18 April 2016 Study · Web & Cloud · Digital Identity

Secure Integration in the Cloud

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Source https://technology2.a-sit.at/en/publications/secure-integration-in-the-cloud/

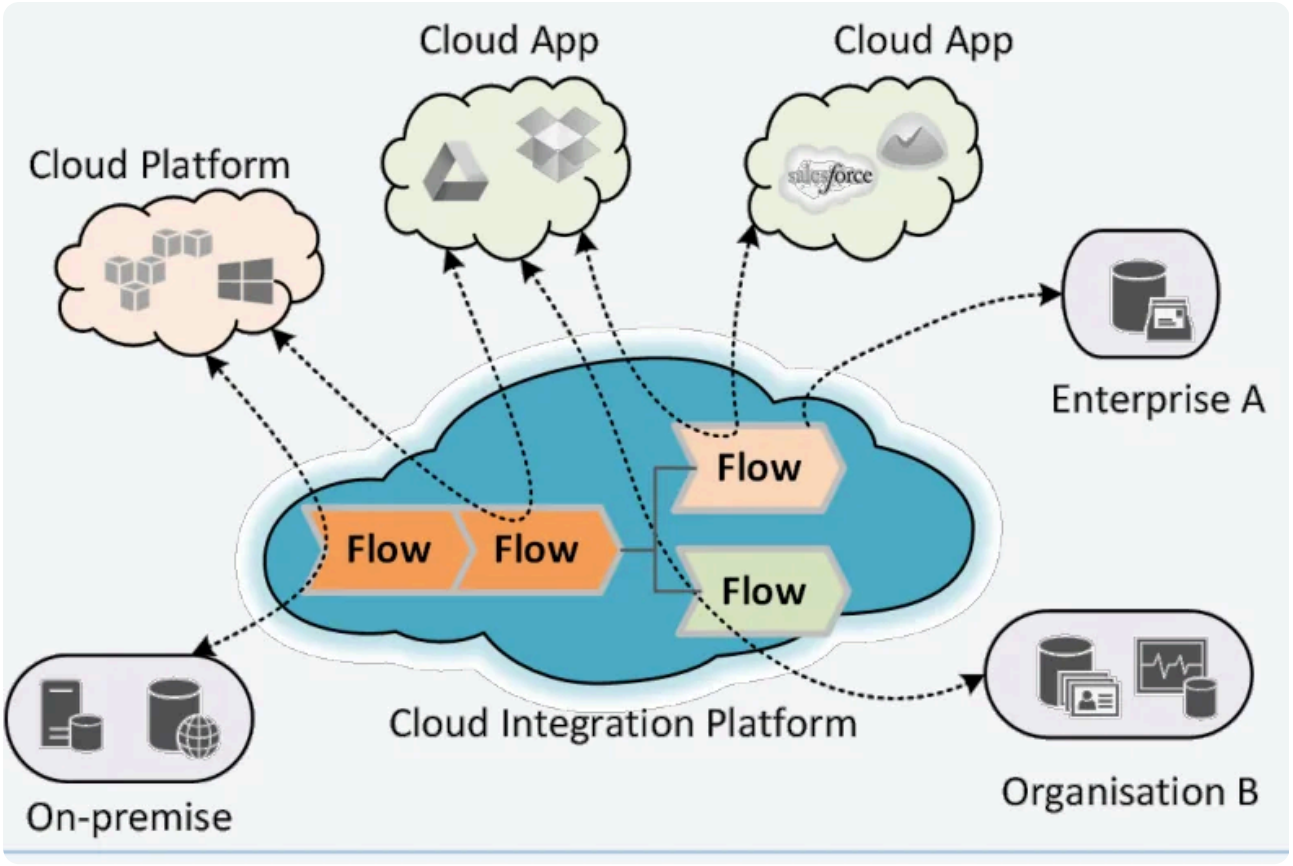
A study explored how existing approaches to interacting across domain boundaries work together with cloud platforms. The focus was on the secure integration of common authentication solutions such as OAuth 2.0 or UMA. Novel product category related to cloud integration platforms (iPaaS) provides additional value to customers by integrating a diverse range of cloud services offered by third-parties. This way, the service providers of iPaaS deliver a cloud service that composes, integrates and reuses a range of different products and services offered by other providers or organisations. This concept assumes that the interactions, data-flows and service consumptions take place in a complex environment that spans across several domains. The resulting complexity, however, extends the attack surface and increases the security risk of these interactions. This is especially important to consider for cross-domain interactions, where the service provider may have access to broader range of user's service than necessary to accomplish the task.

