
e-commerce

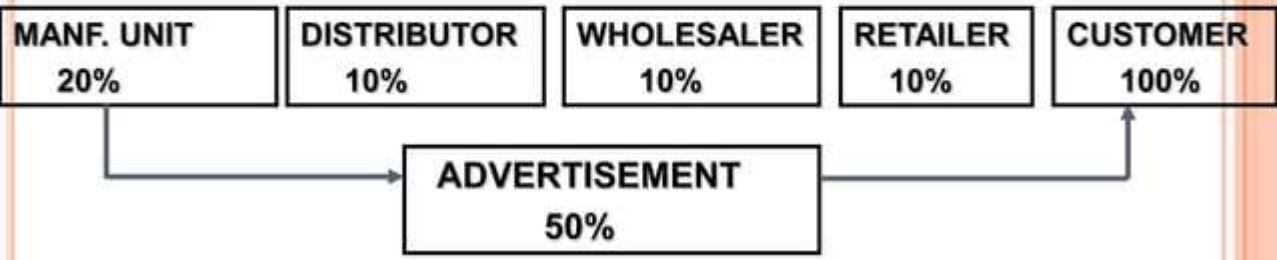
What is Commerce

- According to Dictionary.com
- Commerce is a division of trade or production which deals with the exchange of goods and services from producer to final consumer
- It comprises the trading of something of economic value such as goods, services, information, or money between two or more entities.

What is E-Commerce

- Commonly known as Electronic Marketing.
- "It consist of buying and selling goods and services over an electronic systems Such as the internet and other computer networks."
- "E-commerce is the purchasing, selling and exchanging goods and services over computer networks (internet) through which transaction or terms of sale are performed Electronically.

TRADITIONAL BUSINESS



DIRECT SELLING

Why

Use

E-Commerce

.....?

- Low Entry Cost
- Reduces Transaction Costs
- Access to the global market
- Secure market share

Brief History Of E-Commerce

- 1970s: Electronic Funds Transfer (EFT)
  - Used by the banking industry to exchange account information over secured networks
- Late 1970s and early 1980s: Electronic Data Interchange (EDI) for e-commerce within companies
  - Used by businesses to transmit data from one business to another
- 1990s: the World Wide Web on the Internet provides easy-to-use technology for information publishing and dissemination
  - Cheaper to do business (economies of scale)
  - Enable diverse business activities (economies of scope

The Process Of E-Commerce

- A consumer uses Web browser to connect to the home page of a merchant's Web site on the Internet.
- The consumer browses the catalog of products featured on the site and selects items to purchase. The selected items are placed in the electronic equivalent of a shopping cart.
- When the consumer is ready to complete the purchase of selected items, she provides a bill-to and ship-to address for purchase and delivery

- When the merchant's Web server receives this information, it computes the total cost of the order--including tax, shipping, and handling charges--and then displays the total to the customer.

- The customer can now provide payment information, such as a credit card number, and then submit the order.

- When the credit card number is validated and the order is completed at the Commerce Server site, the merchant's site displays a receipt confirming the customer's purchase.

- The Commerce Server site then forwards the order to a Processing Network for payment processing and fulfillment.

Types

Of

E-Commerce

BUSINESS-TO-BUSINESS (B2B)

- B2B stands for Business to Business. It consists of largest form of Ecommerce. This model defines that Buyer and seller are two different entities. It is similar to manufacturer issuing goods to the retailer or wholesaler.

E.g.:-Dell deals computers and other associated accessories online but it is does not make up all those products. So, in govern to deal those products, first step is to purchases them from unlike businesses i.e. the producers of those products.

BUSINESS-TO-CONSUMER (B2C):

- It is the model taking businesses and consumers interaction. The basic concept of this model is to sell the product online to the consumers.
- B2c is the direct trade between the company and consumers. It provides direct selling through online. For example: if you want to sell goods and services to customer so that anybody can purchase any products directly from supplier's website.

Business-to-Employee (B2E)

- Business-to-employee (B2E) **electronic commerce uses an intrabusiness network which allows companies to provide products and/or services to their employees. Typically, companies use B2E networks to automate employee-related corporate processes.**

CONSUMER-TO-CONSUMER (C2C)

- There are many sites offering free classifieds, auctions, and forums where individuals can buy and sell thanks to online payment systems like PayPal where people can send and receive money online with ease. eBay's auction service is a great example of where person-to-person transactions take place everyday since 1995.

PROS AND CONS OF E-COMMERCE

PROS

- No checkout queues
- Reduce prices
- You can shop anywhere in the world
- Easy access 24 hours a day
- Wide selection to cater for all consumers

CONS

- Unable to examine products personally
- Not everyone is connected to the Internet
- There is the possibility of credit card number theft
- On average only 1/9th of stock is available on the net

Future of E-commerce in India

- According to business world estimate near about Sixty thousand new jobs will be created for the internet world alone in the next two years
- e-Commerce transactions are expected to cross the Rs. 3500 crore milestone in 2010-11, a jump of around 350 percent from the 2008-09 figure of Rs. 1000 crore
- eBay said that consumers were trading goods worth almost three crore rupees everyday, across the globe.

E-Business & E-Commerce

Finishing Chapter 3

What is E-Business, e-commerce?

