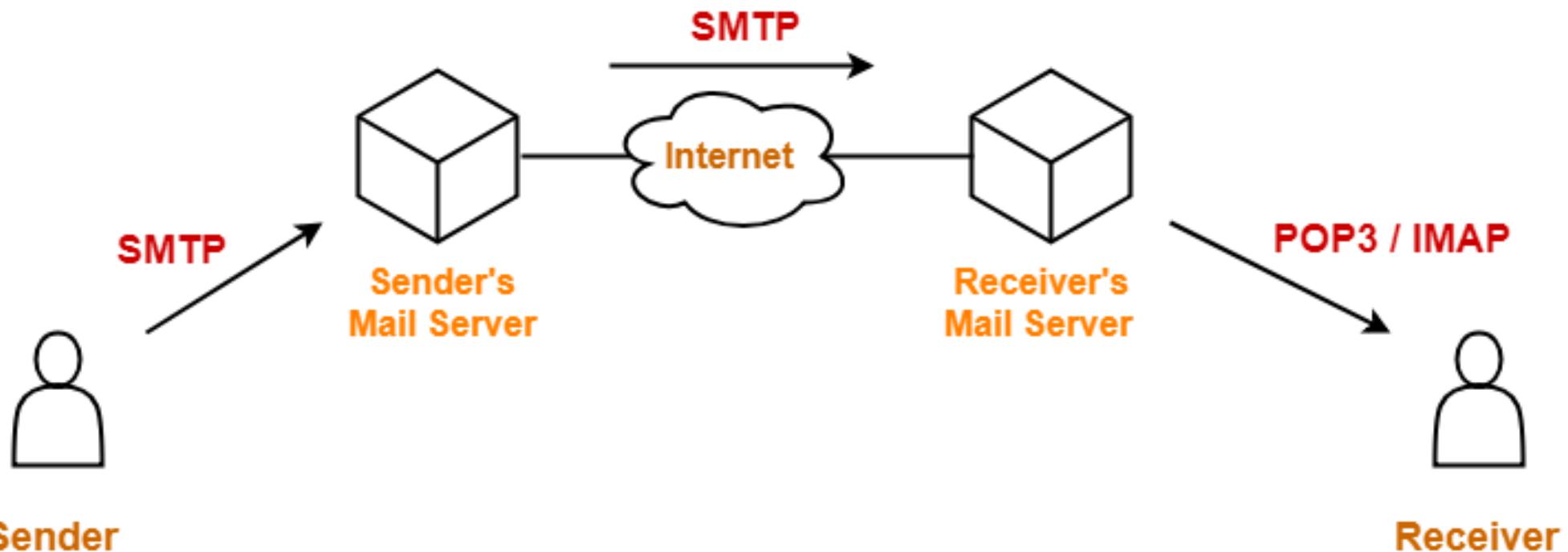


Internet Protocols - SMTP

5. SMTP

- Short for Simple Mail Transfer Protocol, a protocol for sending e-mail messages between servers.
- Most e-mail systems that send mail over the Internet use SMTP to send messages from one server to another; the messages can then be retrieved with an e-mail client using either POP or IMAP.
- In addition, SMTP is generally used to send messages from a mail client to a mail server.
- This is why you need to specify both the POP or IMAP server and the SMTP server when you configure your e-mail application.

Internet Protocols - SMTP



Sender

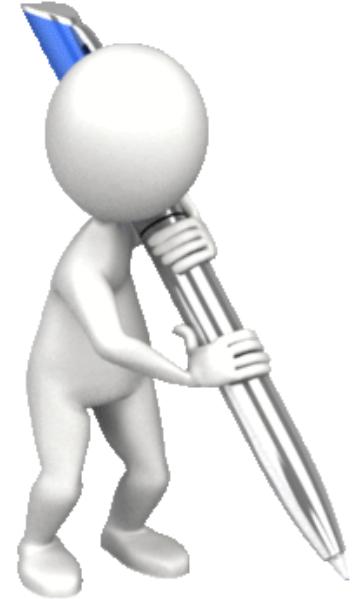
Receiver



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WEB BROWSER

BROWSER RKM&EK



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WEB BROWSER

- Short for *Web browser*, a browser is a software application used to locate, retrieve and display content on the World Wide Web, including Web pages, images, video and other files.
- As a client/server model, the browser is run at a client side in computer that contacts the Web server and requests information.
- The Web server sends the information back to the Web browser which displays the results on the computer or other Internet-enabled device that supports a browser.



