Semester-6

E-Commerce

(According to Purvanchal University Syllabus)

Unit – 1

Introduction

Electronic Commerce-Technology & Prospect –

E-Commerce or Electronics Commerce is a methodology of modern business, which addresses the requirements of business organizations. It can be broadly defined as the process of buying or selling of goods or services using an electronic medium such as the Internet.

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

- Electronic Data Exchange (EDI)
- Electronic Mail (e-mail)
- Electronic Bulletin Boards
- Electronic Fund Transfer (EFT)
- Other Network-based technologies

Features

E-Commerce provides the following features −

- **Non-Cash Payment −** E-Commerce enables the use of credit cards, debit cards, smart cards, electronic fund transfer via bank's website, and other modes of electronics payment.
- **24x7 Service availability −** E-commerce automates the business of enterprises and the way they provide services to their customers. It is available anytime, anywhere.
- **Advertising / Marketing −** E-commerce increases the reach of advertising of products and services of businesses. It helps in better marketing management of products/services.

- **Improved Sales −** Using e-commerce, orders for the products can be generated anytime, anywhere without any human intervention. It gives a big boost to existing sales volumes.
- **Support −** E-commerce provides various ways to provide pre-sales and post-sales assistance to provide better services to customers.
- **Inventory Management −** E-commerce automates inventory management. Reports get generated instantly when required. Product inventory management becomes very efficient and easy to maintain.
- **Communication improvement −** E-commerce provides ways for faster, efficient, reliable communication with customers and partners.

Traditional Commerce v/s E-Commerce

Key Elements	Traditional commerce	E-commerce
Value Creation	Product/Service	Information
Strategy	Classical	Sense and respond Simple rules
Competitive edge	Quality/Cost	Speed
Competitive force	Power of suppliers Product substitution	Low barriers of entry Power of customers
Resource focus	Supply side	Demand side
Customer interface	Face-to-face	Screen-to-face
Communication	Personal	Technology-mediated channels
Accessibility	Limited time	24 x 7
Customer interaction	Seller influenced	Self-service
Consumer behavior	Standardization Mass/one-way marketing	Personalization One-to-one marketing
Promotion	Merchandising	Word of mouth
Product	Perishables, feel & touch	Commodity

Electronic potential of E-commerce –

- Electronic Commerce is a marriage between a rapidly evolving technical environment and an increasingly pervasive set of ideas as to how markets should function. However, markets involve complex interaction between specific business/organizational factors, and general economic, social and political factors.

- The full economic potential of Electronic Commerce can only be evaluated against a backdrop of rapid change on all of these fronts. There are strong current indications that massive changes have already begun to occur across the entire business spectrum.

Forces behind E-commerce –

The evolution and growth of e-commerce can be attributed to a combination of technological, marketing and economic forces. Let us discuss some of the driving forces of e-commerce.

Economic Forces:

1. E-commerce enables businesses to interact with suppliers, customers and with players in the distribution channel at a lower cost.
2. The cost of installing and maintaining a website is much cheaper than owning a physical store. This motivates the growth of e-commerce.

3. E-commerce generates greater profits due to less human intervention, lower overhead cost, few clerical errors and more efficiency.

4. The cost of advertising is cheaper and provides access to global market at low cost. This is something which encourages people engaged in business to promote their business through electronic medium.
5. Reduction in communication cost and technological infrastructure expense drive business towards e-business.

Technological Forces:

1. Technological advances have made business communication faster, easier, economical and efficient. It has enabled the business to switch over from the local market to the global market.

2. The growing popularity of cyber cafes has created a big role in attracting internet population towards e-commerce.

3. Technological changes have given confidence to consumers to make electronic payments in settlement of financial obligations.

Market Forces:

1. Business organizations are able to reach international markets by using electronic medium for enhanced customer support and service.

2. E-commerce enables customers to make product comparison, place orders, track orders and make payments at ease. Due to convenience,

customers prefer to purchase their desired goods or services over internet in the online marketplace.

3. E-commerce also allows the customers to choose and order products according to their personal and unique specifications. It paves way for mass customization.

4. The growing internet population stimulates business to switch over from an additional business to e-business.

5. The great variety of commodities available online and reliable payment methods are regarded as contributors to the increase of e-business.

Advantages & Disadvantages of E-Commerce

E-Commerce advantages can be broadly classified in three major categories −

- Advantages to Organizations
- Advantages to Consumers
- Advantages to Society

Advantages to Organizations

- Using e-commerce, organizations can expand their market to national and international markets with minimum capital investment. An organization can easily locate more customers, best suppliers, and suitable business partners across the globe.
- E-commerce helps organizations to reduce the cost to create process, distribute, retrieve and manage the paper based information by digitizing the information.
- E-commerce improves the brand image of the company.
    - E-commerce helps organization to provide better customer services.
- E-commerce helps to simplify the business processes and makes them faster and efficient.
- E-commerce reduces the paper work.
- E-commerce increases the productivity of organizations. It supports "pull" type supply management. In "pull" type supply management, a business process starts when a request comes from a customer and it uses just-in-time manufacturing way.

