Electronic Commerce

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Abstract: In the business aspect of e-commerce is the most visible business use in the World Wide Web. The primary goal of the e-commerce site is to sell goods and services online which save time and effort. It provides the user with a catalogue of different books available for purchase in the stores. In order to facilitate online purchase a shopping cart is provided to the users. The system implements using the 3-tier approach which have a backend database a middle tier of Microsoft Internet Information Services and front end with a web browser as front end client. I have made this report to show each of the underlying technologies for buying methodology of a shopping site.

Key Words: World Wide Web, frameworks, firewalls, network security, Transaction, buying products,

INTRODUCTION:

An individual or company who wants to make money on the web or internet then the individual or the company needs to understand the market potential, business implications and technical foundation of electronic commerce/ E-commerce. But a question in our mind ie, what is electronic commerce everybody is talking? How does it affect the organization for doing business? What sort of technical& business are needed to be successful?
Companies and customer are discussing that global networking and other technological innovation are powerful assets that we use as competitive weapons in their day to day activity. E-commerce is associated with buying and selling of information of products and service via a computer network today.

The Consumer desires are very hard to predict pin point or decipher of electronic markets; whose shapes, structure and population are still in early stages. Needs envisioned included entertainment on demands including five hundred TV channel, video on demand, games no demand, electronic retailing via a shopping networks?
In future viewer will decide what they want to see and in what they want to participate at a successful market places are expected to those that cater to consumer's loneliness, education and career. In a highly competitive society, where neighbours seldom talk to one another. these outlet gives consumer something to through after going home. Let us take a look at the changing condition for the new economy with respect to retails industry. Consumers are passing retailer for the wall demanding lower price; better quality the product and a large section of in season goods retailer are scrambling to fill the orders. They are slashing back. The Office costs reducing profit-margins, reduce cycle times for buying more wisely and marking huge investment in today's technologies. They are revamping distribution of channels to make sure that the warehouses cost are down by reducing their average inventory level and coronation the consumer demand and supply patterns. In the push to reduce prices, more and more retailers are turing to overseas suppliers in part because of cheaper labor cost. Retail is the immediate line of fire and had to do the cost cutting. They put the pressure on the manufacturer and then to the supplier end of pipelines. E-commerce is forcing companies to rethink the existing way to doing target marketing, relationship marketing and even event marketing. Adaption would include moving towards the computerized paperless operation to reduce trading cost and facilitate the adaption of new business process. Japanese approach just in time system total quality control and the quality circles are focused now for delivering the goods through E- Commerce.

E-Commerce and the World-Wide-Web (WWW)

I have broadly define E-commerce as the modem business methodology that address the desire of firm consumers and the management to cut costs while improving the qualities of good and increasing the speed of services. The need of the E-commerce stems from the demand within the business and government to make better use of computing that is better apply computer technology to improve business process and information exchange both within an enterprise across organizations.

In sort E- commerce appears to be integrates force that representation the digital convergence of twenty-first century business application and the computing technologies.

E- commerce applications emphasis the generations and exploitation of new business opportunity & use to the popular buzzword to Generate business values. For instance, when the buyers-sellers transaction occur in the electronic market places, information is access, observed, arrange and sold in different in fact, the information about a product of service is separated from the physical products or services and has become important on its own. In, some cases, the information can become as crucial as his actual product or service in term if it effects on a company in short, information ways business truncation are creating new ways for doing business and even new type of business.

E-commerce applications are quite varied. The most common from of e-commerce is also used to donate the paperless exchange of business information using EDI E-mail, electronic bulletin boards, electronic funds transfer (EFT) and the other similar technologies. These technologies are normally applied in high-pay of areas, recognizing that paper-handling activity usually increase expense without adding value. On the other hand the term E- commerce is used to describe a new online approach to perform traditional function such as payment and funds transfer, order entry point of sale Data gathering. More recently company have resized that the advertising marketing can customer support functions are also part of e-commerce application domain. These functions act as a initiator order management cycle which incorporates the more establishment motions of E- commerce's.

In sort, we are witnessing is the use of term e- commerce as an umbrella concept to integrate a wide range of new and old application.

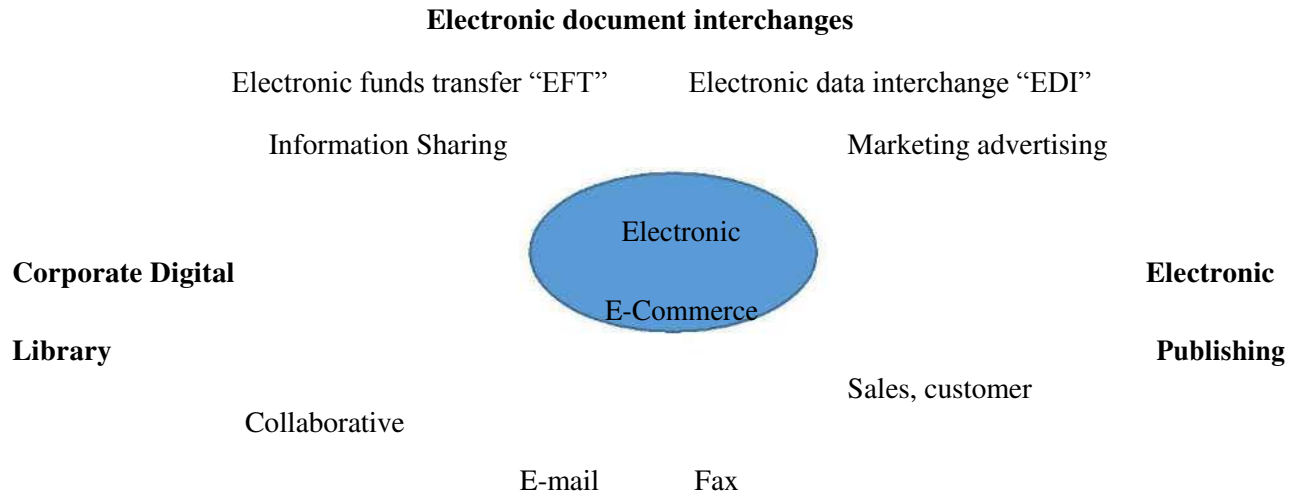


Fig.1 Electronic Messaging

Despite changes taking place , business have its three goal : stay competitive , improve productivety and deliver quality service. Goals are the giving buoys for firms plotting their course in the turbulent waters of e- commerce. There are other factors that companies need to keep in mind first , most company have already made enormous in the information technology investment to automate their key internal process such as purchasing invoking and other similar function. So, some aspects of technology infrastructure for e-commerce are already place. The challenges now comes with such question like : how to effectively leverage this investment second , prices for computer hardware and equipment continue to fall , marking information technology an appealing investment for many business electrically when it's used for high impact applications such as linking there distributed operation however investment without a clear idea of the architecture being whorl be akin to driving with blinders on as a result , companies that decide that e- commerce application represent one of the best strategic investment they can make must first exert some efforts to understand the technology underlying e- commerce applications.