- Derived from the term ***e-commerce***, is the conducting of business on the Internet, not only buying & selling, but also serving customers and collaborating with business partners

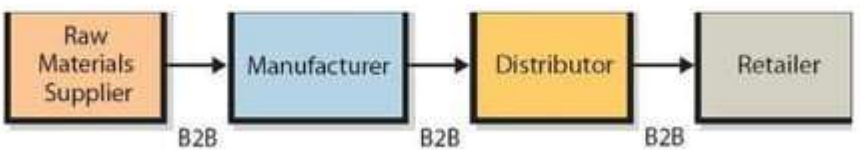
e-commerce: is the buying and selling of goods & services over the Internet

e-Business Models

Business-to-business (B2B)	Businesses that buy and sell from each other over the Internet
Business-to-consumer (B2C)	Businesses that sell to consumers over the internet
Consumer-to-business (C2B)	Applies to any consumer that sells a product or service to a business over the Internet
Consumer-to-consumer (C2C)	Applies to sites that primarily offer goods and services to assist consumers interacting with each other over the Internet

B2B

- B2B means partners can access all sorts of online data provided by either the buyer or seller;
  - Shipping dates
  - Delivery dates
  - Shipping status



Examples of B2C & C2B

B2C: e-shops, e-stores, or e-tailer

C2B

Online Auction Sites

Electronic Auction:

sellers and buyers solicit consecutive bids from each other & prices are determined dynamically

All Auction sites are electronic!
Key point: *they do not take title of goods being sold*

Forward Auction:

An auction that sellers use as a selling channel to many buyers & the highest bid wins

eBay

Reverse Auction:

an auction that buyers use to purchase a product or service selecting the seller with the lowest bid

Priceline & B2B: sellers compete to earn business

C2C

Auction Sites: e-bay

Online Communities: kazaa

How do companies use e-commerce?

- E-Commerce improves market efficiencies in a variety of ways, as this figure shows. Customers benefit from the first two, disintermediation and increased price information. Businesses benefit from increasing their knowledge of price elasticity.

Economic Factors that disfavor E-Commerce

- Channel conflicts that occur when a manufacturer competes with its traditional retail outlets by selling directly to the consumer.
- Price conflicts that may occur by a manufacturer selling directly to consumers and undercutting retailers' prices.
- Logistics expenses increase when a manufacturer must process thousands of small-quantity orders rather than a few large-quantity orders.
- Customer-service expenses increase when a manufacturer must begin dealing directly with customers rather than relying on retailers' direct relationships with customers.

Strategies for e-business: *Marketing & Sales*

- A series of online marketing and sales strategies exist and new innovations in sales & marketing arrive everyday

Some examples include:

- *Online Ads*
- *Pop-up and pop-under ads*
- *Mass customization*
  - *Personalization* (amazon.com uses personalization to create a unique portal for each of its customers)

Questions

- What is eBay's model and why do you think it has been so successful?
- What type of auction site is Priceline.com?
- How can amazon.com use m-commerce to influence its business?

Organizational Strategies

- To be successful in e-business, organizations must master the art of electronic relationships

- Traditional means of customer acquisition such as advertising, promotions and PR, are just as important with a website.

E-business strategies

- **E-procurement**: B2B purchase and sale of supplies over the Internet

- Links organizations directly to preapproved suppliers catalogs and processes the entire purchasing transaction online

- **Customer Service**: some e-business strategies allow customers to help themselves. CS is further improved by the companies adoption of email, authorized web access, and specials for e-customers

E-business Metrics

- Web traffic is one metric, a better measure for e-business is how much revenue has been generated by web traffic, number of new customers, reduction of CS calls because of the web traffic….

techniques

- **Cookie**: a small file left on a consumers hard drive; allows websites to record the comings and goings of customers usually without their consent
- **Click-through:** tracks the number of users who visit a site and click on a ad
- **Banner Ads:** advertises the product or services of another dot com business

Added value but at what cost to consumers?

- The Internet has created a virtual market with a high number of buyers & sellers…. This is good!

- It also has made the collection of user information extremely easy with wide gaps in the area of transaction regulation….this can be bad!

Consumer Protection

- E-business organizations must consider how to protects its customers from security threats in an online environment
- Of most concern is the protection of consumer financial data online

Techniques for securing online transaction include;

- **Encryption**: scrambles information and requires a key or PW to decrypt
- **Secure Socket layer (SSL):** creates a private connection between client & server, encrypts info, transmits over the Internet
- **Secure electronic transaction (SET):** Much like the SSL but adds customer authentication

Security & Privacy of Consumer Information

Customer Issues with E-Commerce

- ***Distance has been shortened***. Shoppers & merchants come together from anywhere in the world now
- ***Indirect contact between merchant & consumer***
- ***Asynchrony in the accomplishment of transactions***: there is usually a delay between the closure of a purchase and the reception of the product or service

- ***Easy & inexpensive collection of data:*** e-store's can use this info to improve the effectiveness of business processes ***and sell or share consumer info***
- ***Absence of Effective regulations***

E-business: why are security & privacy so important?

- **Trust:** consumer trust is crucial in order for web-based businesses to survive

- **It is hard to establish trust when;**
  - They do not know how their PI is going to be used after the transaction
  - When they receive unsolicited communication from related businesses and partners
  - They don't know how long their PI will be kept and where

Questions

- What different methods does an organization have available to access the Internet?
- What is the difference between disruptive and sustaining technologies?
- What metrics could Amazon use to assess the efficiency and effectiveness of its website?

Accessing Internet Information

- Four common tools for accessing Internet information include:
  - Intranet
  - Extranet
  - Portal
  - Kiosk

Intranets

- Is an internalized portion of the Internet, protected from outside access, that allows an organization to provide access to information and application software **only** to its employees

- Hosts all kinds of company-related information such as;
  - Benefits
  - Schedules
  - Strategic directions
  - Employee directories

Intranets

- An Intranet is not necessarily open to the external Internet and enables organizations to make internal resources available using familiar internet resources such as;
  - Web browser
  - Newsreaders
  - E-mail

Intranets & ROI

- By avoiding costs associated with print material, organizations experience a greater **ROI** with **electronic publishing**
- *Impact on ROI & increased access to organizational information?*

- Examples of Intranet Info systems in business:
  1. Windows SharePoint Services (web-based)
  2. WebEx's Web Office

Considerable amount of opportunity for small business application developers

Extranet

- Is an Intranet that is available to strategic partners such as;
  - Customers
  - Suppliers
  - Distributors
  - Etc…

- Provides secured access to those groups of people (customer and / or suppliers) that provides a level of SCM

- ***Without incurring the responsibility of managing partner IT resources!!!***

More ways to Access Internet Resources

Portals

- Is a very generic term for what is in essence a technology that provides access to information
- A portal is a website that offers a broad array of resources & services such as email, discussion groups, search engines, etc…

Examples

- Yahoo!
- Netscape
- Microsoft (Years ago we had the butterfly!)
- America Online

How can portals provide a business solution?

