e-Business Systems

(Unit – 1)

by

Dr. Sunil Pratap Singh
(Associate Professor, BVICAM, New Delhi)
2023

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.1

Introduction to E-Commerce

- E-Commerce (Electronic Commerce) refers to the buying and selling of goods and/or services through the Internet.

  - In other words, e-commerce refers to performing transactions over an electronic network, primarily the Internet.

  - E-Commerce is also known as Internet Commerce.

  - When we visit our favorite online retailer to buy a new pair of shoes, we are engaging in e-commerce.

  - If we pay online to attend a music concert or buy a plane ticket through the airline's website, we are engaging in e-commerce.

  - The first ecommerce transaction was made in 1994. A guy named Phil Brandenberger used his Mastercard to buy Sting's Ten Summoners' Tales via the Internet for $12.48.

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.2

Introduction to E-Business

- E-Business refers to carrying out all type of business activities through digital platforms.

  - Intranet, Internet and Extranet networks are used in e-business.

  - Websites, Apps, ERP, CRM, etc. are required for e-business.

- E-Business is a broader term that encompasses other common terms such as e-commerce and e-tailing.

- E-Business is not limited to commercial transactions, but it also provides other services.

  - It goes beyond the simple buying and selling of products and services online.

  - In e-business, a wider range of businesses processes, such as **supply chain management**, **customer relationship management**, **enterprise resource planning**, **content management**, etc. are performed through digital platforms over electronic network(s).

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.3

Important E-Commerce Statistics

- According to 99Firms' Ecommerce Statistics for 2020:
  - It is expected that by 2040, 95% of all purchases will be via e-commerce.
  - The world's fastest-growing e-commerce market is China with an estimated e-commerce value of $672 billion in 2017.
  - The USA has the highest e-commerce penetration rates, with around 80% of all Internet users making at least one purchase.
  - The top reason why people make online purchases is that they can shop whenever they want, 24/7.
  - Around 43% of e-commerce traffic comes from Google search (organic).

Important E-Commerce Statistics (contd…)

- According to Finance Online's Data and Share Market Analysis for 2020:
  - It is estimated that around 35% of Google product searches are converted into purchases within 5 days.
  - Around 51% of digital buyers conduct purchases via their smartphones.
  - Digital buyers are more likely to spend more if they are provided with free shipping.
  - Around 93% of online shoppers declared that the visual appearance of an online store plays a key factor in their purchasing decisions.
  - It is estimated that around 80% of online shoppers don't make purchases from e-commerce sites that have problematic return policies.
  - It is estimated that 85% of all products purchased via social media platforms come from Facebook.

Important E-Commerce Statistics (contd…)

According to Statista:

Where E-Commerce Is Growing Fastest
E-commerce sales in selected countries/regions in 2020 and 2025* (in billion U.S. dollars)

Region	2020	2025*	Increase
World	2,854.8	4,198.5	+47%
Asia	1,703.2	2,573.3	+51%
China	1,343.5	1,996.0	+49%
North America	588,4	794,6	+35%
Europe	460,5	655,6	+42%

Important E-Commerce Statistics (contd…)

- According to Statista:
  - In 2017, around 42% of online shoppers stated that they prefer to pay with a credit card.
  - Online stores that have an active presence on social media platforms have 32% more sales.
  - Around 55% of all online shoppers said that online reviews have an impact on their buying decisions.
- So it is clear – e-commerce is here to stay.

Categories of Electronic Commerce

- Business to Consumer (B2C)
- Business to Business (B2B)
- Consumer to Consumer (C2C)
- Consumer to Business (C2B)
- Business to Government (B2G)
- Government to Business (G2B)
- Government to Consumer (G2C)

Note: A single company might participate in activities that fall under multiple e-commerce categories.

B2C: Business to Consumer E-Commerce

- In B2C, a business sells goods or services to an individual consumer.
  - It is the most-widely known form of commerce by the general public.
  - It deals with the retail aspects of e-commerce, i.e. the sale of goods and/or services to the end consumer through digital means.
  - **Examples:** Amazon, Flipkart

B2C: BUSINESS TO CONSUMER ECOMMERCE

B2B: Business to Business E-Commerce

- It describes commerce transactions between businesses, such as between a manufacturer and a wholesaler, or between a wholesaler and a retailer.

  - In B2B, a business sells its goods or services to another business.

  - The volume of B2B transactions is much higher than the volume of B2C transactions.

