UNIT-I

Introducion to E-commerce:

E- Commerce:

Electronic commerce, commonly known as E-commerce is trading in products or services using computer networks, such as the Internet.

Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems.

Modern electronic commerce typically uses the World Wide Web for at least one part of the transaction's life cycle, although it may also use other technologies such as e-mail.

Definition of E-commerce:

Sharing business information, maintaining business relationships and conducting business transactions using computers connected to telecommunication network is called E-Commerce.

E-Commerce Categories:

1. **Electronic Markets:**

   Present a range of offerings available in a market segment so that the purchaser can compare the prices of the offerings and make a purchase decision. Example: Airline Booking System

2. **Electronic Data Interchange (EDI)**

   • It provides a standardized system

   • Coding trade transactions

   • Communicated from one computer to another without the need for printed orders and invoices & delays & errors in paper handling

• It is used by organizations that a make a large no. of regular transactions Example: EDI is used in the large market chains for transactions with their suppliers

3. Internet Commerce

• It is use to advertise & make sales of wide range of goods & services.

• This application is for both business to business & business to consumer transactions.

Advantages Of E-commerce:

- ✓ Buying/selling a variety of goods and services from one's home or business
- ✓ Anywhere, anytime transaction
- ✓ Can look for lowest cost for specific goods or service
- ✓ Businesses can reach out to worldwide clients - can establish business partnerships
- ✓ Order processing cost reduced
- ✓ Electronic funds transfer faster

Disadvantages of E-commerce:

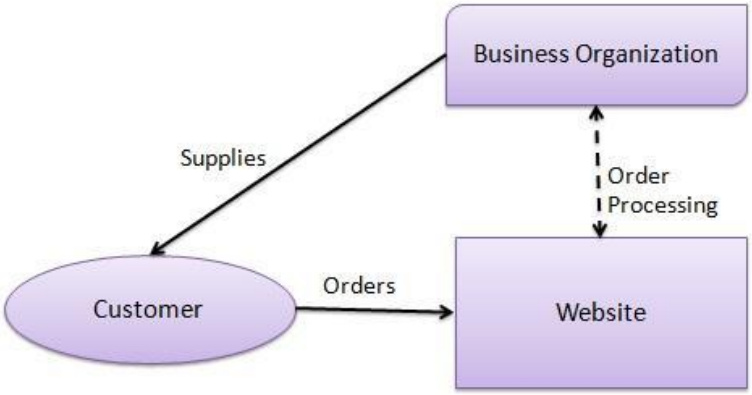
- ✓ Electronic data interchange using EDI is expensive for small businesses.
- ✓ Security of internet is not very good - viruses, hacker attacks can paralyze E-commerce.
- ✓ Privacy of e-transactions is not guaranteed.
- ✓ E-commerce de-personalizes shopping

Business models of e-commerce:

There are mainly 4 types of business models based on transaction party.

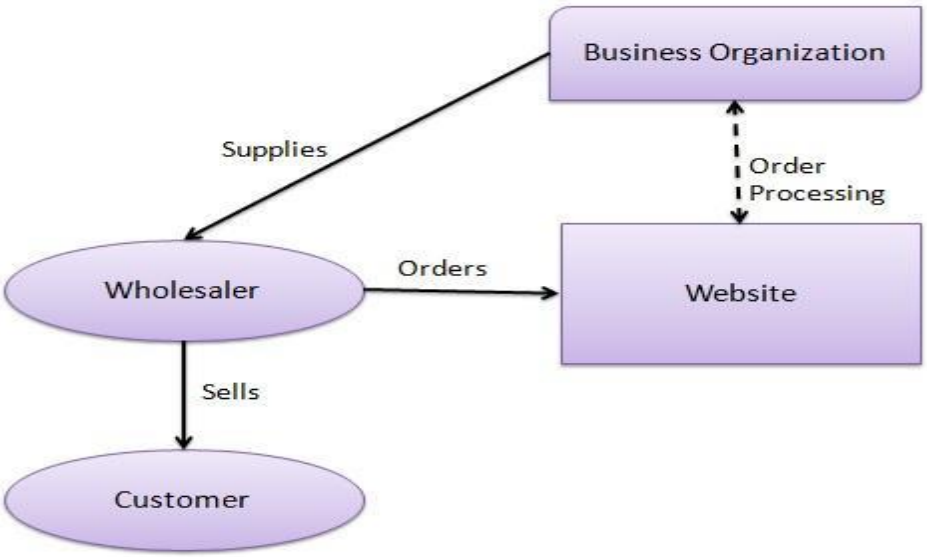
Business-to-Consumer (B2C)

In a Business-to-Consumer E-commerce environment, companies sell their online goods to consumers who are the end users of their products or services.



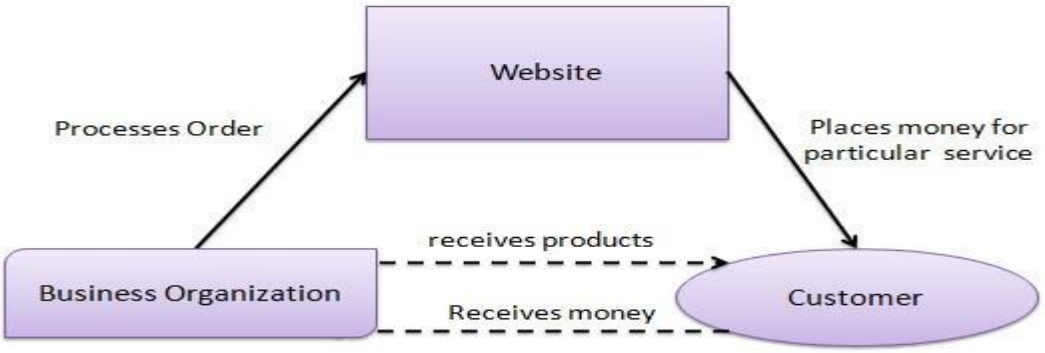
Business-to-Business (B2B)

In a Business-to-Business E-commerce environment, companies sell their online goods to other companies without being engaged in sales to consumers.



