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Fundamental of E-commerce prepared by Neptech Channel :-p

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1. Explain the e-commerce framework and its application.

= The framework for e-Commerce consists of three parts as shown in below figure.

1. The first part consists of a *variety of electronic commerce applications* including both inter- and intra-organizational and electronic market examples such as Supply Chain Management, Video-on-Demand, Procurement and purchasing, On-line marketing and advertising, Home shopping etc.
2. The second part of the building blocks of the infrastructure consists of:
   - **Common business services**, for facilitating the buying and selling process.
   - **Messaging and information distribution**, as a means of sending and retrieving information (ex-EDI, e-mail, P2P file transfer)
   - **Multi-media content and network publishing**, for creating a product and a means to communicate about it.
   - **Information Superhighway infrastructure** consisting of telecommunication, cable operator, ISPs , Wireless technologies and Internet.
3. The third part consists of the *public policy* and *technical standards* necessary to support the applications and the infrastructure.
   - **Public policies** govern issues like universal access, privacy, and information pricing. The public policy infrastructure affects not only the specific business but also direct and indirect competitors. It should take into consideration of:
     - Cost of accessing information
     - Regulation to protect consumers from fraud and protect their right to privacy.
     - Policies of global information traffic to detect information pirating and obscene sites.
   - **Technical Standards** governs issues like technology for communication and as well as for Internet

Fig: Generic Framework of Electronic Commerce

2. What is electronic data exchange? Explain the building block of an EDI system.

= at **E**lectronic data interchange (EDI) in a new light. EDI is defined as the inter-process communication (computer application to computer application) of business information in a standardized electronic form. In short, EDI communicates information for business transactions between the computer systems of companies, government organizations, small businesses, and banks.

Using EDI, trading partners establish computer-to-computer links that enable them to exchange information electronically. This allows businesses to better cope with a growing avalanche(too many) of paperwork: purchase orders, invoices, confirmation notices, shipping receipts, and other documents. With the aid of EDI, all these documents are in electronic form, which aliases more work automation to occur and even alters the way business is done.

Many industries see EDI as essential for reducing cycle and order fulfillment times. Manufacturers work with customers and suppliers to convert to an electronic exchange the huge volume of orders and records that now crawl back and forth on paper. In retailing, EDI can provide vendors with a snapshot of what stores are selling, enabling them to recognize and meet their customer's needs much faster than in the past. In addition, it enables retailers and vendors to place orders and pay bills electronically, reducing time and the expense of paperwork.

Building block write urself

3. Explain the digital token based electronic payment system and its types.

= None of the banking or retailing payment methods is completely adequate in their present form for the consumer-oriented e-commerce environment. Their deficiency is their assumption that the parties will at some time be in each other's physical presence or that there will be a sufficient delay in the payment process for frauds, overdrafts, and other undesirables to be identified and corrected. These assumptions may not hold for e-commerce and so many of these payment mechanisms are being modified and adapted for the conduct of business over networks.

Entirely new forms of financial instruments are also being developed. One such new financial

instrument is "electronic tokens" in the form of electronic cash/money or checks. Electronic tokens are designed as electronic analogs of various forms of payment backed by a bank or financial institution. Simply stated, electronic tokens are equivalent to cash that is backed by a bank.

Electronic tokens are of three types:

1. Cash or real-time: Transactions are settled with the exchange of electronic currency. An example of on-line currency exchange is *electronic cash* (*e-cash*).
2. Debit or prepaid: Users pay in advance for the privilege of getting information. Examples of prepaid payment mechanisms are stored in smart cards and electronic purses that store electronic money.
3. Credit or postpaid: The server authenticates the customers and verifies with the bank that funds are adequate before purchase. Examples of postpaid mechanisms are *credit/debit* cards and *electronic checks*.

Section B

4. EXPLAIN B2B and its benefits.

= The B2B model involves electronic transactions for ordering, purchasing, as well as other administrative tasks between business houses. It includes trading goods, such as business subscriptions, professional services, manufacturing, and wholesale dealings. Sometimes in the B2B model, business may exist between virtual companies, neither of which may have any physical existence. In such cases, business is conducted only through the Internet.

, B2B is that model of e-commerce whereby a company conducts its trading and other commercial activity through the Internet and the customer is another business itself. This essentially means commercial activity between companies through the Internet as a medium.

Major Advantages of B2B

1) **Direct interaction with customers**. This is the greatest advantage of e-business.

