NEXXT

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Meetup

Streamline you Windows 365 management with PSCloudPC

Stefan Dingemanse & Niels Kok

8 Februari 2024

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Community edition

Streamline you Windows 365 management with PSCloudPC

By Stefan Dingemanse and Niels Kok

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Question for Audience

Who uses Windows 365?

In production environment?

Deployment?

Introduction

Stefan Dingemanse

- 34 years - Dordrecht, Netherlands
- Freelance Microsoft (Cloud) Consultant @ Brainpulse IT
- Microsoft MVP Enterprise Mobility & Microsoft Certified Trainer
- Modern Workplace, EUC, AVD/W365, Azure en DevOps
- Co-Founder AVD Community, DVDUG & Azure Thursday

- Website: StefanDingemanse.com
- Twitter: @Sdingemanse
- E-mail: Stefan@brainpulse.it

BRAINPULSE IT
CONSULTANCY & TRAINING

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Introduction

Niels Kok

- 32 years, Enkhuizen
- Freelance Consultant
- Microsoft 365, AVD, Azure (DevOps)
- Community stuff: (Blog, Speaking etc..)

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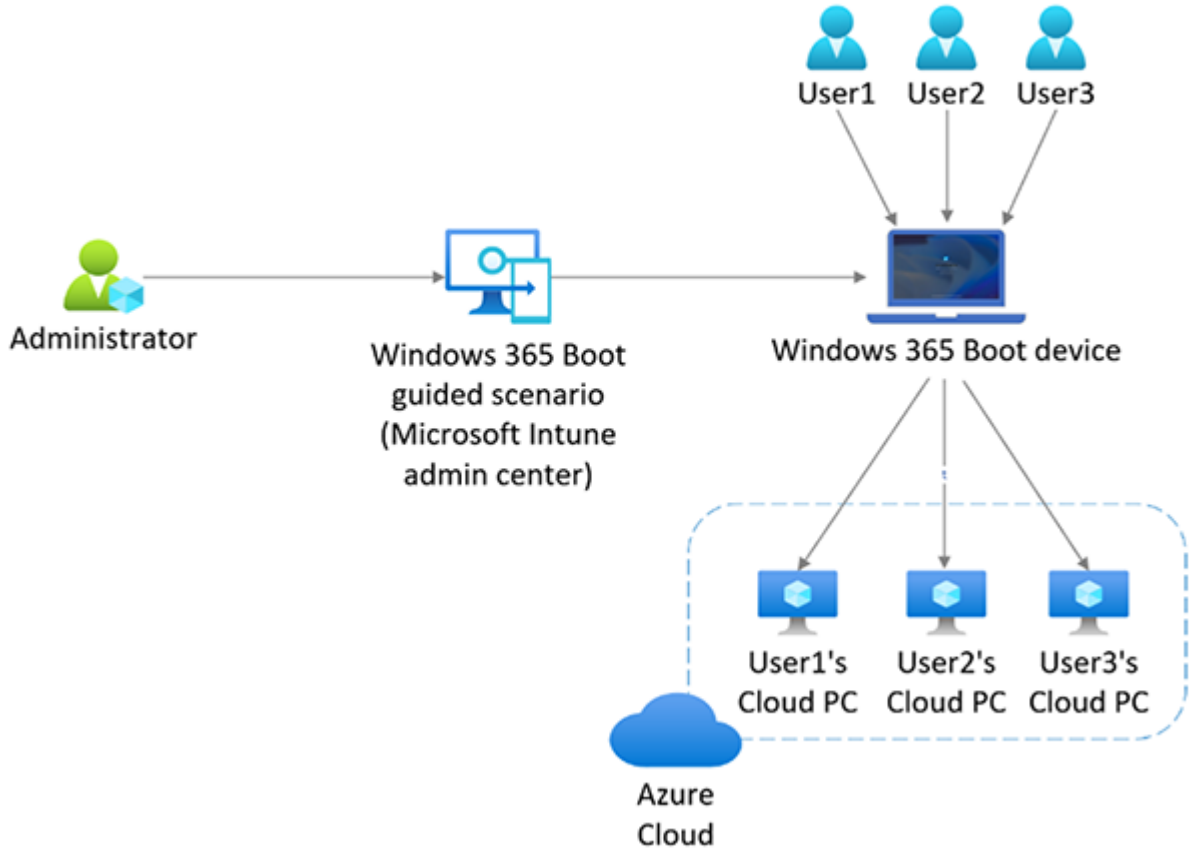
Agenda

- What’s new in Windows 365
- Use Cases
- Deploying Windows 365
- PSCloudPC PowerShell Module
- DEMO’s

What’s new Windows 365

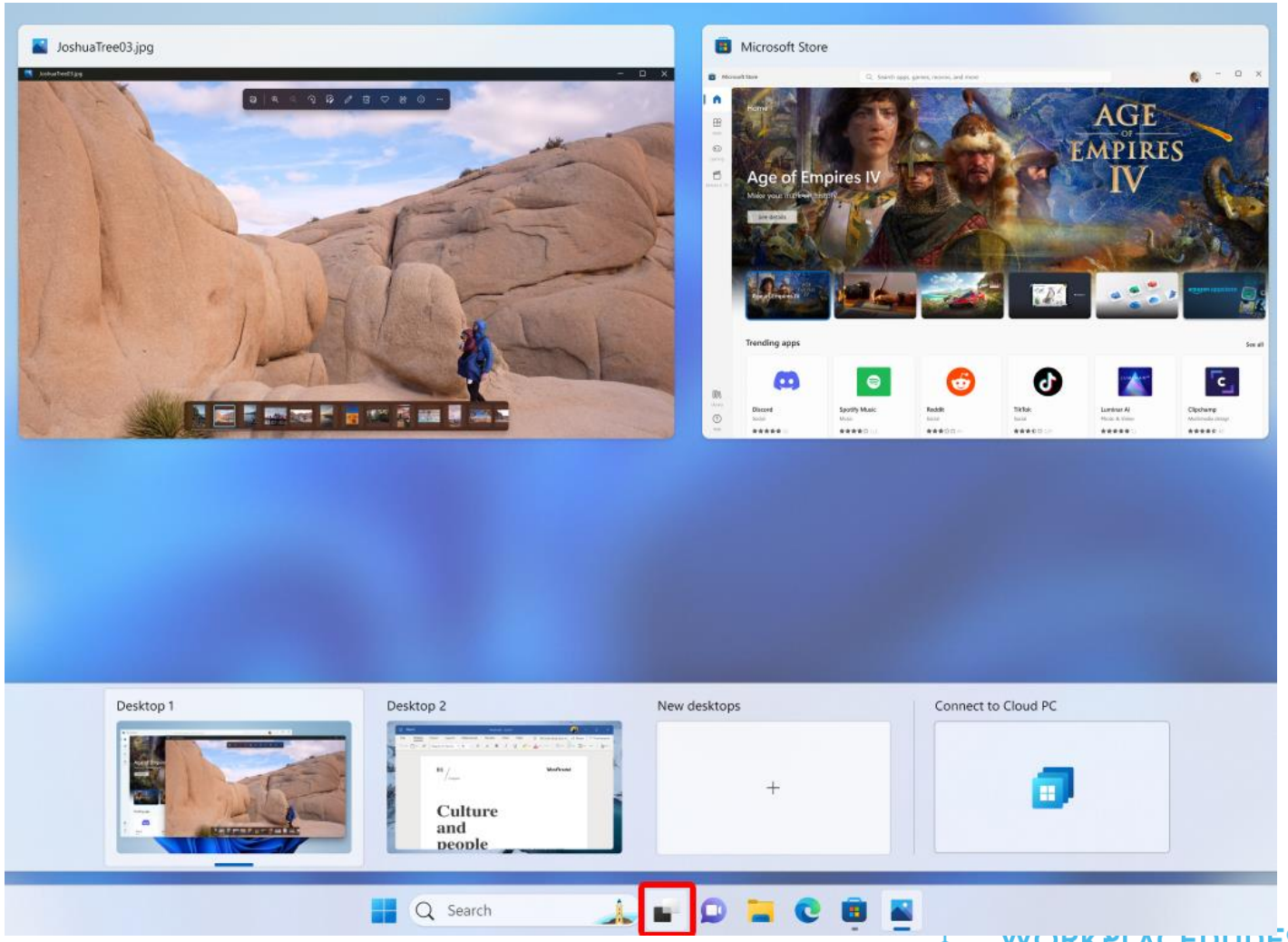
Windows 365 Boot

- Sign in directly to your Cloud PC
- Scenarios
  - Shared
  - Dedicated (Public Preview)
- Configured via Intune



Windows 365 Switch

- Sign in and Connect via the Windows 11 Task view



Windows 365 Frontline

- Unique Cloud PC for every employee
- No scheduling required
  - Signing out will free up licenses
  - Cloud PC will reboot before turning off
  - Cloud PC is turned off when not in use
- Ratio 1:3

What about Azure Virtual Desktop

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Windows 365 vs AVD

- Built on Azure Virtual Desktop
- Uses the same AVD control plane
- Uses the same AVD clients
- Windows 365 is optimized for simplicity
- AVD is optimized for flexibility

Windows 365 vs AVD

Cloud PC – Windows 365	Cloud VDI – Azure Virtual Desktop
Windows 10/11	Windows 10/11, Windows Server 2012+ multi-session desktops
Full Desktops	Full Desktops and Remote Apps
Microsoft Endpoint Manager (Enterprise Edition)	Full control over configuration and management. Azure portal and MEM
Predictable per user per month pricing	Flexible consumption-based pricing
Dedicated VM's	Dedicated and pooled with user profile management
Limited SKU in 22 regions	All VM SKU's in all regions
GPU support	GPU Support
Simple management	Complex management
A PC in the cloud	Virtual Desktop Platform

Azure Virtual Desktop Gateway Service Geographies

Use cases

Daily Workstation for employees

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Daily Workstation for non-Office workers

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Consultants Workstation

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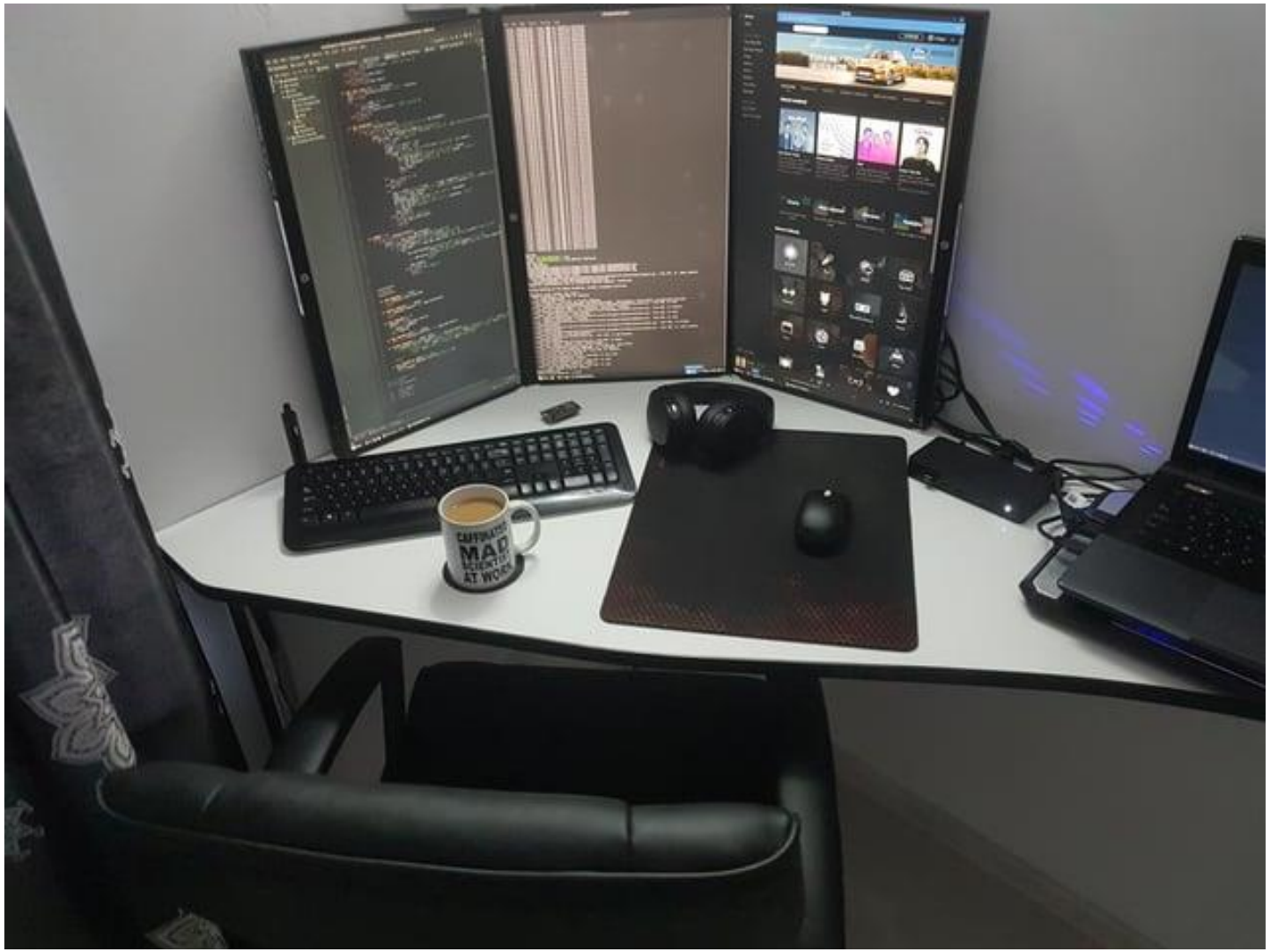
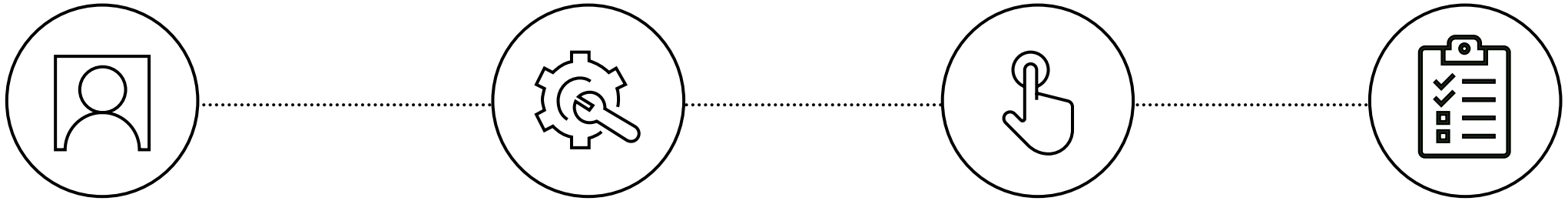
Developers Workstation



