

COI Briefing Document



COI - Chat Over IMAP
Briefing Document

Introduction

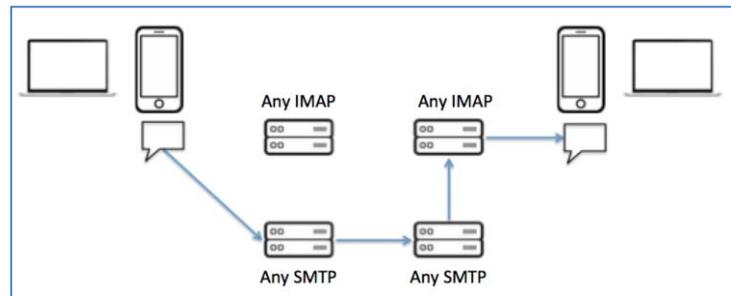
The content of this document is designed to be used for external and public use.

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What is COI

Simply put COI, Chat Over IMAP, is a new chat standard that is built on top of the current email protocols (IMAP & SMTP). Emails are normally sent using an SMTP server that delivers emails to the recipients IMAP server. The user then retrieves emails from the IMAP server. COI uses this same mechanism to transmit chat messages (See Appendix A).



COI uses the existing email infrastructure and technology to build a completely new chat ecosystem. As an open standard COI extends existing email protocols to provide a great messaging experience based on an open, federated system. Thanks to COI, any email account, together with any COI chat client, can be used to start chatting. This includes direct and group chats with automatic end-to-end encryption; text and voice messages; photo and video; push notifications and more.

Why COI

The world is in dire need for an open, permissionless and secure messaging platform! Currently, a single player controls the two biggest mobile messaging apps in the world. A player whose privacy ethics have been brought to question numerous times: Facebook. The third and fourth biggest mobile messaging apps are controlled by the Chinese tech giant Tencent.

COI can make a difference because it can demolish this current state of walled user lock-in to products that users may not even trust. It is a free and open standard that allows anyone to provide messaging apps, services or server infrastructures that can all communicate with each other. This will start to democratize messaging.

With COI, users can freely choose and change which provider they trust and which app they want to use.

One reason why new apps are blocked from entering this market is down to the chicken egg struggle: to be adopted an app needs a significant number of users using it, but people will not use the app unless there are a significant amount of people using it! By using email as the basis this “network effect” is eliminated. In essence when someone launches a COI app they instantly have access to 7 billion existing accounts. No chicken or egg issues.

Why Email?

Email is the most universal and popular messaging system in the world. It has far more active users than any other competing messaging service (7 billion accounts with around 4 billion active users).

Email is open and free: anyone can use it, and anyone can build/implement their own apps and services on top of it. Users are free to choose their preferred provider and free to choose which app they want to use. They are not restricted to one single provider or one single solution.

This is why this widely available and open infrastructure is perfect for building an open chat system on top of.

The backwards compatibility of COI with existing email means that COI users can chat with any email users in the world, regardless if they are using a COI compatible app or not.

COI Interoperability

One significant advantage of using the COI standard is that any COI app can communicate with any other COI app. This opens up the market for innovation. Because any app can talk to any other app there are no walls. Anyone can have a good idea and publish it. If it is good it will be adopted and used, if it is not then it will fade away. It is natural evolution in the open Internet.

The COI Specification

The COI standard is actually made up of two parts: The COI Client Specification that defines how chat clients have to format and parse messages in order to be interoperable. Most notably, the client specification allows clients to work with any existing IMAP and SMTP servers as well.

The server specification defines how COI compliant servers optimize the chat experience. The first version optimizes chat message filtering within a user's account and provides modern push notifications users expect from their messaging applications. All specifications are fully published and available on [GitHub](#).

What is the OX COI Messenger?

The OX COI Messenger app that is built by Open-Xchange using the COI standard. It is a fully featured chat app that is built using [Flutter](#) to generate both iOS and Android Apps.

OX COI Messenger is completely Open Source and can be used as a reference app for developers wishing to create their own COI based app. The source code can be downloaded from [GitHub](#).

Who is behind COI?

