Describe DNS with diagrams and real-time examples.

What information would you use to examine the view of DNS?

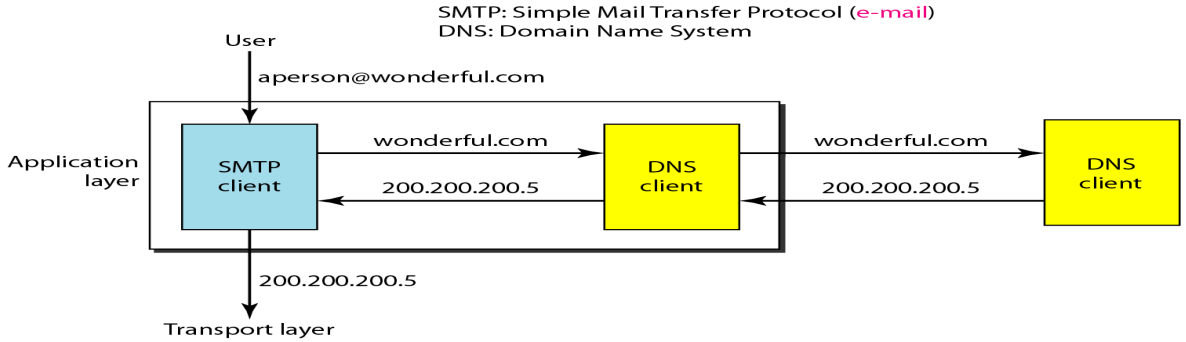
Explain name – address and address – name resolution process.

What is DNS? What are the services provided by DNS and explain how it works.

What is the use of DNS? Explain how it works?

When user clicks a hyperlink, what are the steps that occur between the user's click and the page being displayed?

Domain Name System (DNS) is a supporting program that is used by programs such as E-mail. DNS map a name (E mail address or website name) to an IP address or an IP address to a name.



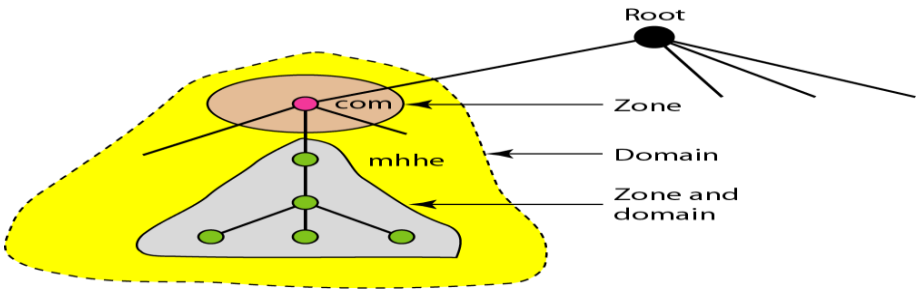
The above figure shows a DNS client/server program can support an E-mail program to find the IP address of an E-mail recipient.

- A user of an E-mail program knows the E-mail address of the recipient but the IP protocol needs the IP address.
- The DNS client program sends a request to a DNS server to map the E-mail address to the corresponding IP address.
- To identify an entity TCP/IP protocols uses the IP address, which uniquely identifies the connection of a host to the Internet. DNS is designed for the purpose of mapping name to address and address to name.

DISTRIBUTION OF NAME SPACE

- The information contained in the domain name space must be stored and distributed among different computers and in different places.
- Distribution of the information among many computers called DNS servers and space is divided into many domains based on the first level. The root stand alone and create as many domains (subtrees). A domain may itself be divided into sub-domains.
- Each server can be authoritative for either a large or a small domain.

Zone is a contiguous part of the entire tree and it defines what a server is responsible for or server has authority over.



Case 1: When Domain is same as Zone.

If a server accepts responsibility for a domain and does not divide the domain into smaller domains, the domain and the zone refer to the same thing. The server makes a database called a zone file and keeps all the information for every node under that domain.

Case 2: When Domain and Zone are different.

If a server divides its domain into subdomains and delegates part of its authority to other servers, domain and zone refer to different things. The information about the nodes in the subdomains is stored in the servers at the lower levels, with the original server keeping some sort of reference to these lower-level servers.

Root Server: A root server is a server whose zone consists of the whole tree. A root server usually does not store any information about domains but delegates its authority to other servers, keeping references to those servers.

DNS defines two types of servers: Primary and Secondary servers.

- **Primary Server** is a server that stores a file about the zone for which it is an authority.
- **Secondary Server** is a server that transfers the complete information about a zone from another server (primary or secondary) and stores the file on its local disk. These secondary servers are used for crash recovery.
- **Zone transfer:** When the secondary server downloads information from the primary server it is called zone transfer.

Name Address Resolution

Mapping a name to an address or an address to a name is called Name-Address Resolution.

Resolver: DNS is designed as a client/server application. A host that needs to map an address to a name or a name to an address calls a DNS client called a **Resolver**.

