
E-COMMERCE

What is Commerce ?

What is Commerce?

Commerce is the basic activity involving

- ✓ Trading or buying
- ✓ Selling of goods
- ✓ All support Service

amazon.com

snapdeal

MYNTRA.com
India's Largest Online Fashion Store

What is E-Commerce ?

flipkart.com

ebay

WHAT IS E-COMMERCE ?

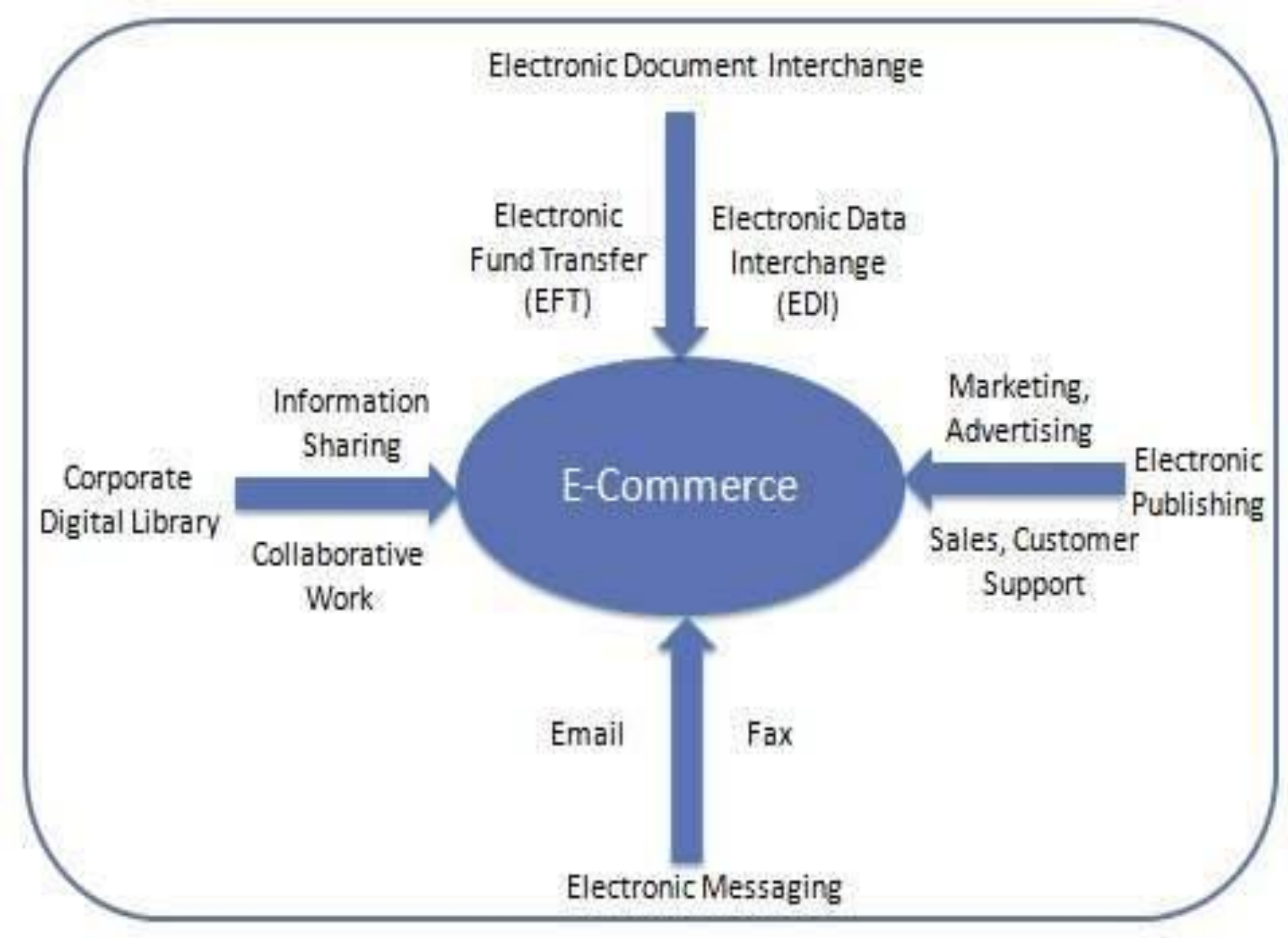
- E - Electronic
- E-commerce (electronic commerce or EC) is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily over the internet.
- Use of Internet and Web to transact(carry out) business

- ***Digitally enabled commercial transactions*** between and among organizations and individuals
- ***Digitally enabled Transactions :*** ***Transactions mediated by digital technology***
- ***Commercial Transactions :*** ***Exchange of value (money) across organizational or individual boundaries in return for products and services.***

E-commerce or electronics commerce is a methodology of modern business, which addresses the need of business organizations, vendors and customers to reduce cost and improve the quality of goods and services while increasing the speed of delivery.

Ecommerce refers to the paperless exchange of business information using the following ways −

- Electronic data exchange (edi)
- Electronic mail (e-mail)
- Electronic bulletin boards
- Electronic fund transfer (EFT)
- Other network-based technologies


Electronic Document Interchange
Electronic Fund Transfer (EFT)
Electronic Data Interchange (EDI)
Information Sharing
Corporate Digital Library
Collaborative Work
E-Commerce
Marketing, Advertising
Electronic Publishing
Sales, Customer Support
Email
Fax
Electronic Messaging

FEATURES

E-Commerce provides the following features −

Non-Cash Payment − E-Commerce enables the use of credit cards, debit cards, smart cards, electronic fund transfer via bank's website, and other modes of electronics payment.

24x7 Service availability − E-commerce automates the business of enterprises and the way they provide services to their customers. It is available anytime, anywhere.

Advertising / Marketing − E-commerce increases the reach of advertising of products and services of businesses. It helps in better marketing management of products/services.

- **Improved Sales** – Using e-commerce, orders for the products can be generated anytime, anywhere without any human intervention. It gives a big boost to existing sales volumes.

- **Support** – E-commerce provides various ways to provide pre-sales and post-sales assistance to provide better services to customers.

- **Inventory Management** – E-commerce automates inventory management. Reports get generated instantly when required. Product inventory management becomes very efficient and easy to maintain.

- **Communication improvement** – E-commerce provides ways for faster, efficient, reliable communication with customers and partners.

Traditional Commerce V/S E-Commerce

Traditional Commerce	E-Commerce
Heavy dependency on information exchange from person to person.	Information sharing is made easy via electronic communication channels making little dependency on person to person information exchange.
Communication/ transaction are done in synchronous way. Manual intervention is required for each communication or transaction.	Communication or transaction can be done in asynchronous way. Electronics system automatically handles when to pass communication to required person or do the transactions.

Traditional Commerce	E-Commerce
It is difficult to establish and maintain standard practices in traditional commerce.	A uniform strategy can be easily established and maintain in e-commerce.
Communications of business depends upon individual skills.	In e-Commerce or Electronic Market, there is no human intervention.
Unavailability of a uniform platform as traditional commerce depends heavily on personal communication.	E-Commerce website provides user a platform where al l information is available at one place.
No uniform platform for information sharing as it depends heavily on personal communication.	E-Commerce provides a universal platform to support commercial / business activities across the globe.

Advantages of E-commerce

- It provides 24/7 Hour service to the consumer.
- Consumers have a much wider choice available on online stores.
- Global reach.
- Cost of acquiring, serving and retaining customers.
- An extended enterprise is easy to build.
- Disintermediation.
- Improved customer service to your clients
- It takes Low cost for advertising the products.
- It is easy to create and maintain customer or client .
- It saves time required for shopping and reduces unwanted expenses like traveling.
- E-Commerce reduces the unwanted paper work.
- Easy to start and manage a business.

- Customer Controls the interaction
- A technology-based customer interface.
- Knowledge of customer behaviour.
- Network economics
- Power to provide the ‘best of both the worlds’
- In E-Commerce there is no need of physical company set-ups.
- Customers can easily select the product from different provider without moving around physically.
- Consumers can compare product, feature, price and even look up for reviews before purchasing the product.
- It takes Low operational costs and provides better quality of service.

Disadvantages of E-commerce

- There is no guarantee of product quality.
- It may take time for the delivery of products .
- Users can not touch or feel the products during online shopping.
- There can be lack of system security and reliability.
- Mechanical failures can cause unpredictable effect on the total process.
- Internet is expensive but still e-commerce cannot be accessed without it.
- Any good or bad person can easily start a business and there are a number of bad sites which only stand for customer's money.

E-COMMERCE APPLICATIONS

- E-commerce is conducted using a variety of applications, such as Email, online shopping carts, EDI(computer-to-computer exchange of business documents in a standard electronic format between business partners.), FTP and web services.
- 5% of all online spending was via social commerce in 2015, with Facebook, Pinterest and Twitter providing the most referrals.

