



# MSP Foundations

Day 2

# Today's Agenda

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Backup & Recovery



# Nerdio Manager for MSP

Gov Edition

# Nerdio Manager for MSP: Gov Edition

Secure. Compliant. Scalable. Purpose-built for public sector MSPs.

## Managing secure enclave environments

- Native support for Azure Gov & M365 **GCC High** with enclave compatibility.

## Manual compliance tasks

- CIS Hardened Images and pre-built security templates for CMMC Level 1+.

## Juggling multiple secure tenants

- One unified platform for multi-tenant Microsoft 365 & AVD management.

## Limited automation in regulated workloads

- End-to-end automation for AVD, Intune, license management, and onboarding/offboarding.

# Nerdio Manager for MSP: Gov Edition

Secure. Compliant. Scalable. Purpose-built for public sector MSPs.

## Built for compliance and security

- CIS-integrated policy templates - Align Intune policies with CIS Benchmarks across tenants, with backup and rollback capabilities included.
- AVD management in Azure Gov - Fully automate host pool deployment, auto-scaling, and image management, all with secure workloads.
- Credential management and audit readiness - Utilize encrypted variables, RBAC enforcement, and built-in controls to help meet CMMC and other regulatory standards.

## How Nerdio Manager for MSP: Gov Edition works

- The product is deployed via the Azure Government Marketplace.
- It is agentless, API-native, and enclave-compatible.
- Each MSP retains full control, no third-party data egress





# Nerdio Manager for MSP

Partner Center integration

# Partner Center integration

Link one or all of your accounts to Nerdio Manager

**Nerdio Manager allows you to link a Partner Center account, enabling you to add individual customers, or to bulk add multiple customers. To do this, use an Azure account that's associated with a Partner Center.**

Note: This feature is not available in Nerdio Manager for MSP: Gov Edition.

To link a Partner Center account:

- At the MSP level, navigate to Settings > Integrations.
- In the Partner Center accounts tile, select Connect to Partner Center.

## INTEGRATIONS

### Partner Center accounts

Add, remove, and edit linked Partner Center accounts. ⓘ

Connect to Partner Center

# Partner Center integration

Link one or all of your accounts to Nerdio Manager

- Sign in to your Microsoft account.
- Review the required permissions.

API name	Claim value	Permission	Type
<b>Microsoft Graph (5)</b>			
Microsoft Graph	<a href="#">openid</a>	Sign users in	Delegated
Microsoft Graph	<a href="#">profile</a>	View users' basic profile	Delegated
Microsoft Graph	<a href="#">offline_access</a>	Maintain access to data you have given it access to	Delegated
Microsoft Graph	<a href="#">DelegatedAdminRelationship.ReadWrite.All</a>	Manage Delegated Admin relationships with customers	Delegated
Microsoft Graph	<a href="#">Directory.AccessAsUser.All</a>	Access directory as the signed in user	Delegated
<b>Microsoft Partner Center (1)</b>			
Microsoft Partner Center	<a href="#">user_impersonation</a>	Access Partner Center	Delegated

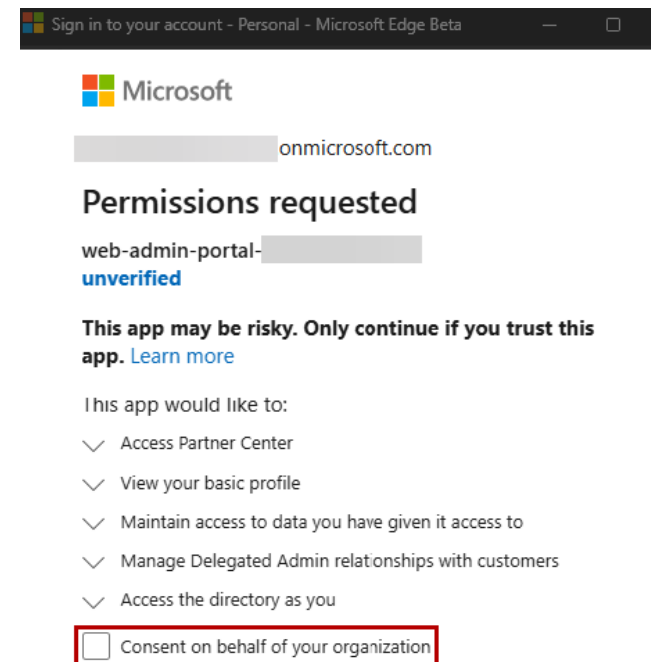


# Partner Center integration

Link one or all of your accounts to Nerdio Manager

- Select Consent on behalf of your organization.
- Select Accept.
- Check the Integration Tasks pane to monitor progress.

INTEGRATIONS TASKS ⓘ							
				🔍	ALL STATUSES ▾		
TASK ⓘ	RESOURCE NAME ⓘ	USER ⓘ	STATUS ⓘ	CREATED ⓘ	COMPLETED ⓘ		
Authorize user for Partner Center	Admin user	@getnerdio.com	✓ COMPLETE	Mar 12, 2025 08:33:07 AM	Mar 12, 2025 08:33:12 AM	Details	Hide





# Nerdio Manager for MSP

Reservations management

# Reservations management

Manage your reservations

**Partners have trouble knowing if they have purchased the right number of Reserved Instances (RIs) at any given time. Nerdio Manager's Reservation Management feature helps partners purchase RIs, keep a track of RIs, monitor RI utilization, and generate reminder alerts to renew Reservations on time.**

Before you can purchase Reservations within Nerdio Manager, there are a few setup items that need to be completed.

## Tenant Setup

Nerdio Manager requires Customer Permissions to purchase Reserved Instances. You also need a user with Reservation Administrator and Subscription Owner roles to authorize Nerdio Manager to purchase Reservations.

Purchasing Reservations within Nerdio Manager is limited to certain scenarios and Azure Subscription types. Pay-As-You-Go subscriptions and CSP subscriptions are currently supported. CSP Subscriptions require your CSP to allow Customer Permissions to buy their own services or resources. Reach out to your Cloud Solution Provider to confirm if this is supported.

# Reservations management

Manage your reservations

## Customer Permissions

- By default, these customer permissions are turned off within the Partner Center. You must enable these customer permissions.

