Taming the Microsoft Graph for the IT pro

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MVP
Microsoft®
Most Valuable
Professional

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
- Microsoft Graph – 2015
  - 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
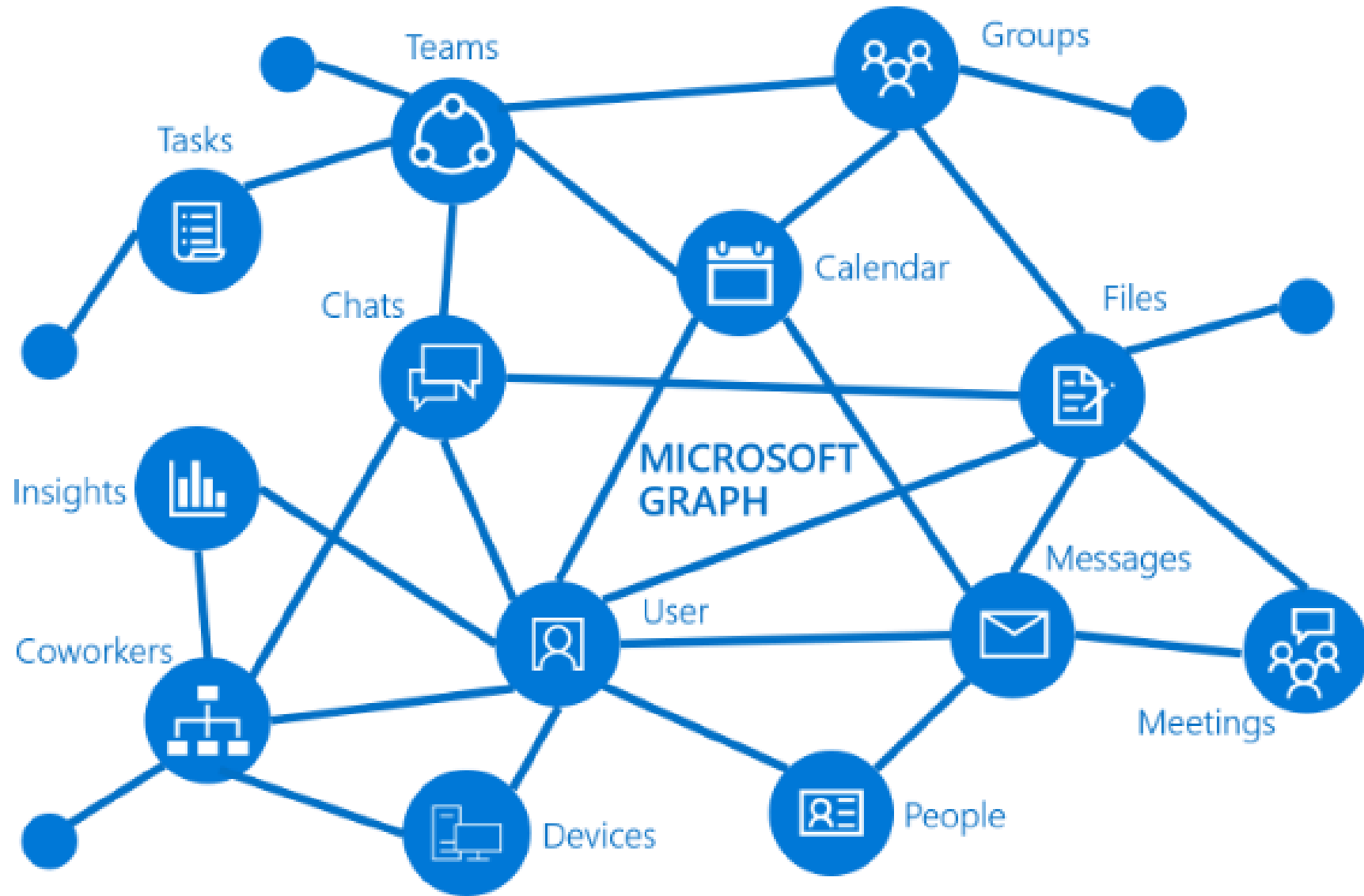 - We won't go poking around, causing trouble

Graph? Substrate? Oh, my!

- ## Substrate
  - Underlying layer of data
- ## Graph
  - A unified API to access the Substrate


- tomayto, tomahto
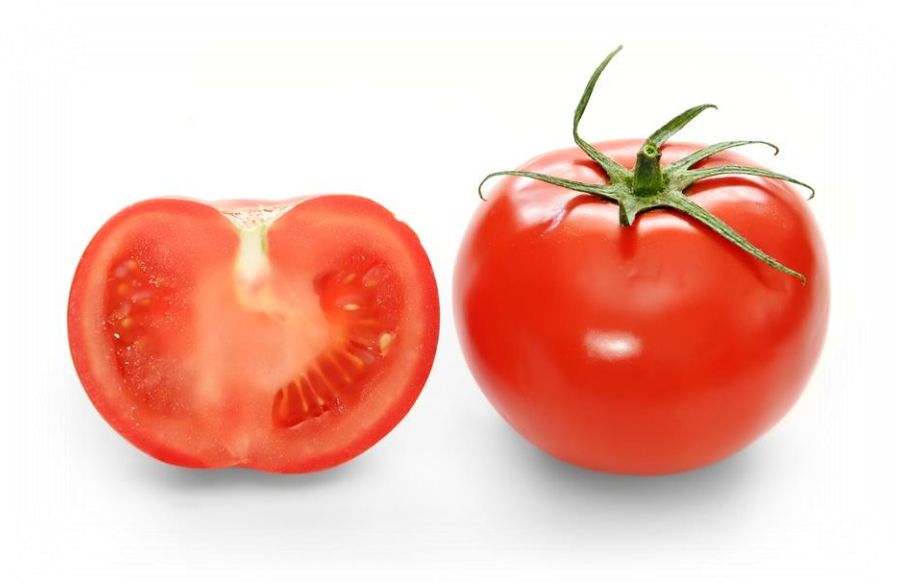
What's in the Graph?

