

# Open-Xchange Engage

## Product Guide

### Version 1.0.0

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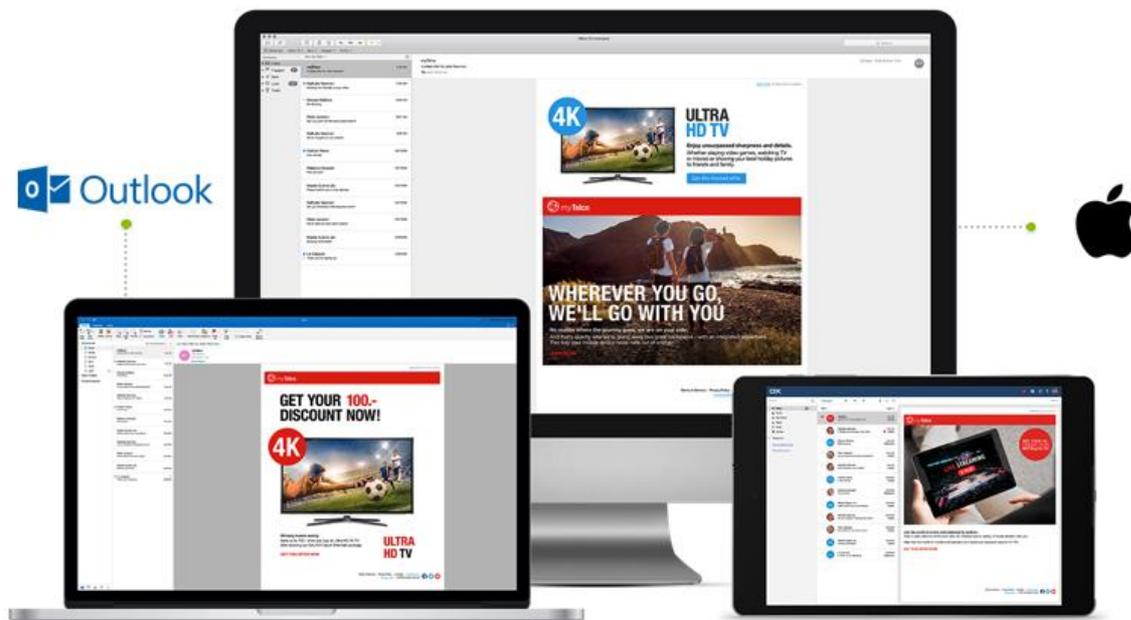
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## 1. OX Engage – Introduction

OX Engage is an Open-Xchange patented technology that enables the injection of messages into the email stream of any user using the Internet Message Access Protocol (IMAP) [Patent "Ad hoc injection of IMAP objects" (US 9531785 B1) see [United States Patent](#) or [Google Patents](#)]. These IMAP objects may appear in the inbox of a user on any IMAP capable device, and may feel like an email to the user, although the IMAP objects were never sent over a SMTP server or protocol. Information that is stored in these IMAP objects can include advertising, promotions, service alerts or any other content. When a mail client requests a list of emails for an IMAP user folder from the IMAP server, the IMAP server will ad-hoc inject IMAP objects into the customer's inbox. The rules that define which objects will be injected, in which schedule and to which target audience, as well as the position of the message in the user's inbox may depend on object- and/or user profiles and other targeting parameters.

### 1.1. Product Description

OX Engage enables the injection of messages into any email client, such as OX App Suite, Open-Xchange mobile mail clients or other clients using the IMAP protocol.

