



## Prophets, Hills and Identical Interfaces for Open Source and MS 365

## 2 Agenda

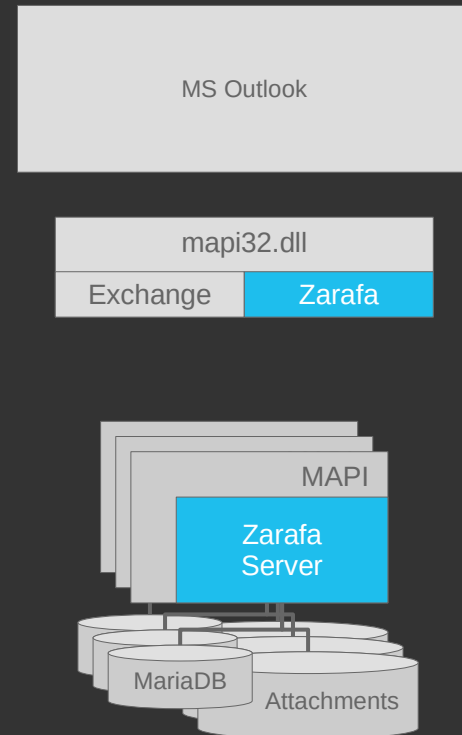
- Introduction to the Kopano RestAPI
- Querying data with the “Grapic Explorer”
- Existing integrations: Harmonizely
- Summary

### 3 Hands-on

- If you want to play with our RestAPI yourself:
  - <https://github.com/Kopano-dev/univention-summit-2021-workshop>
- Requires at least the „kopano-core“ app to be installed on the same system
  - Its recommended to use the appliance for easy tests  
<https://www.univention.com/products/univention-app-center/app-catalog/kopano-core/>
  - You could also install the „Univention Demo Data“ app for easy test users
- Manual installation will no longer be necessary with the upcoming „Kopano One“app

## 4 In the past... Outlook & Zarafa

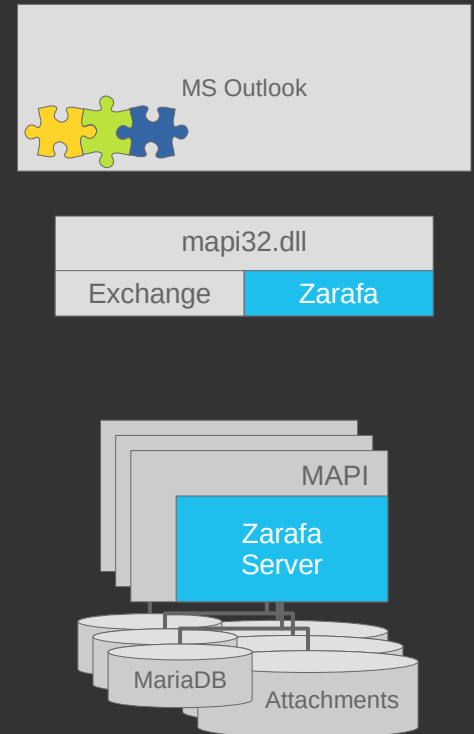
- Back at Zarafa, Outlook was the center of the world
- Low-level integration through mapi32.dll, brought native interaction with Outlook
- With Outlook as the main point of contact ...



