



TECHORAMA

Taming the Microsoft Graph for
the IT pro

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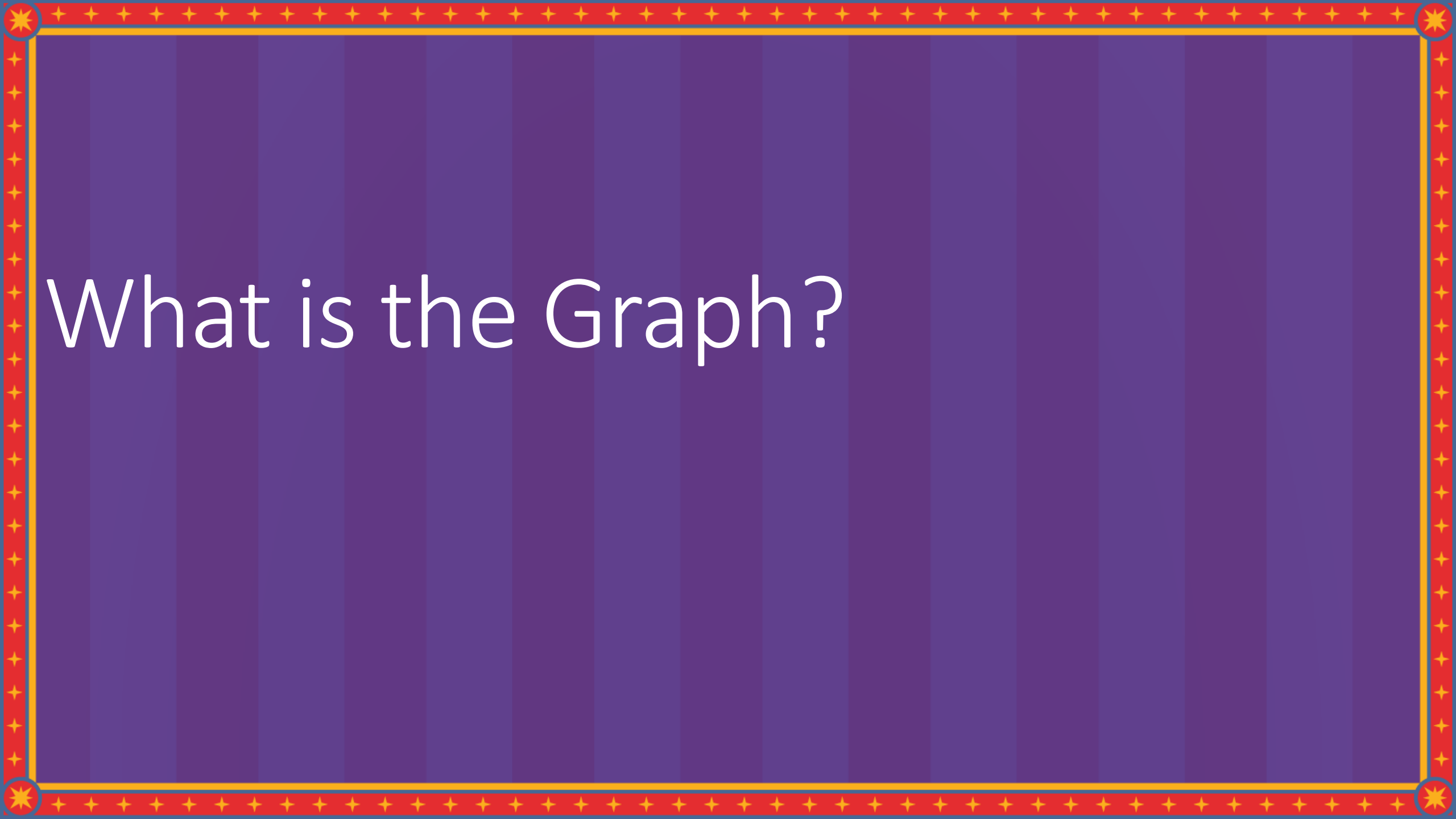
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Agenda