### To enable customer permissions:

- Sign in to the Partner Center with a user assigned the Admin Agent role for the customer you want to enable.
- Navigate to the Customer's Account page.
- In the Customer Permissions section, select Edit.
- Allow customers to purchase Azure Reservations.

# Reservations management

Manage your reservations

## Reservation Administrator Permissions

- The Reservation Administrator role needs to be assigned to the account that you use to authorize Nerdio Manager to manage your customer reservations.

### To assign reservation administrator permissions:

- Log in to the Azure portal using an account with Global Admin permissions.
- Navigate to Microsoft Entra ID.
- In Overview, make a note of the Object ID of the user you intend to use to authorize Nerdio Manager.
- In the upper right corner, select the Azure Cloud Shell icon.
- If asked, select PowerShell and select your subscription.
- Copy the following command. *(we have a KB for this)*
  - `New-AzRoleAssignment -Scope "/providers/Microsoft.Capacity" -PrincipalId <EntraID User ObjectID> -RoleDefinitionName "Reservations Administrator"`
- Replace <EntraID User ObjectID> with the Object ID of the user noted previously.
- Execute the command.

# Reservations management

Manage your reservations

## Nerdio Manager Authorization

- Nerdio Manager needs authorization to manage Reserved Instances on customer subscriptions.

### To authorize Nerdio Manager to purchase RIs:

- Sign in to Nerdio Manager with a user who has been granted Subscription Owner and Reservation Administrator roles for the customer subscription you want to manage.
- At the Account level, navigate to Settings > Integrations.
- In the Reserved Instance Management tile, select Authorize.
- Select Login.
- Complete the Entra ID Sign In and Consent on behalf of your organization and then select Accept.
- Once consent has been granted, in the Reserved Instance Management tile, select Disabled.
- Review the confirmation pop-up and select OK.

Reservation Management is now enabled for the account.



# Reservations management

Manage your reservations

## Purchase Separately

- You can purchase Reservations separately.

## To purchase reservations separately:

- In Nerdio Manager, at the Account level, navigate to Settings > Azure.
- Scroll down to the Reservations section and select Purchase.

### ADD RESERVATION

#### ORDER DETAILS

ORDER ID:	<input type="text" value="Enter Reservation Order ID (required)"/>	①
NAME:	<input type="text" value="Enter name you specified when ordering (optional)"/>	①
PRICE:	<input type="text" value="Price you committed to, in your currency (optional)"/>	①
	<input checked="" type="radio"/> Monthly billing <input type="radio"/> Upfront	
ORDER DATE:	<input type="text" value="Date reservation started (required)"/>	①
	<input checked="" type="radio"/> One-year term <input type="radio"/> Three-year term	

#### RESOURCE DETAILS

REGION:	<input type="text" value="&lt;Region selector&gt;"/>	①
VM SERIES:	<input type="text" value="&lt;VM series selector&gt;"/>	①
	<input type="checkbox"/> Instance size flexibility	①
QUANTITY:	<input type="text" value="Number of reservations purchased (required)"/>	①

☐ I understand that Nerdio Manager for MSP lets me track Reservations but does not purchase or update Reservations in Azure. I am responsible for any changes to VM sizes or region and a resulting mismatch between Reservation and VM.

Cancel OK

# Reservations management

Manage your reservations

## Purchase When Deploying New Resource

- When you are deploying a new resource, you also have the option to purchase a Reservation. Nerdio Manager purchases a reservation that matches the VM size, region, and quantity of the resources that you are adding. You simply need to provide a Name, Term, and Billing Plan to complete the purchase.

For example, when adding a host to a host pool, you can purchase a reservation:

**PURCHASE RESERVED INSTANCE** ☒ On ⓘ

**NAME:**  ⓘ

**TERM:** ☒ One-year ☐ Three-years ☐ Five-years

**BILLING PLAN:** ☒ Monthly ☐ Upfront

☐ Auto renew ⓘ



# Nerdio Manager for MSP

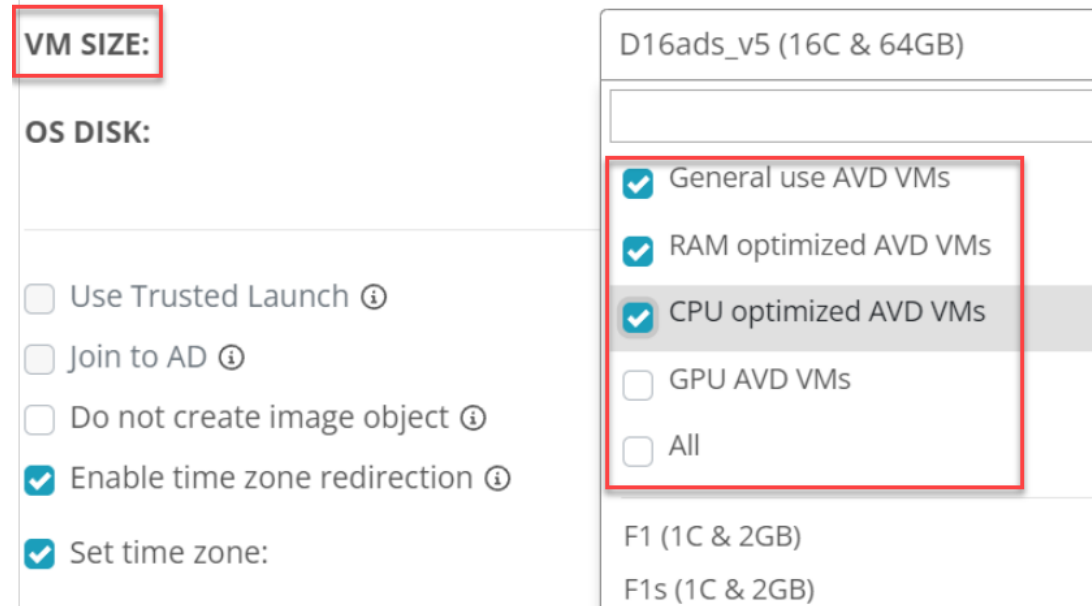
Resource selection rules

# Resource selection rules

Make your dropdowns cleaner

**Nerdio Manager allows you to create recommendation and filtering rules to assist with the selection of VM sizes and OS disks when creating host pools or adding session host VMs.**

Resource selection rules can be used to suggest the best VM for a specific AVD use-case, while considering core availability. They can also be used to limit the types of VMs and OS disks that can be used globally in a workspace, or even at the host pool level.