Deployment flow

Deployment flow



Assign Windows 365 licenses

Configure Windows 365 On-Premises Network Connection

Create Windows 365 Provisioning Policy

Deploy Applications and Security

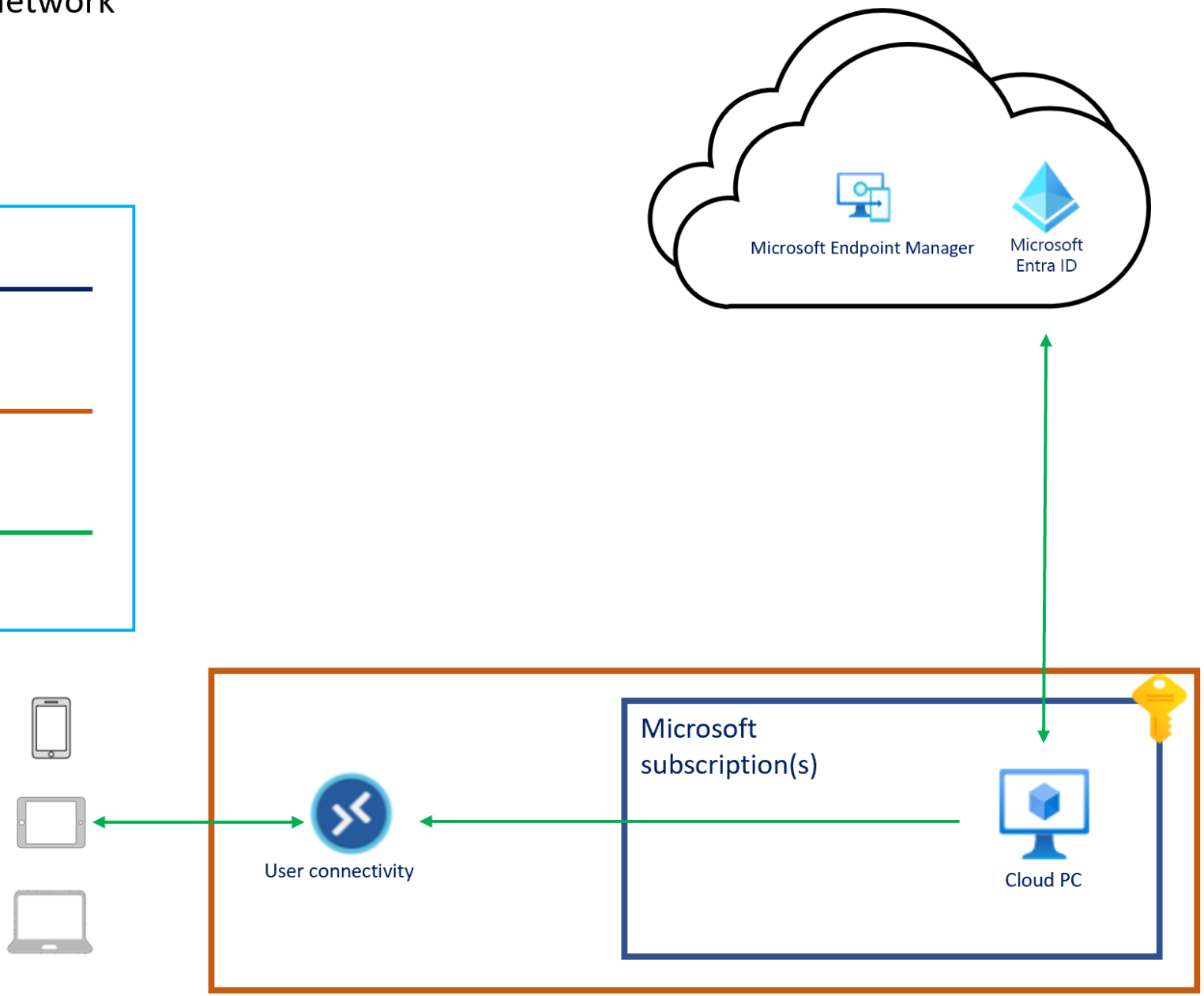
Microsoft Entra join

Microsoft Hosted Network

Azure Subscriptions

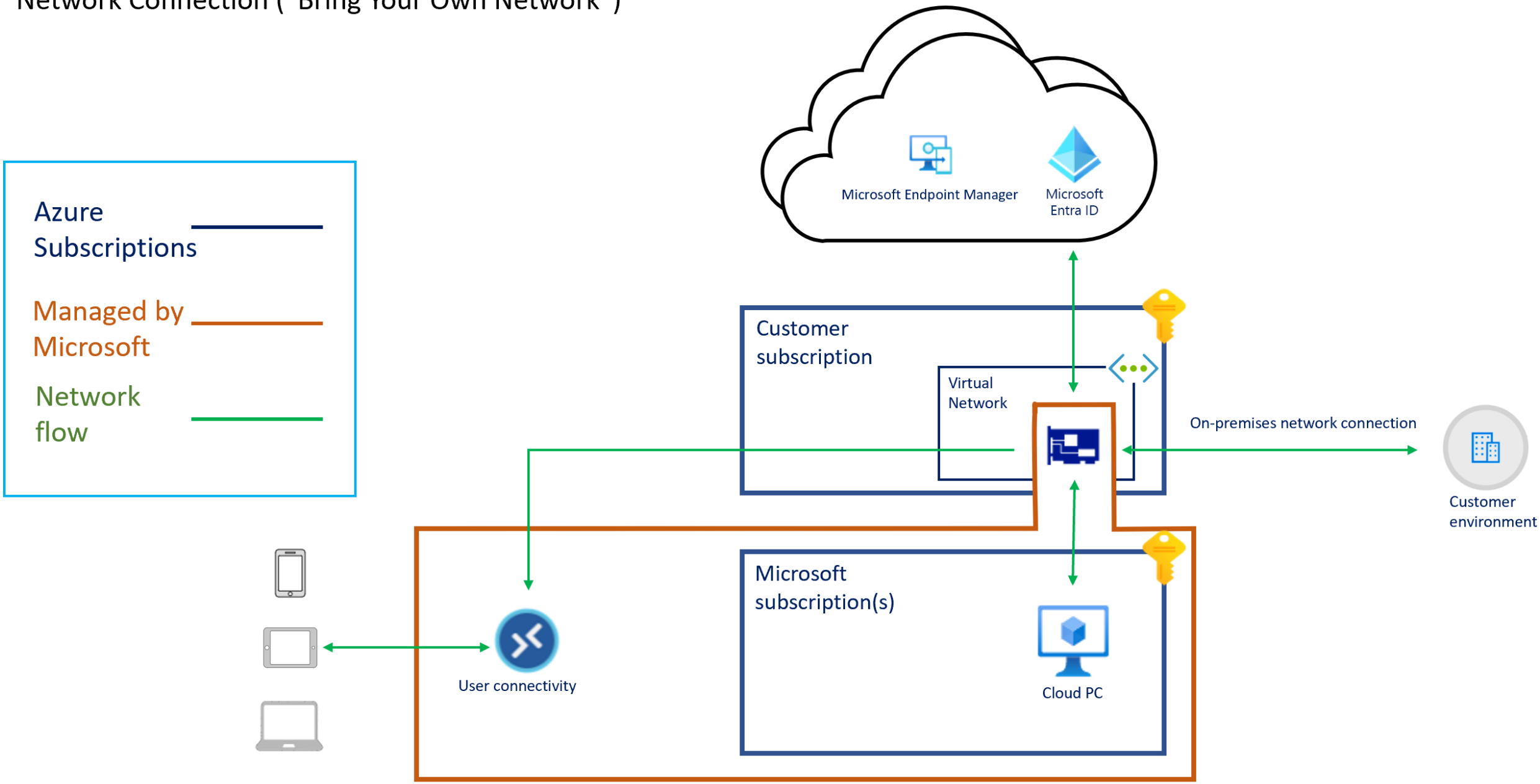
Managed by Microsoft

Network flow



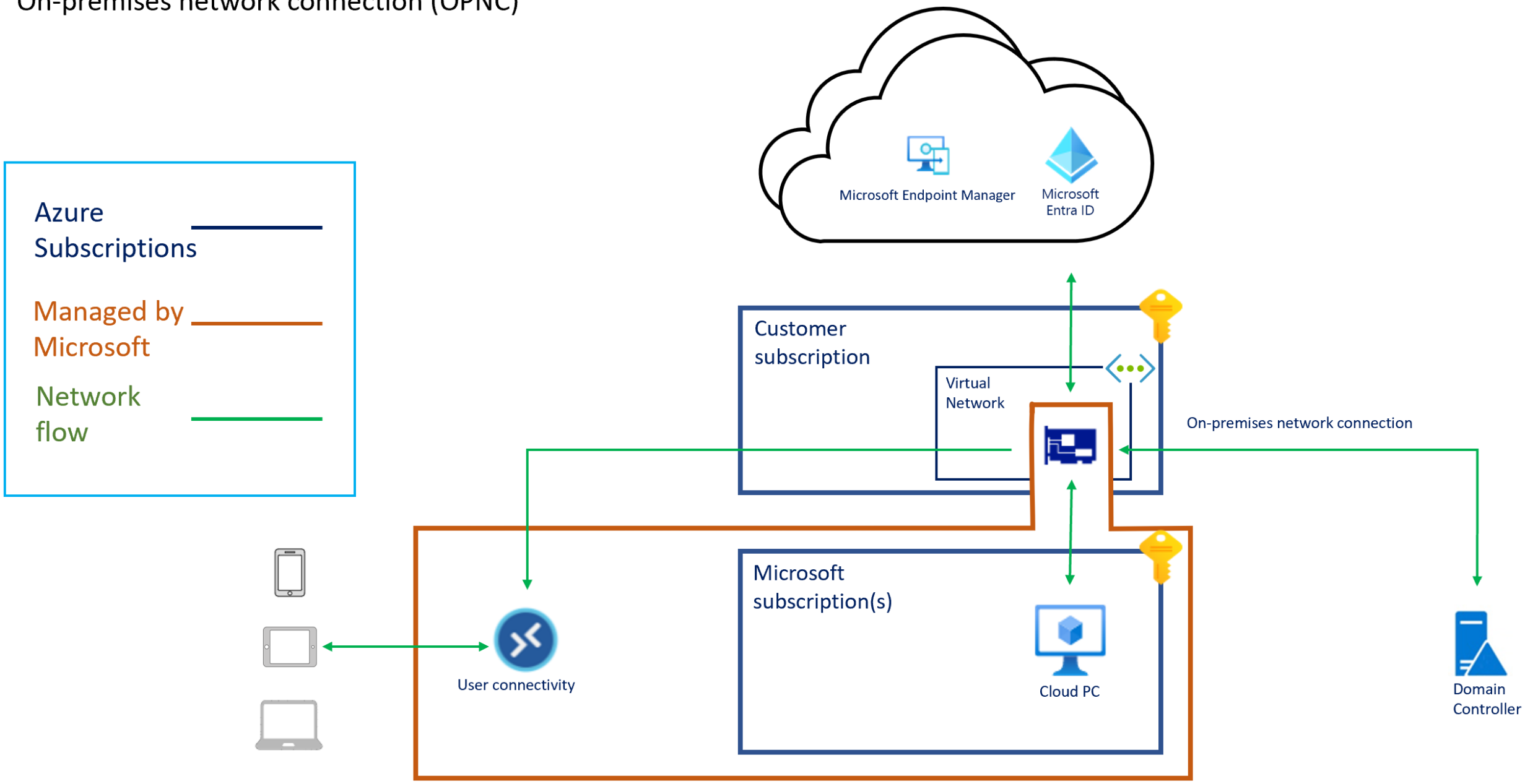
Microsoft Entra join

Network Connection (“Bring Your Own Network”)



Microsoft Entra hybrid join

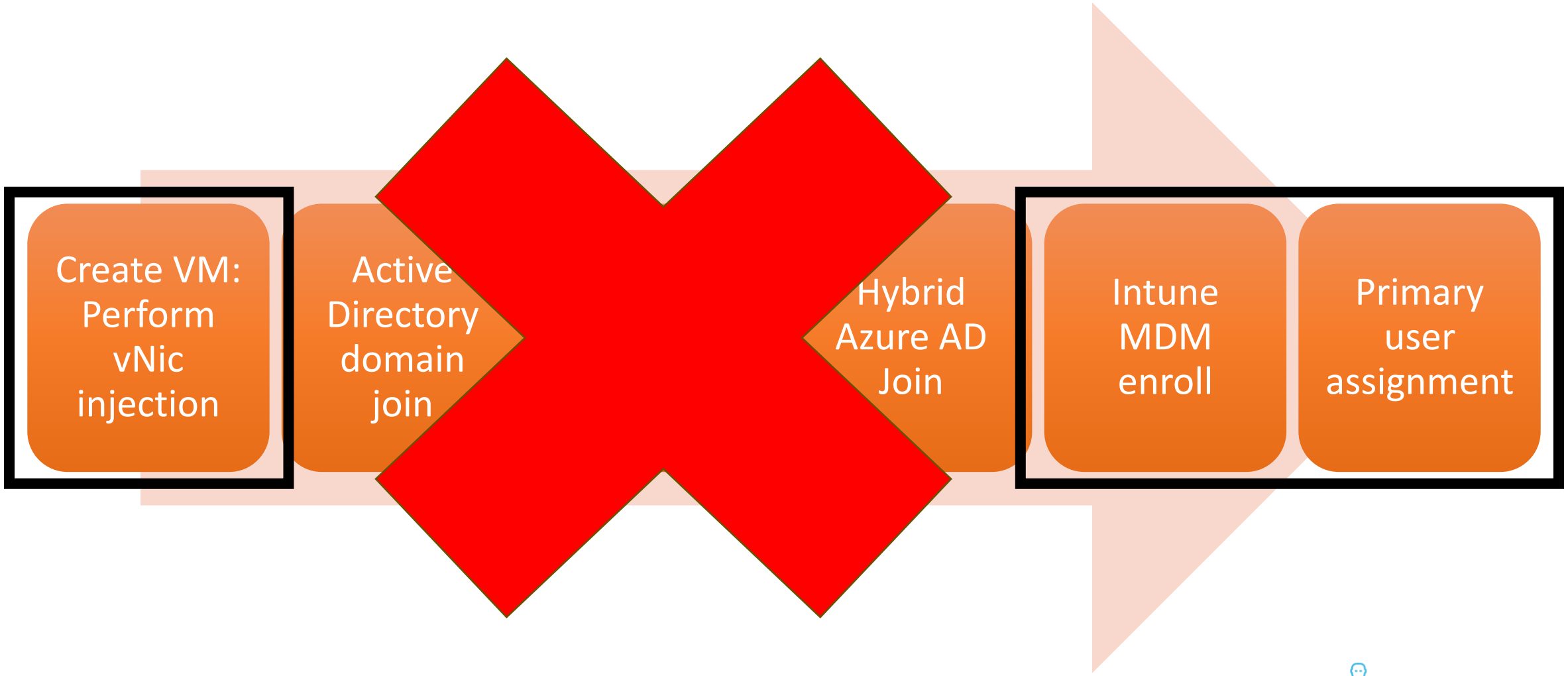
On-premises network connection (OPNC)