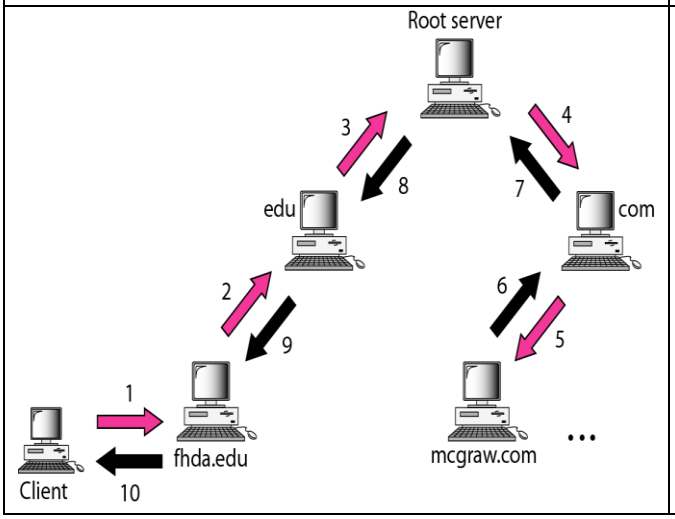
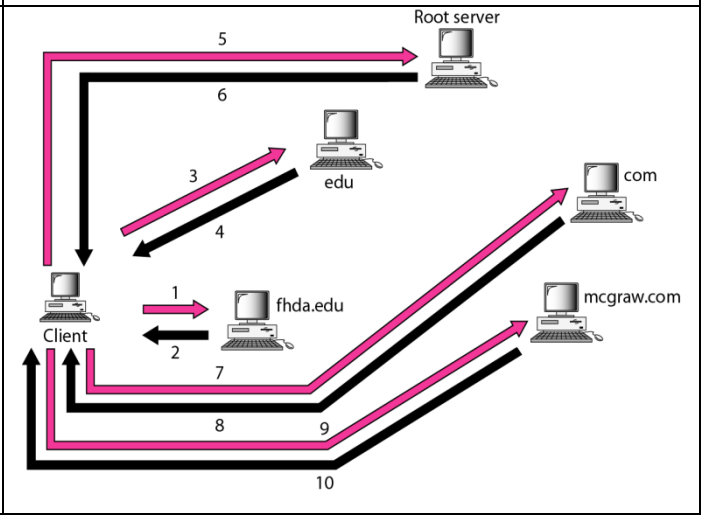
Recursive Resolution

- The client (resolver) can ask for a recursive answer from a name server.
- If the server is the authority for the domain name, it checks its database and responds.
- If the server is not the authority, it sends the request to another server (the parent) and waits for the response. If the parent is the authority, it responds; otherwise, it sends the query to yet another server.
- When the query is finally resolved, the response travels back until it finally reaches the requesting client. This process is called **Recursive Resolution**.

Iterative Resolution

- The client repeats the same query to multiple servers. If the server is an authority for the name, it sends the answer.

- If the server is not an authority it returns the IP address of the server to the client, that the server thinks can resolve the query. The client is responsible for repeating the query to this second server. If that server can resolve the problem, it answers the query with the IP address; otherwise, it also returns the IP address of a new server to the client. This process is called Iterative Resolution.

Recursive Resolution	Iterative Resolution
	

Caching

When a server asks for a mapping from another server and receives the response, it stores this information in its cache memory before sending it to the client.If the client asks for the same mapping, it can check its cache memory and returns the result.

Explain about Dynamic Domain Name System (DDNS)?

In DNS, when there is a change, such as adding a new host, removing a host, or changing an IP address, these change must be made to the DNS master file dynamically (i.e. without manual intervention).

- In DDNS, when a binding between a name and an address is determined the information is sent usually by DHCP to a primary DNS server.
- The primary server updates the zone. The secondary servers are notified either actively or passively.
- In active notification, the primary server sends a message to the secondary servers about the change in the zone, whereas in passive notification the secondary servers periodically check for any changes, then the secondary server requests information about the entire zone (zone transfer).

What is an Electronic mail? Explain the FOUR scenarios of architecture of E-Mail.

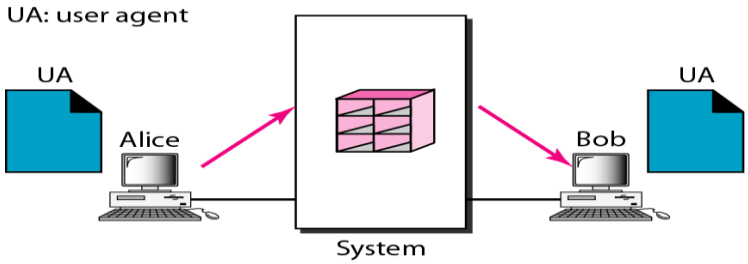
Describe the various parts of e-mail address and show the process of sending and receiving e-mails.

What is electronic mail? Describe in brief about sending and receiving e-mail.

Electronic mail (E-mail) is one of the most popular Internet services. E-mail allows a message to include text, audio, and video. There are Four Scenarios of E-mail:

First Scenario

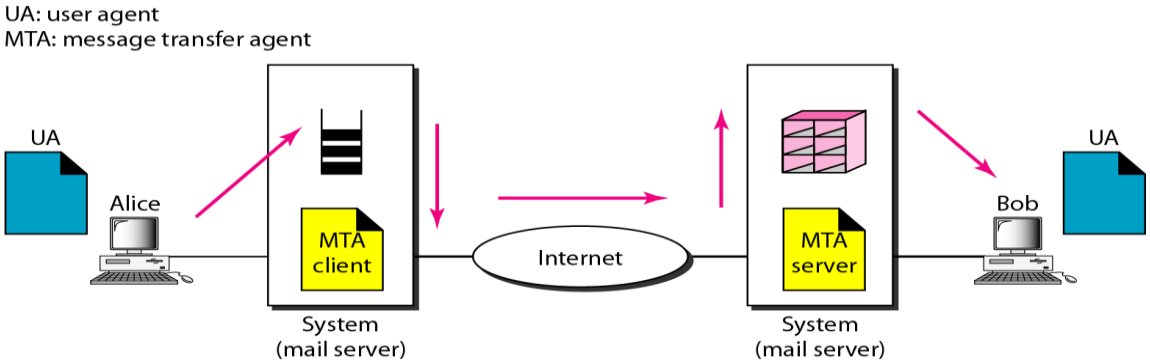
The sender and the receiver of the E-mail are user application programs on the same system. They are directly connected to a shared system.



- When a user Alice needs to send a message to Bob, Alice runs a User Agent (UA) program to prepare the message and store it in Bob's mailbox.
- The message has the sender and recipient mailbox addresses (names of files).
- Bob can retrieve and read the contents of his mailbox using a User Agent.