Consumer-to-Business (C2B)

In a Consumer-to-Business E-commerce environment, consumers usually post their products or services online on which companies can post their bids. A consumer reviews the bids and selects the company that meets his price expectations.



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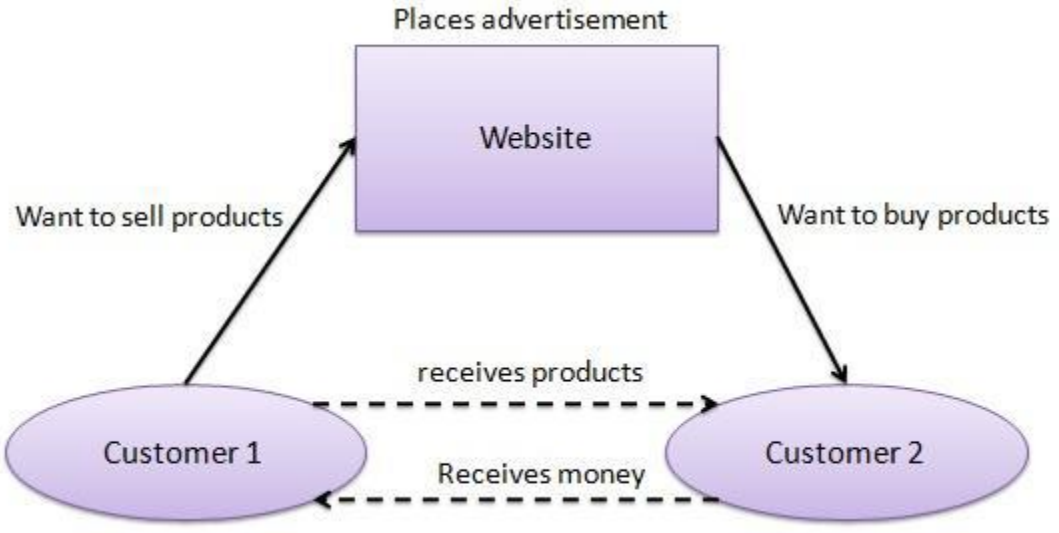


Electronic Commerce Framework

From the business activity already taking place, it is clear thatecommerce applications will be built on the existing technology infrastructure-a myriad of computers, communications networks, and communication software forming the nascent Information Superhighway. Figure 3.1 shows a variety of possible e-commerce applications, including both inter organizational and consumeroriented

examples. None of these uses would be possible without each of the building blocks in the infrastructure:

- ✓ Common business services, for facilitating the buying and selling process.
- ✓ Messaging and information distribution, as a means of sending and retrieving information.
- ✓ Multimedia content and network publishing, for creating a product and a means to communicate about it.
- ✓ The Information Superhighway-the very foundation-for providing the highway system along which all e-commerce must travel the two pillars supporting all e-commerceapplications and infrastructure-are just as indispensable.
- ✓ Public policy, to govern such issues as universal access, privacy, and information pricing
- ✓ Technical standards, to dictate the nature of information publishing, user interfaces, and transport in the interest of compatibility across the entire network

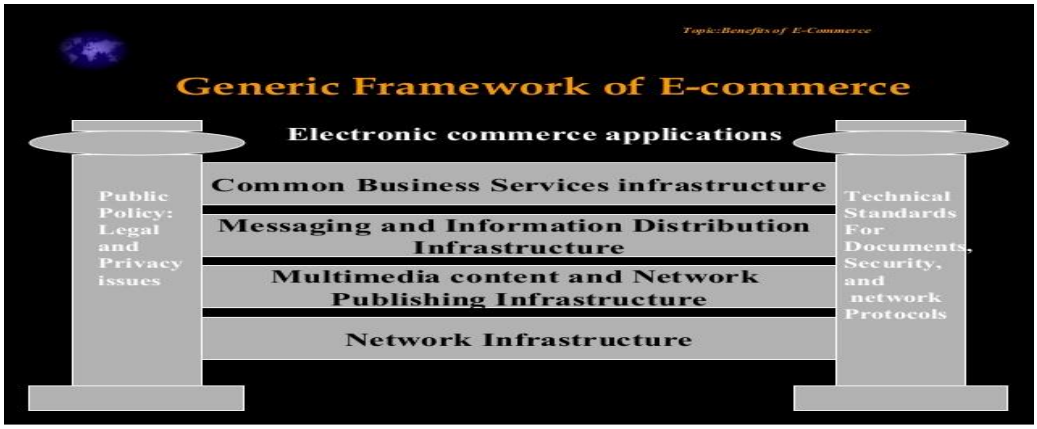


Fig 3.1 Generic Framework of E Commerce

To better understand the integration of the various infrastructure components in our framework, let us use the analogy of a traditional transportation business. Any successful e-commerce application will require the I-way infrastructure in the same way that regular commerce needs the interstate highway network to carry goods from point to point. You must travel across this highway, whether you are an organization purchasing supplies

A well defined rules and regulations based on well-known needs. Rather, still under construction, the I-way will be a mesh of interconnected data highways of many forms: telephone wires, cable TV wires, radio-based wireless-cellular and satellite. Far from complete, the I-way is quickly acquiring new on-ramps and even small highway systems.

The information and multimedia content determines what type of vehicle is needed. A breakdown of potential everyday e-commerce vehicles into their technological components shows that they vary widely in complexity and may even need to travel different routes on the I-way, much the way an eighteen-wheeler may be restricted from traveling roads that cannot accommodate it:

Movies = video + audio

Digital games = music + video + software

Electronic books = text + data + graphics + music + photographs

+ video.

E-Commerce & Media Convergence:

Media Convergence

What is Media Convergence?