Major Types of E-Commerce

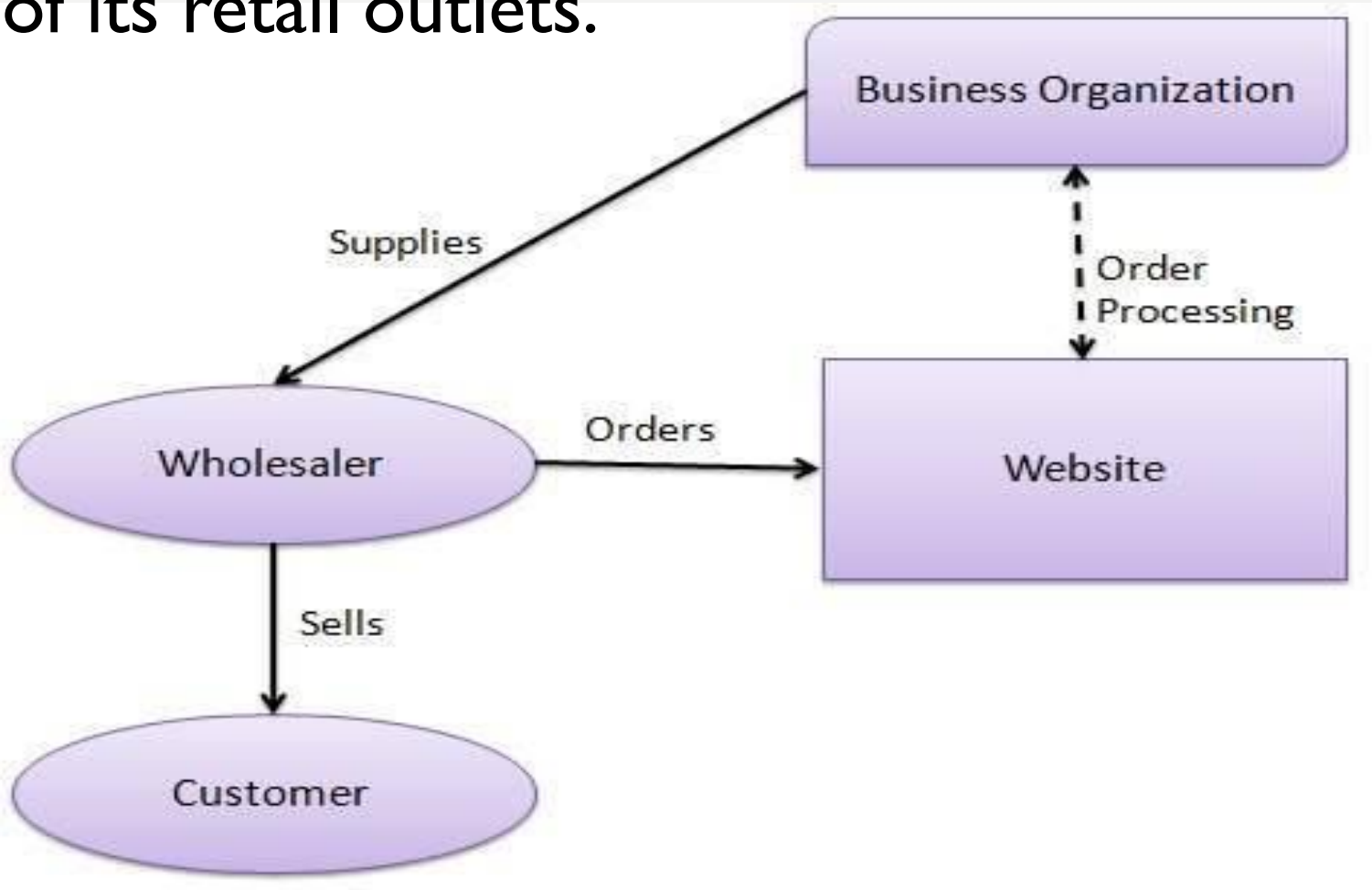
1. B2B (Business-to-Business)

The two business interchange information electronically. The transactions between two businesses are undertaken via intranet and extranet.

A website following the B2B business model sells its products to an

intermediate buyer who then sells the product to the final customer.

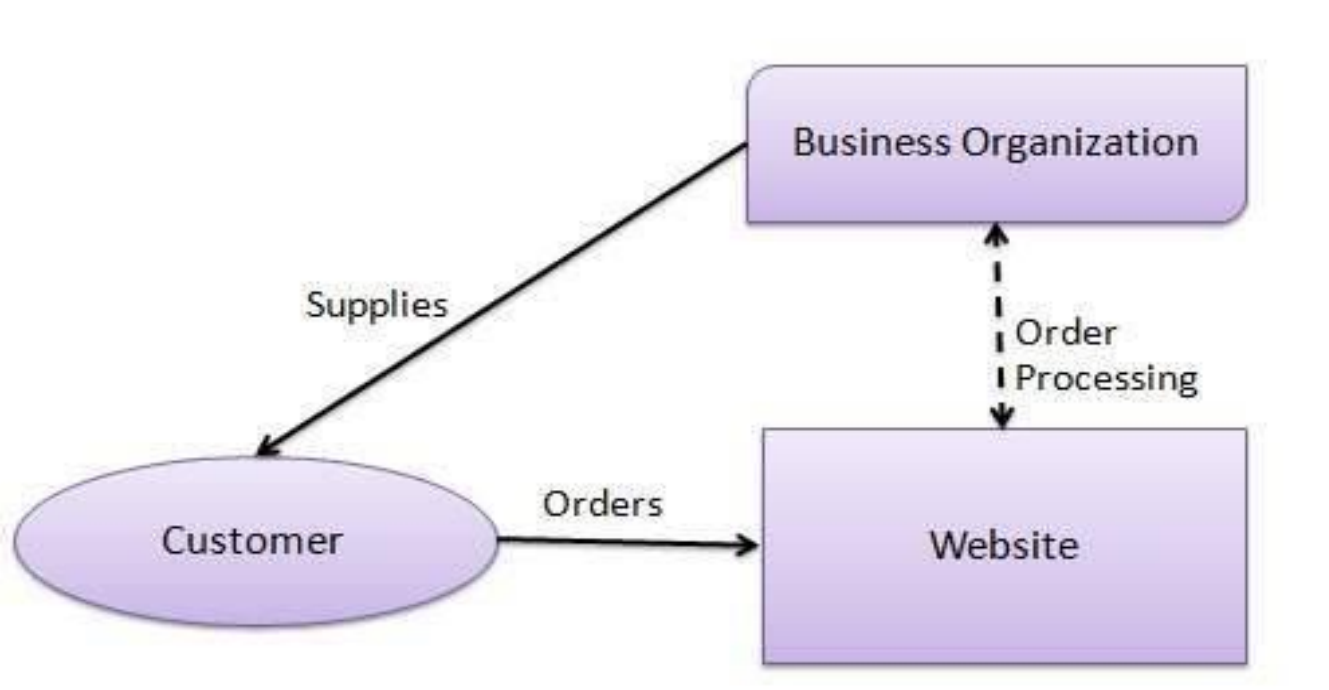
As an example, a wholesaler places an order from a company's website and after receiving the consignment, sells the endproduct to the final customer who comes to buy the product at one of its retail outlets.



2.(Business-to-Customer)

In this type, business sells product or service directly to consumers over the Internet.

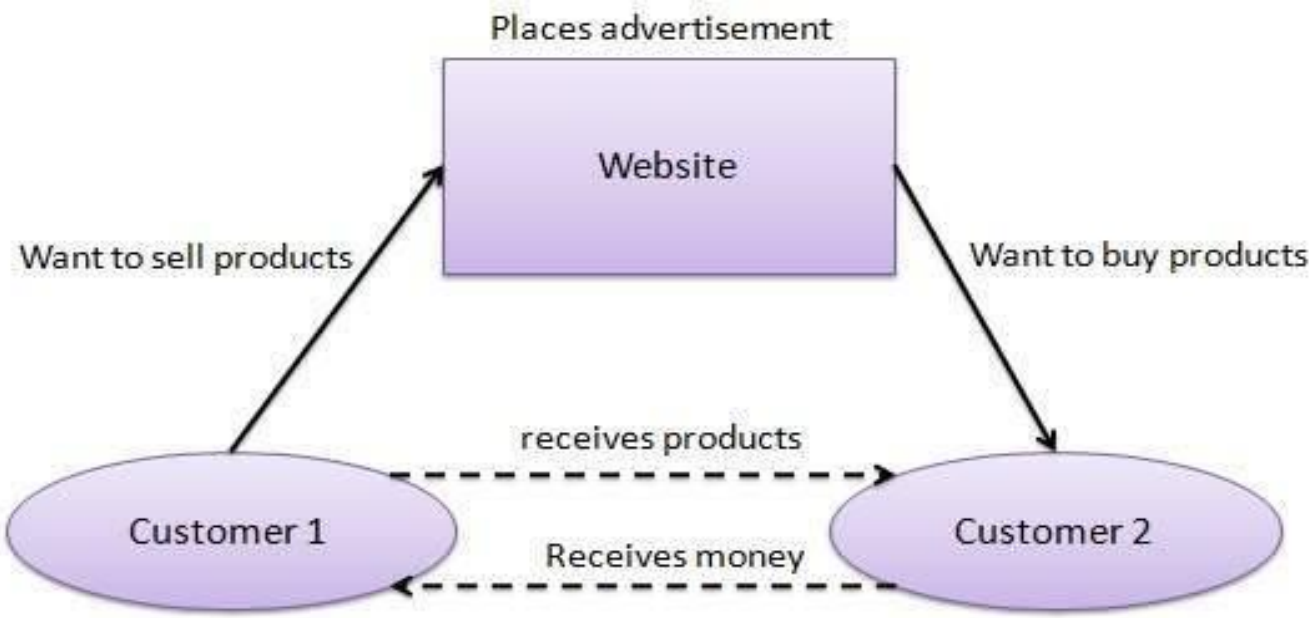
A website following the B2C business model sells its products directly to a customer. A customer can view the products shown on the website. The customer can choose a product and order the same. The website will then send a notification to the business organization via email and the organization will dispatch the product/goods to the customer.



3. C2C (Customer-to-Customer)

Customer-to-customer electronic commerce involves consumers selling products or services to other consumer. Ex. Ebay, OLX,MagicBricks.