Provisioning flow

User License CloudPC Intune

Provisioning steps



DEMO

Manual deployment

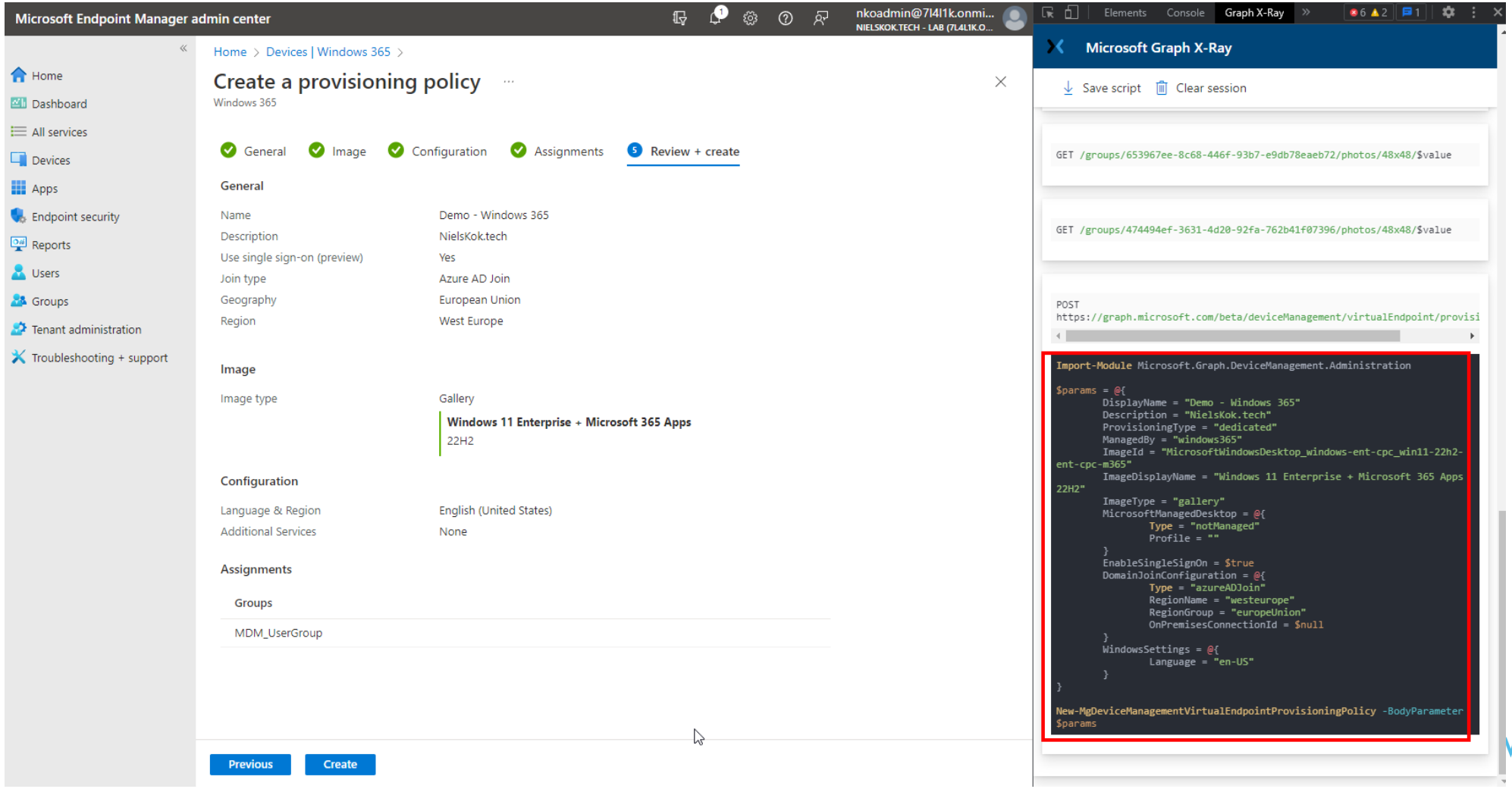
PSCloudPC

Why?
Authentication
Flow example
Tools

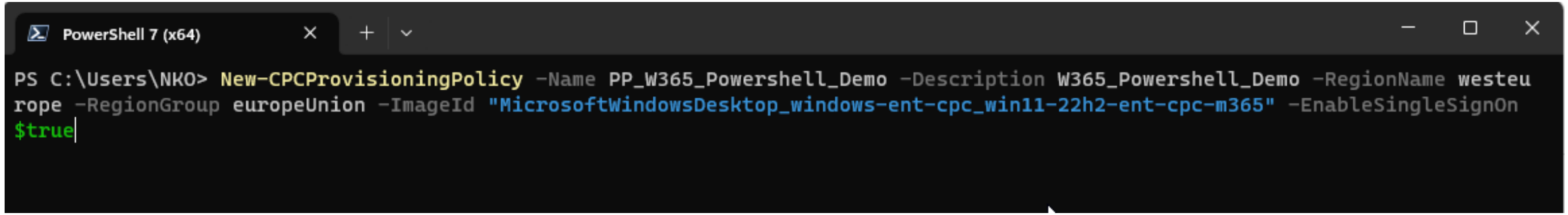
Why?

- It’s fun!
- Learning
- Portal vs automation
- Consistency

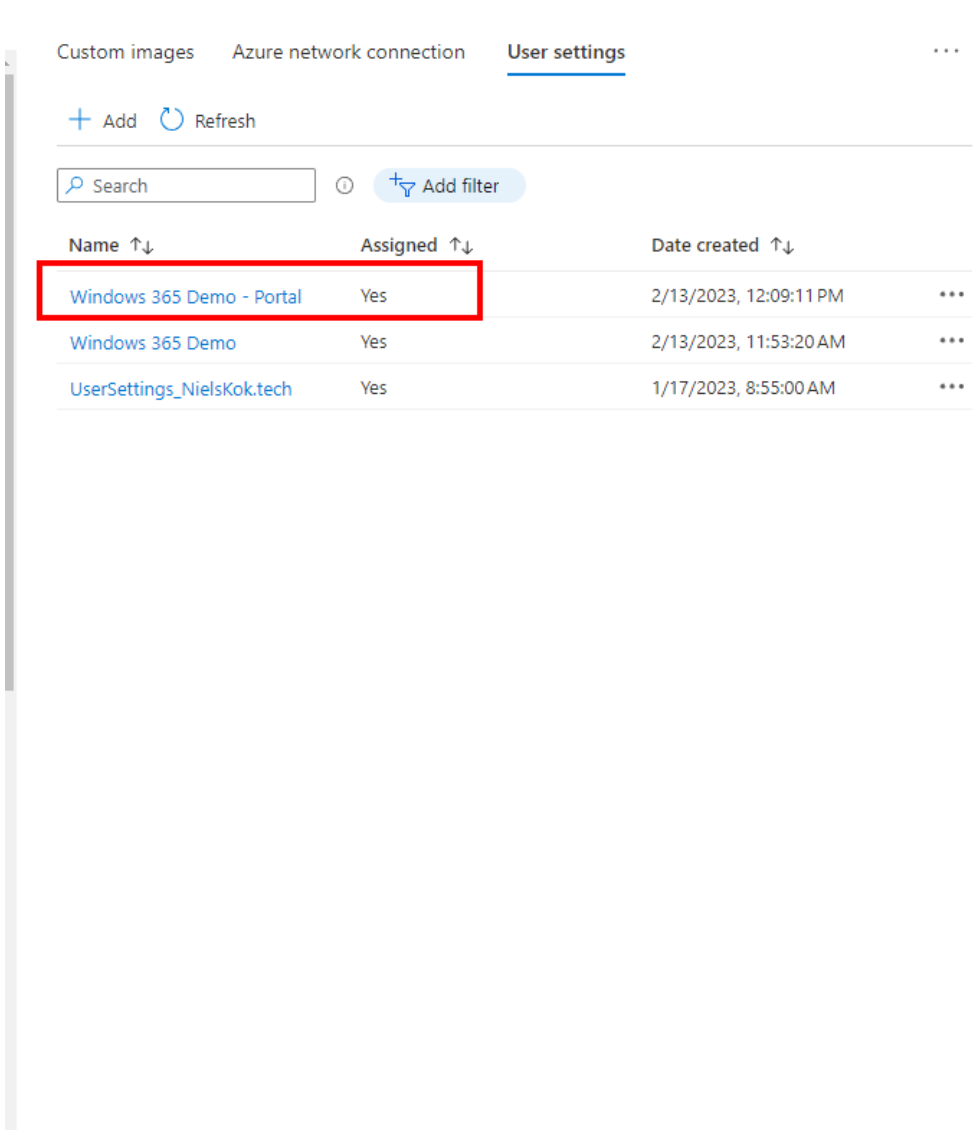
Why?



Why?


PowerShell 7 (x64)
PS C:\Users\NKO> New-CPCProvisioningPolicy -Name PP_W365_Powershell_Demo -Description W365_Powershell_Demo -RegionName westeu
rope -RegionGroup europeUnion -ImageId "MicrosoftWindowsDesktop_windows-ent-cpc_win11-22h2-ent-cpc-m365" -EnableSingleSignOn
$true

Why?




```
GET /groups/93f2df51-93d1-4221-8574-585888a5d06d/photos/48x48/$value
```

```
POST
https://graph.microsoft.com/beta/deviceManagement/virtualEndpoint/userSet
```

```
Import-Module Microsoft.Graph.DeviceManagement.Administration

$params = @{
        DisplayName = "Windows 365 Demo - Portal"
        LocalAdminEnabled = $false
        RestorePointSetting = @{
                UserRestoreEnabled = $true
                FrequencyInHours = 6
        }
}

New-MgDeviceManagementVirtualEndpointUserSetting -BodyParameter $params
```

```
POST
https://graph.microsoft.com/beta/deviceManagement/virtualEndpoint/userSet
edf2-4b63-9ed1-05e0ee5739c3/assign
```

```
Import-Module Microsoft.Graph.DeviceManagement.Actions

$params = @{
        Assignments = @(
                @{
                        Target = @{
                                GroupId = "82d63e26-0bc2-48cd-84a7-
1ad212650725"
                        }
                }
        )
}

Set-MgDeviceManagementVirtualEndpointUserSetting -CloudPcUserSettingId
$cloudPcUserSettingId -BodyParameter $params
```

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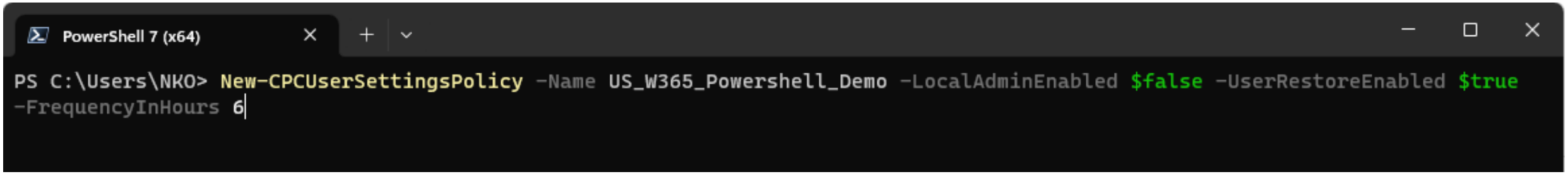
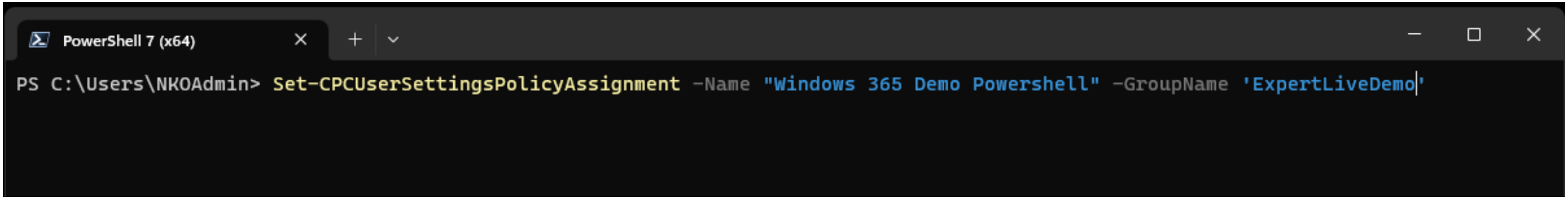
Why?





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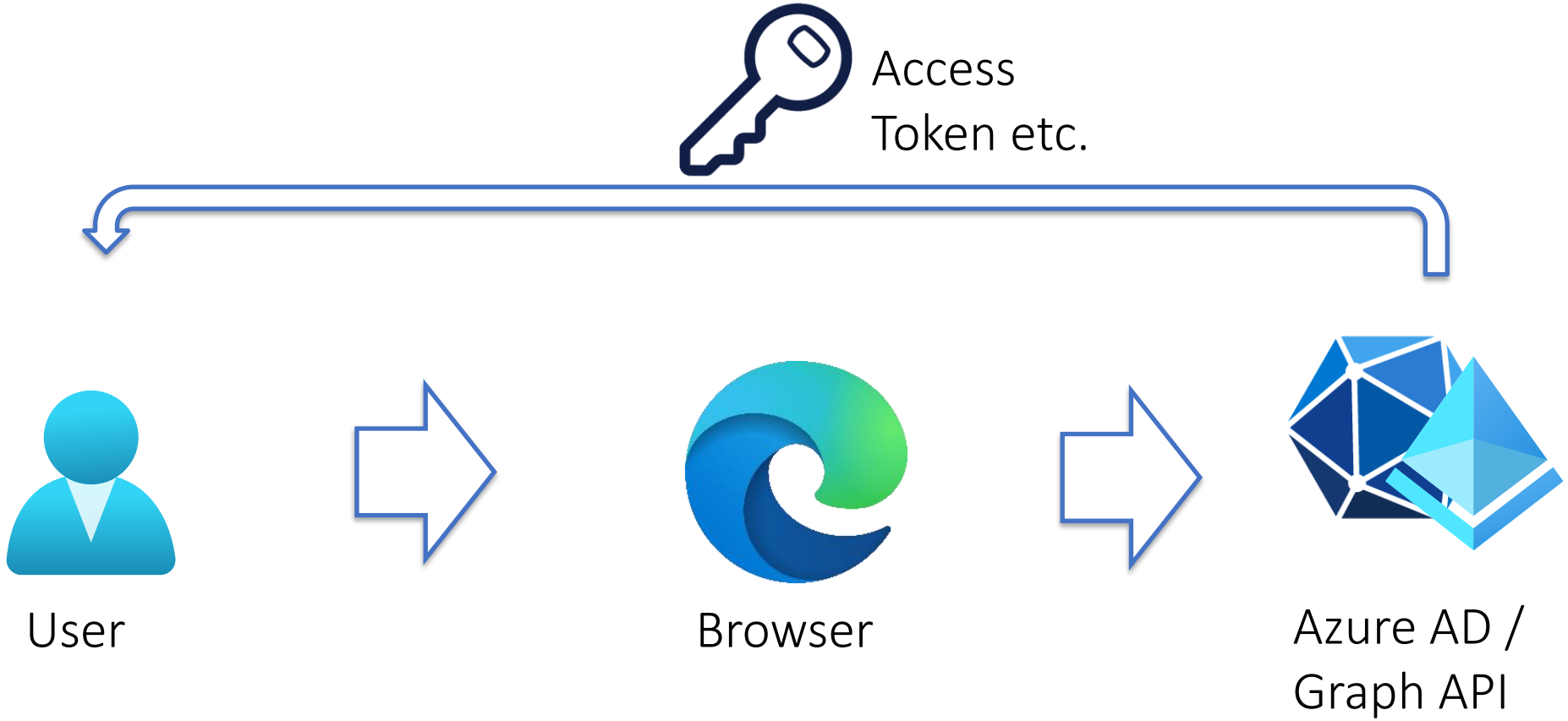
Prerequisites

- Authentication (Interactive / Service Principal)
- PowerShell Core (7)
- Microsoft Graph
- Easy to use / automation friendly
- Not depending on other modules
- Available via the Microsoft PowerShell gallery

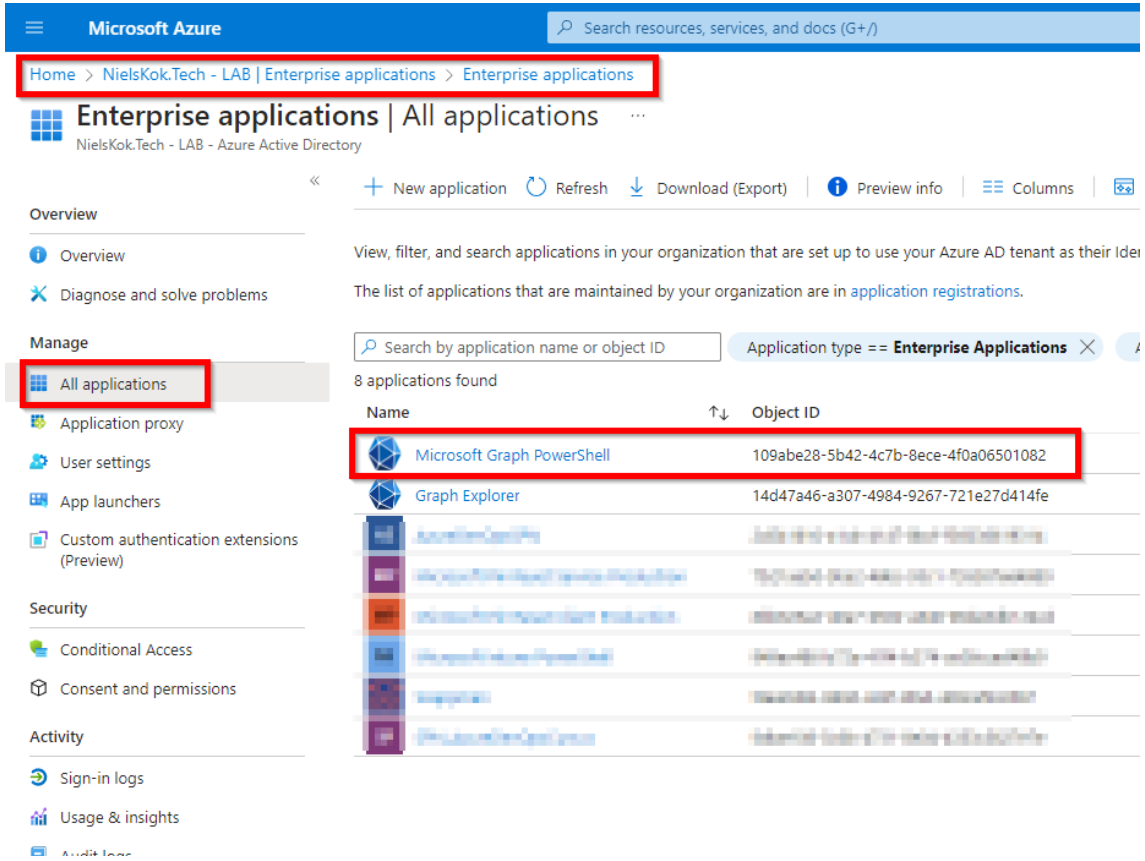
Authentication (Interactive)