- Different media sources joining together
- Newspapers, online, television, radio etc.
- Result in a **technological determinism**

Defining media convergence

- The flow of content across multiple media platforms, the cooperation between multiple media industries and the migratory behavior of media audiences who will go almost anywhere in search of the kinds of entertainment experiences they want.
- Convergence is a word that manages to describe technological, industrial, cultural and social changes (Henry Jenkins,2006) ...
- The ' coming together ' of previously separate industries (computing, printing, film, audio etc.) which increasingly use the same or related technology and skilled workers.
- A feature of the contemporary media environment, convergence is a product of mergers between companies in different sectors as well as an outcome of technological development. *(Branston and Stafford, 2010)*

What convergence stand for

- Convergence is increasingly prevalent in the IT world.
- In this context the term refers to the combination of two or more different technologies in a single device.
- Taking pictures with a cell phone and surfing the Web on a television are two of the most common examples of this trend.
- Computer-television convergence is already underway with Web TV, which pipes the World Wide Web to a slightly-modified TV set with a set-top box from an ordinary phone line and provides a degree of interactivity.

Need of Media Convergence

- ✓ Technologically rich societies have entered the digital age
- ✓ Media industries are grappling with new opportunities - and threats - afforded by what is called "convergence".
- ✓ Media people tend to get very excited about convergence, because it holds so much promise.
- ✓ The melding together of different media, incorporating new personalized services is both impressive and overwhelming.

Types of convergence

- Economic convergence, when a single company has interests across many kinds of media.
- Organic convergence is multimedia multitasking, or the "natural" outcome of a diverse media world.
- Cultural convergence, when stories flow across several kinds of media platforms, and when readers or viewers can comment on, alter, or otherwise talk back to culture.
- Global convergence, when geographically distant cultures are able to influence one another.
- Technological convergence, in which different kinds of technology merge. The most extreme example of technological convergence would be the as-yet hypothetical "black box," one machine that controlled every media function.

So convergence mean Multimedia .....

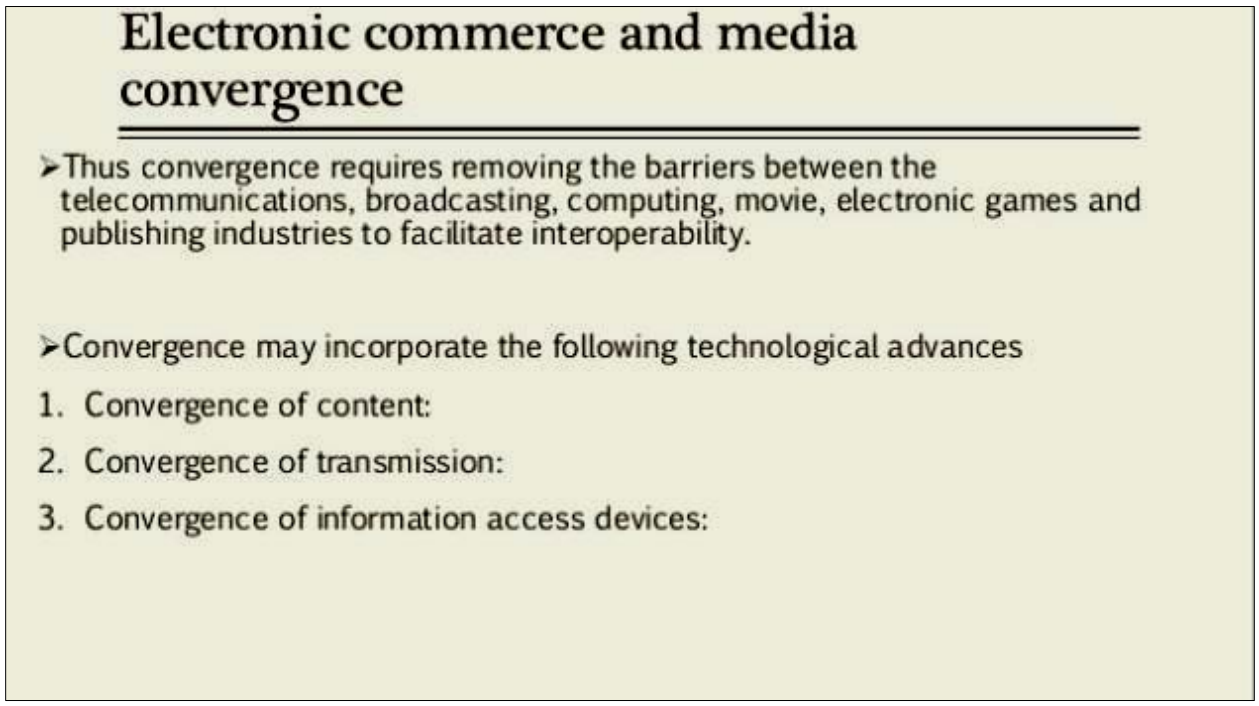
- The mixture of media is called –convergence, Multimedia, Integrated media, Digital media
- *"Convergence = WWW + mobile phone + multimedia computer".*
- Intermedia
- Multimedia, hypertext
- Mixed media

Advantages of convergence

- The growth in technology joined with Media Convergence.
- Internet, Television, Smart phones, Tablets, 3G / 4G, Applications, Gaming, What next?
- Advantages of the changes in technology?
- Portable
- Cheap
- Quick
- Easier to access
- Reliable
- More information
- Varity choice

Electronic commerce and media convergence

- E-commerce has been repeatedly linked with the idea of convergence (junction) of industries centered on information that until today has been isolated content, storage, network, business applications and consumer devices.
- Multimedia convergence applies to the conversion of text, voice, data, image, graphics and motion video into interactive digital content whereas cross media convergence refers to the integration of various industries – entertainment, publication, and communication media base on multimedia content.



Convergence of Content:

Translate all type of information content-books, business document, videos, and music into digital information.

Convergence of Transmission:

Compress and stores digitized information so it can travel through phone and cable wiring.

Convergence of information access devices

Have the sophistication to function as both computer and television.