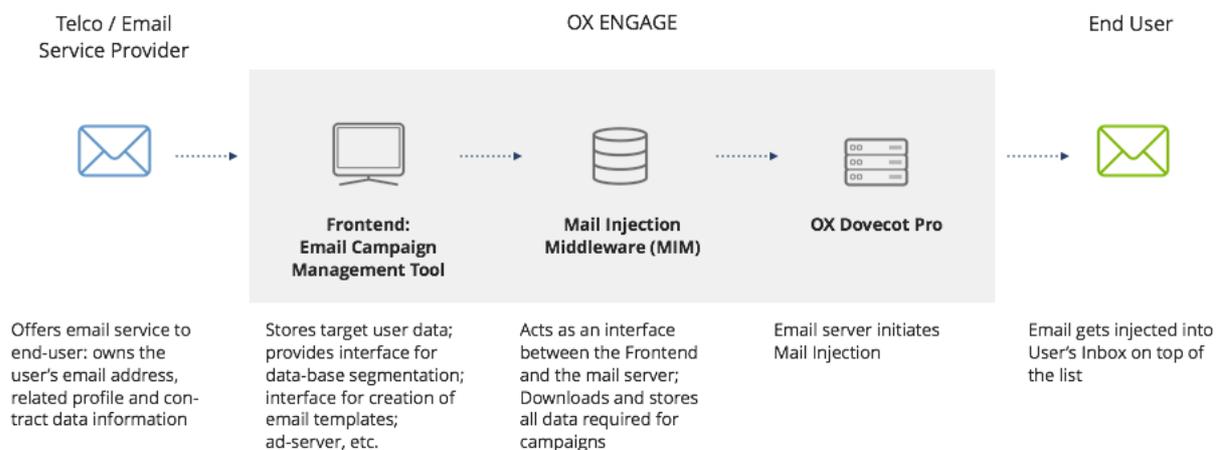


Campaigns are managed in the Campaign Management Platform (CMP). Once the campaign has been scheduled, the CMP interacts with the Mail Injection Middleware (MIM), which downloads and stores the campaigns and all related user data in order to transfer the content to the OX Dovecot Pro server when the user is active.

In other words, when a new campaign is scheduled in the CMP, the corresponding mail template and per-user data are exported and stored in an Amazon S3<sup>1</sup> compatible bucket. The successful export is followed by a push event to MIM, which then pulls the data and stores it locally in Cassandra<sup>2</sup> for fast lookups and retrieval.

Cassandra is a distributed database for managing large amounts of structured data across many commodity servers, while providing highly available service and no single point of failure.

On user login, any active campaigns for that user are requested based on the data stored in Cassandra. This lookup happens asynchronously so as not to block the login procedure. If not cached locally yet, OX Dovecot Pro<sup>3</sup> also requests the mail templates from MIM.



OX Engage is available either on-premise in a data centre or hosted by Open-Xchange with OX as a Service (OXaaS). OXaaS is a turnkey solution providing a highly scalable, fully managed and hosted delivery platform for OX App Suite. In order to work on OXaaS, OX Engage comes with an additional database called the Monetization Database (MDB) which maps OXaaS user ID to the email address.

<sup>1</sup> The "Amazon S3" bucket is not a part of OX Engage and needs to be deployed separately.

<sup>2</sup> "Cassandra" is not a part of OX Engage and needs to be obtained separately.

<sup>3</sup> "OX Dovecot Pro" is not a part of OX Engage and needs to be obtained separately.

## 2. OX Engage – Components

Four distinct components interact to create the OX Engage functionality:

- Integrated Campaign Management Platform  
where campaigns get created and scheduled
- OX Mail Injection Middleware  
which decouples the OX Dovecot Pro IMAP server from the CMP
- OX Dovecot Pro IMAP Server  
which fetches campaign templates and any user-specific variables provided by the Customer and injects messages into the users IMAP stream
- OX Monetization Database (for OxaaS customer)  
additional database to support OxaaS in order to map user ID to email address

### 2.1. Integrated Campaign Management Platform

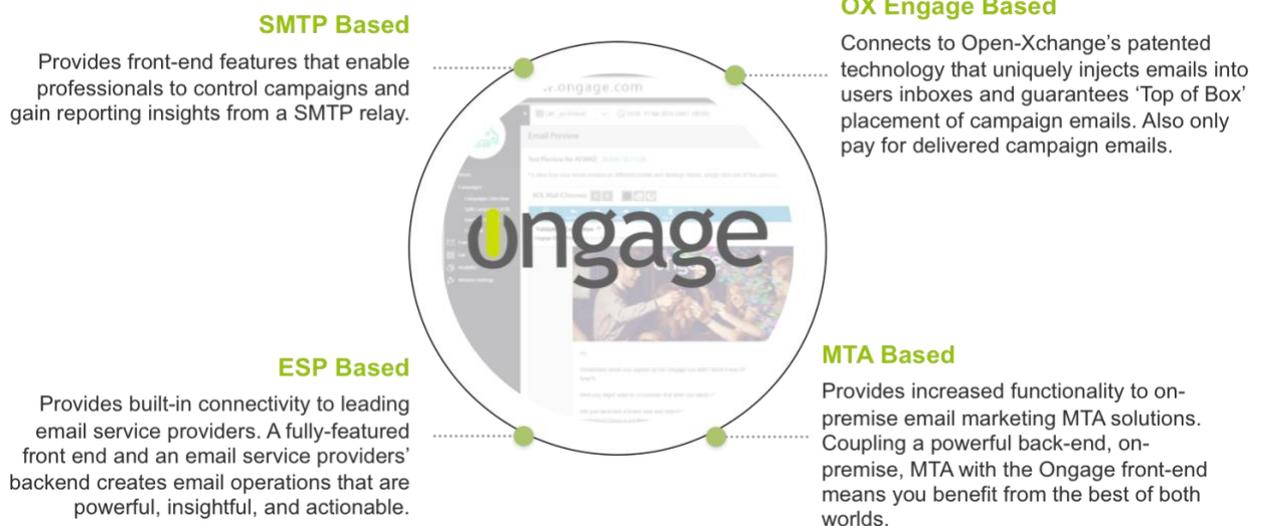
Injected messages are virtual mailbox entries that can potentially be fully controlled by an external management system.

