

E-Mail

E-Mail is a communication method that uses electronic devices to deliver messages across computer network.

Types of E-Mail:

Types of emails include formal and informal emails. Formal emails use standard English and address those you don't know well. Informal emails are more casual and are used to address someone you know well.

Basics of Email:

1. An email address: This is a unique identifier for each user, typically in the format of name@domain.com.

The address consists of two parts:

- Local part
- Domain Name

Local Part

It is used to define the name of the special file, which is commonly called a user mailbox; it is the place where all the mails received for the user is stored for retrieval by the Message Access Agent.

Domain Name

It is the second part of the address is Domain Name.

2. An email client: This is a software program used to send, receive and manage emails, such as Gmail, Outlook, or Apple Mail.
3. An email server: This is a computer system responsible for storing and forwarding emails to their intended recipients.

Structure of Email

The message mainly consists of two parts:

1.Header

2.Body

Header

The header part of the email generally contains the sender's address as well as the receiver's address and the subject of the message.

Body

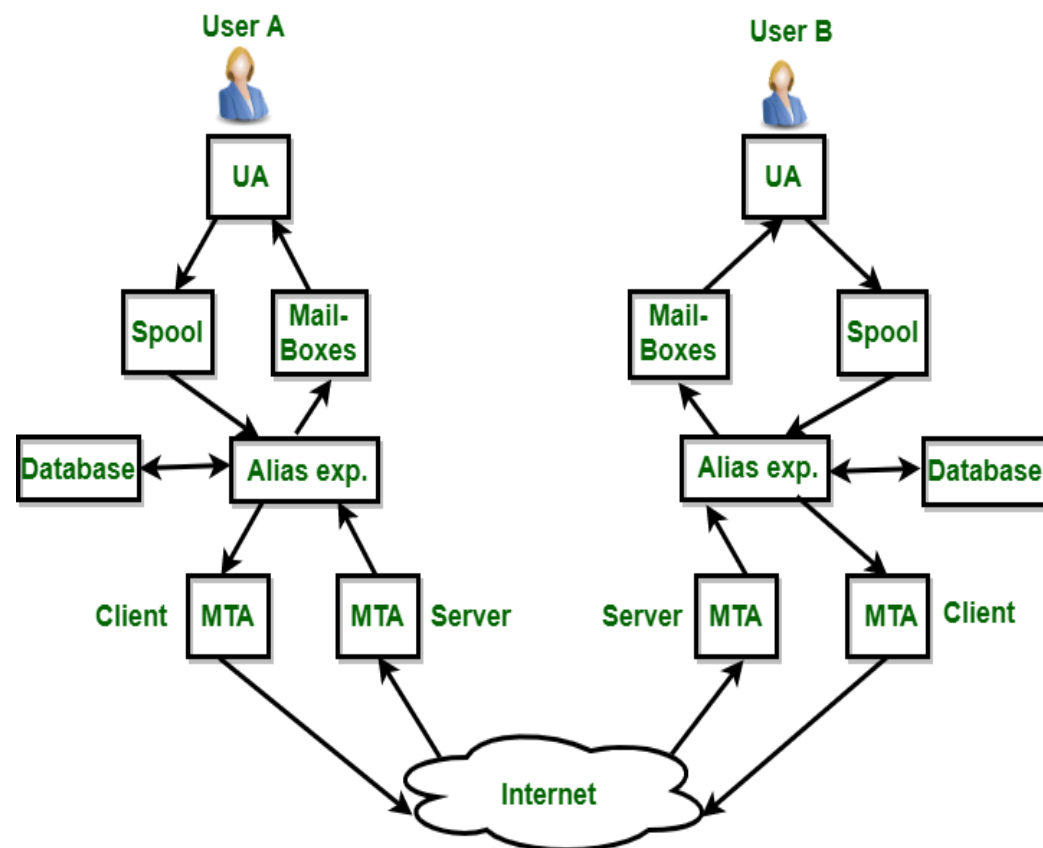
The Body of the message contains the actual information that is meant for the receiver.

Components of E-Mail System :

The basic components of an email system are : User Agent (UA), Message Transfer Agent (MTA), Mail Box, and Spool file. These are explained as following below.

1. **User Agent (UA) :** The UA is normally a program which is used to send and receive mail. Sometimes, it is called as mail reader. It accepts variety of commands for composing, receiving and replying to messages as well as for manipulation of the mailboxes.
2. **Message Transfer Agent (MTA) :** MTA is actually responsible for transfer of mail from one system to another. To send a mail, a system must have client MTA and system MTA. It transfer mail to mailboxes of recipients if they are connected in the same machine. It delivers mail to peer MTA if destination mailbox is in another machine. The delivery

from one MTA to another MTA is done by Simple Mail Transfer Protocol.