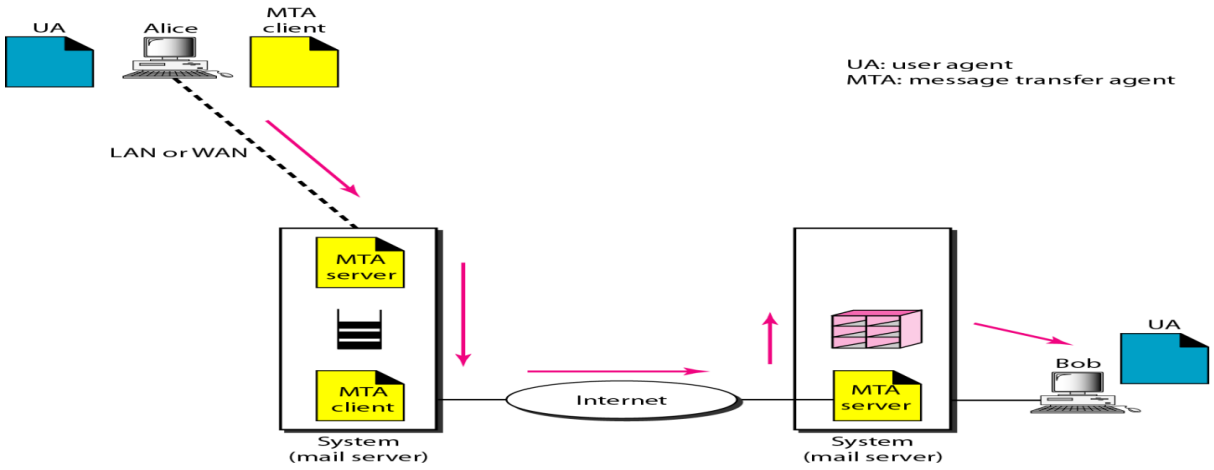
Second Scenario

- In the second scenario, the sender and the receiver of the E-mail are user application programs on two different systems. The message needs to be sent over the Internet.
- We need User Agents (UAs) and Message Transfer Agents (MTA's).



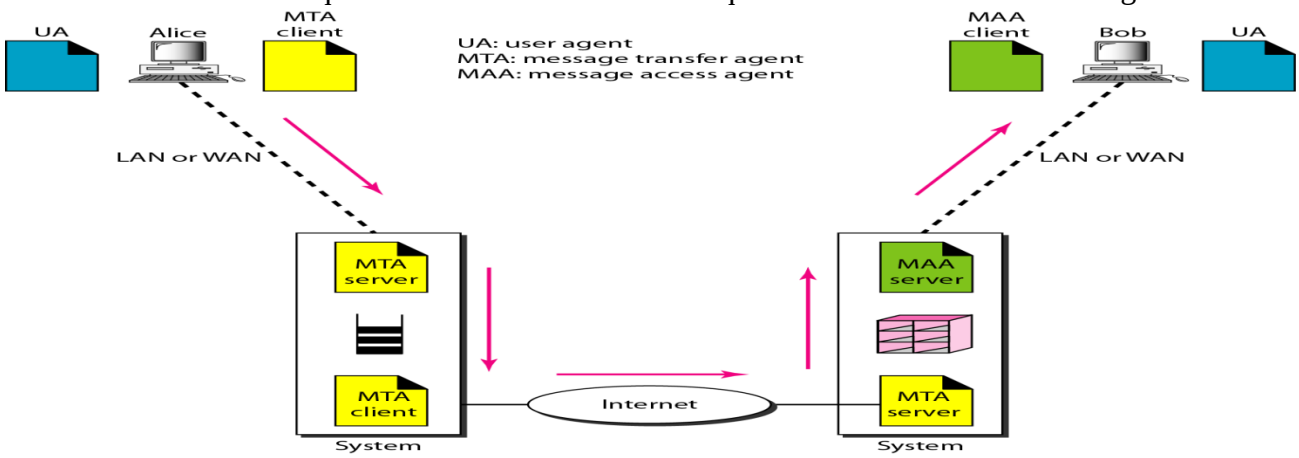
Third Scenario

- In the third scenario, Bob is directly connected to his system (i.e. Mail Server). Alice is separated from her system. Alice is connected to the mail server via WAN or LAN.
- UA of Alice prepares message and sends the message through the LAN or WAN.
- Whenever Alice has a message to send, Alice calls the UA and UA calls the MTA client.
- The MTA client establishes a connection with the MTA server on the system.
- The system at Alice's site queues all messages received. It then uses an MTA client to send the messages to the system at Bob's site. The system receives the message and stores it in Bob's mailbox. Bob uses his user agent to retrieve the message and reads it. It needs two MTA client and two MTA server programs.



Fourth Scenario

- It is the most common scenario, Alice and Bob both are connected to their mail server by a WAN or a LAN.
- After the message has arrived at Bob's mail server, Bob needs to retrieve it. Now Bob needs another set of client/server agents called Message Access Agents (MAA). Bob uses an MAA client to retrieve his messages.
- The client sends a request to the MAA server and requests the transfer of the messages.



Architecture of E-mail

There are three major components in the architecture of E-mail:

1. User Agent
2. Message Transfer Agent
3. Message Access Agent

User Agent

User Agent provides services to the user to make the process of sending and receiving a message easier. Services provided by User agent are:

- **Composing Messages:** A UA helps the user to compose the E-mail message to be sent out.
- **Reading Messages:** The user agent reads the incoming messages.
- **Replying to Messages:** A user agent allows the user to reply to the original sender or to reply to all recipients of the message.
- **Forwarding Messages:** It means sending a message to a third party.

