Certified E-commerce Professional Sample Material

1. WEB TECHNOLOGY

The Internet is a worldwide system of computers joined by a common set of networking and software protocols. Each computer in this global system of computers has its own unique address - the Internet Protocol (IP) address. Created in 1983, the Internet has grown beyond it's mainly government and academic beginnings into an increasingly commercial and popular medium. By the mid-1990s the Internet connected millions of computers throughout the world.

1.1. Introduction (Hypertext, URL, Domain Name)

The World Wide Web (WWW) is a subset of the Net--a collection of interlinked documents that work together using a specific Internet protocol called Hypertext Transfer Protocol (HTTP). Web pages are written in Hypertext Markup Language (HTML), which tells the Web browser what to display. The significant feature of the Web is its ability to link pages to one another. Just click a link, and you're at a Web site on the other side of the world hence, this moving around by clicking is called as 'Surfing'.

Hypertext

Hypertext is text which contains links to other texts. Linking to objects whether text, pictures, music, programs, and so on can be creatively linked to each other. The hypertext pages are activated by a mouse click, key press sequence or by touching the screen.

URL

Uniform Resource Locator (URL) is the global address of documents and other resources on the World Wide Web. On the web, each web page has the URL which is in the address bar of browser as illustrated

Some key parts to the URL are the protocol, the domain name and the file path.

Protocol - It is usually the "http", followed by "://", though it can be "https", "ftp", or other things. It is the method to get the information from a server. Web pages use the Hypertext Transfer Protocol (HTTP). It is the method how the information is given.

Hostname or Domain Name This is usually everything after "://" but before the next "/", if there is one. It is usually the domain name. A hostname like "www.example.com" can be further broken down into the top-level domain ("com"), the domain name ("example.com"), and the sub domain ("www"). It is also called the host address and can also be a number called an IP address. All computers on Internet have an IP address which is a set of 12 digits separated by a period. A

domain name is converted into IP address for getting the web page by a domain name server (DNS), which has directory of domain names and the corresponding IP addresses.

An organization can register for a domain name, selecting one of the top-level specifications mentioned above that describes it best, and then preceding it with a recognizable version of its name. For example, the ABC Software Systems company will have a domain name like abc.com. From there, it can divide itself into sub domains, extending the organization chart to department levels, or it can just give all of its computers names in the abc.com domain.

File Path – It is anything that appears after the "/" or after the hostname, but before a possible "?". An example would be "games/images/display.html". It can be quite long. It can have a filename ("display.html" in the previous example), or just be one or more directories ("games/images/" in that example). This denotes what file to display at that site. It always begins with a forward slash character and may consist of one or more directory names. It usually correspond to the directory structure of the web site

Every file on the Web has its URL to be accessed by web server and if a file has no URL, the web server will then

- ✓ Look for a default file and return that like index.html.
- ✓ Show a error message saying that the page cannot be found or a 404 message.

Network Protocols

Network protocols are standards that allow computers to communicate. A protocol defines how computers identify one another on a network, the form that the data should take in transit, and how this information is processed once it reaches its final destination.
TCP/IP, IPX, DECnet, AppleTalk, and NetBIOS/NetBEUI are the main types of network protocols.

TCP/IP

TCP stands for Transmission Control Protocol and IP stands for Internet Protocol. The term TCP/IP is not limited just to these two protocols, however. Frequently, the term TCP/IP is used to refer to a group of protocols related to the TCP and IP protocols such as the User Datagram Protocol (UDP), File Transfer Protocol (FTP), Terminal Emulation Protocol (TELNET), and so on. It is used the protocol used on internet.

IP address

Every device on TCP/IP network is given an address which is called IP address, to locate that device on the network. IP address like (192.168.1.1/255.255.255.0) needs to be given and it is a number which is unique on the network. IP address is a set of four numbers from 0 to 255 separated by a dot.

TCP/IP Protocols and Ports

Port – Usually it is thought as a hardware interface on a computer like USB or VGA port but on internet a port is a software construct for different processes using a network connector. Different network protocols use different port numbers. Some common protocols and their ports are

FTP- It is File Transfer Protocol to transfer files between PC. Connect to a FTP server, on port 21 by FTP client software like FileZilla.

SMTP - It is Simple Mail Transfer Protocol to send email. E-mail client software send e-mail to SMTP server on port 25.

HTTP - It is Hypertext Transfer Protocol to give web pages from a web server to web browser on port 80.

POP3 - It is Post Office Protocol Version 3 and used by email clients to get email from a mail server on port 110.

HTTPS - It is Hypertext Transfer Protocol Secure to sends and receives web information like HTTP securely by using Transport Layer Security protocol by port 443.