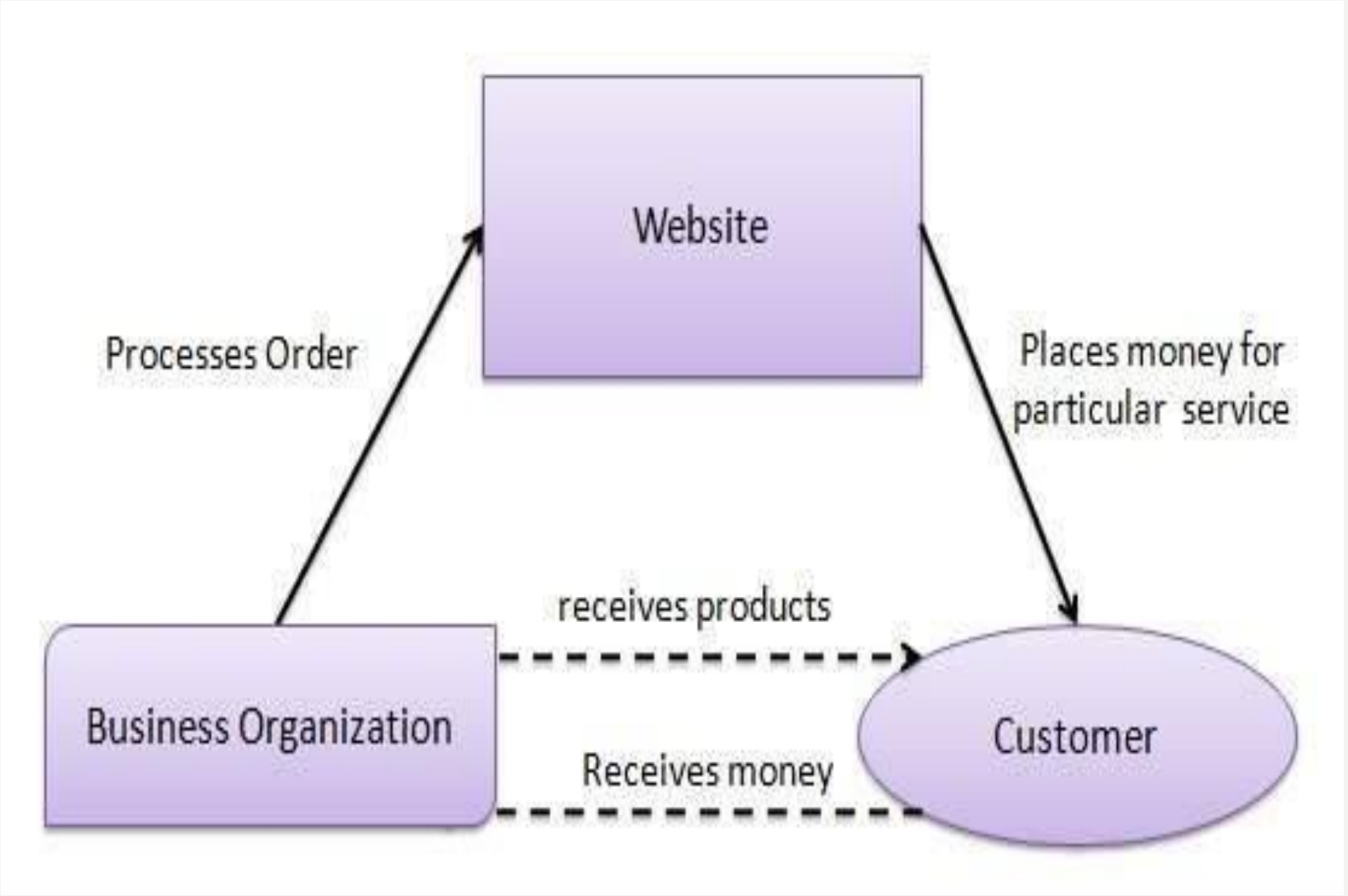
A website following the C2C business model helps consumers to sell their assets like residential property, cars, motorcycles, etc., or rent a room by publishing their information on the website. Website may or may not charge the consumer for its services. Another consumer may opt to buy the product of the first customer by viewing the post/advertisement on the website.



4. C2B (Customer-to-Business)

In this type, consumers sell product or service to business over the Internet.

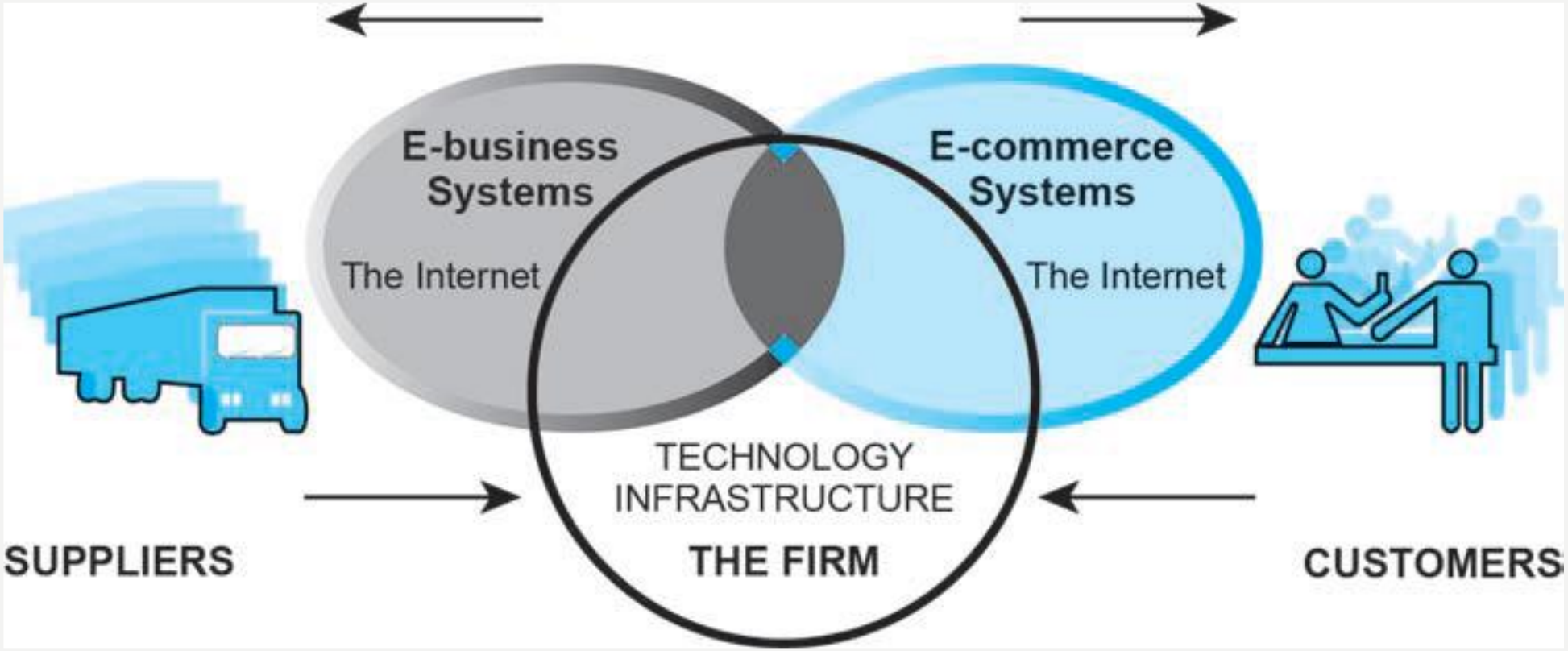
In this model, a consumer approaches a website showing multiple business organizations for a particular service. The consumer places an estimate of amount he/she wants to spend for a particular service. For example, the comparison of interest rates of personal loan/car loan provided by various banks via websites. A business organization who fulfills the consumer's requirement within the specified budget, approaches the customer and provides its services.


Website
Processes Order
Places money for particular service
receives products
Business Organization
Customer
Receives money

E-COMMERCE VS. E-BUSINESS

- E-business:
  - Digital enablement of transactions and processes *within* a firm, involving information systems under firm's control
  - Transformation of key business process through the use of internet technology

- Eg: Company’s online inventory control mechanism(Stock)
- This Eg: is the component of e –business.
- But this internal process do not generate income for the firm from outside.
- But, A firm’s e-business infrastructure provide a support for online e-commerce exchanges.



E- commerce and E-business system blur together at the business firm boundary , at the point where internal business systems link up with suppliers or customers.

E- BUSINESS

- Eg: Clothing store.
- Options : Through their site/going to physical store
- Ie, E-business not only deals with e-commerce but also dealing with value internally and externally.
- Some business use internet more for better branding than selling

  eg: CoCo Cola

BASIS FOR COMPARISON	E-COMMERCE	E-BUSINESS
Meaning	Trading of merchandise, over the internet is known as E-commerce.	Running business using the internet is known as E-business.
What is it?	Subset	Superset
Is it limited to monetary transactions?	Yes	No
What they carry out?	Commercial transactions	Business transactions
Approach	Extroverted	Ambiverted
Requires	Website	Website, CRM, ERP, etc.
Which network is used?	Internet	Internet, Intranet and Extranet.

WHY STUDY E-COMMERCE?

- E-commerce technology is different, more powerful than previous technologies
- E-commerce bringing fundamental changes to commerce.
- Traditional commerce:
  - Passive consumer
  - Sales-force driven
  - Fixed prices
  - Information asymmetry

- Passive consumer is an absorber.
- Sales force : Division of a business that's responsible for selling products or services.
- Information Asymmetry : Disparity in relevant market information among parties in a transaction.