Authentication (Interactive)

- CloudPC.ReadWrite.All
- DeviceManagementConfiguration.ReadWrite.All
- DeviceManagementManagedDevices.ReadWrite.All
- Directory.Read.All

https://login.microsoftonline.com/common/oauth2/nativeclient



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Authentication (Interactive)

Authtoken

PowerShell 7 (x64)

```
PS E:\GIT\PSCloudPC> Connect-Windows365 -TenantID 7l4l1k.onmicrosoft.com
PS E:\GIT\PSCloudPC> $script:Authheader | FL

Name  : Authorization
Value : Bearer eyJ0eXAiOiJKV1QiLCJub25jZSI6InN1eUVORjgxT3g1VGRtVlFIdTJHajlRYzZKenEydVNINzgzWGx6SnV1WlUiLCJhbGciOiJSUzI1NiIsIng1dCI6Ii1LSTNROW5OUjdiUm9meG1lWm9YcWJIWkdldyI
        sImtpZCI6Ii1LSTNROW5OUjdiUm9meG1lWm9YcWJIWkdldyJ9.eyJhdWQiOiIwMDAwMDAwMy0wMDAwLTAwMDAtYzAwMC0wMDAwMDAwMDAwMDAiLCJpc3MiOiJodHRwczovL3N0cy53aW5kb3dzLm5ldC8xY2IxNmE4
        OS1hMzdlLTQxYzEtYTFhYy1iNjI5ZjJmMjUxMjUvIiwiaWF0IjoxNjgzODIwOTUxLCJuYmYiOjE2ODM4MjA5NTEsImV4cCI6MTY4MzgyNTI0NCwiYWNjdCI6MCwiYWNyIjoiMSIsImFpbyI6IkFUUUF5LzhUQUFBQS
        83bkhwSWdnVm9OU3RDcStPcWxLTGlHOUFXdmI4cjkvS0ZxWVhJT0p3NXgwdHJHRkNNZmFLZklsNWNEcXhtMHQiLCJhbXIiOlsicHdkIl0sImFwcF9kaXNwbGF5bmFtZSI6Ik1pY3Jvc29mdCBHcmFwaCBDb21tYW5k
        IExpbmUgVG9vbHMiLCJhcHBpZCI6IjE0ZDgyZWVjLTIwNGItNGMyZi1iN2U4LTI5NmE3MGRhYjY3ZSIsImFwcGlkYWNyIjoiMCIsImZhbWlseV9uYW1lIjoiS29rIiwiZ2l2ZW5fbmFtZSI6Ik5pZWxzIiwiaWR0eX
        AiOiJ1c2VyIiwiaXBhZGRyIjoiODIuNzIuMjA1LjExMCIsIm5hbWUiOiJOaWVscyBLb2siLCJvaWQiOiIzMWFjYThjMi1kNjQ2LTQwZGItYmYzZS03N2RlODIzMDY1ZjQiLCJwbGF0ZiI6IjMiLCJwdWlkIjoiMTAw
        MzIwMDE5RTlEMkJEQiIsInJoIjoiMC5BVTRBaVdxeEhINmp3VUdockxZcDh2SlJKUU1BQUFBQUFBQUF3QUFBQUFBQUFBQk9BTkUuIiwic2NwIjoiQ2hhdC5DcmVhdGUgQ2hhdC5SZWFkIENoYXQuUmVhZEJhc2ljIE
        NoYXQuUmVhZFdyaXRlIENoYXRNZXNzYWdlLlJlYWQgQ2hhdE1lc3NhZ2UuU2VuZCBDbG91ZFBDLlJlYWRXcml0ZS5BbGwgRGV2aWNlTWFuYWdlbWVudEFwcHMuUmVhZFdyaXRlLkFsbCBEZXZpY2VNYW5hZ2VtZW50
        Q29uZmlndXJhdGlvbi5SZWFkV3JpdGUuQWxsIERldmljZU1hbmFnZW1lbnRNYW5hZ2VkRGV2aWNlcy5SZWFkV3JpdGUuQWxsIERldmljZU1hbmFnZW1lbnRTZXJ2aWNlQ29uZmlnLlJlYWRXcml0ZS5BbGwgRGlyZW
        N0b3J5LlJlYWQuQWxsIERpcmVjdG9yeS5SZWFkV3JpdGUuQWxsIEdyb3VwLlJlYWRXcml0ZS5BbGwgb2ZmbGluZV9hY2Nlc3Mgb3BlbmlkIFBvbGljeS5SZWFkLkFsbCBQb2xpY3kuUmVhZFdyaXRlLkFwcGxpY2F0
        aW9uQ29uZmlndXJhdGlvbiBQb2xpY3kuUmVhZFdyaXRlLkF1dGhlbnRpY2F0aW9uTWV0aG9kIFBvbGljeS5SZWFkLkFsbCBQb2xpY3kuUmVhZFdyaXRlLkFwcGxpY2F0aW9uQ29uZmlndXJhdGlvbiBQb2xpY3kuUmVhZFdyaXRlLkF1dGhlbnRpY2F0aW9uTWV0aG9kIFBvbGljeS5SZWFkLkFsbCBQb2xpY3kuUmVhZFdyaXRlLkFwcGxpY2F0
        hUdWlRR1ZyWEtIRVBjXzRCSFc0alU5U1E3dm1jQm93Nm1JT2hzIiwidGVuYW50X3JlZ2lvbl9zY29wZSI6IkVVIiwidGlkIjoiMWNiMTZhODktYTM3ZS00MWMxLWExYWMtYjYyOWYyZjI1MTI1IiwidW5pcXVlX25h
        bWUiOiJua29hZG1pbkA3bDRsMWsub25taWNyb3NvZnQuY29tIiwidXBuIjoibmtvYWRtaW5AN2w0bDFrLm9ubWljcm9zb2Z0LmNvbSIsInV0aSI6Inp5QVg3SDQwRzBlcWZHLXdQNXNWQUEiLCJ2ZXIiOiIxLjAiLC
        J3aWRzIjpbImIxYmUxYzNlLWI2NWQtNGYxOS04NDI3LWY2ZmEwZDk3ZmViOSIsIjYyZTkwMzk0LTY5ZjUtNDIzNy05MTkwLTAxMjE3NzE0NWUxMCIsImI3OWZiZjRkLTNlZjktNDY4OS04MTQzLTc2YjE5NGU4NTUw
        OSJdLCJ4bXNfdGNkdCI6MTYzNTQ0NTYzOCwieG1zX3RkYnIiOiJFVSJ9.ou2UB63nn7OfrImKsGGoTIZe5OydYry17r2uJLP2d2V7wqUeVoRfeFqlc0km1rH4VhYjJHGex5PTH7p2x0B4DRd4AadnMj1RMfc_UIAU5
        nbaFMSVlL1T_cOjokTtioCumEFqxz0v7EsA5AdaVK1Kmm4gfg0ZlEcN520HkD_rnbqVZJvbuUpwmlRAFSpLSN60aWbsElnzTghx_GUCShATrGWw2gt4A5AGWkq5tqQqTjRWPQmdDGtt3LC_YujOZ6jEVBQxlcP25u-
        PcSxg4hNVDQZO4HXind3Ky7oouAyjQXZ4T_H0J97M4gg6VsZDYH590l8V9_Kp4Opf7GRMy8e0Gg


PS E:\GIT\PSCloudPC>
```

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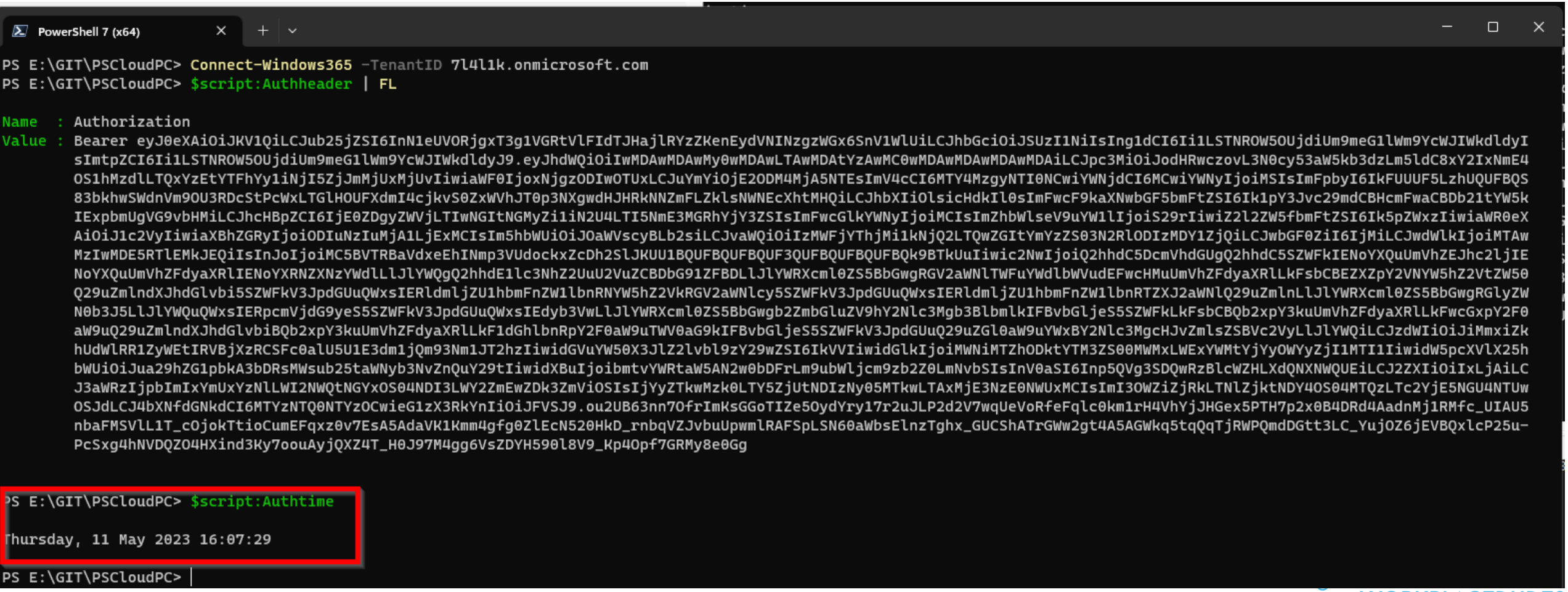
Authtoken



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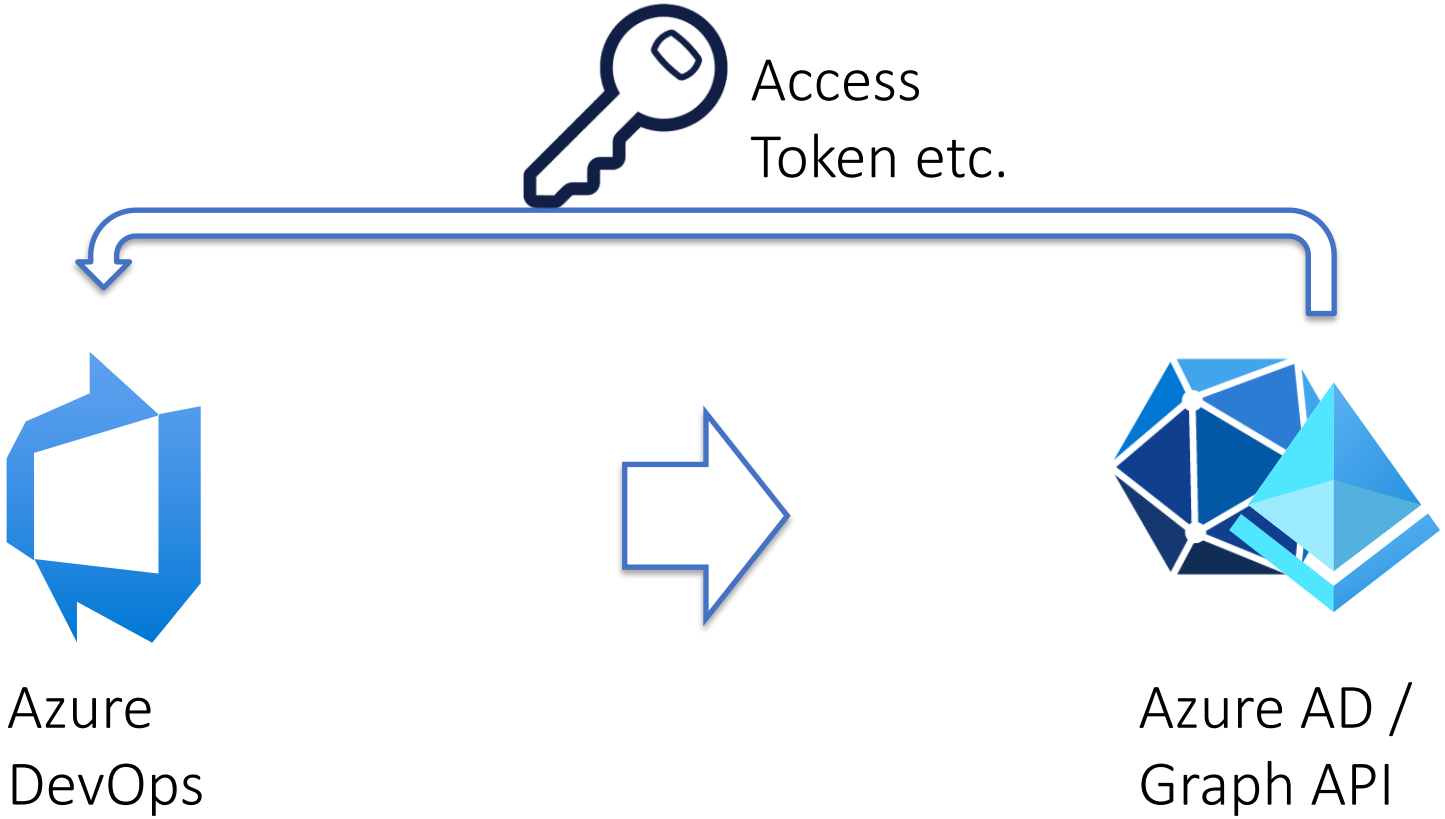
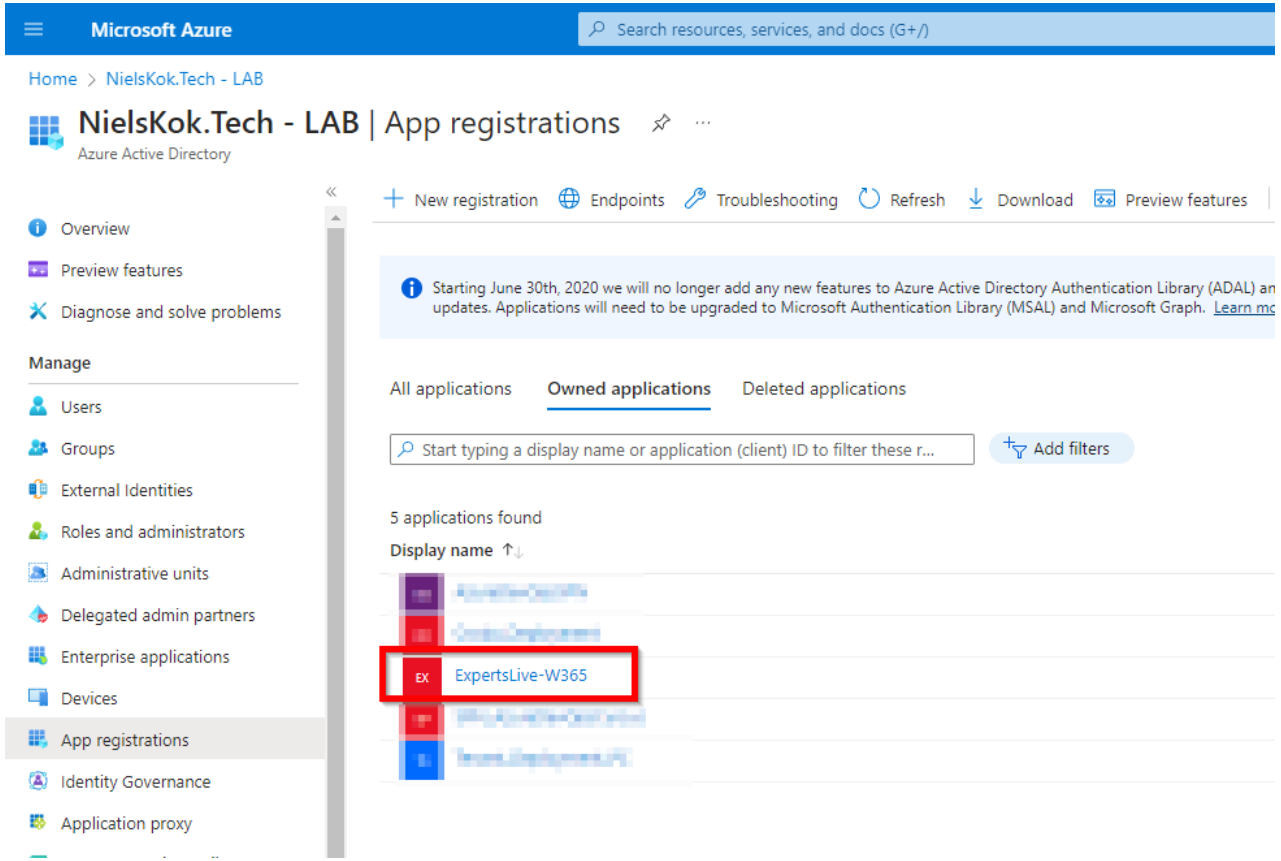
Authentication (SPN)



