MAIL SERVER

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MAIL SERVER

- A **message transfer agent** or **Mail transfer agent**(**MTA**) or **mail relay** is software that transfers electronic mail messages from one computer to another using a client-server application architecture.

- An MTA implements both the client (sending) and server (receiving) portions of the **SIMPLE MAIL TRANSFER PROTOCOL.**

- A mail server is a computer that serves as an electronic post office for email. Mail exchanged across networks is passed between mail servers that run specially designed software. .

- This software is built around agreed-upon, standardized protocols for handling mail messages and the graphics they might contain

Electronic Mail: Overview

Three major components:

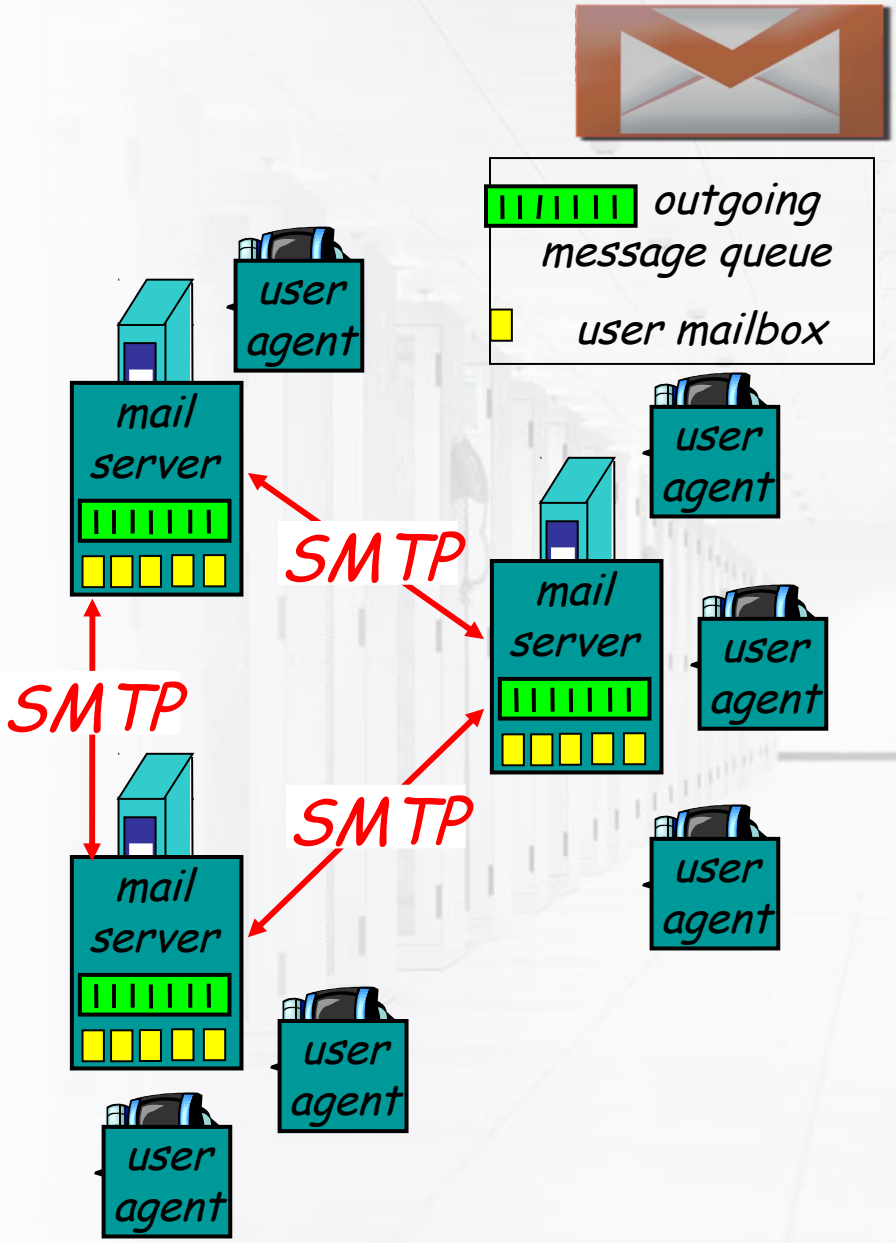
user agents, mail servers, SMTP

User Agent

- "mail reader"
- composing, editing, reading mail messages
- e.g., Eudora, Outlook, elm, Netscape Messenger

Mail Servers

- mailbox contains incoming messages for user
- message queue of outgoing (to be sent) mail messages
- use SMTP protocol between mail servers to send email messages
  - client: sending mail server
  - "server": receiving mail server Gmail?