The Anatomy of e-commerce applications:

The best and the easiest form of interaction between businessmen and customers is the Internet. Online buying & selling of products, which includes websites, is gaining popularity because of rapidly advancing technology-related concepts. Online business is developing quickly through different software that allow customers to perform buying and selling activities without much difficulty.

E-commerce applications comprise multimedia content and multimedia storage servers as well as the information delivery system, the devices that function as interfaces for various e-commerce applications and the network service providers that serve as access points.

E-Commerce applications

As you must have understood by now, a number of software and hardware applications are used to carry out the e-commerce transactions.

Some common e-commerce applications include:

- Email.
- Enterprise content management.
- Instant messaging.
- Newsgroups.
- Online shopping and order tracking.
- Online banking.
- Online office suites.
- Domestic and international payment systems.
- Shopping cart software.
- Teleconferencing.
- Electronic tickets.

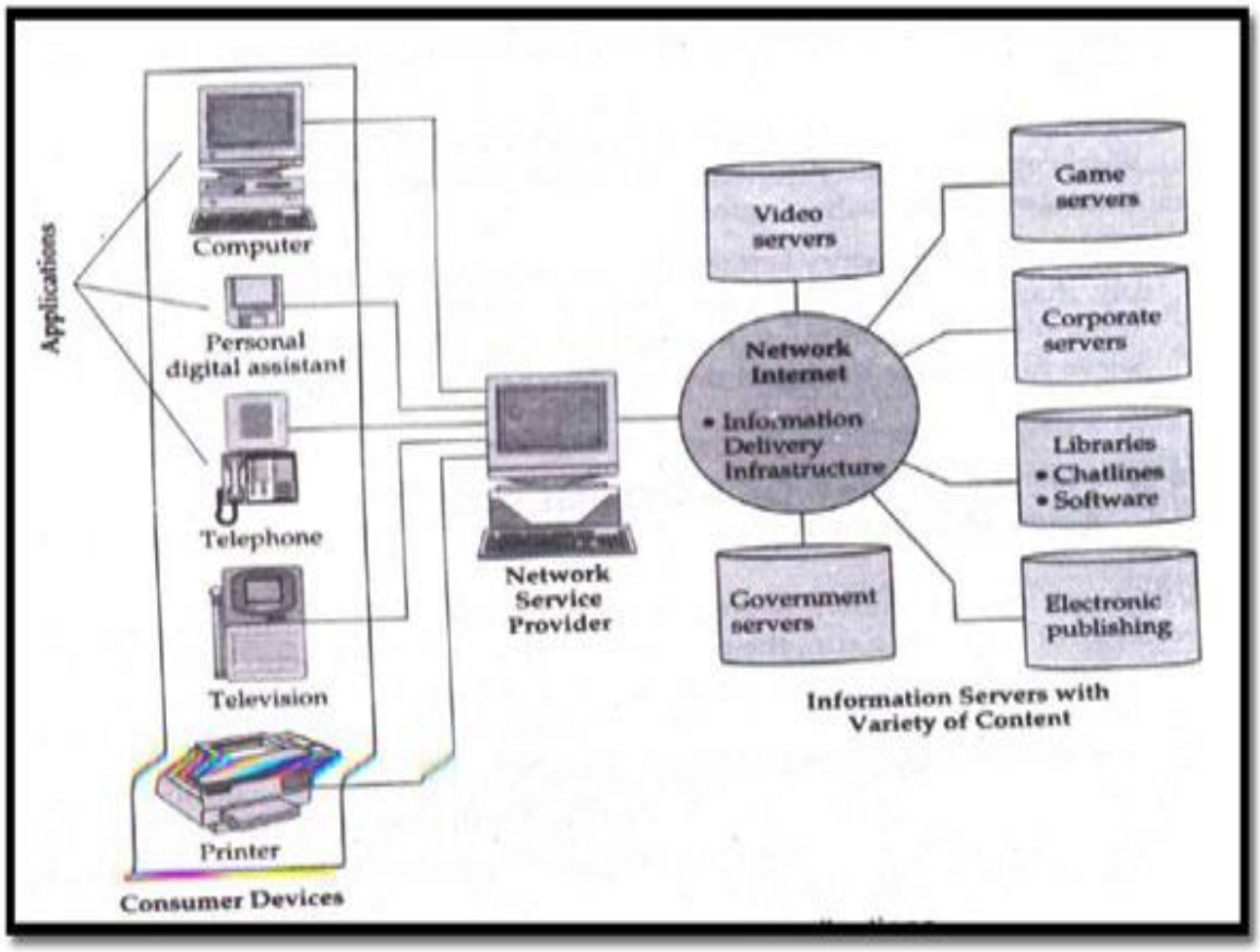
Some of the benefits of e-commerce applications include:

- Expanding geographical reach.
- Expanding customer base.
- Increasing visibility with the help of Search Engine Marketing.

- Providing the required business information to customers.
- Making the website available 24/7/365.
- Building customer reliability.
- Reducing marketing and advertising expenses.
- Collecting customer data.
- Increasing sales.

E-Commerce applications must have the skill to deal with the activities involved in a business. Those skills include accepting and managing payments, handling the checkout pipeline, and choosing, collecting and distributing products to customers. Apart from these, companies use the applications to improve the online experience of customers and in turn enhance customer traffic.

Elements of E-commerce Application



E-Commerce Consumer applications

•People needs entertainment on demand including video, games, news on-demand, electronic retailing via catalogs etc.

•Currently now we are taking the video on-demand.

•Why most companies betting heavily on this?