OX Engage comes with an integrated CMP called Ongage. The platform is hosted and operated by entities outside the Company's organisation and can be used to create email templates, manage campaigns (create & schedule), define target segments, consult analytics.

The CMP requires user profiles with hashed email addresses to be uploaded. Representatives of the Customer whose users are targeted would typically do this.

If no additional information of the user, other than email address, is provided (such as name, gender, age, geo-location, etc.) the platform will start with zero knowledge.

For more information about the CMP features please see Ongage webpage (<https://www.ongage.com/features/>). For a better operational approach see Ongage Help (<https://ongage.atlassian.net/wiki/spaces/HELP/overview>).



### 2.1.1. Technical Requirements

The CMP interacts with the MIM via file exchanges and HTTP interfaces and requires certain parameters that are not typical for traditional email campaigns. Any CMP integrated with OX Engage will need to provide all necessary data to enable the mail injection:

- A fully-prepared mail template (all links wrapped for click tracking, containing placeholders for tracking identifiers)
- A list of hashed target users. If necessary, those are mapped to more per-user data that is to be incorporated in the final email via template processing
- All necessary email campaign parameters like start date, end date and whether position #1 shall be fixed
- A unique campaign ID

## 2.2. Mail Injection Middleware

The MIM is a stateless server application that offers a REST API for interaction with OX Dovecot Pro and/or other services. Its main task is to respond to OX Dovecot Pro requests for active campaigns for a user during IMAP login.

The CMP pushes campaign data and related user data to the MIM. Campaign data consists of mail templates, campaign parameters (start/end date, template, display position, etc.) and per-user placeholder values. Mail templates and parameters are identified by the unique campaign ID, while placeholder values per campaign are referenced by user hash.

The MIM processes and stores these data entries on-site for fast on-demand lookups. It is based on the Cassandra database system, which allows for high scalability, availability and performance.

### 2.2.1. Technical Requirements

In order to deploy OX Engage, the Customer needs to provide the following technical requirements.

- Integrated Cassandra
- Installation of MIM Webservice\*

\* MIM runs only on RHEL 7/CentOS 7/Debian 8/Debian 9. It also requires OpenJDK 8 JRE.

The MIM can be scaled separately from OX Dovecot Pro and requires Cassandra as data storage.

## 2.3. OX Dovecot Pro

OX Engage uses two components on the OX Dovecot Pro backend servers: an injection plugin loaded into the IMAP process and an ephemeral worker process. The worker process makes the asynchronous calls to MIM. This integration identifies when a user has logged in or activated his email account, and consequently initiates the injection of the email message into the targeted user's inbox.

When OX Dovecot Pro asks the MIM for campaigns for a user identified by the user hash, a fast index lookup will return all potential campaigns. Those are then checked for validity (is the present time between the start/end dates, has campaign not been cancelled, etc.).

The request is made with a hash constructed out of the user database attributes. The hash matches the user hash with which the user is identified at the CMP and the MIM.