COI was conceived and started by Open-Xchange, a German company with a strong focus on privacy, security and email. Open-Xchange was founded in 2005 and started by building highly scalable Software-as-a-Service email and collaboration products. Today, 14 years later, Open-Xchange has about 300 employees in fourteen offices around the world.

In addition, Open-Xchange is behind PowerDNS and Dovecot. Dovecot is the world's most popular IMAP email server. It is open source and is the first server to implement the COI server specification.

Open-Xchange already has partners working on the COI project but is always encouraging new app developers, service providers, email companies and Telco operators to join the initiative and push the COI ecosystem to the next level.

Quotes

“There is no technical reason why real-time messaging cannot be open, federated and permissionless like email is. Enhancing email to also support chat seems quite natural and liberating.”

Rafael Laguna, CEO and founder of Open-Xchange

“With COI we finally have a viable alternative to the communication silos of Facebook et cetera: A network where all your friends are already and where you control where your data is stored.”

Robert Virkus, Product Manager COI, Open-Xchange

“Thanks to the positioning of Open-Xchange and Dovecot we are offering great opportunities for developers and service providers with COI. Anyone can build services and products on top of COI and help create a democratic, unrestricted and open chat ecosystem.”

Mike Ganson, Partner Marketing Manager COI, Open-Xchange

Appendix A - How COI Works

How Email Works

Email clients send out messages using a protocol called SMTP and clients generally retrieve emails using either IMAP or POP3 (from now on we will only talk about IMAP, as POP3 is an older standard that is quickly losing popularity as it is missing many modern email features).

An email client sends your email to a known SMTP server. The SMTP system then sends your emails from server to server until it ends up at your designated IMAP sever. You then connect to your IMAP server to retrieve your emails.

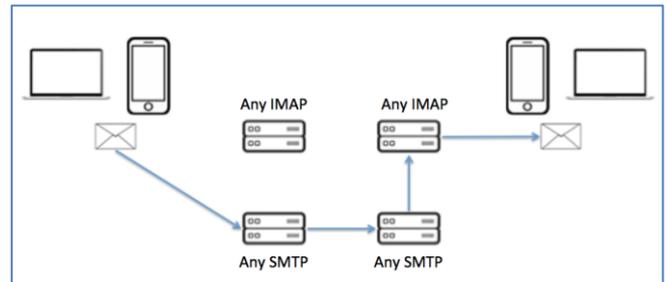


Figure 1

How COI Works - Simple

COI works in exactly the same way, except the messages are formatted with 'extra bits' that tell the recipient, if it is a COI client, that it is a chat message and not an email message. These 'extra bits' do not interfere with the email standard at all and if the client is just a normal email client it will be treated as a normal email and nothing is broken.

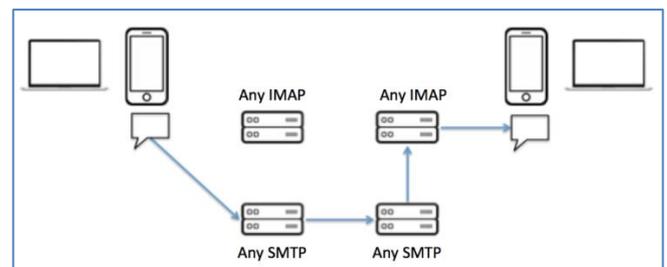


Figure 2

The COI Standard

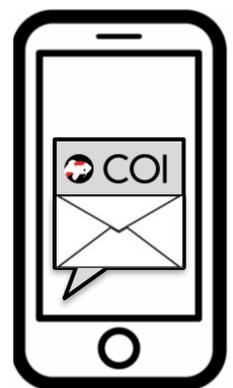
The COI standard is made up of two definitions:

- The COI Client definition
- The COI Server definition

And both can be found on the COI [GitHub](#) page.

The COI Client

The COI Client definition works as shown in Figure 2 above. It will work with any SMTP/IMAP server, but this means the client app needs to do all the work. The message is put together as a normal email message, but then the App adds the COI header on top of it. The App also needs to, on receipt of a COI message, deconstruct the message and display it as required. The App finally needs to filter the message on the server, if required. This sounds complicated but it is not a big overhead to writing a normal email client. This is what app client writers like to do and COI gives them the flexibility to focus on the UI and how things work.