Authentication (SPN)



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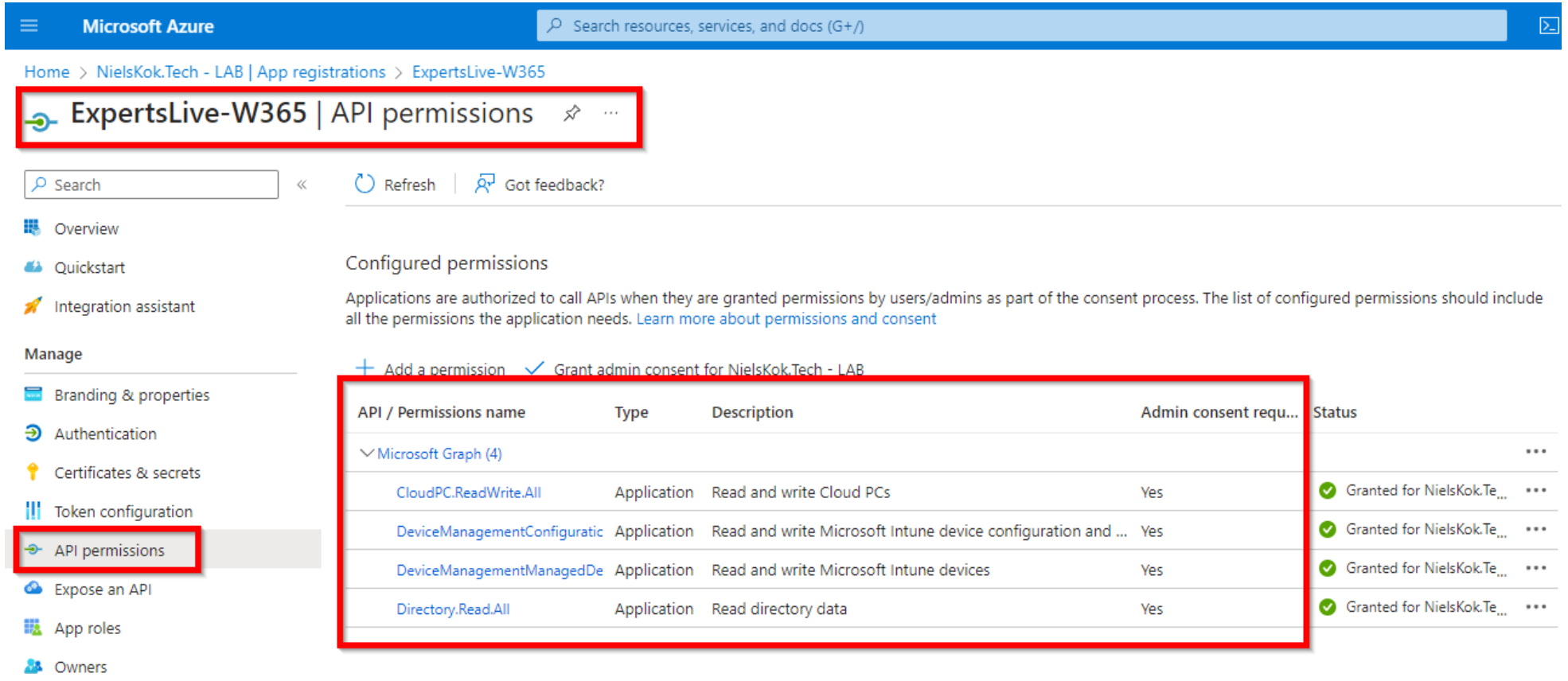
Authentication (SPN)



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NielsKokTech
Overview
Boards
Repos
Pipelines
Pipelines
Environments
Releases
Library
Task groups
Deployment groups
Test Plans
Artifacts
Project settings

#20230511.3 • TypoInVariable

ExpertsLive_Auth_Demo

Run new

This run is being retained as one of 3 recent runs by main (Branch).

View retention leases

Summary

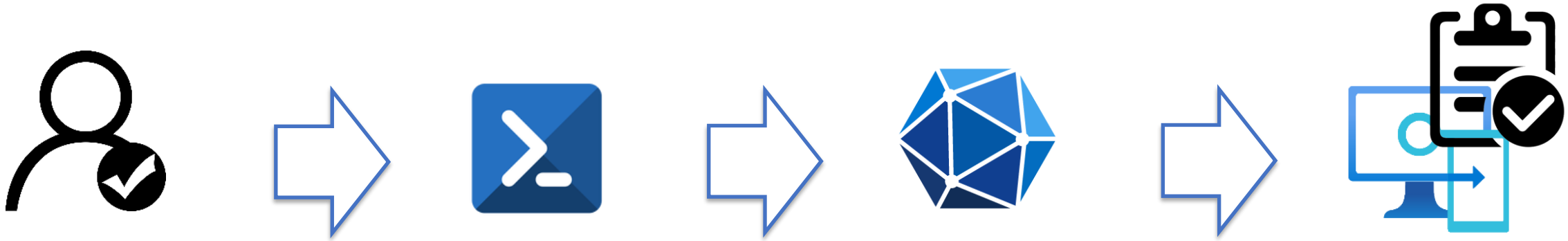
Manually run by NK Niels Kok

Repository and version	Time started and elapsed	Related	Tests and coverage
NielsKokTechTest	Today at 5:59 PM	0 work items	Get started
main 44c0b27a	14s	0 artifacts	

Jobs

Name	Status	Duration
RunningPowershellScript	Success	7s

Flow



Authentication

Powershell
JSON Convert

Graph API

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But wait! There's more!

Get-CloudPC
Get-CPCAzureNetworkConnection
Get-CPCCustomImage
Get-CPCGalleryImage
Get-CPCOrganizationSettings
Get-CPCProvisioningPolicy
Get-CPCRestorePoint
Get-CPCServicePlans
Get-CPCSupportedRegion
Get-CPCUserSettingsPolicy

Invoke-CPCEndGracePeriod
Invoke-CPCReprovision
Invoke-CPCRestore

Set-CPCProvisioningPolicyAssigment
Set-CPCUserSettingsPolicyAssigment

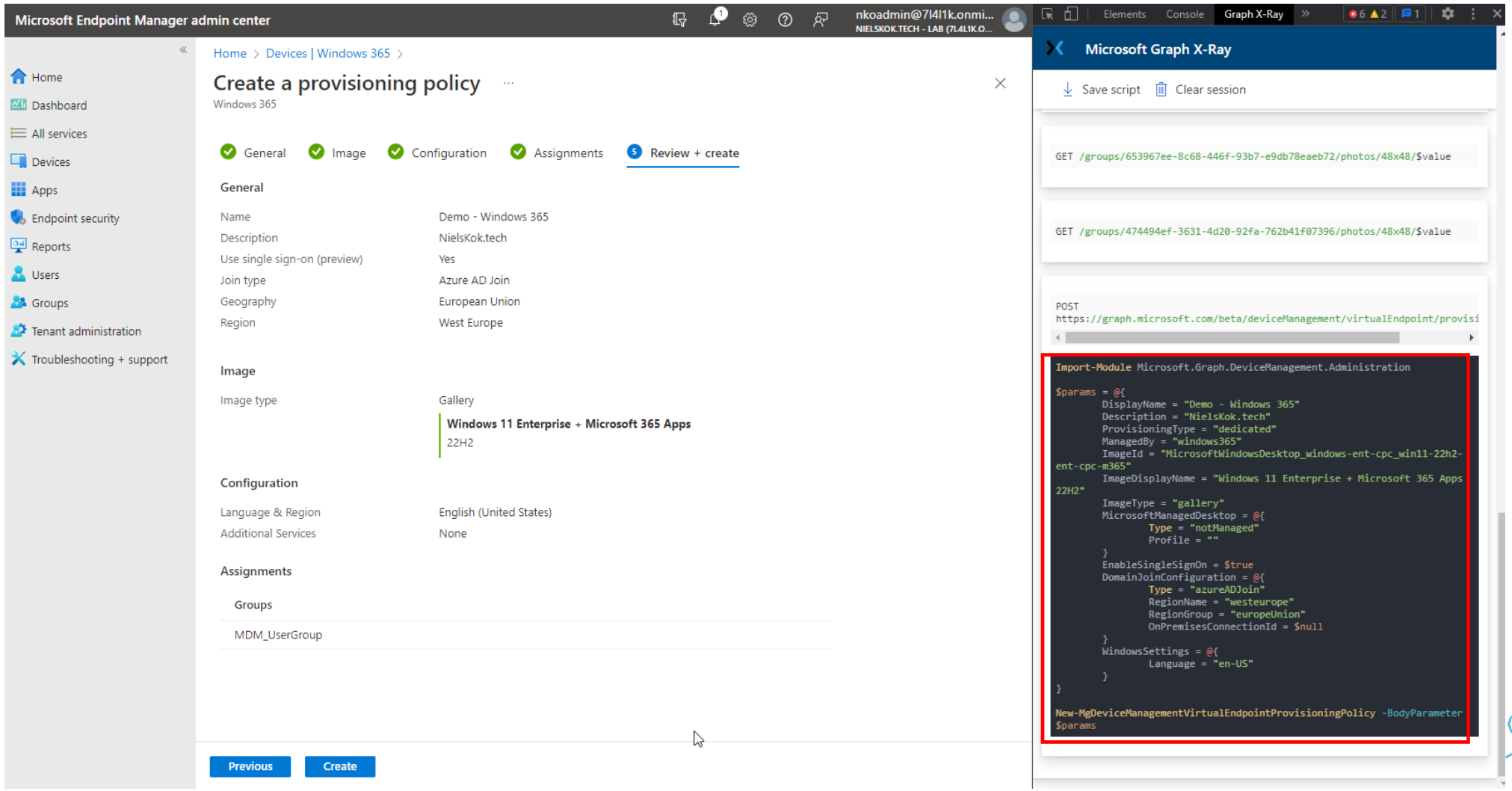
New-CPCAzureNetworkConnection
New-CPCCustomImage
New-CPCProvisioningPolicy
New-CPCUserSettingsPolicy

Remove-CPCAzureNetworkConnection
Remove-CPCCustomImage
Remove-CPCProvisioningPolicy

Update-CPCOrganizationSettings
Update-CPCUserSettingsPolicy
Update-CPCProvisioningPolicy

