Network Infrastructure of E commerce

Where the web was born

Tim Berners-Lee, a scientist at CERN (**CERN is the European Organization for Nuclear Research**), invented the World Wide Web (WWW) in 1989. The Web was originally conceived and developed to meet the demand for automatic information sharing between scientists working in different universities and institutes all over the world**.**

The basic idea of the WWW was to merge the technologies of personal computers, computer networking and hypertext into a powerful and easy to use global information system.

Mosaic: The Original Browser

By 1992, the Internet had become the most popular network linking researchers and educators at the post-secondary level throughout the world. Researchers at the European Laboratory for Particle Physics, known by its French acronym, CERN, had developed and implemented the World Wide Web, a network-based hypertext system that let users embed Internet addresses in their documents. Users could simply click on these references to connect to the reference location itself. Soon after its release, the Web came to the attention of a programming team at the National Center for Supercomputing Applications (NCSA).

HTML: HyperText Markup Language is the main markup language for creating web pages and other information that can be displayed in a web browser.

HTTP: HTTP (Hypertext Transfer Protocol) is the set of rules for transferring files (text, graphic images, sound, video, and other multimedia files) on the World Wide Web. As soon as a Web user opens their Web browser, the user is indirectly making use of HTTP. HTTP is an application protocol that runs on top of the TCP/IP suite of protocols (the foundation protocols for the Internet).

(**H**yper**T**ext **T**ransfer **P**rotocol) The communications protocol used to connect to Web servers on the Internet or on a local network (intranet). Its primary function is to establish a connection with the server and send HTML pages back to the user's browser. It is also used to download files from the server either to the browser or to any other requesting application that uses HTTP.

Client–server model

The client–server model is an approach to computer network programming developed **at Xerox PARC during the 1970s**. It is now prevalent in computer networks. Email, the World Wide Web, and network printing all apply the client–server model.

The network infrastructure of E-commerce:

Network infrastructure is required for e-commerce to transport content. I-way is a high-capacity, interactive electronic pipeline used to transfer content in case of e-commerce. I-way can transfer any type of context like, text, graphics, audio, video. In other words, multimedia contents are easily transported through I-way.

Components of I-way: - Consumer access equipment. - Local on-ramps, and - Global information distribution networks.

Consumer access equipment are devices used by consumers to access the multimedia interactive contents of e-commerce. In this segment, hardware and software vendors are also included.

Local or access road, or on-ramps: This segment of I-way simplify linkages between businesses, universities, and homes to the communications backbone. There are four different types of provider of access ramps: - telecom-based - cable TV-based - wireless-based and - computer-based online information services. These providers link users and e-commerce application providers.

Global information distribution networks are the infrastructure that is connecting countries and continents.

INFORMATION SUPERHIGHWAY (I-Way)

Any successful E-commerce application will require the I-Way infrastructure in the same way that regular commerce needs the interstate highway network to carry goods from point to point. A myriad of computers, communications networks, and communication software forms the nascent Information Superhighway (I-Way). The I-Way is not a U.S phenomenon but a global one, as reflected by its various labels worldwide. For instance, it is also called the National Information Infrastructure (NII) in the United States, Data-Dori in Japan and Jaring, which is Malay for "net" in Malaysia. The I-Way and yet-to-be developed technologies will be key elements in the business transformation. And while earlier resulted in small

gains in productivity and efficiency, integrating them into the I-Way will fundamentally change the way business is done. These new ideas demand radical changes in the design of the entire business process. I-Way is not one monolithic data highway designed according to long-standing, well-defined rules and regulations based on well-known needs. The I-Way will be a mesh of interconnected data highways of many forms: telephone wires, cable TV wires, radio-based wireless-cellular and satellite. The I-Way is quickly acquiring new on-ramps and even small highway systems.

A network can be defined as:-

- Building block of E-commerce.
- Technologies to integrate Business Process
- Mediator for Digital transmission of Digital
- Content/Message/File/DATA
- The interaction between Entities of business
- like Supplier/Distributor/partner etc…
- A framework with security & ease.

World Wide Web

- Motivation: Developing a global distributed hypermedia system.
- Started 1989 by a research paper issued by Tim Berners-Lee who worked at the CERN.
- 1993: First usable browser (MOSAIC) issued.

- 1994: Foundation of World Wide Web Consortium (W3C).– W3C then started developing HTML, HTTP and Style Sheets.

Internet Technologies

• Distributed Client / Server Architecture

• World Wide Web (WWW, The Web)

• Domain Name System (DNS)

• TCP/IP, Sockets

Client / Server Architecture

• A server acts as a resource manager for a collection of resources of a given type.

• A client performs a task that requires access to some shared hardware and software resources.

• In the client / server model, all resources are held by servers. Clients issue requests whenever they need to access one of the resources.

Examples of Client Server Architecture

- A web server (HTTP ,http) manages a collection of web (HTML) pages.
- A web client (HTTP client, a web browser) requests web pages.

Internet

The Internet is the entirety of all connected computers that use the package of internet protocols at their network systems‘ topmost layer. The collection of

internet protocols implements a packet-oriented Wide Area Network for connecting networks of diverse protocols and different connection characteristics.

WWW

– The World Wide Web (WWW) is a distributed hypermedia system that relies on some of the internet‘s services. Most important are the naming service provided by the Domain Name Service (DNS) and the - quite – reliable connection-oriented transmission service provided by the Transmission Control Protocol (TCP).

Internet Addressing

• Global identification of computers
• Local naming within domains: www.linkedin.com/in/amitom
• Profile.yahoo.com/amitom
• www.yahoo.com
• Mp.nic.in
• structured logically, stable
Non-ambiguous Internet addresses 134.100.11.156
compact, efficient, limited (32 bit).

Connecting to the Internet

• Dial-up Connection: Computers that are serving only as clients need not be connected to the internet permanently. Computers connected to the internet via a dial-up connection usually are assigned a dynamic IP address by their ISP (Internet Service Provider).

• Leased Line Connection: Servers must always be connected to the internet. No dial-up connection via modem is used, but a leased line. Costs vary depending on bandwidth, distance and supplementary services.