Kiosks

- A kiosk is a publicly accessible computer system that has been setup to all interactive information browsing
- The computer's operating system has been hidden from view, program runs in full screen mode that provides a few simple tools for navigation

Providing Internet Information

- Three common forms of internet service providers include;

1. Internet Service Providers (ISP)
2. Online Service Providers (OSP)
3. Application Service Providers (ASP)

ISP's

ISP

- Provides individual and other companies with access to the internet along with other services
- Local ISPs (Big in the early 90's) would lease line space

WISP

- Wireless internet service provider allows subscribers to connect to a server at designated hotspots or access points using a wireless connection
  - Examples of this provider is T-Mobile

OSP's & ASP's

OSP

- Online Service Provider: uses their own browser to allow users access to the Internet.
- AOL is a good example of an OSP
- Early 2000's MSN's butterfly was another example of an OSP....

ASP

- Application service providers: offers organizations with access over the internet to systems and related services that would have otherwise have to located on personal or organizational computers
- *ASP is essentially the outsourcing of part of a companies business logic*

CONTENT

- Introduction.
- Types Of E-commerce Architectures.
- Client Server Architectures.
- Two Tier Architectures.
- Three Tier Architectures.
- Conclusion.

INTRODUCTION

- *Every day more and more business transactions are conducted in the Internet under the umbrella of Ecommerce. The main feature that distinguishes E-Commerce from traditional commerce is the ability to conduct business with spatially distributed partners and products, and achieves considerable reduction in human effort and latency time.*

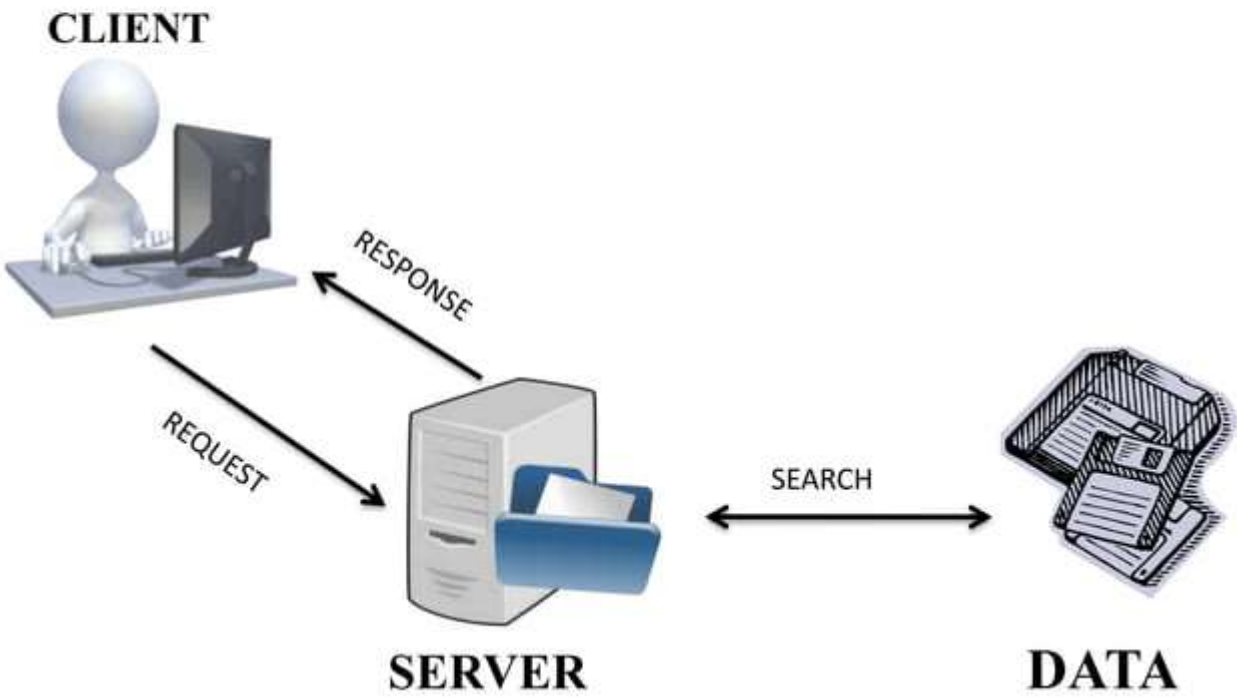
TYPES OF E-COMMERCE ARCHITECTURE

- CLIENT-SERVER ARCHITECTURE.
- TWO – TIER ARCHITECTURE.
- THREE – TIER ARCHITECTURE.
- N – TIER ARCHITECTURE.