2) **Focussed sales promotion**. This information gives authentic data about the likes, dislikes and preferences of clients and thus helps the company bring out focussed sales promotion drives which arc aimed at the right audience.

3) **Building customer loyalty**. It has been observed that online customers can be more loyal than other customers if they are made to feel special and their distinct identity is recognized and their concerns about privacy are respected. It has also been found that once the customers develop a binding relationship with a site and its product, they do not like to shift loyalties to another site or product.

4) **Scalability**. This means that the Web is open and offers round-the-clock access. This provides an access never known before, to the customer. This access is across locations and time zones. Thus a company is able to handle many more customers on a much wider geographical spread if it uses an e-business model. The company can set up a generic parent site for all locations and make regional domains to suit such requirements. Microsoft is using this model very successfully.

5) **Savings in distribution costs**. A company can make huge savings in distribution, logistical and after-sales support costs by using e-business models. Typical examples are of computer companies, airlines, and telecom companies.

5. What are the benefits of e-commerce applications.?

= The benefits of e-commerce can be seen to affect three major stakeholders: organisations, consumers and society.

1) Benefits of e-commerce to organisations

International marketplace. What used to be a single physical marketplace located in a geographical area has now become a borderless marketplace including national and international markets. By becoming e-commerce enabled, businesses now have access to people all around the world.

Operational cost savings. The cost of creating, processing, distributing, storing and retrieving paper-based information has decreased.

Mass customisation. E-commerce has revolutionised the way consumers buy good and services. In the past when Ford first started making motor cars, customers could have any colour so long as it was black. Now customers can configure a car according to their specifications within minutes on-line via the www.ford.com website.

Enables reduced inventories and overheads by facilitating 'pull'-type supply chain management – this is based on collecting the customer order and then delivering through JIT (just-in-time)

manufacturing. This is particularly beneficial for companies in the high technology sector, where stocks of components held could quickly become obsolete within months. For example, companies like Motorola (mobile phones), and Dell (computers) gather customer orders for a product, transmit them electronically to the manufacturing plant where they are manufactured according to the customer's specifications (like colour and features) and then sent to the customer within a few days.

Lower telecommunications cost. The Internet is much cheaper than value added networks (VANs) which were based on leasing telephone lines for the sole use of the organisation and its authorised partners. It is also cheaper to send a fax or e-mail via the Internet than direct dialling.

Digitisation of products and processes. Particularly in the case of software and music/video products, which can be downloaded or e-mailed directly to customers via the Internet in digital or electronic format.

No more 24-hour-time constraints. Businesses can be contacted by or contact customers or suppliers at any time.

2) Benefits of e-commerce to consumers

24/7 access. Enables customers to shop or conduct other transactions 24 hours a day, all year round from almost any location. For example, checking balances, making payments, obtaining travel and other information.

More choices. Customers not only have a whole range of products that they can choose from and customise, but also an international selection of suppliers.

Price comparisons. Customers can 'shop' around the world and conduct comparisons either directly by visiting different sites. (for example www.moneyextra.co.uk for financial products and services).

Improved delivery processes. This can range from the immediate delivery of digitised or electronic goods such as software or audio-visual files by downloading via the Internet, to the on-line tracking of the progress of packages being delivered by mail or courier.

An environment of competition where substantial discounts can be found or value added, as different retailers for customers.

3) Benefits of e-commerce to society

Enables more flexible working practices, which enhances the quality of life for a whole host of people in society, enabling them to work from home. It also potentially reduces environmental pollution as fewer people have to travel to work regularly.

Connects people. Enables people in developing countries and rural areas to enjoy and access products, services, information and other people which otherwise would not be so easily available to them.

Facilitates delivery of public services. For example, health services available over the Internet (on-line consultation with doctors or nurses), filing taxes over the Internet through the Inland Revenue website.

6. Explain the client Network Security.

= Client/server network security is one of the biggest headaches system administrators face as they balance the opposing goals of user maneuverability and easy access and site security and confidentiality of local information. According to the National Center for Computer Crime Data, computer security violations cost U.S. businesses half a billion dollars each year.

Network security on the Internet is a major concern for commercial organizations, especially top management. Recently, the Internet has raised many new security concerns. By connecting to the Internet, a local network organization may be exposing itself to the entire population on the Internet. As figure below illustrates, an Internet connection opens itself to access from other networks comprising the public Internet.