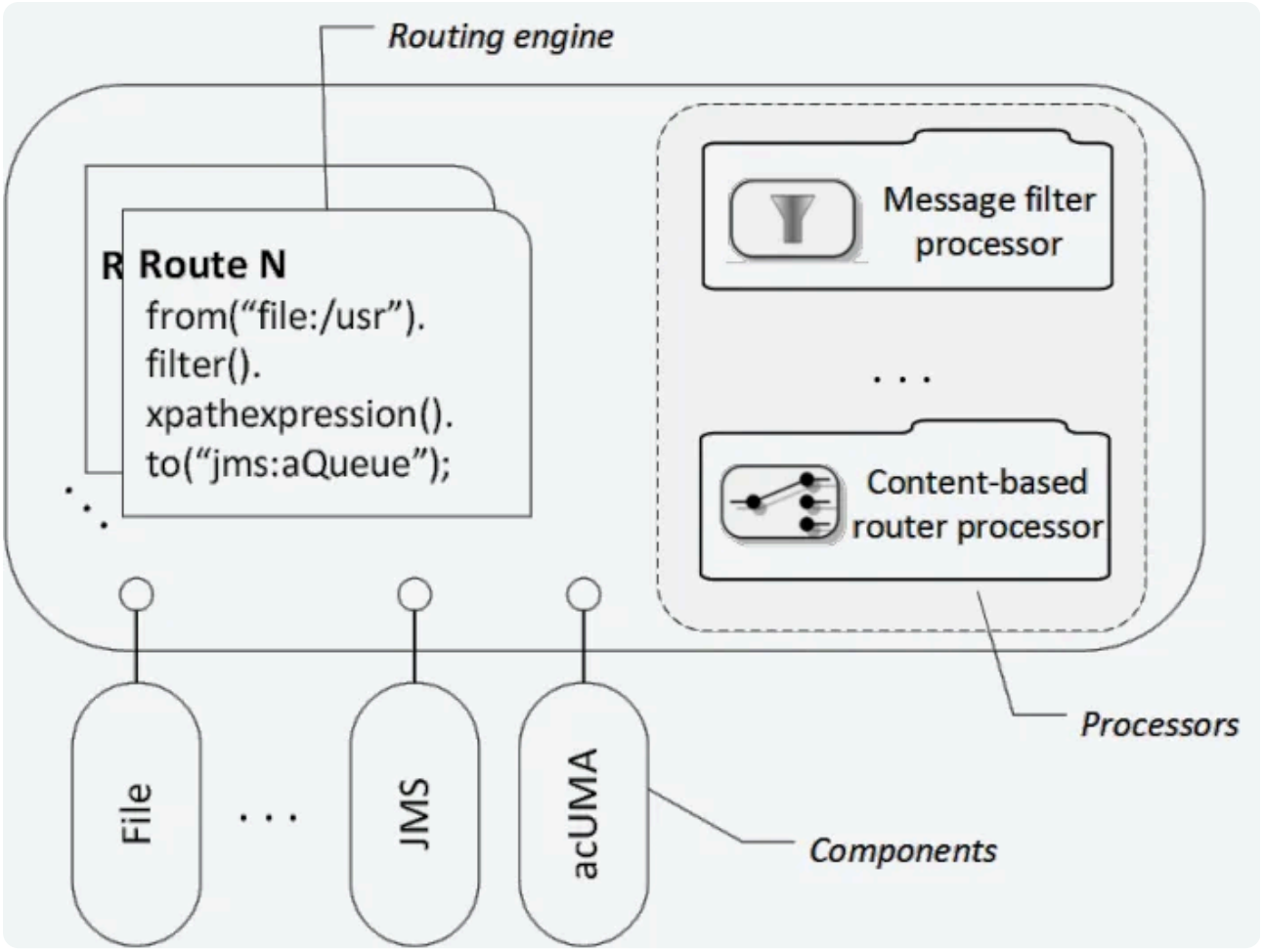
The paper that deals with the topic of secure integration in the cloud has been presented on 7th April, in the scope of ACM SAC 2016 conference. In this work we particularly considered the aspects of protocols, integration platforms, and security requirements in the case of the relevant building block of a typical integration platform.