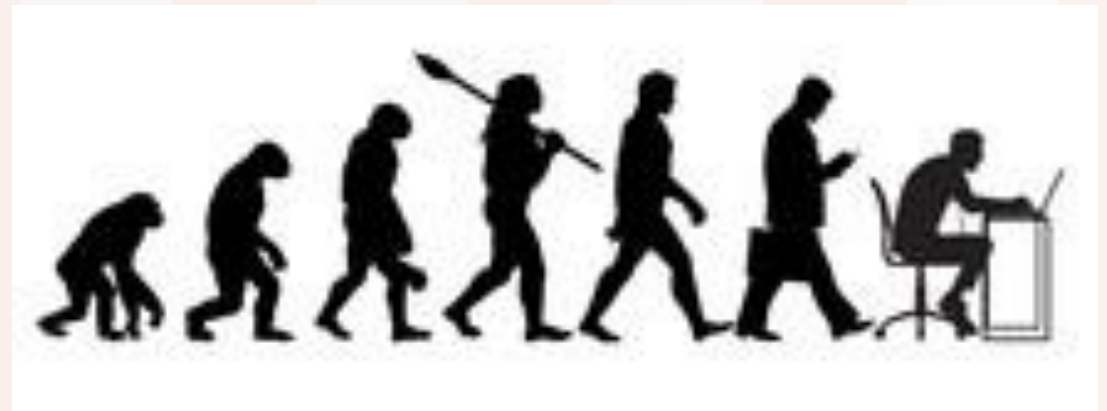
- What is the Graph?
- Ways to interact with the Graph
- Lots of demos



What is the Graph?

History of Graph

- FAST acquisition - 2008
- Oslo and Office Graph – 2014
 - Yammer Enterprise Graph
 - Delve
 - Office apps
- Azure AD and Office Graphs - 2015
- Microsoft Graph – 2017
 - Adds in Azure AD
 - Windows, etc



Why the Graph?

- Each application and service had its own API
- The Graph is a unified API
- What's in it for IT Pros?
 - One, somewhat standard, interface
 - A promise that it will work, sort of
- What's in it for Microsoft?
 - One interface
 - We won't go poking around, causing trouble