CLIENT-SERVER ARCHITECTURE

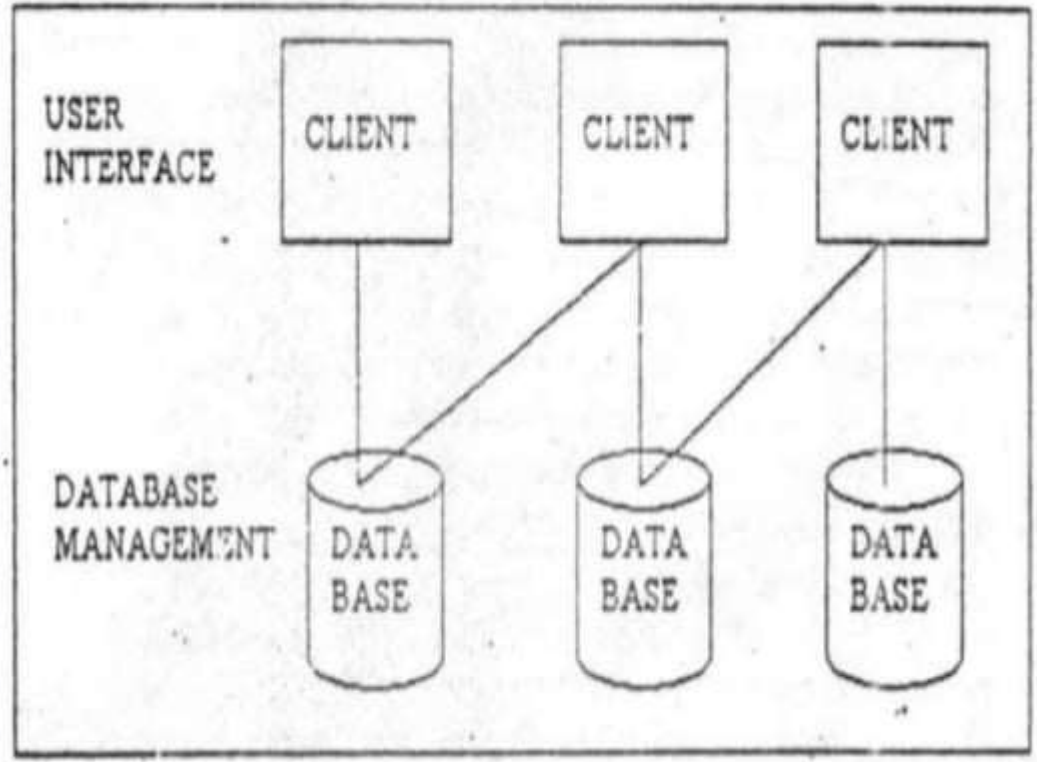
- The client–server architecture is a computing model that acts as a distributed application which partitions tasks or workloads between the providers of a resource or service, called servers, and service requesters, called clients

CLIENT- SERVER ARCHITECTURE



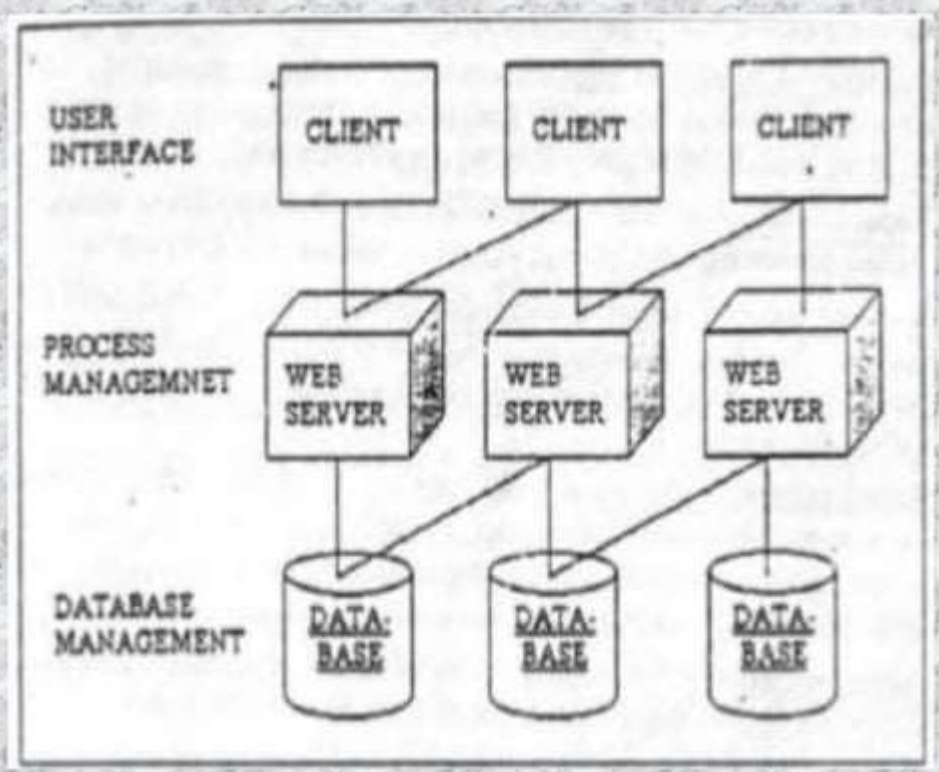
TWO – TIER ARCHITECTURE

- *In two-tier client-server architecture the user interface runs on the client and the database is stored on the server. The business application logic can either run on the client or the server.*


USER
INTERFACE
CLIENT
CLIENT
CLIENT
DATABASE
MANAGEMENT
DATA
BASE
DATA
BASE
DATA
BASE

THREE – TIER ARCHITECTURE

- *The three-tier architecture emerged in the 1990s to overcome the limitations of the two-tier architecture. In three-tier architecture, the user interface and the business application logic, also known as business rules and data storage and access, are developed and maintained as independent modules.*


USER INTERFACE
CLIENT
CLIENT
CLIENT
PROCESS MANAGEMNET
WEB SERVER
WEB SERVER
WEB SERVER
DATABASE MANAGEMENT
DATA: BASE
DATA: BASE
DATA: BASE

Advantage of client server architecture

- *Centralization.*
- *Proper management.*
- *Back up and recovery possible.*
- *Updating is easy.*
- *Accessibility.*
- *Security.*

ADVANTAGE OF THREE – TIER ARCHITECTURE

- *Improved scalability.*
- *Enhanced re-usage.*
- *Improved data integrity.*
- *Enhanced security.*

ADVANTAGE OF TWO – TIER ARCHITECTURE

- *Easy to maintain.*
- *Modification is bit easy.*
- *Communication is faster.*

CONCULSION

- *The size and complexity of E-Commerce systems make the architecture level of design and specification of the overall system a significant issue.*

Electronic Payment System

OBJECTIVES

- To understand the concept of Electronic Payment System and its security services.
- To bring out solution in the form of applications to uproot Electronic Payment.
- To understand working of various Electronic Payment System based applications.