Securing Integration of Cloud Services in Cross-Domain Distributed Environments

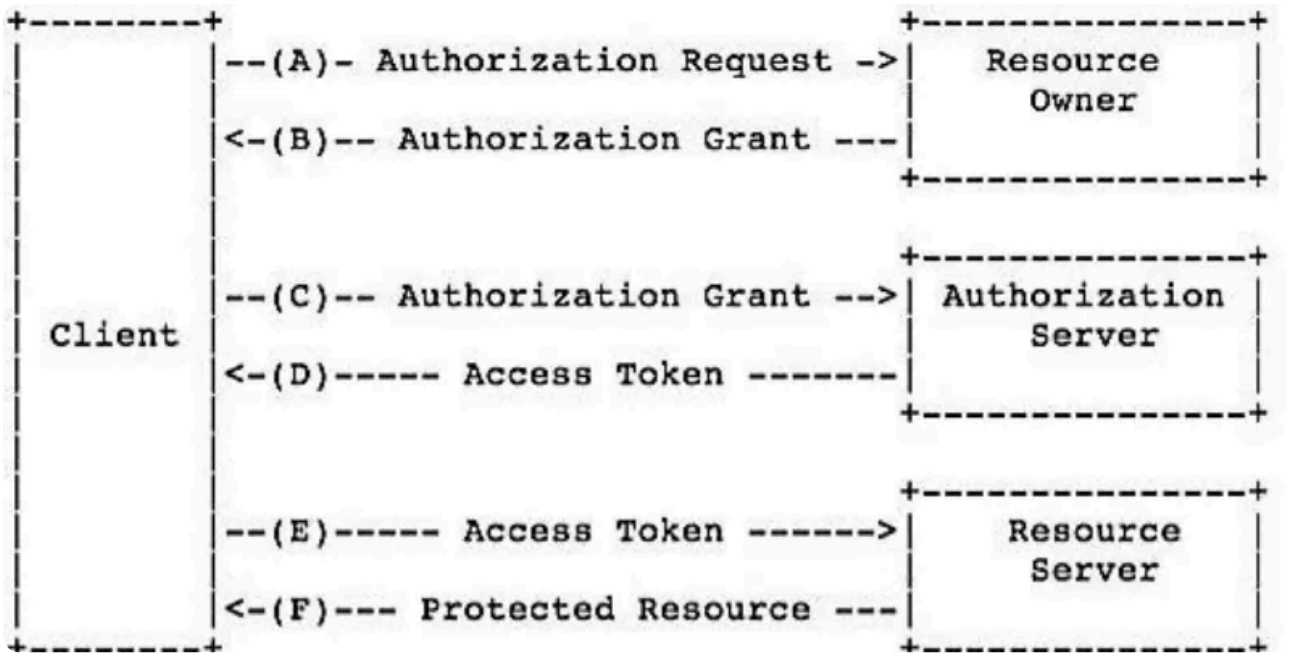
This work has been supported partially by the SUNFISH project (N.644666) funded by the European Commission H2020 Program

