

Computer Network

Lecture-47

Dharmendra Kumar (Associate Professor)

Department of Computer Science and Engineering

United College of Engineering and Research,

Prayagraj

ELECTRONIC MAIL

- E-mail is defined as the transmission of messages on the Internet.
- It is one of the most commonly used features over communications networks that may contain text, files, images, or other attachments.
- Email messages are conveyed through email servers; it uses multiple protocols within the TCP/IP suite.
- For example, SMTP is a protocol, stands for simple mail transfer protocol and used to send messages whereas other protocols IMAP or POP are used to retrieve messages from a mail server.

ELECTRONIC MAIL

User Agent

- The first component of an electronic mail system is the user agent (VA). It provides service to the user to make the process of sending and receiving a message easier.
- A user agent is a software package (program) that composes, reads, replies to, and forwards messages. It also handles mailboxes.

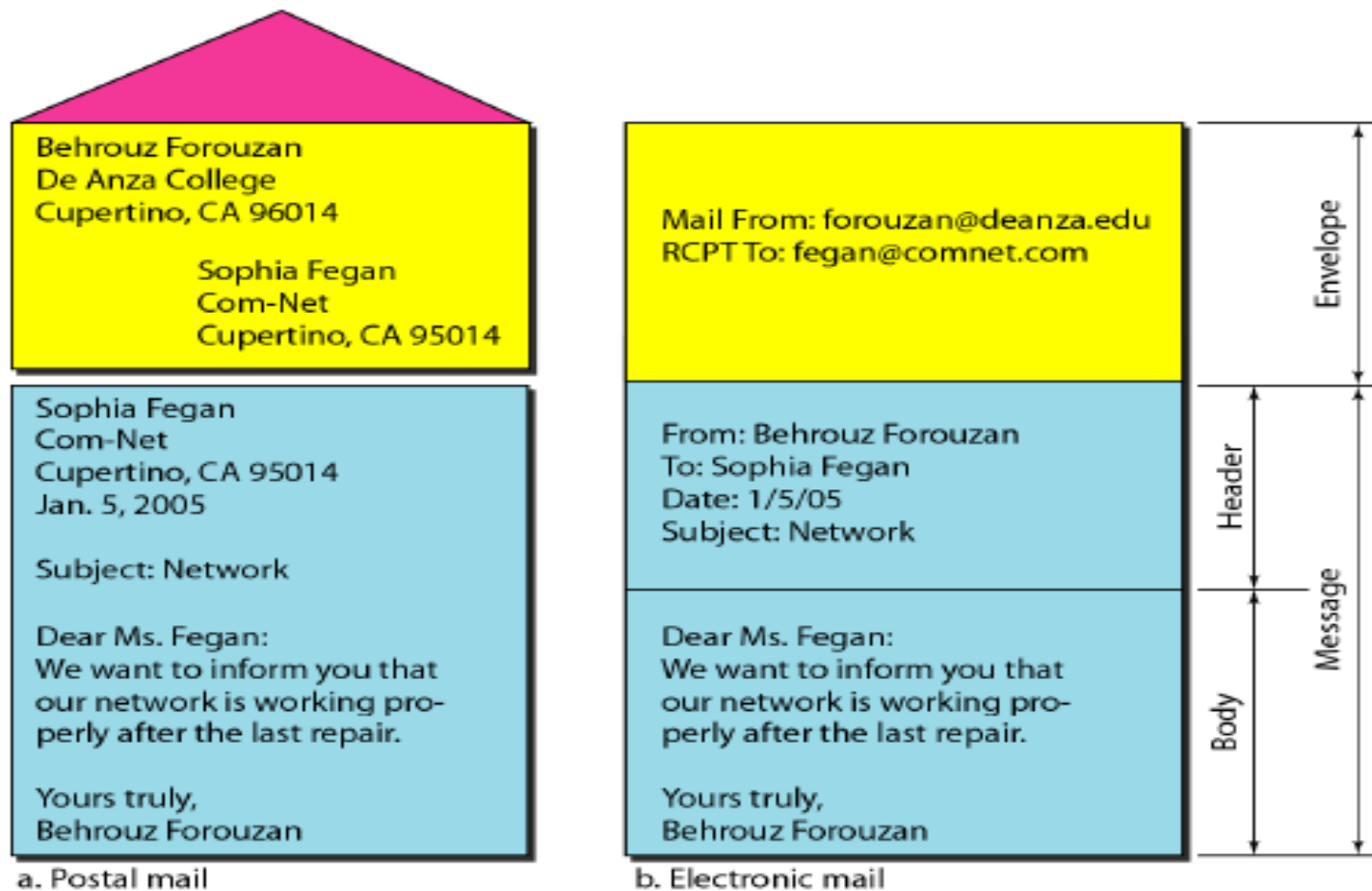
User Agent Types

There are two types of user agents: **command-driven** and **GUI-based**

ELECTRONIC MAIL

Sending Mail

To send mail, the user, through the UA, creates mail that looks very similar to postal mail. It has an envelope and a message.