The COI Server

The server specification defines how COI compliant servers work with chat messages. A COI compliant server (e.g. Dovecot) provides many additional features designed specifically for handling COI messages. This includes things like:

- Automatic filtering of COI messages on the server
- Provides Web Push notifications from the server.

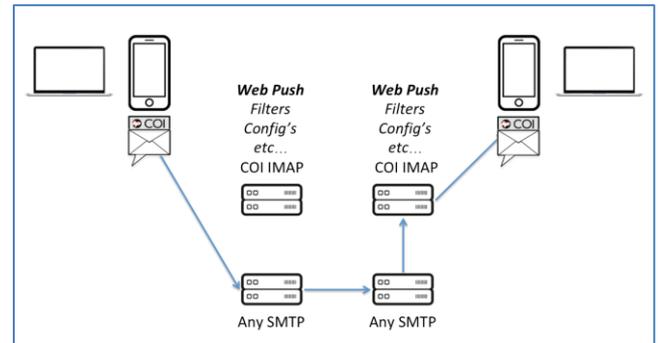


Figure 3

Appendix B - Boilerplates

Open-Xchange COMPANY Standard Boilerplate (183 words)

Open-Xchange is a developer of open source communication, collaboration, office productivity, and DNS-based security software and services. With 270+ employees and a global presence Open-Xchange is well positioned to meet the needs of our large Internet Service Provider, Hosting, Telecommunication and Cable Provider audience. Open-Xchange SaaS (Software-as-a-Service) solutions are delivered by partners such as 1&1, Orange, Italiaonline, Comcast, GoDaddy, and Softbank, with more than 200 million users already using our products for private and business communication.

The core of the product portfolio is OX App Suite with applications for email, contacts, and appointments. In addition, OX App Suite can be expanded to include additional apps such as: OX Drive for managing and synchronizing documents, images and video, OX Documents for text editing, spreadsheets and presentations and OX Guard for encrypting emails and files. Dovecot, the world's leading open source IMAP server software, and PowerDNS, a provider of secure DNS services, complete the Open-Xchange product portfolio.

Open-Xchange is headquartered in Cologne, Germany, with offices in Bremen, Dortmund, Hamburg, Olpe, and Nuremberg. International offices include the USA, France, Finland, the Netherlands, Italy, Spain, and Japan.

Open-Xchange COMPANY Reduced Boilerplate (151 words)

Open-Xchange is a developer of open source communication, collaboration, office productivity, and DNS-based security software and services. With 270+ employees and a global presence Open-Xchange is well positioned to meet the needs of our large Internet Service Provider, Hosting, Telecommunication and Cable Provider audience. Customers include 1&1, Orange, Italiaonline, Comcast, GoDaddy, and Softbank, with more than 200 million users already using our products.

The core of the product portfolio is OX App Suite with applications for email, contacts, and appointments. OX App Suite can be expanded to include additional apps such as: OX Drive for managing and synchronizing files, OX Documents for text editing, spreadsheets and presentations and OX Guard for email and file encryption. Dovecot, the world's leading open source IMAP server, and PowerDNS, a provider of secure DNS services, complete the Open-Xchange product portfolio.

Open-Xchange is headquartered in Cologne, Germany, with offices across Europe, in the USA and Japan.

Open-Xchange Vision

“A borderless internet that is open, safe and free”

Open-Xchange Mission

“Create competitive products that allow providers to deliver secure internet services with a great user experience that respect privacy and generate superior margins.

Create open platforms that users prefer over monopolistic platforms that concentrate power and lock them in.”

Appendix C - Other Sources

Other places you can go to find out more about COI:

- The COI GitHub Page: <https://github.com/coi-dev>
- The OX COI Developer Site: <https://www.coi-dev.org>
- The Open-Xchange COI Pages: <https://www.open-xchange.com/portfolio/coi/>
- The OX COI Messenger GitHub page: <https://github.com/open-xchange/ox-coi>