What Electronic Payment system is?

Electronic payment system is a system which helps the customer or user to make online payment for their shopping.

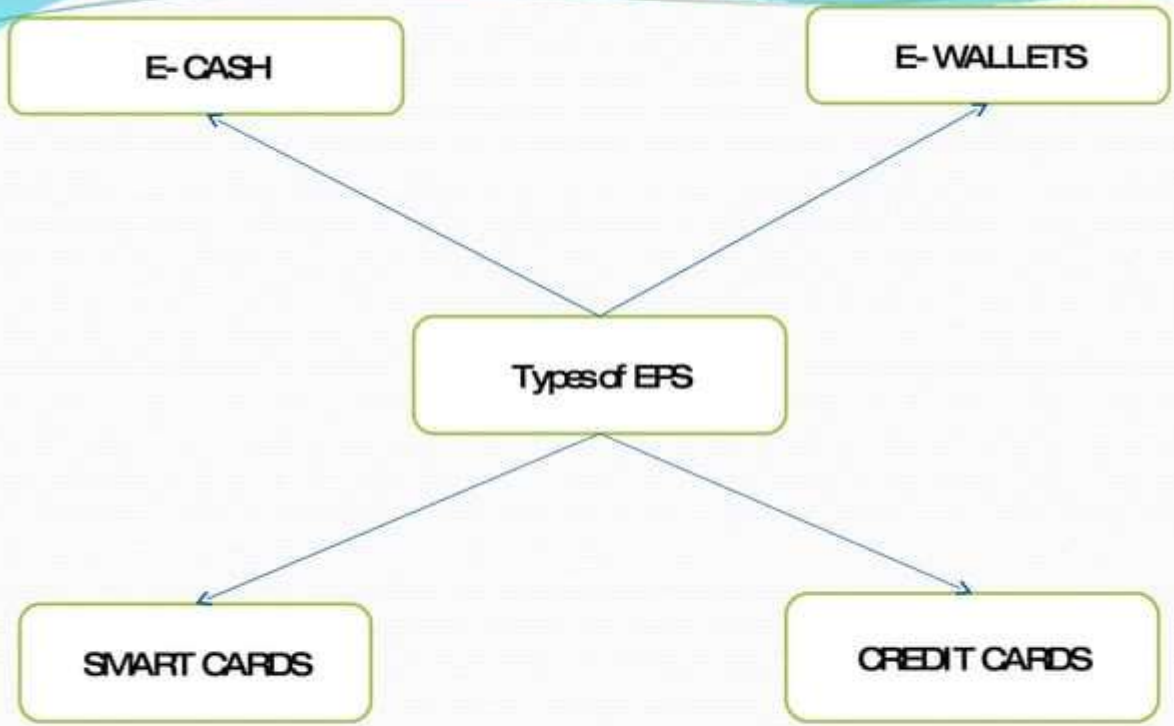
- To transfer money over the Internet.
- Methods of traditional payment.
  - Check, credit card, or cash.
- Methods of electronic payment.
  - Electronic cash, software wallets, smart cards, and credit/debit cards.

Some Examples Of EPS:-

- Online reservation
- Online bill payment
- Online order placing (nirulas)
- Online ticket booking (Movie)

Two storage methods

- On-line
  - Individual does not have possession personally of electronic cash
  - Trusted third party, e.g. online bank, holds customers' cash accounts
- Off-line
  - Customer holds cash on smart card or software wallet
  - Fraud and double spending require tamper-proof encryption


E-CASH
E-WALLETS
Types of EPS
SMART CARDS
CREDIT CARDS

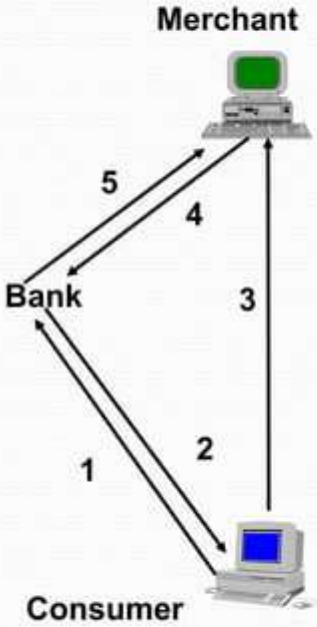
E-Cash

- A system that allows a person to pay for goods or services by transmitting a number from one computer to another.
- Like the serial numbers on real currency notes, the E-cash numbers are unique.
- This is issued by a bank and represents a specified sum of real money.
- It is anonymous and reusable.

Electronic Cash Security

- Complex cryptographic algorithms prevent double spending
  - Anonymity is preserved unless double spending is attempted
- Serial numbers can allow tracing to prevent money laundering

E-Cash Processing



1. Consumer buys e-cash from Bank
2. Bank sends e-cash bits to consumer (after charging that amount plus fee)
3. Consumer sends e-cash to merchant
4. Merchant checks with Bank that e-cash is valid (check for forgery or fraud)
5. Bank verifies that e-cash is valid
6. Parties complete transaction

E-Wallet

- The E-wallet is another payment scheme that operates like a carrier of e-cash and other information.
- The aim is to give shoppers a single, simple, and secure way of carrying currency electronically.
- Trust is the basis of the e-wallet as a form of electronic payment.

Procedure for using an e-wallet

1. Decide on an online site where you would like to shop.

3. Download a wallet from the merchant's website.

5. Fill out personal information such as your credit card number, name, address and phone number, and where merchandise should be shipped.