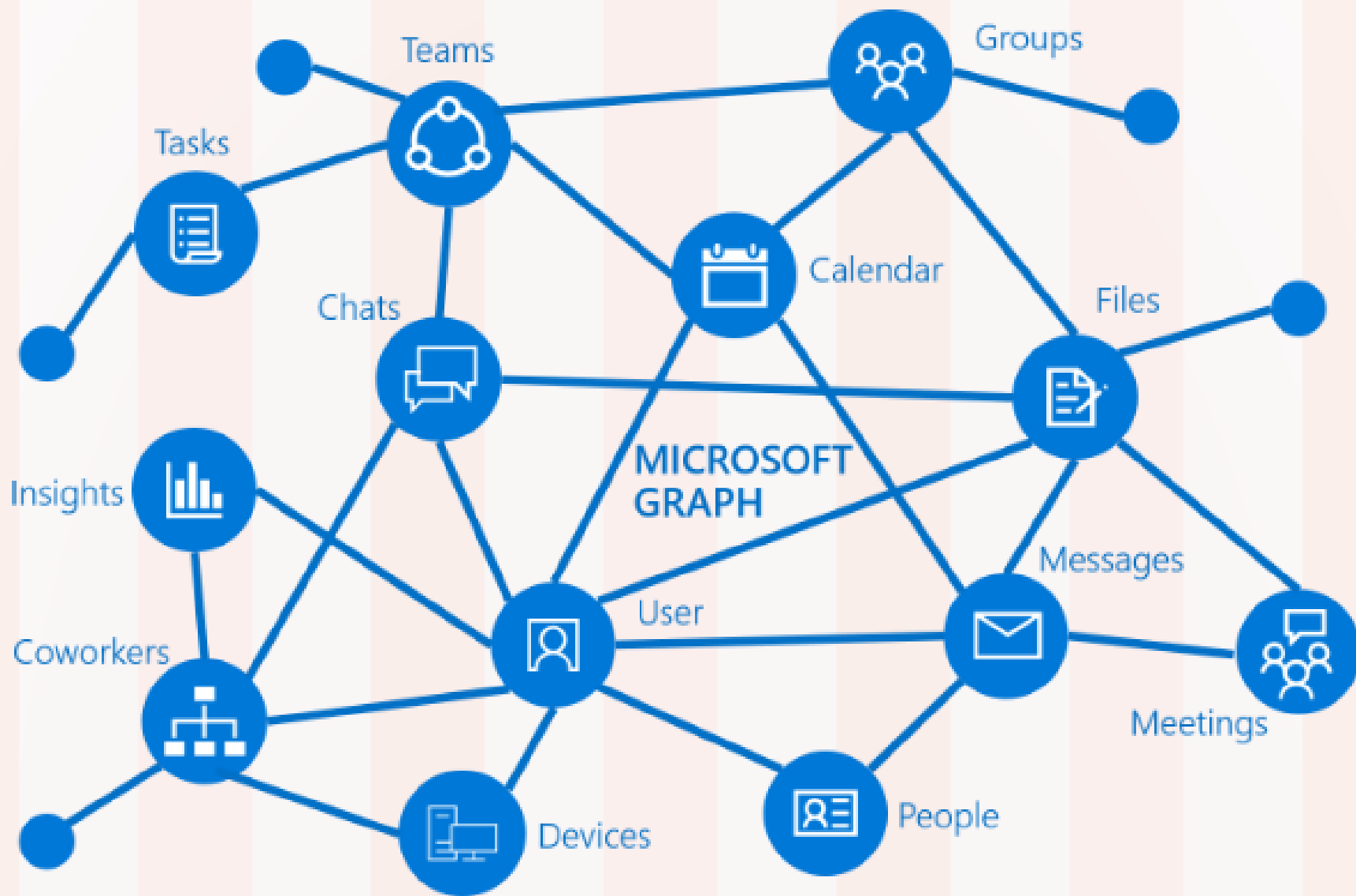
Graph? Substrate? Oh, my!

- Substrate
 - Underlying layer of data
- Graph
 - A unified API to access the Substrate
- tomayto, tomahto



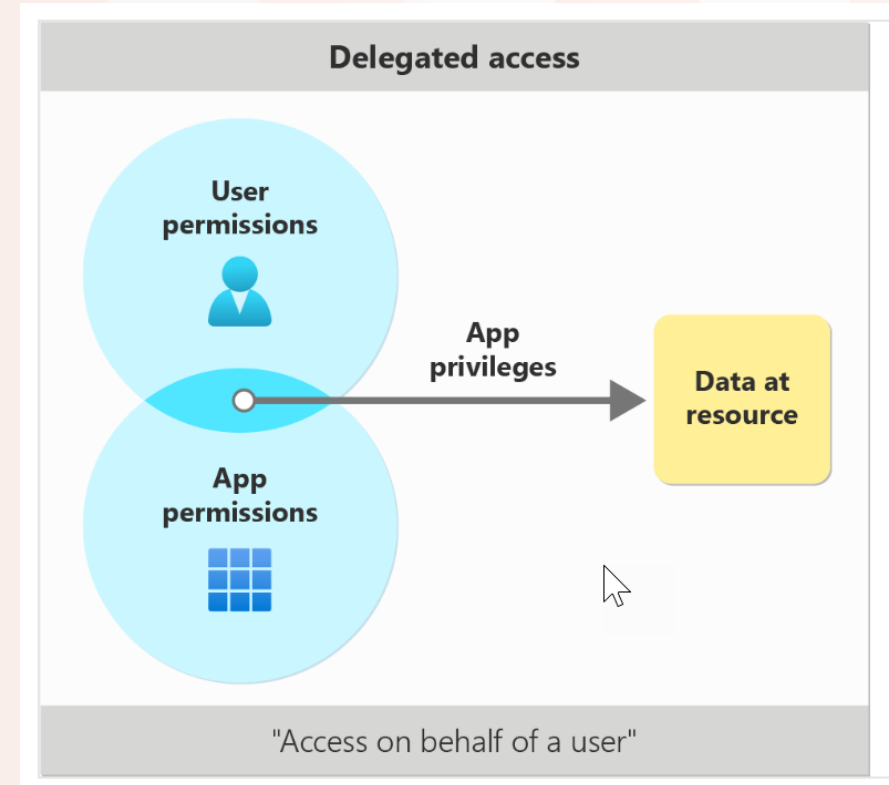
What's in the Graph?