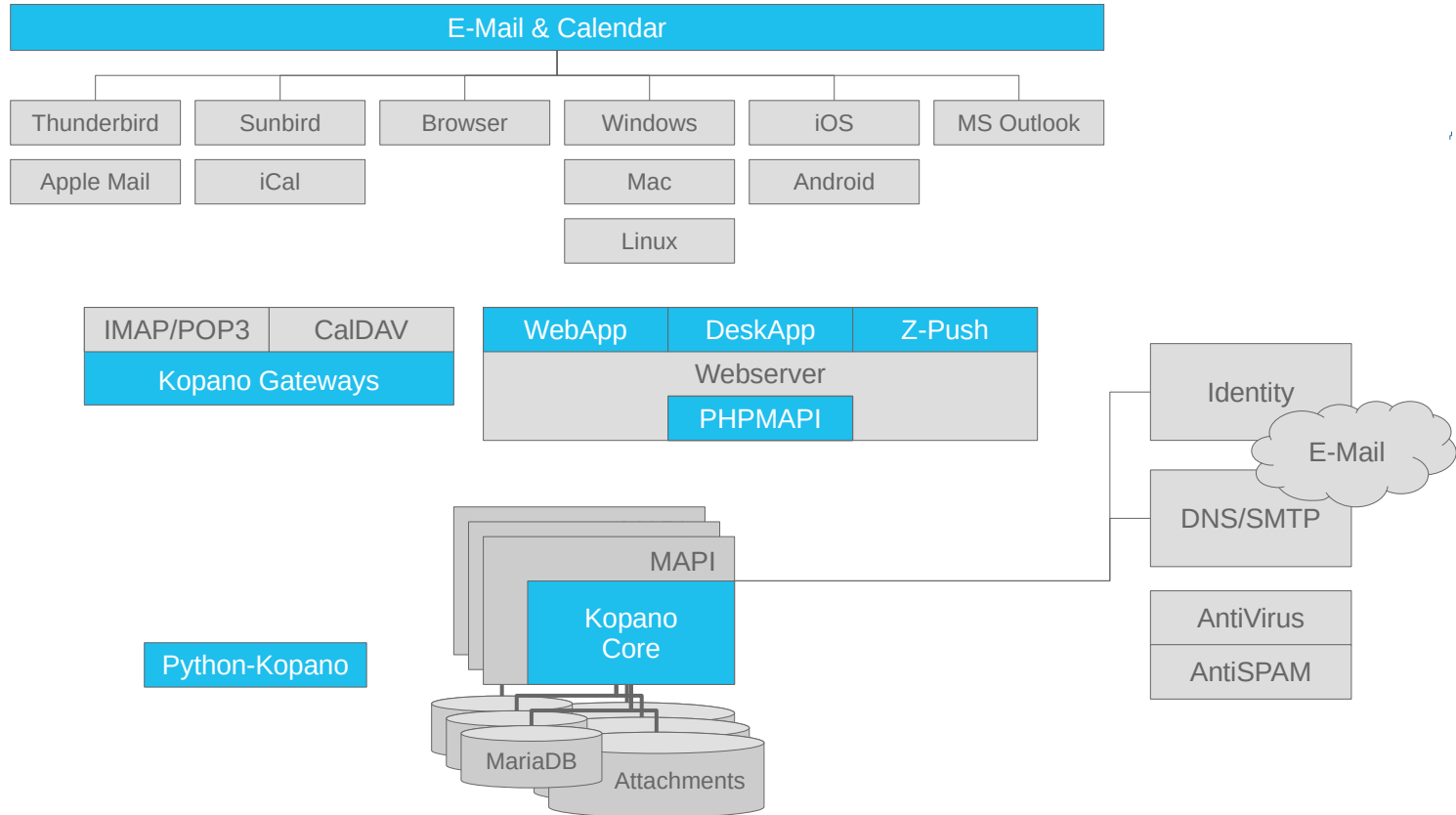
## 5 In the past... Outlook & Zarafa

- With Outlook as the main point of contact ... it could be used as a interface for integrations
- Client side integrations have disadvantages
- Microsoft moved on from mapi32.dll