7. When you are ready to buy, click on the wallet button, the buying process is fully executed.

Smart Cards

- A **smart card**, is any pocket-sized card with embedded integrated circuits which can process data

- This implies that it can receive input which is processed and delivered as an output

Smart card Processing

1. User opens account and receives smart card
2. User downloads tokens onto card
3. User inserts card in reader
4. Tokens are transferred from user card to vendor
5. Goods delivered
6. Vendor redeems tokens

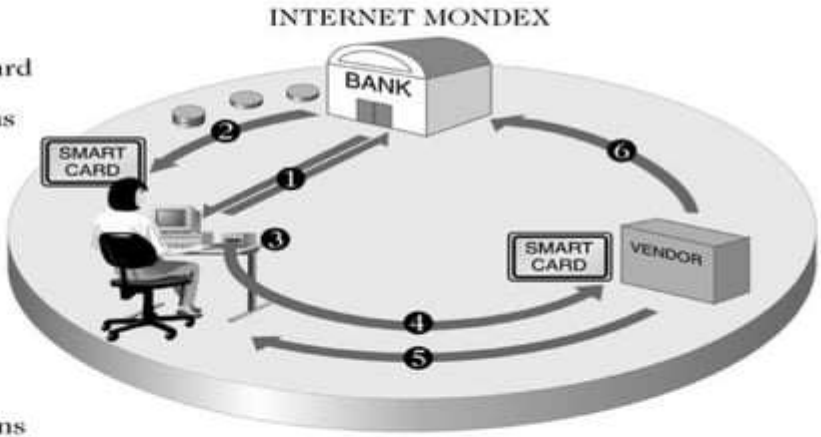


FIGURE 7-12 *Mondex smart card processing*

Credit cards

- It is a Plastic Card having a Magnetic Number and code on it.
- It has Some fixed amount to spend.
- Customer has to repay the spend amount after sometime.