ELECTRONIC MAIL

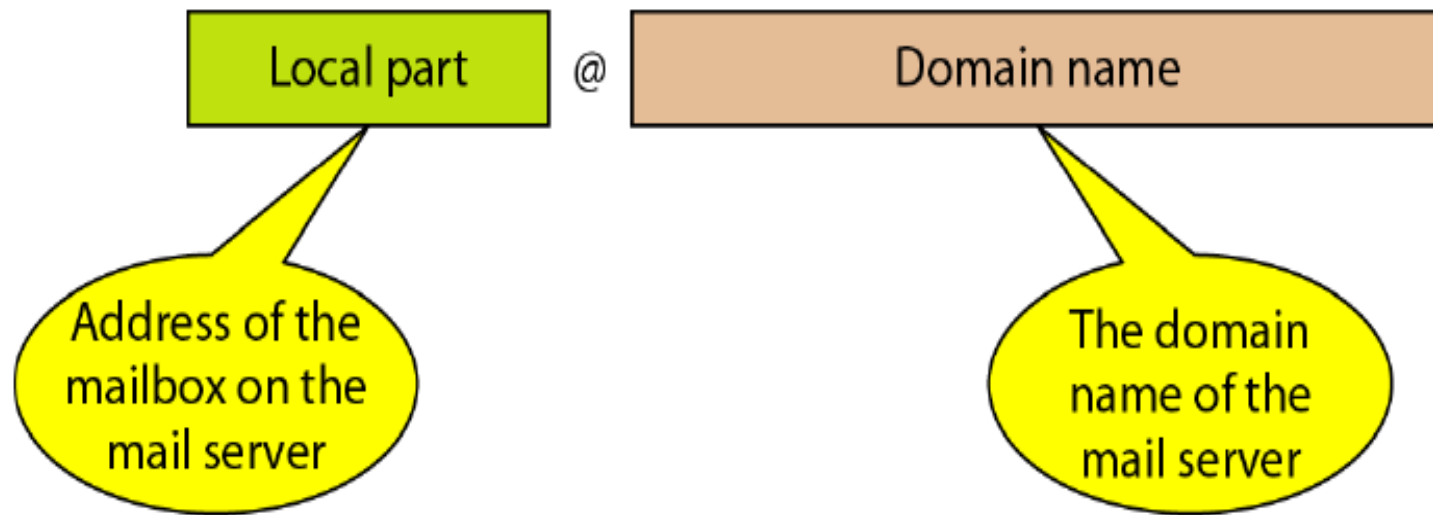
Receiving Mail

- The user agent is triggered by the user (or a timer). If a user has mail, the UA informs the user with a notice.
- If the user is ready to read the mail, a list is displayed in which each line contains a summary of the information about a particular message in the mailbox.
- The summary usually includes the sender mail address, the subject, and the time the mail was sent or received. The user can select any of the messages and display its contents on the screen.

