Microsoft

The data from within: Understand your organization with Microsoft Graph

Tobias Urban

The world of Microsoft

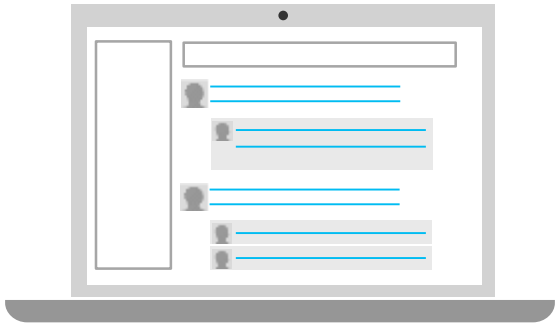
Office 365 Platform

Office

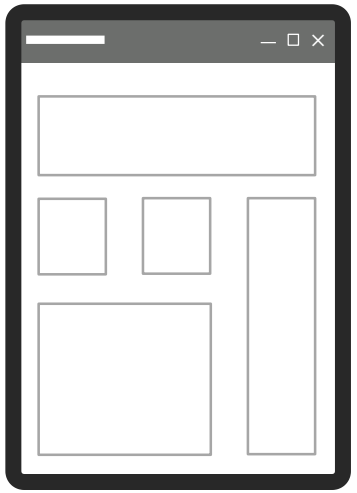
Canvases

Documents

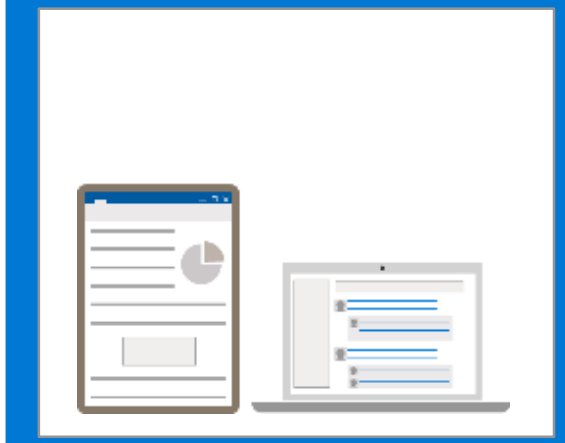
Conversations

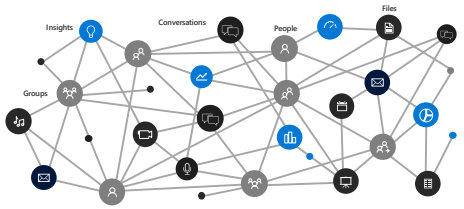


Pages



Standalone web, device, and service apps





Office Graph

Microsoft Graph Platform

Documents

Conversations

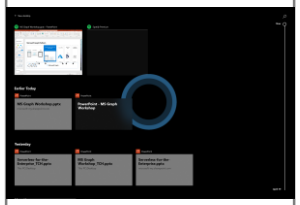
Pages

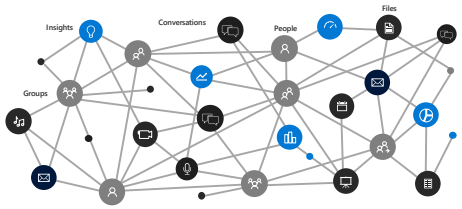
Standalone web, device, and service apps