E-Commerce brings out a large reduction in information asymmetry

UNIQUE FEATURES OF E-COMMERCE TECHNOLOGY

1. Ubiquity
2. Global reach
3. Universal standards
4. Information richness
5. Interactivity
6. Information density
7. Personalization/customization
8. Social technology

UBIQUITY(AVAILABLE EVERYWHERE, AT ALL TIMES)

- Traditional commerce – Market place :physical space you visit to transact.
- Eg :television shop
- E-Commerce makes it possible to shop from your desktop at home.
- E-Commerce -Marketspace : marketplace extended beyond traditional boundaries and removed from temporal and geographic location.
- Ubiquity reduces transaction costs : Cost of participating in market.

- Available everywhere, at all times
- No need to spend time and money travelling to market.
- Lowers Cognitive energy : Mental effort required to complete a task.

GLOBAL REACH

- Reach : Total no of users or customers an e-commerce business can obtain.
- Traditional Commerce is local or regional – involve local merchants.
- Television and radio stations, and newspapers are local and regional institution with limited but a powerful national network that can attract a national audience.
- E-Commerce – National boundaries-Global audience.

UNIVERSAL STANDARDS(FB,YOUTUBE...)

- The standards that are shared by all nations around the world.
- Traditional Commerce- Differ from one nation to next.(TV and Radio)
- Internet and e-commerce lowers market entry cost-The cost that merchants must pay just to bring their goods to market.
- Reduce Search cost-the effort required to find suitable products.
- **Marketspace-** prices and product description are inexpensively displayed.

- Price discovery become simpler, faster and accurate.
- Experience network externalities-Benefits that arise because everyone use the same technology. Can find suppliers,price, delivery terms of a specific product anywhere in the world.

RICHNESS

- Refers to the complexity and content of the message
- The larger the audience reached, the less rich of the message.
- Traditional markets, small retail stores have richness..(WHY?)
- Internet :potential for offering more information richness-interactive(chat)
- “Internet and web can deliver rich message(audio ,video ,text)than traditional commerce”.

INTERACTIVITY

- Refers to the technology that allows for two-way communication between merchant and consumer and among consumers.
- Television-cannot ask viewers any question/enter into conversation etc.
- Interactivity allows an online merchants to engage a consumer in ways similar to a face-face experience.

INFORMATION DENSITY

- Refers to the total amount and quality of information available to all market participants.
- E-commerce-reduce information collection,storage,processing and communication cost.- Information more useful and important**.-More plentiful, less expensive, high quality**.
- In E-commerce markets, **prices and cost** become more transparent.

- **Price transparency** : refers to the ease with which consumers can find out the variety of prices in a market.
- **Cost transparency** : refers to the ability of consumers to discover the actual cost merchants pay for the products.

- Advantages of merchants

✓ They can discover about consumers

✓ Allows to segment the market into groups and engage them in **Price discrimination-**selling the same goods/nearly same goods, to different targeted groups at different prices.

✓Eg :Purchasing watch

✓Have ability to differentiate their products in terms of cost,brand,quality.

PERSONALISATION/CUSTOMIZATION

- Personalisation-The targeting of marketing messages to specific individuals by adjusting the message to a person's name, interests and past purchases.
- Customization-Changing the delivered product or service based on a user's preferences or prior behaviour.
- Information about consumer can be gathered in marketplace at the moment of purchase – But, in market space Customer's past purchases and behaviour can be stored and used by online merchants.

E-COMMERCE INFRASTRUCTURE

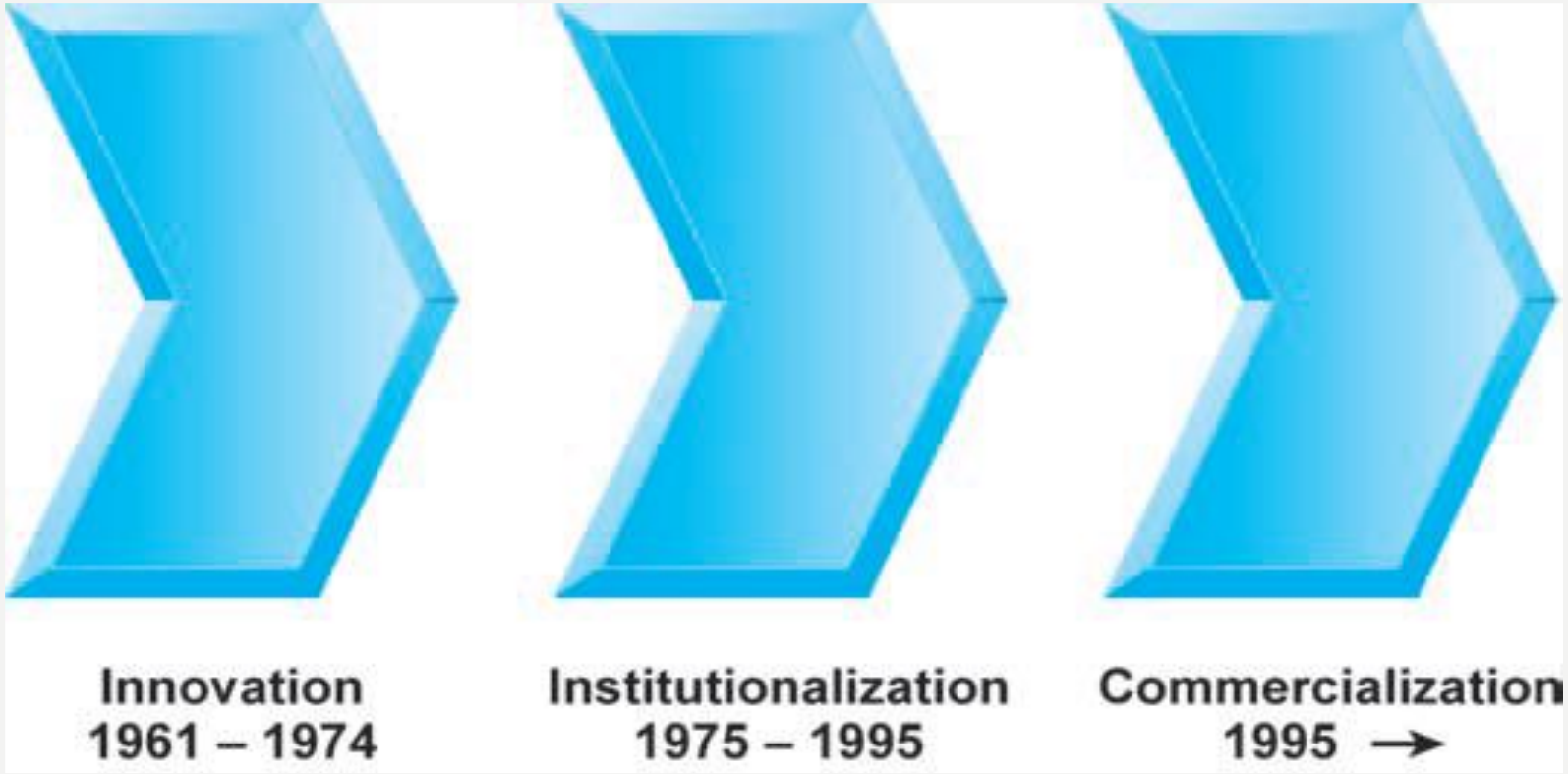
- Packet Switching
- TCP/IP
- IP Address
- Domain names,DNS,URL
- Client/Server Computing
- Internet protocols :HTTP,FTP,SSL,Telnet,Email protocols
- Utility Programs :Ping,Tracert,Pathping

INTERNET ?

- **Interconnected network** – linking business,educational institutions, government agencies and individuals
- **Uses of internet -** ?
- Derived from '**internetwork**'-Connection of two or more computer networks
- WWW-Service-Webpages-created using HTML-hyperlinks , audio ,video ,text

EVOLUTION OF INTERNET

- 3 phases



INNOVATION PHASE

- 1961-1974-Conceptualised Fundamental building blocks of internet and realised in actual hardware and software.
- Building blocks : Packet switching hardware, Client/Server computing, Communication protocol
- Purpose : To link large mainframe computers on different college campuses

INSTITUTIONALISATION PHASE

- 1975-1994
- Funding and legitimisation from Dept of Defense and national Science foundation : Contributed 1 million
- Develop into military communication system : ARPANET(Advanced Research Projects Agency network)
- 1986 : Development of civilian network : NSFNET(National Science foundation network)