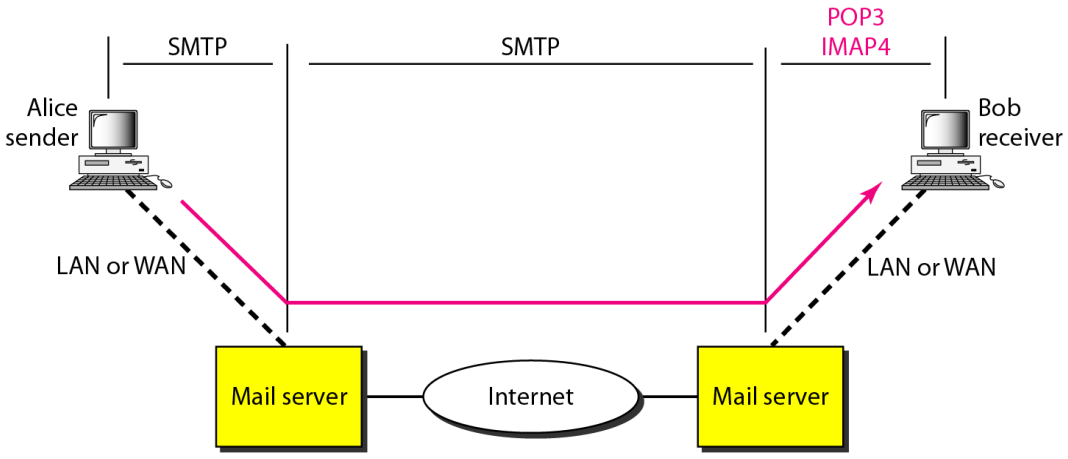
- **Handling Mailboxes:** A user agent normally creates two mailboxes: **Inbox** and **Outbox**. **Inbox** keeps all the received E-mails until they are deleted by the user. **Outbox** keeps all the sent E-mails until the user deletes them.
- **Sending Mail** A user E-mail has an Envelope and a Message. **Envelope** contains the sender and the receiver addresses. **Message** contains the sender, the receiver, the subject of the message, encoding type. Body of the message contains the actual information.
- **Receiving Mail:** If a user has mail, the User Agent informs the user with a notice.
- **Addresses** consists of two parts: a local part and a domain name separated by **@** symbol.
- **Mailing List:** Electronic mail allows one name (an alias) to represent several different E-mail addresses is called a mailing list. Every time a message is to be sent, the system checks the recipient's name against the alias database.

What is electronic mail? Analyze the message format and the message transfer and the underlying protocol involved in the working of the electronic mail.

What is electronic mail? Explain SMTP? Explain the differences between POP3 and IMAP.

Electronic mail (E-mail) is one of the most popular Internet services. E-mail allows a message to include text, audio, and video.

- The actual mail transfer is done through MTA protocol called SMTP. SMTP defines the MTA Client is used to send mail and MTA Server is used to receive a mail.
- SMTP is used two times: Between sender and sender mail server, between sender mail server and receiver mail server.
- SMTP uses commands that are used to send mails from the client to the server. Responses are sent from the server to the client.
- Mail transfer done in 3 phases: Connection Establishment, Mail Transfer, Connection Termination.



Message Access Agent: POP3 and IMAP4

POP3 (Post office Protocol version 3)

- Mail access starts with the client when the user needs to download E-mail from the mailbox on the mail server.

- The client opens a connection to the server on TCP port 110. It then sends its user name and password to access the mailbox. The user can list and retrieve the mail messages one by one.

POP3 has two modes:

- **Delete Mode** The mail is deleted from the mailbox after each retrieval.
- **Keep Mode** The mail remains in the mailbox after retrieval.

Deficiencies of POP3

- POP3 does not allow the user to organize their mail on the server.
- The user cannot have different folders on the server.
- POP3 does not allow user to partially check the contents of the mail before downloading.

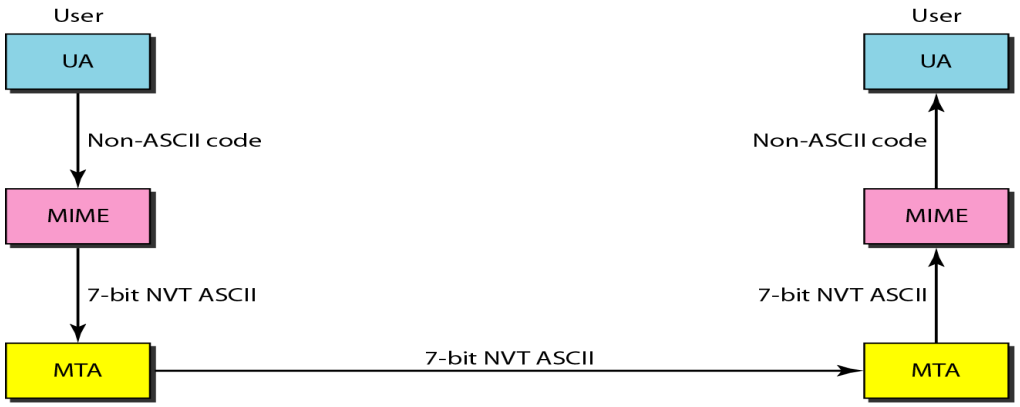
IMAP4 (Internet Mail Access Protocol-version 4)

It is implemented to overcome the deficiencies of POP3. IMAP4 provides the extra functions:

- A user can check the E-mail header prior to downloading.
- A user searches E-mail for a specific string of characters prior to downloading.
- A user can partially download E-mail.
- A user can create, delete, or rename mailboxes on the mail server.
- A user can create a hierarchy of mailboxes in a folder for E-mail storage.

Explain about MIME?

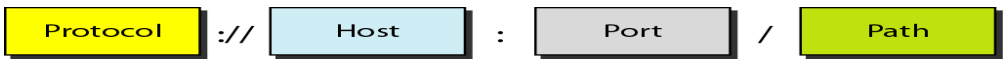
- MIME is a supplementary protocol that allows non-ASCII data to be sent through E-mail.
- French, German, Hebrew, Russian, Chinese, and Japanese are non-ASCII characters.
- MIME transforms non-ASCII data at the sender site to NVT ASCII data and delivers them to the client MTA to be sent through the Internet.
- The message at the receiving side is transformed back to the original data.



Define URL.

A client that wants to access a Web page needs the address. To facilitate the access of documents distributed throughout the world, HTTP uses locators.