Azure APIs

Dynamics Data

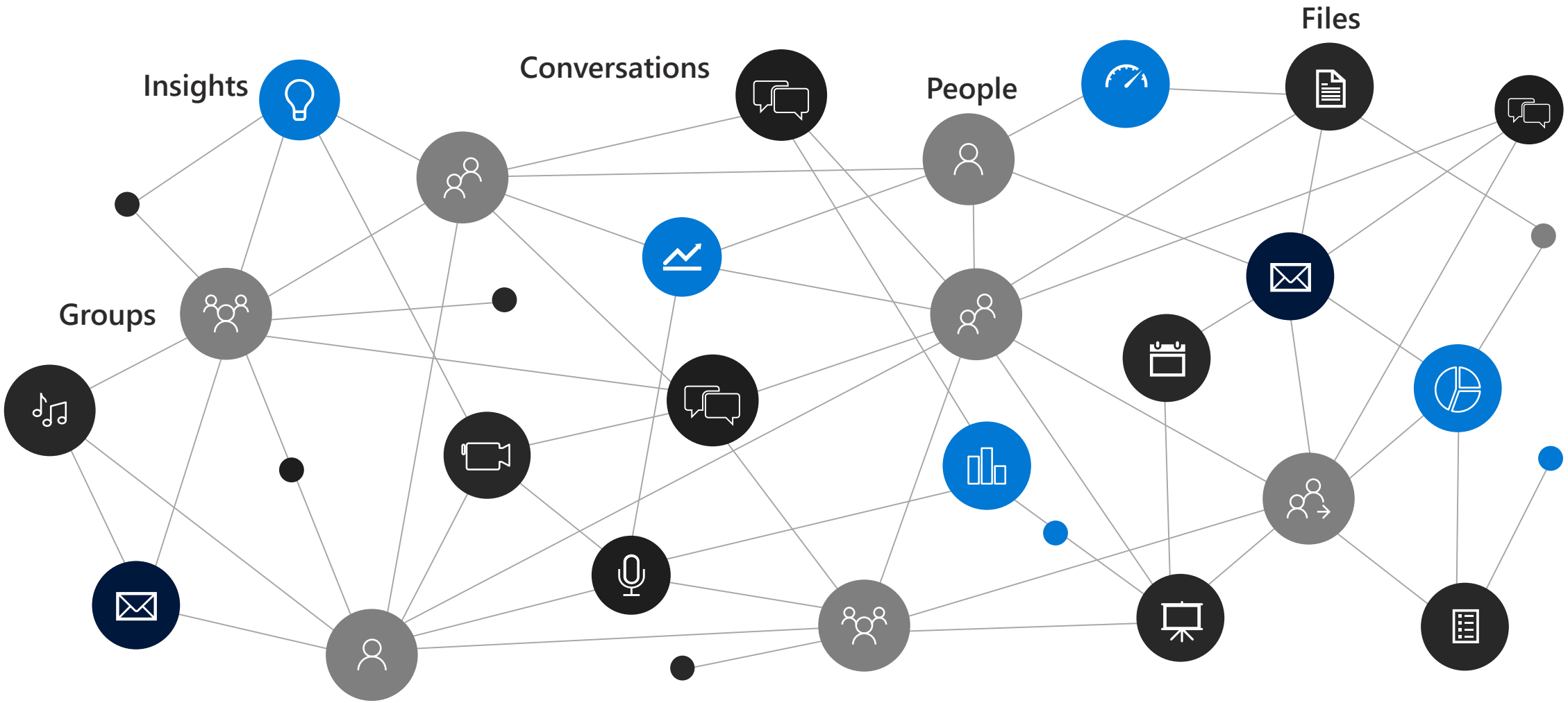
Windows Integration



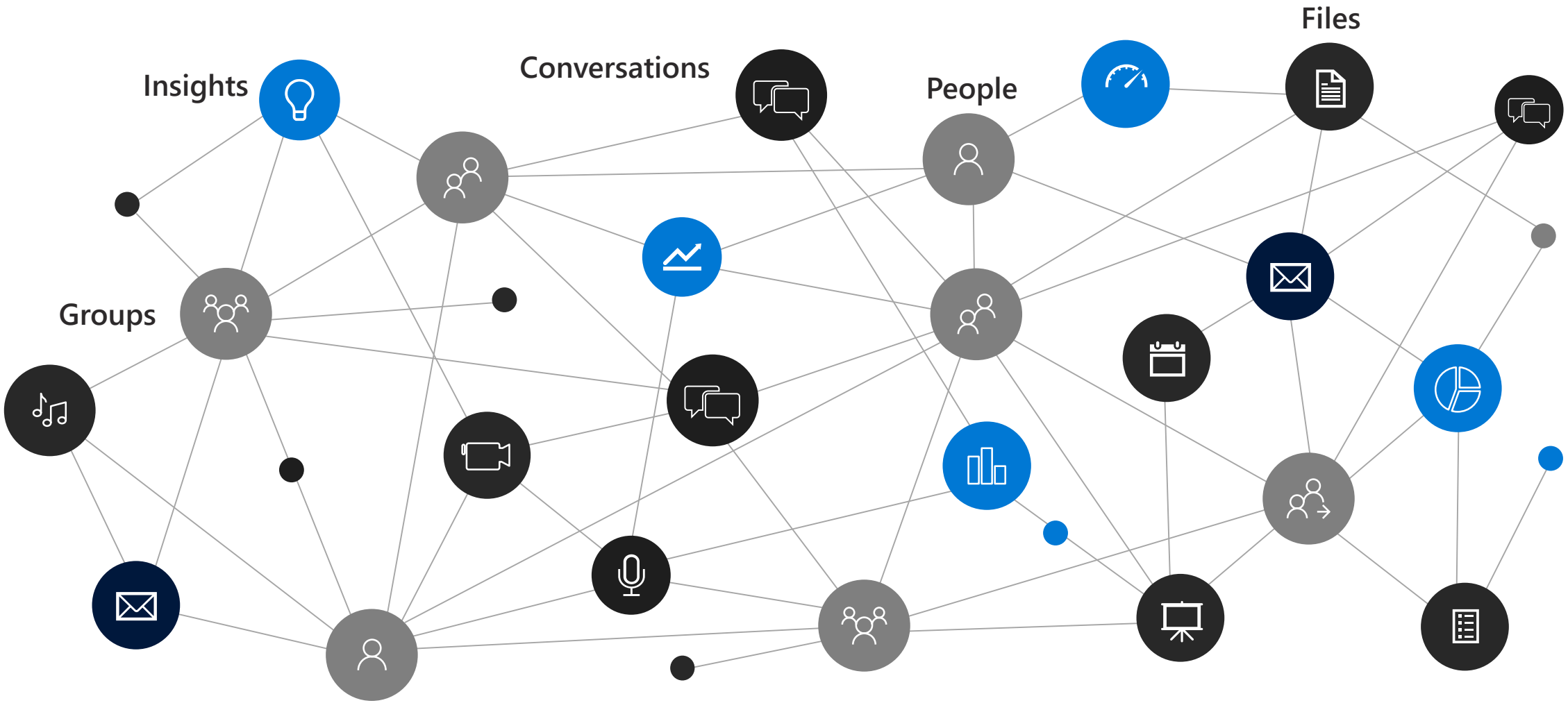


Microsoft Graph

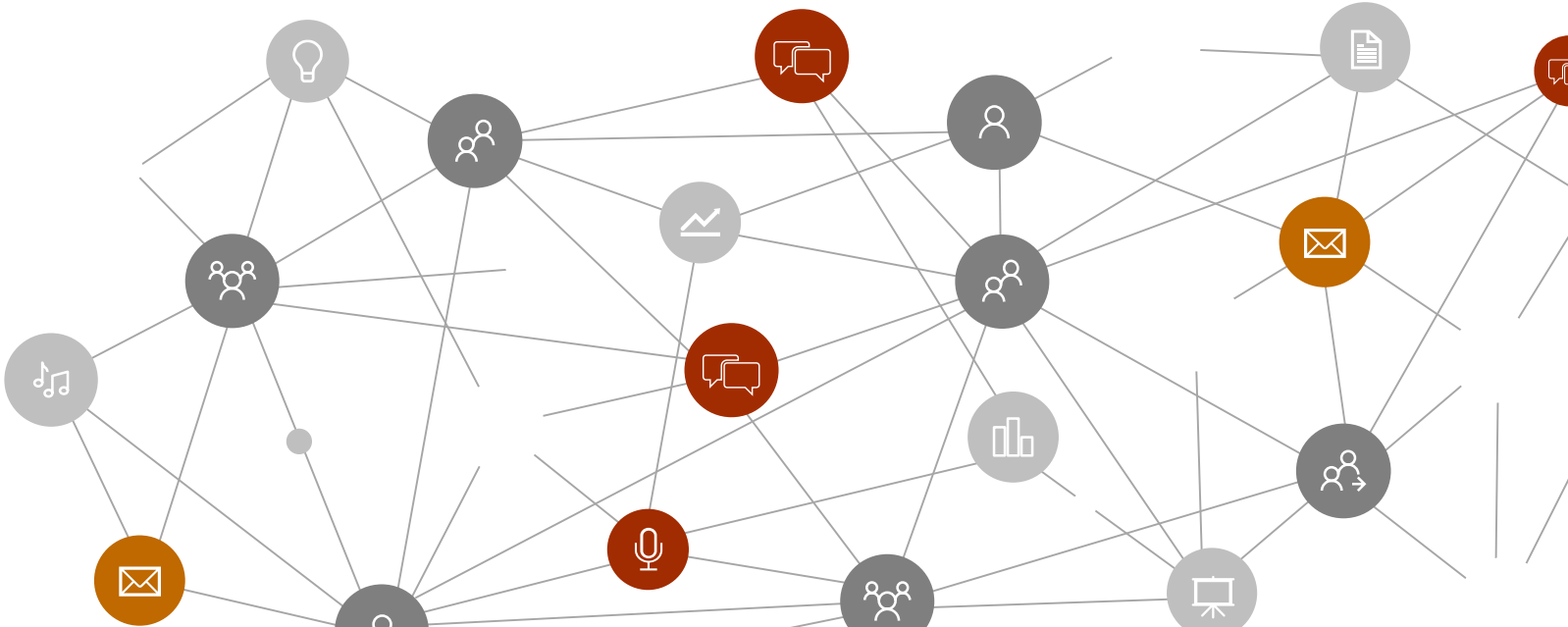
Microsoft Graph



Microsoft Graph



Microsoft Graph



Emerging Patterns with MS Graph

Smart Pickers

Graph-Connected Devices

Graph-Powered Bots

Intelligent Business Process

Rich context

Is this person out of the office?

Who is their manager?

Where do they need to be next?

What documents have they been working on recently?

Deep insights

What documents are most interesting to this person?

What's the best time for this group of people to meet?

Who should this person contact for info on this topic?

Real-time updates

Reschedule meeting when a conflict appears

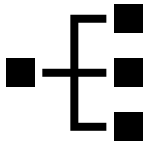
Notify owner when a file is modified

Continue a process immediately after approval mail is received

What is Microsoft Graph?

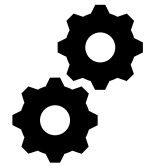
Data

RESTful API



Azure Active Directory

Your custom applications

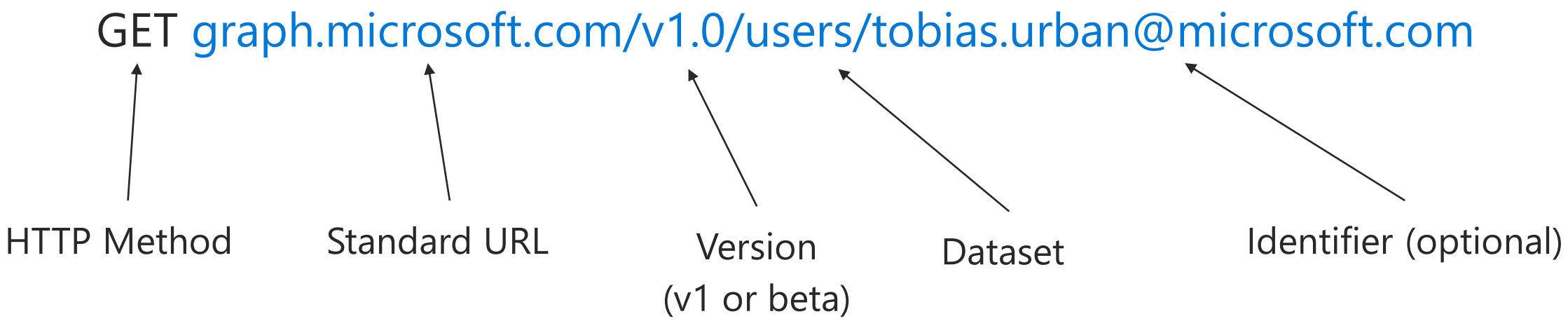


What is Microsoft Graph?

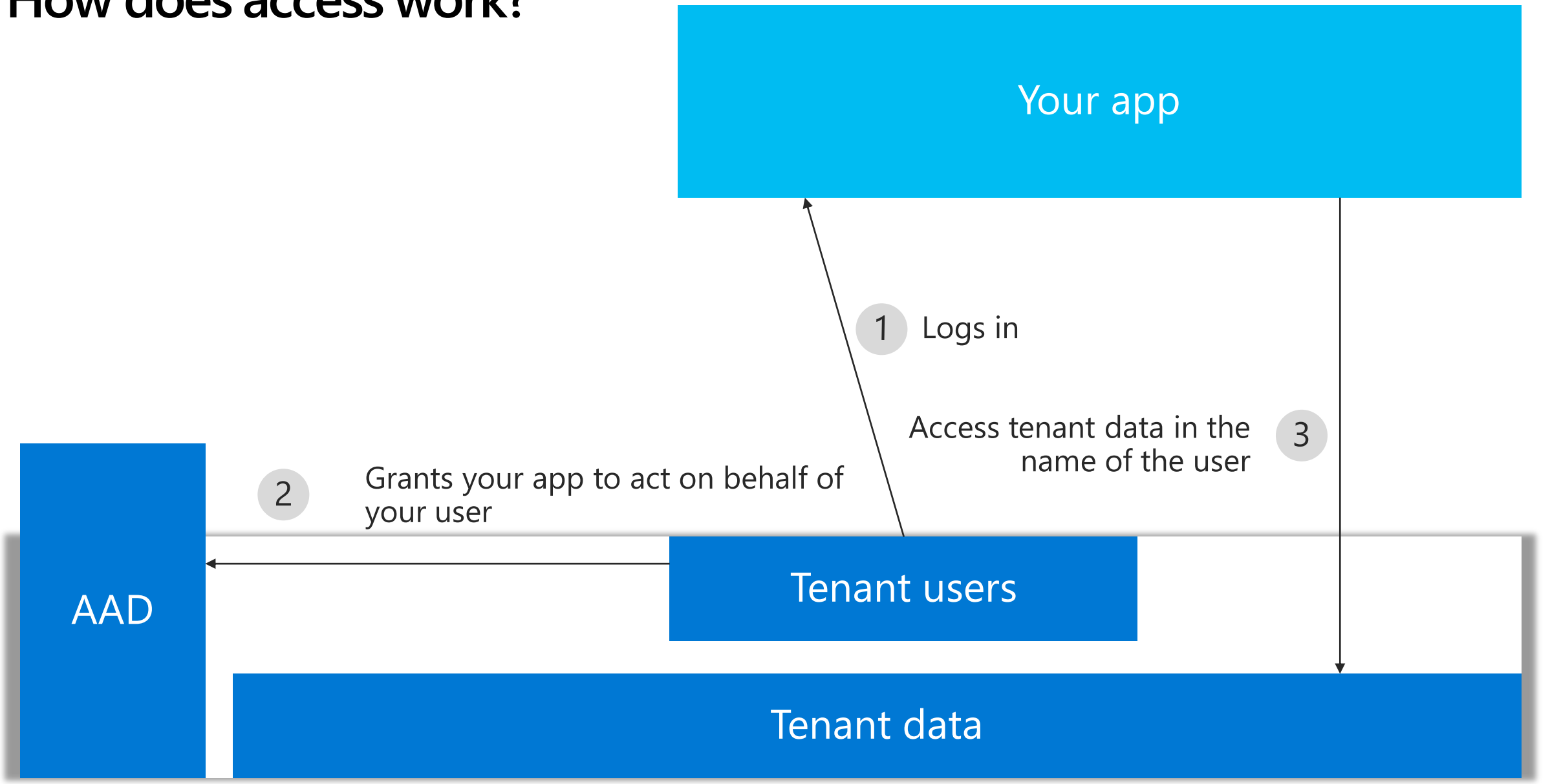
GET graph.microsoft.com/v1.0/users/tobias.urban@microsoft.com

```
HTTP/1.1 200 OK
Content-type: application/json
Content-length: 491 {
    "businessPhones": [ "businessPhones-value" ],
    "displayName": "displayName-value",
    "givenName": "givenName-value",
    "jobTitle": "jobTitle-value",
    "mail": "mail-value",
    "mobilePhone": "mobilePhone-value",
    "officeLocation": "officeLocation-value",
    "preferredLanguage": "preferredLanguage-value",
    "surname": "surname-value",
    "userPrincipalName": "userPrincipalName-value",
    "id": "id-value"
}
```