Tools

Graph X Ray



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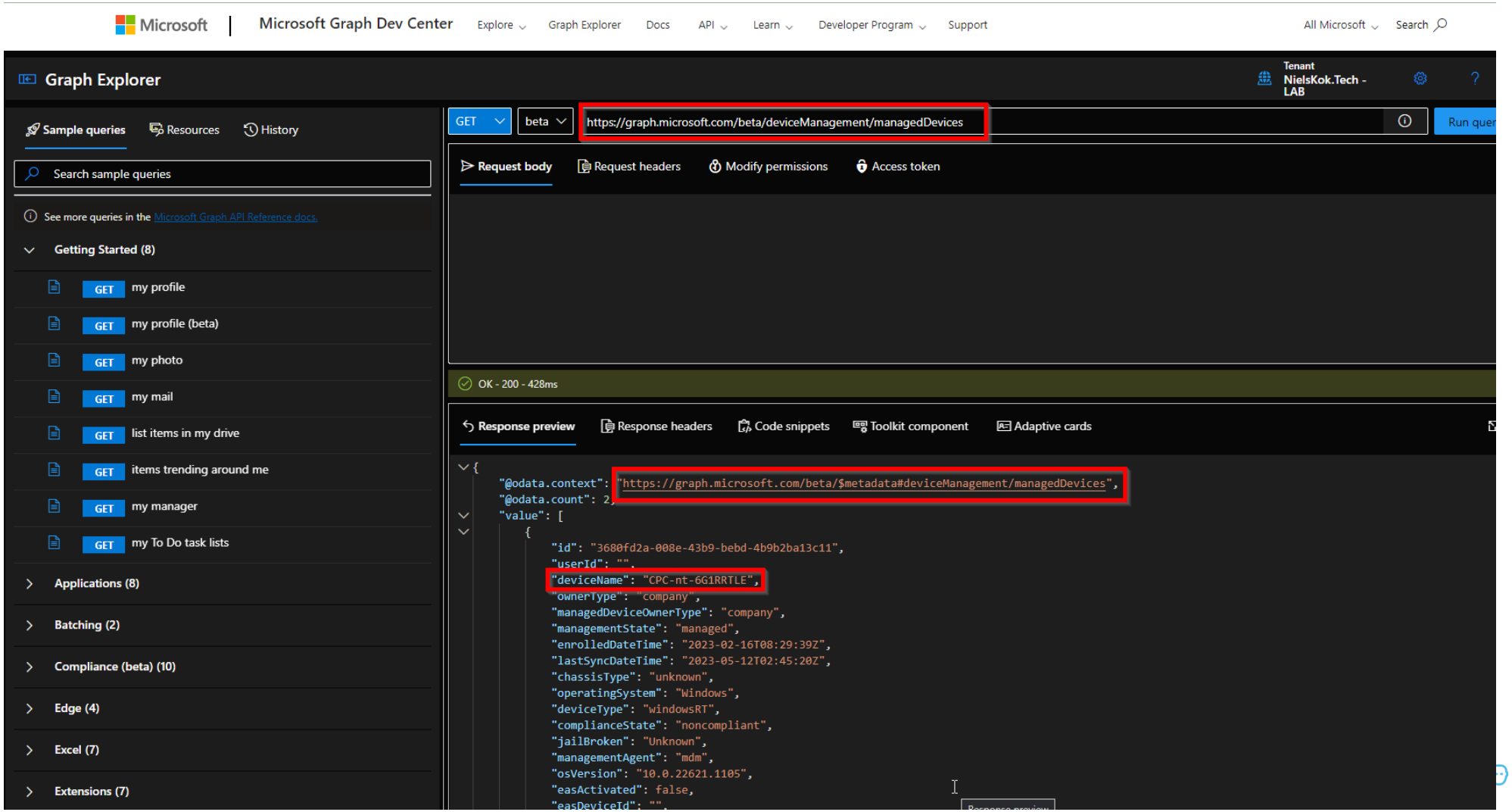
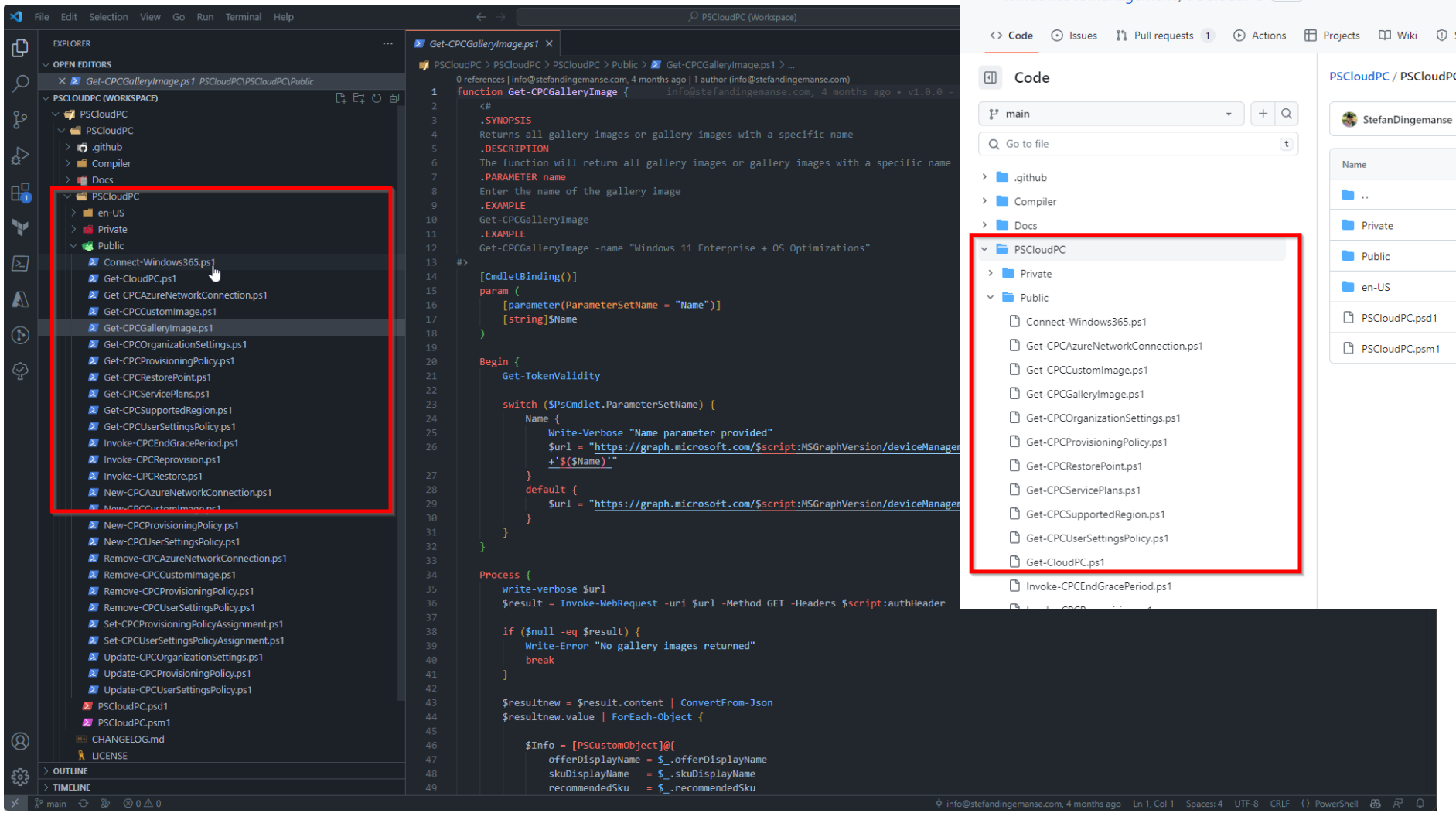
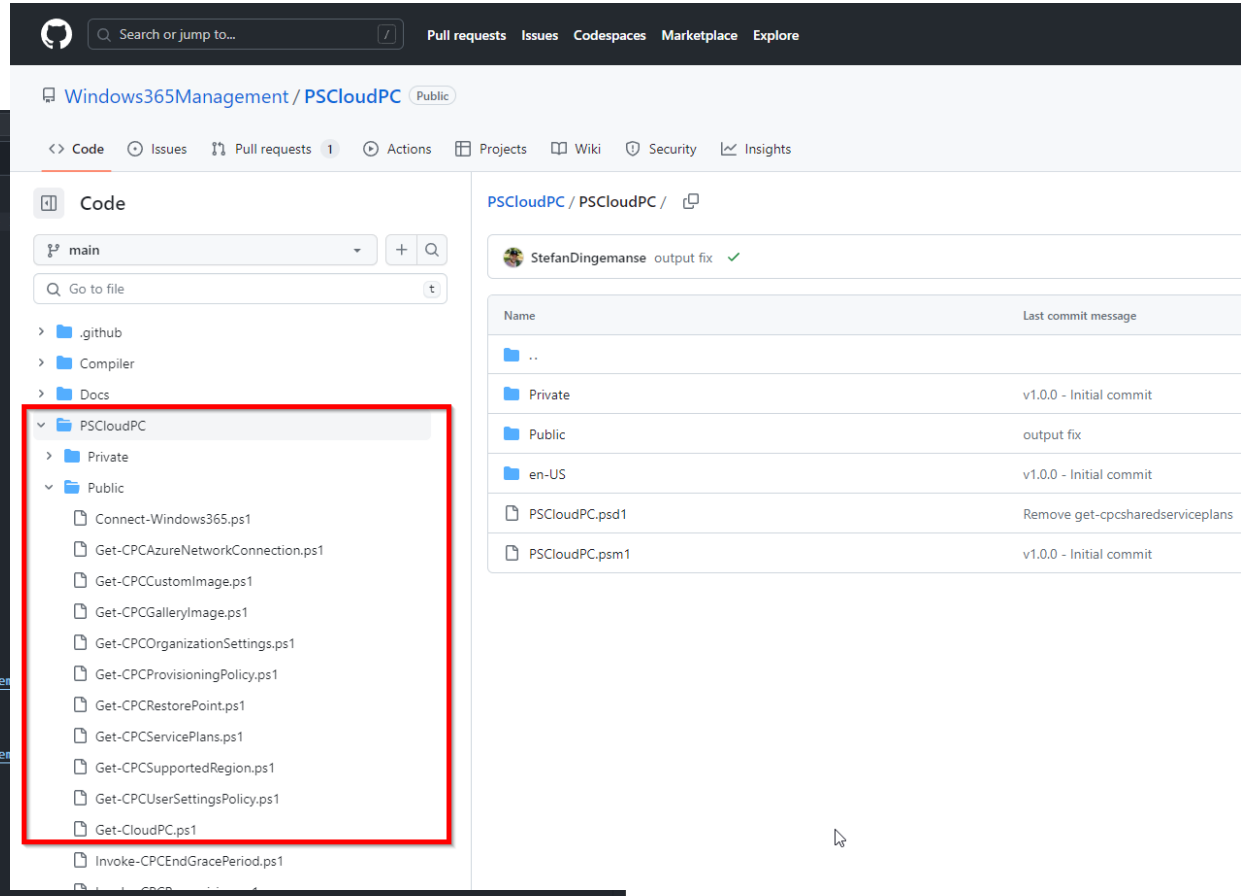
VS Code + GitHub



Graph Explorer





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PowerShell Gallery

Welcome to the PowerShell Gallery

The central repository for sharing and acquiring PowerShell code including PowerShell modules, scripts, and DSC resources.

Search PowerShell packages:

Az, etc...

11,546	8,347,554,372	217,742
Unique Packages	Total package downloads	Total packages

Learn

What is PowerShell Gallery?

Learn why the PowerShell Gallery is the most used resource for sharing and acquiring PowerShell code.

Getting started

Learn how to install and set up the PowerShellGet module, which is required in order to download packages from the Gallery.

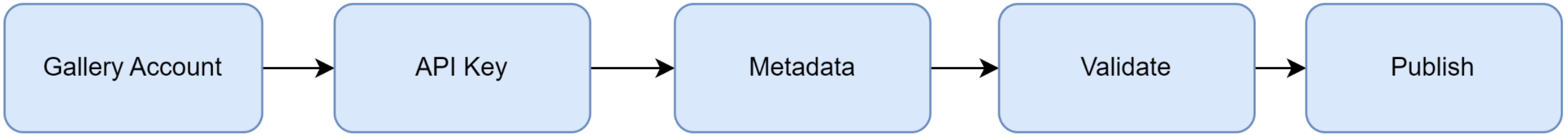
Top package downloads (last 6 weeks):

Package	Downloads
PackageManagement	28,141,457
PSWindowsUpdate	27,331,425
PowerShellGet	15,238,677
Az.Accounts	11,950,276
DellBIOSProvider	11,686,066

PowerShell Gallery

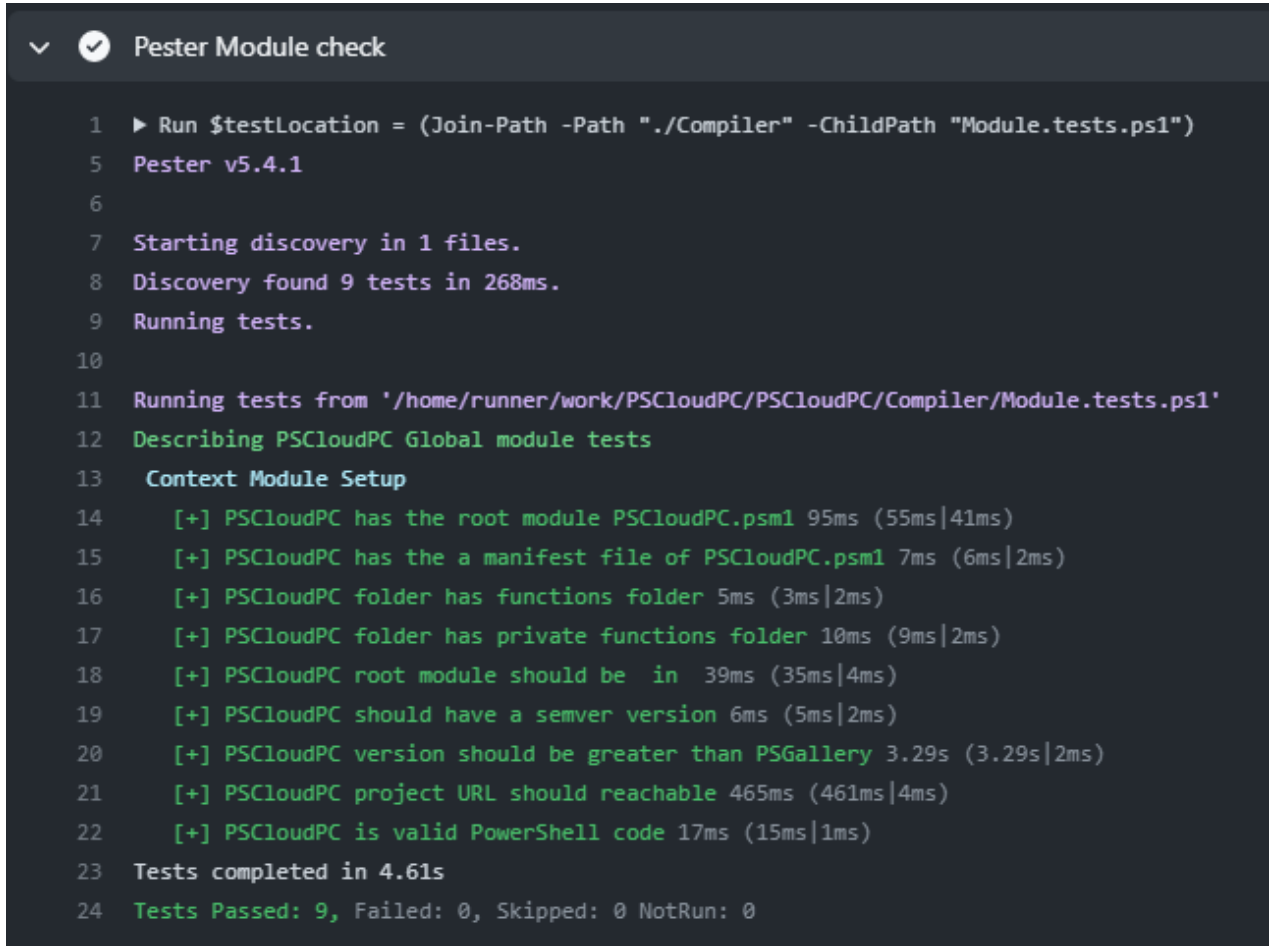
- Scripts
- Modules
- DSC resources

Requirements



Testing the code

- Pester
- PSScriptAnalyser



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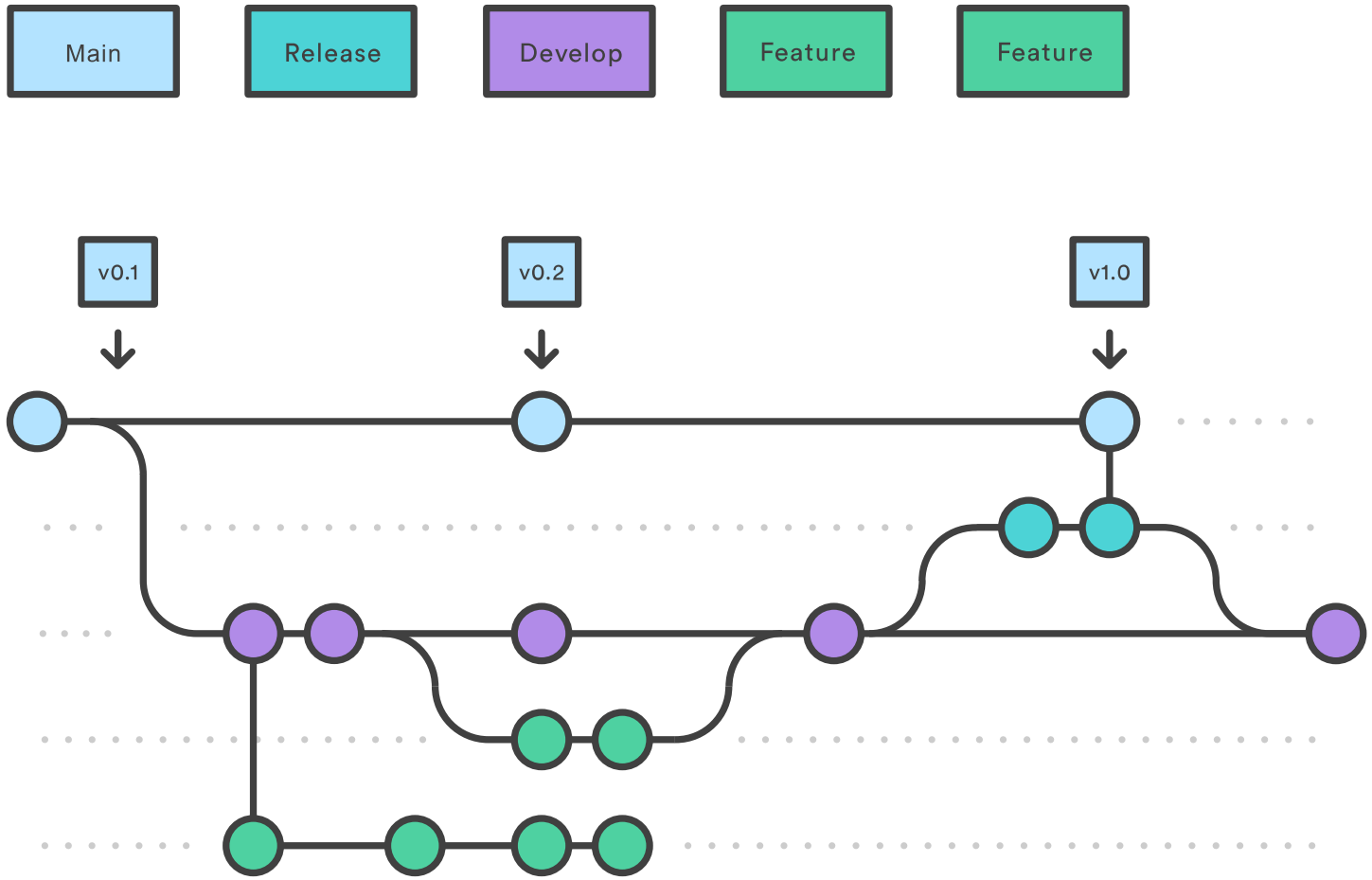
Pester