**VM SIZE:**

**OS DISK:**

- ☐ Use Trusted Launch ⓘ
- ☐ Join to AD ⓘ
- ☐ Do not create image object ⓘ
- ☒ Enable time zone redirection ⓘ
- ☒ Set time zone:

D16ads\_v5 (16C & 64GB)

☒ General use AVD VMs

☒ RAM optimized AVD VMs

☒ CPU optimized AVD VMs

☐ GPU AVD VMs

☐ All

F1 (1C & 2GB)

F1s (1C & 2GB)



# Nerdio Manager for MSP

Feature Prerequisite Model

# Feature Prerequisite Model

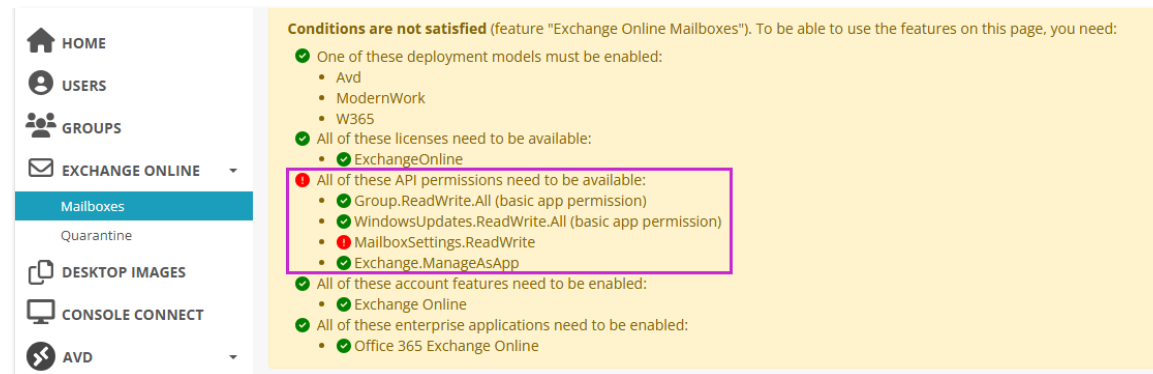
More granular control over permissions

Offers a more granular approach to feature availability on the customer level.

Switch between the **Classic** and new **Granular** permission models on the customer level.



In the Granular model, view a clear breakdown of any prerequisites not met for unavailable features.





# Feature Prerequisite Model

More granular control over permissions

Toggle the availability of individual features to add or remove their corresponding **permission sets**.

## CONFIGURE PERMISSION SETS

Configure permission sets for your account. Each permission set contains multiple individual permissions that control access to different features. When all permissions of the set are available, the set is considered enabled.

> ☒ Entra ⓘ

> ☒ Windows 365 Business ⓘ

> ☒ Windows 365 Enterprise ⓘ

> ☒ Intune ⓘ

> ☒ Defender for Endpoint ⓘ

> ☒ Defender for Office 365 ⓘ

▼ ☐ Exchange Online ⓘ

✖ MailboxSettings.ReadWrite

✔ Exchange.ManageAsApp

▼ ☒ SharePoint Online ⓘ

✔ Files.ReadWrite.All

✔ SharePointTenantSettings.ReadWrite.All

> ☒ Teams ⓘ

Cancel

Save

# Using logs to resolve errors

Logs are held FOREVER unless you change the settings

Create network interface	Jun 29, 2023 04:23:06 PM Jun 29, 2023 04:23:06 PM	✓ COMPLETE	/subscriptions/da1a2fbb-3c08-48dc-bef8-2edabdc08f3f/resourceGroups/nmm-salesdemos-winhart/providers/Microsoft.Network/networkInterfaces/AVDSalesDemo-tmp-nic
Create vm	Jun 29, 2023 04:23:06 PM Jun 29, 2023 04:23:22 PM	✓ COMPLETE	VM created: /subscriptions/da1a2fbb-3c08-48dc-bef8-2edabdc08f3f/resourceGroups/nmm-salesdemos-winhart/providers/Microsoft.Compute/virtualMachines/AVDSalesDemo-tmp
Get temp VM	Jun 29, 2023 04:23:22 PM Jun 29, 2023 04:23:22 PM	✓ COMPLETE	Success
Remove users from temp VM	Jun 29, 2023 04:23:22 PM Jun 29, 2023 04:39:24 PM	❗ ERROR	<div>Request Remove users logs</div> <p>Error: An error occurred during Custom Script extension installation: One or more errors occurred. (Long running operation failed with status 'Failed'. Additional Info: VM has reported a failure when processing extension 'AVDSalesDemo-tmp-remove-users-ext'. Error message: "Failed to download all specified files. Exiting. Error Message: The remote name could not be resolved: 'nmmstorageaccount.blob.core.windows.net'" More information on troubleshooting is available at <a href="https://aka.ms/VMExtensionCSEWindowsTroubleshoot">https://aka.ms/VMExtensionCSEWindowsTroubleshoot</a> '). With extension result: {"name": "AVDSalesDemo-tmp-remove-users-ext", "type": "Microsoft.Compute.CustomScriptExtension", "typeHandlerVersion": "1.9.5", "substatuses": null, "statuses": [{"code": "ProvisioningState/failed/3", "level": "Error", "displayStatus": "Provisioning failed", "message": "Failed to download all specified files. Exiting. Error Message: The remote name could not be resolved: 'nmmstorageaccount.blob.core.windows.net'", "time": "0001-01-01T05:00:00Z"}]}</p> <p>Removing 'Remove users' extension Extension was removed 'Remove users' extension removed Extension was removed Error: An error occurred during Custom Script extension</p>

# Contacting Nerdio support

Interacting with Nerdio's Support team

## When to contact Nerdio support

- If you see and cannot solve an error in NMM, reach out!
- All other items beyond NMM are “out of scope”

## Contact methods

- [NMM.support@getnerdio.com](mailto:NMM.support@getnerdio.com)

## What to include

- A full screenshot of any error messages.
- Steps to replicate the issue.
- Any steps you've taken so far.

## Common items we cannot solve

- FSLogix errors
- Hosts showing “unavailable”
- Host deployment failures



# Manager for MSP

Starting at **\$300/month**

## COVERAGE INCLUDES:

- Azure & applications
- AVD/Windows 365
- Modern Work

**Got out-of-scope requests?** Our Microsoft Certified Experts can help—no need to contact Microsoft support!

Contact your Nerdio representative for details and sign up today!