ELECTRONIC MAIL

Addresses

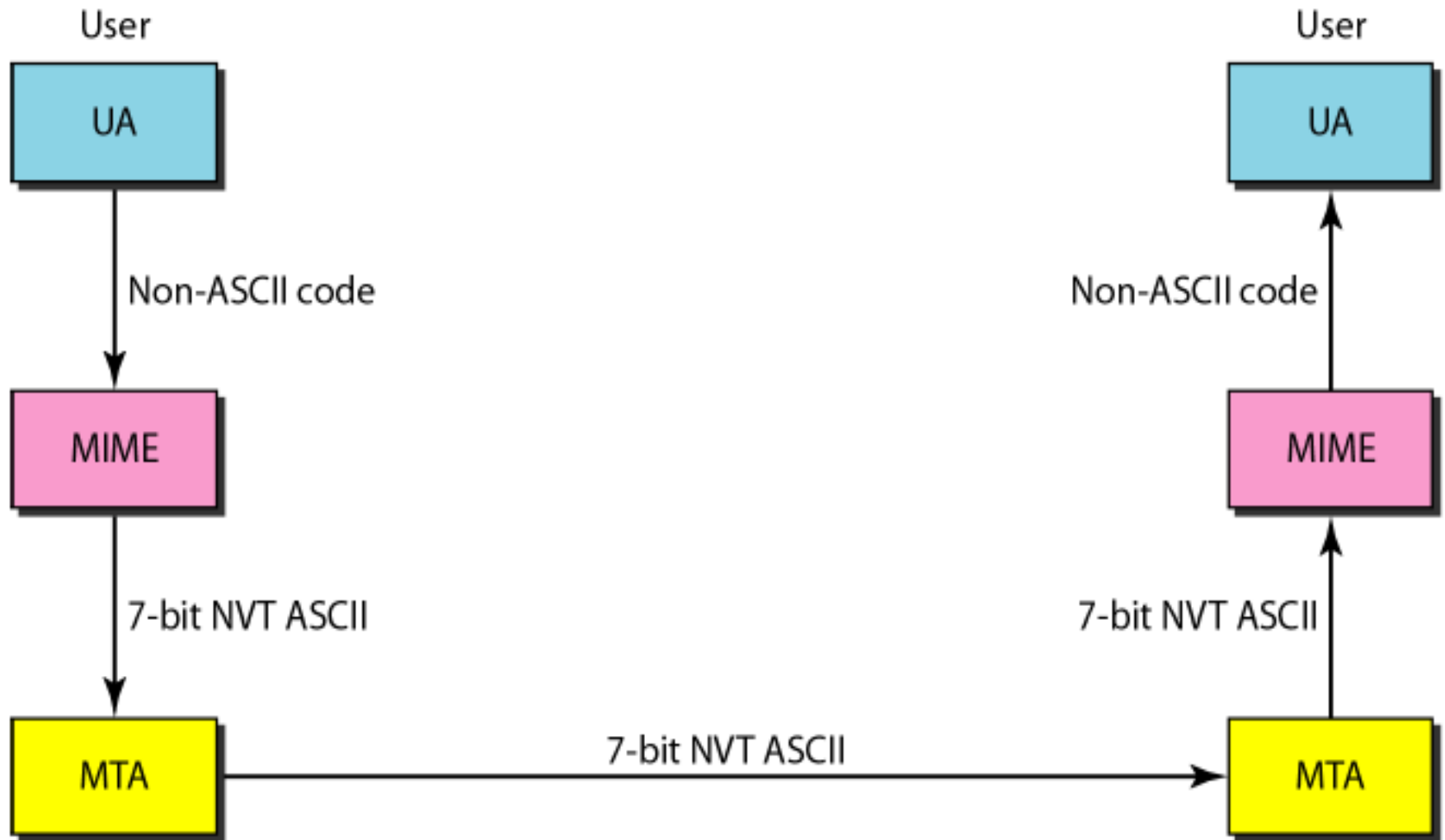
To deliver mail, a mail handling system must use an addressing system with unique addresses. In the Internet, the address consists of two parts: a local part and a domain name, separated by an @ sign.



MIME

- Multipurpose Internet Mail Extensions (MIME) is a supplementary protocol that allows non-ASCII data to be sent through e-mail.
- 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.