Advantages to Customers

- It provides 24x7 support. Customers can enquire about a product or service and place orders anytime, anywhere from any location.

- E-commerce application provides users with more options and quicker delivery of products.
- E-commerce application provides users with more options to compare and select the cheaper and better options.
- A customer can put review comments about a product and can see what others are buying, or see the review comments of other customers before making a final purchase.
- E-commerce provides options of virtual auctions.
- It provides readily available information. A customer can see the relevant detailed information within seconds, rather than waiting for days or weeks.
- E-Commerce increases the competition among organizations and as a result, organizations provides substantial discounts to customers.

Advantages to Society

- Customers need not travel to shop a product, thus less traffic on road and low air pollution.
- E-commerce helps in reducing the cost of products, so less affluent people can also afford the products.
- E-commerce has enabled rural areas to access services and products, which are otherwise not available to them.
- E-commerce helps the government to deliver public services such as healthcare, education, social services at a reduced cost and in an improved manner.

The disadvantages of e-commerce can be broadly classified into two major categories −

- Technical disadvantages
- Non-Technical disadvantages

Technical Disadvantages

- There can be lack of system security, reliability or standards owing to poor implementation of e-commerce.
- The software development industry is still evolving and keeps changing rapidly.
- In many countries, network bandwidth might cause an issue.

- Special types of web servers or other software might be required by the vendor, setting the e-commerce environment apart from network servers.
- Sometimes, it becomes difficult to integrate an e-commerce software or website with existing applications or databases.
- There could be software/hardware compatibility issues, as some e commerce software may be incompatible with some operating

system or any other component.

Non-Technical Disadvantages

- **Initial cost −** The cost of creaϴng/building an e-commerce application in-house may be very high. There could be delays in launching an e Commerce application due to mistakes, and lack of experience.
- **User resistance −** Users may not trust the site being an unknown faceless seller. Such mistrust makes it difficult to convince traditional users to switch from physical stores to online/virtual stores.
- **Security/ Privacy −** It is difficult to ensure the security or privacy on online transactions.
- Lack of touch or feel of products during online shopping is a drawback.
- E-commerce applications are still evolving and changing rapidly.
- Internet access is still not cheaper and is inconvenient to use for many potential customers, for example, those living in remote villages.

Unit – 2

Mobile Commerce

Introduction –

Mobile commerce or simply M-Commerce means engaging users in a buy or sell process via a mobile device. For instance, when someone buys an Android app or an iPhone app, that person is engaged in m-commerce. There are a number of content assets that can be bought and sold via a mobile device such as games, applications, ringtones, subscriptions etc.

Wireless application protocol –

WAP stands for Wireless Application Protocol. The dictionary definition of these terms are as follows −

- **Wireless −** Lacking or not requiring a wire or wires pertaining to radio transmission.
- **Application −** A computer program or piece of computer soŌware that is designed to do a specific task.
- **Protocol −** A set of technical rules about how informaϴon should be transmitted and received using computers.

WAP is the set of rules governing the transmission and reception of data by computer applications on or via wireless devices like mobile phones. WAP allows wireless devices to view specifically designed pages from the Internet using only plain text and very simple black-and-white

pictures.

WAP is a standardized technology for cross-platform, distributed computing very similar to the Internet's combination of Hypertext Markup Language

(HTML) and Hypertext Transfer Protocol (HTTP), except that it is optimized for:

- low-display capability
- low-memory
- low-bandwidth devices, such as personal digital assistants (PDAs), wireless phones, and pagers.

WAP is designed to scale across a broad range of wireless networks like GSM, IS-95, IS-136, and PDC.

WAP Technology –

WAP stands for Wireless Application Protocol. The dictionary definition of these terms are as follows −

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Mobile information device –

Over the years, mobile devices have become indispensable. There was a time mobile devices were primarily used for making telephone calls. Nowadays, mobile devices are ubiquitous and are used for a variety of purposes. From finding transportation to doing taxes, mobile app solutions have been growing at an exponential rate. One of the fastest growing mobile app verticals is eCommerce.

Mobile computing application –

Wireless communication Mobile Computing and its applications that is generic technology that refers to numerous devices that are supportable to access transmitted data likes voice , video and text any time and any where over the wireless network infrastructure and in which to include mobile communication, mobile hardware, and mobile software and this react as human–computer interaction. Cause of these has improved the quality of our lives.

Unit – 3

Web Security

Security is an essential part of any transaction that takes place over the internet. Customers will lose his/her faith in e-business if its security is compromised. Following are the essential requirements for safe e payments/transactions −

- **Confidentiality** − InformaƟon should not be accessible to an unauthorized person. It should not be intercepted during the transmission.
- **Integrity** − InformaƟon should not be altered during its transmission over the network.
- **Availability** − InformaƟon should be available wherever and whenever required within a time limit specified.
- **Authenticity** − There should be a mechanism to authenƟcate a user before giving him/her an access to the required information.
- **Non-Repudiability** − It is the protecƟon against the denial of order or denial of payment. Once a sender sends a message, the sender should not be able to deny sending the message. Similarly, the recipient of message should not be able to deny the receipt.
- **Encryption** − Information should be encrypted and decrypted only by an authorized user.
- **Auditability** − Data should be recorded in such a way that it can be audited for integrity requirements.