3. **Mailbox** : It is a file on local hard drive to collect mails. Delivered mails are present in this file. The user can read it delete it according to his/her requirement. To use e-mail system each user must have a mailbox . Access to mailbox is only to owner of mailbox.
4. **Spool file** : This file contains mails that are to be sent. User agent appends outgoing mails in this file using SMTP. MTA extracts pending mail from spool file for their delivery. E-mail allows one name, an **alias**, to represent several different e-mail addresses. It is known as **mailing list**, Whenever user have to sent a message, system checks recipient's name against alias database. If mailing list is present for defined alias, separate messages, one for each entry in the list, must be prepared and handed to MTA. If for defined alias, there is no such mailing list is present, name itself becomes naming address and a single message is delivered to mail transfer entity.

Services provided by E-mail system :

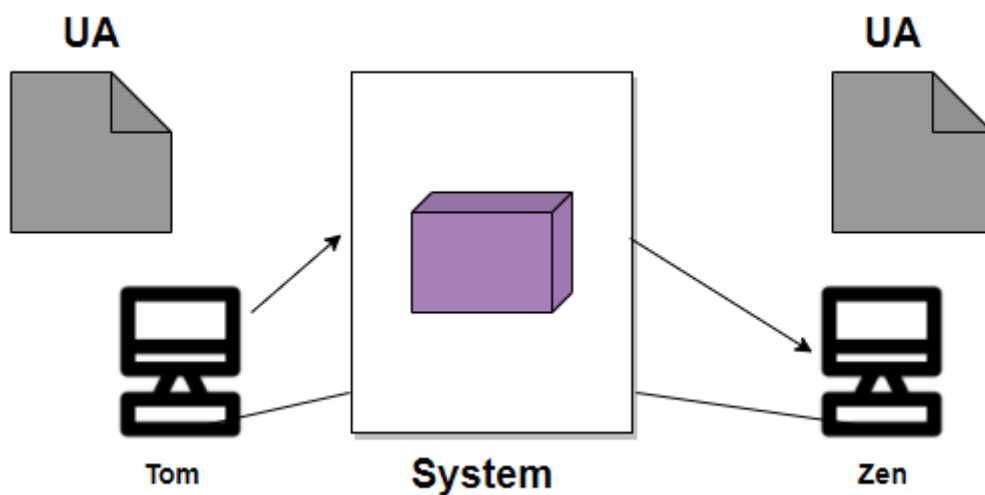
- **Composition** – The composition refer to process that creates messages and answers. For composition any kind of text editor can be used.
- **Transfer** – Transfer means sending procedure of mail i.e. from the sender to recipient.
- **Reporting** – Reporting refers to confirmation for delivery of mail. It help user to check whether their mail is delivered, lost or rejected.

- **Displaying** – It refers to present mail in form that is understand by the user.
- **Disposition** – This step concern with recipient that what will recipient do after receiving mail i.e save mail, delete before reading or delete after reading.

Architecture of Email

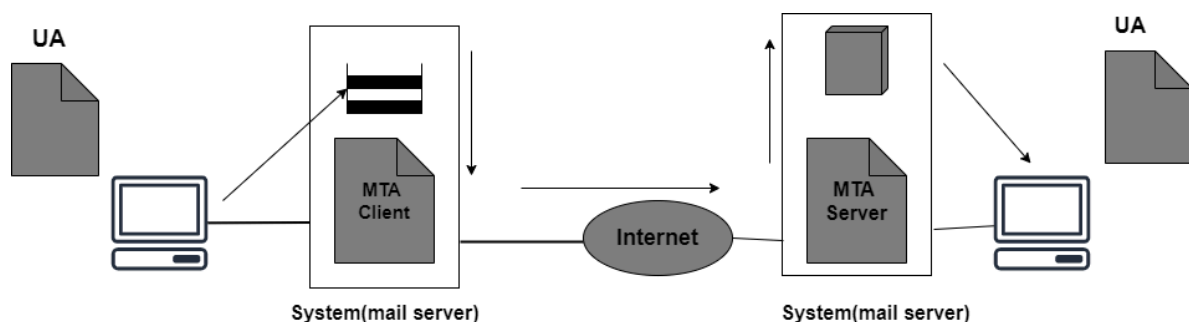
First Scenario

When the sender and the receiver of an E-mail are on the same system, then there is the need for only two user agents.