•93 million homes have television

•Americans spend nearly half their free time watching television

•Every evening, more than one-third of the population is in front of a television

4. sight, sound, and motion combine to make television a powerful means of marketing

Consumer Applications and Social Interaction:

•Lessons from history indicate that the most successful technologies are those that make their mark social

•In 1945, in U.S no one had TV. By 1960 about 86percent of households did

•Now contrast with Telephone. Bell invented the telephone in 1876 and by1940, 40% of U.S. households and by 1980 about 95-98 percent of households connected

•Penetration was slower for Telephone than for TV because of the effort needed to set up the wiring infrastructure

- The impact of both was good on business, social, consumer behavior and entertainment habits
- Radio began in 1960, and by 1989, almost 3 decades later, just 319 radio stations followed the news format
- In 1994, their number exceeded 1000

What do Consumers Really want?

- They want quality and cost of service
- If a new system requires more steps to do essentially the same things, consumers may resist it
- Some people fit that mold, but most of public prefers to lay back and just watch television and let someone else do the work of figuring out the sequence of television programming

What are Consumers willing to spend?

According to the video on-demand, consumers get the cable bill at basic charge they will buy

If it is doubled they will not buy and at the service provider economics will increased then network operators might look to advertises to fill the gap

Delivering products to Consumers

- Packing and distribution must be considered
- Blockbuster video collects the information and shows the typical consumer
- Spends $12 a month on home video expenditures
- Go to video store to select video on limited budget and has time to kill
- Only periodically expends a large sum of money

Consumer Research and E-Commerce

- Consumer opinion about interactive television is
- 46% be willing to pay
- 39% want video phone calls
- 63% would pay for movies on-demand
- 57% would pay for Television shows on-demand
- 78% said their worry about it is that they will pay for something that they previously received free of charge

- 64% are think it make it harder for viewers to protect privacy
- 41% are tell that it is too confusing to use

E-Commerce Organization applications

Changing business Environment

The traditional business environment is changing rapidly

Many companies are looking outside and within to shape business strategies

These activities include private electronic connections to customers ,suppliers ,distributors ,industry groups etc

The I-superhighway will expand this trend so that it allow business to exchange information

E-Commerce and the retail Industry

Conditions are changing in the "new economy" with respect to the retail industry

Consumers are demanding lower prices, better quality, a large selection of in-season goods.

Retailers are filling their order by slashing back-office costs, reducing profit margins, reducing cycle times. Buying more wisely and making huge investments in technology

Retailers are in the immediate line of fire and were first to bear the brunt of cost cutting

Marketing and E-Commerce

E-commerce is forcing companies to rethink the existing ways of doing target marketing and even event marketing.

Interactive marketing is in electronic markets via interactive multimedia catalogs

Users find moving images more appealing than still image and listening more appealing than reading text on a screen

Consumer information services are a new type of catalog business

Inventory Management and Organizational Applications

With borders opening up and companies facing stiff global competition

Adaptation would include moving to computerized, "paperless" operations to reduce

Once targeted business process is inventory management, solutions for these processes go by different names

In manufacturing industry they're known as just-in-time inventory systems, in the retail as quick response programs, and in transportation industry as consignment tracking systems

Just-in-Time (JIT) Manufacturing

It is viewed as an integrated management system consisting of a number of different management practices dependent on the characteristics of specific plants

The first principle is elimination of all waste (time ,materials ,labour & equipment)

The following management practices are focused factory, reduced set-up times, group technology, total productive maintenance, multifunction employees, uniform workloads, IT purchasing bank an total quality control & quality circles

Quick Response Retailing (QR)

It is a version of JIT purchasing tailored for retailing

To reduce the risk of being of out of stock, retailers are implementing QR systems

It provides for a flexible response to product ordering and lowers costly inventory levels

QR retailing focuses on market responsiveness while maintaining low levels of stocks

It creates a closed loop consisting of retailer, vendor, & consumer chain,& as consumers make purchases the vendor orders new deliveries from the retailer through its computer network

Supply Chain Management

QR and JIT address only part of the overall picture

Supply Chain Management (SCM) is also called "extending", which means integrating the internal and external partners on the supply and process chains to get raw materials to the manufacturer and finished products to the consumer

It includes following functions

Supplier management: The goal is to reduce the number of suppliers and get them to partners

Inventory management: The goal is to shorten the order-ship-bill cycle. When a majority of partners are electronically linked, information faxed or mailed

Distribution management: The goal is to move documents (accurate data) related to shipping

Channel management: The goal is to quickly disseminate information about changing operational conditions (technical , product and pricing information) to trading partners

Payment management: The goal is to link company and the suppliers and distributors so that payments can be sent and received electronically

Financial management: The goal is to enable global companies to manage their money in various foreign exchange accounts

Sales force productivity: The goal is to improve the communication flow of information among the sales, customer & production functions

In sum, the supply chain management process increasingly depends on electronic markets

Work group Collaboration Applications:

A internet work that enables easy and inexpensive connection of various organizational segments

It is to improve communications and information sharing and to gather and analyze competitive data in real-time

Videoconferencing, document sharing and multimedia e-mail, are expected to reduce travel and encourage telecommuting

Improves the distribution channel for documents and records to suppliers, collaborators and distributors

Internet Commercialization:

The US government's 1991 decision to end subsidizing the **NSFNET** (National Science Foundation Network) backbone beginning in 1995 sparked a massive restructuring aimed at shaping the internet into a faster and more productive tool for business.

The Ongoing evolution of the internet has ramification for the types of commercial activities.

In the past, because of government sponsorship, the internet followed a voluntary policy called **AUP (Acceptable Usage Policy)** that allowed only non profit, educational, and government use.

- ✓ **Communication with foreign researchers and educators** in connection with research or instruction, as long as any network that the foreign user

employs for such communication provides reciprocal access to US researchers and educators.

- ✓ **Communication and exchange for professional development**, to maintain currency, or to debate issues in a field or subfield of knowledge.

- ✓ **Use for disciplinary-society, university-association, government-advisory, or standards activities** related to the user's research and instructional activities.
- ✓
- ✓ **Use in applying for or administering grants or contracts for research or instruction**, but not for other fundraising or public relations activities.

- ✓ **Any other administrative communications** or activities in direct Support of research and instruction.