  - **Examples**: IndiaMART, Flipkart Wholesale (Best Price)

B2B: BUSINESS TO BUSINESS ECOMMERCE

Transactions conducted between businesses on the digital platform are often called business-to-business (or B2B) e-commerce.

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.10

C2C: Consumer to Consumer E-Commerce

- In C2C, the commercial transactions take place between customer to customer.

  - It allows consumers to sell their assets like residential property, cars, motorcycles, etc., or rent a room by publishing their information on a digital platform (website) provided by a third party.

  - The website may or may not charge the consumer for its services.

  - **Examples**: OLX, Quicker

C2C: CONSUMER TO CONSUMER ECOMMERCE

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.11

C2B: Consumer to Business E-Commerce

- In C2B, a customer makes its products or services available for businesses to buy.

  - It is popular in crowdsourcing based projects, the nature of which typically includes logo designing, selling of royalty-free photographs, media and design elements, etc.

  - **Examples**: UpWork, Fiverr

C2B: CONSUMER TO BUSINESS ECOMMERCE

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.12

B2G, G2B and G2C E-Commerce

- In **Business to Government** (B2G) e-commerce, businesses sell their products and services directly to government or public administration.

- **Government to Business** (G2B) model provides the auctions, tenders, etc. functionalities.

- **Government to Consumer** (G2C) e-commerce provides services like registration for birth, marriage or death certificates, auctions of vehicles, machinery, or any other material.

E-Procurement: B2B E-Commerce

- A single company might participate in activities that fall under multiple e-commerce categories.

- Consider a company that manufactures stereo speakers.

  - The company might sell its finished product to consumers on the web, which would be B2C e-commerce.

  - It might also purchase the materials it uses to make the speakers from other companies on the web, which would be B2B e-commerce.

    o Businesses often have entire departments devoted to negotiating purchase transactions with their suppliers. These departments are usually named supply management or procurement.

    o Thus, B2B electronic commerce is sometimes called e-procurement.

Supporting Business Processes & Activities in E-Commerce

- Consider a company that manufactures stereo speakers - in addition to buying materials and selling speakers, the company must also undertake many other activities, such as:

  - Hiring and managing the people who make the speakers
  - Maintaining accounting records
  - Purchasing insurance
  - Designing new versions of the speakers
  - Shipping the speakers
  - Obtaining customer feedback
  - Developing advertising campaigns

- All of these communication, control, and transaction-related activities are important part of e-commerce.

- **Some people include these activities in the B2B e-commerce; others refer to them as Underlying or Supporting Business Processes.**

Relative Size of Main Elements of E-Commerce

Business processes that support selling and purchasing activities

Business-to-business electronic commerce

Business-to-consumer electronic commerce

Source: Electronic Commerce (Cengage Learning, 2017)
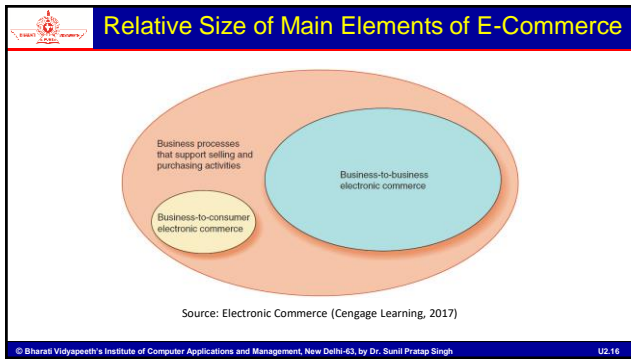
Benefits of E-Commerce

• **Convenience and Accessibility**
  ▪ E-commerce provides the best in convenience and accessibility.
  ▪ Customers can find exactly what they need directly from their desktop or mobile device.
  ▪ The products are available for purchase at any time to customers around the world.
  ▪ More convenience for the customer translates into more business for the company.

• **Borderless Transactions**
  ▪ A physical store limits business operations to a specific geographical area.
  ▪ An e-commerce website, on the other hand, allows the business to reach more customers, globally — maximizing the selling potential.

Benefits of E-Commerce (contd…)

• **Scalability**
  ▪ As customer base grows, you can expand your e-commerce businesses to accommodate more sales.
  ▪ As compared to expanding physical store (typically means relocating or renovating), e-commerce business can be expended simply by increasing the bandwidth on the e-commerce platform to accommodate more traffic and orders.
  ▪ Based on past sales data, future sales can be predicted and e-commerce platform can be scaled up or down accordingly.

