CIS 457 - Data Communications
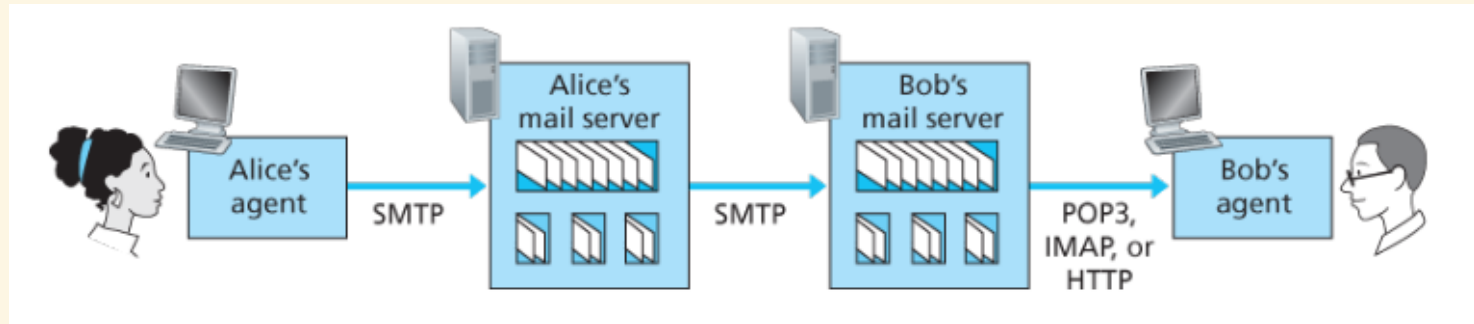
Nathan Bowman

Images taken from Kurose and Ross book

Mail Access Protocols

By now, should have a fairly good idea how email moves between mail servers

One question remains: how to get email from receiving server to client's user agent

Alice's agent → SMTP → Alice's mail server → SMTP → Bob's mail server → POP3, IMAP, or HTTP → Bob's agent

Used to be the case that people would log directly into mail server to view emails

Generally no longer the case because

- not as convenient, and
- difficult to view multimedia

Getting email from user agent to sending server is easy
-- just use SMTP

Recall that SMTP is a *push* protocol

So, doesn't work as well for getting email from server to
user agent

Three of the protocols in common use:

- POP3 -- Post Office Protocol Version 3
- IMAP -- Internet Message Access Protocol
- HTTP

POP3 protocol is older than IMAP and very simple

In addition to authentication, offers commands:

- LIST -- list emails
- RETR -- retrieve email from server
- DELE -- remove email from server
- QUIT -- close connection

and a few other basic ones

Server responses begin with +OK or -ERR

Generally also include some status message indicating what was done or why error occurred

```
telnet mailServer 110
+OK POP3 server ready
user bob
+OK
pass hungry
+OK user successfully logged on
```

```
C: list
S: 1 498
S: 2 912
```

```
S: .
C: retr 1
S: (blah blah ...
S: ................
S: .........blah)
S: .
C: dele 1
C: retr 2
S: (blah blah ...
S: ................
S: .........blah)
S: .
C: dele 2
C: quit
S: +OK POP3 server signing off
```

Big downside is that POP3 does not allow remote folders

User agent can keep folders locally, but information will not be shared among user's various devices

IMAP is more modern protocol with several advantages

Main advantage is remote folders, allowing emails to stay organized on server itself

Also allows remote search and partial downloading of messages to save bandwidth

Won't get into details of IMAP protocol

Many of you have probably never used a dedicated user agent

Webmail (email accessed via HTTP) is quite popular, especially for personal use

HTTP treats email as just another object that can be obtained with HTTP GET request

Emails can also be sent to mail server via HTTP

Although different encapsulating protocol is used, email message is the same (same headers and format)

Sending and receiving user agents may use HTTP, but transfer between mail servers still occurs over SMTP