COMMERCIALIZATION PHASE

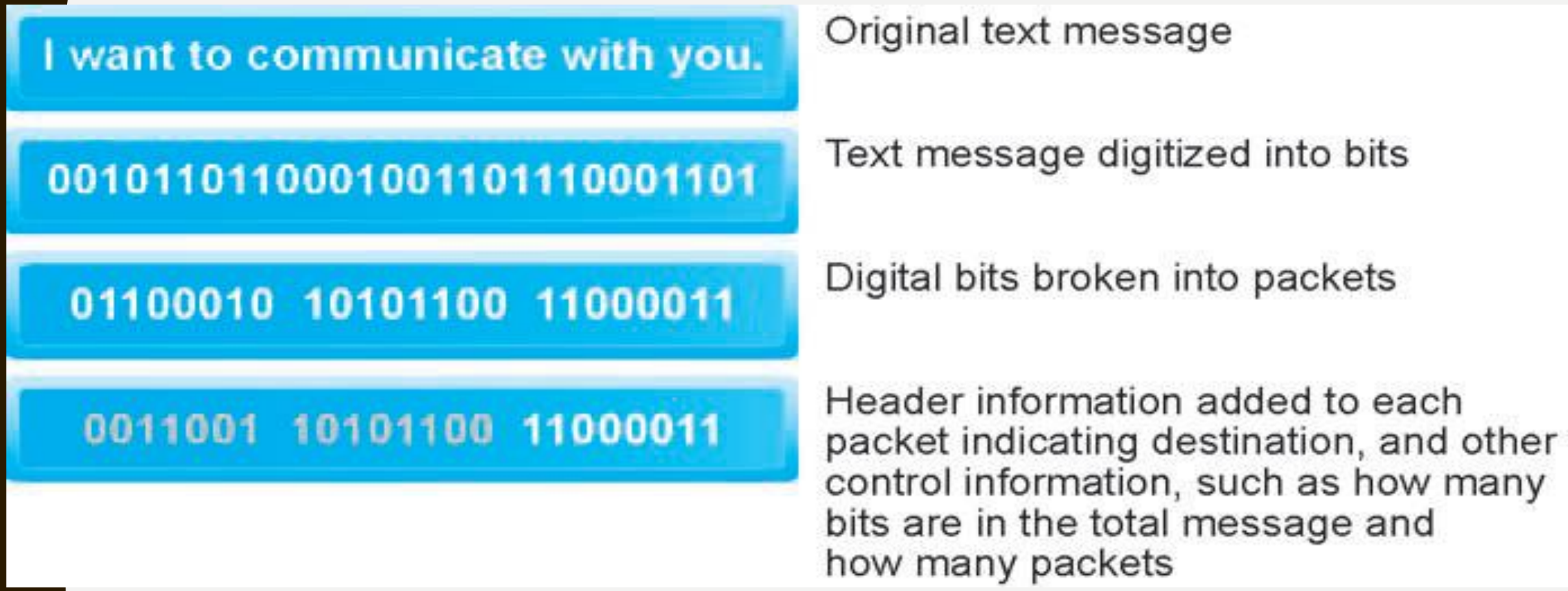
- From 1995
- Government agencies encouraged private corporations to take over and expand and local services to the ordinary citizens
- FNC(Federal networking council)defines the internet as

" Internet means a network that uses the IP address scheme, supports TCP and makes services available to teasers much like a telephone system makes voice and data services available to the public "

PACKET SWITCHING

- Slicing message into discrete units called packets
- Sends the packets along different communication paths and then reassuming the packets once they are at destination.
- Capacity :bps(Communication capacity)
- Prior to packet switching, computer network use leased, dedicated circuits to communicate.-expensive
- With packet switching, communication capacity increased.

- Messages are digitized into bits
- Digital bits are broken into packets.
- Header information added to each packet indicating destination and other control information like sequencing information,error control information.
- Packets travel from one computer to another until they reach their destination.
- These computers are called routers.


I want to communicate with you.
Original text message
00101101100010011011110001101
Text message digitized into bits
01100010 10101100 11000011
Digital bits broken into packets
0011001 10101100 11000011
Header information added to each packet indicating destination, and other control information, such as how many bits are in the total message and how many packets

- Router : Interconnects different computer networks and route the packets along to their ultimate destination.
- Routing Algorithm : Computer program that a router use to ensure that packets take the best path towards their destination.
- Packet Switching doesn’t require dedicated circuit, but use almost all available communication lines and capacity.

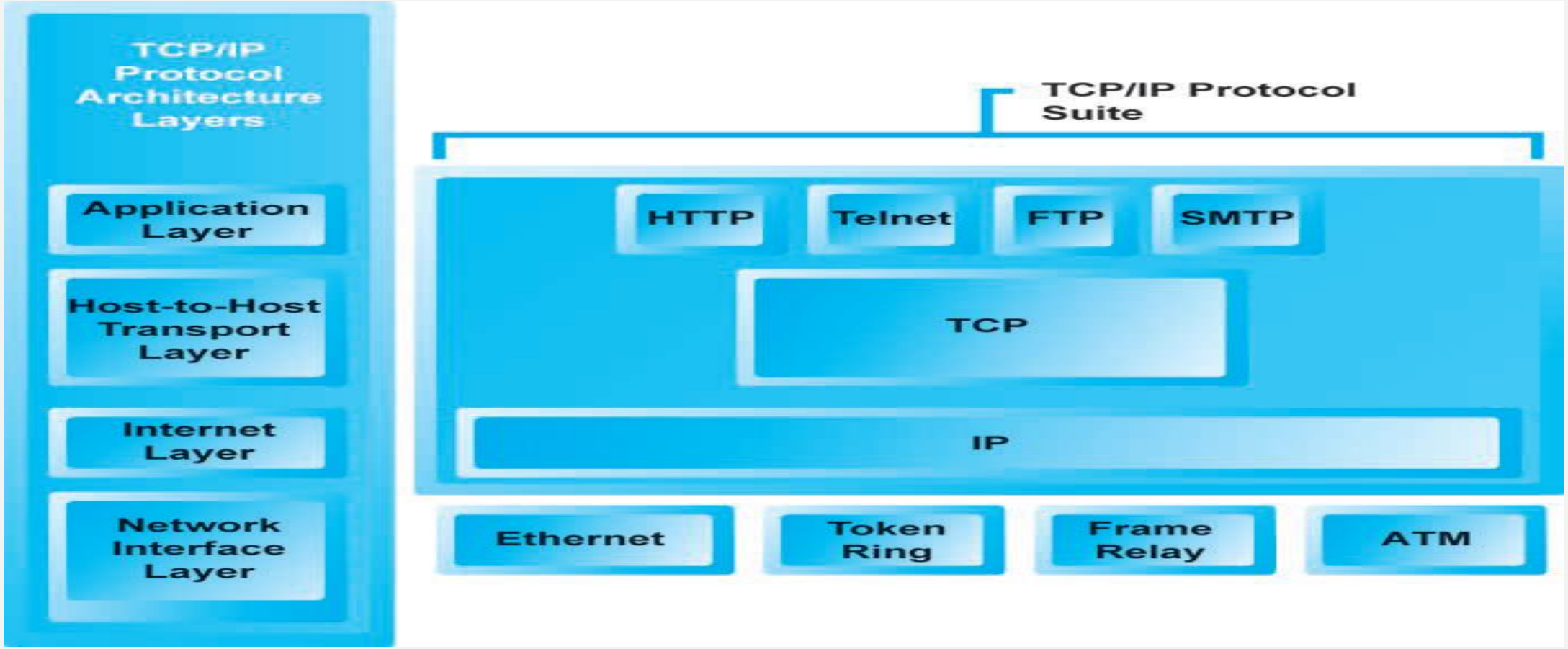
TCP/IP

- **Protocol** : Set of rules and standards for data transfer to govern the formatting,ordering,compressing and error-checking of messages
- **TCP/IP** : Core communication protocol for the internet.
- **TCP** : Establish the connection among sending & receiving web computers and make sure that packet sent by one computer are received in the same sequence by other, without packet missing.
- **IP** : Provides the internet addressing scheme and is responsible for the actual delivery of packets.

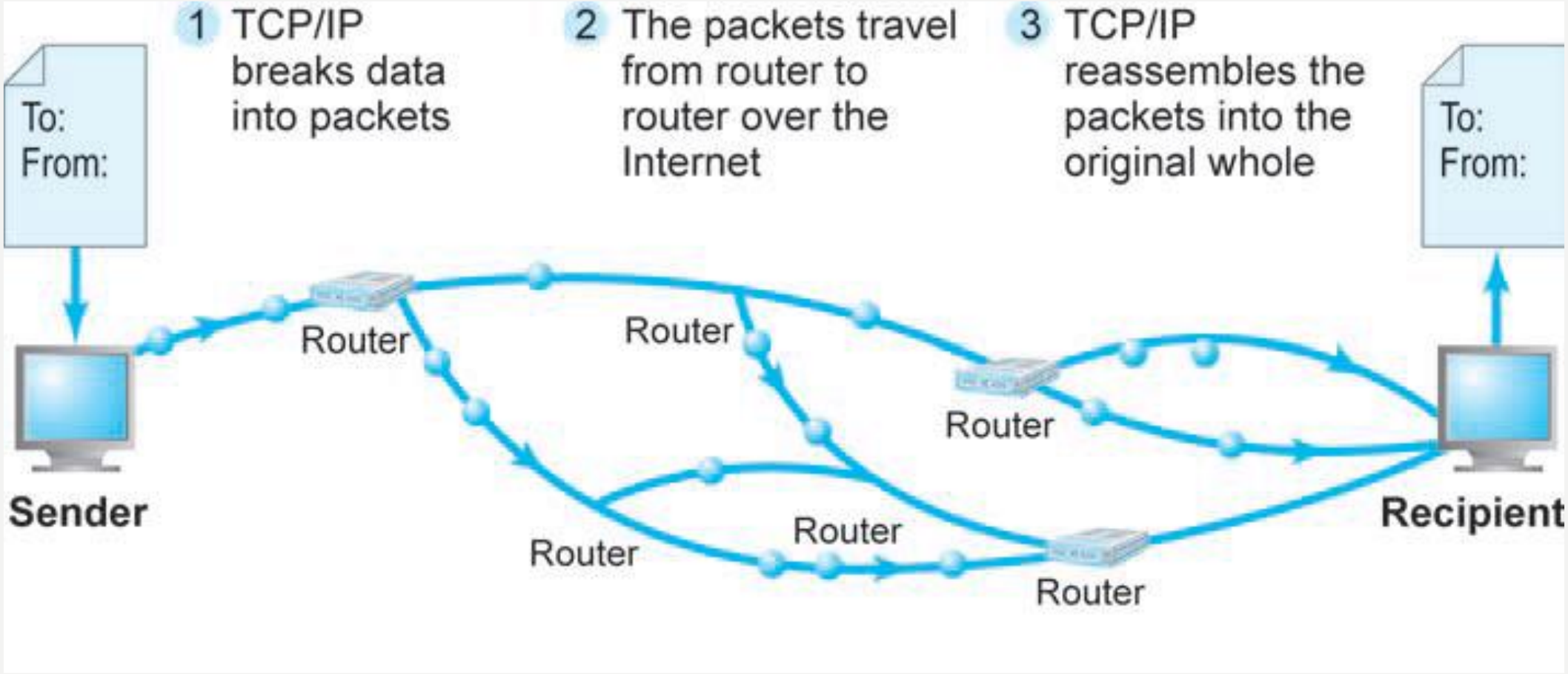
• TCP/IP divided into 4 layers

- **Network Interface Layer** : Placing packets on and receiving them from network medium, which could be LAN,Token ring network, or other network technology
- **Internet Layer** : Addressing, packaging and routing messages on the internet.
- **Transport Layer** : Proving communication with the application by acknowledging and sequencing the packets to and from the application.
- **Application layer** : Provides a variety of application with ability to access the services of lower layers. Some best applications – HTTP,FTP,SMTP

TCP/IP ARCHITECTURE AND PROTOCOL SUITE



TCP/IP AND PACKET SWITCHING



IP ADDRESS

- Expressed as 32 bit number that appears as a series of 4 separate number marked off by periods(.)

  eg : 64.49.254.91

- 2 versions
- IPV4 and IPV6

IPV4

- Most frequently used version.
- 32 bit number that appears as a series of 4 separate number marked off by periods(.)
- Each of the numbers can range from 0-255
- Class C : First 3 set of numbers identify the network, Last number identifies a specific computer.