• **Personalization and Product Recommendations**
  ▪ The power of Artificial Intelligence (AI) can be leveraged to create a personalized shopping experience for the customers.

Benefits of E-Commerce (contd…)

- **Speed of Access**
  - E-commerce sites run quickly, which is determined by computing and bandwidth considerations on consumer device and e-commerce site.
  - Product pages and shopping cart page load in a few seconds or less.
  - An e-commerce transaction can comprise a few clicks and take less than five minutes.

- **Access to Innovative Technology**
  - With access to latest technologies, business processes can be streamlined — saving time and money of businesses.
  - For e-commerce, a range of apps and integrations help in marketing your products, improve team collaboration, and provide faster customer service.

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.19

Benefits of E-Commerce (contd…)

- **Lower Cost**
  - Pure play e-commerce businesses avoid the cost associated with physical stores, such as rent, inventory and cashiers, although they may incur shipping and warehouse costs.

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.20

Limitations of E-Commerce

- **Limited Customer Service**
  - In an e-commerce store, customer service may be limited.
  - The site may only provide support during certain hours of the day, or a call to a customer service phone number may keep the customer on hold.

- **Not Able to Touch or See the Product**
  - Experiencing a product "directly", such as playing music on speakers, assessing the picture quality of a television or trying on a shirt or dress is not possible through an e-commerce store.
  - E-commerce can lead consumers to receive products that differ from their expectations, which leads to returns.
  - In some scenarios, the customer bears the burden for the cost of shipping the returned item to the retailer.

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.21

Limitations of E-Commerce (contd…)

- **Wait Time**
  - There is a wait time for the product to be shipped to the customer's address.
  - Although shipping windows are decreasing as next day delivery is now quite common, it's not instantaneous.
- **Security**
  - Skilled hackers can create authentic-looking websites that claim to sell well-known products.
  - Legitimate e-commerce sites also carry risk, especially when customers store their credit card information with the retailer to make future purchases easier.
  - If the retailer's site is hacked, hackers may come into the possession of customers' credit card information.

E-Commerce Platforms

- An e-commerce platform is a tool that is used to manage an e-commerce business.
- E-commerce platform options exist for clients ranging in size from small businesses to large enterprises.
- These e-commerce platforms include **online marketplaces** such as Amazon and eBay, that simply require signing up for user accounts, and little to no IT implementation.
- Another e-commerce platform model is **SaaS**, where store owners can subscribe to "rent" space in a cloud-hosted service that does not require in-house development or on-premises infrastructure.
- Other e-commerce platforms may come in the form of **open-source platforms** that require a hosting environment (cloud or on premises), complete manual implementation and maintenance.

E-Commerce Vendors

- Vendors offering e-commerce platform services for clients hosting their own online store sites include:
  - Shopify
  - WooCommerce
  - Magento
  - BigCommerce
  - Ecwid
  - Salesforce Commerce Cloud (B2B and B2C options)
  - Oracle Commerce

Statistics for Websites using E-Commerce Technologies

Distribution for websites using
e-commerce technologies
(Entire Internet)

Distribution for websites using
e-commerce technologies
(India)

Source: https://trends.builtwith.com/shop
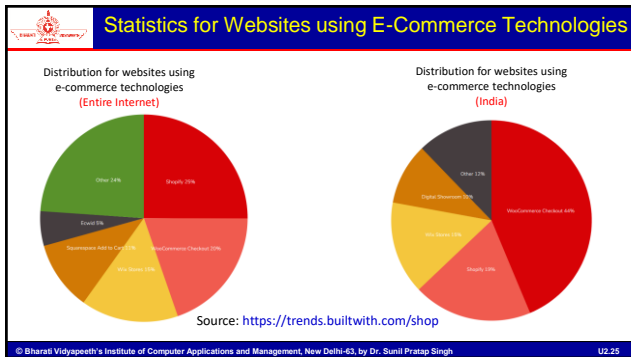
Functional Versions of E-Commerce

- Retail E-Commerce
  - When a product is sold directly to a customer.
- Wholesale E-Commerce
  - When products are sold in bulk often to a retail company who, in turn, sells them to its customers.
- Physical Product E-Commerce
  - It refers to any products that affect inventory and must be physically shipped.
- Digital Products E-Commerce
  - It refers to products purchased as downloadable goods, such as books, templates or courses.
- Dropshipping E-Commerce
  - A model where a seller can sell items without keeping them in stock. Instead, the seller partner up with manufacturers who ship items directly to the customers who place orders through seller's website.