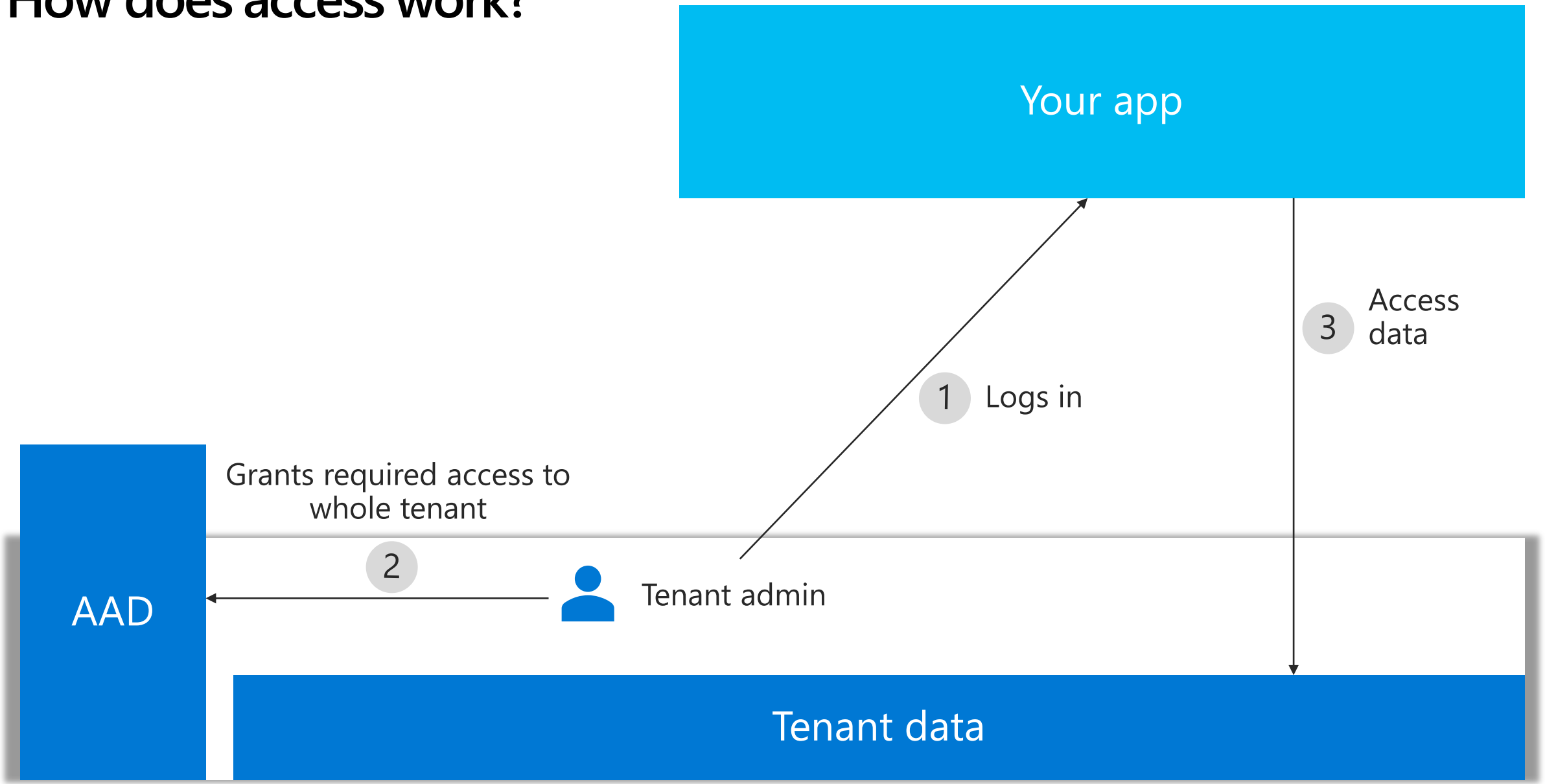
What is Microsoft Graph?



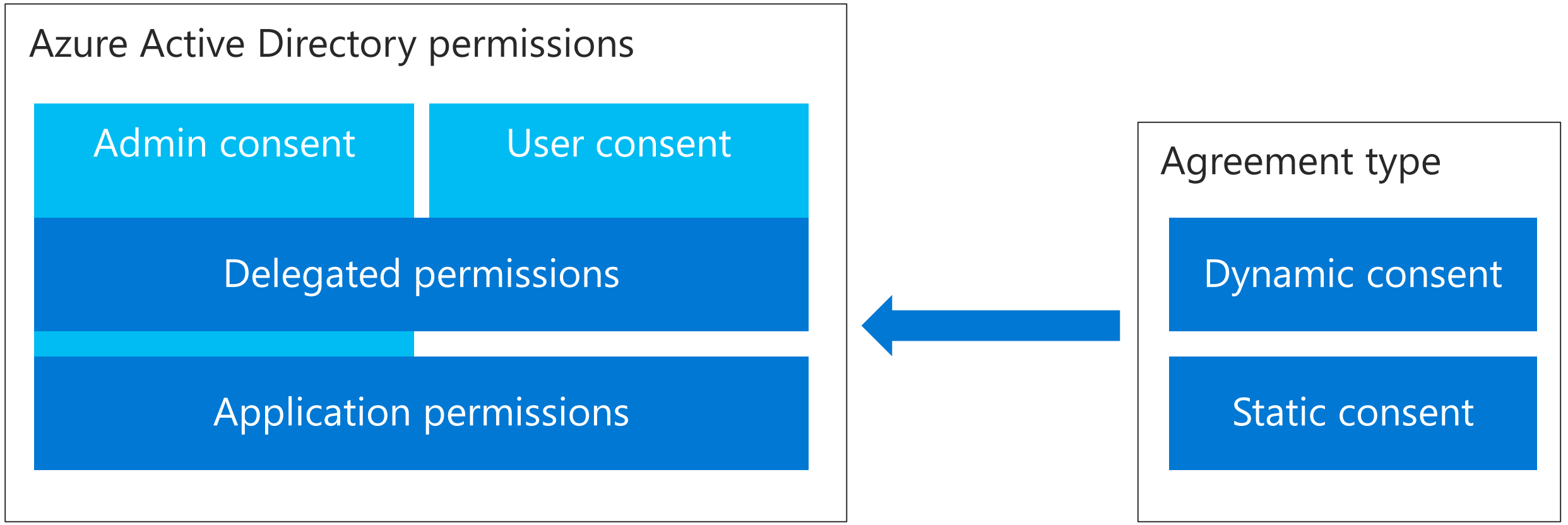
How does access work?



How does access work?



Consent Framework



Steps in developing a Graph-empowered application

1. Register a new application in Azure Active Directory
2. Implement authorization in your new application
3. Access the Microsoft Graph