IPV6

- New Version of IP
- Provides 128 bit address

DOMAIN NAMES,DNS,URL

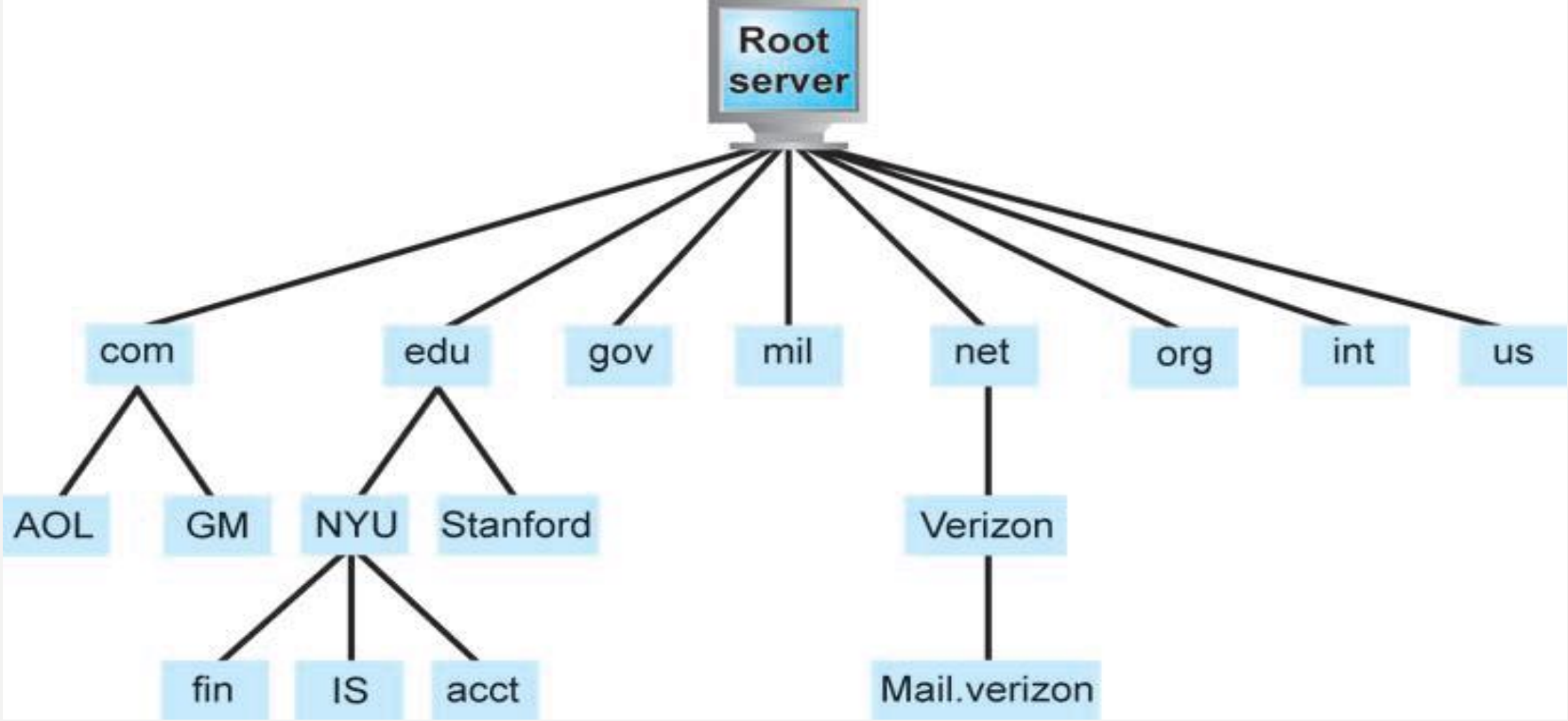
- Domain name : IP address expressed in natural language.
- Domain name system : System for expressing numeric IP address in natural language
- E.g. cnet.com
- URL/Uniform resource locator : Address used by web browser to identify the location of content of the web

Eg: https://www.ajce.in/home/mcaadmissions.html

Domain name – ajce.in

Protocol – HTTP

mcaadmission is located on the server directory path/mcaadmission



ROOT SERVER at the top.

TOP-LEVEL DOMAINS identify the organization type (such as .com, .gov, .org, etc.) or geographic location (such as .uk [great britain] or .ca [canada]).

SECOND-LEVEL servers for each top-level domain assign and register second-level domain names for organizations and individuals such as ibm.com, microsoft.com, and stanford.edu.

THIRD-LEVEL domains identify a particular computer or group of computers within an organization, e.g.,www.finance.nyu.edu.

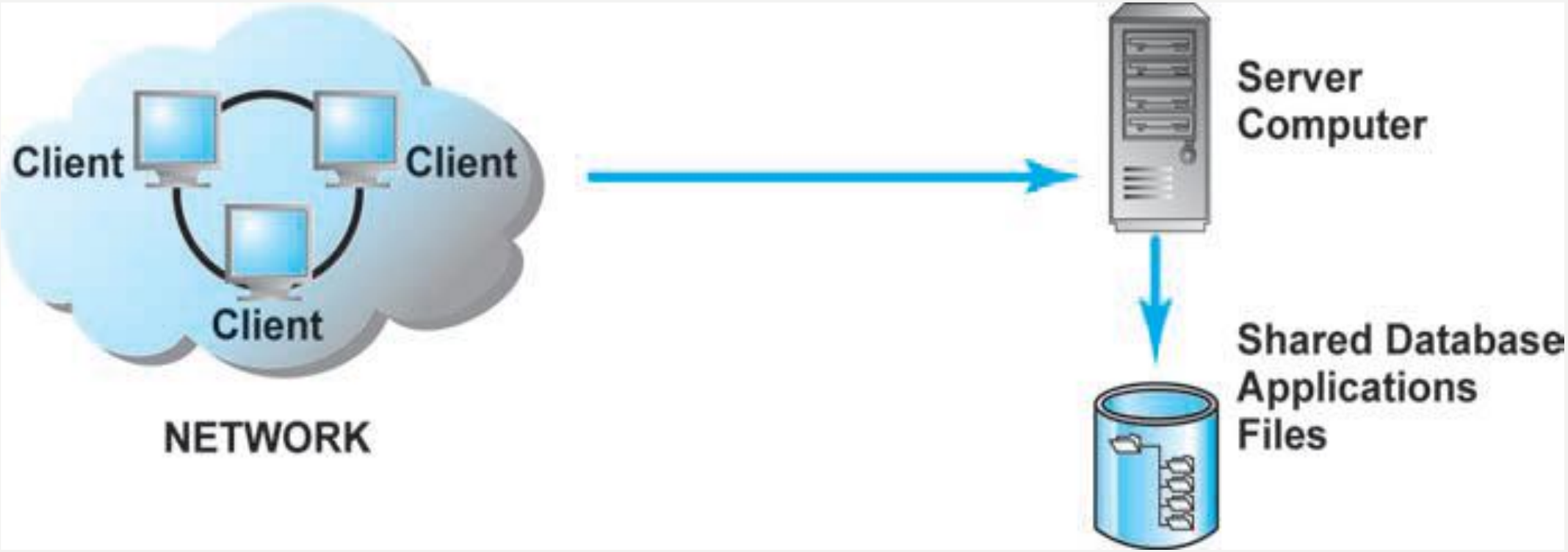
CLIENT/SERVER COMPUTING

- Model of computing in which powerful personal computers in a network together with one or more servers.
- Clients : are sufficiently powerful to accomplish complex tasks such as displaying rich graphics, storing large files on local desktop/handheld devices.
- Servers : networked computers dedicated to common functions that the client computer on the network needed(file storage, Software applications etc.)
- Eg : Internet-millions of web servers can be accessed by millions of client

ADVANTAGES OF CLIENT/SERVER COMPUTING

- It is easy to expand capacity by adding servers and clients
- Less vulnerable
- If one server goes down, backup/mirror servers can pick up the slack
- If a client computer is inoperable, the rest of network continues operating
- Processing load is balanced
- More simple and economical
- More Computer processing will be performed by central server

CLIENT/SERVER COMPUTING MODEL



OTHER INTERNET PROTOCOLS AND UTILITY PROGRAMS

- **Internet protocols and utility programs provide services to users in the form of internet applications that run on internet clients and servers.**
- **Internet services are based on universally accepted protocols or standards-available to everyone who uses the internet.**
- **Not owned by any organisation**

INTERNET PROTOCOLS

HTTP

- It is the internet protocol used to transfer web pages
- It was developed by W3C(World wide web consortium)&IETF(Internet Engineering Task Force)
- It runs on Application layer of TCP/IP model.
- An HTTP session begins when a client's browser request a resource, such as web page, from the remote internet server.
- When a server responds by sending the page requested,HTTP session for that object ends.