Functional Versions of E-Commerce (contd...)

- Subscription
  - When a customer has a recurring purchase of a product or service — weekly, monthly, yearly, etc. that automatically charges them and replenishes the product.

- Services
  - It refers to services purchased and often priced by time spent on providing the service.

- Crowdfunding
  - When money is collected as product capital in advance of a product being available.

E-Commerce Vs. E-Business

S. No.	E-Commerce	E-Business
1	E-Commerce refers to the performing online commercial activities, transactions over Internet.	E-Business refers to performing all type of business activities through Internet and/or other electronic network.
2	E-Commerce is a narrow concept and it is considered as a subset of E-Business.	E-Business is a broad concept and it is considered as a superset of E-Commerce.
3	Commercial transactions are carried out in e-commerce.	Business transactions are carried out in e-business.
4	It usually requires the use of only a website.	It requires the use of multiple websites, CRMs, ERPs that connect different business processes.
5	It involves mandatory use of the Internet.	It involves the use of Internet, Intranet or Extranet.
6	E-commerce is more appropriate in Business to Customer (B2C) context.	E-business is more appropriate in Business to Business (B2B) context.

E-Commerce Vs. Traditional Commerce

Activity	Traditional Commerce	E-Commerce
Product information	Magazines, flyers	Web sites, online catalogs
Business communication	Regular mail, phone calls	E-mail
Check product availability	Phone calls, faxes, and letters	E-mail, Web sites, and extranets
Order generation	Printed forms	E-mail, Web sites
Product acknowledgments	Phone calls, faxes	E-mail, Web sites, and electronic data interchange (EDI)
Invoice generation	Printed forms	Web sites

Strategic Business Unit (SBU)

- A SBU is a fully-functional unit of a business that has its own vision and direction.
- A SBU operates as a separate unit, but it is also an important part of the company.
- Each SBU conducts various primary activities, and also have support activities that provide the infrastructure for the unit's primary activities.
- The central corporate organization typically provides the support activities.
- LG is an example of SBU, which has different product categories.
    - It makes refrigerators, washing machines, air-conditioners as well as televisions.
    - These small units are formed as separate SBUs so that revenues, costs as well as profits can be tracked independently.
    - Once a unit is given an SBU status, it can make its own decisions, investments, budgets etc.

SBU Value Chains

- In 1985, Michael Porter introduced the idea of value chains.

- A value chain is a way of organizing the activities that each business undertakes to design, produce, promote, market, deliver, and support the products or services it sells.

- In addition to these primary activities, Porter also included supporting activities, such as human resource management and purchasing, in the value chain model.

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.31

SBU Value Chains (contd…)

- Each SBU conducts the following **primary activities**:

  - **Design**: Activities that take a product from concept to manufacturing, including concept research, engineering, and test marketing.

  - **Identify Customers**: Activities that help the firm find new customers and new ways to serve existing customers, including market research and customer satisfaction surveys.

  - **Purchase Materials and Supplies**: Procurement activities, including vendor selection, vendor qualification, negotiating long-term supply contracts, and monitoring quality and timeliness of delivery.

  - **Manufacture Product or Create Service**: Activities that transform materials and labor into finished products, including fabricating, assembling, finishing, testing, and packaging.

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.32

SBU Value Chains (contd…)

- **Market and Sell**: Activities that give buyers a way to purchase and that provide inducements for them to do so, including advertising, promoting, managing salespeople, pricing, and identifying and monitoring sales and distribution channels.

- **Deliver**: Activities that store, distribute, and ship the final product or provide the service, including warehousing, handling materials, consolidating freight, selecting shippers, and monitoring timeliness of delivery.

- **Provide After-Sales Service and Support**: Activities that promote a continuing relationship with the customer, including installing, testing, maintaining, repairing, fulfilling warranties, and replacing parts.

- The importance of each primary activity depends on the product or service the business unit provides and to which customers it sells.

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.33

SBU Value Chains (contd…)

- The **support activities**, provided by the central corporate organization, of the SBU include:

  - **Finance and Administration Activities**: Providing the firm's basic infrastructure, including accounting, paying bills, borrowing funds, reporting to government regulators, and ensuring compliance with relevant laws.