At glance, first of all it appears that messaging-based and information management services, from the technical foundation for effective e-commerce solutions. No one of these technologies can deliver the full potential of e-commerce, however. What we require is an integrated architecture the likes of which has never been seen yet. This integrated architectures are emerging in the form the World Wide Web "www". As e-commerce becomes more mature in to days technology, we are beginning to see sophisticated application being developed on WWW. Technically & the commercially the WWW client-server model seems poised to become a dominant technology in today's world.

ARCHITECTURAL FRAMEWORK FOR ELECTRONIC COMMERCE:

Software framework necessary for building E- Commerce applications is little understood in existing literature. In general, a framework is intended to define and to create tools that integrate the information found in today's system and allow the development of the E-commerce applications. It is important to understand the aim of the architectural framework itself is not to build new database management systems, data repository, computer languages, software agent-based transaction monitors or communication protocols. Architecture should focus on synthesizing the diverse resources already in place in corporations to facilitate the integration of data and software for better applications.

We propound that the e- commerce application architecture consist of six layers of functionality or services:

- Application
- Brokerage services, data or transaction management
- Interface and support layers
- Secure messaging and electronic document interchange
- Middleware and structured document interchange and
- Network infrastructure and basic communication services

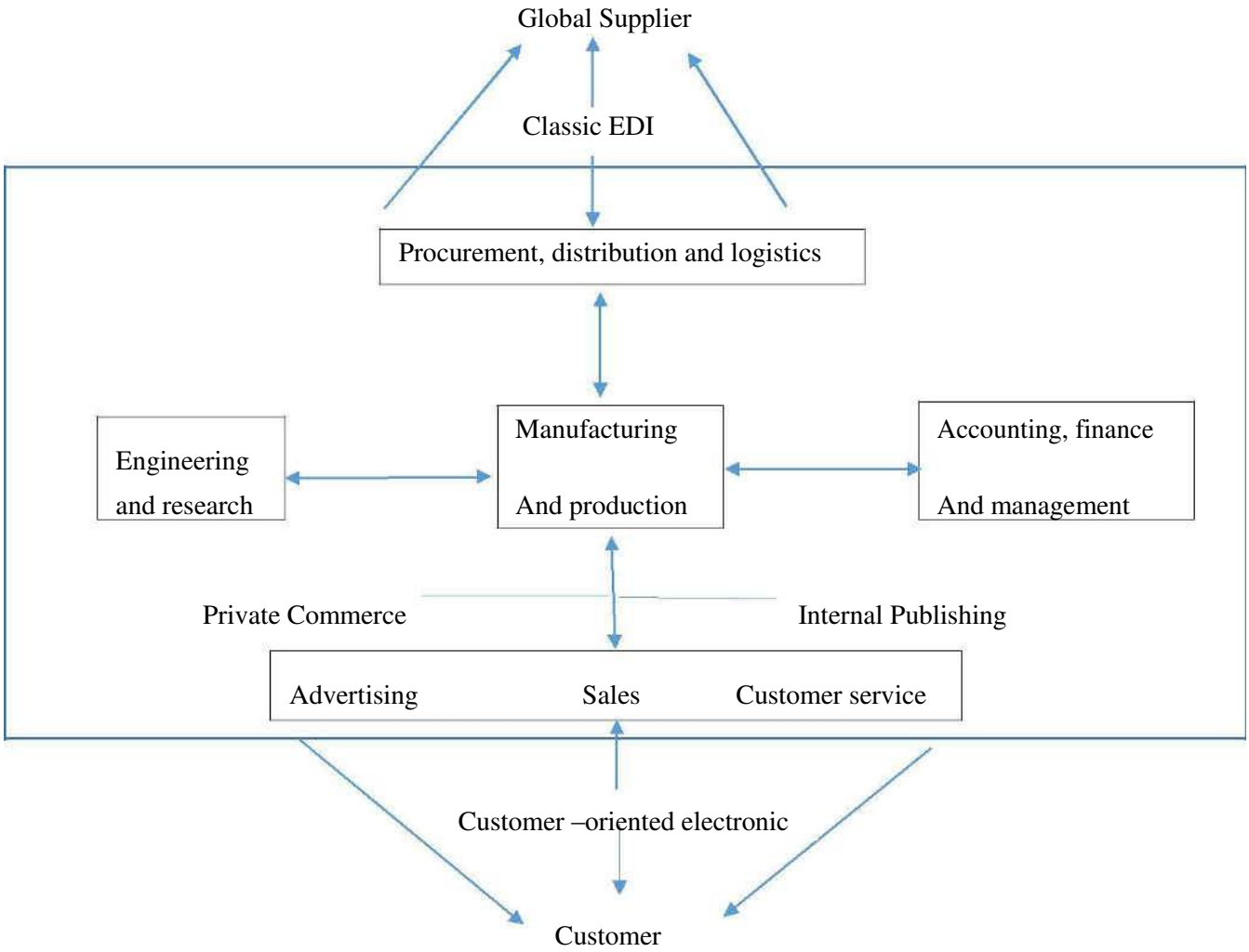
Application Services	Customer-to-business Intra- organizational business-to-business
Brokerage and data management	Payment schemes-electronic cash Order Processing-mail-order houses
Interface layer	Interactive catalogue Software agents directory support function
Secure messaging	Secure hypertext transfer protocol Encrypted E-mail, EDI Remote Programming (RPC)
Middle layer services Network Infrastructure	Structure documents (SGML,HTML) Compound documents (OLE,OpenDoc) Wireline-POTS, Coaxile, Fibre optics Wireless-Cellular, Radio, PCS

These layers are cooperate to provide the seamless transition between today's computing world and those of tomorrow by transparently integrating information access and exchange data/information within the context of the chosen application. As seen in above table. E- commerce applications are based on several elegant technology. But only when they are integrated do they provides unique powerful solution.