- Web pages- many objects-graphics ,video ,sound files etc.
- Each object must be requested by separate HTTP message.
- Most common HTTP request message is – Get(used to request a resource by specifying its URL)

SMTP

- Internet protocol used to send mail to a server.
- Used to handle e-mail
- Relatively simple, text based protocol that was developed in 1980
- It handles only sending of e-mail.
- To retrieve e-mail from a server, client computer uses either POP3(Post office protocol 3) or IMAP(Internet Message Access protocol)

POP3

- It is a protocol used by the client to retrieve mail from an internet server.

IMAP(Internet Message Access Protocol)

- A more current e-mail protocol that allows users to search, organize and filter their mail prior to downloading it from the server.
- It is supported by all browsers and most servers and ISPs.

FTP

- One of the original internet services.
- Part of TCP/IP protocol that permits users to transfer files from the server to their client computer and vice versa.
- The files can be documents, programs or large data base files.
- It is the fastest and most convenient way to transfer files larger than 1 megabyte

TELNET

- It is a network protocol that also runs in TCP/IPs Application layer.
- Used to allow remote login on another computer.
- Refers to telnet program which provides the client part of the protocol and enables the client to emulate a main frame computer terminal.
- We can then attach our self to a computer on the internet that supports telnet and runs program or download files from that computer.
- It was the first “remote work "program that permitted users to work on a computer from a remote location

SSL (Secure Socket Layer)

- It is a protocol that operates between Transport and Application layer of TCP/IP
- It secures communication between the client and the server.
- Helps secure e-commerce communications and payments through a variety of techniques such as message encryption and digital signatures

UTILITY PROGRAMS

Ping

- Packet InterNet Groper
- Allows to check the connection between a client computer and TCP/IP network.
- Tells you the time it takes for the server to respond, some idea about the speed of the server and internet at the moment.
- Run ping by : Ping<domain name>
- Eg : Ping www.yahoo.com

Tracert

- One of several route-tracing utilities that allows you to follow the path of a message you send from your client to a remote computer on the internet.

Pathping

- It combines the functionality offered by ping and tracert.
- It provides the details of path between two hosts and statistics for each node in the path based on samples taken over a period of time, depending on the number of nodes between the start and end host.

The Internet Today

- The HourGlass and Layered Architecture of Internet

- The Internet can be characterized as an hourglass modular structure with a lower layer containing the bit-carrying infrastructure (including cables and switches) and an upper layer containing user applications such as e-mail and the web.In the narrow waist are transportation protocols such as TCP/IP.

The Hourglass Model of the Internet

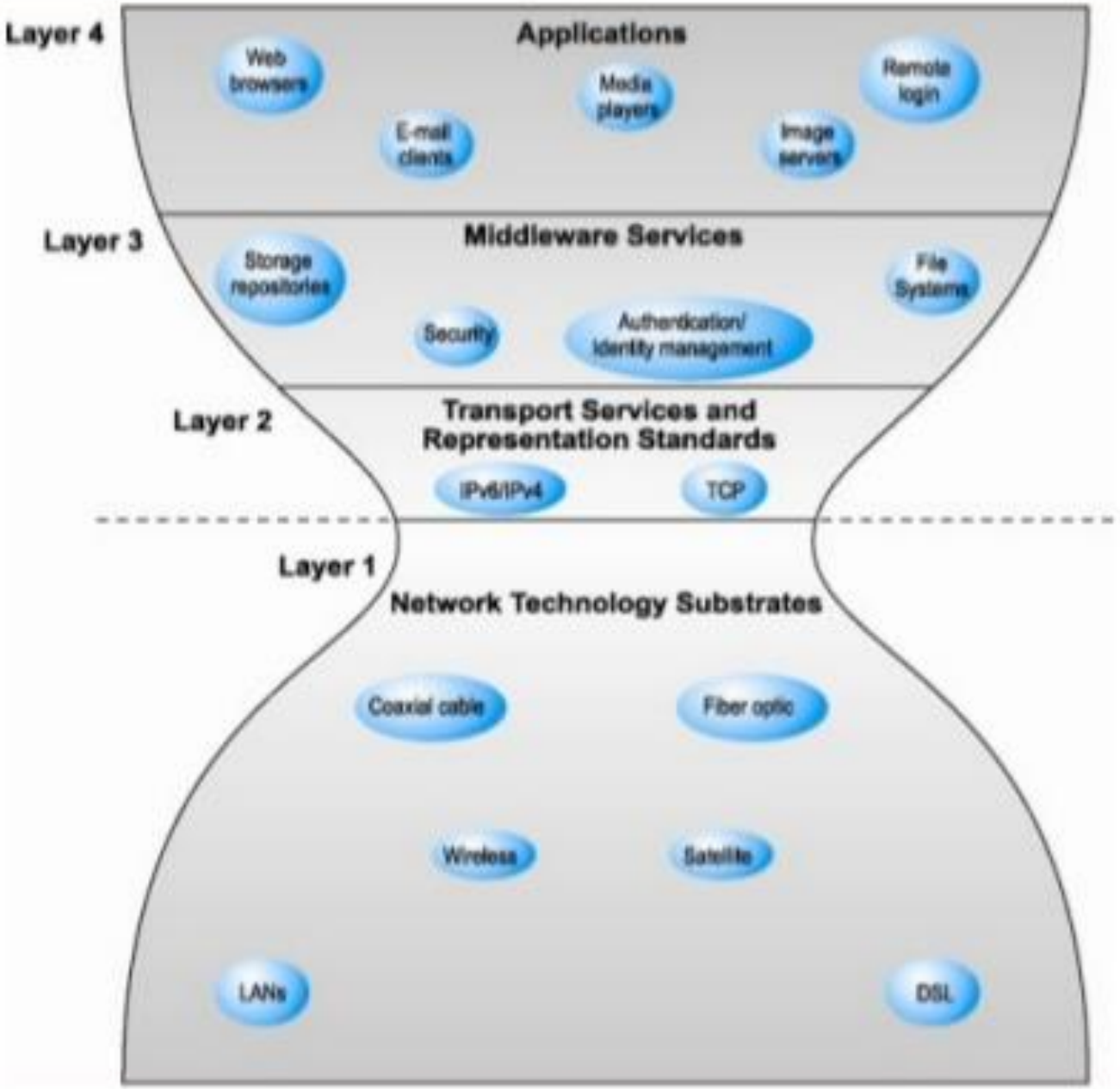


Figure 3.11, Page 128

- The network Technology Substrate Layer is composed of telecommunications networks and protocols.
- The Transport Services and Representation Standards layer houses the TCP/IP protocol.
- The Application Layer contains client applications such as the World Wide Web,E-mail and audio or video playback.
- The Middleware Service Layer is the glue that ties the applications to the communications networks and includes such services Security,authentication, address,and storage repositories.
- Users work with applications and rarely become aware of middleware that operates in the background.
- Because all layers use TCP/IP and other common standards linking all four layers.

The Internet Backbone

- Originally, the Internet had a single backbone, but today's Internet has several backbones that are physically connected with each other and that transfer information from one private network to another-Network Service Providers(NSPs)
- The backbone has been likened to a giant pipeline that transports data around the world in millisecond.
- Bandwidth measures how much data can be transferred over a communication medium within a fixed period of time and is usually expressed in bps, Kbps, Mbps, Gpbs.
- Redundancy refers to multiple duplicate devices and paths in a network.