Configuring TCP/IP

The steps to configure TCP/IP on Windows XP are

- ✓ Go to Start > Control Panel > Network and Internet Connections.
- ✓ Right-click local area connection icon and select properties.
- ✓ Select Internet Protocol and click Properties button.
- ✓ Click 'Obtain an IP Address Automatically' for dynamic IP by a DHCP server else, give IP address manually.

Command-Line Tools

Windows XP has many command-line tools to troubleshoot any network problem.

Ping – It tests physical connectivity of a PC on network by its IP address or Domain name, like ping 192.168.1.1 Notice replies tell if PC is reachable (by giving time in round trip) or not (by 'Request Timed Out' or 'Destination Host Unreachable' message). Longer latency time indicate network congestion.

Tracert – It is short for trace route and shows the IP address of all devices in between encountered in reaching the destination IP address.

1.2. Web Browser and ISP

ISP (Internet Service Provider)

An ISP (Internet Service Provider) is a company which provides internet access to other companies or individuals. An ISP maintains connections to other networks and ISPs, acting as a router for internet traffic between a customer's computer and any other machine also connected to the internet anywhere else in the world.

Internet Connectivity Options

Connection to Internet can be done by dial-up, DSL, decide as per download speeds and wired or wireless.

Dial-Up – It was used extensively earlier. It used a modem which dials to ISP computer when connection is to be made. It used public switched telephone network (PSTN). It was slow and maximum speed of 56 Kbps.

DSL - Digital subscriber line (DSL) has digital data transmissions over phone lines but at high speeds. DSL modem or router connects to the phone line and to the PC's network adapter to share internet. It has speeds of 384 Kbps and upwards. Phone and data transmission takes place simultaneously.

Cellular – It is more popular with widespread use of smart phones and using 3G and 4G.
3G (third-generation telecommunications) – It is on new mobile phones to send data at higher speeds on cellular networks. Data speeds are from 2Mbps to 14Mbps; and for moving devices about 1Mbps. But usually a minimum of 384Kbps is offered. Now laptops with in-built 3G are also coming.

4G (short for fourth generation) – It is in development, and will give a faster and stable solution. Its speed will be 100Mbps to 1Gbps.

802.11 Wireless – It is wireless options for LAN. The 802.11x series of protocols tells the speeds, frequencies, and methods to transmit data over radio waves in small geographic areas using unlicensed spectrums. There are four different 802.11 derivatives 802.11a, 802.11b, 802.11g, and 802.11n. It needs wireless access point (AP) and wireless network adapters which should be compatible.

Web Browser

It is application software, which is used to locate, retrieve and also display content on the World Wide Web, including Web pages, images, video and other files. As a client/server model, the browser is the client run on a computer that contacts the Web server and requests information. The Web server sends the information back to the Web browser which displays the results on the computer or other Internet-enabled device that supports a browser.

Today's browsers are fully-functional software which interpret and display HTML and HTML 5 Web pages, applications, JavaScript, AJAX and other content hosted on Web servers. Many browsers offer plug-ins which extends the capabilities of a browser like the flash plug-in.

Commonly used browsers are Mozilla Firefox from Mozilla Foundation with the latest release is version 21 and Internet Explorer from Microsoft and the latest release is version 11. Other major browsers include Google Chrome, Apple Safari and Opera.

A number of browsers are used to access the Web on a mobile device. These mobile browsers (also called as "Microbrowser") are optimized to display Web content on smaller mobile device screens and to also perform using less computing power and memory capacity compared to a desktop or laptop computers. Mobile browsers are typically "stripped down" versions of Web browsers and offer fewer features in order to run well on mobile devices.

1.3. Upload and download files

Files can be shared from web to users by providing a link to the file for download (like PDF files) or display (like video files). Similarly users can also share their files by 'uploading' their file, to be 'downloaded' by others, as in web based forums.

Uploading to Internet

It is the transferring of files from your local computer to a remote computer, usually a server. Uploading file to internet involves following steps and may differ depending upon the manner in which upload button or upload link is accessed. The steps are to upload file to internet

- ✓ Find the upload link or upload button for the file
- ✓ Click on the link or button
- ✓ Choose the location of the file to upload to.
- ✓ Click upload or start to start the upload

Download from Internet

It is the transferring of files from a remote computer to local computer. Following steps need to be taken to download file from internet

- ✓ Find the download link for the file
- ✓ Ensure that the file is safe and doesn't have viruses or spyware.
- ✓ Click on the link
- ✓ Accept the download notice that will popup near the top of the browser
- ✓ Choose a folder on computer to store the file and the filename to save with.
- ✓ Click save or start to start the download

1.4. Control of Internet

No one really controls the internet. The Internet seems to be both institutional and anti-institutional at the same time, massive and intimate, organized and chaotic. In a sense the Internet is an international cooperative endeavor, with its member networks kicking in money, hardware, maintenance, and technical expertise.