## NERDIO ENHANCED SUPPORT

User Experience	OS + Applications	Endpoint/ Intune	Infrastructure	AVD Resources	Identity
Performance right-sizing End-user access to AVD AVD Desktop management AVD Insights	Application management Microsoft Teams/Office Advanced FSLogix Image management	Conditional access policy management Configuration profile management CIS Benchmark adoption Intune adoption guidance	VM performance AVD networking Azure files Windows 365	Host pool FSLogix Cost management AVD agent	Entra Active Directory Entra Connect Entra Domain Service

*\*Program requires 1 year commitment. Pricing is a percentage of your monthly Nerdio license spend. Successful resolution of your ticket is not guaranteed and will be based on our team's best efforts. Exclusions may apply.*

# Azure overview

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# The Azure hierarchy





# Entra ID Tenant

- An Azure Tenant is a globally unique reserved Azure service Instance.
  - Can also be referred to as an Azure Account or a Directory.
- Your unique tenant is tied to a globally unique identifier (GUID).
- Tenants are created when you sign up for a Microsoft Cloud Service.
  - *(E.g., Azure, Microsoft 365)*

# Subscriptions

- Subscriptions are associated within your Azure tenant.
- Each subscription has a globally unique identifier (GUID) of its own.
  - A subscription and its GUID can only be associated with a single tenant.
- Every tenant must have at least one subscription to add resources.

# Resource Groups

- Resource Groups live inside of Subscriptions.
- Used to create logical groupings of resources within subscriptions.
- Consider *why* resources should belong together logically when creating these.

Entra ID Tenant

Subscriptions

Resource Groups

# Resources

- Resources are functional – assets that do something.
- Resources can be: Virtual Machines, Virtual Networks, Disks, Network Cards, VPN Gateways, IP Addresses and more.
- Resources are the building blocks that make up an environment.



**Entra ID Tenant**

**Subscriptions**

**Resource Groups**

**Resources**

# VM Series - Families

Which one should you use?

*A-Series, Bs-Series, D-Series, Dp-Series, E-Series, Ep\_Series, F-Series, G-Series, H-Series, Ls-Series, M Series, Mv2-Series, NC-Series, ND-Series, NG-Series, NV-series*

<b>Bs</b>	<b><i>Burstable</i></b>	2C 4GB, 2C 8GB, 4C 16GB, 8C 32GB About 56% Cheaper than D-Series, have threshold and builds credits
<b>D</b>	<b><i>Standard</i></b>	2C 8GB, 4C 16GB, 8C 32GB, 16C 64GB ... Balanced CPU and RAM
<b>E</b>	<b><i>Memory</i></b>	2C 16GB, 4C 32GB, 8C 64GB, 16C 128GB ... 8x More RAM than CPU. About 15% More Expensive than D
<b>DI/F</b>	<b><i>CPU</i></b>	4C 8GB, 8C 16GB, 16C 32GB, 32C 64GB ... 2x More CPU ratio than RAM. F series machines have non virtual cores
<b>N</b>	<b><i>GPU</i></b>	6C 55GB 4GB GPU, 12C 110GB 8GB GPU, 18C 220GB 16GB GPU, 36C 440GB 24GB GPU ... AMD CPU, nVidia RTX GPU



# Storage use cases

## Standard HDD

Great for low disk I/O applications (test environments, archived servers).

## Standard SSD

User for non-disk, I/O heavy applications (E.g., domain controllers, file servers, most VDI workloads).

## Premium SSD

For disk I/O intensive applications (E.g., virtual desktops, SQL servers).

## Ultra SSD

Optimized for disk-intensive workloads (E.g., SAP HANA, top-tier databases).

# Why Azure?

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# TRADITIONAL DATACENTERS



1

- Rent a rack at your local datacenter.
- Buy hardware to mount to your racks.

2

- You fully manage your own rack.
- Replace hardware and manage maintenance windows and downtime.
- You build your own resiliency, backup and DR.

3

- If you need new hardware, you are responsible for procuring it, setting it up and planning around cutting over.
- You maintain and patch your own networking gear and hypervisors.

# 1

## 79+ Regions in Azure Globally

- Underwater fiber connecting all regions.
- Most regions have 3 or more datacenters.
- More datacenters than AWS and Google combined.

# 2

## Microsoft Security

- Over 8500 security professionals work to secure Azure infrastructure.
- Shared Responsibility Model.