In the ensuing discussion of all layers, we will not elaborate on the various aspect of the network infrastructure that transports information.

Electronic Commerce/ E-Commerce Application Services: -

The application service layer of the e-commerce will be comprised of existing and future applications built on innate architecture. Three distinct class of e-commerce application can be distinguished as **customer- to - business, business –to-business and intra organization**.



CUSTOMER-TO-BUSINESS TRANSACTIONS:

We calls this category marketplace transaction .In a market place transaction , customers learn about products differently through e- publishing , buy them differently using electronic cash, secure payment system and have them/ product delivered differently. Also how customers allocate their loyalty may also be differently.

Therefore organization itself has to adapt a world where the traditional concepts of brand differently no longer hold where the quality has a new meaning & where the content may not be equated to the product where distribution may not automatically mean physical transport.

In the new environment, brand equity can rapidly evaporates forcing firms to develop new way of doing new business.

BUSINESS-TO-BUSINESS TRANSACTIONS:

We call this type of category market –link transaction. Here business, government and other organizations depends on computer-to-computer communication as a fast, an economical and a dependable way for conduct business transactions. Small companies are also beginning to see the benefits of adopting the same methods. Business-to-Business transactions include the use of the EDI and E- mail for purchasing goods and services, buying information and consulting services, submitting requests for proposals and receive proposal.

For example a current account payable occurs through exchanges of paper document. Each year the trading partners exchanges millions of bills, checks, purchase orders, financial reports and other transactions.

The documents are in the electronic from at their point of origin but are printed , key entered at point of receipt. In the current manual process of printing, mailing rekeying is costly, time consuming and the error-prone. Given this situation face with the need to reduce costs, small business are looking towards e- commerce as a possible saviours.

INTRA-ORGANIZATIONAL TRANSACTIONS:

In this category market-driven transactions are found. A company becomes market driven by dispersing throughout the firm information about its customers and competitors, by spreading strategic and tactical decision making so that all units can be participate and continuously monitoring their customer commitment by making improved customer satisfactory an on-going objective. To maintain the relations which are critical to delivering the superior customer value management must pay close attention to service both before and after sales.

INFORMATION BROKERAGE AND MANAGEMENT:

Information brokerage and the management layer provides the service integration trough the notion of information brokerages of development of which is necessitated by the increasing information resource fragmentations. We use the notion of the information brokerage to represent an intermediary, who provides series integration between customer and information provides given some constraint such as a low price fast service or profit maximization for the clients. Information brokers are rapidly becoming necessary in dealing with the voluminous amounts of information on the networks .On-line databases migrate to consumer information utilities consumer and the information professionals will have to keep up to the knowledge and ownership. Who got & what? How do you use ? What's do they charge? Most professionals have enough trouble keeping trap of files or interest on one or two database services. Will all have complexity associated with large number of on-line bureaus it's impossible to expect human to searching .It will have to be the software programs & information brokers software agents , to use the most popular term-act on searcher's on the behalf. Information brokerage does more than the searching.

INTERFACE AND SUPPORT SERVICE:

This is the third layer, interface and support services, will provide interface for e-commerce applications such as interactive catalogues which will support directory services-functions necessary for information search and access. These two concepts are very different. Interactive catalogs are the customize interface to consumer application such as home shopping or shopping site. An interactive catalogs is an extension of the paper-based catalogue and incorporates additional features such as sophisticated graphics and video to make the advertising for a product is more attractive and on the other hand, operate behind the seen & attempt to organize the enormous amount of information & transactions generated to the facilitated el- commerce. Directory services database make data from any server appear as the local files.

Classic example of a directory is the telephone's White Pages, which allows us to locate people and telephone numbers. In the case of e- commerce directory would play an important role in information management functions. For instance, If we take the case of buying an airline ticket with several stopovers with a caveat that the time between layovers be minimized. This search would require several quires to the different on-line directory to find empty seats on various airline and then the availability of seats would be coordinate with the amount of time spent in the airport terminal.

SECURE MESSAGING AND STRUCTURE DOCUMENT INTERCHANGE SERVICE:

Importance of the fourth layer secure messaging is clear .Anyone in business knows that electronic messaging is a critical business issues. Consider a familiar business scenario as bellow:If You hand over an urgent fax on Monday and find out on Tuesday that it still sitting on your fax operator's disk. What happen? The line was busy user thought he/she would try again later. Or, the number was wrong, but he forgot to let you know. Or you are in London and you need to send a spreadsheet that details a marketing plan for a specific product introduction strategy to the co-worker in New York. This must be done today not tomorrow when the courier service would delivers. There is a solution to these common and frustrating problems. It is called integrated messaging where a group of computer service that through the use of a network send, receive and combine messages, faxes and large data files. Some common examples are electronic mail, enhanced facts and the electronic data interchange. Broadly defines messaging is the software that sits between the network infrastructure and the client or the e-commerce application, masking the peculiarities of the environment. Others defines messaging as a framework for the total implementation of portable applications divorcing you from the architecture primitives of your's system. In general, messaging product that are not applications which solve problems; they are more enablers of the application that solve problems. Messaging services offers solution for communicating non-unstructured data such as purchase order, shipping notices and invoices. Unstructured messaging consists of facts ie, e-mail & form based system like Lotus Note. Structure documents messaging consists of the automated interchange of standardized and approved messages via a telecommunication lines. Example of the structure document

messaging includes EDI. Messaging is gaining momentum in electronic commerce and seems to have many advantages. It supports both immediate and delayed message delivery & processing with asynchronous when a message is sent, work continues software does not wait for a response. This allows the transfer of message through store-and-forward methods. The main disadvantages of the messaging are the new types of application, it enables-which appear to be more complex especially to traditional programmers and jungle of standards it involve. Because of the lack of standards there is often no interoperability between different messaging vendors lading to islands of messaging. Security, privacy and confidentiality to move encryption and authentication techniques are important issues that need to be resolve for ensuring the legality of the message-based transactions themselves.