Overview

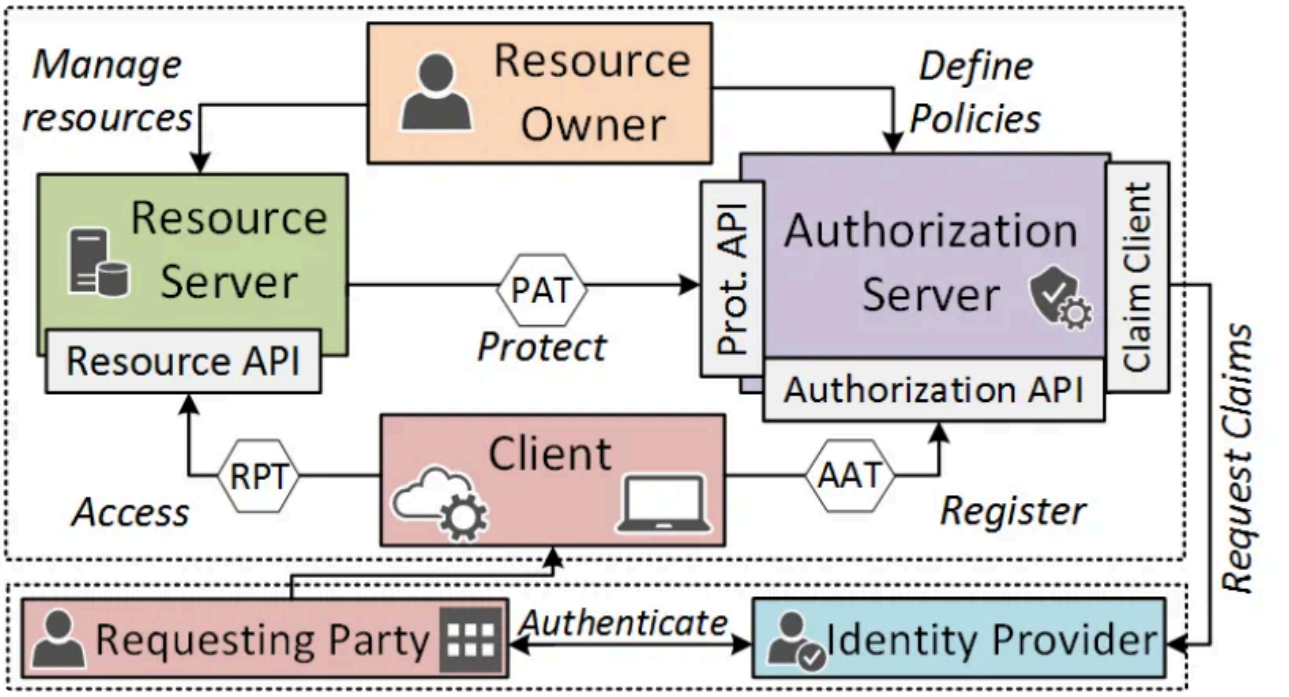

Cloud App
Cloud App
Cloud Platform
salesforce
Enterprise A
Flow
Flow
Flow
Flow
Cloud Integration Platform
Organisation B
On-premise

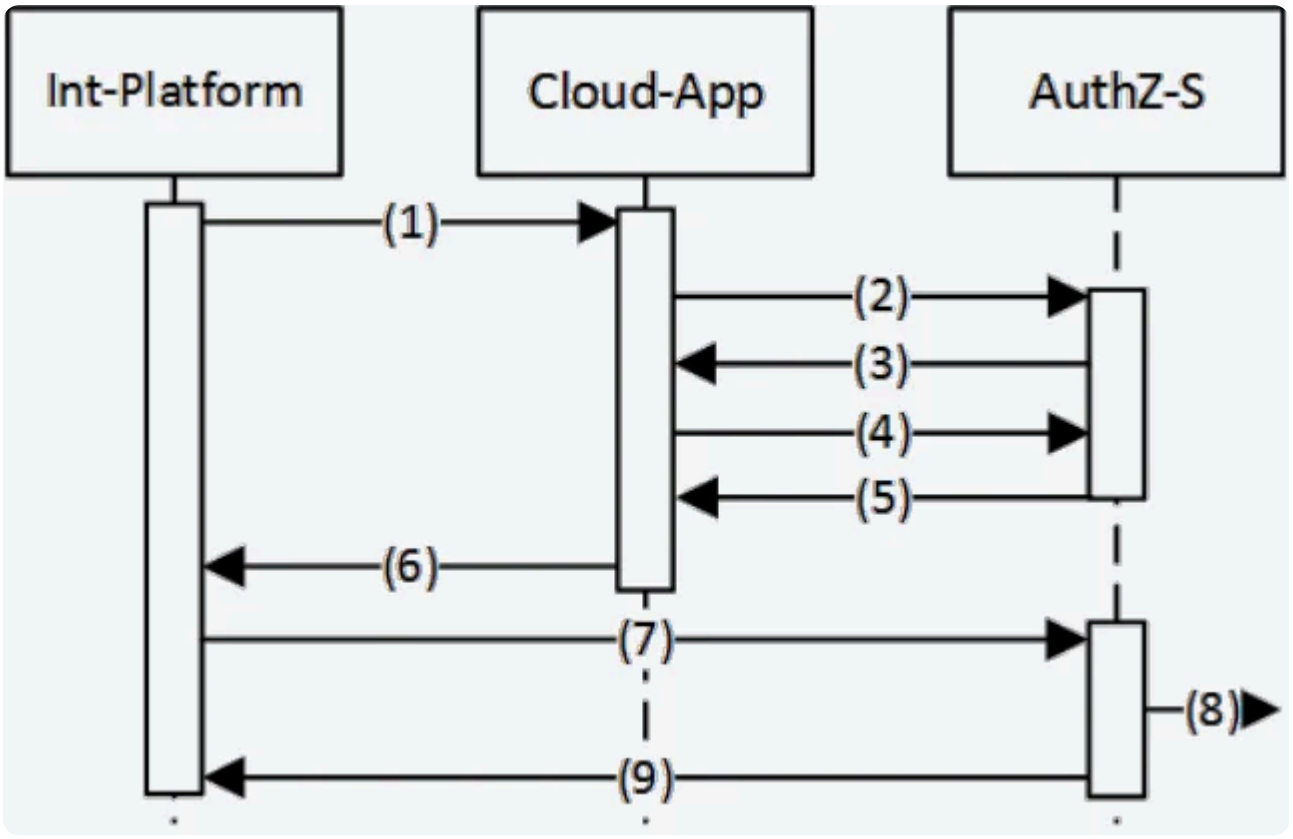

Routing engine
R Route N
from("file:/usr").
filter().
xpathexpression().
to("jms:aQueue");
Message filter processor
. . .
Content-based router processor
Processors
File
. . .
JMS
acUMA
Components