Different Browsers



Mozilla Firefox



Tencent Traveler



Opera



Chrome



Maxthon



Safari



Internet Explorer



The world



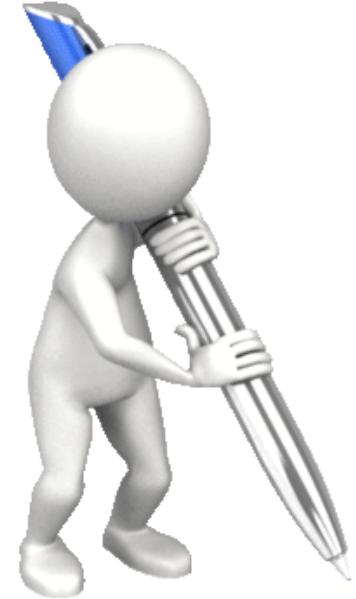
Netscape



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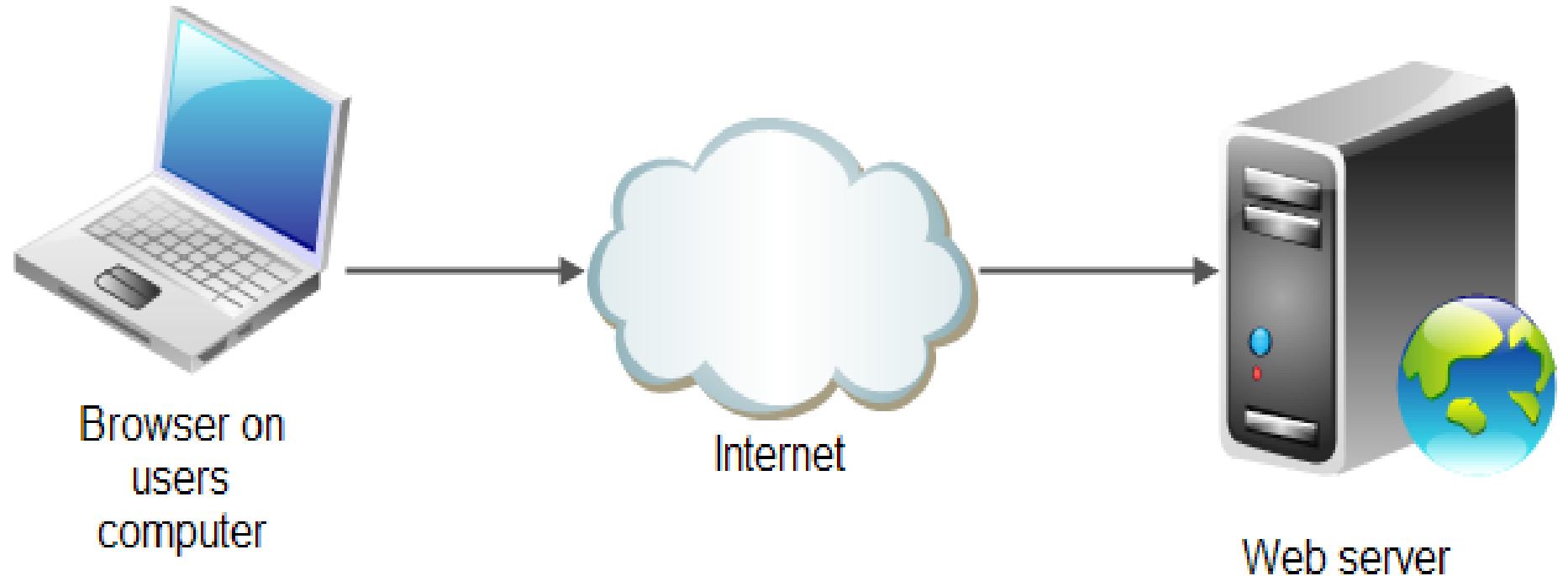