MIDDLEWARE SERVICES:

Middleware is a relatively new concept which emerged only recently. Like so many other invitations it came into being out of necessity. Users in 1970s when vendors delivered homogeneous systems that work, did not have a needed for middleware. When conditions changed-along with the hardware and software of a organizations could not cope: The tools were inadequate the backlog goes enormous and the pressure was overwhelming. The users were dissatisfied. Something was needed to solve all the interface, translation, transformation, interpretation problems that were driving applications developers crazy.

The growth of networks, client-server technology and all other forms of communicating among unlike platforms, the problems of getting all the pieces to work together grew form formidable to horrendous. As the cry for distributed computing spared, user demand interactions between dissimilar systems, networks that permitted share resources and the applications that could be accessed by the multiple software programs. In simple terms. The middleware is the ultimate mediator between diverse software programme that enables then talk to one another.

TRANSPARENCY:

Transparency means the users should be unaware that they are accessing multiple systems. It is essential for dealing with higher-level issues than physical media and interconnection that underlying network infrastructure is in charge of. The ideal pictures are the one of a “virtual” network ie: A collection of work-groups, departmental, enterprises and inter-enterprise LAN which appear to the end user/ client application to be a seamless and easy accessed whole data. Transparency accomplished using middleware which facilitates the distributed computing environment. This gives users and applications transparent accessed the information, computation, and the other e- resources across collections of multivendor of heterogonous systems. The strategic architectures of every major system vendor are now based on some form of the middleware. The key to relaxing the theoretical benefit of such an architecture is the transparency. The Users need not spend their time to understand something about nor should application developers have to code into their applications the exact locations of e- resources over the network. The goal is for the applications to send a request to the middleware layers which satisfy the request any way it can using data remotely.

TRANSITION SECURITY AND MANAGEMENT:

Support for transaction processing is the fundamentals to success in e- commerce market. Security management are essential to all layers in the e- commerce model. Transaction integrity must be given for business that cannot afford any loss or inconsistency in data/ informations. For e- commerce, middleware provide the qualities expected in the standard TP system which we called ACID properties (atomicity, consistency, isolation and durability).

WORLD WIDE WEB (WWW) AS THE ARCHITECTURE:

E- commerce depends on the unspoken assumption that computers cooperate efficiently for seamless information sharing. Unfortunately this assumption of interoperability which has been supported by the realities in the field of practical computing. Computing is still in the world made up of different technical directions, product implementations and competing vendors. This diversity while good for innovation causes problem as the e-commerce application try to impose a certain discipline on the proliferating the computers and networks. It is ironic that the real effect of computing is all too often the prevention of data sharing due to incompatibilities architectures of data formats and the communication protocols.

WHAT IS THE WEB ENCOMPASS ?

The Web becomes an umbrella for a wide range of concepts and the technologies that differ markedly in purpose and scope in the today's world. This include the global hypertext publishing concept, the universal reader concept and the client-server architecture concept. The global hypertext publishing concept gives the idea of seamless information world, by which all on-line information can be accessed and retrieved in a consistent & simple way. To access information in the this seamless world we will need the ability to address may types of data - text files, images, sound files and animation sequences.

The universal readership concept gives the idea that unlike the segmented applications of the past we can use one application – a global or common user interface to read a variety of documents. This concept implies that if once the information is published then it is accessible from any type of computer, in any country by authorized person nearly needs to use one simple program to access it. It is accomplished in the web by using a core browser or application that is augmented by supporting applications. The core browser implements the minimal functionality and attempts to offload more spectator work onto the supporting applications. The client-server concept/ architecture allows the web to grow easily without any centralized control. Anyone can publish information as long as he or she is authorized. Therefore he/she can read and download the data. Publishing information requires a server program which reading data requires a client browser. All the client and the servers are connected to one another through the Internet. The various protocols allows all clients to communicate with all servers.

In practice the web on the number of essential concepts which including the following:

1. The addressing of schemas known as the uniform resource locator (URL) makes the hypermedia world possible despite many different protocols.
2. The network protocols known as hypertext transfer protocol (HTTP) used by client browser & server offers performance and features not otherwise available.
3. A Hyper Text mark-up language(HTML),which every web client is requires to understand is use for the representation of hypertext documents containing the text ,list boxes and graphics information across the www.

TECHNOLOGY BEHIND THE WEB:

Information providers/ publishers run programs called server from which the browser/client can access information. The programs can either be Web servers that understand the HTTP gateway which convert an existing information format to hypertext or a non-HTTP server which Web browser can access-anonymous FTP or Gopher server.

The Web servers are composed of two major partswhich are the hypertext transfer protocol for transmitting data between servers and clients and the hypertext markup language for documents. The link between HTML files and HTTP servers is provided by the uniform resource locators.

UNIFORM RESOURCE LOCATORS (URL)"

The data that the browsers display are hypertext that contains pointers to other data. The browsers deal with the pointers in a transparent way-select the pointer and clients are presented with the text to which it points. This pointer is implemented using a concept that is central of web browsers URLs. One way to think about URLs is to use the libraries and location on a shelf as the metaphors. A URL of a digital library would be a unique & call number that provides the exact location of every book in the world, including the country, city, street and library shelf location. URLs are the strings used as addresses of objects ie, documents, images on the Web. Think of them as analogous to my e-mail address. Just as my address is unique and may be used by any other Internet user to send me mail without knowing my current location exactly, a URL marks the unique location on the Internet where a data or service can be found. URLs follow a fairly consistent pattern. The first part describes the type of resource & second part gives the name of the server housing the resource; and the third part gives full file name of the resource on the web. URLs are universal in that they provide access to a white range of network services which required the separate applications in the past. New network protocols which can easily form the address as the set of parameters necessary to retrieve the data/information. If these parameters are encoded into a concise string with a prefix to identify the protocols and encoding then it must have a new URL scheme. Some URL formats given below:

- FTP: ftp://server.address/complete.file.name

- Gopher: gopher://server.address:port/directory/filename
- TELNET: telnet://server.address:port
- HTTP: http://server.address:port/homepage.html
- News : news:misc.stocks.invest

These are URLs for Internet news articles and news groups the NNTP protocol, for HTTP archives, for TELNET destination, e-mail address, etc and so on. The same can be done for name of objects/data in a given name space. ie, the URL of the main page for the Web project happens as HTTP://web.w3.org/hypertext/web/the/TheProject.html. The HTTP in the preceding example indicates the address space & defines the interpretation of the rest of the string. The HTTP protocol is to be used so that the string contains the address of the server to be contacted and a substring to be passed to the servers.