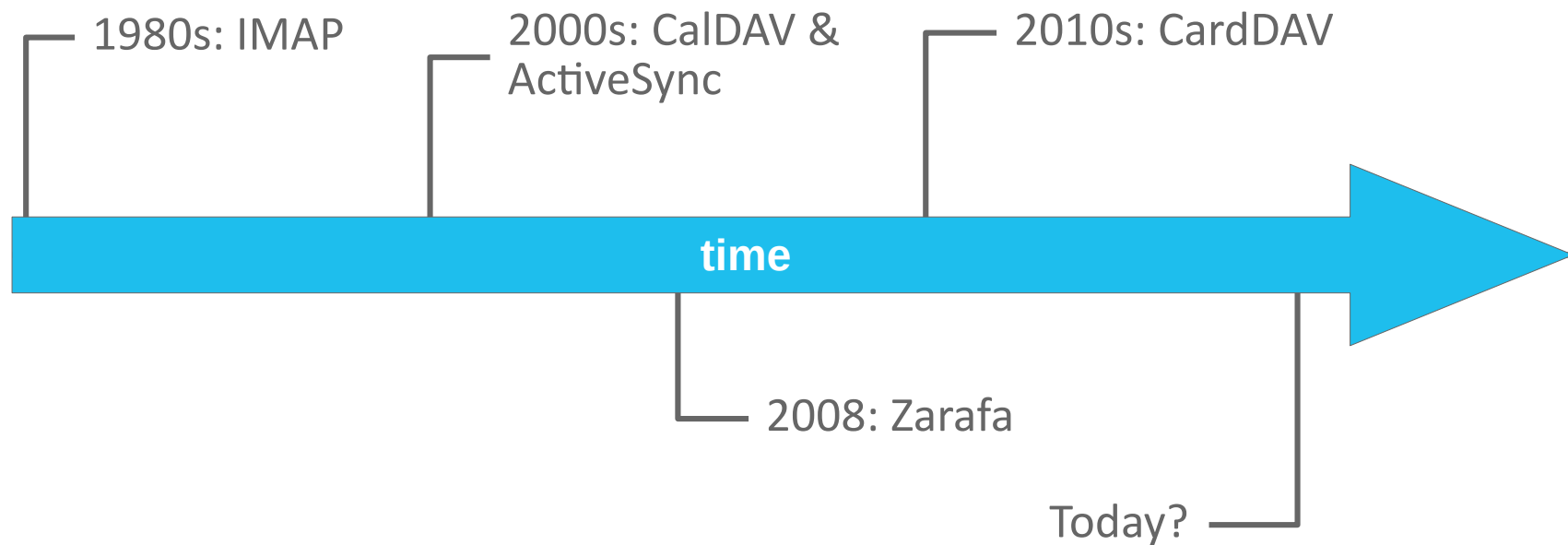
ERP/CRM  
Documents  
Meetings



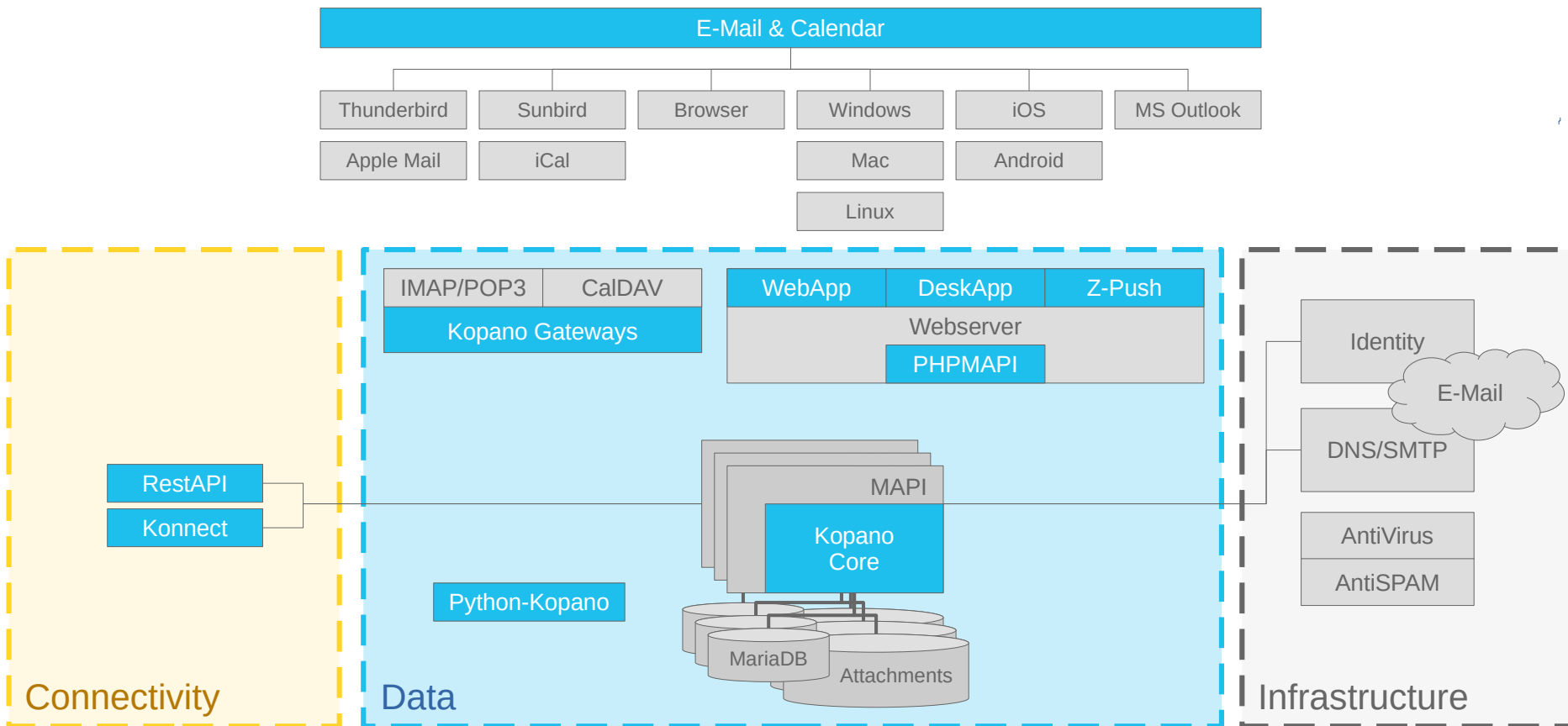
## 6 Kopano Infrastructure



## 7 Well known APIs for connecting



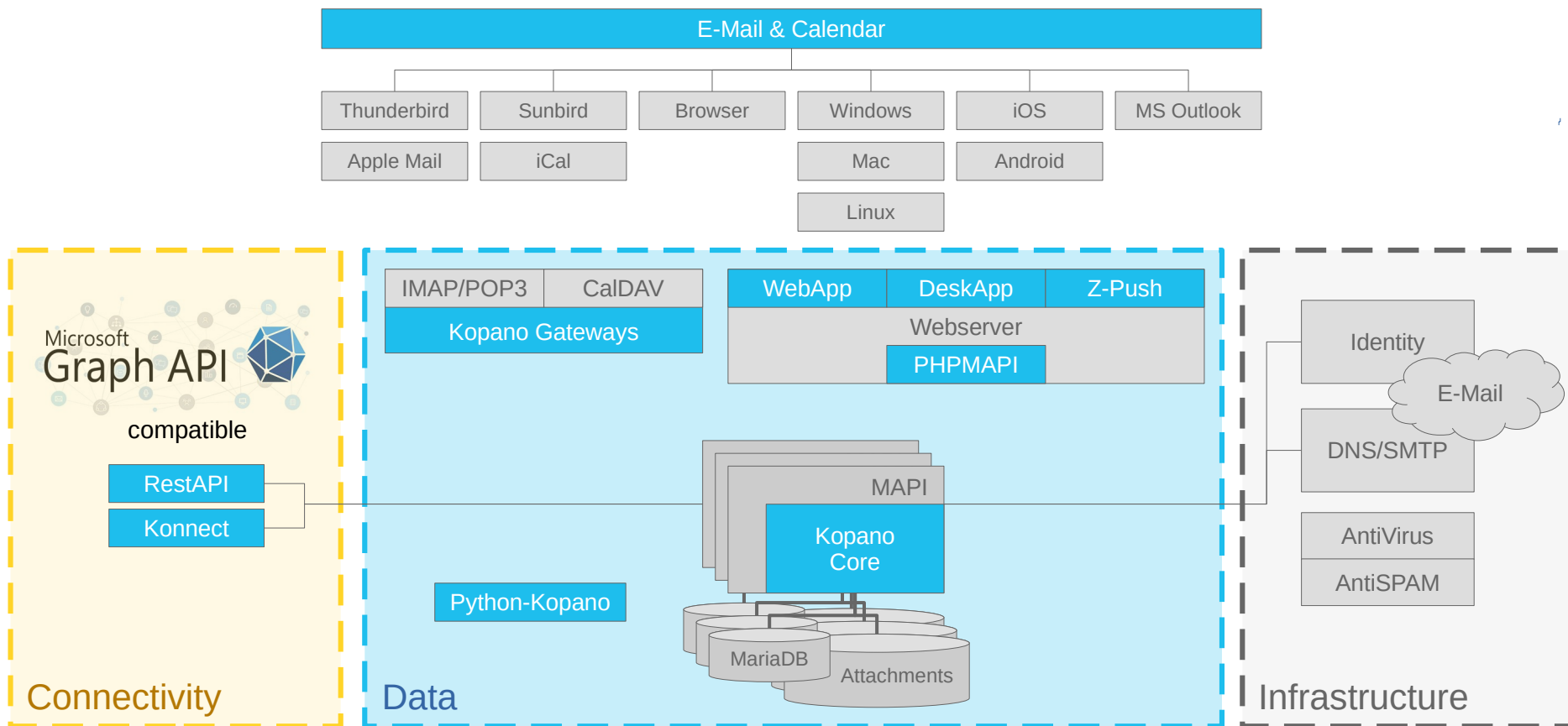
## 8 Introduction to the Kopano RestAPI





## 9

# Kopano RestAPI is compatible to MS Graph API



## 10 Why Microsoft Graph?

- It's a well known API
  - Lots of developers already have experience with it
  - There are plenty of examples and SDKs available
- It's a well defined API
  - Provides endpoints for mail, calendars, tasks, user management, video meetings, chat, files, ...
- Token auth instead of handling usernames & passwords directly

## 11 Demo: Checking the installation

## 12 Querying the RestAPI with the „Grap Explorer“

- Fork of the Microsoft Graph Explorer made to work with a custom endpoint instead of <https://graph.microsoft.com>
- Source: <https://stash.kopano.io/projects/KC/repos/grapi-explorer/>