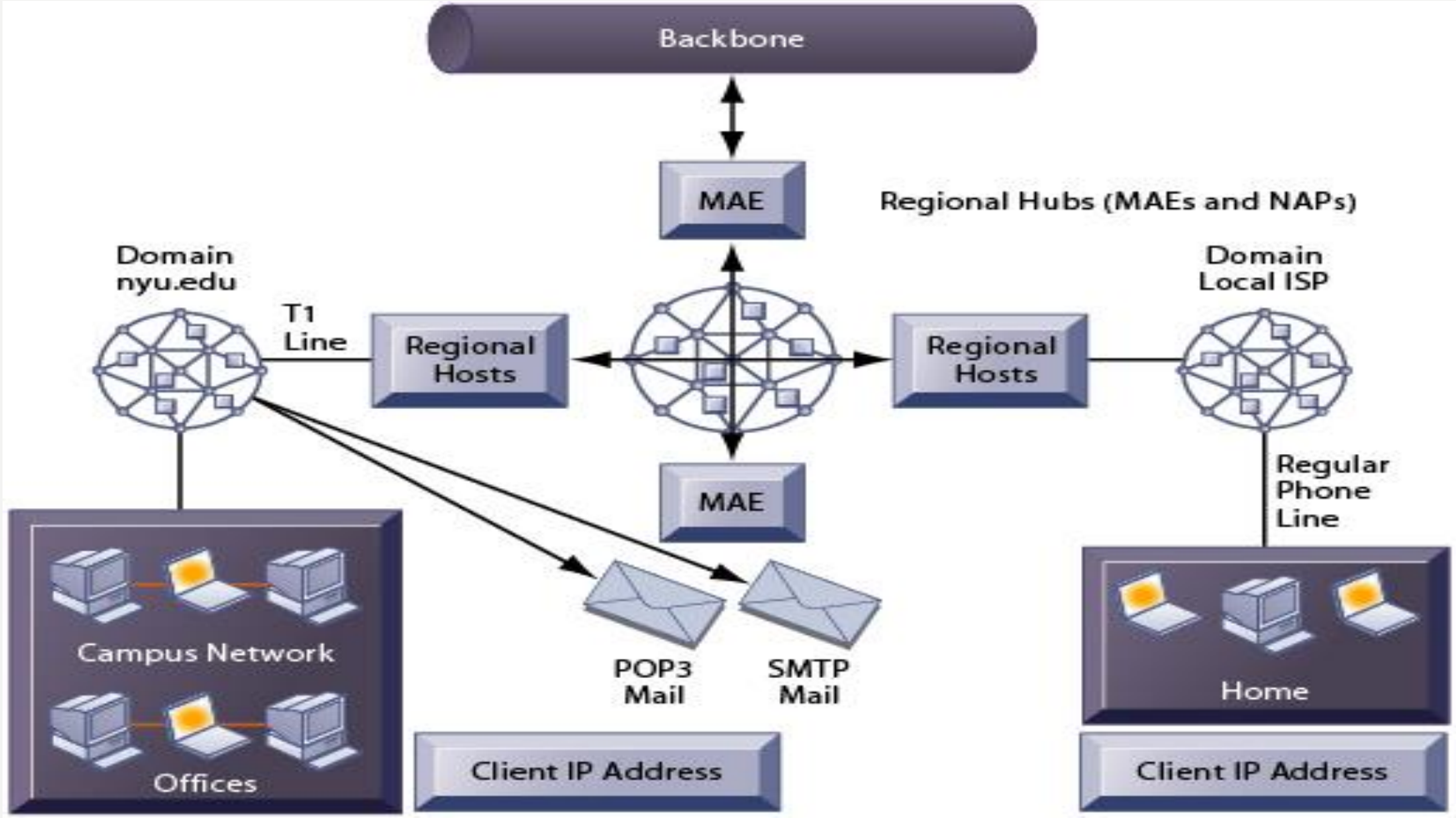


Figure : Internet Network Architecture

Internet Exchange Points

- Hub where the backbone intersects with local and regional networks and where backbone owners connect with one another
- IXPs use high-speed switching computers to connect the backbone to regional and local networks, and exchange messages with one another.
- The regional and local networks are owned by private telecommunications firms; they generally are fiber-optic networks operating at more than 100 Mbps. The regional networks lease access to ISPs, private companies, and government institutions.

Campus Area Network(CANs)

- Campus Area Network (can) generally, a local area network operating within a single organization that leases access to the Web directly from regional and national carriers
- Eg. New York University, Microsoft Corporation

INTERNET SERVICE PROVIDER (ISP)

- **Internet Service Provider (ISP)** firm that provides the lowest level of service in the multi-tiered Internet architecture by leasing Internet access to home owners, small businesses, and some large institutions
- Eg. AT& T, Verizon, Sprint
- **narrowband -** the traditional telephone modem connection, now operating at 56.6 Kbps
- **broadband** refers to any communication technology that permits clients to play streaming audio and video files at acceptable speeds—generally anything above 100 Kbps

- **Digital Subscriber Line (DSL) -** delivers high-speed access through ordinary telephone lines found in homes or businesses
- **cable modem -** piggybacks digital access to the Internet on top of the analog video cable providing television signals to a home
- **T1 -** an international telephone standard for digital communication that offers guaranteed delivery at 1.54 Mbps **T3** an international telephone standard for digital communication that offers guaranteed delivery at 45 Mbps
- **T3** an international telephone standard for digital communication that offers guaranteed delivery at 45 Mbps

Intranet

Intranet a TCP/IP network located within a single organization for purposes of communications and information processing

The Future Internet

INTERNET OF THINGS (IOT) Use of the Internet to connect a wide variety of devices, machines, and sensors.

The Web

- **Mosaic** Web browser with a graphical user interface (GUI) that made it possible to view documents on the Web graphically
- **Universal Computing** the sharing of files, information, graphics, sound, video, and other objects across all computer platforms in the world, regardless of operating system
- **Netscape Navigator** the first commercial Web browse
- **Internet Explorer** Microsoft's Web browser

HYPERTEXT

- Web pages can be accessed through the Internet because the Web browser software on your PC can request Web pages stored on an Internet host server using the **HTTP protocol**.
- **Hypertext** is a way of formatting pages with embedded links that connect documents to one another and that also link pages to other objects such as sound, video, or animation files
- HTTP is the first set of letters at the start of every Web address, followed by the domain name. The domain name specifies the organization's server computer that is housing the document.
- URL

Markup Languages

- Most common web page formatting language is HTML
- Generalized markup language (GML)

Hypertext Markup Language (HTML)

- Hypertext markup language (html) GML that is relatively easy to use in web page design.
- HTML provides web page designers with a fixed set of markup "tags" that are used to format a webpage.

eXtensible Markup Language (XML)

- e**X**tensible **M**arkup **L**anguage (**XML**) a markup language specification developed by the World Wide Web Consortium (W3C) that is designed to describe data and information.

Web Servers And Clients

- **Web server software** -software that enables a computer to deliver Web pages written in HTML to client computers on a network that request this service by sending an HTTP request
- **Web server** is also used to refer to the physical computer that runs Web server software.
- **Ad server -** server designed to deliver targeted banner ads
- **Mail server -** server that provides e-mail messages
- **Video server -** server that serves video clips
- **Database server -** server designed to access specific information within a database

- Web servers provide some additional basic capabilities- **Security services, FTP, Search engine, Data capture**

- Web client any computing device attached to the Internet that is capable of making HTTP requests and displaying HTML pages, most commonly a Windows PC or Macintos

Web Browsers

- A Web browser is a software program whose primary purpose is to display Web pages.
- Browsers also have added features, such as e-mail and newsgroups (an online discussion group or forum).

The Internet and the Web :Features and Services

E-MAIL

- Electronic Mail (e-mail) - the most-used application of the Internet. Uses a series of protocols to enable messages containing text, images, sound, and video clips to be transferred from one Internet user to another
- Attachment - a file inserted within an e-mail message

INSTANT MESSAGING (IM)

- Instant messaging (IM) allows you to send messages in real time, one line at a time, unlike e-mail.
- Displays words typed on a computer almost instantaneously. Recipients can then respond immediately to the sender the same way, making the communication more like a live conversation than is possible through e-mail .

SEARCH ENGINE

- Search Engine identifies Web pages that appear to match keywords, also called queries, entered by the user and then provides a list of the best matches.

ONLINE FORUMS AND CHAT

- An online forum (also referred to as a message board, bulletin board, discussion board, discussion group, or simply a board or forum) is a Web application that enables Internet users to communicate with each other, although not in real time.

- A forum provides a container for various discussions (or “threads”) started (or “posted”) by members of the forum, and depending on the permissions granted to forum members by the forum’s administrator, enables a person to start a thread and reply to other people’s threads

Streaming Media

Streaming media enables live Web video, music, video, and other large-bandwidth files to be sent to users in chunks so that when received and played, the file comes through uninterrupted

Cookies

Cookie - a tool used by Web sites to store information about a user. When a visitor enters a Web site, the site sends a small text file (the cookie) to the user's computer so that information from the site can be loaded more quickly on future visits. The cookie can contain any information desired by the site designers

Web 2.0 features and services

- Online social networks

- Online social networks are services that support communication within networks of friends, colleagues, and entire professions. Online social networks have developed very large worldwide audiences and form the basis for new advertising platforms and for social e-commerce

Eg. Facebook, LinkedIn

➢ Blog

- Personal web page that is created by an individual or corporation to communicate with readers
- A blog (originally called a weblog) is a personal Web page that typically contains a series of chronological entries (newest to oldest) by its author, and links to related Web pages. The blog may include a blogroll (a collection of links to other blogs) and trackbacks (a list of entries in other blogs that refer to a post on the first blog.

➢ Really Simple Syndication (RSS)

- Really Simple Syndication (RSS) program that allows users to have digital content, including text, articles, blogs, and podcast audio files, automatically sent to their computers over the Internet.

➢ Podcast

- podcast an audio presentation— such as a radio show, audio from a movie, or simply a personal audio presentation— stored as an audio file and posted to the Web.

➢ Wikis

- wiki Web application that allows a user to easily add and edit content on a Web page.

➢ Music and video services

Audio and video files-download and share

➢ Internet telephony

- **IP telephony** a general term for the technologies that use voip and the Internet's packet switched network to transmit voice and other forms of audio communication over the Internet
- **Voice Over Internet Protocol (VOIP)** protocol that allows for transmission of voice and other forms of audio communication over the Internet

➢ Video Conferencing, Video Chatting, And Telepresence

- Internet video conferencing is accessible to anyone with a broadband Internet connection and a Web camera (webcam).

Eg. WebEx (now owned by Cisco)

- VOIP companies such as skype and ooVoo also provide more limited web conferencing capabilities, commonly referred to as video chatting.

Eg. Apple’s facetime

- Telepresence takes video conferencing up several notches. Rather than single persons “meeting” by using webcams, telepresence creates an environment in a room using multiple cameras and screens, which surround the users.
- Providers of telepresence software and hardware include Cisco, HP, and Teliris.

- Online software and Web services: Web apps, Widgets, and gadget
  - Widgets pull content and functionality from one place on the Web to a place where you want it, such as on your Web page, blog, or Facebook page.
  - Gadgets are closely related to widgets. They are small chunks of code that usually supply a single limited function such as a clock, calendar, or diary. You can see a collection of gadgets at http://www.google.com/ig/directory?synd=open.
- Internet Personal Assistants