### 2.3.1. Technical Requirements

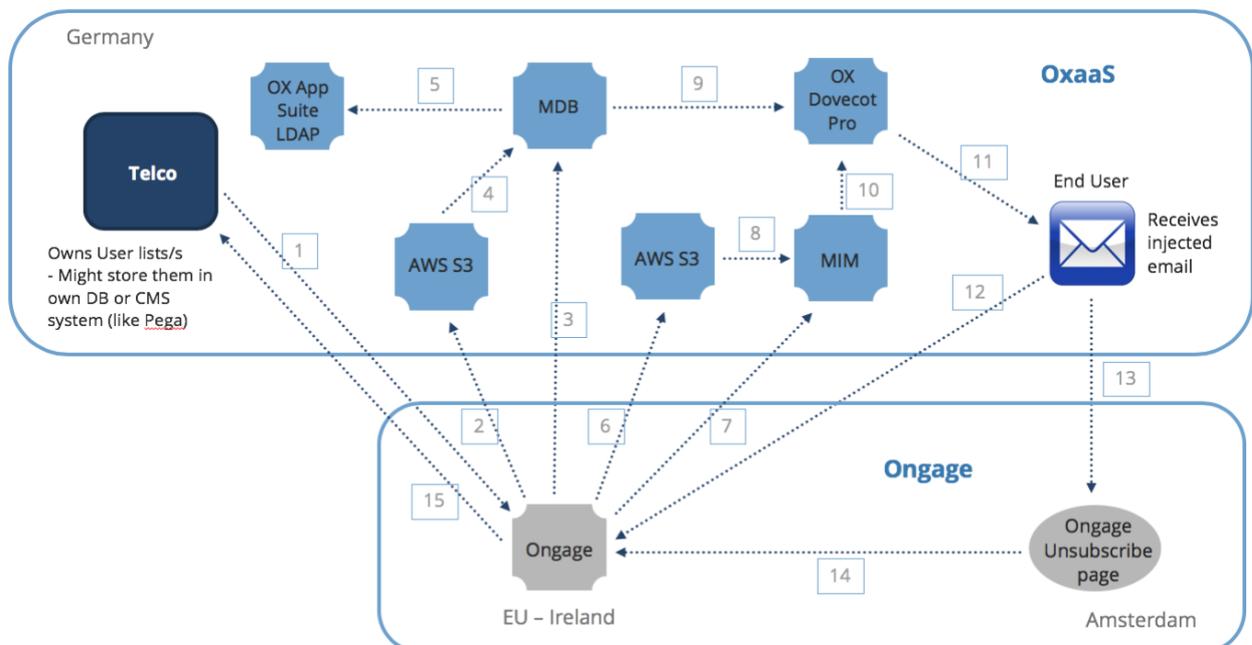
OX Engage depends on OX Dovecot Pro as mail storage. In order to deploy OX Engage, the Customer must provide Dovecot Pro 2.3.4 or above which enables mail injection therefore the installation of OX Dovecot Pro injection plugin is required.

## 2.4. Monetization Database

The Monetization Database is a supporting component for OX Engage for OXaaS-like deployments.

When in use by OX Engage, it works like an intelligent data-matching table resolving the customer CRM-internal user-identifier to the OXaaS internal ID in order to resolve the end users' email address and displayname.

During the import of end-user data from Ongage, MDB uses the deployment platforms LDAP as a data source. Using the LDAP, MDB resolves the users' email address and OXaaS internal ID. Please find below an example of a data flow:



1. Customer uploads hashed email addresses, sharedId and displayName together with any profile related information needed to segment and target users in campaigns.

The base user identifier being transferred to Ongage is the hashed email address.

2. User profile data is imported from the Amazon AWS S3 bucket into the MDB
3. Ongage triggers user profile import to MDB
4. User profile data is imported from the Amazon AWS S3 bucket
5. OX App Suite LDAP is used to resolve hashed email address to clear email address and sharedId to OXaaS internal identifier
6. Campaign data, placeholders and email template is exported to Amazon AWS S3 bucket
7. Ongage triggers import of campaign data, placeholder and email templates into MIM
8. Campaign data, placeholders and email template is imported from Amazon AWS S3 bucket into the MIM
9. The MDB provides the OX Dovecot Pro mail server with displayName and email address
10. The MIM provides the OX Dovecot Pro mail server with active campaign data per user, placeholders and templates
11. The OX Dovecot Pro mail server initiates the email campaign injection when it identifies that the end user has logged in
12. All end user actions (opens, clicks) are reported back to Ongage
13. User unsubscribes
14. User un-subscription is sent back to Ongage
15. All info can be exported back to the Telco's CMS system at any given time