  - **Human Resource Activities**: Coordinating the management of employees, including recruiting, hiring, training, compensation, and managing benefits.

  - **Technology Development Activities**: Improving the product or service that the firm is selling and that helps improve the business processes in every primary activity, including basic research, applied research and development, process improvement studies, and field tests of maintenance procedures.

Industry Value Chains

- **Industry value chain** (also known as **value system**, defined by Michael Porter in 1985) describes the larger stream of activities into which a particular business unit's value chain is embedded.

- By becoming aware of how other business units in the industry value chain conduct their activities, managers can identify new opportunities for cost reduction, product improvement, or channel reconfiguration.

- An industry value chain is created by starting with the inputs to SBU and work backward to identify suppliers' suppliers, then the suppliers of those suppliers, and so on. Then start with customers and work forward to identify customers' customers, then the customers of those customers, and so on.

Industry Value Chain for a Wooden Chair

- Each business unit (logger, sawmill, lumberyard, chair factory, retailer, consumer, and recycler) has its own value chain.
  - For example, the sawmill purchases logs from the tree harvester and combines them in its manufacturing process with inputs, such as labor and saw blades, from other sources.

- Examining this industry value chain could be useful for the sawmill that is considering entering the tree-harvesting business or the furniture retailer who is thinking about partnering with a trucking line.

- The industry value chain identifies opportunities up and down the product's life cycle for increasing the efficiency or quality of the product.

Value Chains in E-Commerce

- Many managers have found ways to use e-commerce technologies to reduce costs, improve product quality, reach new customers or suppliers, or create new ways of selling existing products.

- By examining elements of the value chain outside the individual business unit, managers can identify many business opportunities, including those that can be exploited using e-commerce.

- When firms are considering e-commerce, the value chain can be an excellent way to organize the examination of business processes within their business units and in other parts of the product's life cycle.

- Using the value chain reinforces the idea that e-commerce should be a business solution, not a technology implemented for its own sake.

E-Commerce in India

- E-commerce is India's fastest growing and most exciting channel for commercial transactions.
- **Key drivers of Indian e-commerce**
  - Increasing Internet and smartphone penetration
  - Policy support (100% FDI in B2B e-commerce)
  - Increasing e-banking and digital payments penetration
  - Leveraging technology for innovation
  - Analytics (capturing real-time data and understanding purchasing dynamics)
  - Global reach of homegrown companies
  - Availability of much wider product range
  - Customer service, cash on delivery, reasonable pricing, deals and discounts, faster delivery turnarounds with zero prices, and reverse logistics are some of the drivers transforming the industry into a booming sector.

E-Commerce Challenges in India

- **Logistics:** Local logistics firms in India are generally not up to meeting the requirements of e-tailers; hence e-commerce firms have to make huge investments to build their own logistics.

- **Infrastructure:** E-commerce players also need to address the infrastructure needed to overcome payment problems, build offline presence, implement more push-marketing, manage price-sensitive customers, and compete on a global turf.

- **Mode of Transactions:** Concerns about security, privacy, and tracking fraudulent purchases are some external forces that impact a business. Other factors like cross-border tax, back-end service tax, and regulatory issues can have serious implications for e-commerce companies.

- **Competitive Analysis:** Information should be collected related to market intelligence on growth, size and share, and managing multiple customer engagement platforms in order to expand into new geographies, brands & products; while simultaneously controlling a very competitive pricing environment.

Internet

- An internet **(small "i")** is a group of computer networks that have been interconnected.
  - In fact, "internet" is short for "interconnected network."
- One particular internet, which uses a specific set of rules and connects networks all over the world to each other, is called the Internet **(capital "I")**.
- The Internet is the network of connected computers that the web works on, as well as what emails and files travel across.

World Wide Web

- The World Wide Web (WWW), commonly known as the Web, is an information system where documents and other web resources are identified by Uniform Resource Locators (URLs).
- The resources of the Web are transferred via the Hypertext Transfer Protocol (HTTP).
- The WWW, along with Internet, enables the retrieval and display of text and media to your device.
- Consider Internet as the roads that connect towns and cities together.
  - The www contains the things you see on the roads like houses and shops.
  - The vehicles are the data moving around – some go between websites and others will be transferring your emails or files across the internet, separately from the web.