- ✓ **Announcements of new products or services** for use in research or instruction, but not advertising of any kind.
- ✓ **Any traffic originating from a network of another member agency** of the Federal Networking Council if the traffic meets the acceptable use policy of that agency.

These policies were relaxed in 1991 by the National Science Foundation.

Today, many internet sites allow commercial message across their own regional networks, which is considered non-NSF lines. as a result, the internet is seeing enormous growth in the number of people and business using its services.

To serve these new customers. An entirely new industry called Internet Service providers (ISP) has emerged.

Commercialization of the internet was first discussed at a workshop held in March 1990 at the john F. Kennedy School of Government at Harvard University.

Commercialization of internet users:

Commercial usage of the internet for companies is nothing new-how they are using it is new.

For-profit business communications corporations used other networks these corporations used interconnected mainframes, which handled their commercial data processing and did networking using a protocol suite called **system network architecture** (SAN).

Commercialization of internet service provider:

Commercial internet service providers exist to provide for-pay access to various internet application and resources for both companies and individuals.

There are four general categories of ISP:

- Telco/Cable/On-line companies
- National independents
- Regional's
- Local service Providers

Telco/Cable/On-line companies:

These are the long distance telephone companies (**AT&T, MCI and Sprint**),ROBCs, Cable TV, and Online service operators, Their common factors is company size, with balance sheets of billions of dollars.

They are rapidly entering the internet service provider marketplace. The **Sprint** was first to enter in 1991, with ATT in 1993, **MCI** Ameritech in 1994, **CompuServe** and **prodigy** in early 1995.

Established telecommunication, cable companies and commercial online service are attempting to take advantage of their existing networks and brand name to become internet service provider.

Telephone Companies:

All the large U.S Telco's are participants in the internet infrastructure. Sprint, Pacific Bell, Ameritech, and Bellcore are building some of the key

components, network access point for the new NSFNET architecture in the united states.

MCI has contributed by providing reduced rates for NSFNET backbone circuits and investing in developing the new switching technology that is used today.

MCI built the vBNS (very high speed network) under a cooperative agreement with the NSF.

MCI and Sprint has also entered the commercial internet business through its services.

MCI is involved at three levels:

- Internet Backbone Services
- Internet Backbone Access Provider
- Internet Service Provider

CompuServe:

CompuServe has become a leading provider of computer based information and communication services.

In 1994 CompuServe telecommunication network extend to 369 metropolitan local access point in US. The use of supplementary networks provides total coverage in 97 foreign countries.

CompuServe operates through four divisions:

- ✓ Information Services
- ✓ Network Services
- ✓ Support Services
- ✓ Software Products

CompuServe Network Services Division provides corporations with packet data network that offers customers a fast data communications system.

Prodigy:

Prodigy, a joint venture between Sears and IBM, has plenty of losses since it was launched in 1990.

Prodigy is the only service that reserves a part of almost every screen for advertising. Vendors find it works: Being on the opening screen can bring in 50% more business than advertising.

Prodigy has instituted hourly charges for bulletin boards, Eaasy Sabre, Dow Jones, New Retrieval, and stock quotes.

Prodigy has special pricing plans for support groups, such as those that link doctors with families and social workers, or those based on dependencies.

America Online:

America Online, headquartered in Vienna, Viriginia, is a leading independent and the fastest growing providers of on-line services to U.S. consumers.

Originally called Quantum communication Services, America Online started its official life in1988 on Apple II computers as the Personal Edition of Apple Link.

National Independent:

These are the commercial, for profit entities offering connectivity services nationwide or internationally in some cases, which are positioned to compete in the evolving commercial marketplace. PSI and UUNET are among the firms presently competing in this market.

The Telecom/Cable/online combo faces a string challenge from well entrenched existing internet services providers called national independents who pioneered the commercial internet marketplace.

These are the dominant players in the internet access hierarchy and provide an analogy, think of the national independents as the Interexchange Carriers (IXCs) of the telephone business that connect the local providers.

The major U.S. service providers include Performance Systems International(PSI), Advanced Networks and Services(ANS) and UUNET Technologies.

None of these networks have restrictions on their use. One goal of the ISP vendors is to provide all customers of their collective markets the ability to communicate with each other without restrictions imposed by the AUP (Acceptable usage policy).