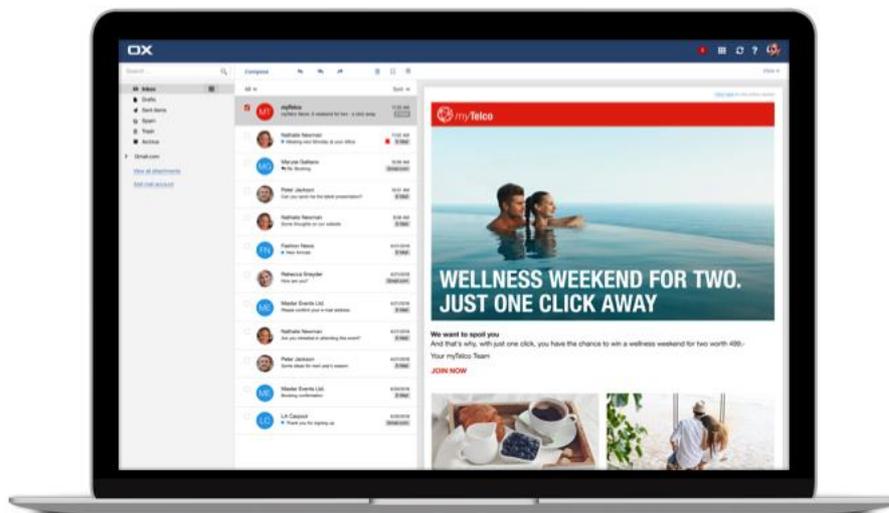
### 3. OX Engage – Selected Examples

OX Engage is a patented email injection technology that gives you guaranteed delivery and high visibility for your email campaigns and enhances your monetization strategy using the next generation of Real-Time-Email Marketing. OX Engage can be used for external and internal email marketing campaigns. Please find selected examples below.

#### 3.1. Internal Campaigns

##### 3.1.1. Standard Newsletter

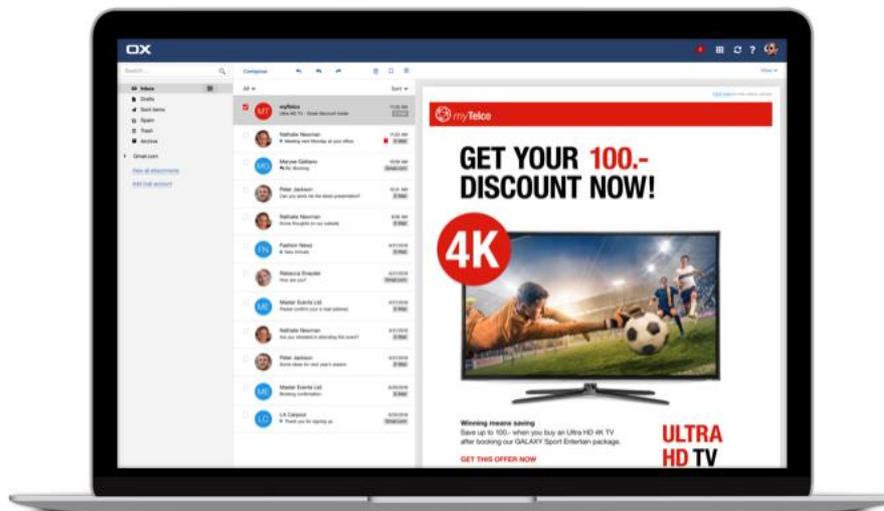
This is an example of an internal Telco campaign wherein the Telco chooses to send its regular weekly / monthly customer communications via OX Engage, in order to reach better delivery and visibility.



### 3.1.2. Retargeting

This is an example of an internal Telco campaign wherein the Telco retargets its customers with an enhanced offer. The scenario is as follows:

- The Telco sends an offer for a 4K TV
- Customer opens the email and possibly clicks one of the links
- OX Engage follows up with a more targeted email campaign sent to customer



### 3.1.3. Upsell & Cross-sell

This is an example of an internal Telco campaign wherein the Telco targets its mobile customers with a TV upsell offer. The scenario is as follows:

- The customer creates mobile user segments in the OX Engage interface
- The customer creates a TV Upsell campaign for this segment