NETWORK SECURITY AND FIREWALLS:

Ability to conduct businesses on a public network has strong attraction and potential for huge savings. Security and confidentiality are essential before businesses can conduct financial transactions over the web/interner and a lack of widespread security majors remains at the same time. At present credit card numbers, the financial records and the other important information are not encrypted which can be intercepted by any savvy Internet hacker.

Discussion of security concern in e-commerce can be divided into two broad types:

1. Client-Server Security: It uses various authorization methods to make sure that only valid users and the programs have access to information resources such as databases. Access control mechanism must be set up to ensure the properly authenticated users which are allowed access only to those resources that they are entitled to use. Such mechanisms include password protection; encrypted; smart cards; biometrics and firewalls etc.

2. Transaction security ensure the privacies and confidentiality in electronic messages & the data packets which including the authentication of remote users in network transactions for the activities such as on-line payment ot transaction. The goal is to defeat attempts to assume another identity while involved with e-mail or other forms of data communication. Preventive measures includes the data encryption using various cryptographic methods.

DATA AND MESSAGE SECURITY:-

The lack of data and message security on the Internet has become amajor problem due to increasing number of merchants trying to spur commerce on the global network. For instance, credit card numbers in their plain text form create heavy risk when transmitted across the Internet. where the possibility of the number falling into the wrong hands or hacker is relatively high. A question must asked ie, Would you be willing to type in your credit card number knowing the risks? Even worse; would you expose your customers to such risk? Just the thought of "sniffer" programme which collect credit card numbers en masse is enough to keep merchants away from the on-line shopping given the possible lawsuits and other liability issue. In short, the lack of business transaction security is widely acknowledged as a major impediment to widespread in the e-commerce.

ENCRYPTED DOCUMENTS AND ELECTRONIC MAIL:

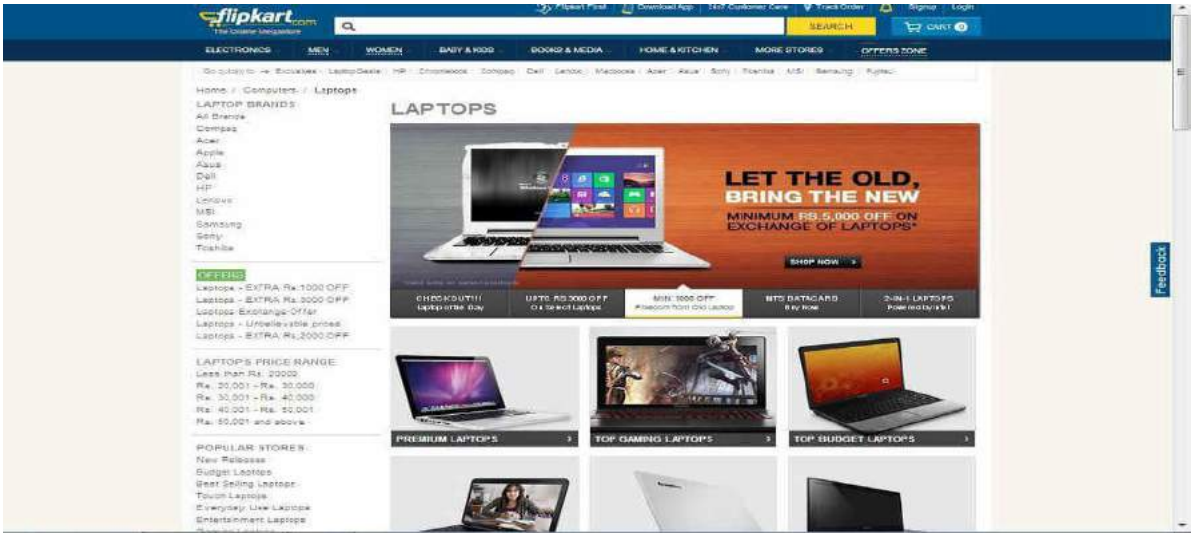
E-mail users who desire confidentiality & sender authentication are using encryption. Encryption is simply intended to keep personal thoughts to personal. Some users are already using Pretty Good Privacy "PGP" and others are starting to use Privacy Enhanced Mail "PEM". E-mails are typically encrypted for the reason that all network correspondence is open for the eavesdropping. e-mail is obviously far less secure then the postal system, where envelopes protected correspondence from the casual snooping. A glance at the header area of the e-mail message by contrast will show that it has passed through a number of nodes on its way to the sender or receiver. Every one of these nodes presents the opportunity for snooping.