Second Scenario

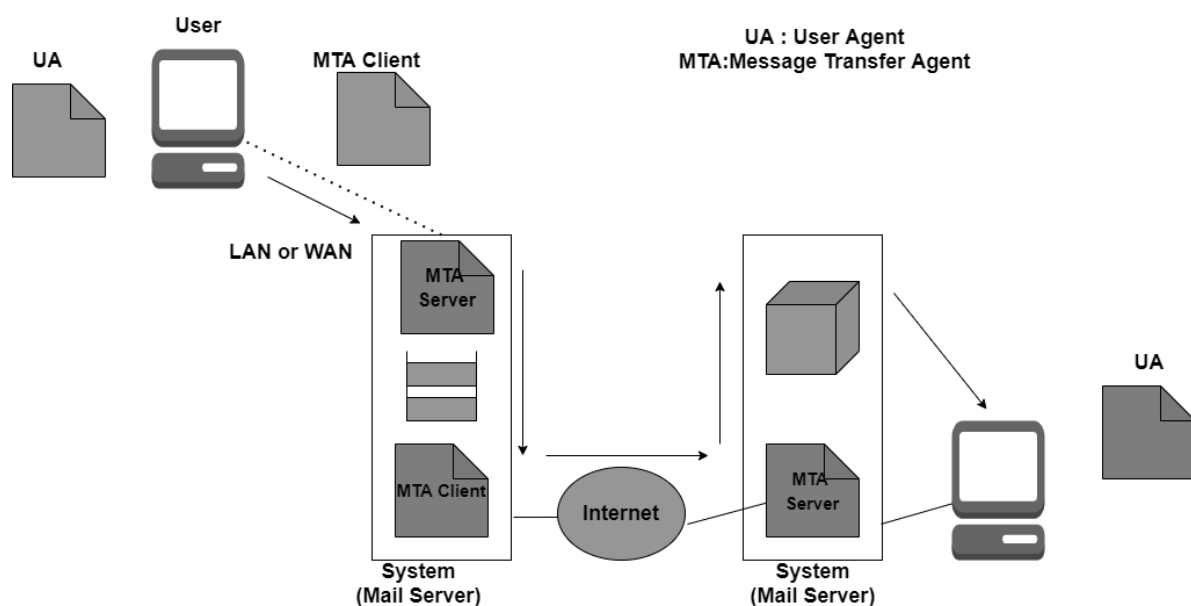
In this scenario, the sender and receiver of an e-mail are basically users on the two different systems. Also, the message needs to send over the Internet. In this case, we need to make use of User Agents and Message transfer agents(MTA).



Third Scenario

In this scenario, the sender is connected to the system via a point-to-point WAN it can be either a dial-up modem or a cable modem. While the receiver is directly connected to the system like it was connected in the second scenario.

Also in this case sender needs a User agent(UA) in order to prepare the message. After preparing the message the sender sends the message via a pair of MTA through LAN or WAN.



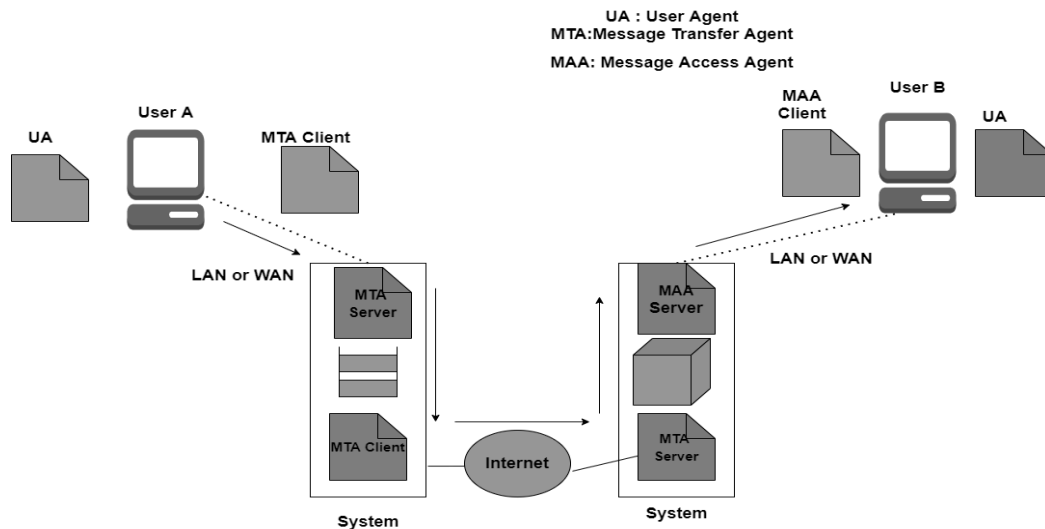
Fourth Scenario

In this scenario, the receiver is also connected to his mail server with the help of WAN or LAN.

When the message arrives the receiver needs to retrieve the message; thus there is a need for another set of client/server agents. The recipient makes use of MAA(Message access agent) client in order to retrieve the message.

In this, the client sends the request to the Mail Access agent(MAA) server and then makes a request for the transfer of messages.

This scenario is most commonly used today.



Advantages of email:

1. Convenient and fast communication with individuals or groups globally.
2. Easy to store and search for past messages.
3. Ability to send and receive attachments such as documents, images, and videos.
4. Cost-effective compared to traditional mail and fax.
5. Available 24/7.

Disadvantages of email:

1. Risk of spam and phishing attacks.
2. Overwhelming amount of emails can lead to information overload.
3. Can lead to decreased face-to-face communication and loss of personal touch.
4. Potential for miscommunication due to lack of tone and body language in written messages.
5. Technical issues, such as server outages, can disrupt email service.
6. It is important to use email responsibly and effectively, for example, by keeping the subject line clear and concise, using proper etiquette, and protecting against security threats.