Register a new application in Azure Active Directory

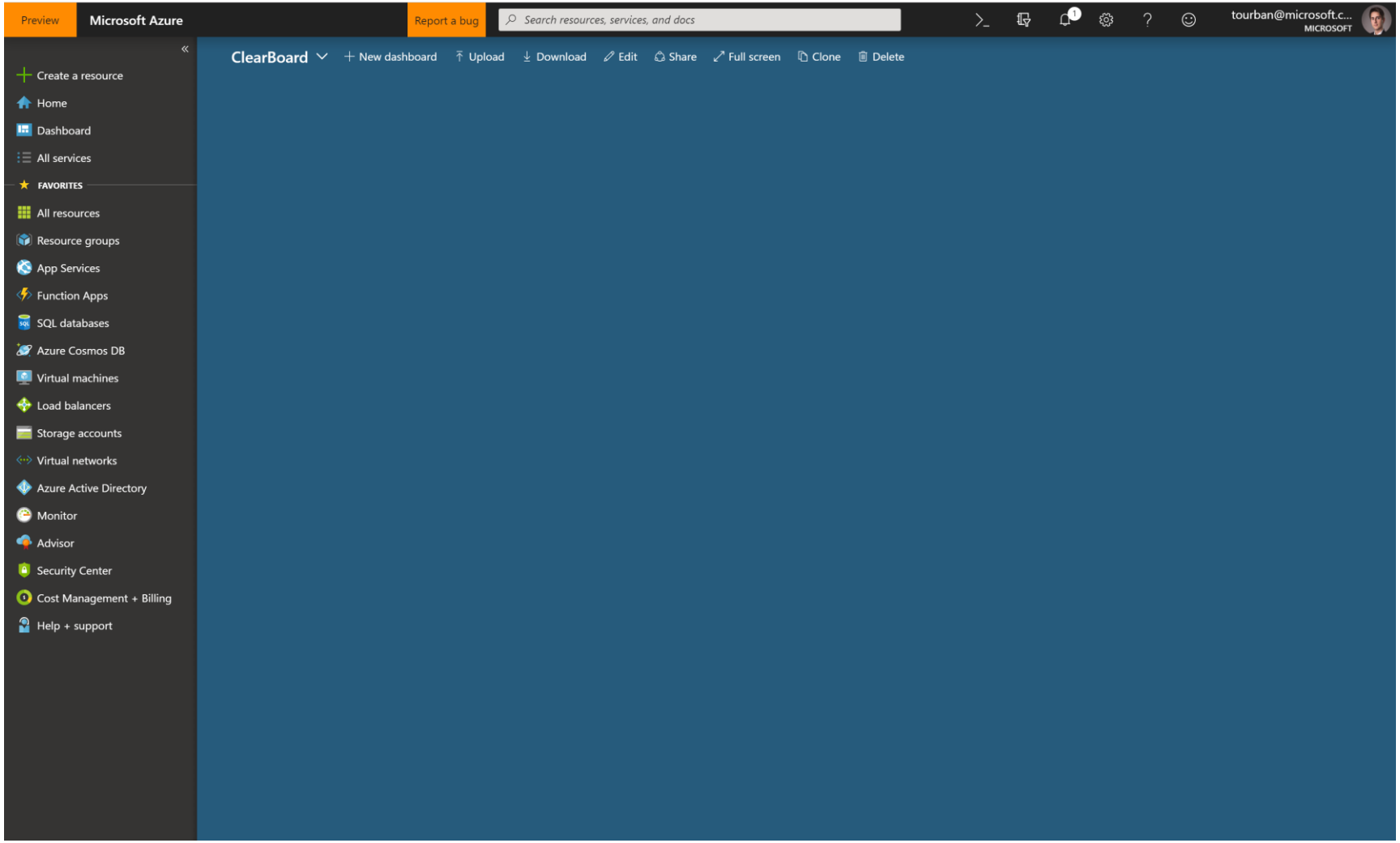
Go to portal.azure.com

Find “Azure Active Directory” on the left side or search for it

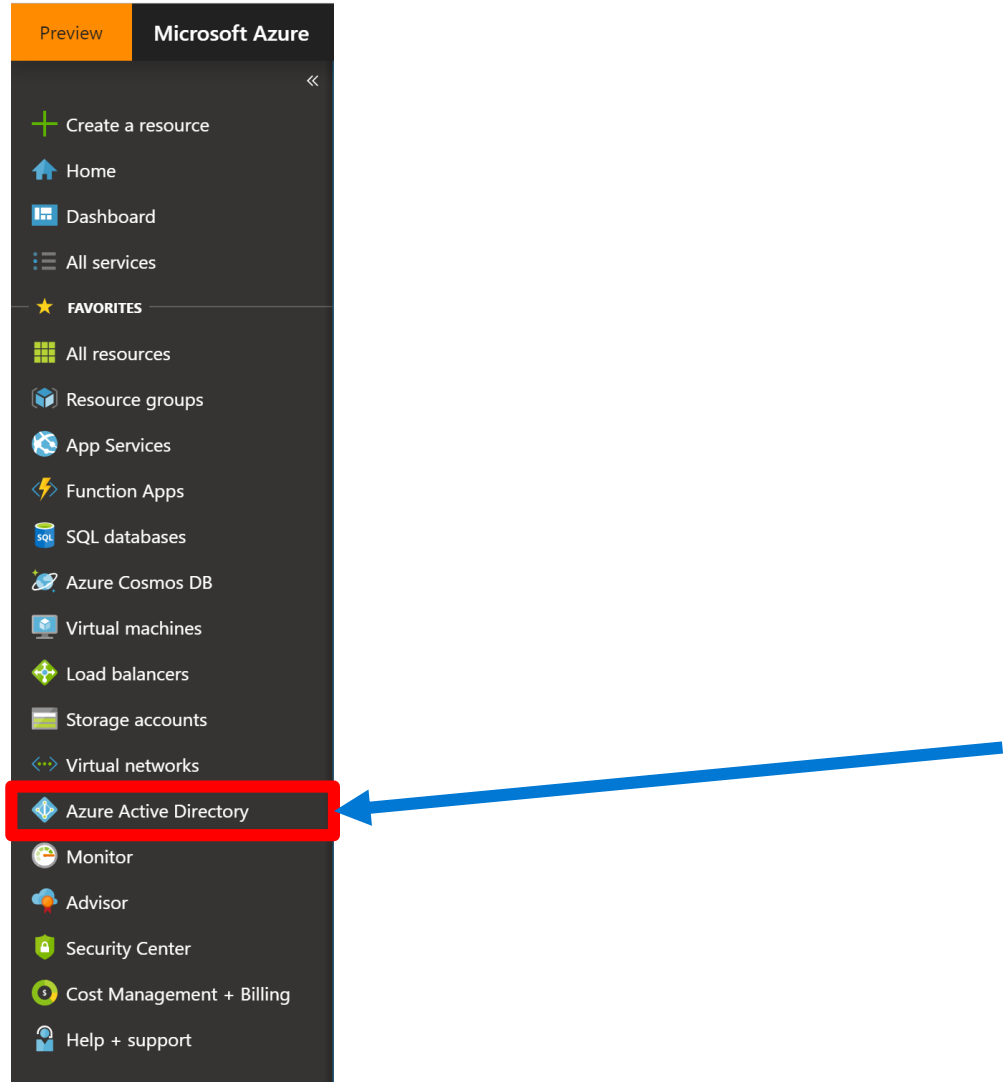
Click on “App registrations (preview)” in the navigation

Click “New Registration

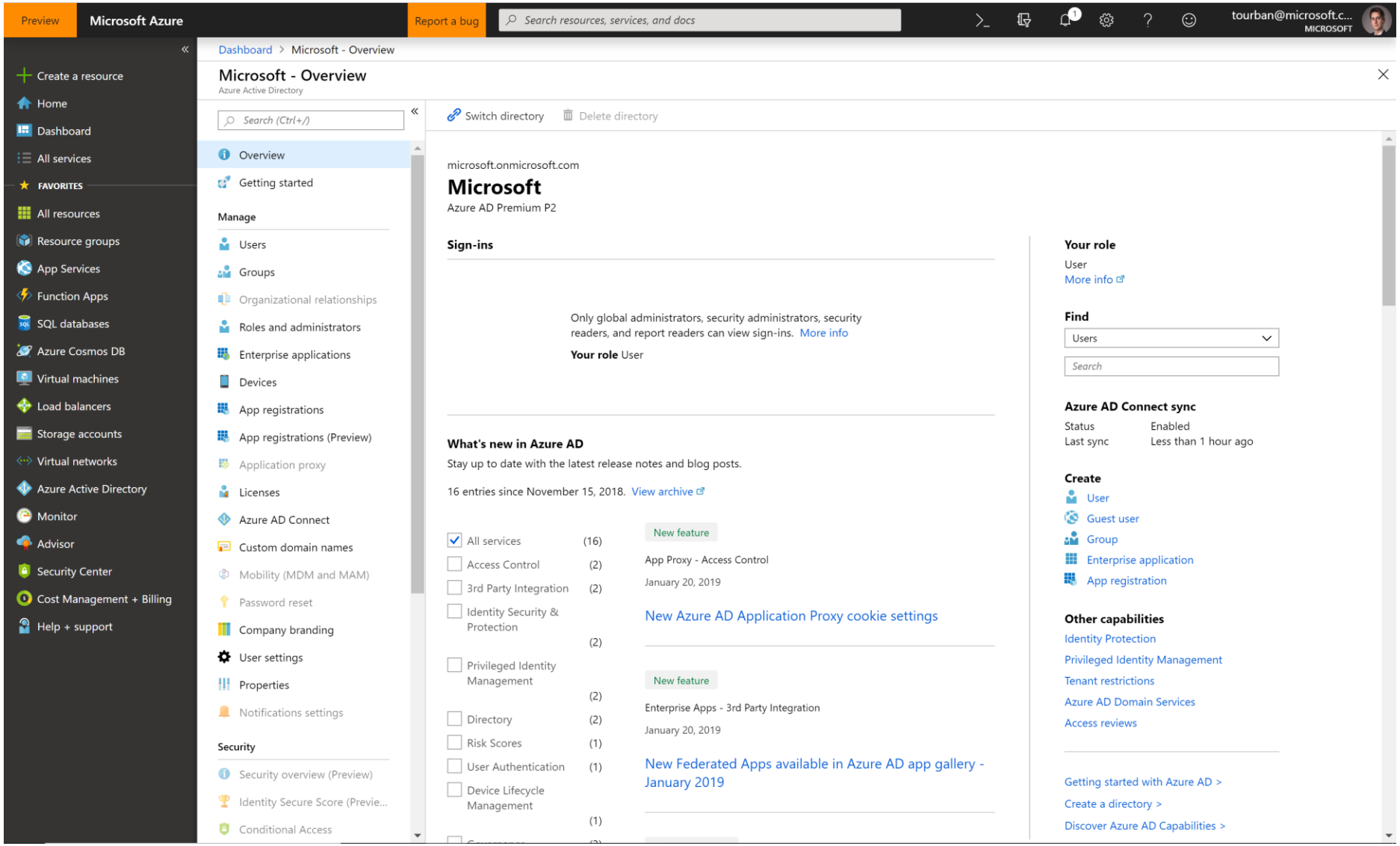
Register a new application in Azure Active Directory