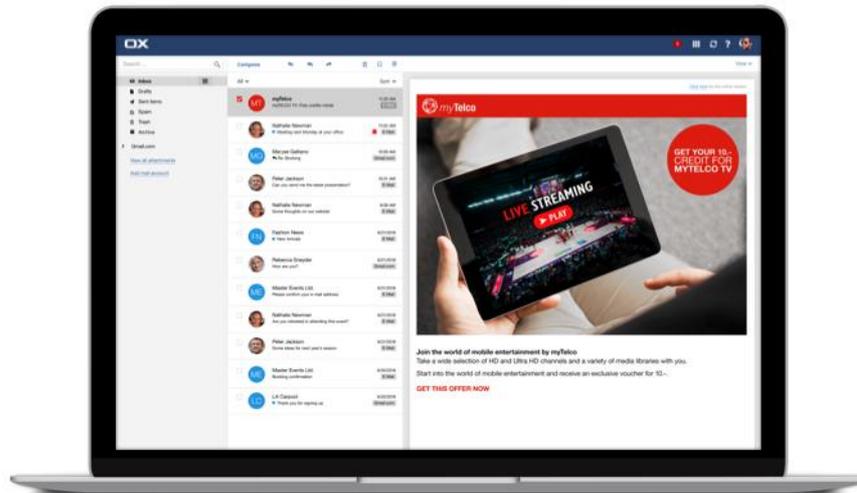
Cross-sell and Cross-device conversion campaigns are also possible with the same scenario.



### 3.1.4. Dormant User Reactivation

This is an example of an internal Telco campaign wherein the Telco targets dormant users using OX Engage. The scenario is as follows:

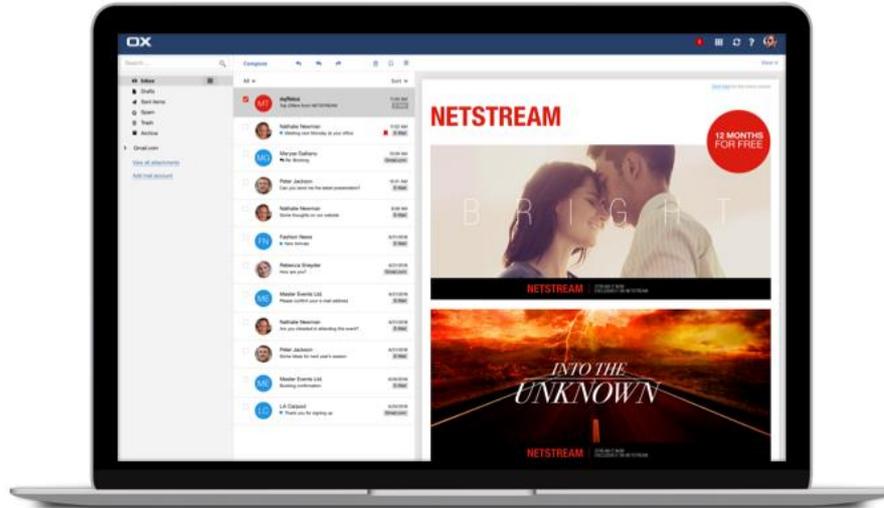
- The Telco creates one dormant customer campaign
- The campaign is scheduled to last 3-12 months
- When any of the customers within this list logs in during this time period, the campaign is injected into their inbox



## 3.2. External Campaigns

### 3.2.1. Third-Party Product / Service

This is an example of an external campaign operated by an agency wherein they recommend the services of a third-party product / service to Telco customers.



### 3.2.2. Ad Slot

This is an example of an internal Telco campaign wherein the agency also places a banner advertising third-party external content.



## 4. OX Engage – Feature Summary

- Using the integrated CMP OX Engage
  - Create and launch email campaigns that address certain target user
  - Measure success through sophisticated analytics tools
- Injection of emails into first position of the inbox (based on the most common sort criterion, which is "newest email first")
- Campaigns have individual configurable time frames during which they are considered relevant and are subject to injections
- Real-Time-Marketing campaigns are injected into the User's inbox only when the User is active, making time-agnostic targeting (used by traditional email marketing) irrelevant
- Injects emails directly into active users' mailboxes
  - Reliable delivery of email campaigns
  - Bypasses any filters
- Injects emails to an individual user at login/connect time:
  - Campaign email always appears at the top of the inbox at connection time
  - Optimal visibility of email campaigns
  - Better opening rate
  - More successful campaigns
- Campaigns are time boxed (campaign has a start and end time)
  - Never send out of date email campaigns
  - Save money as you only pay for injected emails
- Patented technology
  - US 9531785 B1
  - Only available from Open-Xchange
- Injected into the email server

- Works on all devices, desktop clients or mobile apps based on OX Dovecot Pro (User Interface independent)
- The Ongage platform can be used to manage both OX and ESP/SMTP/MTA campaigns for non-provisioned user
  - One central platform for all email campaigns
  - Very sophisticated ESP Aggregator for managing all campaigns