The screenshot displays the GRAPI Explorer web application. On the left sidebar, the 'Authentication' section shows a user profile for 'Jonas Brekke' with email 'user1@kopano.dev' and a 'sign out' link. Below it, the 'Sample Queries' section lists several GET requests like 'my profile', 'my photo', and 'my mail'. The main interface at the top has a 'GET' method selector, a 'v1' version dropdown, and a URL input field containing 'https://kopano.dev/api/gc/v1/me/'. A 'Run Query' button is to the right. Below the input fields are tabs for 'Request Body' and 'Request Headers'. A green status bar indicates 'Success - Status Code 200, 54ms'. At the bottom, the 'Response Preview' tab shows a JSON object representing a user profile.

```
{
  "id": "AAAAKwhqVBA0-5Isxn7p1MwRCUBAAAABgAAAAUAAABNUT09AAAAA==",
  "displayName": "Jonas Brekke",
  "jobTitle": "Psychologist, sport and exercise",
  "givenName": "Jonas",
  "mail": "user1@kopano.dev",
  "mobilePhone": "05416 169130",
  "officeLocation": "Kopenhagen",
  "surname": "Brekke",
  "userPrincipalName": "user1",
  "companyName": "Default",
  "@odata.context": "/api/gc/v1/me"
}
```

## 13 Easily execute sample queries

- By default only shows “getting started” queries
  - More can be enabled by going to “show more samples”
- Not all examples are implemented for the Kopano RestAPI
  - Current WIP can be enabled by setting “enable\_experimental\_endpoints” in grapi

The screenshot displays the GRAPI Explorer interface. On the left, a sidebar contains sections for Authentication (with a user profile for Jonas Brekke), Sample Queries (listing various GET requests like 'my profile', 'my photo', etc.), and History. The main area on the right, titled 'Sample Categories', lists numerous categories such as 'Getting Started (6)', 'Users (8)', 'Groups (8)', 'Outlook Mail (10)', 'Outlook Mail (beta) (1)', 'Outlook Calendar (7)', 'Personal Contacts (2)', 'OneDrive (5)', 'Excel (7)', 'Planner (13)', 'Insights (1)', 'Insights (beta) (3)', 'People (3)', 'Extensions (7)', 'OneNote (6)', 'SharePoint Sites (7)', 'SharePoint Lists (5)', 'Batching (2)', 'Microsoft Teams (8)', 'Microsoft Teams (beta) (5)', 'Security (19)', 'User Activities (2)', 'Applications (beta) (7)', and 'Notifications (beta) (2)'. Each category has a toggle switch to its right, with the 'Getting Started' category currently being the only one that is turned on.