Security issue on web –

Without proper security measures in place, these sites are at risk of losing customers' data and revenue. According to a study conducted on e-commerce fraud, digital retail stores are more vulnerable to fraudulent transactions as compared to physical retail stores.

Security risks associated with e-commerce can be as a result of human error, an accident or unauthorized access to systems. Online retailers are most likely to face credit card fraud or data errors. Their online stores are also likely to

face phishing attacks, distributed denial of service (DDoS) attacks and man-in the-middle attacks as explained below.

Credit Card Fraud

Credit card fraud is the most common security threat that online retailers face. It occurs when a hacker gains unauthorized access to customers'

personal and payment information. To access this data, the hacker may penetrate the database of an e-commerce site using malicious software programs. At times, a hacker's intention when stealing customers' data is to sell it on black markets. Distributed Denial of Service (DDoS)

Attacks

This type of security threat aims at taking down an online retail store by sending overwhelming requests to its servers. The attacks originate from thousands of untraceable IP addresses. When this type of threat hits the servers, they slow down or completely shut down. An e-commerce site can also go offline temporarily when a DDoS attack affects its servers.

Man-in-the-middle Attacks

As hackers are becoming smarter with technology, they are devising ways of listening to the communications made by users of an e-commerce website. Through an approach known as a man-in-the-middle attack, these hackers maliciously trick users into connecting to a public wireless network. They gain access to people's devices once they are on public wireless networks. Hackers get to see a people's browsing history, credit card numbers, passwords and usernames if the websites they are visiting lack strong encryptions.

Bad Bots

Bots, either good or bad, are all over the worldwide web. Search engines such as Bing and Google use good bots for indexing search results. On the other hand, there are hackers that use malicious bots for gathering data such as product data, inventories and pricing data. These bots are also capable of accessing the database of an e-commerce site and listing the logins of user accounts.

Malware

In information technology, malware simply refers to malicious software programs. Attackers usually inject web pages or files with these malicious programs to help them in gaining access to online retails stores. Through means such as SQL injection, they can easily insert the malware into a website's database allowing it to compromise the data stored in the database.

Phishing Scams

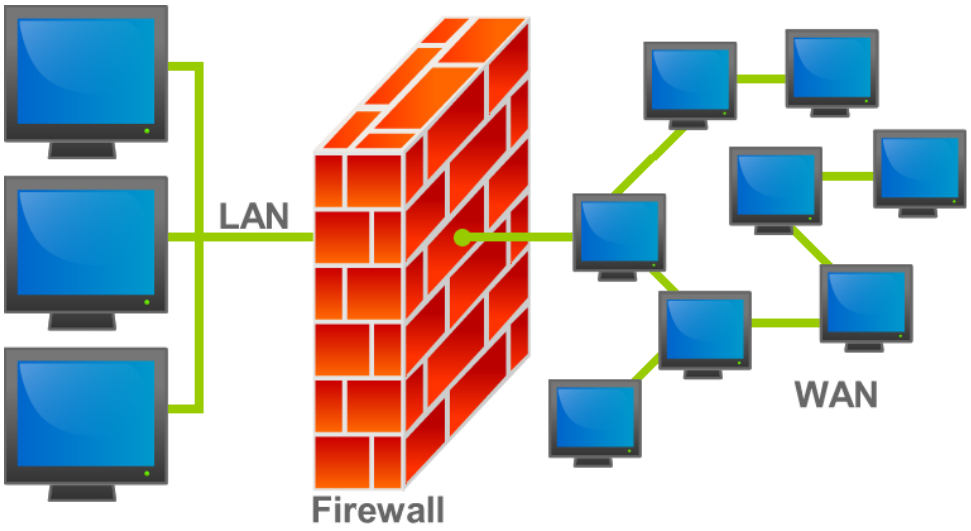
E-commerce sites are also prone to phishing scams sent by known or unknown people in form of emails. These scams focus on targeting important user data like credit card numbers and login credentials. An attacker may use a scheme known as social engineering to lure online shoppers to give out their personal information. When sent in an email to an online shopper, a phishing scam may contain a link to a malicious

site that resembles an e-commerce site.

Firewall –

Firewall is a barrier between Local Area Network (LAN) and the Internet. It allows keeping private resources confidential and minimizes the security risks. It controls network traffic, in both directions.