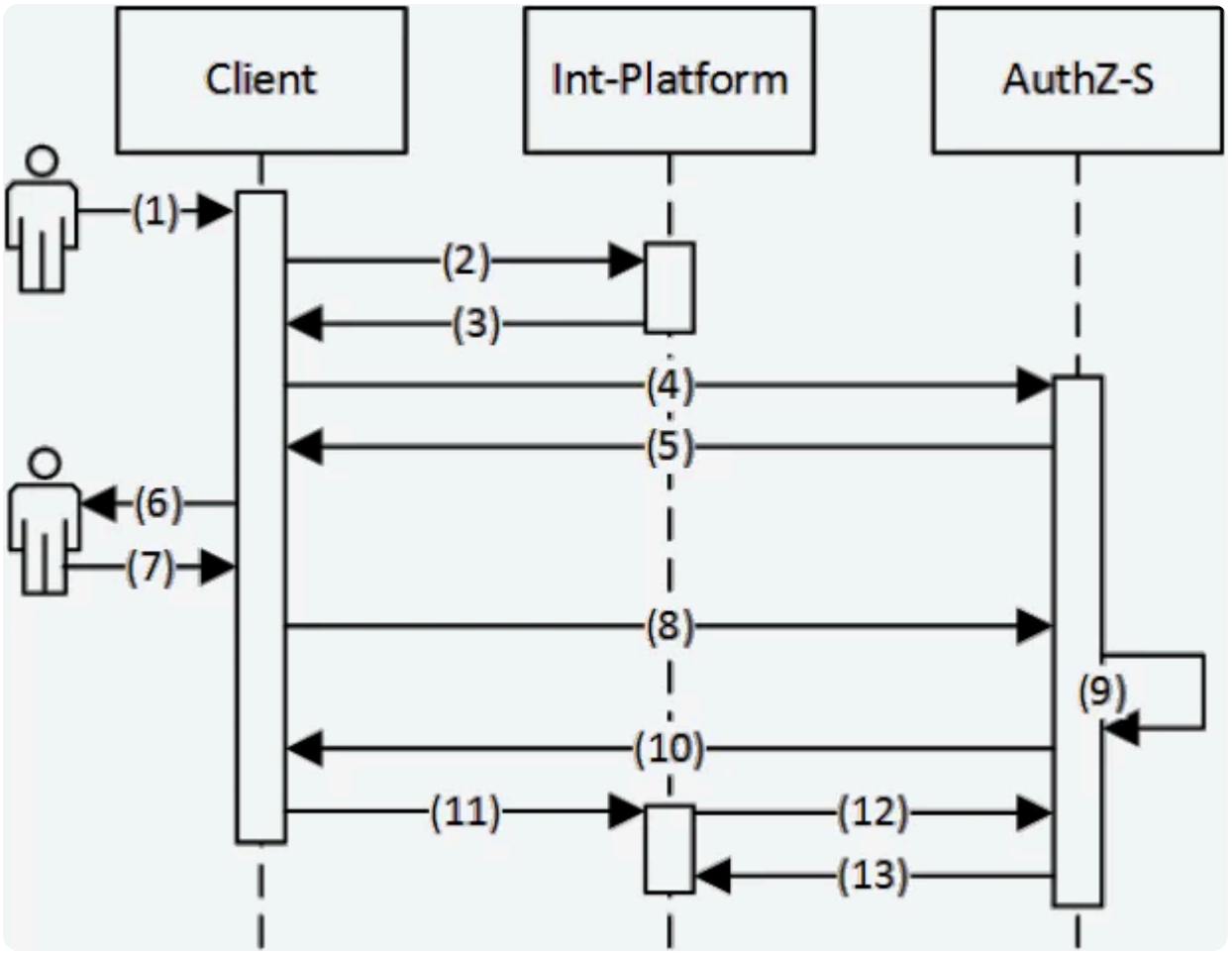
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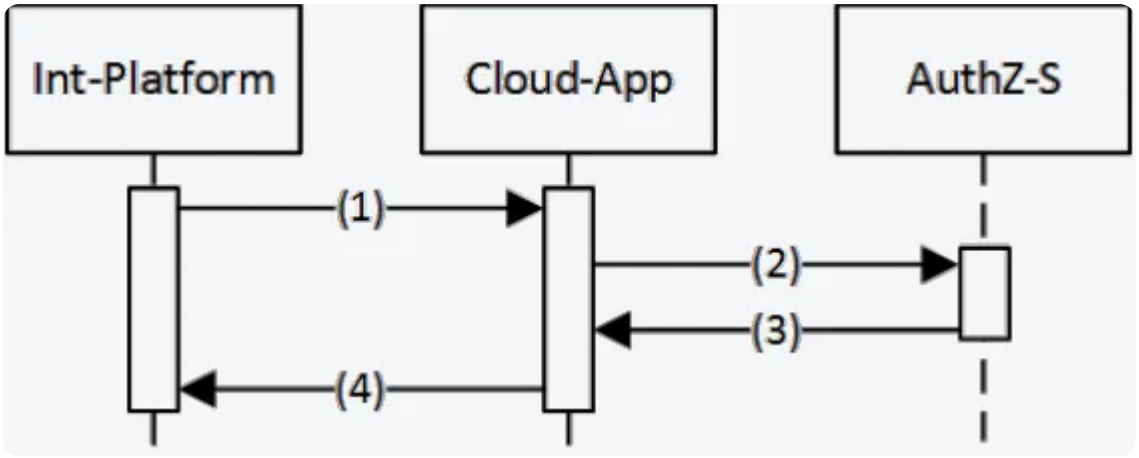