- Module Check
- Functions check
- Files check

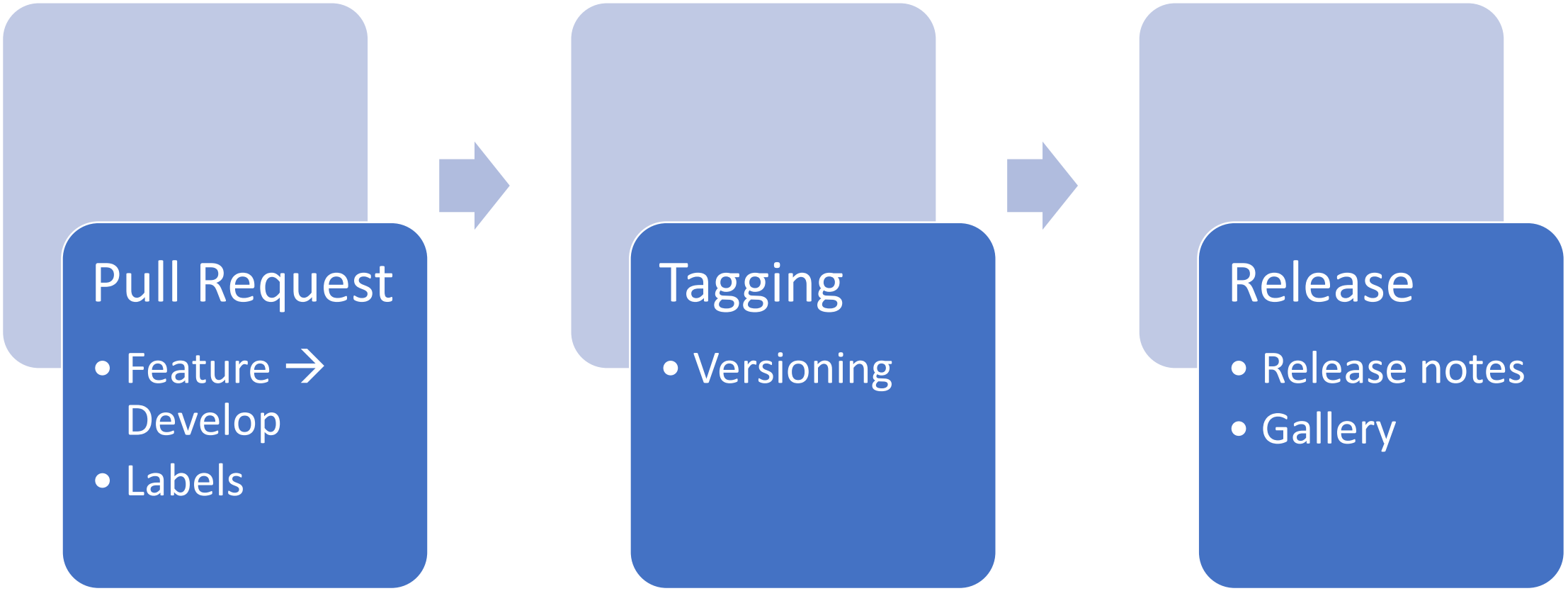
```powershell
$modulePath = Join-Path -Path (Join-Path ".././" -ChildPath "PSCloudPC") -ChildPath "PSCloudPC"       You, 4 m
$moduleFunctions = (Import-PowerShellDataFile (Join-Path -Path $modulePath -ChildPath "PSCloudPC.psd1")).Funct
BeforeAll {
    $modulePath = Join-Path -Path (Join-Path ".././" -ChildPath "PSCloudPC") -ChildPath "PSCloudPC"
    Write-Host $modulePath
    Write-Host "In before $modulePath"
    (Join-Path -Path $modulePath -ChildPath "Public")
    $psFiles = (Get-ChildItem -Path (Join-Path -Path $modulePath -ChildPath "Public")).BaseName
}

Run tests | Debug tests
Describe "Analyze code" -ForEach @(
    foreach ($function in $moduleFunctions) {
        @{
            function    = $function
            helpInfo    = Get-Help $function
            IgnoreRules = @('PSUseApprovedVerbs')
            fileobj     = $file
        }
    }
){
    It "<function> should exist in file base" {
        $function -in $psFiles | Should -Be $true
    }

    It  "<function> has a synopsis that is valid" {
        if ( $helpInfo.synopsis -eq $null) {
            $helpInfo.synopsis | Should -not -Be $null -Because 'every ps1 file should have a synopsis block'
        }
        elseif ( $helpInfo.synopsis -eq 'Short description') {
            $helpInfo.synopsis | Should -not -Be 'Short description' -Because 'thats just lazy'
        }
    }

    It  "<function> has a description that is valid" {
        if ( $helpInfo.description -eq $null) {
            $helpInfo.description | Should -not -Be $null -Because 'every ps1 file should have a synopsis bloc
        }
        elseif ( $helpInfo.description -eq 'Long description') {
```

Branching strategy

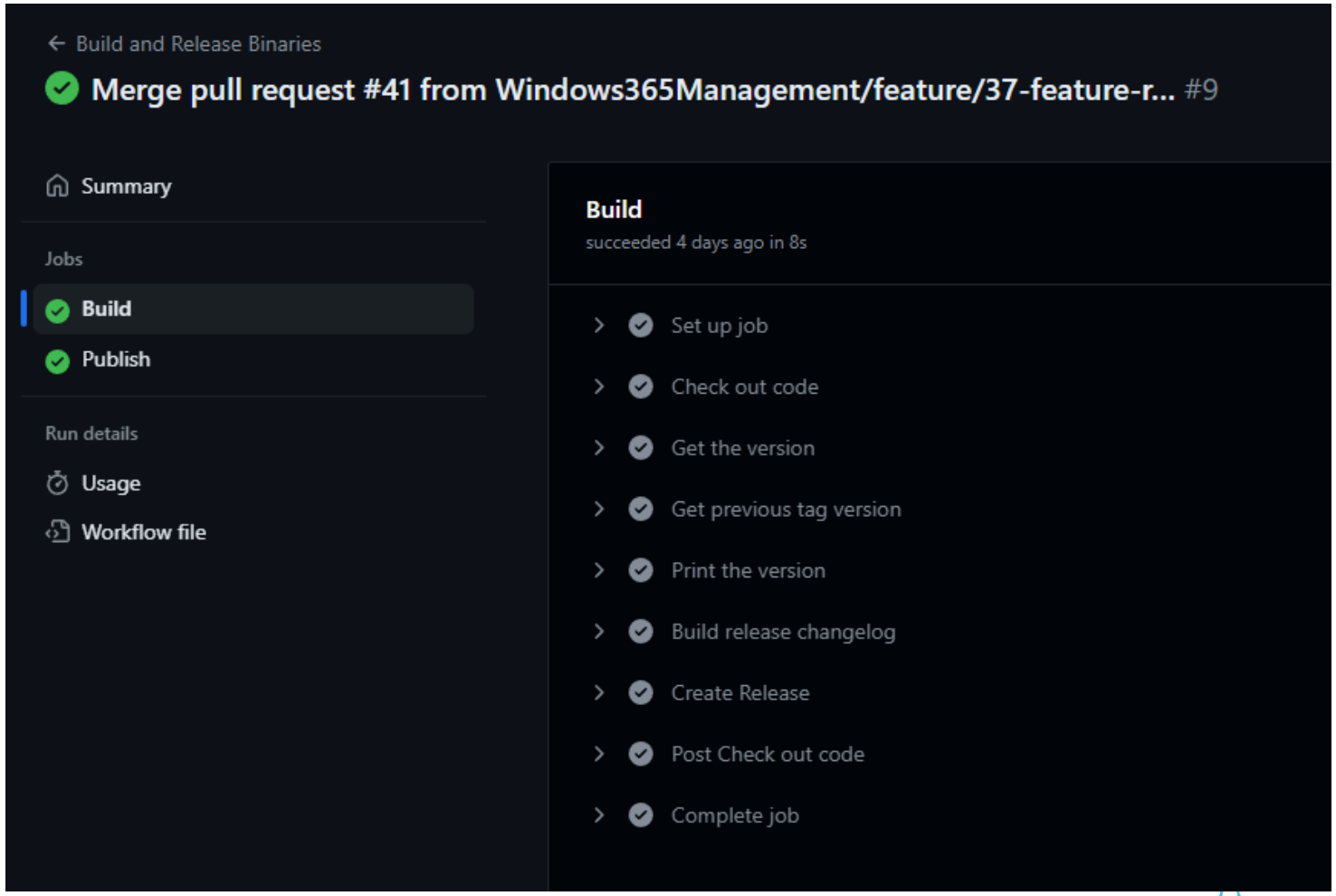
- Gitflow



Github actions – Release flow



Github actions – Release flow



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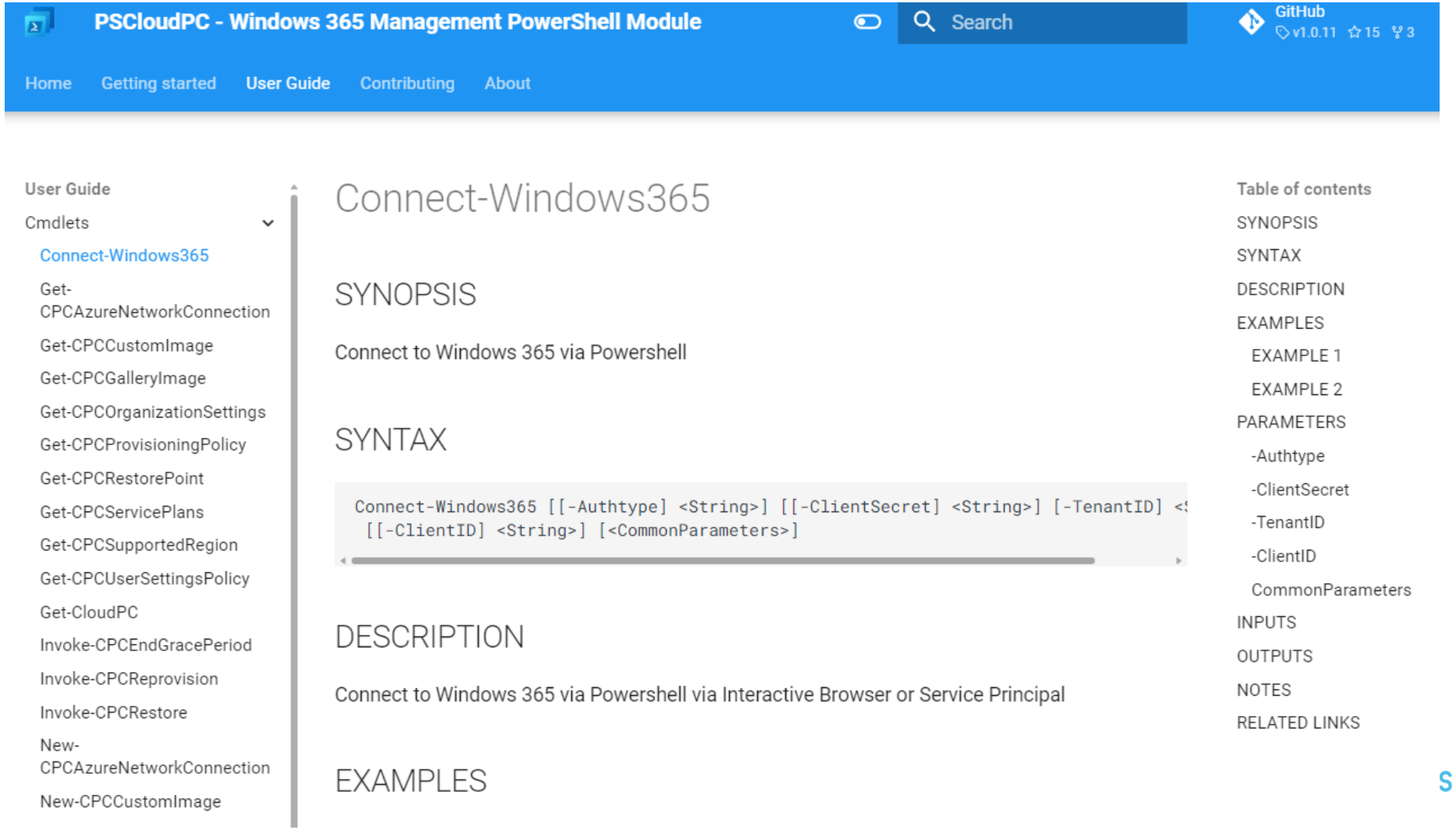
Documentation

PSCloudPC.com

- Mkdocs
- Static website
- Automatic



GitHub project site

Windows 365 Cloud PC Management PowerShell Module

Project information

CONTRIBUTORS 4 | LICENSE MIT | ISSUES 1 OPEN

Module statistics

LATEST V1.0.5 | POWERSHELL 7.0

PowerShell Gallery statistics

POWERSHELL GALLERY V1.0.6 | DOWNLOADS 230

Description

This PowerShell module allows you to manage your Windows 365 environment from the command line. It provides a set of cmdlets that allow you to perform various tasks, such as creating, modifying and deleting policies, managing Cloud PCs, and more.