# 3

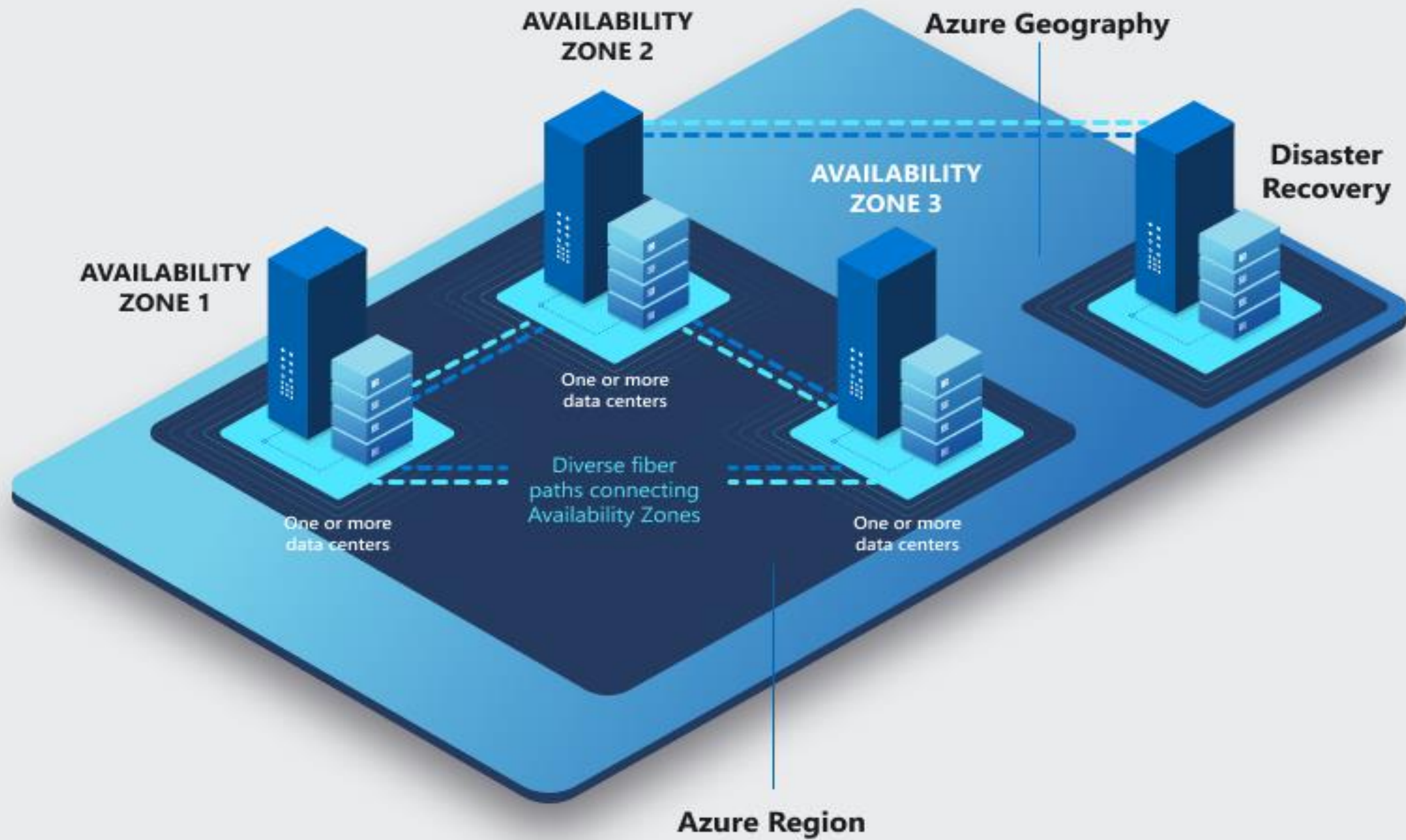
## We already use Azure every day!

- M365 and Exchange
- XBOX Online
- Teams
- ChatGPT



# AZURE REGIONS







# Azure Datacenter Region North Europe Dublin

DB3,4,5

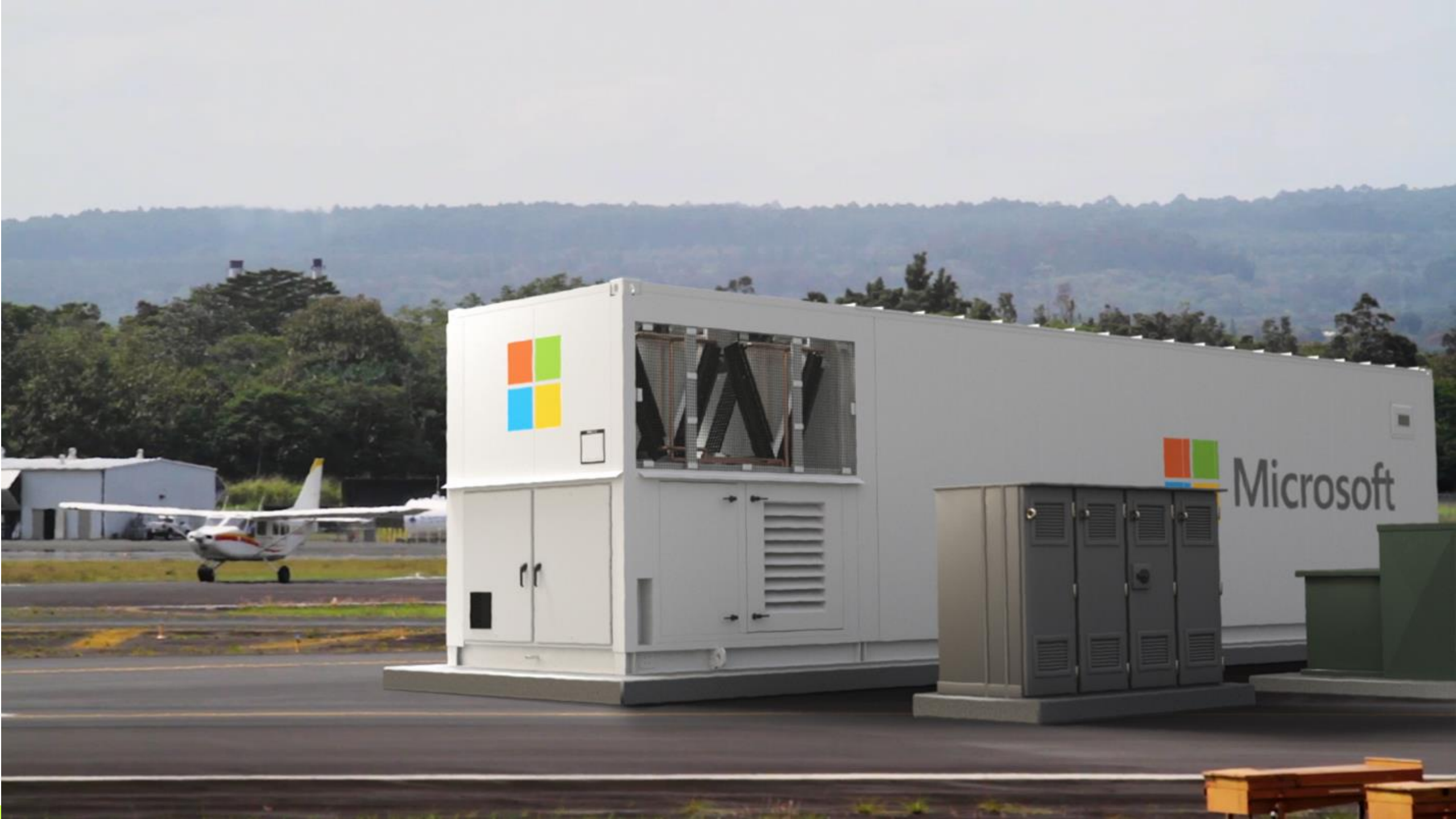
Future Campus works

DUB 07

DUB 08

DUB 06







# THE #1 CAUSE FOR PERFORMANCE ISSUES IN AZURE

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## ARE IOPS / LATENCY RELATED!