Processing a Credit cards payment

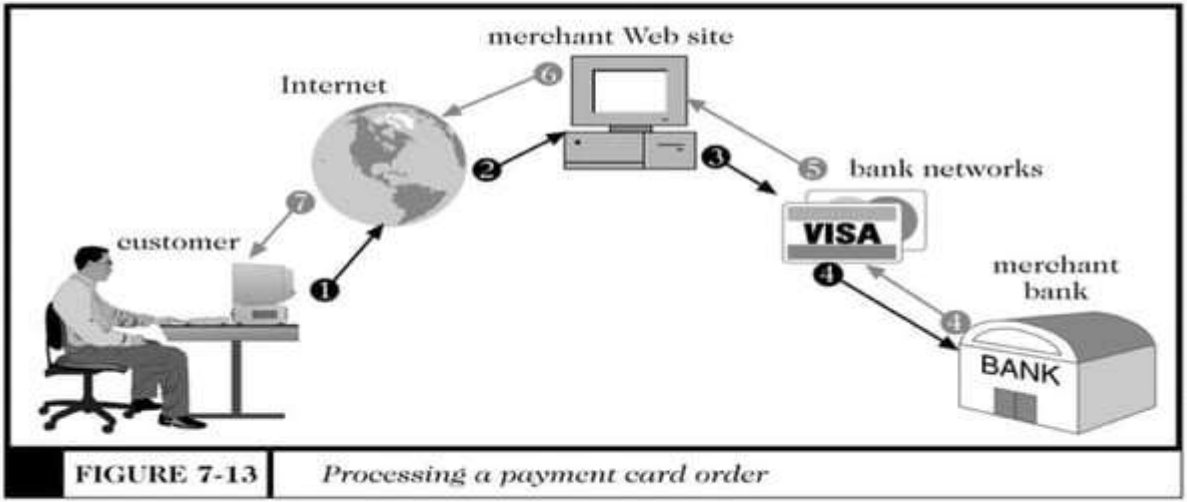


FIGURE 7-13 *Processing a payment card order*

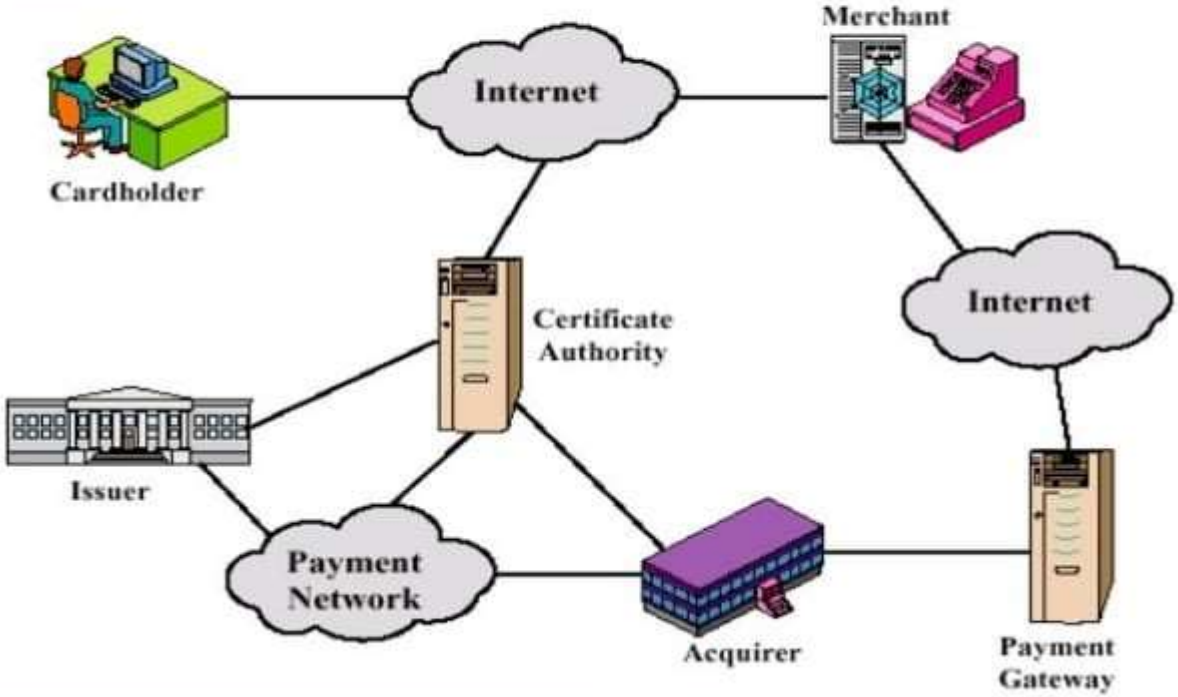
Risk in using Credit cards

- Operational Risk
- Credit Risk
- Legal Risk

Secure Electronic Transaction (SET) Protocol

- Jointly designed by MasterCard and Visa with backing of Microsoft, Netscape, IBM, GTE, SAIC, and others
- Designed to provide security for card payments as they travel on the Internet
  - Contrasted with Secure Socket Layers (SSL) protocol, SET validates consumers and merchants in addition to providing secure transmission
- SET specification
  - Uses public key cryptography and digital certificates for validating both consumers and merchants
  - Provides privacy, data integrity, user and merchant authentication, and consumer nonrepudiation

The SET protocol



Security Requirements of EPS

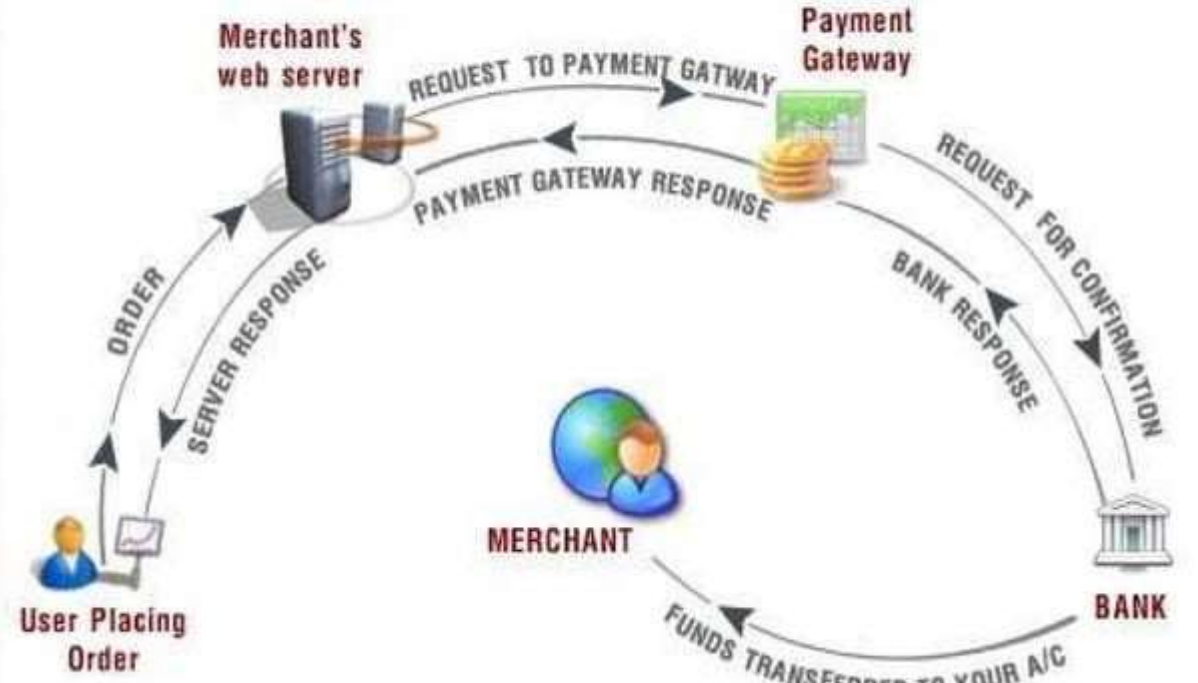
- Integrity
- Privacy
- Authentication
- Non-repudiation
- Safety

What Is payment Gateways??

- A **payment gateway** is an e-commerce application service provider service that authorizes payments for e-businesses, online Shopping, etc.

- Payment gateway protects credit cards details encrypting sensitive information, such as credit card numbers, to ensure that information passes securely between the customer and the merchant and also between merchant and payment processor.

How It works??


Merchant's web server
REQUEST TO PAYMENT GATWAY
Payment Gateway
PAYMENT GATEWAY RESPONSE
REQUEST FOR CONFIRMATION
BANK RESPONSE
ORDER
SERVER RESPONSE
MERCHANT
User Placing Order
FUNDS TRANSFERRED TO YOUR A/C
BANK

CONCLUSION

- Expand Market beyond Traditional geographic market
- Override traditional marketing system into digital marketing system.
- Made human life convenient as a person can pay his payments online while he is taking rest.

What is SET?

- SET is an open encryption and security specification designed to protect credit card transactions on the Internet.
- SET is in effect a set of protocols for ensuring security and confidentiality.
- SET is a relatively new standard. It was first used in February 1996 and was proposed by Visa and MasterCard.

Requirements That SET Must Accomplish

- Provide confidentiality of ordering and payment information.
- Ensure the integrity of all transmitted data
- Provide authentication that a cardholder is a legitimate user of a credit card account.
- Provide authentication that a merchant can accept credit card transactions through its relationship with a financial institution.

Key Features of SET

- Confidentiality of information.
- Integrity of Data.
- Cardholder account authentication.
- Merchant authentication.

Confidentiality of Information

A credit card holder's personal and payment information is secured as it travels across the network. An interesting feature of SET is that the merchant /seller never sees the credit card number; this is only provided to the issuing bank. Conventional encryption using DES is used to provide confidentiality.

Integrity of Data

Payment information sent from cardholders to merchants include order information, personal information and payment instructions. SET guarantees that these message contents are not altered in transit. RSA digital signatures, using SHA-1 hash codecs, provide message integrity.