WEB SERVER

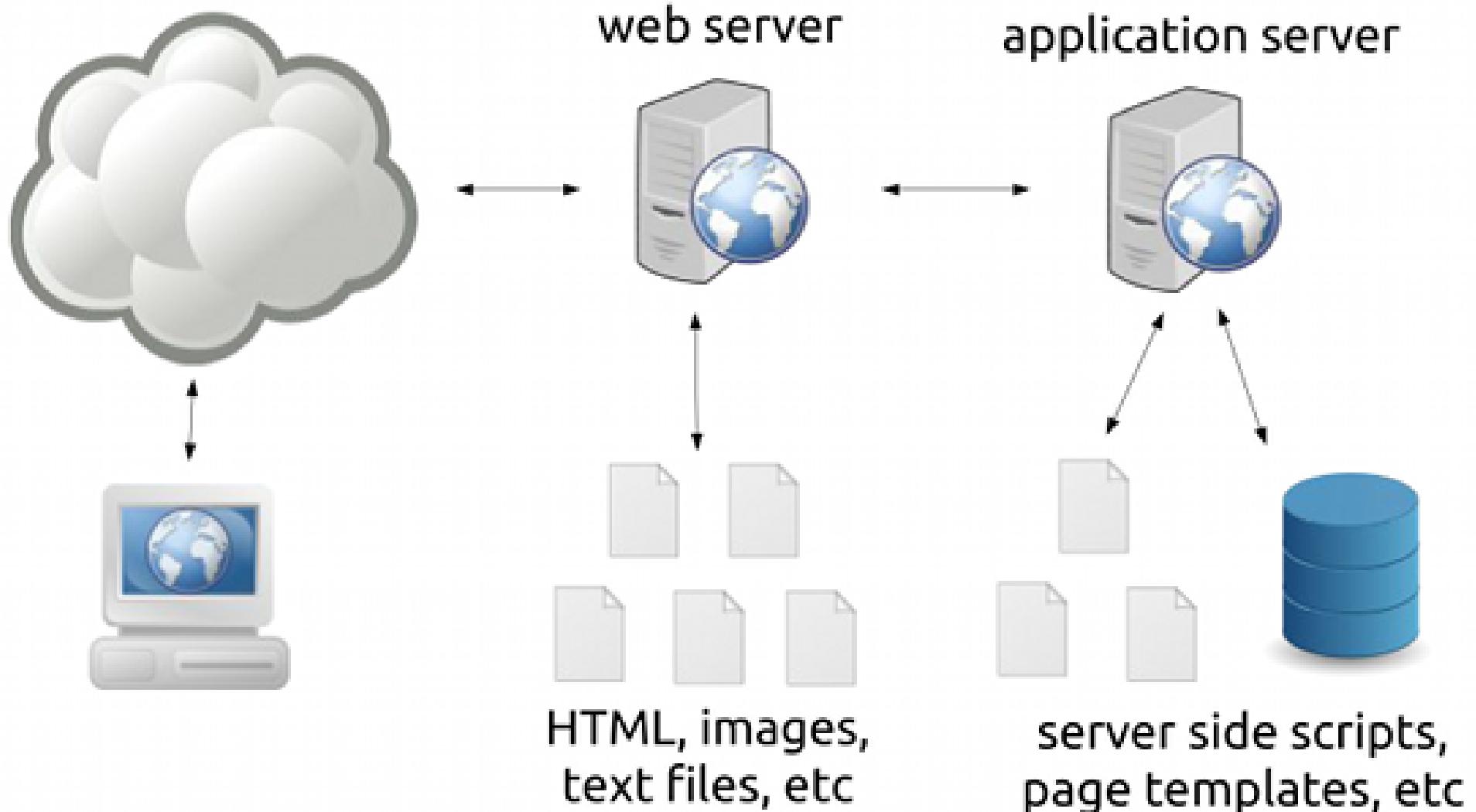
- **Web Server**
- Web servers are computers that deliver (*serves up*) Web pages.
- Every Web server has an IP address and possibly a domain name.
- For example, if you enter the URL *http://www.webopedia.com/index.html* in your browser, this sends a request to the Web server whose domain name is *webopedia.com*.
- The server then fetches the page named *index.html* and sends it to your browser.
- Any computer can be turned into a Web server by installing “server software” and connecting the machine to the Internet.
- There are many Web server software applications, including public domain software and commercial packages.



WEB SERVER

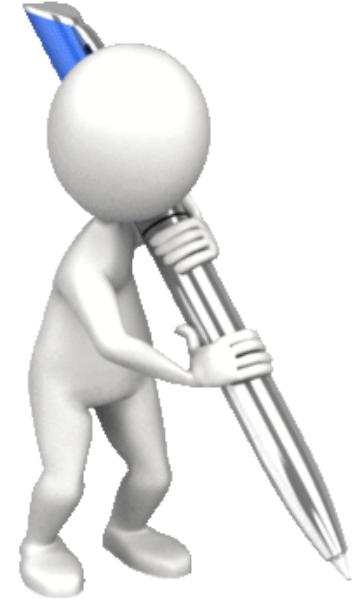


WEB SERVER



TOPICS COVERED

- Introduction
- Evolution and History
- Types of internet:
- Intranet & extranet
- Internet Applications
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- Search engine
- Video conferencing
- Working with an E-mail