MIME



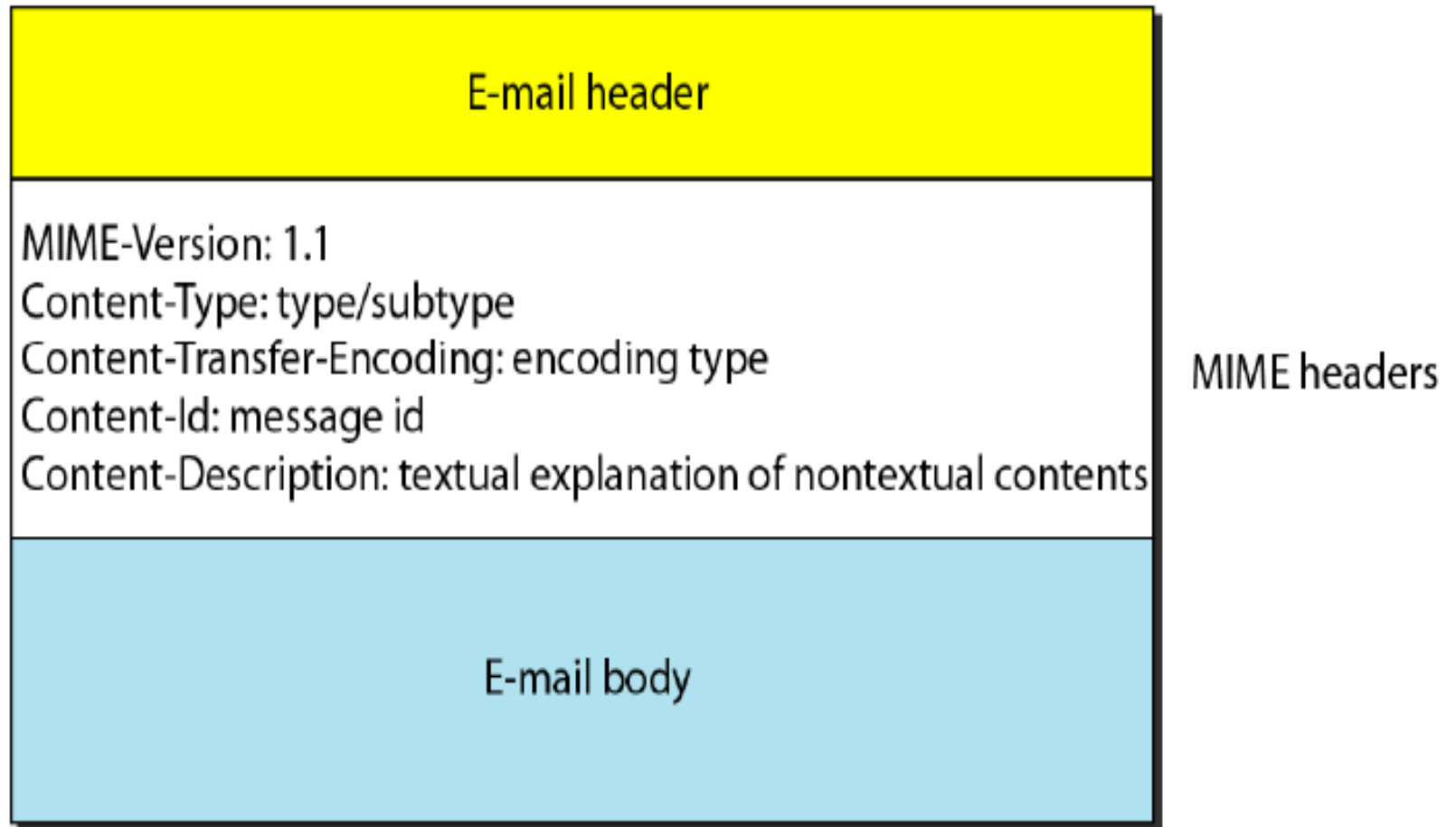
MIME

MIME defines five headers that can be added to the original e-mail header section to define the transformation parameters:

1. MIME-Version
2. Content-Type
3. Content-Transfer-Encoding
4. Content-Id
5. Content-Description

MIME

Following figure shows the MIME headers:-



MIME

MIME-Version

This header defines the version of MIME used. The current version is 1.1.

Content-Type

This header defines the type of data used in the body of the message. The content type and the content subtype are separated by a slash. Depending on the subtype, the header may contain other parameters.

Content-Type: <type/subtype; parameters> .

MIME allows seven different types of data.

MIME

Content-type

<i>Type</i>	<i>Subtype</i>	<i>Description</i>
Text	Plain	Unformatted
	HTML	HTML format (see Chapter 27)
Multipart	Mixed	Body contains ordered parts of different data types
	Parallel	Same as above, but no order
	Digest	Similar to mixed subtypes, but the default is message/RFC822
	Alternative	Parts are different versions of the same message
Message	RFC822	Body is an encapsulated message
	Partial	Body is a fragment of a bigger message
	External-Body	Body is a reference to another message
Image	JPEG	Image is in JPEG format
	GIF	Image is in GIF format
Video	MPEG	Video is in MPEG format
Audio	Basic	Single-channel encoding of voice at 8 kHz
Application	PostScript	Adobe PostScript
	Octet-stream	General binary data (8-bit bytes)

MIME

Content-Transfer-Encoding

This header defines the method used to encode the messages into 0's and 1's for transport:

Content-Transfer-Encoding: <type>

The five types of encoding methods are listed in the following table:-

<i>Type</i>	<i>Description</i>
7-bit	NVT ASCII characters and short lines
8-bit	Non-ASCII characters and short lines
Binary	Non-ASCII characters with unlimited-length lines
Base-64	6-bit blocks of data encoded into 8-bit ASCII characters
Quoted-printable	Non-ASCII characters encoded as an equals sign followed by an ASCII code

MIME

Content-Id

This header uniquely identifies the whole message in a multiple-message environment.

Content-Id: id=<content-id>

Content-Description

This header defines whether the body is image, audio, or video.

Content-Description: <description>