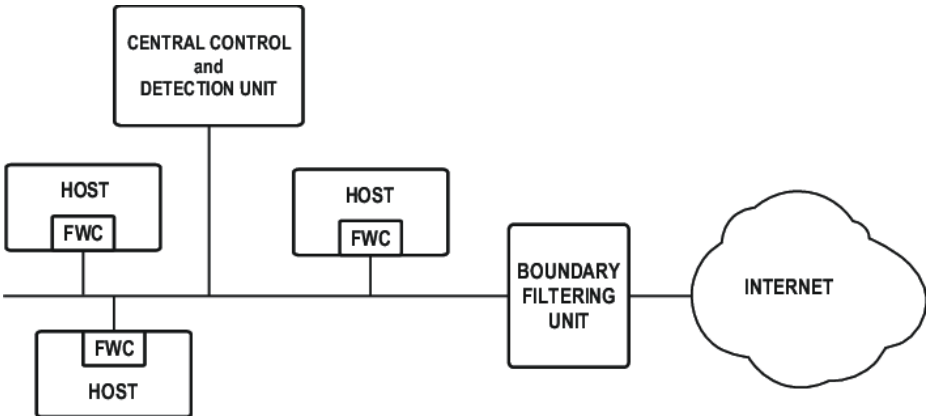
The following diagram depicts a sample firewall between LAN and the internet. The connection between the two is the point of vulnerability. Both hardware and the software can be used at this point to filter network traffic.



Components of firewall –

Firewall is categorized into three basic types −

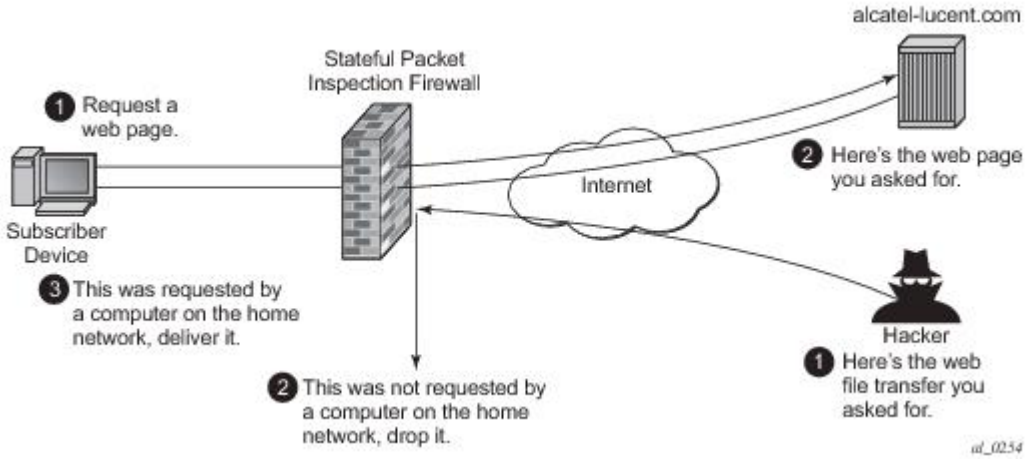
- Packet filter (Stateless & Stateful)
- Application-level gateway
- Circuit-level gateway



Stateless & Stateful Packet Filtering Firewall

In this type of firewall deployment, the internal network is connected to the external network/Internet via a router firewall. The firewall inspects and

external network/Internet via a router firewall. The firewall inspects and

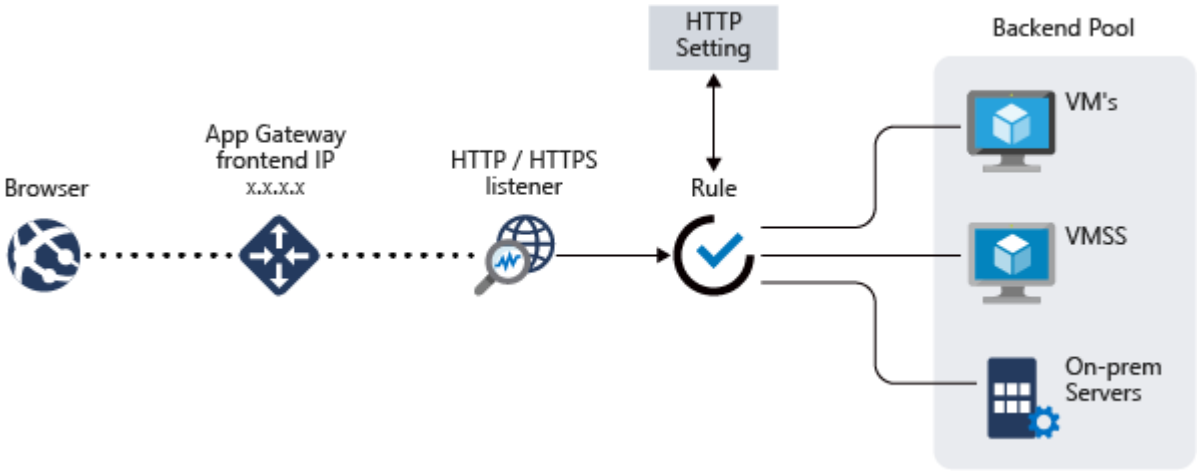


Application Gateways

An application-level gateway acts as a rel traffic. They intercept incoming and outgoing packets, run proxies that copy and forward information across the gateway, and function as a
and forward information across the gateway, and function as a and forward information across the gateway, and function as a proxy server,

preventing any direct connection between a trusted server or client and an untrusted host.