WEB PAGES



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WEB PAGES

- A **web page** (or **webpage**) is a web document that is suitable for the World Wide Web and the *web browser*.
- A web browser displays a web page on a monitor or mobile device. The web page is what displays, but the term also refers to a computer file, usually written in HTML or comparable markup language.
- Web browsers coordinate the various web resource elements for the written web page, such as style sheets, scripts and images, to present the web page.
- Typical web pages provide hypertext that include a navigation bar or a sidebar menu to *other* web pages via hyperlinks, often referred to as *links*.



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Static v/s Dynamic



➤ Static Websites

- A static site is a website that is written entirely using HTML.
- Each web page is a separate document and there are no databases or external files that are drawn upon.

- This means that the only way to edit this type of website is to go into each page and edit the HTML.
- So you would have to do it yourself using a web page editor such as FrontPage or Dreamweaver, or pay your web developer to make updates for you



WEB PAGES

- A dynamic website is written using more complex code — such as PHP or ASP — and has a greater degree of functionality.
- For instance, many dynamic websites can be controlled by a content management system.
- This means that you will potentially be able to make updates without needing any knowledge of HTML or any website software.
- Each page of a dynamic website is generated from information stored in a database or external file.
- And the content management system that you may use to maintain your website directly modifies this stored information.



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Client Side Scripting

v/s

Server Side Scripting



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CLIENT SIDE SCRIPTING

- The client-side environment used to run scripts is usually a browser.
- The processing takes place on the end users computer.
- The source code is transferred from the web server to the users computer over the internet and run directly in the browser.

- The scripting language needs to be **enabled** on the client computer.
- Sometimes if a user is conscious of **security risks** they may switch the scripting facility off.
- When this is the case a message usually pops up to alert the user when script is attempting to run.



SERVER SIDE SCRIPTING

- The server-side scripting that runs a scripting language is a web server.
- A user's request is fulfilled by running a script directly on the web server to generate dynamic HTML pages.
- This HTML is then sent to the client browser.
- It is usually used to provide interactive web sites that interface to databases or other data stores on the server.
- This is different from client-side scripting where scripts are run by the viewing web browser, usually in JavaScript.
- The primary advantage to server-side scripting is the ability to highly customize the response based on the user's requirements, access rights, or queries into data stores.



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* Client Side Scripting

JavaScript

VBScript

* Server Side Scripting

PHP

ASP.NET

JSP

Ruby



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Server Side



Request for file.php

File out put

File displayed on
your computer

Server

File.php

Script
Executed

PHP

Client Side



Request for file.css

Script
Executed

Web browser

File out put

Server

File.css

File displayed on
your computer



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WEB DESIGN

- Web design contains many different skills and disciplines in the production and maintenance of websites.
- The different areas of web design include web graphic design; interface design; authoring, including standardised code and proprietary software; user experience design;



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WEB DEVELOPMENT

- Web development is the coding or programming that enables website functionality, per the owner's requirements.
- It mainly deals with the non-design aspect of building websites, which includes coding and writing markup.
- Web development ranges from creating plain text pages to complex Web-based applications, social network applications and electronic business applications.
-



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WEB DEVELOPMENT

The Web development hierarchy is as follows:

- 1.Client-side coding
- 2.Server-side coding
- 3.Database technology



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WEB PUBLISHING

Web publishing is the process of publishing original content on the Internet. The process includes building and uploading websites, updating the associated webpages, and posting content to these webpages online.

Publishers must possess a web server, a web publishing software, and an Internet connection to carry out web publishing.

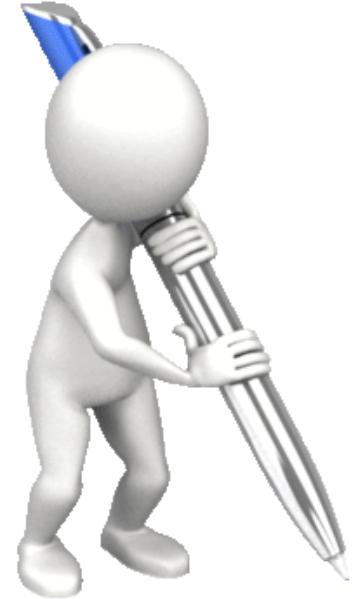
Web publishing is also known as online publishing.