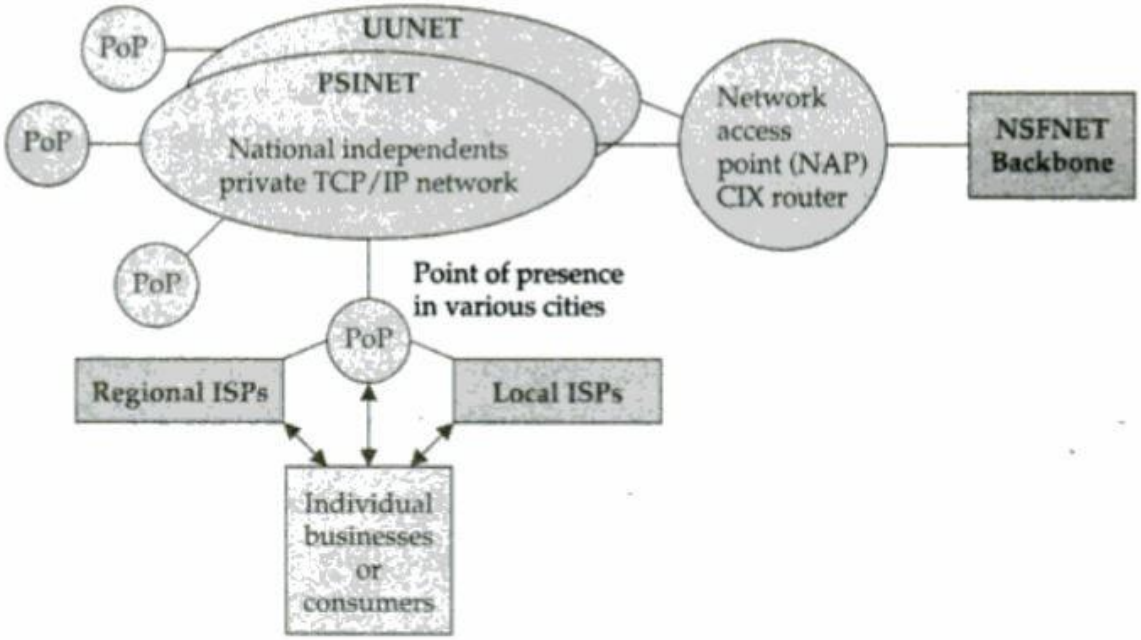


Figure 4.1 Architecture of national level Internet service providers

This figure shows the Structure of the national independents. National ISP's offer very high speed connections to the internet, up to 45Mbps. Firms planning to capitalize on the internet will find national ISP's providing connections in major centre that provide a direct linkage to backbone networks.

These POP's are usually equipped with routers for dedicated connections and modems for dial-up connections to users just about anywhere, by passing the existing Telco infrastructure.

User is simply connected to a national provider's nearest switching facility. The national ISP then transports the internet traffic across its own network to a router with a connection into the rest of the internet.

At the regional and local levels are tens of thousands of organizations of every conceivable kind that have built their own private internetworks that are connected to the national backbones via an ISP.

UUNET/AlterNet:

UUNET, founded in May 1987, was the first company to provide business professionals access to the internet.

UUNET sells computers related books and makes available to the world an extensive collection of freely distributable UNIX source archives and software.

UUNET introduced a full time communications services for its customers to connect to the internet to send and receive email and news.

Shortly, in January 1990, UUNET launched AlterNet, one of the first commercial networks to use TCP/IP protocols.

UUNET operates a national 45-Mbps ATM network and maintains POP's in more than fifty U.S. cities, In addition, users can reach AlterNet through Sprint or Wiltel pops located in over 450 cities.

Performance Systems International (PSI):

PSI was formed in 1989 as a spin-off from the NYSER net, a non-profit academic network based in Syracuse, New York.

NYSER net continues to use PSI as its network service supplier. Beginning with just 40 customers on this new network, PSINET had grown to nearly 5000 customers by the end of 1993, more than any other the Internet service provider in the world.

PSI's network has grown to the point that it now has Pop's in over 100 U.S. metropolitan areas and Japan.

PSI's commercialization of the internet began in 1990 with leased- line service for corporations on a coast-to –coast basis, defying the model imposed by regional Internet service providers.

PSI introduced Internet access for individual with a preliminary PSILinkSM service in the fall of 1990 offering simple electronic mail service to PC users.

PSI's services range from a series of low-cost dial up network access options using normal telephones lines and modems, ISDN access at 64Kbps, to set of high performance customer's access services using dedicated high speed circuits from 56Kbps to 4 Mbps.

Regional's:

These were non profit university-affiliated enterprises that offered services within one state or within regional interstate areas.

The elimination of NSF subsidies, however these enterprises are aggressively entering the commercial marketplace. SURA net, NEAR net, NYSER net and BARR net are examples.

The service providers that operated CERF net, JvNCNet and other regional backbone networks lost their status as regional monopolies operating under a grant from the U.S. government to enter a more competitive open market where several service providers were allowed to operate concurrently.

JvNCNet, is a representative example of a regional Internet service provider in the Northeast. It became a commercial entity called Global Enterprise Services(GES).

GES even provides the hardware and telephone line necessary to connect to JvNCNet Access Point with unlimited usage.

GES also offers host connection services. The host services are an ideal way for any organization or individual to take advantage of the many resources available on the internet at a low cost.

The Host connection services offer two pricing options- a fixed monthly fee and unlimited usage- or usage based pricing.

Local Service Providers:

These are commonly called “mom and pop shops”, these are small business that supports 10-1000 customers.

They usually operate in one physical location and offer services to business and individual consumers within a single metropolitan area.

The big difference between regional and local providers is found in customer service and support: few local ISPs offer 24 hour technical support many of the regional and national providers have around – the – clock, seven-days-per-week network operation centres.

One main reason for the growth of local ISP’s is the freedom of expression. Some of the larger service providers tends to restrict the activities of users on the internet from their network.

Another reason is that local ISP’s tend to be more innovative and adapt more quickly to the rapidly changing internet application world than the slower moving regional and national ISPs.

The national ISP’s and bigger online service providers made this service available to their customers only in 1995.

Many start out running bulletin board systems or BBSs to allow local users to exchange messages, information’s and programs.

Bulletin Boards or Niche Services:

BBS are not meant for a mass audience but for a specialized group of people who share common interests.

Some charges for access while other is free.

Free-Nets, Libraries, and Government as ISPs:

Free-nets are mostly open-access, free, community, or municipal computer systems that typically carry information on city services, including job postings, park reservations, and civic calendars.

They represent the “electronic city streets” that link homes, school, libraries, hospitals and small business to the ever-growing internet.

Internet Connectivity Options:

The ISP marketplace offers a wide range of connectivity options designed to give customers the needed performance.

The choice available can be broadly classified into three categories

1. **Individual and light usage options**
2. **Small business or midrange options**
3. **High-volume options.**

The cost of all types of connections is often based on the amount of bandwidth

Bandwidth on a network is analogous to number of lanes on a highway.