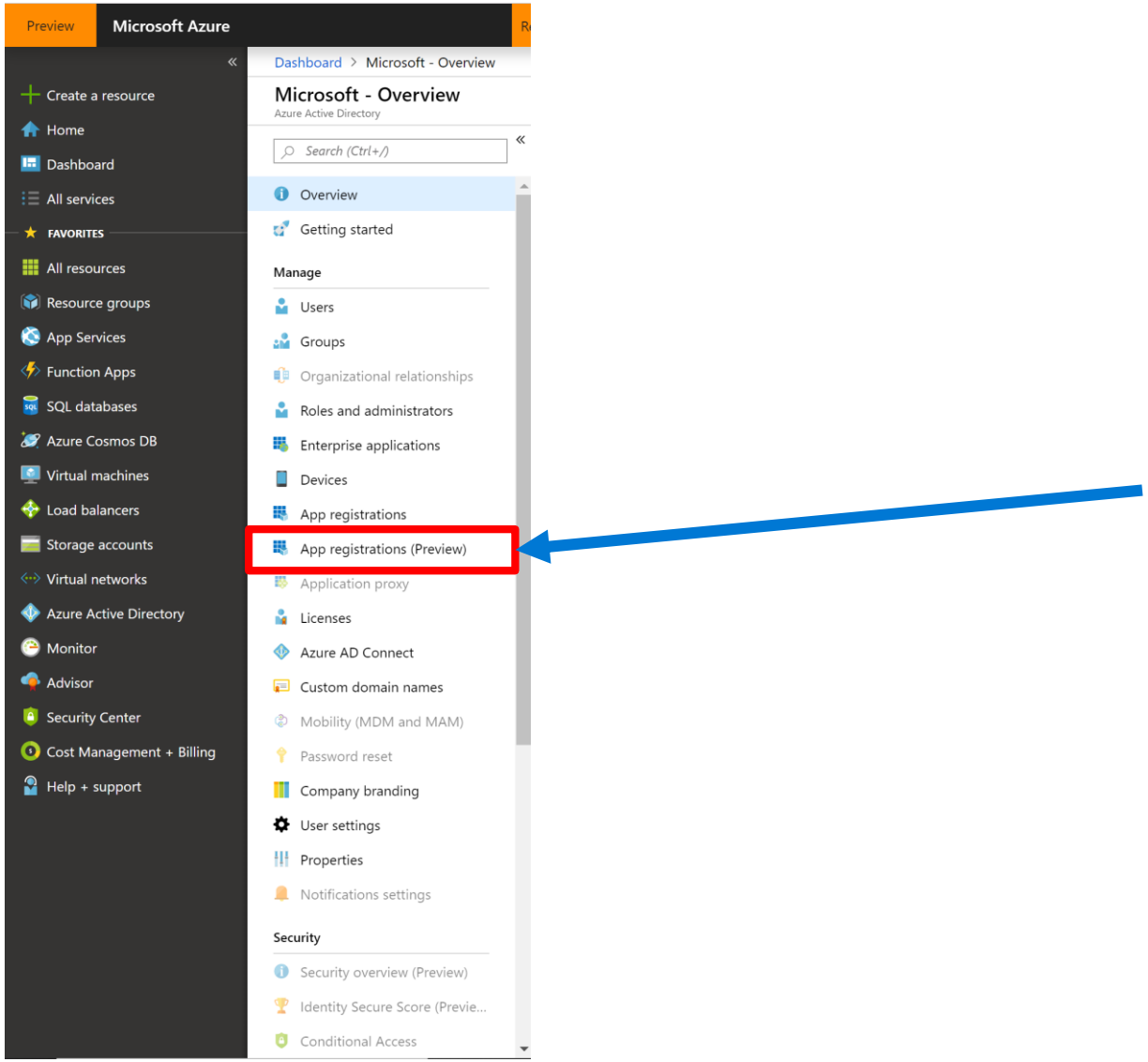
Register a new application in Azure Active Directory



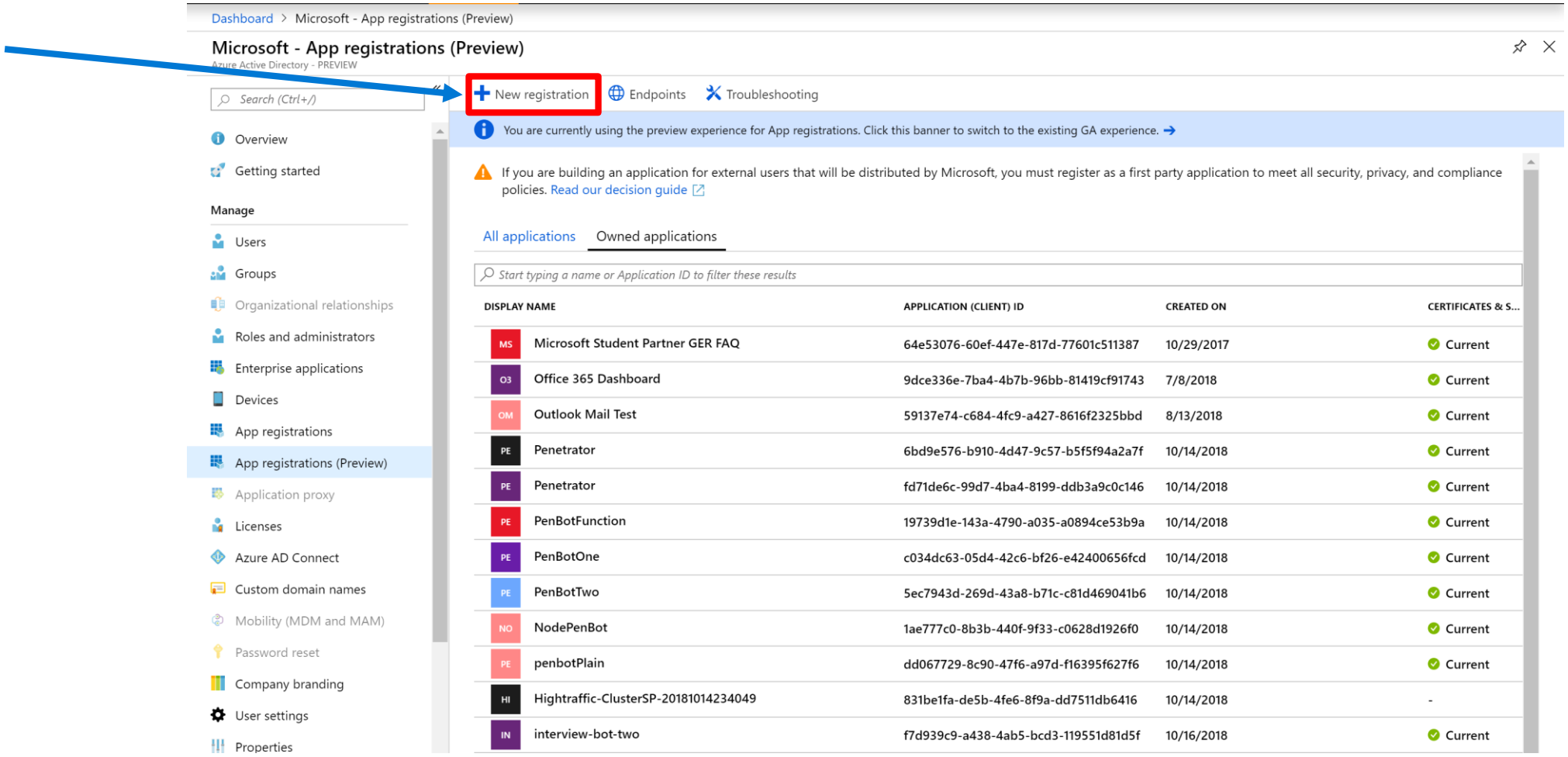
Register a new application in Azure Active Directory



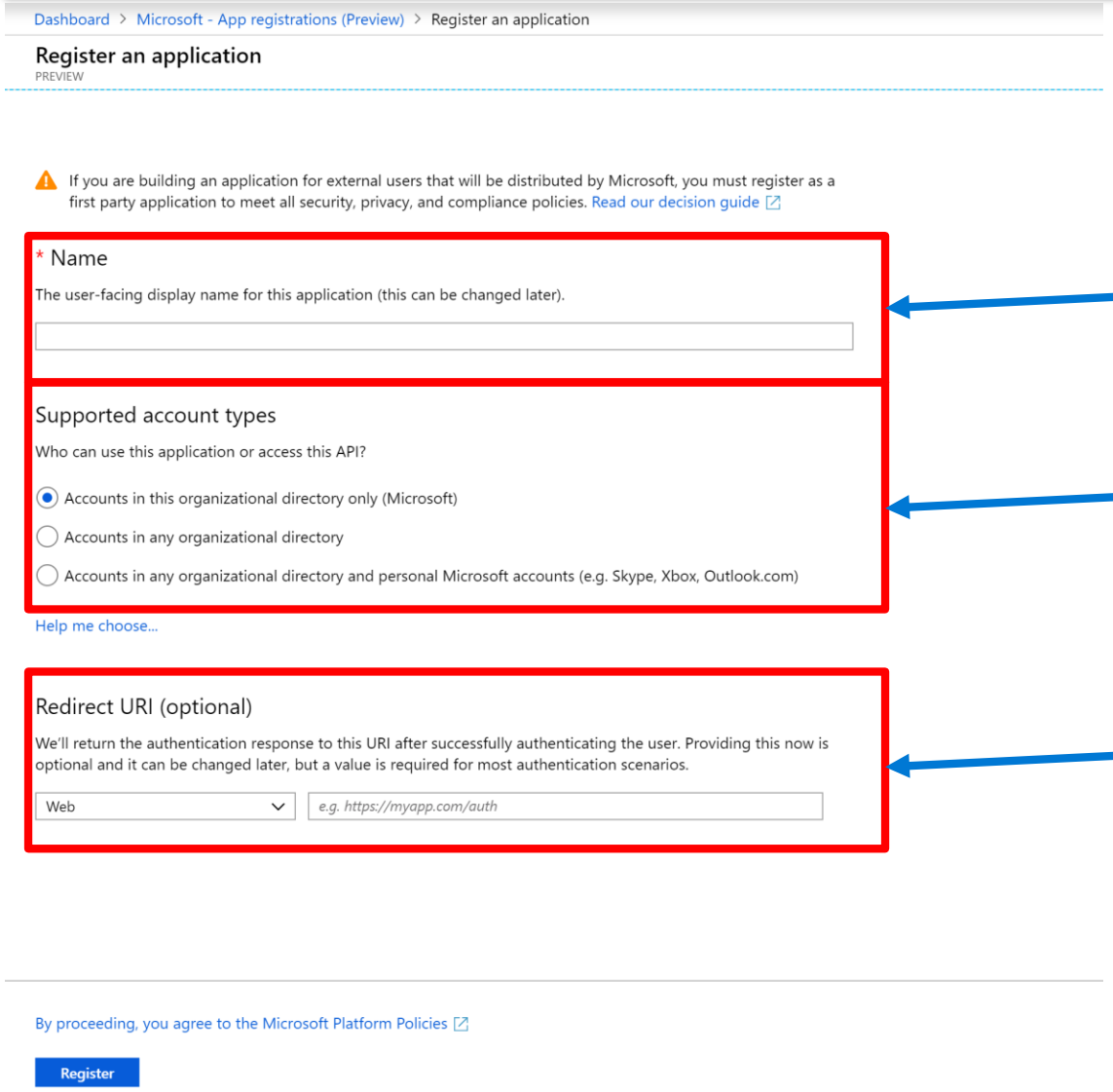
Register a new application in Azure Active Directory



