ELECTRONIC COMMERCE

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Definition

- **Electronic Commerce**, commonly known as **e-commerce**, consists of the buying and selling of products or services over electronic systems such as the Internet and other computer networks .

Goals of e-commerce

- Reduce costs
- Lower product cycle times
- Faster customer response
- Improved service quality

E-commerce applications

- Supply chain management
- Video on demand
- Remote banking
- Procurement and purchasing
- Online marketing and advertisement
- Home shopping

Advantages of Electronic Commerce

- Faster buying/selling procedure, as well as easy to find products.

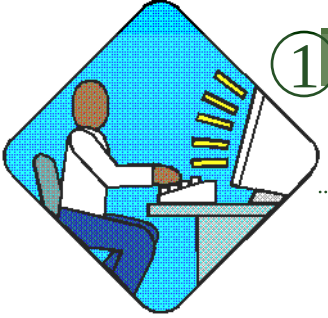
- Buying/selling 24/7.

- More reach to customers, there is no theoretical geographic limitations.

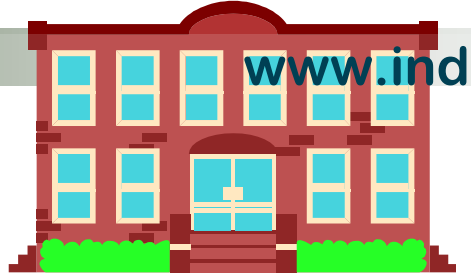
- Low operational costs and better quality of services.
- No need of physical company set-ups.
- Easy to start and manage a business.
- Customers can easily select products from different providers without moving around physically.

Disadvantages of E-Commerce

- Loss of ability to inspect products from remote locations
- Difficult to calculate return on investment
- Cultural and legal barrier

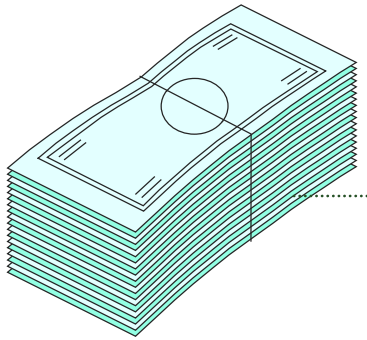


① Consumer finds something she wants to buy at a "shop" on the Net

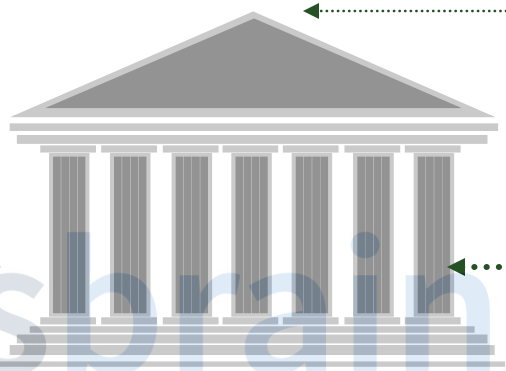


Shop

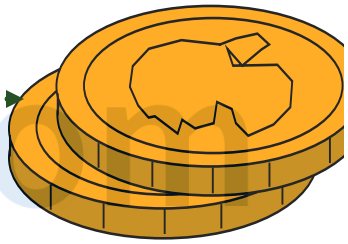
⑥ Verification and remittance of actual funds



② Consumer sends on enciphered request for payment to her bank



Consumer's Bank



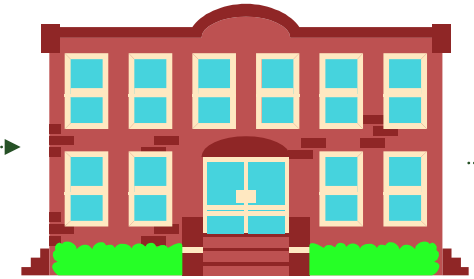
Consumer Public Key

③ The electronic bank sends back a secure packet of e-cash

Merchant Server

⑤ The shop sends the packet of cash to its bank

④ Consumer sends the e-cash to the shop



Shop

Merchant Bank

E-commerce framework

- E-commerce applications will be built on the existing technology infrastructure-
  - Computers
  - Communications networks
  - Communication software forming the emerging information superhighway.

E-Com & media convergence

- Convergence – is the melding of consumer electronics, television, publishing, telecommunications, & computers for the purpose of facilitating new forms of information-based commerce.

Multimedia storage servers and e-commerce applications

- E-commerce requires strong(robust) servers to store & distribute large amounts of digital content to consumers.
- These multimedia storage servers are large information warehouse capable of handling various content, ranging from books, newspapers, advertisement, catalogs, movies, games & x-ray images.