URL defines four things: Protocol, Host computer, Port, and Path.



- **Protocol:** FTP or HTTP.
- **Host:** The host is the computer on which the information is located.
- **Port:** The URL can optionally contain the port number of the server.

Path: It is the pathname of the file where the information is located.

Explain the architecture of WWW. Discuss client and server side functionality of this architecture.

What is the architecture of WWW?

World Wide Web (WWW) is a repository of information linked together from locations all over the world.

Architecture

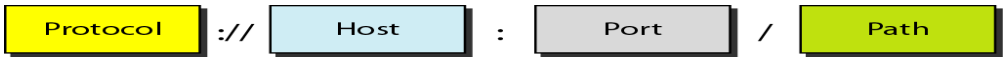
The WWW is a distributed client/server service, in which a client using a browser can access a service using a server. Architecture of WWW contains four parts: **1. Client 2. Server 3. URL 4. Cookies**

Client: It is a Client is a browser that interprets and displays a Web document. Each browser consists of three parts: **Controller (Keyboard, Mouse)**, **Interpreters (HTML, JAVA, JAVASCRIPT)**, and **Client protocol (HTTP, FTP etc).**

The controller receives input from the keyboard or the mouse and uses the client programs to access the document. Interpreters are used to display the document on the screen.

Server: The Web page is stored at the server. Each time a client request arrives, the corresponding document is sent to the client. To improve efficiency, servers normally store requested files in a cache in memory.

Uniform Resource Locator (URL): A client that wants to access a Web page needs the address. To facilitate the access of documents distributed throughout the world, HTTP uses locators. URL defines four things: Protocol, Host computer, Port, and Path.



Cookies: are used to devise the following functionalities:

- Some websites need to allow access to registered clients only.
- Websites are being used as electronic stores (such as Flipkart or Amazon) that allow users to browse through the store, select wanted items, put them in an electronic cart, and pay at the end with a credit card.
- Some websites are used as portals: the user selects the Web pages he wants to see.
- Some websites are just advertising.

WEB DOCUMENTS

Documents in the WWW can be grouped into three categories:

1. **Static Documents: (HTML)** are fixed-content documents that are created and stored in a server. HTML is a language for creating Web pages

2. **Dynamic Documents** are created by a Web server whenever a browser requests the document then the Web server runs an application program that creates the dynamic document. The server returns the output of the program as a response to the browser. Because a fresh document is created for each request, the contents of a dynamic document can vary from one request to another.
   Example: the retrieval of the time and date from a server is a dynamic document.
   Dynamic documents are created by using C, C++, Bourne Shell, Korn Shell, C Shell, Tcl, or Perl, PHP, JSP.
3. **Active Documents:** Applications need a program or a script to be run at the client site. These are called active documents. When a browser requests an active document, the server sends a copy of the document or a script. The document is then run at the client site (browser). Active documents are created by using JAVA (Applets), Javascript,

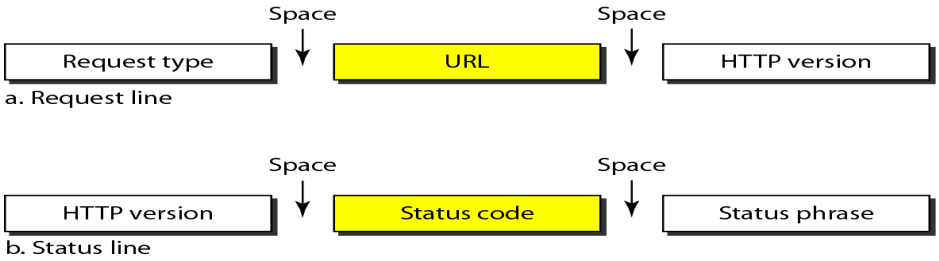
What is the header format of HTTP reply message?

What is HTTP? Describe in brief about HTTP request methods.

The Hypertext Transfer Protocol (HTTP) is a protocol used mainly to access data on the World Wide Web. HTTP uses the services of TCP on well-known port 80.

HTTP Transaction

HTTP is a stateless protocol even though it uses TCP services. The client initializes the transaction by sending a request message consists of a request line, a header, and optional body. The server replies by sending a response consists of a status line, a header, and optional body.



Request type is categorized into methods.

Methods	Action
GET	Requests a document from the server
POST	Sends some information from the client to the server
PUT	Sends a document from the server to the client

URL: By using URL, clients can access the webpage.

Version The most current version of HTTP is 1.1.

Status code is used in the response message. It consists of 3-digits. 100, 200, 300, 400, 500.

Status phrase: It explains the status code in text form, it is used in the response message.

Status Code	Status phrase	Description
400	400- Bad request, 404- Not found,	Error at client side
500	500- Internal server error 503-Service unavailable	Error at server side

Header

The header exchanges additional information between the client and the server. The header can consist of one or more header lines. A Header line can be divided into 4 categories

1. **General header** gives general information about the message such as Date, MIME version.
2. **Request header** specifies the client's configuration and the client's preferred document format.
3. **Response header** specifies the server's configuration and special information about the request.
4. **Entity header** gives information about the body of the document.

Body can be present in a request or response message. Body contains the document to be sent or received.

HTTP Connections are categorized in to 2 types: 1. Non persistent 2. Persistent connection.

- **Non-persistent connection:** Versions before 1.1 use Non-persistent method as the default connection. In this connection, one TCP connection is made for each request/response, (i.e.) for N different pictures in different files, the connection must be opened and closed N times. The Non-persistent strategy imposes high overhead on the server because the server needs N different buffers
- **Persistent Connection** is the default in HTTP version 1.1. In this connection, the server leaves the connection open for more requests after sending a response. Server can close the connection at the request of a client or if a time-out has been reached.

Proxy Server

HTTP supports Proxy Servers. A Proxy server is a computer that keeps copies of responses to recent requests.