Pictorial Representation: E-Buying Methodology on E-Commerce System:

Buying Procedure of on-line shopping website, **Flip kart** as shown bellow

Step 1 :-

Step 2 :-



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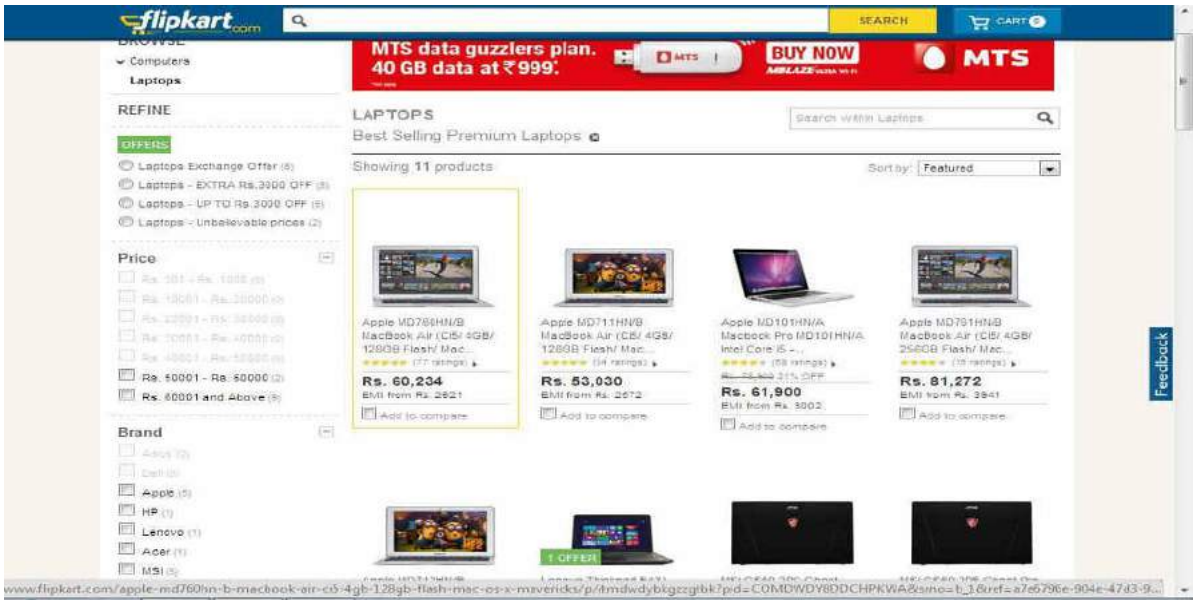

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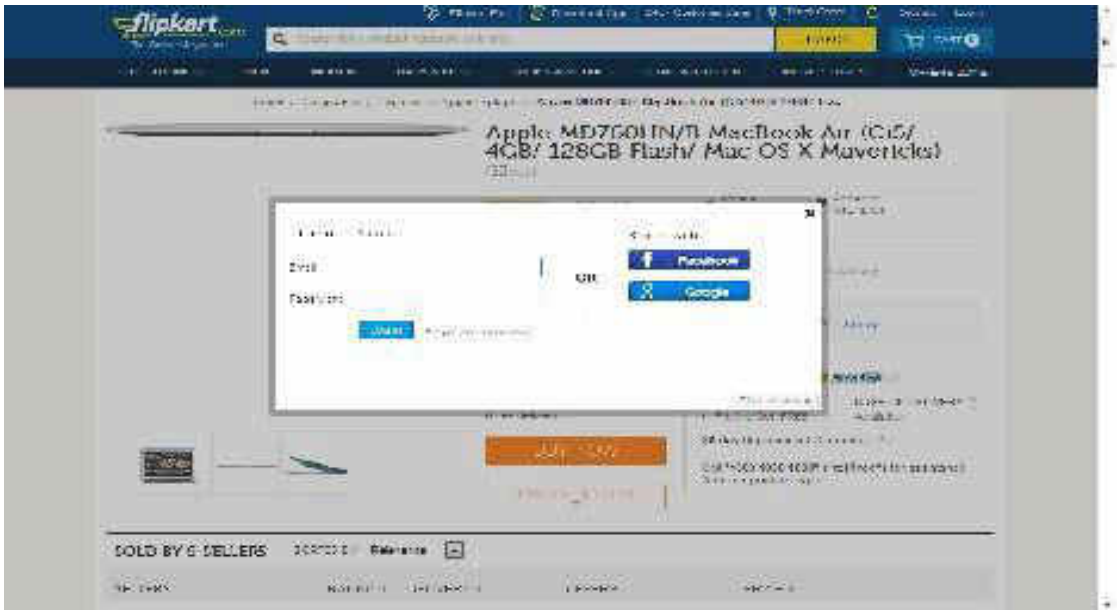
Step 5:-



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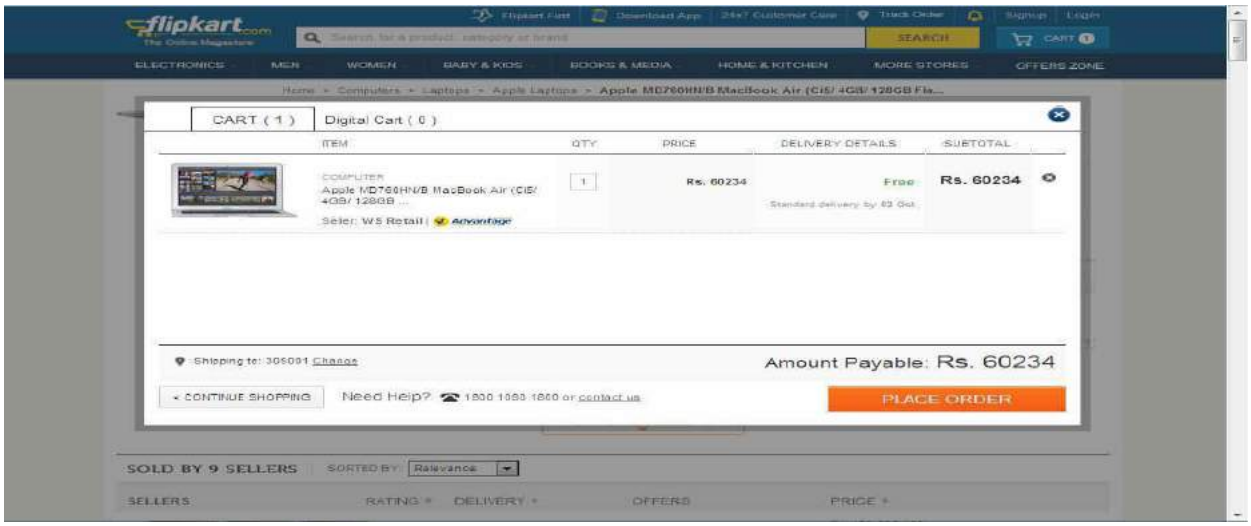