Register a new application in Azure Active Directory



Register a new application in Azure Active Directory

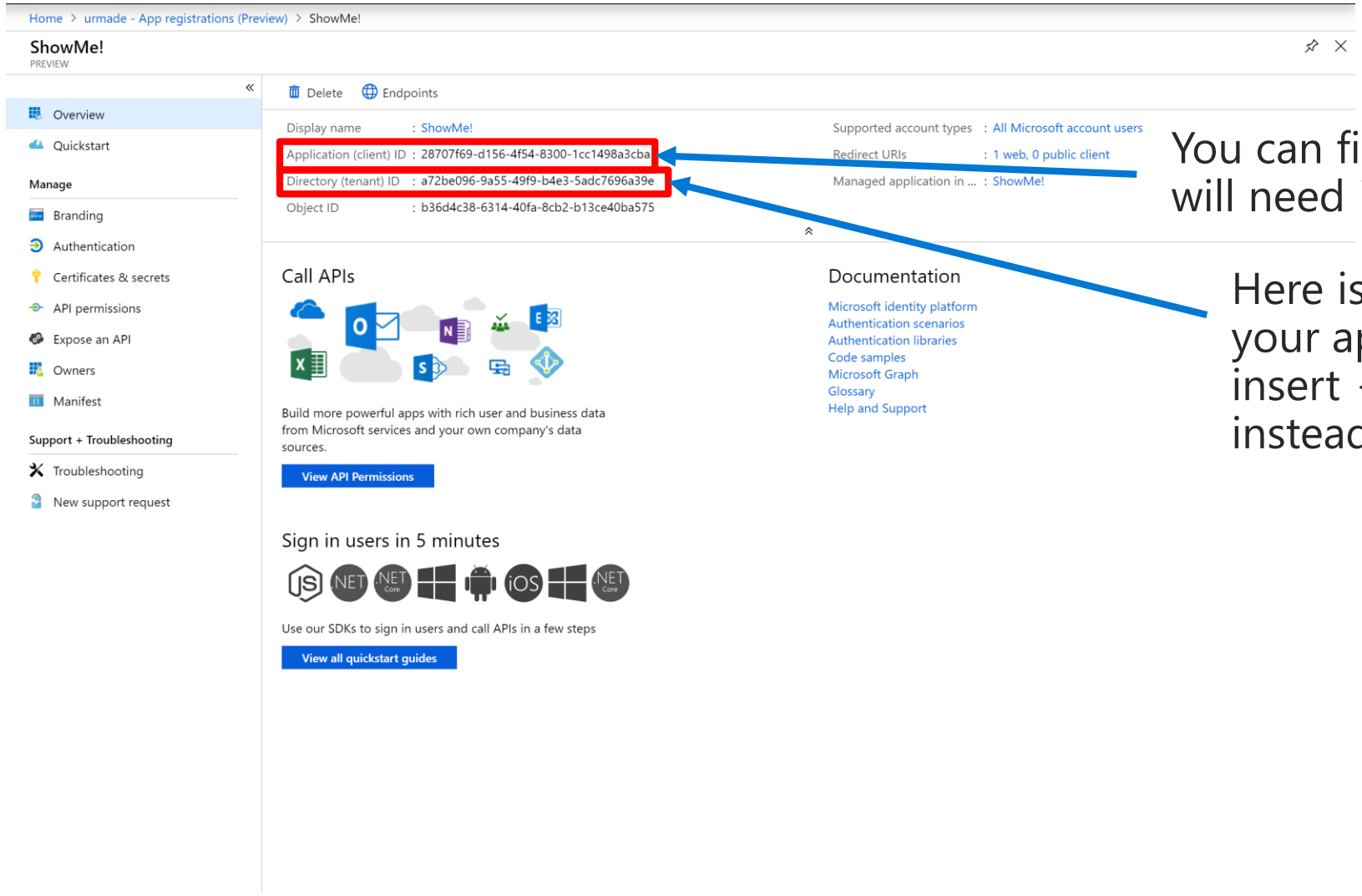


Give it an intuitive name (The user will later see this)

Choose the third box

For the demo, insert http://localhost:3500/api/callback

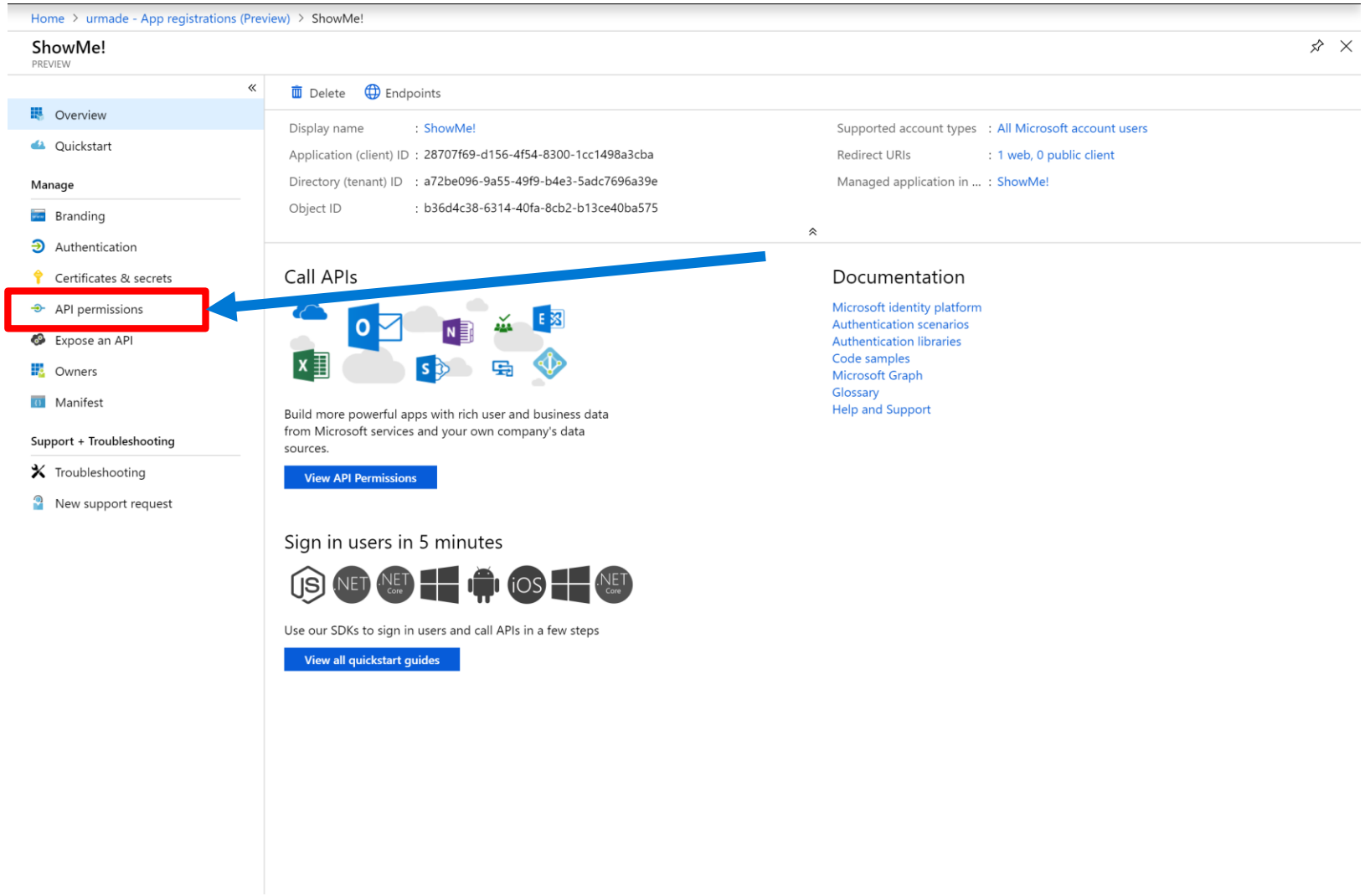
Register a new application in Azure Active Directory