- Users and Groups
 - ~~AzureAD~~ Entra ID
- Application Data
 - SharePoint / OneDrive
 - Exchange / Outlook
 - Teams
 - Planner
 - OneNote
 - To Do
- Application Settings
 - All the data services
 - InTune
 - Windows 365



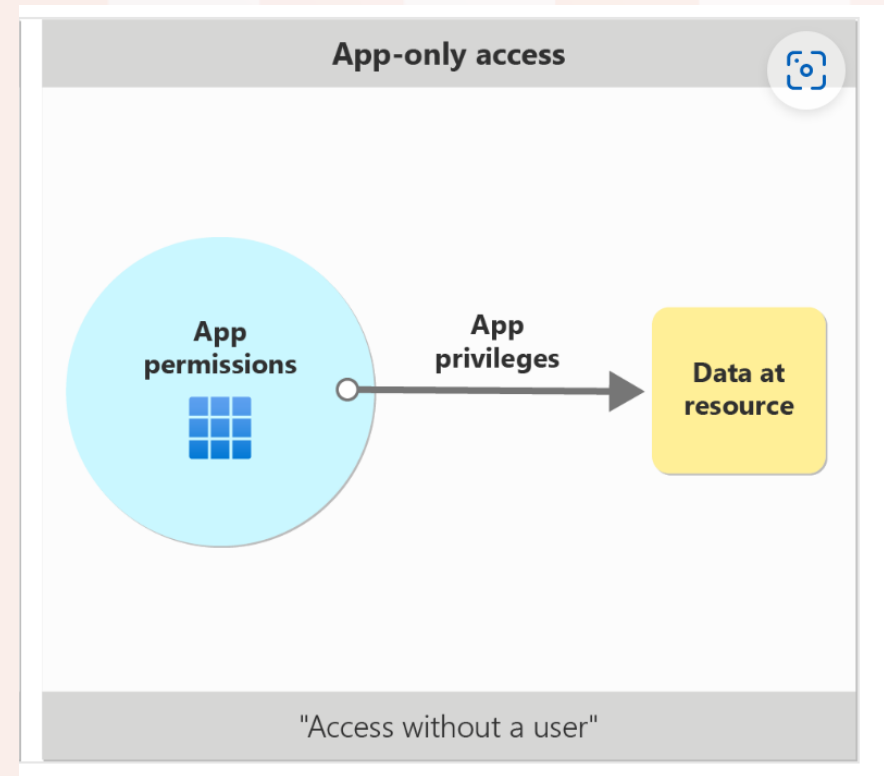
The Graph Permissions, complex? No way!

- Delegated Access
- aka User Access / Scopes / OAuth2 permissions
- Logged in user
- The app can't do anything the delegated user can't do
- Sites.Read.All
- Can only get to sites user has access to



The Graph Permissions, complex? No way!