- The HTTP client sends a request to the proxy server. The proxy server checks its cache.
- If the response is not stored in the cache, the proxy server sends the request to the corresponding server.
- Incoming responses are sent to the proxy server and stored for future requests from other clients.
- Proxy server reduces the load on the original server, decreases traffic and improves latency.
- To use the proxy server, the client must be configured to access the proxy instead of the target server.

Define SNMP protocol.

Explain the operation of SNMP protocol in detail.

What is SNMP? Briefly discuss the SNMP model components.

SNMP is a framework for managing devices in the internet using the TCP/IP protocol suite. It provides a set of fundamental operations for monitoring and maintaining an internet.

- SNMP is an application level protocol that uses the concept of Manager and Agent.
- A manager controls and monitors a set of agents. A manager may be a host that runs SNMP client program and an Agent may be a router or a host that runs the SNMP server program.
- SNMP can monitor devices made by different manufacturers and installed on different physical networks.

Management with SNMP is based on three basic ideas:

1. A manager checks an agent by requesting information that reflects the behavior of the agent.
2. A manager forces an agent to perform a task by resetting values in the agent database.
3. An agent contributes to the management process by sending warning message to the manager of an unusual situation. The warning message is called the trap.

SNMP uses two other protocols to do management tasks: SMI & MIB

Structure of Management Information (SMIv2) is a component for network management. SMI requires that each managed object (such as a router, a variable in a router, a value) have a unique name. SMI uses an object identifier based on a tree structure starts with an unnamed root. Example: **iso.org.dod.internet.mgmt.mib-2 → 1.3.6.1.2.1**

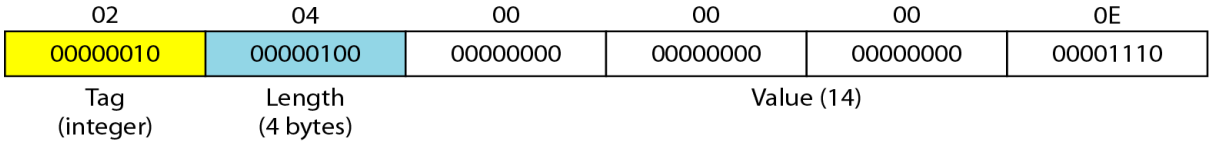
SMI Types: SMI has two broad categories of data type: Simple type and Structured type.

Simple data types are Integer32, Octet String, IP address etc.

Structured Type are of two types: Sequence(struct used in C programming) and Sequence of (an array used in C-programming).

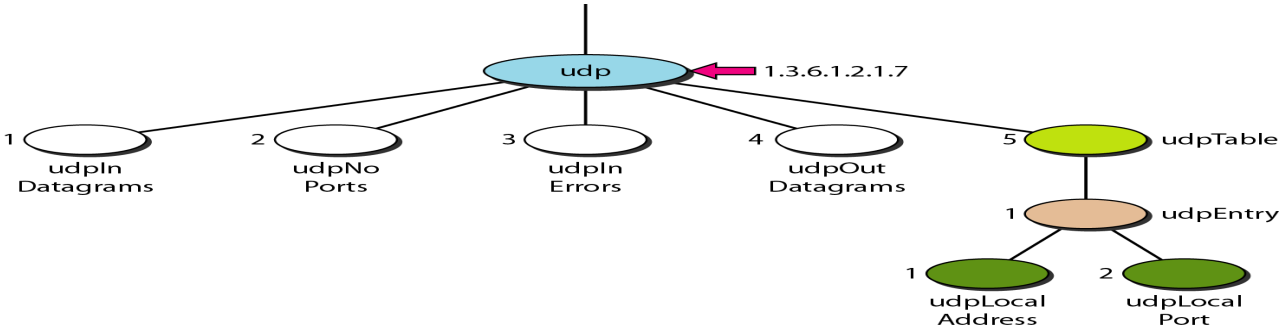
Encoding Method

SMI uses another standard Basic Encoding Rules (BER) to encode data to be transmitted over the network. **Example:** Define INTEGER 14.



Management Information Base (MIB2) is the second component used in network management. It creates a collection of named objects, their types and their relationships to each other in an entity to be managed.

Accessing MIB Variables



udpInDatagrams → 1.3.6.1.2.1.7.1
udpNoPorts → 1.3.6.1.2.1.7.2
udpInErrors → 1.3.6.1.2.1.7.3

udpOutDatagrams → 1.3.6.1.2.1.7.4

An instance suffix "**0**" should be added to show the instance of each variable.

udpInDatagrams.0 → 1.3.6.1.2.1.7.1.0
udpNoPorts.0 → 1.3.6.1.2.1.7.2.0
udpInErrors.0 → 1.3.6.1.2.1.7.3.0
udpOutDatagrams.0 → 1.3.6.1.2.1.7.4.0

To access the table, we have to define the table entries.

udpTable → 1.3.6.1.2.1.7.5
udpEntry → 1.3.6.1.2.1.7.5.1

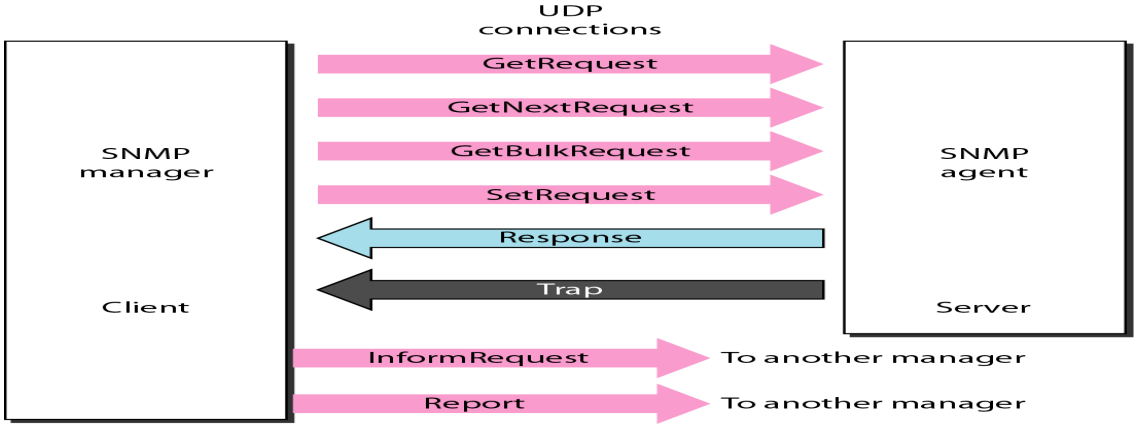
To access the entry we need to define each entity (field) in the entry.