Working of World Wide Web

Circuit-Switched Networks

- The early models (dating back to the 1950s) of WANs were based on **circuit-switching**.
  - A physical path is established which is dedicated to a single connection between the two end points.
  - Data transmission takes place after the circuit is established for the duration of the transmission.
  - A dedicated routing path is followed throughout the transmission and no other user is allowed to use the circuit.
  - It is **connection-oriented** which is implemented at physical layer.
- Circuit-switched networks are not resistant to failure because a break in any one of the connected circuits causes the circuit to be interrupted and data to be lost.

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.43

Packet-Switched Networks

- The Internet was designed to be failure-resistant and instead uses **packet switching** to move data between two points.
  - Data is divided into small units called packets with each packet carrying small header containing signaling information (source and destination addresses in the packet header).
  - Dynamic route is established for each packet which carries the routing information.
  - Each data packet may take a different route to reach the destination, making it flexible throughout the session.
  - **It is connection-less** and is implemented at network layer.
  - If any packet is missing, the destination computer can request that the transmission be resent so it can reconstruct the sent file or message.

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.44

Circuit Vs. Packet Switching

Circuit Switching   **Packet Switching**

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.45
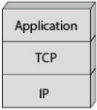
Internet Architecture (Layers of Internet)

- **IP (Internet Protocol)**
  - In order to communicate, we need our data to be encapsulated as Internet Protocol (IP) packets.
  - These IP packets travel across number of hosts in a network through routing to reach the destination.
  - IP does not support error detection and error recovery, and is incapable of detecting loss of packets.

- **TCP (Transmission Control Protocol)**
  - It provides end to end transmission of data, i.e., from source to destination.
  - It is a very complex protocol as it supports recovery of lost packets.

- **Application Protocol**
  - It has different protocols on which the internet services are built.
  - Some of the examples of internet services include email (SMTP), file transfer (FTP), etc.

Application
TCP
IP

The Three Layers of the Internet

Internet Architecture

- The data is stored in IP packets delivered to the first network to cross.
- This first network encapsulates the IP packet in its packet structure, package A, which circulates in this form until an exit door, where it is decapsulated to retrieve the IP packet.
- The IP address is examined to locate (with a routing algorithm) the following network to cross, and so on until arriving at the destination terminal.

Internet Architecture

Router-based Architecture of the Internet

The computers that decide how best to forward each packet are called **routing computers**, **routers**, **gateway computers** (because they act as the gateway from a LAN or WAN to the Internet), **border routers** (because they are located at the border between the organization and the Internet).

The Internet also has routers that handle packet traffic along the Internet's main connecting points. These routers, called **backbone routers**, are **very large computers** that can, each, handle more than 5 billion packets per second.

Internet Connection Options

- Dial-up
  - Connecting through a MODEM connected to local telephone service providers.
- Digital Subscriber Liner (DSL)
  - Similar to dial-up internet, DSL uses a phone line to connect to the Internet.
  - The difference is that DSL allows to both make phone calls and browse the Internet.
- Satellite
- Cellular
- Cable
- Fiber Optic

① DIAL-UP
② DSL
③ SATELLITE
④ CELLULAR
⑤ CABLE
⑥ FIBER OPTIC

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.49
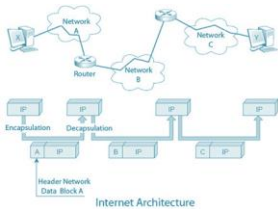
Internet Applications

- Sending and receiving email
- Searching and browsing information archives
- Copying files between computers
- Conducting financial transactions
- Playing interactive games
- Video and music streaming
- Chat or voice communication (direct messaging, video conferencing)
- E-commerce (shopping)
- Social media
- Business use

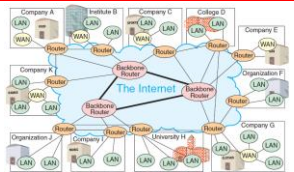© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.50

Public and Private Networks

- A **public network** is any computer network or telecommunications network that is available to the public.
  - The Internet is one example of a public network. Public networks such as the Internet do not provide much security as part of their basic structures.
- A **private network** refers to leased-line connection between two companies that physically connects their computers and/or networks to one another.
  - A leased line is a permanent, continually active, telephone line connection between two points.
  - An advantage of a leased line is security - only the two parties that lease the line to create the private network have access to the connection.
  - Drawbacks to private networks include the need to have a dedicated line for every connection needed, and the cost of the leased lines.