Premium SSD

Standard HDD

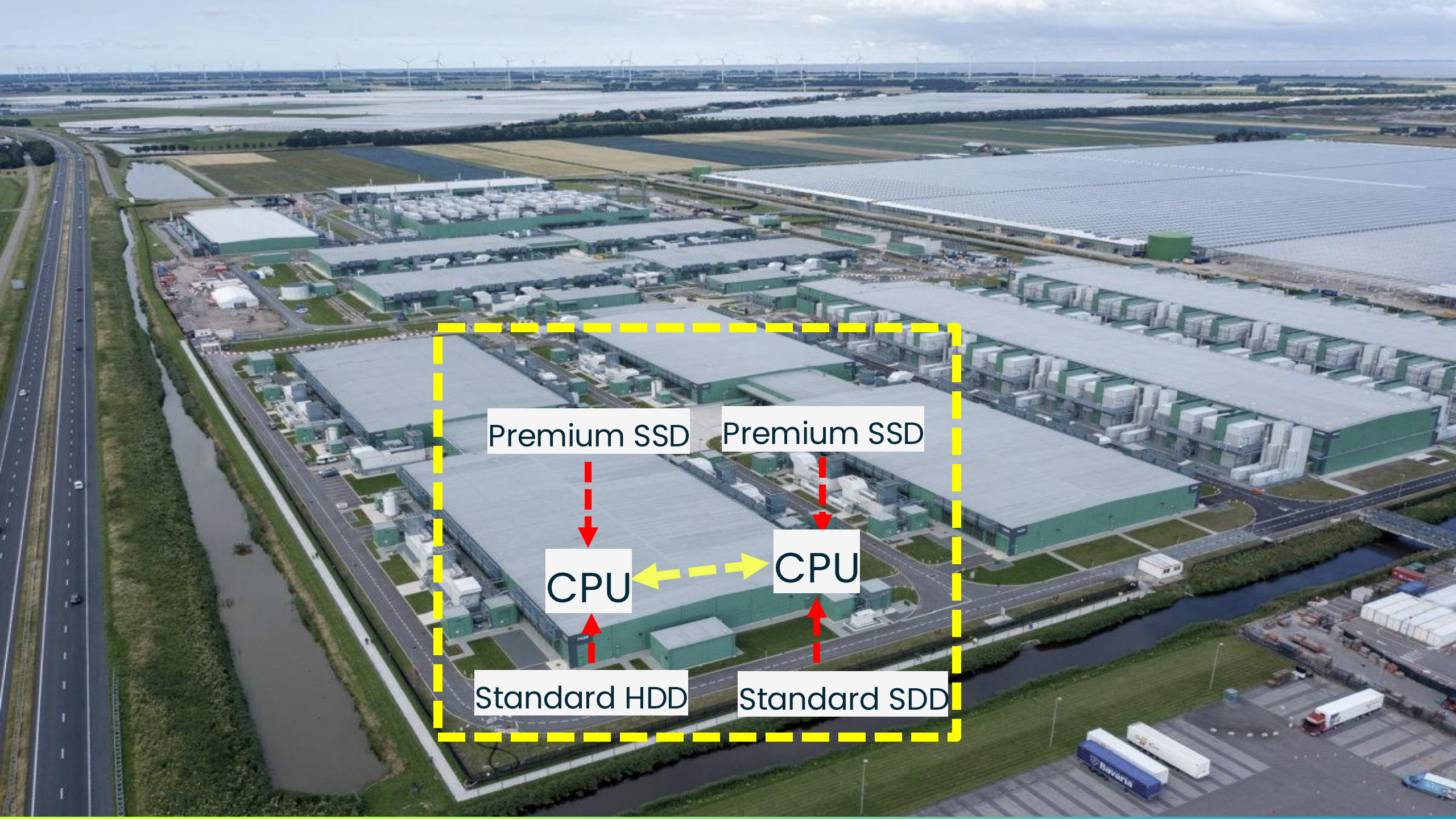
Premium SSD

Standard SSD

CPU

CPU





Premium SSD

Premium SSD

CPU

CPU

Standard HDD

Standard SSD

# Why Azure over other cloud solutions?

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## Your Customers are already using Microsoft





# The Nerdio user hierarchy

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# Nerdio user hierarchy

Inside of Nerdio Manager for MSP



## MSP / Global level

**This is the parent level**

- Items created here can be cascaded into the customer account level.
- One-to-many – E.g., images, scripts, applications.
- Users created here are given permissions to manage customer accounts in Nerdio.
- E.g., users created here can create account-level users.



## Customer Account level

**This is the child level**

- Items are inherited from the MSP level. Items created here are account-specific.
- One-to-one – Auto-scale configurations, application deployment profiles.
- Users created here are the end users within the customer environment.
- E.g., users created here can log into session hosts.

	MSP / Global Level									Customer Account
	Account Selection	Global Images & Scripted Actions	Cost Estimator	Users & Roles	Notifications	Billing	Logs	Settings	Updates	Modules
Super Admin	Full access	Full access	Full access	Full access	Full access	Full access	Full access	Full access	Full access	Full access
MSP Admin	Select accounts & read only	No	Full access	Read only	Read only	No	Select accounts	Read only	No	Full access
MSP IT Admin	Select accounts & read only	No	No	No	No	No	Select accounts	No	No	Access all screens <b>except</b> Users, Groups, User Sessions, Monitoring, Reports
MSP Help Desk	Select accounts & read only	No	No	No	No	No	Select accounts	No	No	Access <b>everything except</b> Users, Groups, User Sessions, Monitoring, Reports
MSP Billing Admin	Read only	No	Full access	No	No	Full access	Read only	No	No	None
				Read only						



										Sessions, Monitoring, Reports
MSP Billing Admin	Read only	No	Full access	No	No	Full access	Read only	No	No	None
MSP Sales	Read only	Read only	Full access	Read only (no guest users)	Read only	Read only	Read only	Read only	Read only	Read only
Account Admin	-	-	-	-	-	-	-	-	-	Full access
Account Help Desk	-	-	-	-	-	-	-	-	-	Home, Users, Groups, User Sessions, Monitoring, Reports
End user	-	-	-	-	-	-	-	-	-	Desktop Management



# Workflows & notifications

Inside of NMM



# Workflows

Protect your resources

## Task Categories

- Choose a pre-canned category or create a custom one.
- Choose from different task categories, like cost impacting, destructive, etc.
- Create custom category by choosing different tasks, like add host, delete desktop, etc.