udpLocalAddress → 1.3.6.1.2.1.7.5.1.1
udpLocalPort → 1.3.6.1.2.1.7.5.1.2

- To access a specific instance (row) of the table, we add the index to the above ids.
  udpLocalAddress.181.23.45.14.23 → 1.3.6.1.2.7.5.1.1.181.23.45.14.23
- The object identifiers follow in lexicographic order. The lexicographic ordering enables a manager to access a set of variables one after another by defining the first variable.

Explain various packet Exchange methods in SNMP?

SNMP defines the format of packets exchanged between a manager and an agent. SNMP interprets the result and creates statistics. The packets exchanged contain the object (variable) names and their status (values). SNMP is responsible for reading and changing these values. SNMP uses both SMI and MIB in Internet network management. SNMPv3 defines eight types of packets or PDUs.



1. **GetRequest** PDU is to retrieve the value of a variable or a set of variables.
2. **GetNextRequest** PDU is used to retrieve the values of the entries in a table.
3. **GetBulkRequest** PDU is to retrieve a large amount of data.
4. **SetRequest** PDU is to set (store) a value in a variable.
5. **Response** PDU is in response to GetRequest or GetNextRequest.
6. **Trap** PDU is sent from the agent to the manager to report an event.
7. **InformRequest** PDU is sent from one manager to another remote manager to get the value of some variables from agents under the control of the remote manager. The remote manager responds with a Response PDU.
8. **Report** PDU is designed to report some types of errors between managers.

Write short note on Audio compression?

It can be used for speech or music. Two techniques are used for audio compression:

1. **Predictive Encoding:** The differences between the samples are encoded instead of encoding all the sampled values. This type of compression is used for speech.
2. **Perceptual Encoding:** MP3(MPEG audio layer 3) uses this standard. MP3 uses these two phenomena, frequency and temporal masking, to compress audio signals.

Write Short notes on Video Compression?

We can compress video by first compressing images. Two standards are used: JPEG, MPEG

JPEG: Image Compression

The picture is Gray Scale each pixel can be represented by an 8-bit integer (256 levels). If the picture is in color, each pixel can be represented by 24 bits (3 x 8 bits RBG). In JPEG, a gray scale picture is divided into blocks of 8 x 8 pixels. JPEG is to change the picture into a linear (vector) set of numbers that reveals the redundancies. The redundancies can then be removed by using text compression methods.

MPEG

MPEG is used to compress video. A video consists of a sequence of frames. If the frames are displayed on the screen fast enough, we get an impression of motion. Each frame is divided into pixels. The spatial compression of each frame is done with JPEG. In temporal compression, redundant frames are removed. When we watch television, we receive 50 frames per second. However, most of the consecutive frames are almost the same.

Example: When someone is talking, most of the frame is the same as the previous one except for the segment of the frame around the lips, which changes from one frame to another.

Describe the four approaches in Stored Audio Video?

There are four approaches in Streaming Stored Audio/Video

First Approach: Using a Web Server

- A compressed audio/video file can be downloaded as a text file.

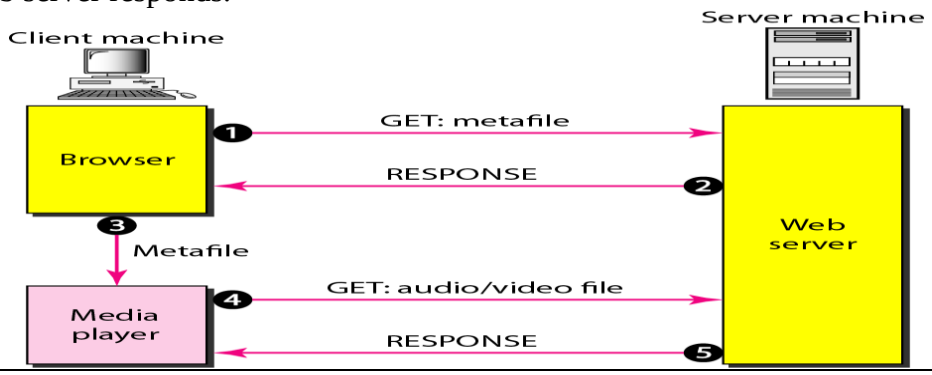
- The client (browser) can use the services of HTTP and send a GET message to download the file.
- The Web server can send the compressed file to the browser. The browser can then use a media player to play the file. This approach does not involve streaming.

Drawback: The file needs to download completely before it can be played. The user needs to wait some time before the file can be played.

Second Approach: Using a Web Server with Metafile

The media player is directly connected to the Web server for downloading the audio/video file. The Web server stores two files: the actual audio/video file and a metafile that holds information about the audio/video file.

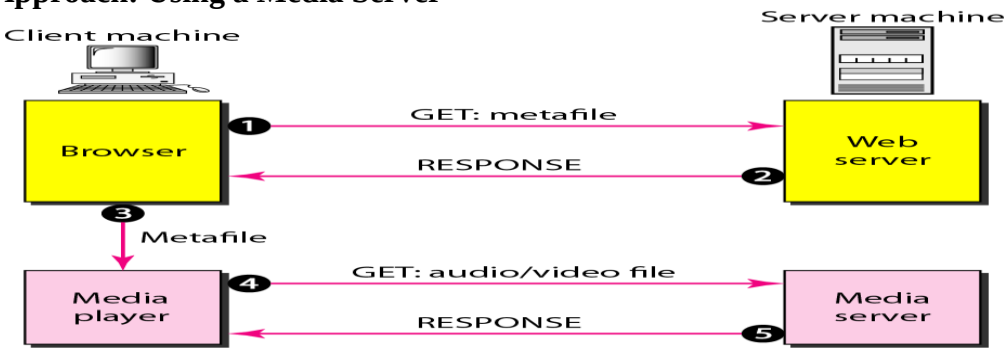
1. The HTTP client accesses the Web server by using the GET message.
2. The information about the metafile comes in the response.
3. The metafile is passed to the media player.
4. The media player uses the URL in the metafile to access the audio/video file.
5. The Web server responds.