The proxies are application specific. They can filter packets at the application layer of the OSI model.



Circuit-Level Gateway

The circuit-level gateway is an intermediate solution between the packet filter and the application gateway. It runs at the transport layer and hence can act as proxy for any application.

Similar to an application gateway, the circuit-level gateway also does not permit an end-to-end TCP connection across the gateway. It sets up two TCP connections and relays the TCP segments from one network to the other. But, it does not examine the application data like application gateway. Hence, sometime it is called as 'Pipe Proxy'.

Security threats –

E-commerce threat is occurring by using the internet for unfair means with the intention of stealing, fraud and security breach. There are various types of e commerce threats. Some are accidental, some are purposeful, and some of them are due to human error. The most common security threats are:

- electronic payments system
- e-cash
- data misuse
- credit/debit card frauds, etc.

Electronic Payment System

With the rapid development of the computer, mobile, and network technology, e-commerce has become a routine part of human life. In e commerce, the customer can order products at home and save time for doing other things. There is no need of visiting a store or a shop. The customer can select different stores on the Internet in a very short time and compare the products with different characteristics such as price, colour, and quality.

Some of them are:

The Risk of Fraud

An electronic payment system has a huge risk of fraud. The computing devices use an identity of the person for authorizing a payment such as passwords and security questions. These authentications are not full proof in determining the identity of a person. If the password and the answers to the security questions are matched, the system doesn't care who is on the other side. If someone has access to our password or the answers to our security question, he will gain
access to our money and can steal it from us.

The Risk of Tax Evasion

The Internal Revenue Service law requires that every business declare their financial transactions and provide paper records so that tax compliance can be verified. The problem with electronic systems is that they don't provide cleanly into this paradigm. It makes the process of tax collection very frustrating for the Internal Revenue Service. It is at the business's choice to disclose payments received or made via electronic payment systems. The IRS has no way to know that it is telling the truth or not that makes it easy to evade taxation.

The Risk of Payment Conflicts

In electronic payment systems, the payments are handled by an automated electronic system, not by humans. The system is prone to errors when it handles large amounts of payments on a frequent basis with more than one recipients involved. It is essential to continually check our pay slip after every pay period ends in order to ensure everything makes sense. If it is a failure to do this, may result in conflicts of payment caused by technical glitches and anomalies.

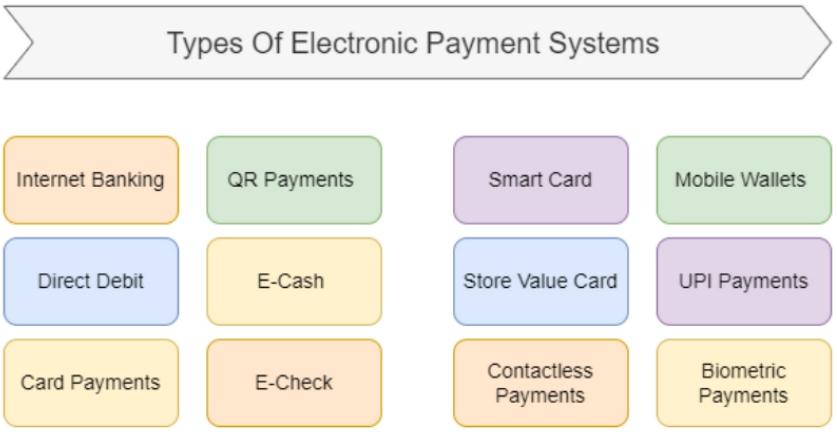
e-cash

E-cash is a paperless cash system which facilitates the transfer of funds anonymously. E-cash is free to the user while the sellers have paid a fee for this. The e-cash fund can be either stored on a card itself or in an account which is associated with the card. The most common examples of e-cash system are transit card, PayPal, GooglePay, Paytm, etc.

E-cash has four major components

1. **Issuers -** They can be banks or a non-bank institution.
2. **Customers -** They are the users who spend the e-cash.
3. **Merchants or Traders -** They are the vendors who receive e-cash.
4. **Regulators -** They are related to authorities or state tax agencies.

In e-cash, we stored financial information on the computer, electronic device or on the internet which is vulnerable to the hackers. Some of the major threats related to e-cash system are



Credit/Debit Card Frauds

A credit card allows us to borrow money from a recipient bank to make

purchases. The issuer of the credit card has the condition that the cardholder will pay back the borrowed money with an additional agreed-upon charge.

A debit card is of a plastic card which issued by the financial organization to account holder who has a savings deposit account that can be used instead of cash to make purchases. The debit card can be used only when the fund is available in the account.