Getting Started

```
Install-Module -Name PSCloudPC -Verbose
```

Then import the module into your session

```
Import-Module PSCloudPC -Verbose -Force
```

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The moment of truth

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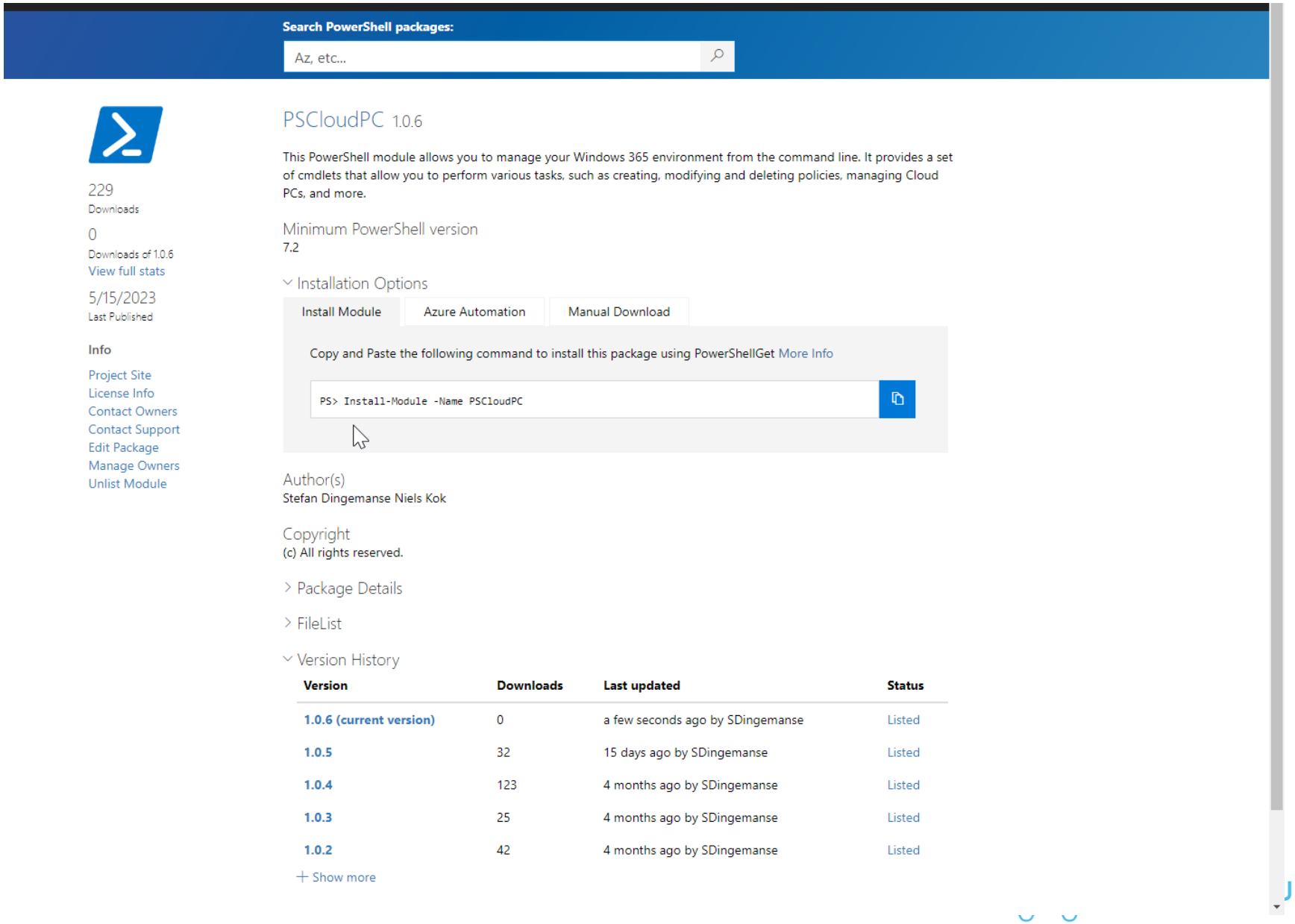
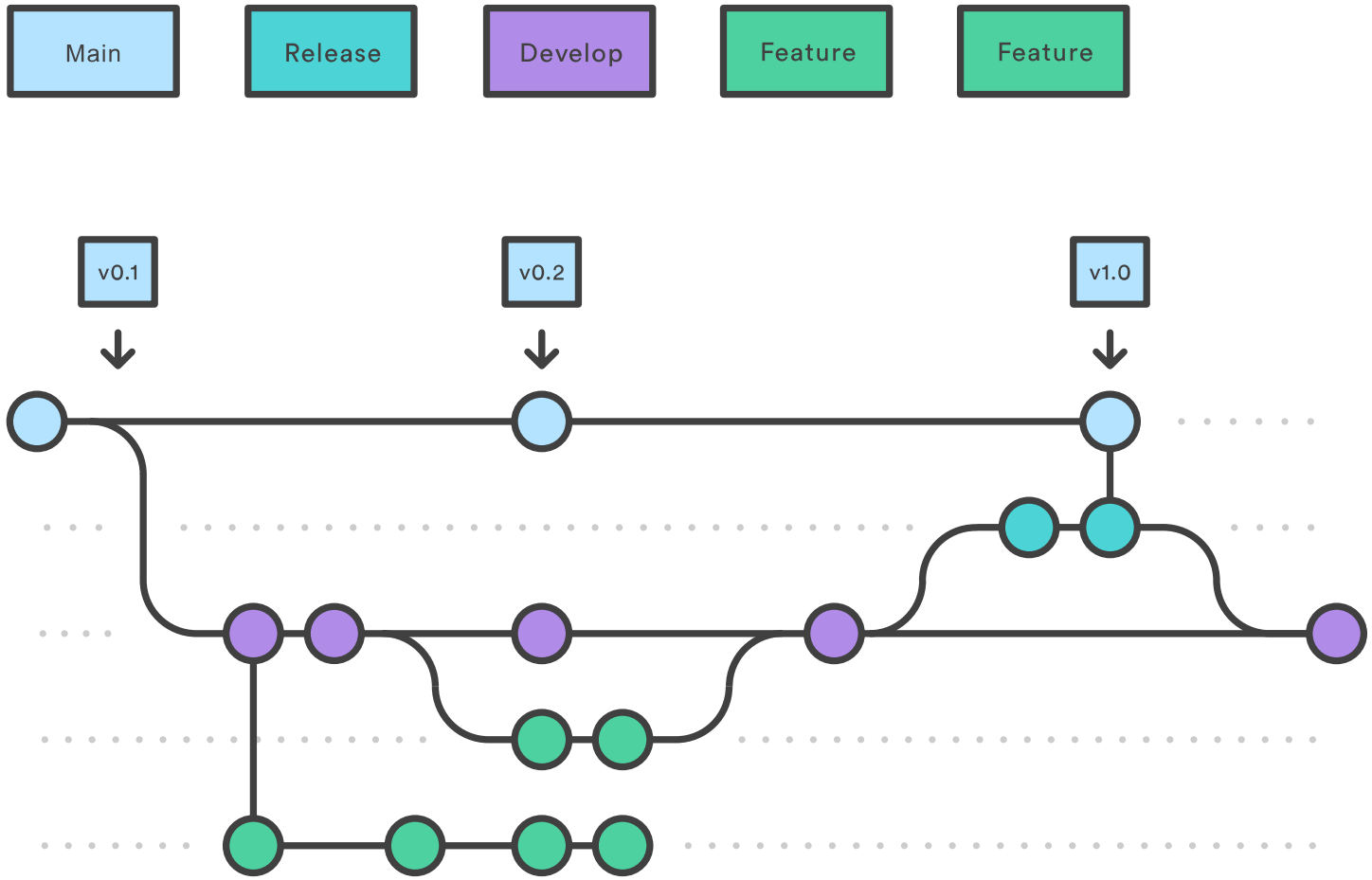
The moment of truth

The Result


Search PowerShell packages:
Az, etc...
PSCloudPC 1.0.6
This PowerShell module allows you to manage your Windows 365 environment from the command line. It provides a set of cmdlets that allow you to perform various tasks, such as creating, modifying and deleting policies, managing Cloud PCs, and more.
229
Downloads
0
Downloads of 1.0.6
View full stats
5/15/2023
Last Published
Info
Project Site
License Info
Contact Owners
Contact Support
Edit Package
Manage Owners
Unlist Module
Minimum PowerShell version
7.2
Installation Options
Install Module
Azure Automation
Manual Download
Copy and Paste the following command to install this package using PowerShellGet More Info
PS> Install-Module -Name PSCloudPC
Author(s)
Stefan Dingemanse Niels Kok
Copyright
(c) All rights reserved.
Package Details
FileList
Version History
Version
Downloads
Last updated
Status
1.0.6 (current version)
0
a few seconds ago by SDingemanse
Listed
1.0.5
32
15 days ago by SDingemanse
Listed
1.0.4
123
4 months ago by SDingemanse
Listed
1.0.3
25
4 months ago by SDingemanse
Listed
1.0.2
42
4 months ago by SDingemanse
Listed
Show more

Branching strategy



PSCloudPC.com

- Mkdocs
- Static website
- Automatic

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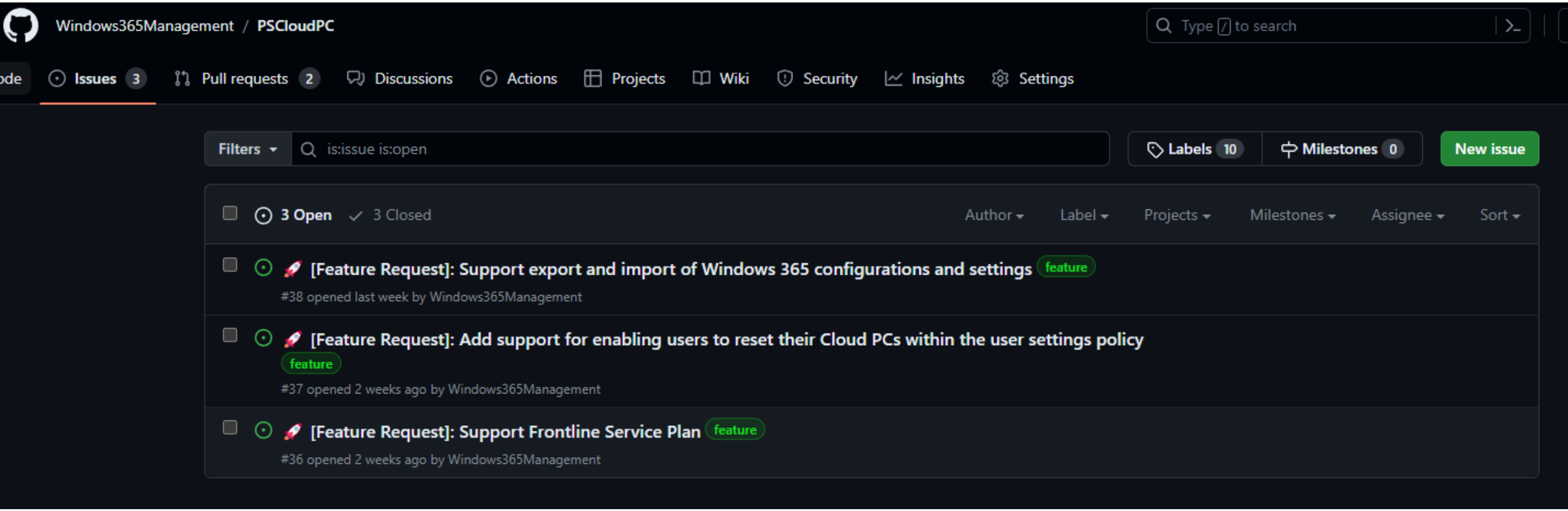
DEMO

Roadmap



Lessons learned

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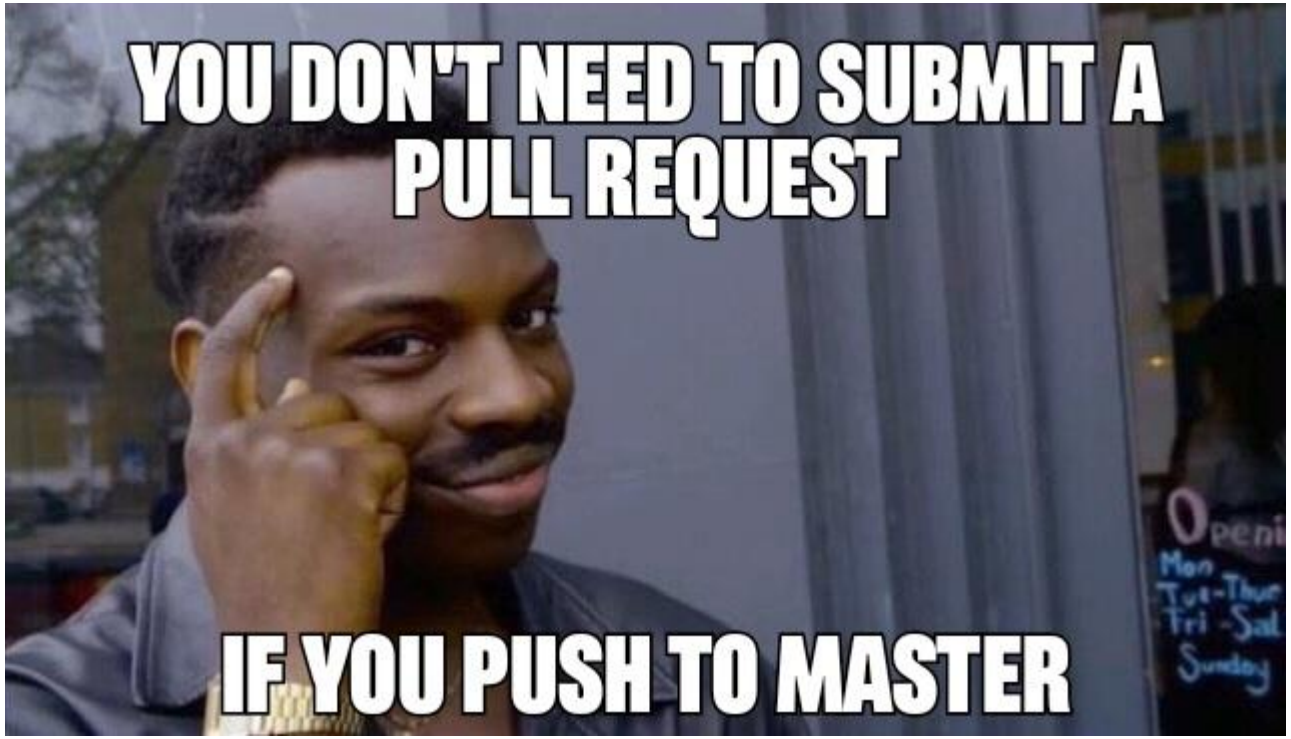
Branching

- Protect your branches
- Branching strategy



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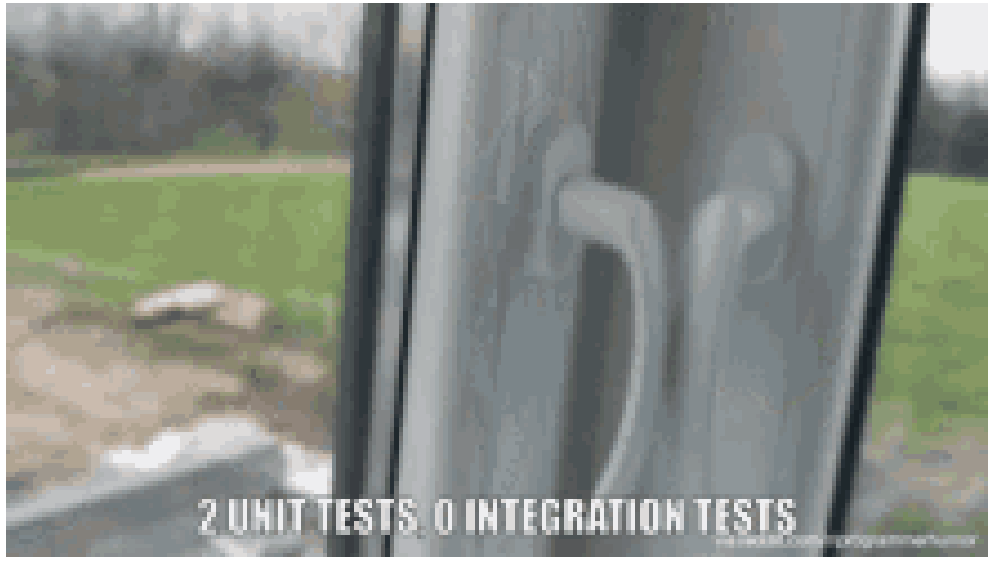
Testing, testing, testing



Call to Action!

- Feedback
- Feature requests / issues

More then 1300 downloads

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