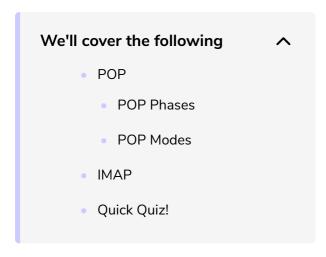# Email: POP & IMAP

Let's now discuss the other side of the coin for how email works.

POP and IMAP are used to retrieve email from an email server. Either one can be used. Let's discuss both.

POP

The most commonly used version of the **Post Office Protocol (POP)** is version 3, or **POP3**. This is how it works:

POP Phases

Emails are simply downloaded from the server in **4 phases: connect, authorize, transaction, update**.

1. **Connect:** The user agent first connects to the POP3 server on TCP using `port 110`.
2. **Authorize:** The user agent authenticates the user with a username and a password.
3. **Transaction:** The user can now retrieve emails and mark emails for deletion.
4. **Update:** After the user agent quits and closes the POP3 session, the server makes updates based on the user's commands. So if the user marked an email for deletion, it will delete it. No copy of a deleted email is kept on the server

○ Note that only what's in the user's inbox is downloaded. Other folders such as sent items, outbox, or drafts are not synced. So `POP3` does not synchronize the folders.
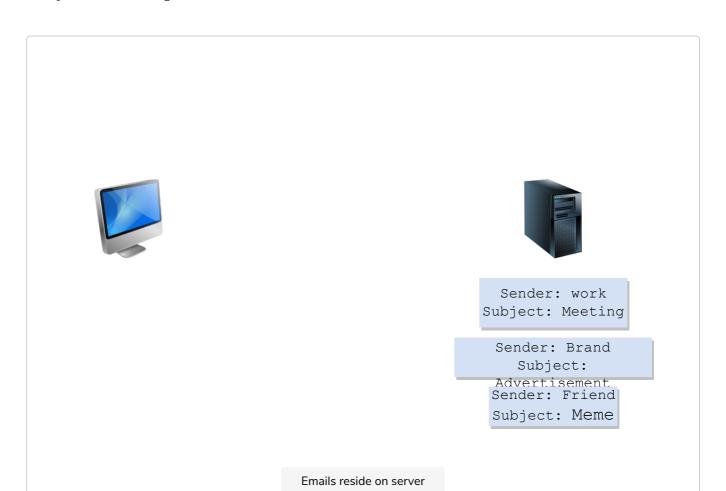
POP Modes

POP works in two modes.

- **Download and delete**: Once emails are downloaded from the server to the user agent, they are all deleted from there.
- **Download and keep**: Emails are not deleted from the server once they are downloaded onto the user agent.

However, with the download and delete model, you can only use one client to check your emails. If you use multiple devices to check your email, this method is not appropriate because emails will not look the same across devices at different times. Also, users won't be able to reread emails from different devices.

Have a look at the following slides for an example of how emails might not be in sync on multiple devices with POP.

Sender: work
Subject: Meeting

Sender: Brand
Subject: Advertisement

Sender: Friend
Subject: Meme

Emails reside on server

IMAP

The **Internet Message Access Protocol (IMAP)**, like POP, is also a mail access protocol used for retrieving email. It is a bit more complex than POP and hence allows you to view your email from multiple devices. With IMAP, though:

- Emails are **kept** on the server and **not deleted**.

- Local copies of the emails are cached on each device.

- It **syncs** up all of the **user's folders** including custom folders.

- The **inbox** would look exactly the **same on all clients**.

- If an email is deleted from one user agent, it will be **deleted off the server**.

- Deleted emails **won't be visible** from other devices either.

Quick Quiz!

Q Which of the following are valid differences between POP3 and IMAP?

A)
- POP3 is less accurate
- IMAP is more accurate

B)
- POP3 does not sync folders whereas IMAP does
- POP3 might make for different email structures on different devices
- POP3 deletes emails on servers by default but IMAP does not

C)

- POP3 works more accurately
- IMAP is better

D)

- POP3 syncs all folders
- IMAP does not sync folders across clients