- Users and Groups
  - AzureAD
- 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
- 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
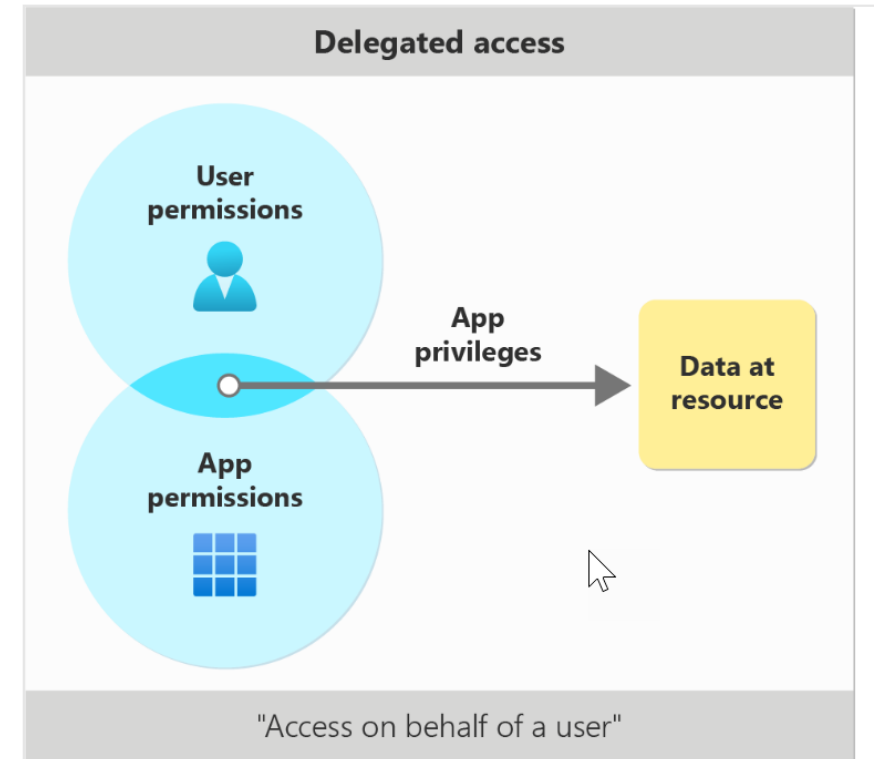
The Graph Permissions, complex? No way!

- App-only Access

- Application permissions / App roles
- No logged in user context

- Can only be consented by an Admin

App-only access

App permissions → App privileges → Data at resource

"Access without a user"
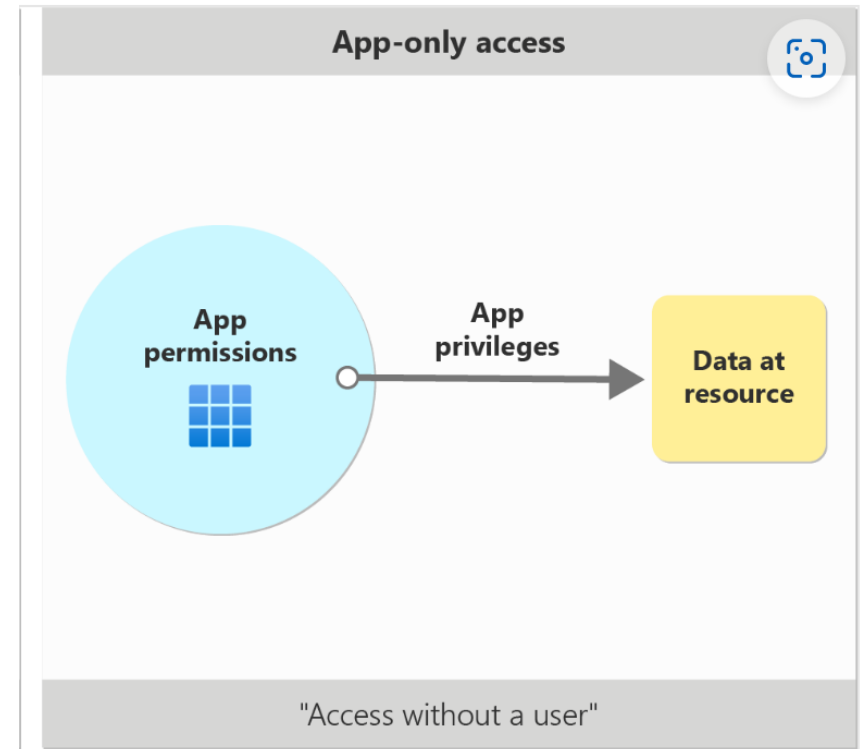
Scope Naming Format

- {resource}.{operation}.{constraint}

- Sites.Read.All
- Directory.Read.All
- User.Read.All
- User.ReadBasic.All

- /v1.0
- /beta

- Resource-specific consent (RSC)

Demo!

Apps and permissions

Interacting with the Graph

Graph Explorer

- https://developer.microsoft.com/en-us/graph/graph-explorer
- 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
- 2.0 preview is out

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

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Questions?

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