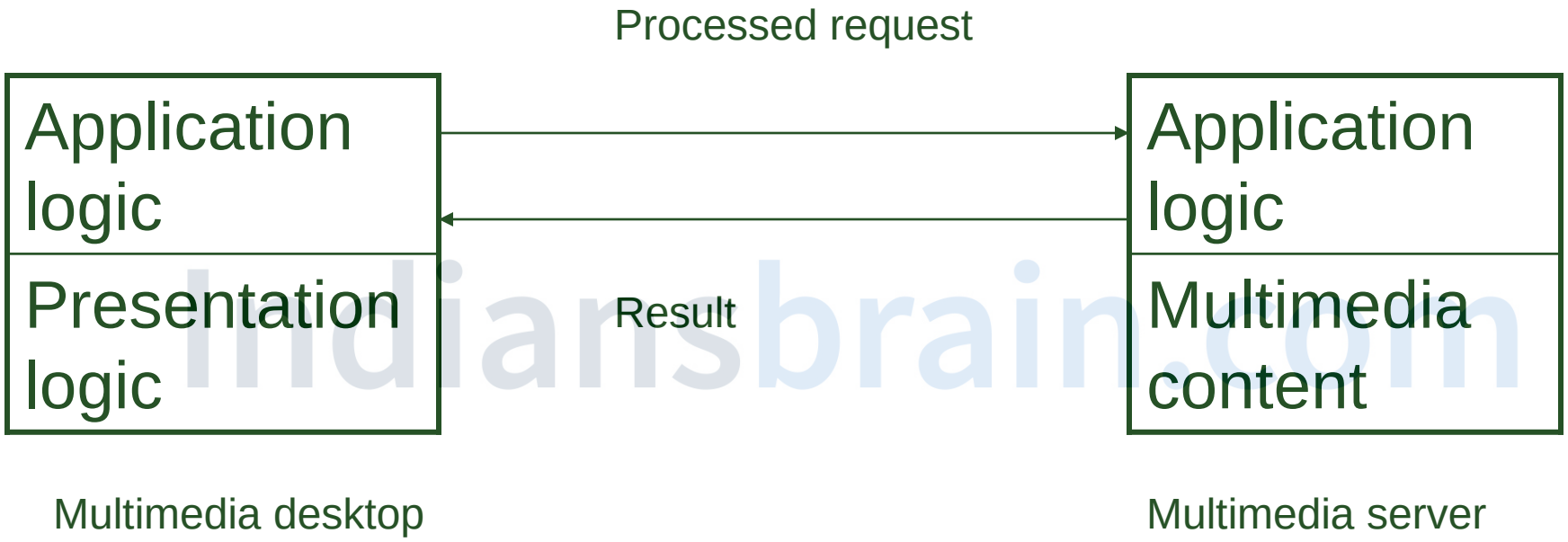


Fig:- Distribution of processing in multimedia client-server world

- Clients = devices + software that request information from server.
- The client- server model, allows the client to interact with the server through a request reply sequence governed by a model know as message passing.
- The server manages application tasks, handles storage & security, & provides scalability – ability to add more clients as needed for serving more customer.

Information transport providers	Information delivery methods
Telecommunication companies	Long-distance telephone lines; local telephone lines
Cable television companies	Cable TV coaxial, fiber optic & satellite lines
Computer –based on-line servers	Internet; commercial on-line service providers
Wireless communications	Cellular & radio networks; paging systems

Table : transport routes

E-Commerce and WWW

- E-commerce is also used to denote the paperless exchange of business information using EDI, electronic mail, electronic bulletin boards, electronic funds transfer (EFT).

E-Commerce Application services

- Distinct Categories of e-Commerce

- *Consumer to Business (C2B)*
- *Business to business* (B2B) (Inter-organization e-commerce)
- *Intra-organizational e-commerce*

Interface and Support Services

- Interfaces for e-commerce applications such as interactive catalogs, the customized interface to consumer applications such as home shopping.

Secure Messaging, Security, and Electronic Document Interchange[EDI]

- Messaging can be defined as:
  - the software that sits between the network infrastructure and the clients or e-commerce applications.
  - a framework for the total implementation of portable applications

- They offer solutions for communicating non formatted (unstructured) data, letters, memos, reports, as well as formatted (structured) data such as invoices.

- With messaging tools, people can communicate and work together more effectively, no matter where they are located.

Network Infrastructure

- E-commerce framework is being built on the WWW architecture.
- Wire line - coaxial, fiber optic
- Wireless

World wide web as the architecture

- **What Is the World Wide Web (WWW)?**
- The world wide web (WWW) is a subset of the computers on the Internet that connect in a certain way, making their content accessible to each other.

- The WWW includes an easy to use standard interface facilitating ease of use

- **The architecture is made up of three primary entities**:

1. Client browser.
2. Web server.
3. Third- party services.

- Client browser usually interacts with WWW server, which acts as an intermediary in the interaction with third-party services.
- The client browser resides on the user's PC or workstation & provides an interfaces to the various types of content.

- Web server functions can be categorized into information retrieval, data & transaction management & security.
- The third-party services could be other web servers that make up the digital library, information processing tools, & electronic payment system.

Security and the web

- The lack of data security on the internet has become a high-profile problem due to the increasing number of applications oriented towards commerce.
- Many commercial applications require that the client & server be able to authenticate each other & exchange data confidentially.

- Several software companies & electronic marketplace providers are tackling the issues of secure HTTP implementations by developing additional data security measures that involve encryption.

- Encrypted information can be “unlocked” only by the intended recipient through a digital key.

Categories of internet data & transactions :-

- Several categories of data must be encrypted, making internet data security an interesting challenges:-

1. **Public data** have no security restrictions & can be read by anyone.

2. **Copyright data** have content that is copyright but not secret**.**

WWW – based security schemes:-

Several methods can provide security in the web framework. These include the following:-

- *Secure HTTP(S-HTTP)* is a revision of HTTP that will enable the incorporation of various cryptographic message formats. Such as DSA(Digital Signature Algorithm) & RSA(Ron Rivest, Adi Shamir and Leonard Adleman) standards.

- *Security socket layer (SSL)* uses RSA security to wrap security information around TCP/IP- based protocols.

- *SHEN* is a security scheme for the web sponsored by the W3 association.

Popular E-Commerce sites