## Approval Rules

- Create an approval rule based on pre-canned or custom categories.
- Choose to create the rule at the MSP (global) or customer (account) level.
- Assign staff to “submitters” and “approvers” groups.

# Notifications

Get alerts on your client resources

## Conditions

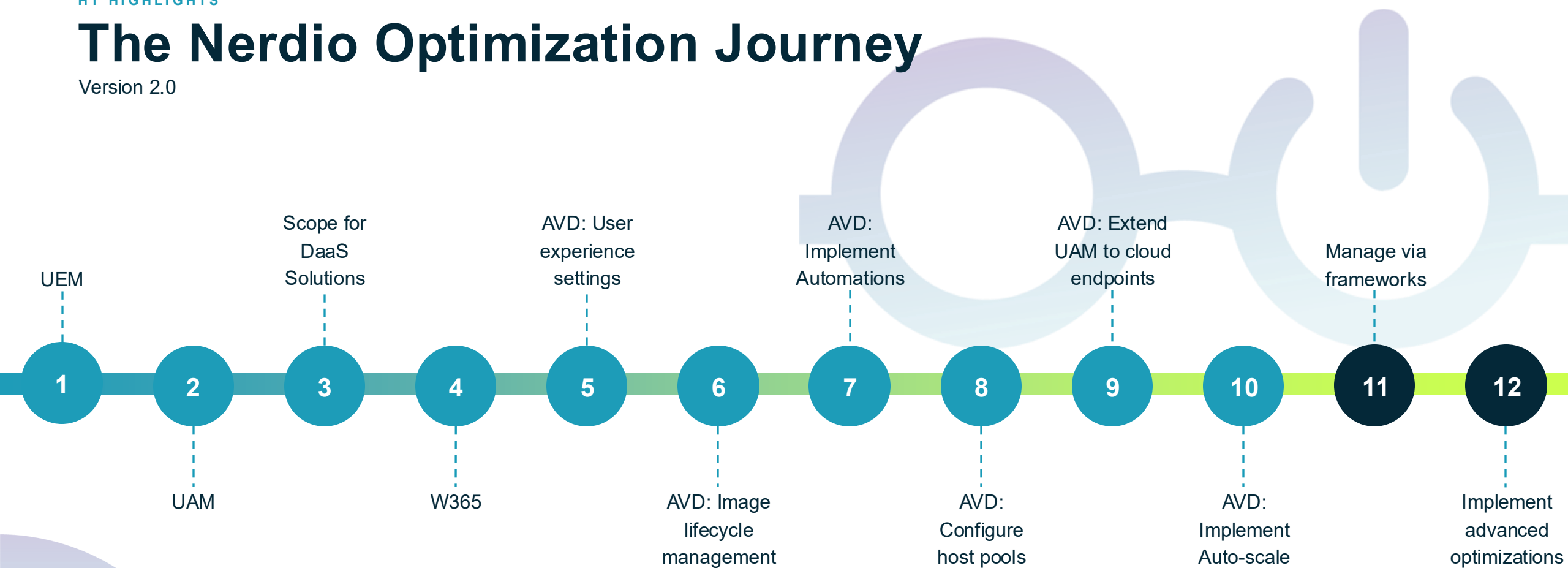
- You can set up conditions for tasks, behaviors and statuses.
- These can be applied to individual accounts, all accounts or a group of accounts.
- Conditions can also be focused to specific users.

## Actions

- Creating Actions will let you define notification behaviors by selecting destination emails and condition(s) to trigger a notification event.
- You can also choose to be notified via Rest API.
  - *(API must be within Reach of the NMM install).*

# The Nerdio Optimization Journey

Version 2.0





# Implement Windows 365

Inside of NMM



# Implement Windows 365

*Centralize and create configurations for scale and simplified management of Windows 365 Cloud PCs.*

4

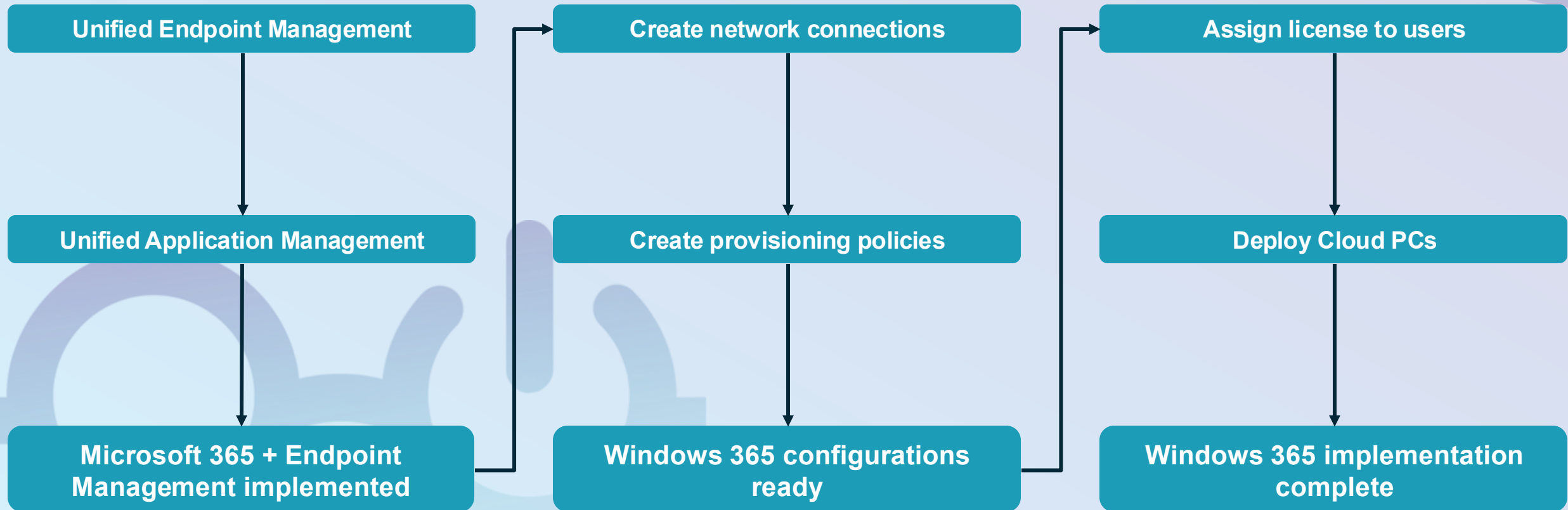
## MSP

- Use the outcomes from your scoping exercise to make data-driven decisions on cloud PC sizes.
- Create Windows 365 network connections.
- Create Windows 365 provisioning policies.
- Create Windows 365 user settings.
- Configure restore point capture.
- Assign users Windows 365 licenses.
- Deploy Cloud PCs. (happens once we assign license)