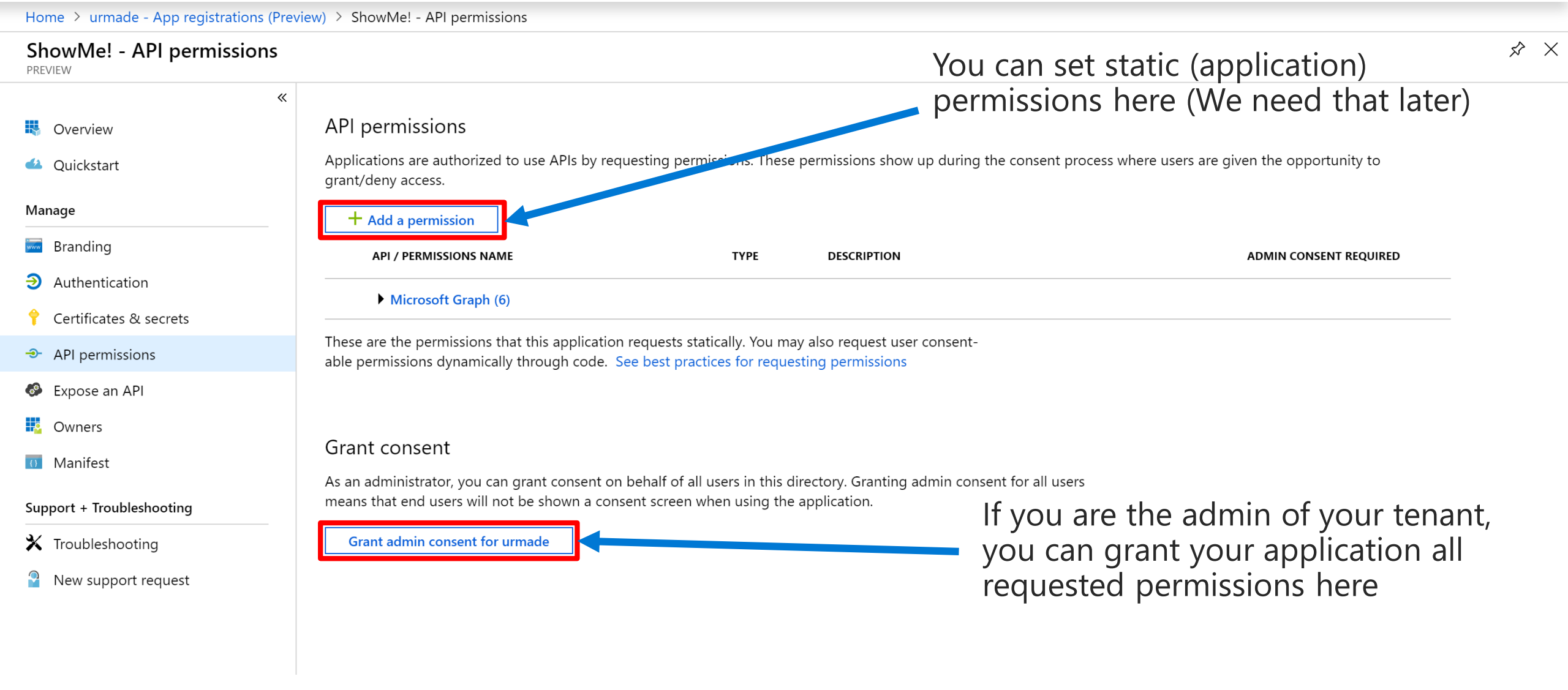
You can find your Client ID here (you will need it in your application)

Here is your Tenant ID (you need it for your application, but you could also insert <tenantname>.onmicrosoft.com instead of the Tenant ID

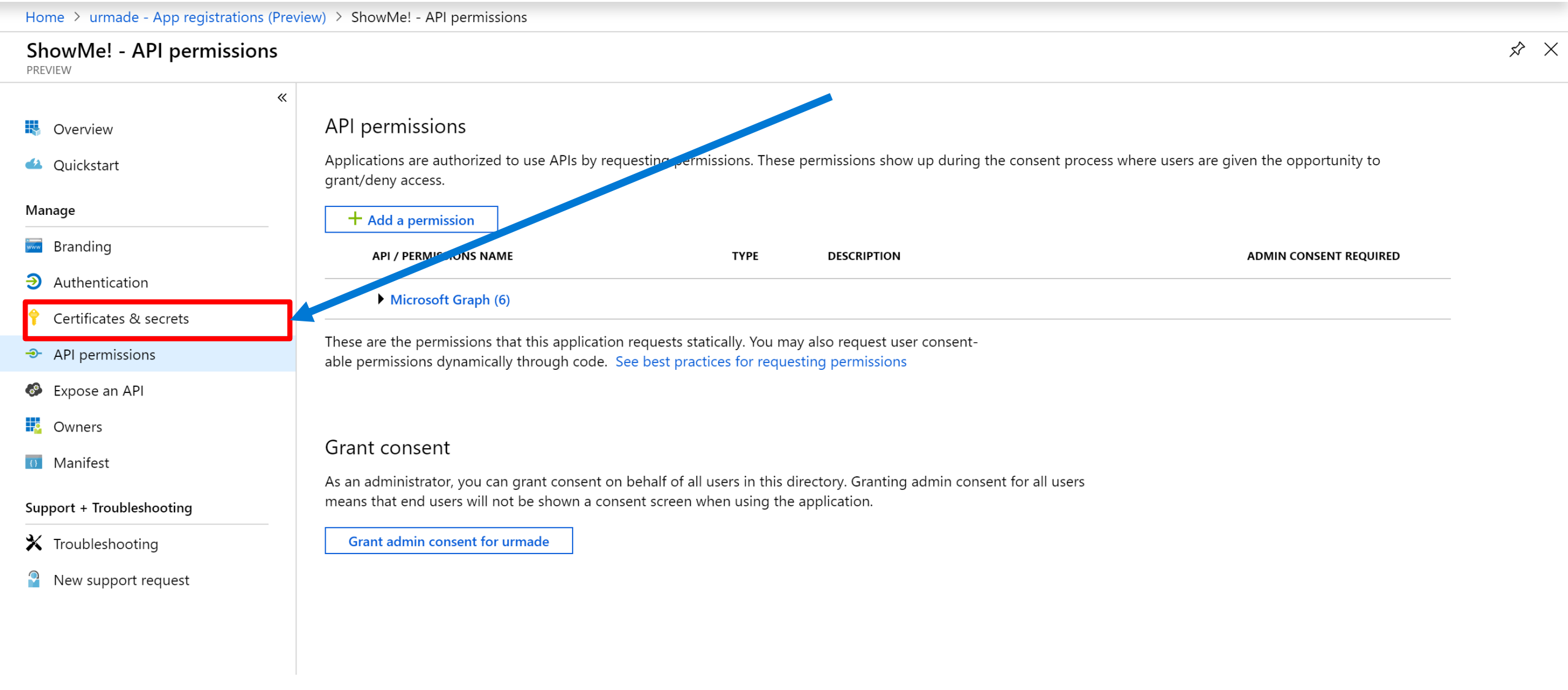
Register a new application in Azure Active Directory



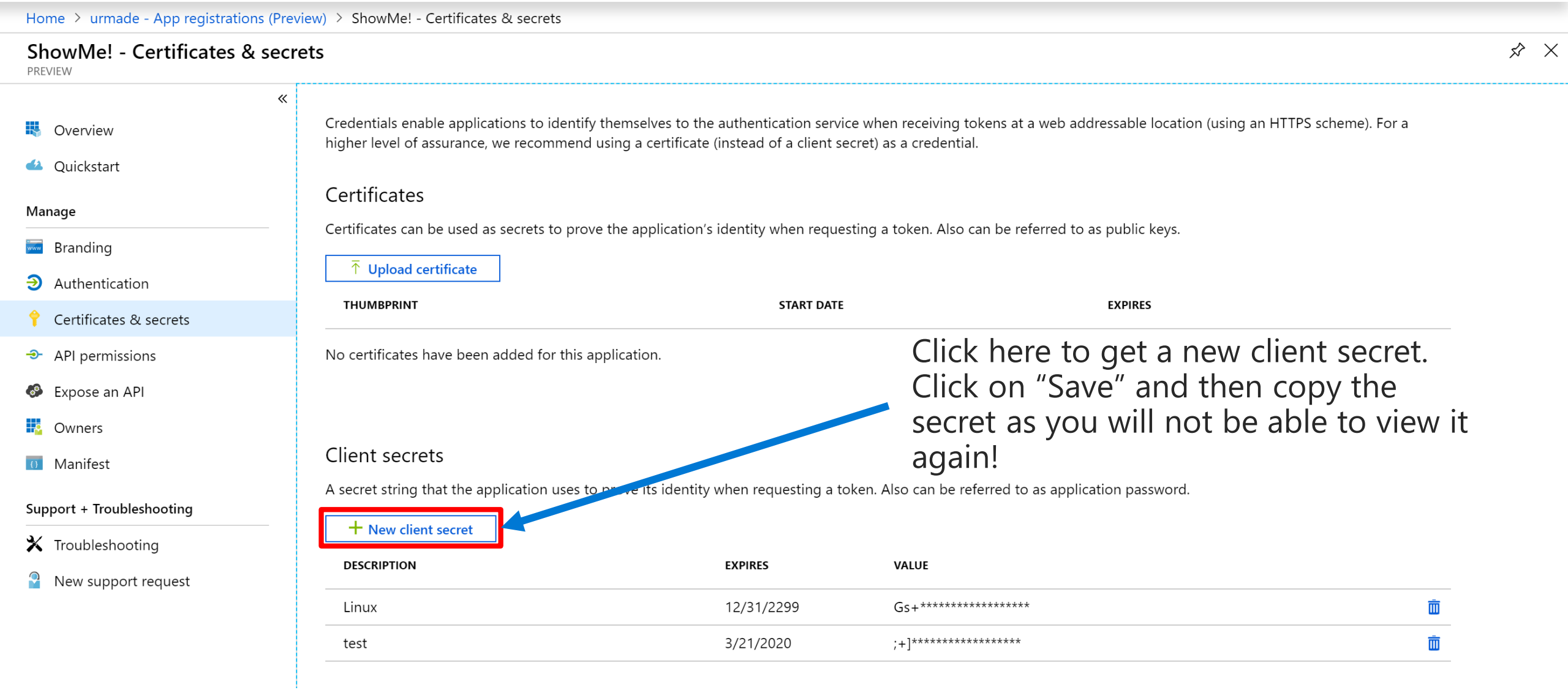
Register a new application in Azure Active Directory



Register a new application in Azure Active Directory



Register a new application in Azure Active Directory



Click here to get a new client secret. Click on "Save" and then copy the secret as you will not be able to view it again!

Register a new application in Azure Active Directory

Heads up with the secret! The preview version sometimes generates the # value in the secret which will break your .env. Just delete and recreate if that is the case!