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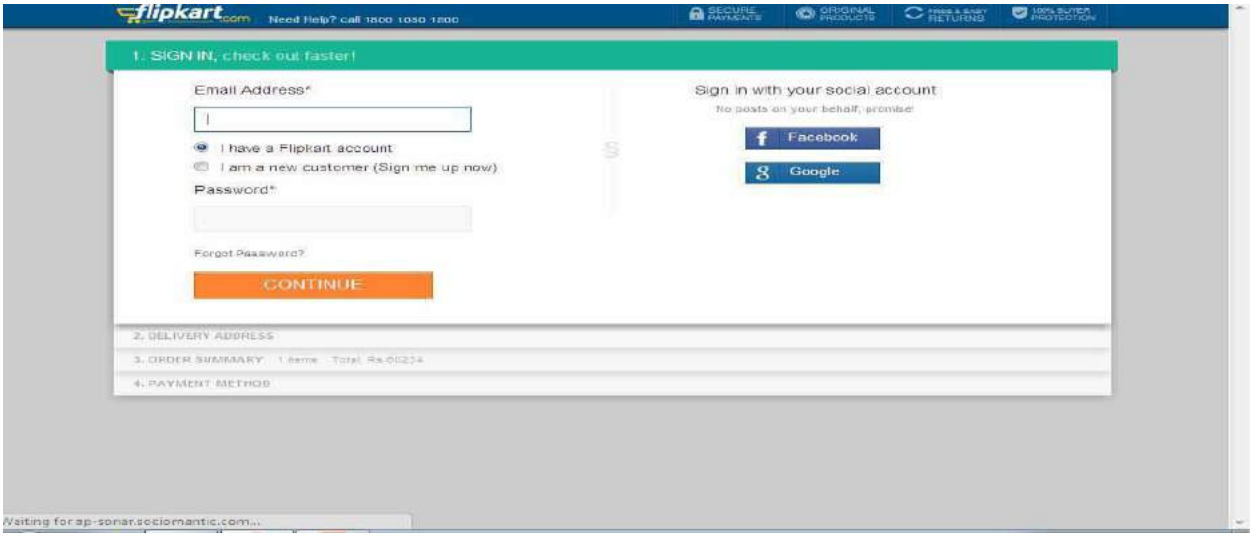

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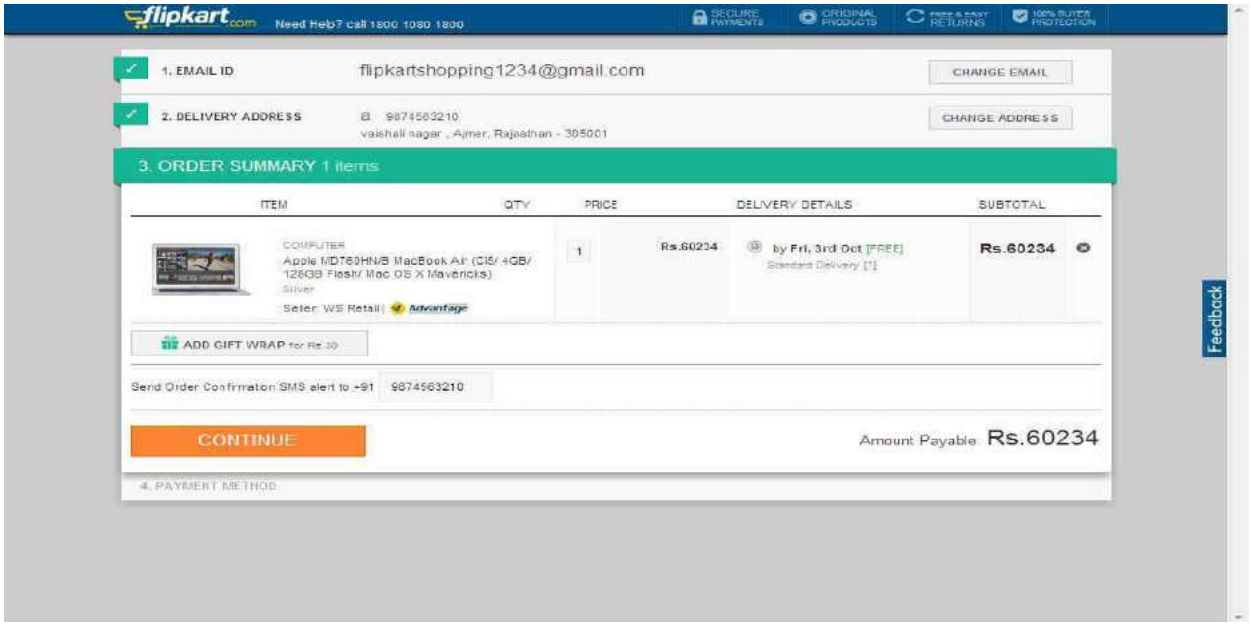

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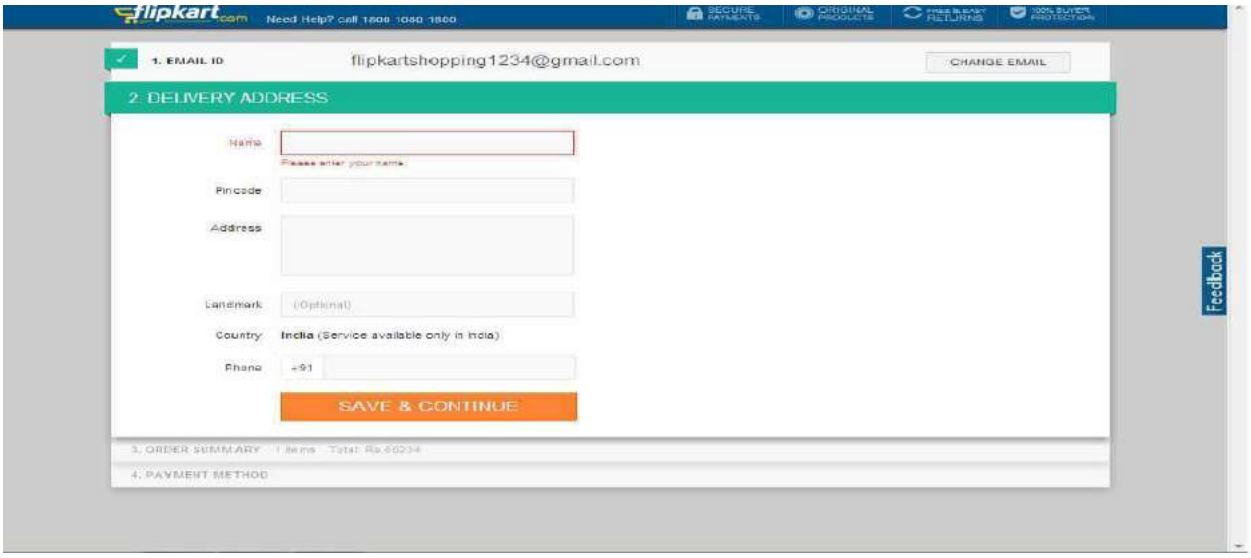