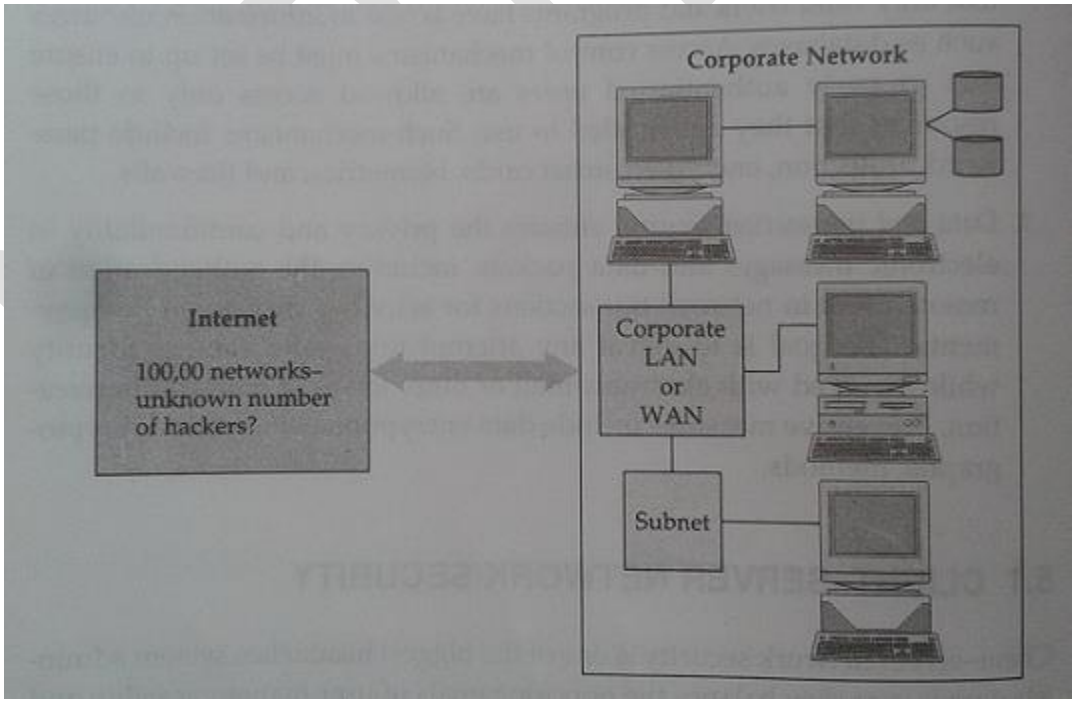

Fig: Unprotected Internet Connection

That being the case, the manager of even the most relaxed organization must pay some attention to security. For many commercial operations, security will simply be a matter of making sure that existing system features, such as passwords and privileges, are configured properly. They need to audit all access to the network. A system that records all log-on attempts—particularly the unsuccessful ones—can alert managers to the need for stronger measures. However, where secrets are at stake or where important corporate assets must be made available to remote users, additional measures must be taken. Hackers can use password guessing, password trapping, security holes in programs, or common network access procedures to impersonate users and thus pose a threat to the server.

7. Explain the e-commerce security tools.

= Security is an essential part of any transaction that takes place over the internet. Customer will loose his/her faith in e-business if its security is compromised. The various E-Commerce Security Tools are as follows:

1. Firewalls – Software and Hardware.

2. Public Key infrastructure.

3. Encryption software.

4. Digital certificates.

5. Digital Signatures.

6. Biometrics – retinal scan, fingerprints, voice etc.

7. Locks and bars – network operations centres.

1. Firewalls – Software and Hardware

Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially intranets. All messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria. Firewalls can be either hardware or software but the ideal firewall configuration will consist of both. In addition to limiting access to your computer and network, a firewall is also useful for allowing remote access to a private network through secure authentication certificates and logins.

2. Public Key infrastructure

A public key infrastructure (PKI) supports the distribution and identification of public encryption keys, enabling users and computers to both securely exchange data over networks such as the Internet and verify the identity of the other party. The purpose of a PKI is to facilitate the secure electronic transfer of information for a range of network activities such as e-commerce, internet banking and confidential email.

3. Encryption software

Encryption is a generic term that refers to the act of encoding data, in this context so that those data can be securely transmitted via the Internet. **Encryption software** is software that can encrypt and decrypt data, often in the form of files on a hard drive or packets sent over a network. Software encryption is a fundamental part of modern computer communications and file protection.The purpose of encryption is to prevent third parties from recovering any of the original data, or even any information about the data, from the encrypted data.