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SEARCH ENGINE

- Search engine is a service that allows Internet users to search for content via the World Wide Web (WWW).
- A user enters keywords or key phrases into a search engine and receives a list of Web content results in the form of websites, images, videos or other online data.
- The list of content returned via a search engine to a user is known as a search engine results page (SERP)

SEARCH ENGINE

- To simplify, think of a search engine as two components.
- First a spider/web crawler trolls the web for content that is added to the search engine's index.
- Then, when a user queries a search engine, relevant results are returned based on the search engine's algorithm.

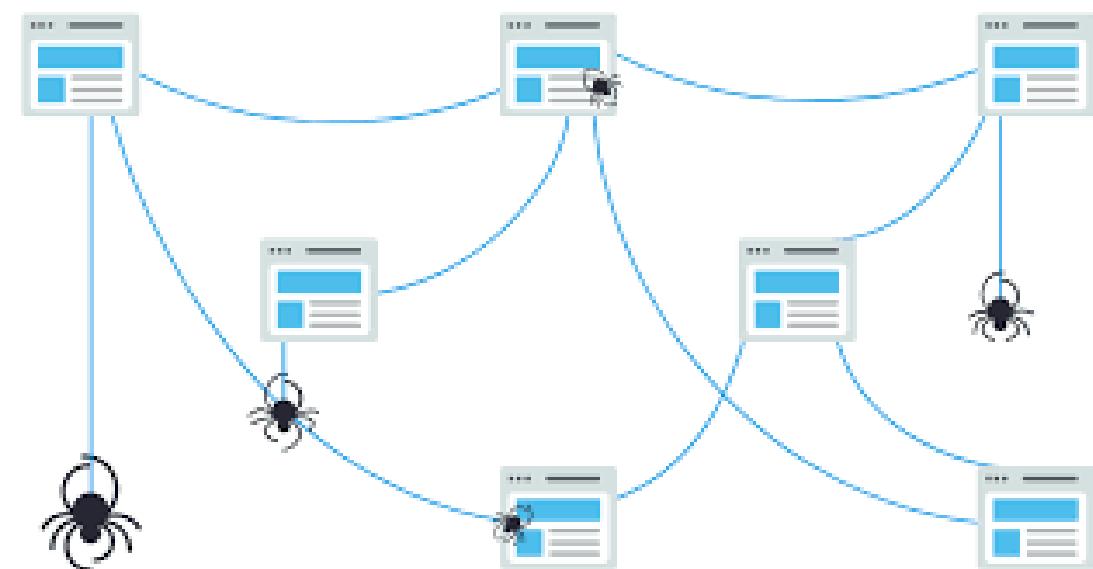
BEST SEARCH ENGINES IN THE WORLD

Google YAHOO!

Yandex AOL. Ask.com

Baidu 百度

Bing



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- Working with an E-mail- COVERED EARLIER



VIDEO CONFERENCING

- Videoconferencing (or video conference) means to conduct a conference between two or more participants at different sites by using computer networks to transmit audio and video data.
- For example, a point-to-point (two-person) video conferencing system works much like a video telephone. Each participant has a video camera, microphone, and speakers mounted on his or her computer.



VIDEO CONFERENCING

- As the two participants speak to one another, their voices are carried over the network and delivered to the other's speakers, and whatever images appear in front of the video camera appear in a window on the other participant's monitor.
- Skype and google hangout are the best example of this.





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SECURITY CONCEPTS

An effective security system comprises of four elements:

Protection,

Detection,

Verification

Reaction.

These are the essential principles for effective security on any site, whether it's a small independent business with a single site, or a large multinational corporation with hundreds of locations



CIA	Risk	Control
Confidentiality	<ul style="list-style-type: none"> The risk of privacy lose Unauthorized disclosure 	1- Encryption 2-Authentication 3- Access Control
Integrity	Modified data by an unauthorized source	1- Access Control 2- Cryptography
Availability	Unavailable of resources & information IT Perfection	1- Backup Solutions 2- Fault tolerance 3- High- Availability



CYBER LAW

Cyber law (also referred to as cyberlaw) is a term used to describe the legal issues related to use of communications technology, particularly "cyberspace", i.e. the Internet.

Cyber law, also known as Internet Law or Cyber Law, is the part of the overall legal system that is related to legal informatics and supervises the digital circulation of information, e-commerce, software and information security. It is associated with legal informatics and electronic elements, including information systems, computers, software, and hardware. It covers many areas, such as access to and usage of the Internet, encompassing various subtopics as well as freedom of expression, and

THE MAJOR AREAS OF CYBER LAW INCLUDE:

Fraud: Consumers depend on cyber laws to protect them from online fraud. ...