Problem: The browser and the media player both use the services of HTIP. HTIP is designed to run over TCP. This is appropriate for retrieving the metafile, but not for retrieving the audio/video file.The reason is that TCP retransmits a lost or damaged segment, which is counter to the philosophy of streaming. We need to dismiss TCP and its error control and need to use UDP.

Solution: HTTP accesses the Web server and the Web server itself are designed for TCP. So we need another server called a media server.

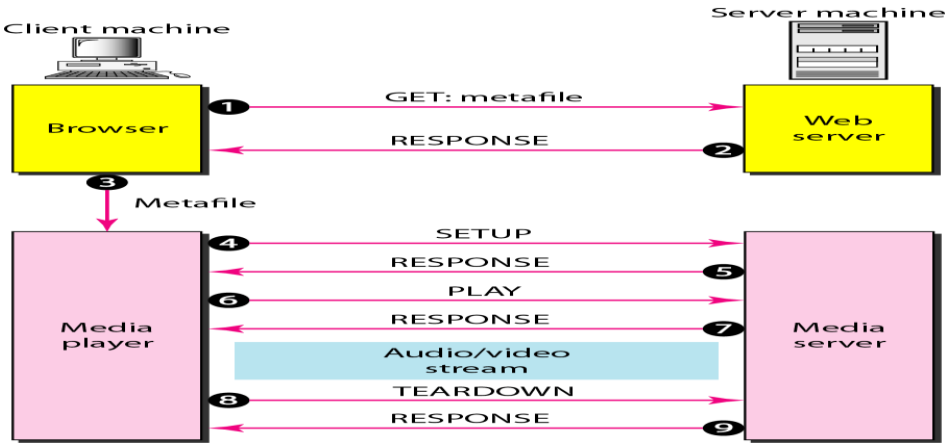
Third Approach: Using a Media Server



1. The HTTP client accesses the Web server by using a GET message.
2. The information about the metafile comes in the response.
3. The metafile is passed to the media player.
4. The media player uses the URL in the metafile to access the media server to download the file. Downloading can take place by any protocol that uses UDP.
5. The media server responds.

Fourth Approach: Using a Media Server and RTSP

The Real-Time Streaming Protocol (RTSP) is a control protocol designed to controls the playing of audio/video.



1. The HTTP client accesses the Web server by using a GET message.
2. The information about the metafile comes in the response.
3. The metafile is passed to the media player.
4. The media player sends a SETUP message to create a connection with the media server.
5. The media server responds.
6. The media player sends a PLAY message to start playing (downloading).
7. The audio/video file is downloaded by using another protocol that runs over UDP.
8. The connection is broken by using the TEARDOWN message.
9. The media server responds.

Write short notes on Real-Time Interactive Audio/Video?

People communicate with one another in real time. Characteristics are:

- **Time Relationship:** Real-time data on a packet-switched network require the preservation of the time relationship between packets of a session.
- **Timestamp:** If each packet has a timestamp that shows the time it was produced relative to the previous packet, then the receiver can add this time to the time at which it starts the playback.
- **Playback Buffer:** To be able to separate the arrival time from the playback time, we need a buffer to store the data until they are played back.
- **Ordering:** Every packet in Real time traffic will have a sequence number. These are used for ordering the packets at the receiver.
- **Multicasting:** In audio and video conferencing, the traffic is heavy and the data are distributed by using multicasting methods.
- **Translation:** A translator is a computer that can change the format of a high-bandwidth video signal to a lower-quality narrow-bandwidth signal.
- **Mixing:** To converge the traffic from multiple streams to one stream, data from different sources can be mixed.
- **Support from Transport Layer Protocol:** Along with UDP, the two other supporting protocols RTP and RTCP are used.

Define HTML? Discuss in brief about Common HTML Tags.

List out different types of HTML Tags.

Hypertext Markup Language (HTML) is a language for creating Web pages. Data for a Web page are formatted for interpretation by a browser. HTML allows us to embed formatting instructions in the file itself. The instructions are included with the text.

A Web page is made up of two parts: **Head** and **Body.**
Head: The head is the first part of a Web page. The head contains the title of the page and other parameters that the browser will use.

Body: The actual contents of a page are in the body, which includes the text and the tags. The text is the actual information contained in a page. The tags define the appearance of the document.

HTML Tags

- Every HTML tag is a name followed by an optional list of attributes enclosed between less-than and greater-than symbols (< and >).
- An attribute is followed by an equals sign and the value of the attribute.
- The browser makes a decision about the structure of the text based on the tags, which are embedded into the text.

a. Beginning tag

b. Ending tag

The common tags used in HTML are : **Bold, Italic, Underline** the text.

- The two **Bold** face tags **<B>** and **</B>** are instructions for the browser.
- The two **Italic** tags **<I>** and **</I>** make the text italic
- The two **Underline** tags **<U>** and **</U>** put underline below the text.
- ALIGN defines the alignment of the image

  <IMG SRC=”/bin/images/image1.gif” ALIGN=MIDDLE>
- Hyperlink tag is needed to link documents together. Any item such as word, phrase, paragraph or image can refer to another document through a mechanism called an **anchor**.
- The anchor is defined by <A ... > and </A> tags and the anchored item uses the URL to refer to another document.

  <A HREF= http://www/deanza.edu/forouzan> Author </A>