© Bharati Vidyapeeth's Institute of Computer Applications and Management, New Delhi-63, by Dr. Sunil Pratap Singh   U2.51

Virtual Private Networks (VPNs)

- A VPN is a connection that uses public networks and their protocols to send data in a way that protects the data as a private network, but at a lower cost.
  - VPN software is installed on the computers at both ends of the transmission.
  - The technology that most VPN software uses is called IP tunneling or encapsulation.
  - **IP tunneling creates a private passageway through the public Internet that provides secure transmission from one computer to another.**
  - The passageway is created by VPN software that encrypts the packet content and then places the encrypted packets inside another packet in a process, called encapsulation.
  - The web server sends the encapsulated packets to their destinations over the Internet, which is a public network.
  - The computer that receives the packet unwraps it and decrypts the message using VPN software.

Intranets and Extranets

- An **internet** (small "i") that does not extend beyond the boundaries of a single organization is often called an **intranet**.
  - In the past, most intranets were constructed by interconnecting a number of private networks.
  - Today, organizations can create secure intranets using VPN technologies.
- An **extranet** is defined as an **intranet** that is extended to include specific entities outside the boundaries of the organization, and includes networks of other organizations, such as business partners, customers, or suppliers.

Internet
Extranet
Intranet
The company only
Suppliers, Customers, Collaborators
The World

Web based Tools for E-Commerce

- An E-commerce Platform
  - Most important tool for a successful e-commerce enterprise is the platform itself.
  - Platforms such as **Shopify** & **WooCommerce** are designed specifically for e-commerce storefronts.
  - These platforms come preloaded with various tools and services to help you manage your business.
- Digital Payment Processing Systems
  - Several third-party payment providers make online transactions trouble-free and easy to manage.
  - **PayPal** and **Stripe** are two of the most popular solutions available today.
  - E-commerce platforms can integrate these payment solutions into their website infrastructure.

Web based Tools for E-Commerce (contd…)

- Email Marketing Platforms
  - Email marketing helps to let new and existing customers know about products.
  - **MailChimp** is an valuable tool which can be used to grow your email list and execute coordinated marketing campaigns. MailChimp has the ability to automate many marketing tasks. It also helps to track abandoned shopping carts and send customer follow-ups automatically to maximize conversions.
- Advanced Analytics and Tracking
  - Once your e-commerce site is up and running, you need to track and analyze all pertinent sales information for your company.
  - **Kiss Metrics** provides behavioral customer engagement automation that helps you better understand the purchasing habits of your customers.

Web based Tools for E-Commerce (contd…)

- Shipping Service Integrations
  - Shipping service integrations through companies like **Shipping Easy** and **Ordoro** take the heavy lifting out of shipping quotations and label generation for your order fulfillment.
- Social Media Management Solutions
  - Every successful company needs to maintain its social media presence.
  - Keeping social media profiles updated regularly is extremely time-consuming, especially for smaller teams.
  - With the integration of social media management solutions for your e-commerce storefront, you can keep customers engaged while automating the legwork required to do so.
  - **HootSuite** platform is great for helping you organize your content and automate posts based on your editorial needs.

Web based Tools for E-Commerce (contd…)

- Customer Relationship Management Software
  - Regardless of all the tools and services you use to benefit your e-commerce setup, nothing is more important than your customers' satisfaction.
  - Customer Relationship Management (CRM) tools have been around for years now, but **Zendesk** is one of the most popular tools in use today.

Enterprise Resource Planning (ERP)

- ERP refers to a type of software or system used by a business to plan and manage daily activities such as supply chain, manufacturing, financials and other processes.

- Main Characteristics of ERP Systems:
  - An integrated system
  - Real-time operations
  - A common database
  - A consistent look and feel (common user interface) across modules
  - Deployment options include: on-premises, cloud hosted, or SaaS

- Common Functional Areas (Modules) of ERP Systems:
  - Finance, Procurement, Manufacturing, Inventory Management, Order Processing, Warehouse Management, Supply Chain Management, Human Resources Management, E-Commerce

ERP Vs. Web Application

- Without an ERP application, each department would have its system optimized for its specific tasks.

- With ERP software, each department still has its system, but all of the systems can be accessed through one application with one interface.

- ERP applications are designed for enterprises to manage all the business-related processes.

- A web application refers to a web-based computer program(s) that can perform one or more functions using a web browser as its interface/client.

Bibliography

- Gary P. Schneider and James T. Perry, "Electronic Commerce", Thomson Learning, 1st Edition, 2000.
- https://www.careercliff.com/future-ecommerce-trends/