Client
--(A)- Authorization Request ->
<-(B)-- Authorization Grant ---
Resource Owner
--(C)-- Authorization Grant -->
<-(D)----- Access Token -------
Authorization Server
--(E)----- Access Token ------>
<-(F)--- Protected Resource ---
Resource Server

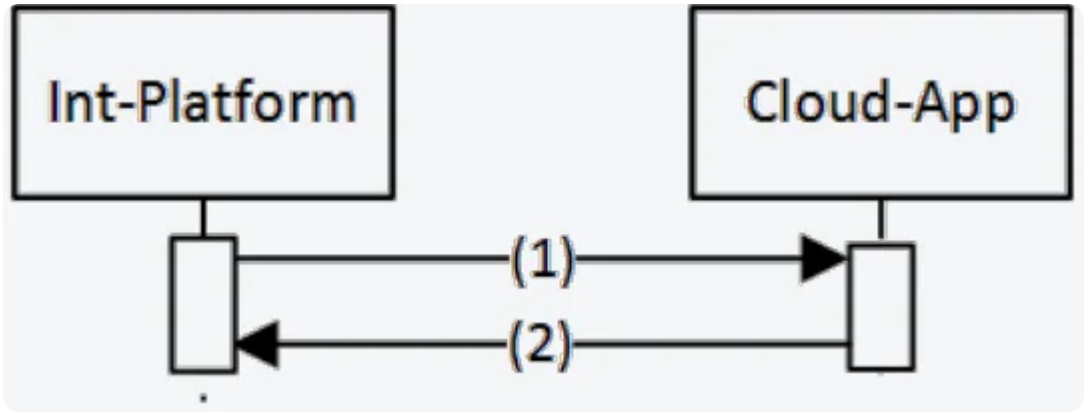
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Manage resources
Resource Owner
Define Policies
Resource Server
Resource API
PAT
Protect
Prot. API
Authorization Server
Authorization API
Claim Client
Request Claims
RPT
Access
Client
AAT
Register
Requesting Party
Authenticate
Identity Provider


Int-Platform
Cloud-App
AuthZ-S
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)


Client
Int-Platform
AuthZ-S
(1)
(2)
(3)
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Int-Platform
Cloud-App
AuthZ-S
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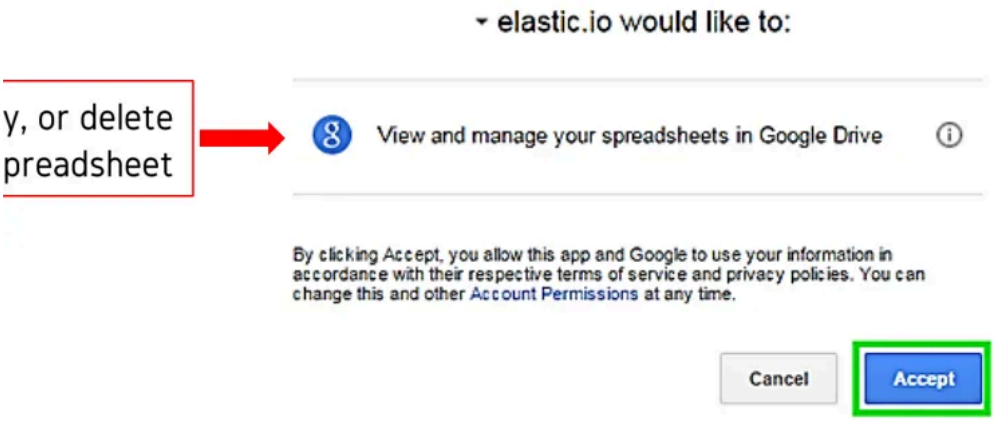