Cardholder Account Authentication

SET enables merchants to verify that a cardholder is legitimate user of a valid card account number. SET uses X.509v3 digital certificates with RSA signatures for this purpose.

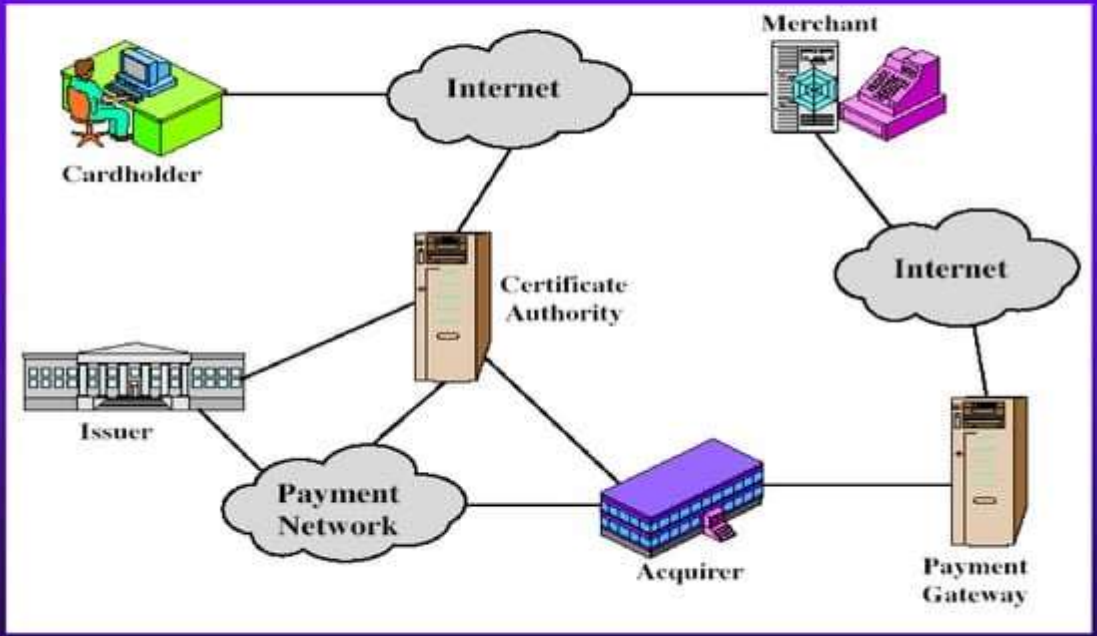
Merchant Authentication

SET enables cardholders to verify that a merchant has a relationship with a financial institution allowing it to accept payment cards. SET uses X.509v3 digital certificates with RSA signatures for this purpose.

SET Participants

- Cardholder
- Merchant
- Issuer
- Acquirer
- Payment Gateway
- Certification Authority

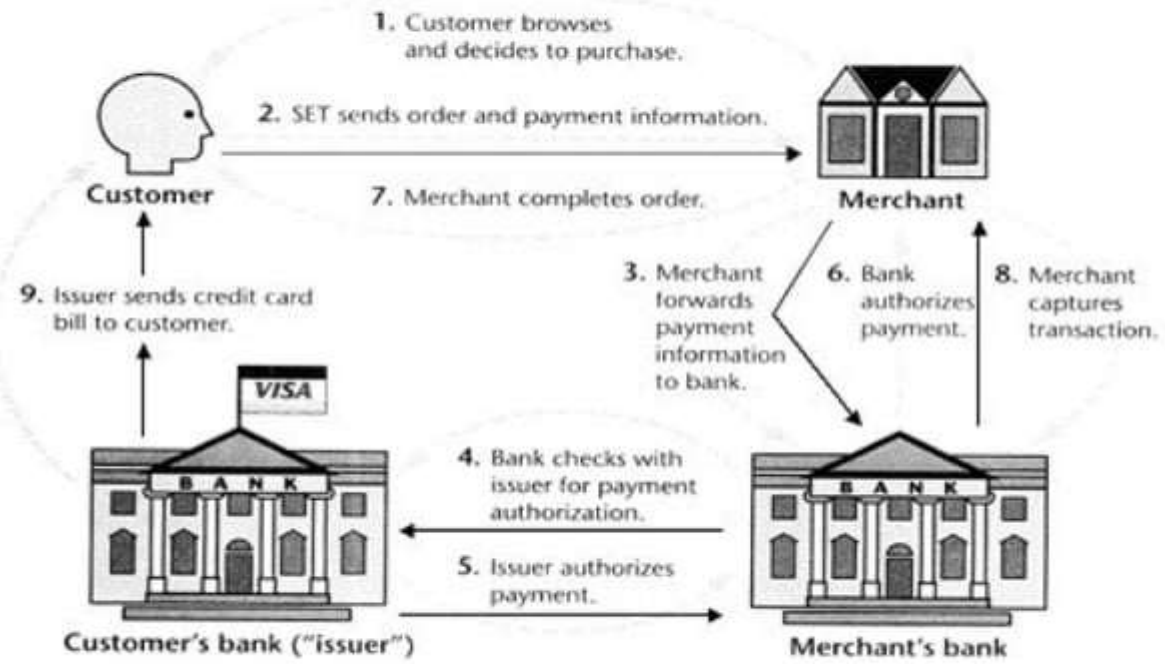
SET Components and Participants



Cardholder & Merchant

- Cardholder
  - This is an authorized holder of a payment card (e.g, MasterCard, Visa) that has been issued by an *issuer*.
- Merchant
  - This is a person or organization who has things to sell to the *cardholder*. A merchant that accepts credit cards must have a relationship with an *acquirer*

SET Transactions



Advantages:

-Privacy: Uses 1024 bit public key cryptography which renders the intercepted message unreadable !

-Integrity: Hashing & signing ensures message sent is unaltered.

-Authentication: Uses digital certificates to ensure the parties are really who they claim to be.

THANK YOU