Some of the important threats associated with the debit/credit

card are

ATM (Automated Teller Machine)-

It is the favourite place of the fraudster from there they can steal our card details. Some of the important techniques which the criminals opt for getting hold of our card information is:

Skimming

It is the process of attaching a data-skimming device in the card reader of the ATM. When the customer swipes their card in the ATM card reader, the information is copied from the magnetic strip to the device. By doing this, the criminals get to know the details of the Card number, name, CVV number, expiry date of the card and other details.

Unwanted Presence

It is a rule that not more than one user should use the ATM at a time. If we find more than one people lurking around together, the intention behind this is to overlook our card details while we were making our transaction.

Vishing/Phishing

Phishing is an activity in which an intruder obtained the sensitive information of a user such as password, usernames, and credit card details, often for malicious reasons, etc.

Network Security –

With the usage of Internet, a number of activities take place in your computer which can be for good or bad and varies from identity thefts to people who hack into computers and steal private passwords, documents and files. The fact is that everything is online and opens us to these frauds and makes us victims, unless you have taken the necessary steps to protect your computer.

It is quite strange that till date, a lot of people don't give much importance to Internet Security. They think that their computers are invisible, but as soon as they start using their computers for anything that involves logging onto the Internet, they are an easy prey, even for a teenaged hacker.

Limitation of firewall –

firewalls do have the following limitations:

- A firewall cannot prevent users or attackers with modems from dialing in to or out of the internal network, thus bypassing the firewall and its protection completely.
- Firewalls cannot enforce your password policy or prevent misuse of passwords. Your password policy is crucial in this area because it outlines acceptable conduct and sets the ramifications of noncompliance.
- Firewalls are ineffective against nontechnical security risks such as social engineering, as discussed in Chapter 1, "There Be Hackers Here."
- Firewalls cannot stop internal users from accessing websites with malicious code, making user education critical.
- Firewalls cannot protect you from poor decisions.
  Firewalls cannot protect you when your security policy is.

Unit – 4

Encryption

Encryption is a security method in which information is encoded in such a way that only authorized user can read it. It uses encryption algorithm to generate ciphertext that can only be read if decrypted.

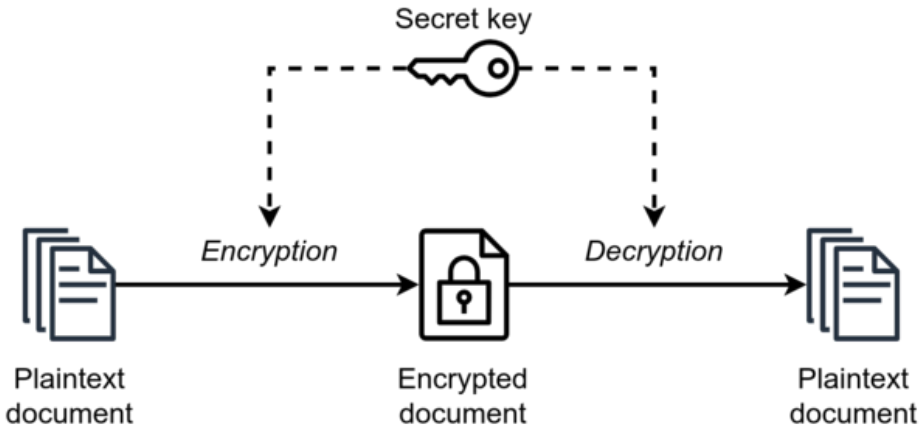
Types of Encryption

There are two types of encryptions schemes as listed below:

- Symmetric Key encryption
- Public Key encryption

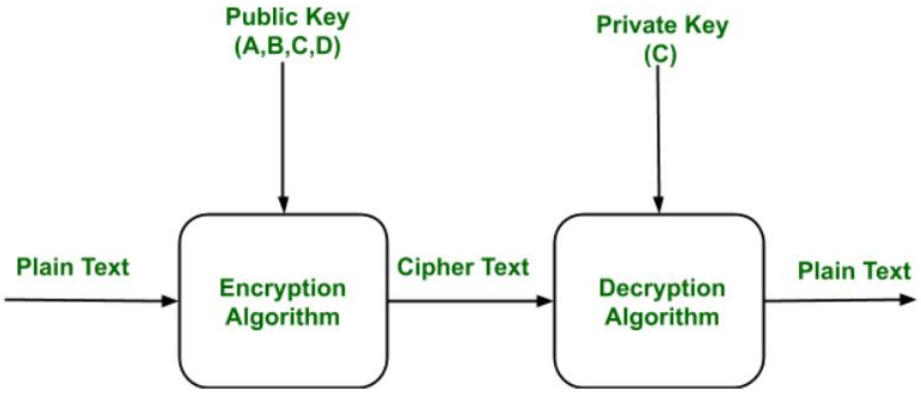
Symmetric Key encryption

Symmetric key encryption algorithm uses same cryptographic keys for both encryption and decryption of cipher text.



Public Key encryption

Public key encryption algorithm uses pair of keys, one of which is a secret key and one of which is public. These two keys are mathematically linked with each other.