Copyright: The internet has made copyright violations easier. ...

Defamation: ...

Harassment and Stalking: ...

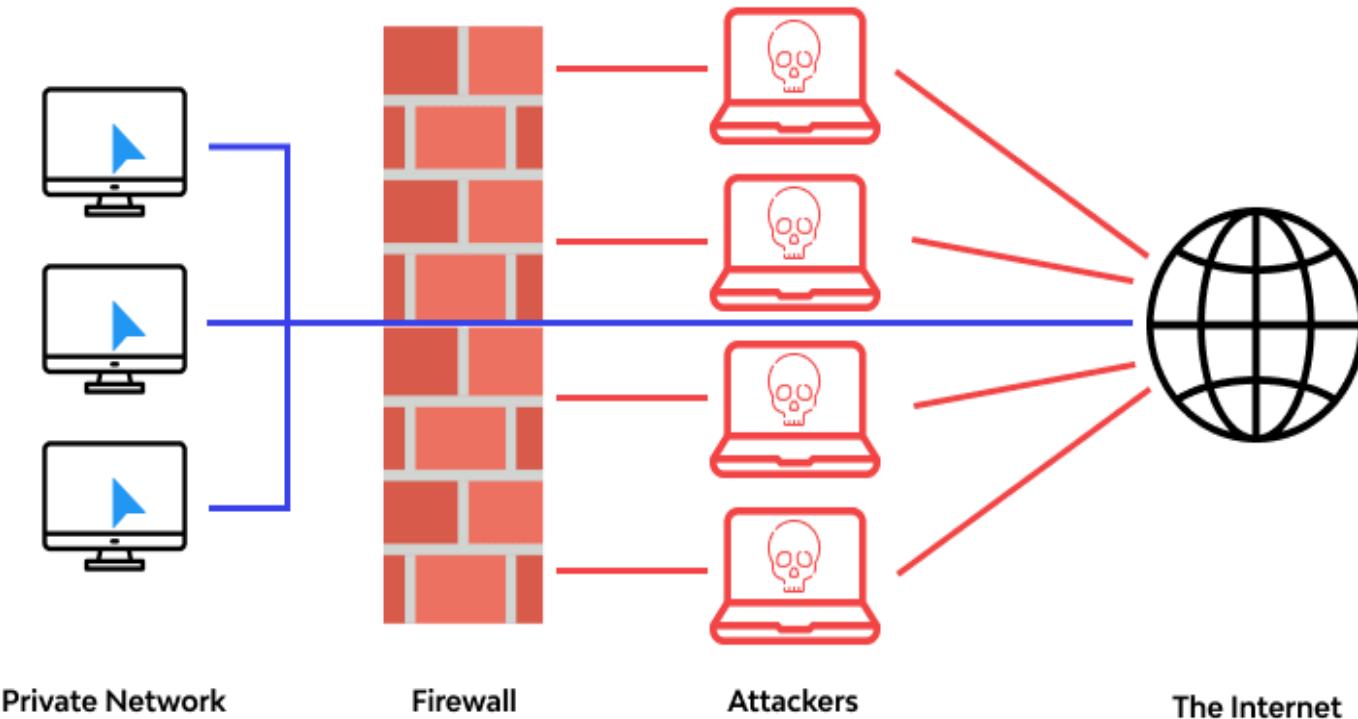
Freedom of Speech: ...

Trade Secrets: ...

Contracts and Employment Law:

Fire WALL

What is a Firewall



FIRE WALL

A firewall is a **network security device** that monitors incoming and outgoing network traffic and decides whether to allow or block specific traffic based on a **defined set of security rules**. Firewalls have been a first line of defense in network security for over 25 years

HACKERS

Hackers are kind of good people who do hacking for a good purpose and to obtain more knowledge from it. They generally find loopholes in the system and help them to cover the loopholes. Hackers are generally programmers who obtain advanced knowledge about operating systems and programming languages. These people never damage or harm any kind of data.

CRACKERS

Crackers are kind of bad people who break or violate the system or a computer remotely with bad intentions to harm the data and steal it. Crackers destroy data by gaining unauthorized access to the network. Their works are always hidden as they are doing illegal stuff. Bypasses passwords of computers and social media websites, can steal your bank details and transfer money from the bank.