Google Drive:
drive.file: *Comments.create, Comments.update, Files.create, Files.delete, Permissions.create, Permissions.delete, Replies.create, Revisions.update ...*

Microsoft Calendar:
calendars.readwrite: *create event, decline event, create attachment, delete attachment, create calendar, update calendar, create calendar group ...*

Google Authentication

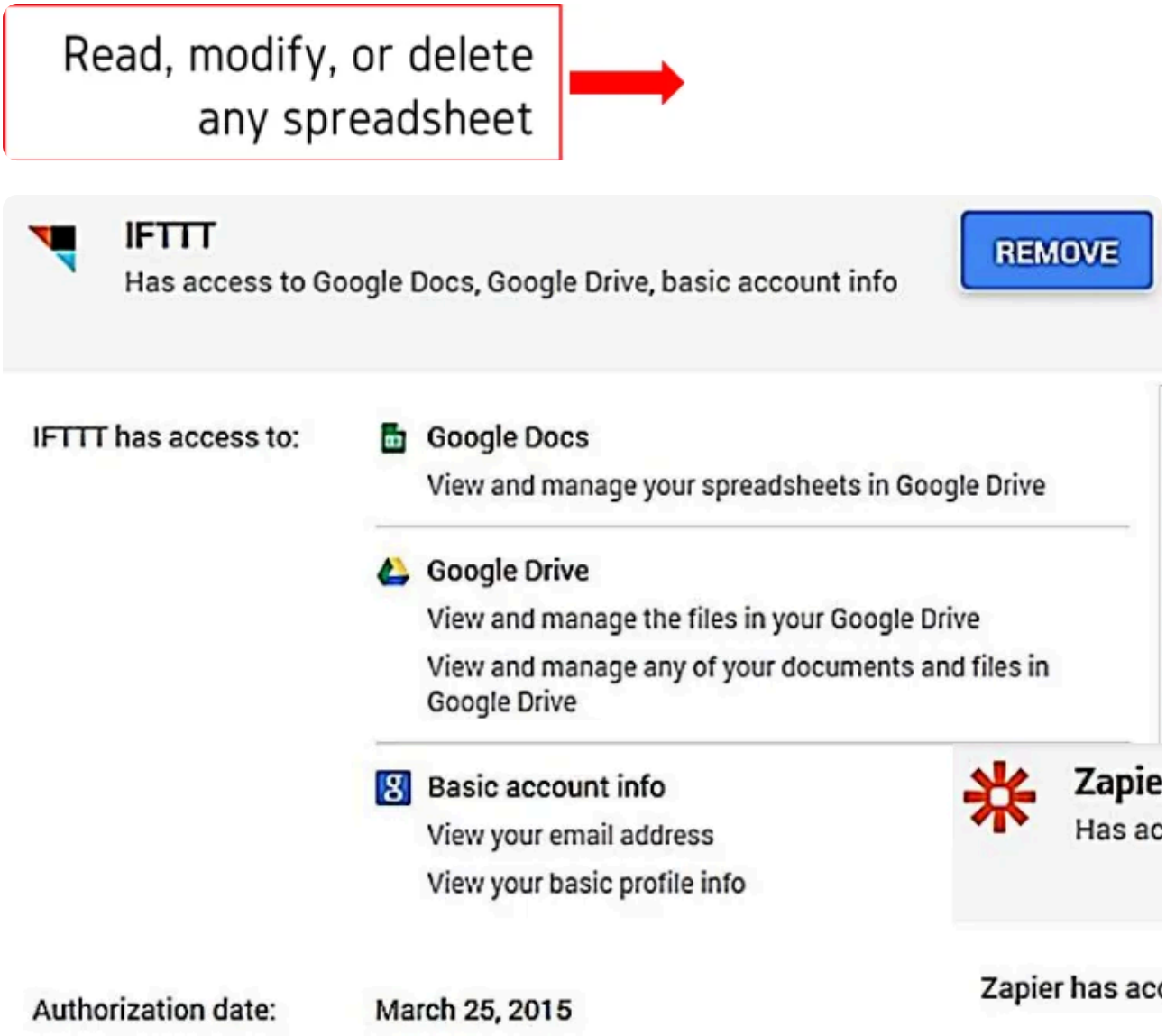
Before you can use any component like Google Spreadsheets or Google Drive it is requirement to authenticate your Google account. If you are logged-in it will show a notification similar to this:

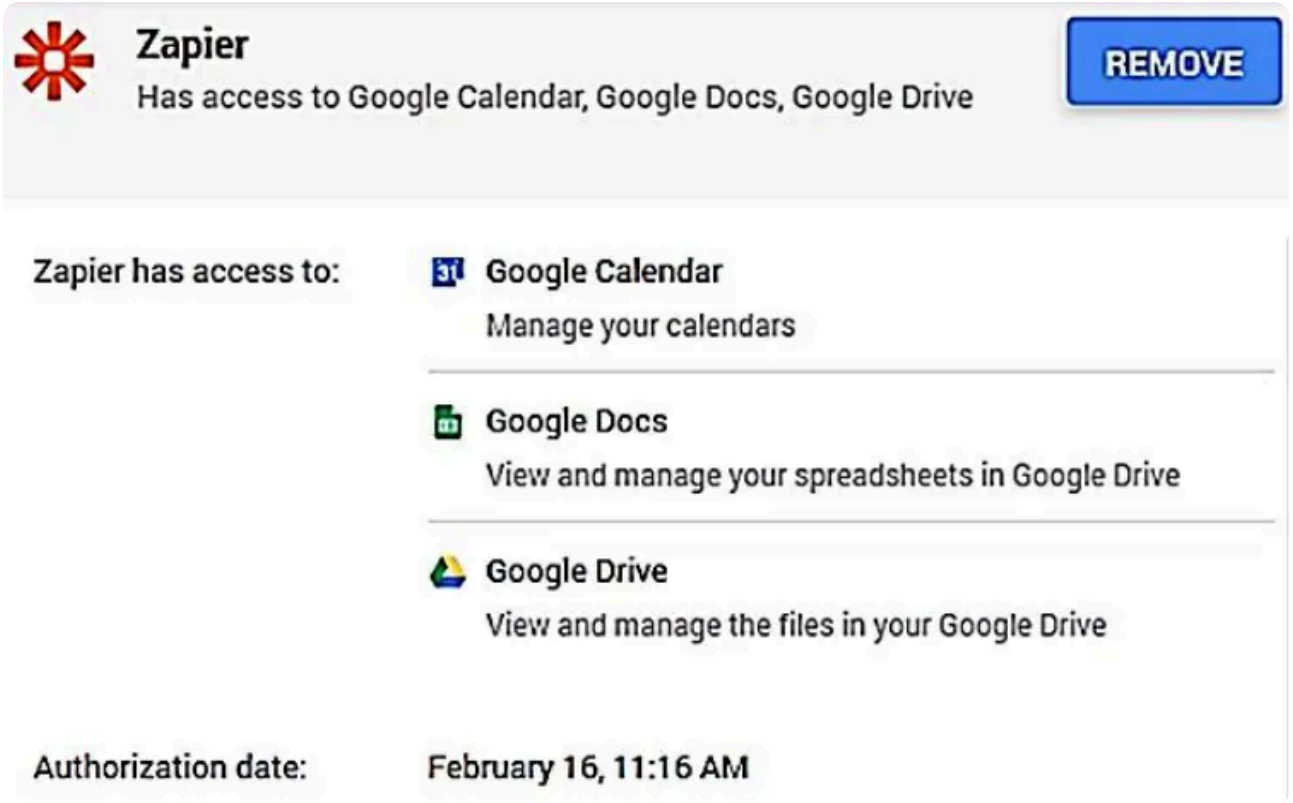


Please Accept it without worries. This kind of notification gives a erroneous impression that for example we can manage your spreadsheets which generally could cause some anxiety.

Elastic.IO we will not remove or create a spreadsheet in your account.

In this particular component case we only write into your specified spreadsheet and only into the specified fields you indicate. **We don't delete any existing data - we add your data.**


Read, modify, or delete any spreadsheet
IFTTT
Has access to Google Docs, Google Drive, basic account info
REMOVE
IFTTT has access to:
Google Docs
View and manage your spreadsheets in Google Drive
Google Drive
View and manage the files in your Google Drive
View and manage any of your documents and files in Google Drive
Basic account info
View your email address
View your basic profile info
Zapie
Has ac
Authorization date:
March 25, 2015
Zapier has ac


Zapier
Has access to Google Calendar, Google Docs, Google Drive
REMOVE
Zapier has access to:
Google Calendar
Manage your calendars
Google Docs
View and manage your spreadsheets in Google Drive
Google Drive
View and manage the files in your Google Drive
Authorization date:
February 16, 11:16 AM

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