Symmetric encryption keys & data encryption standard –

- Symmetric encryption is a type of encryption where only one key (a secret key) is used to both encrypt and decrypt electronic information. The entities communicating via symmetric encryption must exchange the key so that it can be used in the decryption process.
- This encryption method differs from asymmetric encryption where a pair of keys, one public and one private, is used to encrypt and decrypt messages.
- The Data Encryption Standard (DES) is an outdated symmetric-key method of data encryption. DES works by using the same key to encrypt and decrypt a message, so both the sender and the receiver must know and use the same private key.

Triple encryption –

Triple Data Encryption or TDES is an ANSI sanctioned algorithm for encryption. In TDES, block cipher algorithms are used and every data block gets the application of the algorithms thrice. The size of the key is increased so that the security can be improved and made better. There are 64 bits of data in every block and the keys are three in number, called bundle keys. Every key has 56 bits, making TDES 168 bits.

Asymmetric encryption-Secret key encryption –

- Asymmetric encryption uses computationally hard problems with a secret(private), and shared (public) key. With asymmetric encryption, a message encrypted with one's public key can only

be deciphered by their private key and vice versa. Asymmetric encryption solves the problem of having to share without secure communication by enabling communicating parties to share their public keys and, using complex math, encrypt data such that an eavesdropper cannot decipher the message.

- A secret key is the piece of information or parameter that is used to encrypt and decrypt messages in a symmetric, or secret key, encryption. In assymetric encryption, two separate keys are used. One is a public key and the other is a secret key. A secret key may also be known as a private key.

Public & Private key encryption –

The public key is used to encrypt and a private key is used decrypt the data. Private Key is used to both encrypt and decrypt the data and is shared between the sender and receiver of encrypted data. ... The public key is only used to encrypt data and to decrypt the data, the private key is used and is shared.

Unit – 5

Electronic Payment

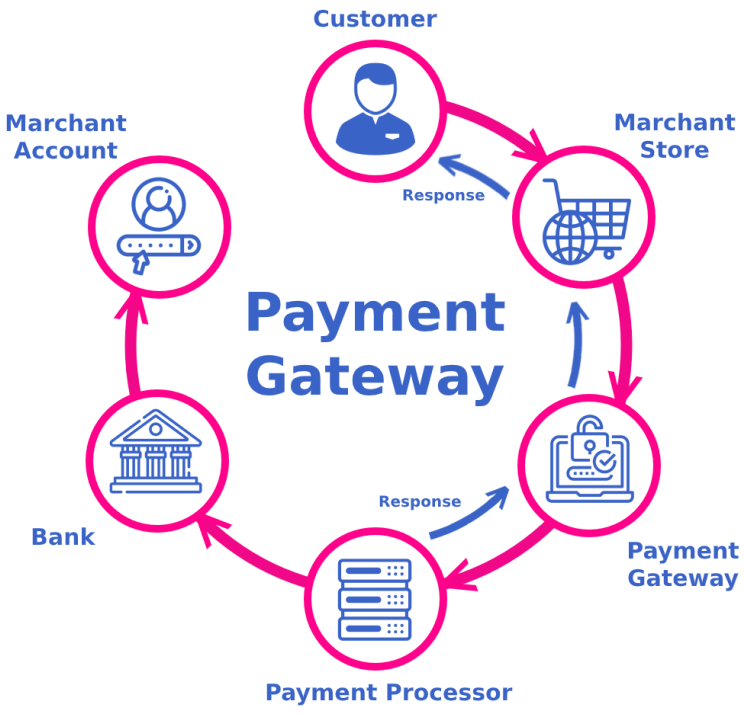
Overview –

E-commerce sites use electronic payment, where electronic payment refers to paperless monetary transactions. Electronic payment has revolutionized the business processing by reducing the paperwork, transaction costs, and labor cost. Being user friendly and less time-consuming than manual processing, it helps business organization to expand its market reach/expansion. Listed below are some of the modes of electronic payments −

- Credit Card
- Debit Card
- Smart Card
- E-Money
- Electronic Fund Transfer (EFT)

Payment gateway –

Payment Gateway is an online payment processing technology which helps businesses to accept credit cards and electronic checks. In other words, payment gateways are “Manin-the-middle” which are located between e commerce platforms and clients.



A payment gateway allows you to −

- Make and take payments quickly and easily.
- Keep your customer's data (information) and money secure.
- Gain trust of your customers, so they are willing to hand over their money.

To choose the right payment gateway, you should follow the following guidelines −

- You should finalize that payment gateway which is supported in your country, not all them operate globally.
- You should check what payment gateways are supported better from your ecommerce platform. For example, PayPal gateway is fully supported by Magento because the same group have created them.
    - Payment gateway should be of 3.0 PCI data security standards.
- Do you need payment gateway and merchant account or an all-in-one payment service provider?
- You must see the charges and fees that will be deducted per transaction.
- What payment method do they support? For example, VISA is a payment method, Master Card is another.
- Do they support your type of business? For example, some of them don't deal with businesses that sell adult materials, betting, gambling, firearms selling, narcotics, etc.