GRAPI Explorer

Authentication

Jonas Brekke  
user1@kopano.dev  
[sign out](#)

Sample Queries

Getting Started

- [GET](#) my profile
- [GET](#) my photo
- [GET](#) my mail
- [GET](#) all the items in m...
- [GET](#) items trending ar...
- [GET](#) my manager

[show more samples](#)

History

Sample Categories

- Getting Started (6) ☒
- Users (8) ☐
- Groups (8) ☐
- Outlook Mail (10) ☐
- Outlook Mail (beta) (1) ☐
- Outlook Calendar (7) ☐
- Personal Contacts (2) ☐
- OneDrive (5) ☐
- Excel (7) ☐
- Planner (13) ☐
- Insights (1) ☐
- Insights (beta) (3) ☐
- People (3) ☐
- Extensions (7) ☐
- OneNote (6) ☐
- SharePoint Sites (7) ☐
- SharePoint Lists (5) ☐
- Batching (2) ☐
- Microsoft Teams (8) ☐
- Microsoft Teams (beta) (5) ☐
- Security (19) ☐
- User Activities (2) ☐
- Applications (beta) (7) ☐
- Notifications (beta) (2) ☐

# 14 Porting applications to the Kopano RestAPI

- The Grapi Explorer can also serve as an example how to port existing Office 365 applications to Kopano:
- [Link to diff](#)

The screenshot shows the Bitbucket 'Compare' interface. The source is 'Kopano Gro... / grapi-explorer' at the 'master' branch, authored by Simon Eisenmann on 19 Aug 2019. The destination is the same repository at commit '8aad55373bf', authored by Japheth Obala on 29 Jul 2019. The diff view shows changes in the file 'src / app / authentication / auth.ts'. The file explorer on the left shows the project structure: src > app > authentication > auth.ts. The diff highlights two changes: line 14, where the interval for refreshing the access token is changed from 10 minutes to 1 minute, and line 20, where the OAuth2 token endpoint is updated from v2.0/authorize to v2.0/token.

```
4 4 // -----
5 5
6 6 import { ChangeDetectorRef } from '@angular/core';
7 7 import { AppComponent } from '../app.component';
8 8 import { IExplorerOptions, IMessage } from '../base';
9 9 import { GraphService } from '../graph-service';
10 10 import { PermissionScopes } from '../scopes-dialog/scopes';
11 11 import { getParameterByName, getGraphUrl } from '../util';
12 12
13 13 export function initAuth(options: IExplorerOptions, apiService: GraphService, changeDetectorRef: ChangeDetectorRef) {
14 -   setInterval(refreshAccessToken, 1000 * 60 * 10); // refresh access token every 10 minutes
14 +   setInterval(refreshAccessToken, 1000 * 60 * 1); // refresh access token every minute
15 15   hello.init({
16 16     msft: {
17 17       oauth: {
18 18         version: 2,
19 -       auth: options.AuthUrl + '/common/oauth2/v2.0/authorize',
20 -       grant: options.AuthUrl + '/common/oauth2/v2.0/token',
```

## 15 Demo: Grapi Explorer

## 16 Examples out in the wild: Harmonizely

- Harmonizely is a cloud service to simplify planning meetings
- Europe based (developed in Poland)
- Had integrations already for Google Calendar, iCloud and Office 365
- Integration with Kopano RestAPI can be used with the free account
  - Integration of Kopano Meet requires paid account