- App-only Access
- Aka App-only permissions / App roles / Direct Access permissions
- No logged in user context
- Can only be consented by an Admin



Scope Naming Format

- {resource}.{operation}.{constraint}
- Sites.Read.All
- Directory.Read.All
- User.Read.All
- User.ReadBasic.All
- Group.Create
- /v1.0
- /beta

Resource-specific consent (RSC)

Only Teams and SharePoint

Allows app-only permission to a specific resources

Site

Team

Chat

Sites.Selected

Admin then gives permission

The screenshot shows the 'Request API permissions' page in the Azure portal. It is for the 'SharePoint' application, with the URL 'https://microsoft.sharepoint-df.com/' and a 'Docs' link. A note states: 'SharePoint APIs are available via the Microsoft Graph API. You may want to consider using Microsoft Graph instead.'

Under 'What type of permissions does your application require?', there are two options: 'Delegated permissions' (selected) and 'Application permissions'. The 'Delegated permissions' description is 'Your application needs to access the API as the signed-in user.'

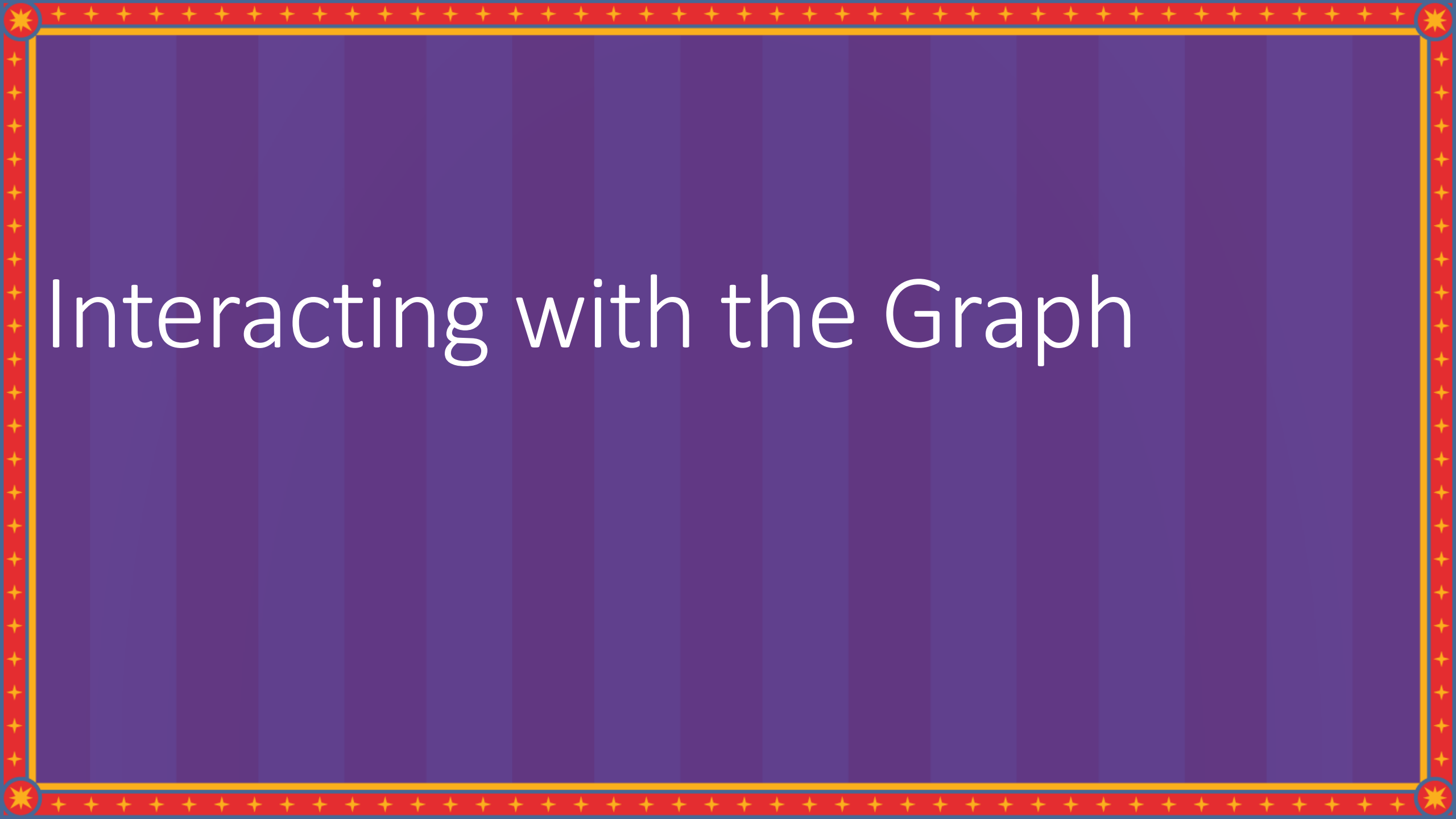
Under 'Select permissions', there is a search bar with the text 'Start typing a permission to filter these results'. Below this is a table of permissions:

Permission	Admin consent required
Sites (1)	
<input type="checkbox"/> Sites.FullControl.All	Yes
<input type="checkbox"/> Sites.Manage.All	Yes
<input type="checkbox"/> Sites.Read.All	Yes
<input type="checkbox"/> Sites.ReadWrite.All	Yes
<input checked="" type="checkbox"/> Sites.Selected	Yes
TermStore	
<input type="checkbox"/> TermStore.Read.All	Yes

The slide features a decorative border with a red outer band containing small yellow stars, and a yellow inner band. The main background is a dark blue field with vertical stripes of varying shades of blue.

Demo!

Apps and permissions



Interacting with the Graph

Graph Explorer

<https://aka.ms/ge>

Great place to learn

[Get a Dev Tenant](#)

No, really

Sample queries

Resources

History

Code Snippets

Permissions

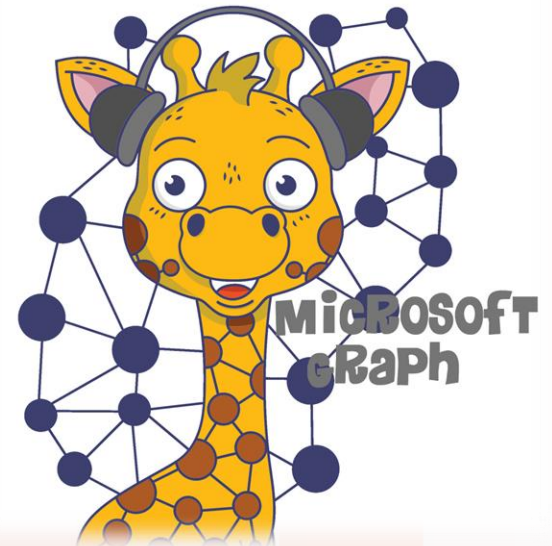


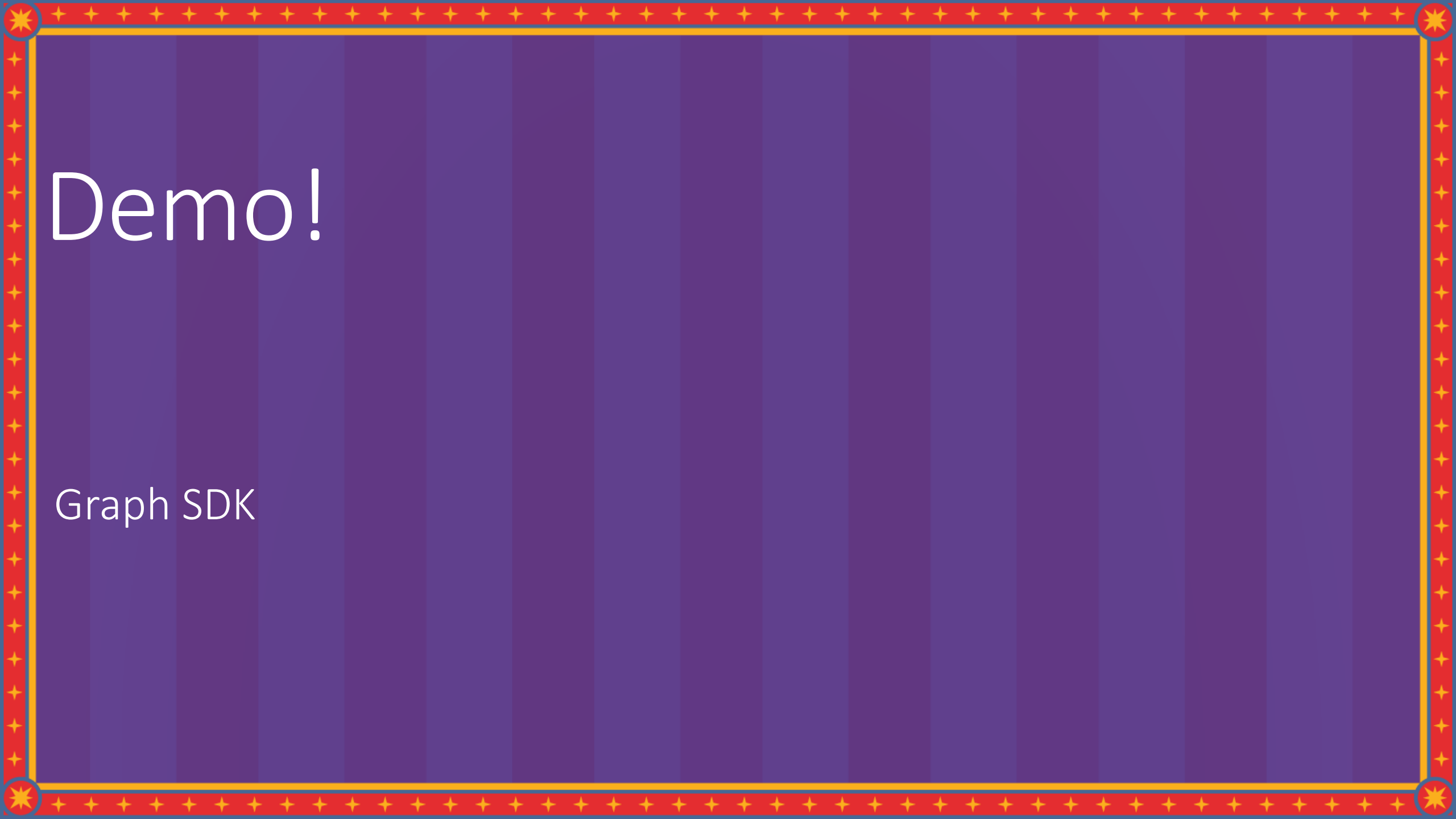
Demo!

Graph Explorer

PowerShell – Graph SDK

- Install-Module -Name Microsoft.Graph -Scope AllUsers
- Got its fingers in everything
- Find project on Github
 - <https://github.com/microsoftgraph/msgraph-sdk-powershell>
- Not for the faint of heart
- Cmdlets mostly generated by AutoREST
- Future of AzureAD module





Demo!

Graph SDK

PowerShell – PnP.PowerShell

- Has Graph permissions / scopes
- Has Graph cmdlets
- Win – Win!
- Invoke-PnPGraphMethod
 - Invoke-PnPGraphMethod https://graph.microsoft.com/v1.0/sites?search=*
- Get-PnPGraphAccessToken



Demo!

PnP PowerShell

Questions?



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