Most Popular Payment Gateway Providers

Following is the list of the most widely used and popular payment getaway providers along with a brief history about them.

- **PAYPAL −** You can find all the terms and condiϴons of their business model on their URL – https://www.paypal.com/. PayPal is one of the longest established and probably the best-known service for transferring money online.
- **Amazon Payments −** The URL of this immensely popular payment getaway provider is – https://payments.amazon.com/. It was created in 2007, Amazon Payments provides your customers with the same checkout experience they get on Amazon.com
- **Stripe −** The URL of this payment getaway is – https://stripe.com/. No monthly fees, no extra charges for different cards and different payment methods, also for different currencies. Stripe also offers a great API (Application Program Interface) as well.
- **Authorize Net −** The URL for this popular payment getaway provider is https://www.authorize.net/. It is among the most powerful and well known payment gateways. It is well-supported by e-commerce WordPress plugins.
- **2Checkout −** The URL for this payment getaway provider is –

https://www.2checkout.com/. 2checkout is one of the most simple and affordable credit card gateways.

Certificate –

Certification is a process through which we can first authenticate the customer and merchant and any other parties that are involved in the payment, then payment can be done. On the basis of these requirements, we proposed a system which will provide the facility of providing the certificates to authorities.

Digital tokens –

The digital token based payment system is a new form of electronic payment system which is based on electronic tokens rather than e-cheque or e-cash. The electronic tokens are generated by the bank or some financial institutions. Hence we can say that the electronic tokens are equivalent to the cash which are to be made by the bank.

Smart Card –

Smart card is again similar to a credit card or a debit card in appearance, but it has a small microprocessor chip embedded in it. It has the capacity to store a customer's work-related and/or personal information. Smart cards are also used to store money and the amount gets deducted after every transaction.

Smart cards can only be accessed using a PIN that every customer is assigned with. Smart cards are secure, as they store information in encrypted format and are less expensive/provides faster processing. Mondex and Visa Cash cards are examples of smart cards.

Credit Card –

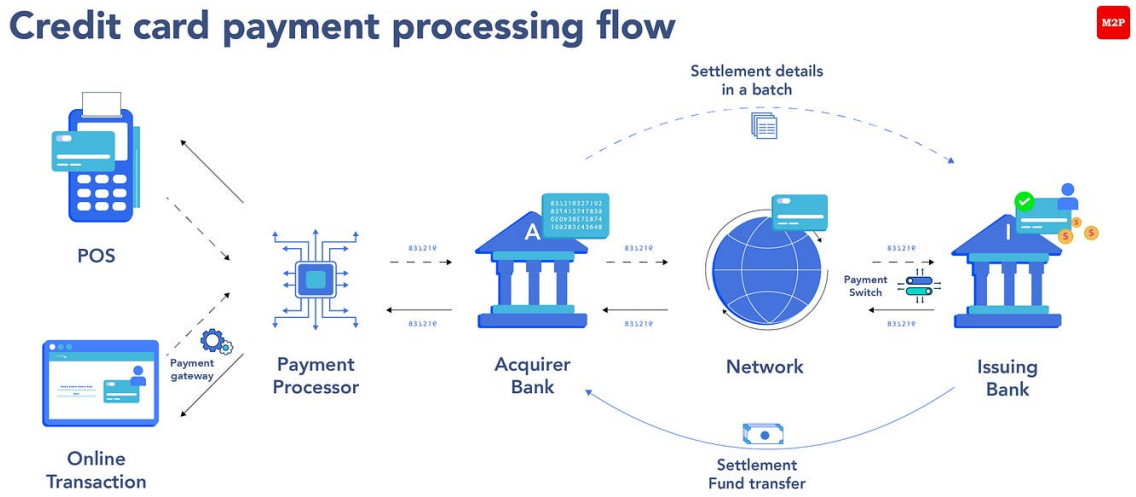
Payment using credit card is one of most common mode of electronic payment. Credit card is small plastic card with a unique number attached with an account. It has also a magnetic strip embedded in it which is used to read credit card via card readers. When a customer purchases a product via credit card, credit card issuer bank pays on behalf of the customer and customer has a certain time period after which he/she can pay the credit card bill. It is usually credit card monthly payment cycle. Following are the actors in the credit card system.

- The card holder − Customer
- The merchant − seller of product who can accept credit card

payments.

- The card issuer bank − card holder's bank
- The acquirer bank − the merchant's bank
- The card brand − for example , visa or Mastercard.

Credit Card Payment Proces



Magnetic strip card –

A magnetic stripe card is a type of pass that permits the user to complete electronic transactions or access a locked physical space. The "stripe" contains embedded information that identifies its user.

E-checks –

The electronic cheques are modeled on paper checks, except that they are initiated electronically. They use digital signatures for signing and endorsing and require the use of digital certificates to authenticate the payer, the payer's bank and bank account. They are delivered either by direct transmission using telephone lines or by public networks such as the Internet.

Online banking –

Internet banking, also known as online banking, e-banking or virtual banking, is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website.