You should by now have the following information:

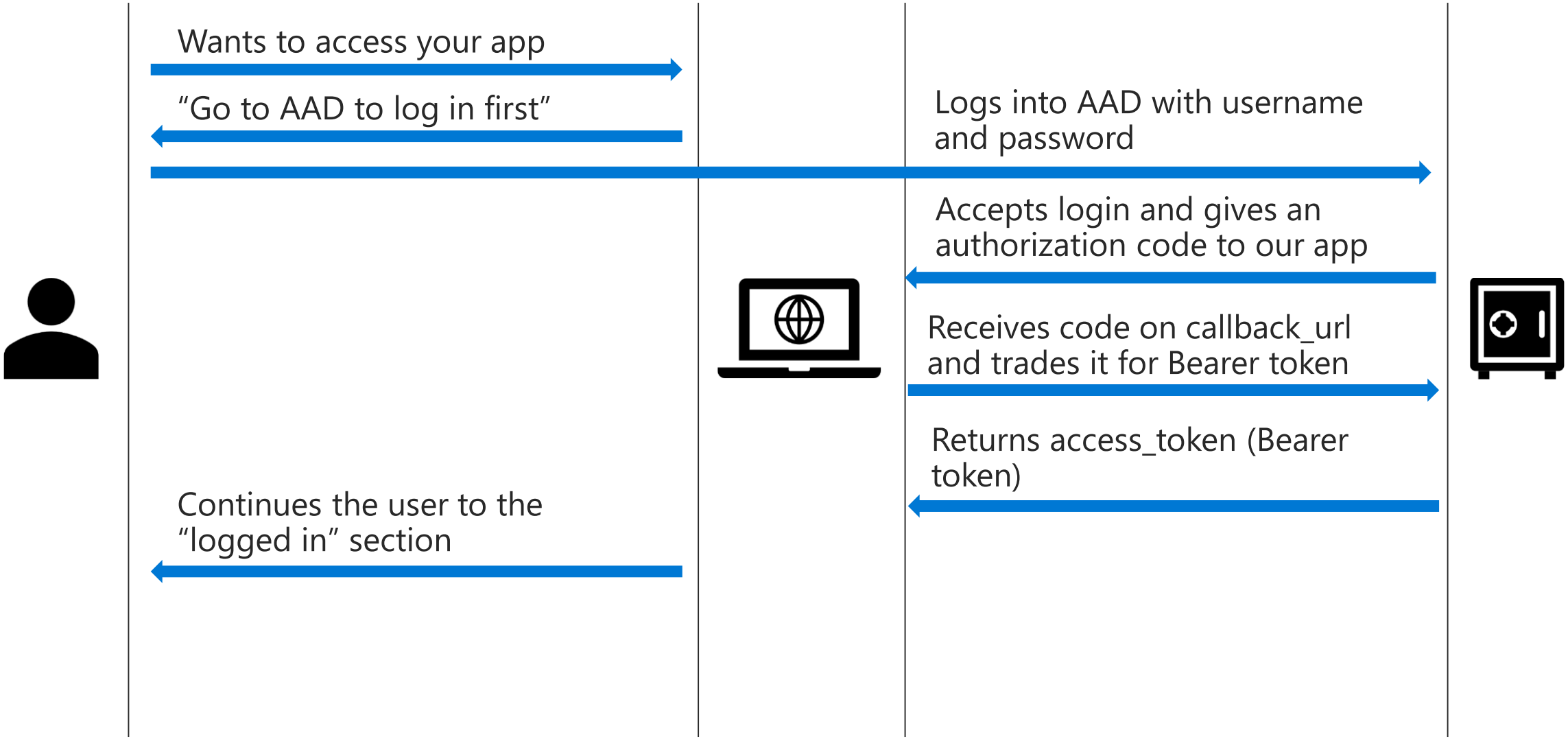
Client ID

Client Secret

Tenant ID

Callback URL for you App

Implement authorization in your new application



Implement authorization in your new application

The easy way

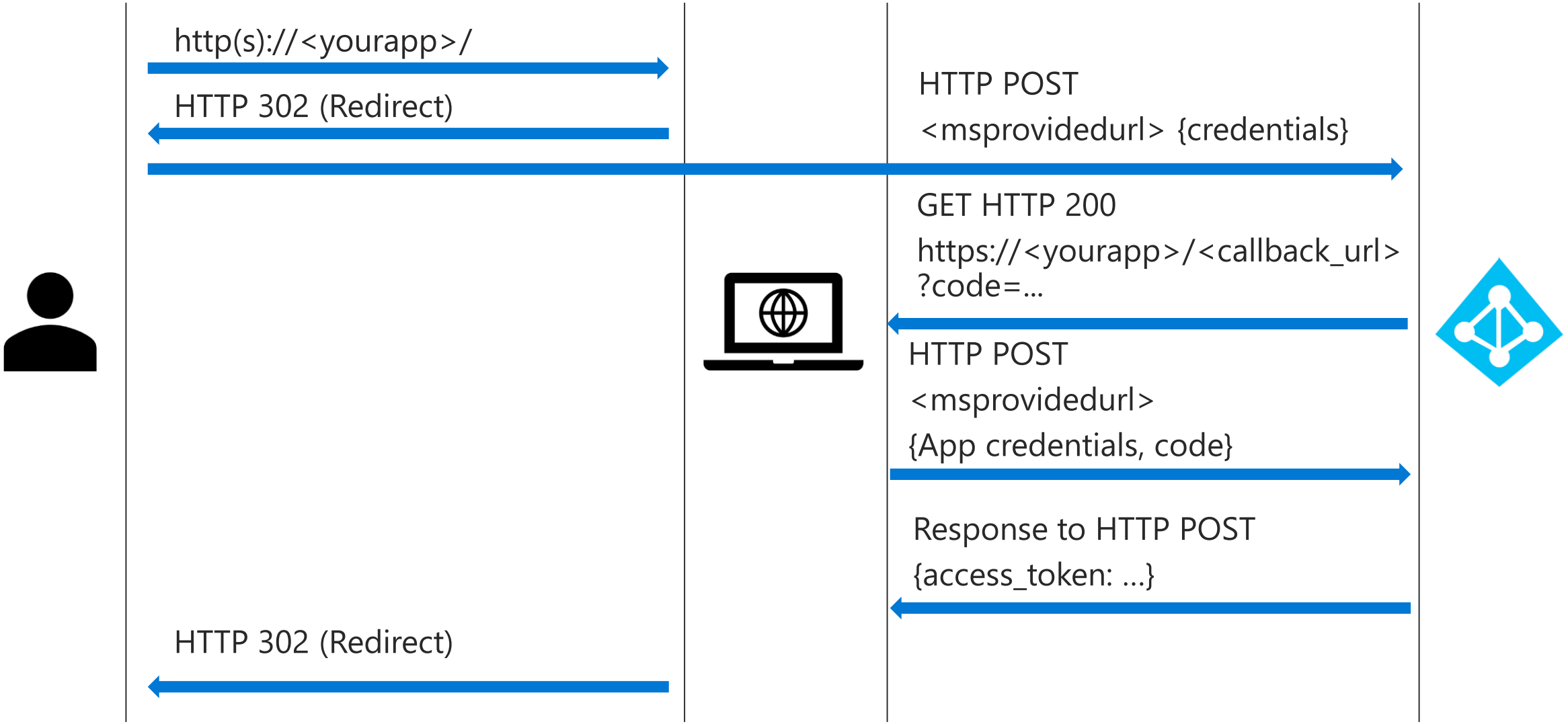
- Implement ADAL (optimized for AAD v1) or MSAL (optimized for AAD v2)
- Frameworks provided by Microsoft that provide easy authentication
- Maintained by Microsoft => Robust to change
- Provide less flexibility and harder to debug

Implement authorization in your new application

The Tech way

- Implement OAuth / OpenID Connect flows yourself
- Most flexibility in terms of implementation, chance to support multiple providers (OAuth is an industry-wide standard)
- Has to be maintained by yourself => You need to build competence there and have to stay up-to-date with the latest changes

Implement authorization in your new application



Access the Microsoft Graph

```
const call = {
method: "GET",
url:
"graph.microsoft.com/v1.0/me",
headers: {
        Authorization: "bearer "
        + access_token
        }
};
```

```
HTTP/1.1 200 OK
Content-type: application/json
Content-length: 491 {
    "businessPhones": [ "businessPhones-value" ],
    "displayName": "displayName-value",
    "givenName": "givenName-value",
    "jobTitle": "jobTitle-value",
    "mail": "mail-value",
    "mobilePhone": "mobilePhone-value",
    "officeLocation": "officeLocation-value",
    "preferredLanguage": "preferredLanguage-value",
    "surname": "surname-value",
    "userPrincipalName": "userPrincipalName-value",
    "id": "id-value"
}
```

Access the Microsoft Graph

https://docs.microsoft.com/en-us/graph/api/overview

Independent from the REST Endpoint most of the Graph Endpoints support unified query properties. You can find these under the bullet point “Use the API”.

What is possible with the Graph?

Drone-enabled inventory management

Compliance recording & Call Centers through Teams

Organization sentiment barometers

?

Your next breakthrough?


Microsoft
Let’s get into it!!
https://github.com/Urmade/MSGraph-Workshop

https://developer.microsoft.com/en-us/office/dev-program

Among other perks a free O365 tenant for 3 months is included!

Join the Office 365 developer program today!

The developer program is designed to help you create intelligent, connected solutions that enable customers and organizations to do more.

JOIN NOW >

Thank you!

linkedin.com/in/urban-tobias

https://docs.microsoft.com/en-us/graph/api/overview

https://developer.microsoft.com/en-us/graph/graph-explorer

https://docs.microsoft.com/en-us/azure/active-directory/develop/authentication-scenarios

https://medium.com/@urmade/the-beginners-guide-to-azure-active-directory-438b9de85287

https://medium.com/@urmade/aad-b2b-2314d80fd3f8

https://docs.microsoft.com/en-us/graph/sdks/create-client?toc=.%2Fref%2Ftoc.json&view=graph-rest-1.0&tabs=Javascript