## 17 Demo: Harmonizely

## 18 Examples out in the wild: Harmonizely



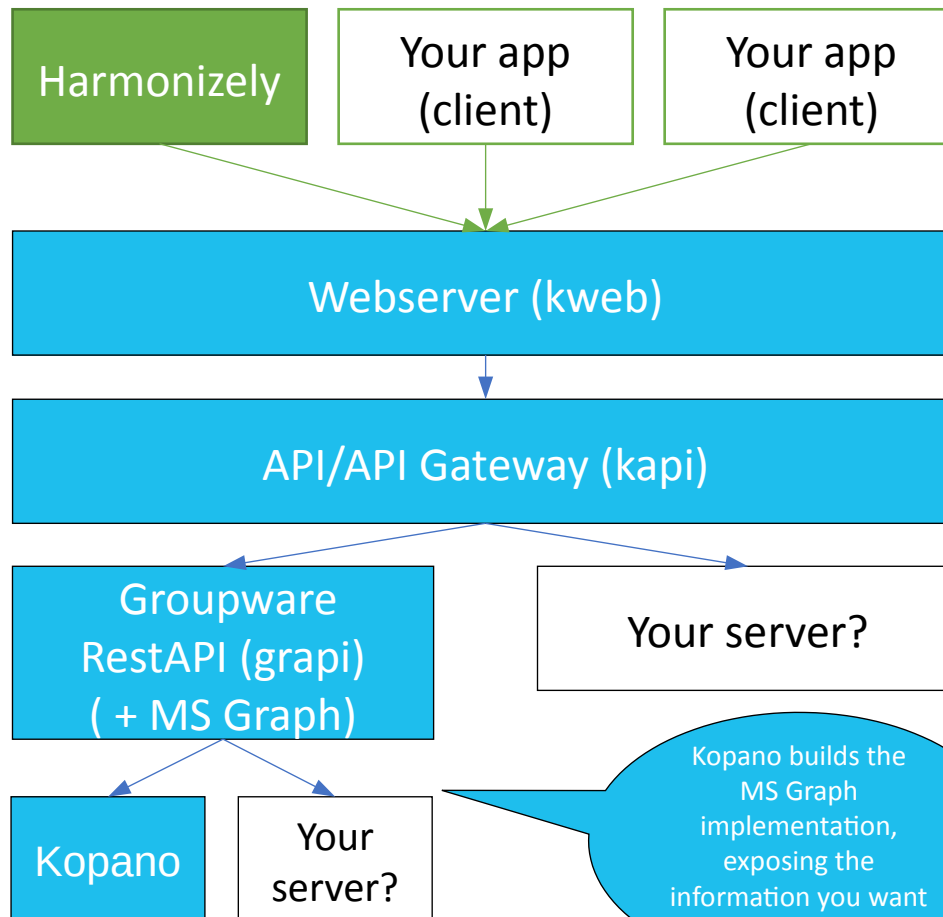
**„Due to Kopano’s MS-compatible REST API, 90% of the work was already done.“**

Rafal Muszynski – CEO & Founder at Harmonizely.com

## 19 Harmonizely: Try it out yourself

- Demo calendar: <https://app.harmonizely.com/felixbartels/demo>

## 20 How to connect additional backends?



You already expose the MS Graph implementation of what you want to provide (e.g. drive, for file sharing)

Kopano builds the MS Graph implementation, exposing the information you want to provide

## 21 Tl;dl

- The RestAPI will be part of the new „Kopano One“ app on Univention
- Designed after Microsoft Graph important differences at <https://stash.kopano.io/projects/KC/repos/grapi/browse/COMPAT.md>
- Not all endpoints are included as of yet
  - WIP endpoints can be queried when setting „enable\_experimental\_endpoints“ to yes
- To allow applications to access data the „kopano/gc“ needs to be requested at login
- In case an application already supports Microsoft Graph, 90% of the work is already done for a Kopano integration

## 22 Thanks for your attention!

- Time for your questions!
- Or follow up at the Kopano sponsor both
  - or via <https://app.harmonizely.com/felixbartels>

## 24 Abstract

**Workshop 14:45 – 15:30**

### **Propheten, Berge und identische Schnittstellen für Open Source und MS 365**

Die Herausforderung: Sie brauchen dringend eine oder mehrere Spezial- oder Fachanwendungen. Die dafür verfügbaren Anwendungen bieten auch sehr hilfreiche Schnittstellen zur Kommunikations- und Kollaborationsinfrastruktur. Die Anbieter der Software konzentrieren sich aber in erster Linie auf die vermeintlich „geltenden Industriestandards“. Weshalb digital souveräne, quelloffene Systeme oft außen vor bleiben.

In unserem Workshop zeigen wir, wie wir diese Herausforderung mit einer flexiblen, für alle Anbieter offenen und vor allem mit den Schnittstellen von MS 365 kompatiblen RestAPI lösen. Der Integrationsaufwand für den Zugriff auf Termine, Frei/Gebucht-Informationen, E-Mails oder Dateien wird damit mehr als deutlich reduziert.

Wir stellen die Idee unserer Schnittstelle vor und richten diese auf UCS ein. Die Kompatibilität demonstrieren wir mit einer angepassten Version des MS Graph Explorers von Microsoft. Wir belassen es aber nicht bei theoretischen Beweisen. Zum Abschluss des Workshops verbinden wir einen Kalender des Univention/Kopano-Systems mit dem Cloud-Tool Harmonizely, um die Terminplanung mit Personen, die keinen Zugriff auf den Univention-Server haben, zu vereinfachen.

Mit diesem Ansatz stehen wir in unserer Tradition „Industriestandards“ erfolgreich in die Open-Source-Welt zu überführen – wie wir das bereits mit unserem MAPI-Server und auch Z-Push (ActiveSync-over-the-Air) gemacht haben.