SMTP

- uses TCP (*Transmission Control Protocol*)to reliably transfer email message from client to server, port 25

- direct transfer: sending server to receiving server

- three phases of transfer
  - handshaking (greeting)
  - transfer of messages
  - Closure

- command/response interaction
  - commands: ASCII text
  - response: status code and phrase

- messages must be in 7-bit ASCII

Mail Services

- Three major mail services:
  - Simple Mail Transfer Protocol
    - SMTP
  - Post Office Protocol
    - POP3
  - Internet Mail Access Protocol
    - IMAP or IMAP4

What is SMTP?

- Simple Mail Transfer Protocol (SMTP) is the standard protocol for sending emails across the Internet.
  - SMTP uses TCP port 25 or 2525
  - Sometimes you may have problems sending messages
    - ISP(*Internet service provider*) may have closed port 25
    - To determine the SMTP server for a given domain name
    - MX (Mail eXchange) DNS record is use

- Simple Mail Transfer Protocol
  - e-mail transmissions across the Internet
  - The protocol used today is also known as ESMTP
  - Relatively simple text-based protocol

What is SMTP?

- Client-Server protocol
  - The client transmits an email message to the server
  - Either
    - . MUA (Mail User Agent),
      - or -
    - a relaying server's MTA (Mail Transfer Agents)
  - can act as an *SMTP client*.

- Command/response interaction
  - commands: ASCII text
  - Messages must be in 7-bit ASCII

What is SMTP?

- SMTP requires message (header & body) to be in 7-bit ASCII
- SMTP server uses `CRLF.CRLF` to determine end of message
- SMTP is a "push" protocol that does not allow one to "pull" messages from a remote server on demand
- To do a pull (i.e. receive) a mail client must use POP3 or IMAP

What is SMTP?

- After establishing a connection between the sender (the client) and the receiver (the server), the following page shows a legal SMTP session.
  - In the following conversation, everything sent by the client is prefaced with
  - **C:** and everything sent by the server
  - **S:**On most computer systems, a connection can be established using the telnet command on the client machine, for example:
    - telnet www.example.com 25

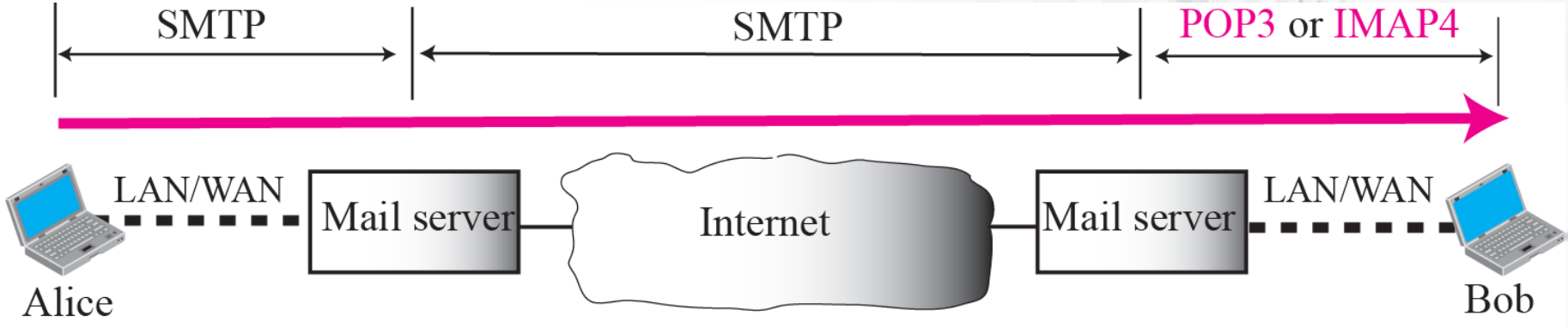
Sample communications

```
S: 220 www.example.com ESMTP Postfix
C: HELO mydomain.com
S: 250 Hello mydomain.com
C: MAIL FROM:<sender@mydomain.com>
S: 250 Ok
C: RCPT TO:<friend@example.com>
S: 250 Ok
C: DATA
S: 354 End data with <CR><LF>.<CR><LF>
C: Subject: test message
C: From: sender@mydomain.com
C: To: friend@example.com
C:
C: Hello,
C: This is a test.
C: Goodbye.
C: .
S: 250 Ok: queued as 12345
C: QUIT
S: 221 Bye
```

Which one to use?