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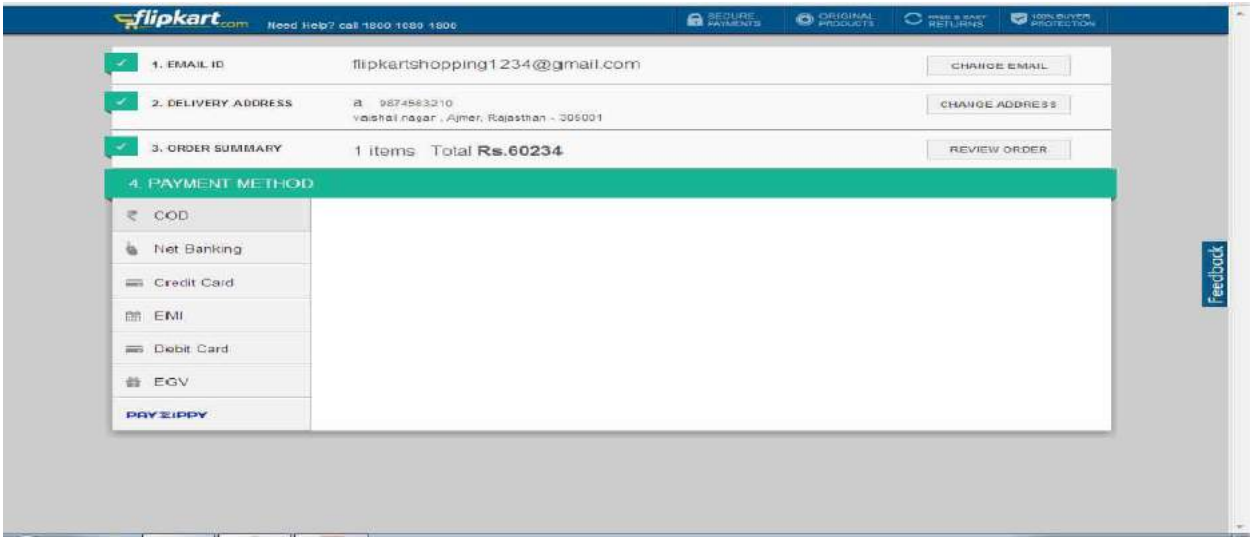

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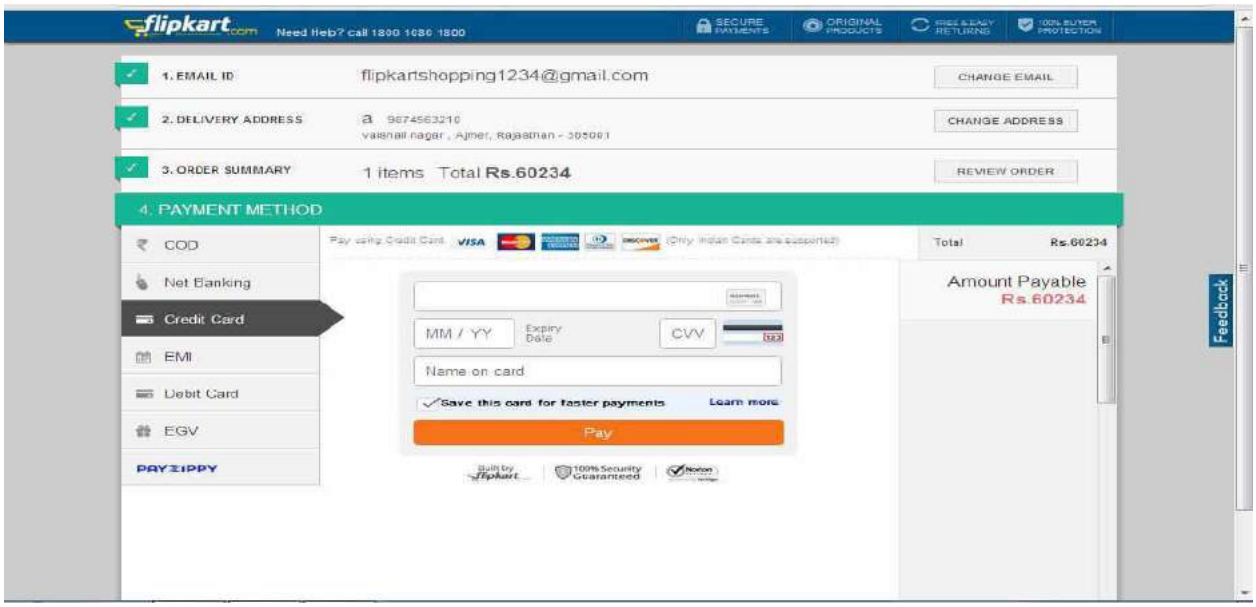

CONCLUSION:

In today's world E-commerce is growing tremendously. Online retail is still a tiny spot in India's retail market of about $500 billion in a year but it is growing in a quick pace. Ethnic Indian clothes and casuals wear are favourite products but the unusual products like pets are being offered on-line. With the huge growth that e-commerce has witness in the recent times analysts. But some also to worn about the risks the space is fraught with only a few way have chances of making it big. They also see consolidations in the sector to going forward.

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