4. Digital certificates

Digital Certificates are a means by which consumers and businesses can utilise the security applications of Public Key Infrastructure (PKI). PKI comprises of the technology to enables secure e-commerce and Internet based communication.

5. Digital Signatures

Digital signatures are the public-key primitives of message authentication. In the physical world, it is common to use handwritten signatures on handwritten or typed messages. They are used to bind signatory to the message. Similarly, a digital signature is a technique that binds a person/entity to the **digital** data. Like a written signature, the purpose of a digital signature is to guarantee that the individual sending the message really is who he or she claims to be. Digital signatures are especially important for electronic commerce and are a key component of most authentication schemes. To be effective, digital signatures must be unforgeable. There are a number of different encryption techniques to guarantee this level of security.

6. Biometrics

Biometrics generally refers to the study of measurable biological characteristics. In computer security, biometrics refers to authentication techniques that rely on measurable physical characteristics that can be automatically checked.

There are several types of biometric identification schemes:

- **face**: the analysis of facial characteristics
- **fingerprint**: the analysis of an individual's unique fingerprints
- **hand geometry**: the analysis of the shape of the hand and the length of the fingers
- **retina**: the analysis of the capillary vessels located at the back of the eye
- **iris**: the analysis of the colored ring that surrounds the eye's pupil
- **signature**: the analysis of the way a person signs his name.
- **vein**: the analysis of pattern of veins in the back if the hand and the wrist
- **voice**: the analysis of the tone, pitch, cadence and frequency of a person's voice.

7. Network operations centres

A network operations centre (NOC) is a place from which administrators supervise, monitor and maintain a telecommunications network. Large enterprises with large networks as well as large network service providers typically have a network operations centre, a room containing

visualizations of the network or networks that are being monitored, workstations at which the detailed status of the network can be seen, and the necessary software to manage the networks. The network operations centre is the focal point for network troubleshooting, software distribution and updating, router and domain name management, performance monitoring, and coordination with affiliated networks.

8. Mention types of Digital documents and explain in brief.

= **Types of Digital Document**

1) Document Imaging

An imaging system passes appear document through a scanner that renders it digital and then stores the digital data as a bit-mapped image of document. Document imaging emulates microfiche and microfilm. The problem with the imaging approach is that the output contains only images not text.

The following imaging standards are prominently used;

- TIFF(tag image file format): format for interchange of bit-mapped images.
- ITU-TSS(international telecommunication union-telecommunication standardization sector) Group IV T.6 facsimile: this standard is used for compression and exchange of bit-mapped files.

2) Structured Documents

Structured documents is a types of digital documents which provide clear description of document content. Structured documents apply data-base structuring capabilities to individual documents and document collections.

Capabilities of Structured Documents

- Document formatting, rendering and presentation (interactive CDs of customer catalog, manuals)

- Dynamic documents, user interaction and manipulation such as the ability to create bookmarks, highlight text and write notes.
- Easier search and query

Standard for structured documents are:

- SGML (Standard Generalization Markup Language): It is an ISO standard for interchange & multi-formatting description of text document in terms of logical structure.
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- ODA (Office Document Architecture): It is an ANSI & ISO standard for interchange of compound office documents. ODA specifies both content & format.
- CDA (Compound Document Architecture): It defines set of rules for content and format .It defines services for compound documents.
- RTF (Rich –Text Format): It is developed by Microsoft for interchanging of desk top documents.

3) Hyper Text Documents

Hyper text is a way of making document-based information more mobile.

Reasons for mobility of information are:

- Information in enterprises is seldom located on server but is distributed throughout the organization.
- Accessing & retrieving large monolithic document is time consuming.
- Reuse of document for composing new documents is difficult task.
- In this relation ships between documents can be represented through hypermedia links i.e. hyperlinks.

Standards of Hypertext Documents

- HyTime: It adds time based relationships like synchronization, t is extension of SGML.
- HTML: Developed by WWW to support distributed hypermedia.
- MHEG: (Multimedia /Hypermedia Encoding/Experts Group):standard for presenting objects in multimedia

4) Active Documents

Active document represents what is known as document oriented computing. It provide an interactive interface between documents. they are especially powerful because they combine composition of information with the distributed nature of information. For example; spreadsheet, word-processing

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