- Outbound Mail
  - SMTP for outbound email
    - Port 25 or 2525
- Inbound Mail
  - POP3 for inbound email
    - Port 110
  - IMAP for inbound email
    - Port 143

Pop3 and IMAP4



POP Overview

- Local e-mail clients use the **Post Office Protocol version 3 POP3**
- Retrieves e-mail from a remote server over a TCP/IP connection
- Many subscribers to individual Internet service provider e-mail accounts access their e-mail with client software that uses POP3.
- POP3 has made earlier versions of the protocol obsolete
- POP (informally called POP1 and POP2)
- *POP* almost always means *POP3* in the context of e-mail protocols

POP Overview

- The design of POP3 and its procedures supports end-users with intermittent connections (such as dial-up connections)
  - Allows users to retrieve e-mail when connected
  - View and manipulate the retrieved messages without needing to stay connected

- Although most clients have an option to *leave mail on server*, e-mail clients using POP3 generally:
  - Connect
  - Retrieve all messages
  - Store them on the user's PC as new messages
  - Delete them from the server
  - Disconnect.

POP Overview

- The fundamental difference between POP3 and IMAP4:
  - POP3 offers access to a mail drop
    - Mail exists on the server until it is collected by the client
    - If the client leaves some or all messages on the server
  - In contrast, IMAP4 offers access to the mail store
    - The client may store local copies of the messages
    - These are considered to be a temporary cache
    - Whether using POP3 or IMAP to retrieve messages:
  - E-mail clients are commonly categorized as either *POP* or *IMAP* clients, but in both cases the clients also use SMTP
  - POP3 that allow some clients to transmit outbound mail via POP3

POP Overview

- In contrast, the newer, more capable Internet Message Access Protocol (IMAP) supports both *connected* and *disconnected* modes of operation.
  - E-mail clients using IMAP generally leave messages on the server until the user explicitly deletes them.
- This and other fact of IMAP operation allow multiple clients to access the same mailbox
- Most e-mail clients support either POP3 or IMAP to retrieve messages
  - Few Internet Service Providers (ISPs) support IMAP

IMAP

- **Internet Message Access Protocol**
  - Commonly known as IMAP or IMAP4
  - An application layer Internet protocol
    - Operates on port 143
    - Allows a local client to access e-mail on a remote server
  - Previously called *Internet Mail Access Protocol*, *Interactive Mail Access Protocol* (RFC 1064), and *Interim Mail Access Protocol*)
- Current version is IMAP version 4 revision 1
- IMAP4 and POP3 are the two most prevalent Internet standard protocols for e-mail retrieval
  - Allows interoperability with other servers and clients

IMAP

- Support for the Internet standard protocols
  - Allows other e-mail clients to access these servers
  - Allows the clients to be used with other servers
  - E.g. Qualcomm's Eudora or Mozilla Thunderbird
- IMAP is often used in large networks
  - For example, a college campus mail system.
- IMAP allows users to access new messages
  - The mail is stored on the network
- With POP3, users either
  - **download** the e-mail to their computer
  - access it via the web.
  - take longer than IMAP
  - must either download any new mail or "*refresh*" the page to see the new messages.

Difference between POP3 and IMAP

- *POP3 works by reviewing the inbox on the mail server, and downloading the new messages to your computer. IMAP downloads the headers of the new messages on the server, then retrieves the message you want to read when you click on it.*

- *When using POP3, your mail is stored on your PC. When using IMAP, the mail is stored on the mail server. Unless you copy a message to a "Local Folder" the messages are never copied to your PC.*

•POP3 - Post Office Protocol	•IMAP - Internet Messaging Access Protocol
•You can use only one computer to check your email	•You can use multiple computers to check your email
•Your mails are stored on the computer that you use	•Your mails are stored on the server
•Outgoing email is stored locally on your PC	•Outgoing email is filtered to a mailbox on the serve

Advantages And Disadvantages Of E-mail?

Advantages:

- Quick delivery and reply of messages

- Convenient

- Can contact a group of people at once

- No limit on how short or how long the message should be (it would seem ridiculous to send a one line letter to someone in the post, but on email this is acceptable)

- Can attach large documents and other files with a click of a button (and without using up resources like paper)

- Doesn't use any paper (good for the environment)

Disadvantages:

- Less social contact with people (social skills won't be as well developed)

- Less hand-writing practice

- Can be bad for your eyes if you spend too long sending e-mails on your computer

- Messages may be misinterpreted easily

- Abbreviated language may become common practice for some people

- Can provide an easy way to spread viruses to computers

- Can be easy to make a "typo" and say the wrong thing, or send the email to the wrong person

- Access to a computer and the internet is necessary, and this may not be convenient for all people

Thank You