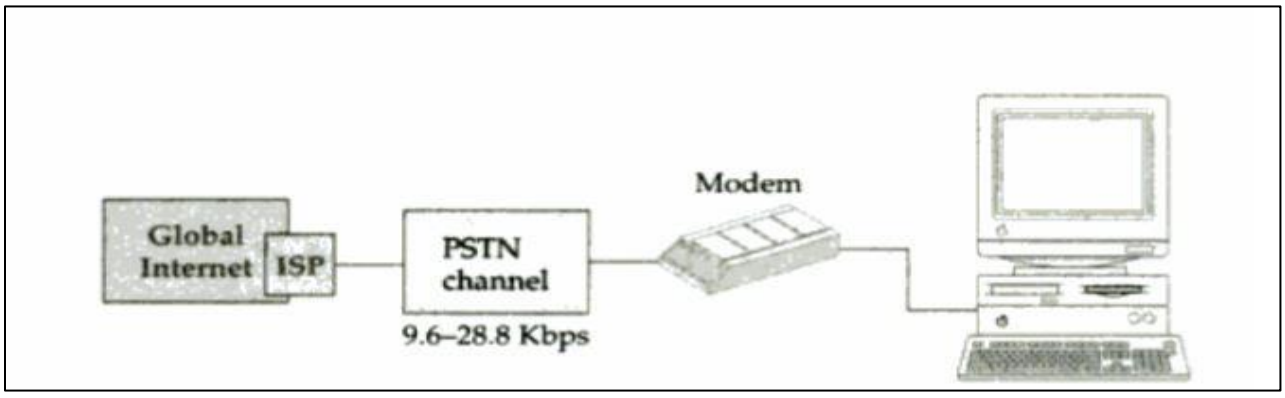
The Metered dial-up rates where individuals or light users charged based on the number of hours of usage.

Heavy users can purchase dedicated unmetered flat rates for unlimited usage for about $10,000 per connection.

Individuals and Light Usage Options:

Dial-up connections are the most cost-effective method of accessing the internet for lower volume, intermittent use, from anywhere.

These service options require the customers to have a single telephone line and hardware/software, such as a modem and a TCP/IP.



Selecting an Internet Service Provider is not simple, and you still have to consider types of protocols, phone and access charges, and connection speeds.

If you choosing a long-distance phone carrier was tough, wait until you select a service provider.

Two types of connections are possible:

- Plain vanilla connections provide by standard terminal emulation packages.
- Sophisticated connections method called direct IP

The direct IP services required that a version of TCP/IP protocol stack called SLIP or PPP be running on the computer.

Mid-Range Options:

ISDN is ideal for intermittent access to the internet for high-volume data applications like video.

There are two types of ISDN connections:

- Basic rate interface ISDN(BRI)
- Primary rate interface ISDN(PRI)

The BRI maximize the transmission capability of existing copper wires, allowing for simultaneous transmission of voice and data over a single twisted pair connection. It allow maximum speed range of 64-128 Kbps.

The PRI is an international standard for sending voice, videos, or data over T-1(1.544 Mbps) phone lines, in digital format, with 24 separate 64-Kbps channels.

PRI has a lot more capacity than the BRI.

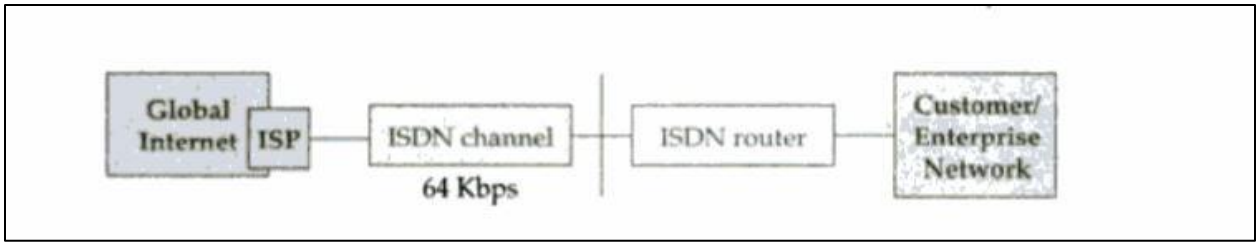
The technical details of ISDN are as follows:

A BRI circuit from the local telephone company will use a “U” interface when the circuit comes into the building and connects to the terminal equipment called NT-1(Network Terminator-1)

The incoming “U” interface is composed of two wires and carries data but no power for the terminal equipment.

The “U” interface must be converted to an “S/T” interface, which required the use of an NT-1 with its power supply.

The NT-1 converts the incoming two-wire circuit to a four-wire circuit (S/T) interface.

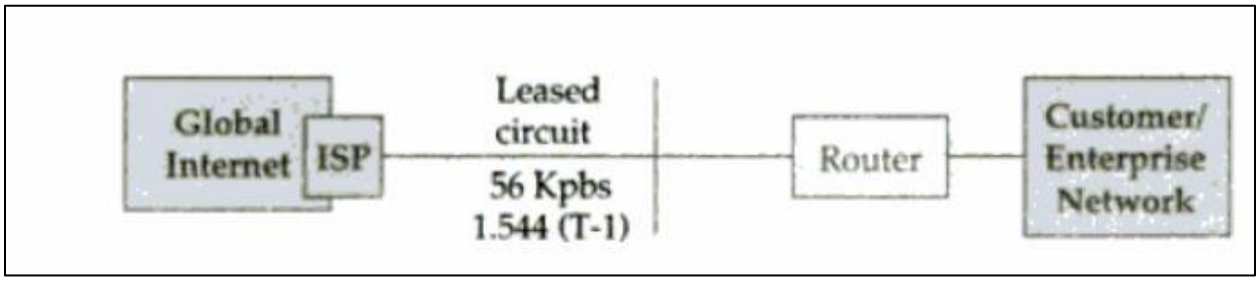


Heavy-Volume Users:

Private circuits are ideal for those who want to make extensive use of the Internet and require a dedicated line to operate at high bandwidth.

These circuits are aimed primarily at business planning to make extensive use of the internet.

This service is often intended for companies that have extensive computer facilities or experience and are seeking to augment existing enterprise wide communication capability with the internet connections.



This figure shows that a dedicated connection requires a leased line from the service provider a dedicated, point-to-point telecommunication circuit- and an IP router, linking the subscriber to the internet.

Line speed range from 9.6 Kb to 45Mb.

In this case, providers usually charge a flat rate connection fee and no usage charge.