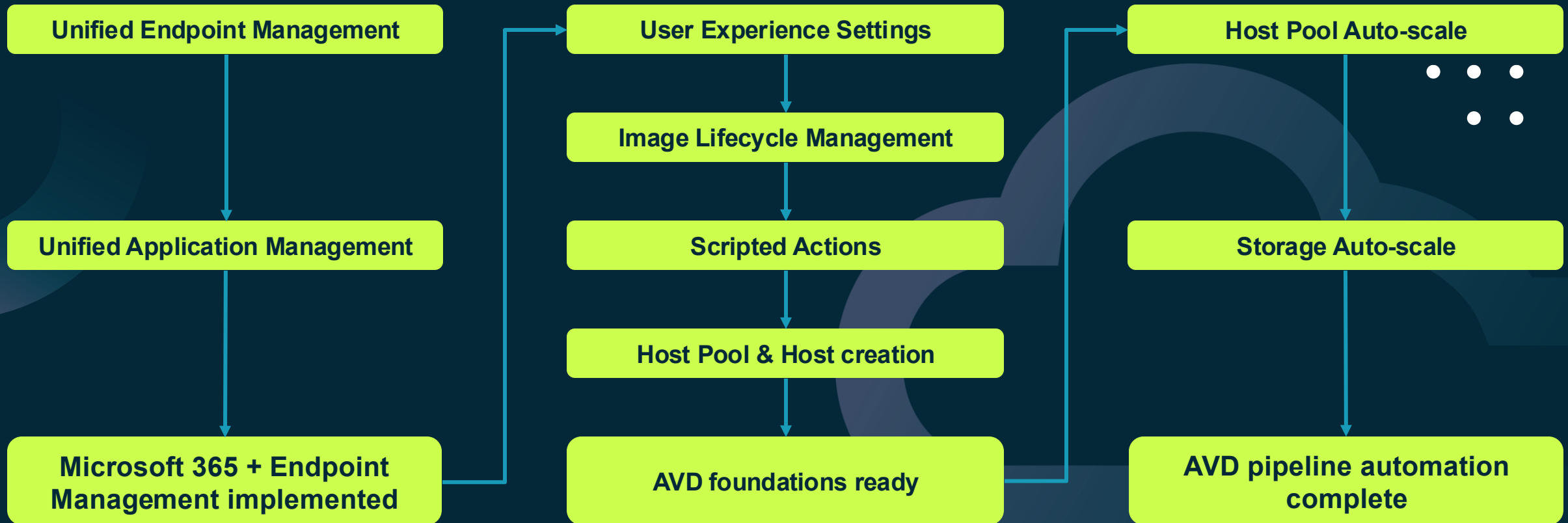
# Windows 365 Adoption & Management Framework

MSP



# AVD Adoption & Management Framework

MSP



# AVD: configure user experience settings

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FSLogix & RDP Profile configurations

# Introductions to FSLogix

## What is FSLogix?

- A user profile container technology.
- Allows user profiles to roam without losing their customizations.

## How does it work?

- Requires a storage service for profile containers. (E.g., Azure Files)
- Installation of the FSLogix application. *Nerdio automatically installs by default when a new session host is created.*
- Create FSLogix configuration profiles in Nerdio. *Assign these profiles to customer accounts for centralized mgmt.*

# Best practices for FSLogix

To keep AVD running smooth

## FSLogix

### Azure Files

- Microsoft recommends Premium storage in Azure Files.
- Premium Storage for Azure Files is Nerdio auto-scale compatible.
- Nerdio auto-scaling ensures there is always enough storage available.
- Lower tiers of storage may cause errors in daily operations.

### Storage options

- UNC path (file server)
- Azure Files (Premium)

# Introductions to RDP profile settings

## What is an RDP profile?

- A configuration created in Nerdio that defines the RDP experience for users.

## How does it work?

- Can be created at the global level and then cascaded to customer accounts.
- RDP profiles can also be created at the customer account level for granular customization.
- Once created, RDP profiles are assigned to host pools, which are then inherited by all hosts.

# Best practices for RDP profile settings

To keep AVD running smooth

## RDP profile settings

### Key items to configure

- **audiocapturemode**
  - Defines whether audio input can be redirected from the local device to the session.
- **camerastoredirect**
  - Makes the local webcam / camera available in the session.
- **devicestoredirect**
  - Allows plug in devices to appear in the session (E.g., flash drives).
- **drivestoredirect**
  - Redirects drives from the local machine to the session.
- **redirectprinters**
  - Allows local printers to be made available in the session.
- **redirectclipboard**
  - Allows clipboard sharing between the local device and session.

Remember, always consider compliance requirements



# AVD: desktop images



Image overview

# Overview of golden images

Images

## What is a golden image?

- An ideal configuration state for VMs.
- Enables centralization for deploying and updating hosts.

## How are they created?

- From a template via the Azure Marketplace.
- From an existing Azure VM with the correct configuration. (SAS URL)

# Scoping images

What type of image should you use?



**Single-user image:** One-to-one, cannot be used for multi-session hosts later.

**Multi-session image:** Can be used for multi-session or single-session (personal hosts).



**How many variants does the environment need?**

Maintain an image for each variant type in the customer account.

# Items to avoid on images

Don't break Sysprep



**Do NOT join an image source VM to the domain or to Intune**

- If you do, GPOs will be in play, which can break Sysprep.
- Intune policies can also break Sysprep.



**RMM tools should be installed on production hosts, not image source VM(s).\***

- This helps to avoid duplicate entries in your RMM solution.
- \*RMM tools can be installed on image source VMs for updates but must be uninstalled before set as image happens.

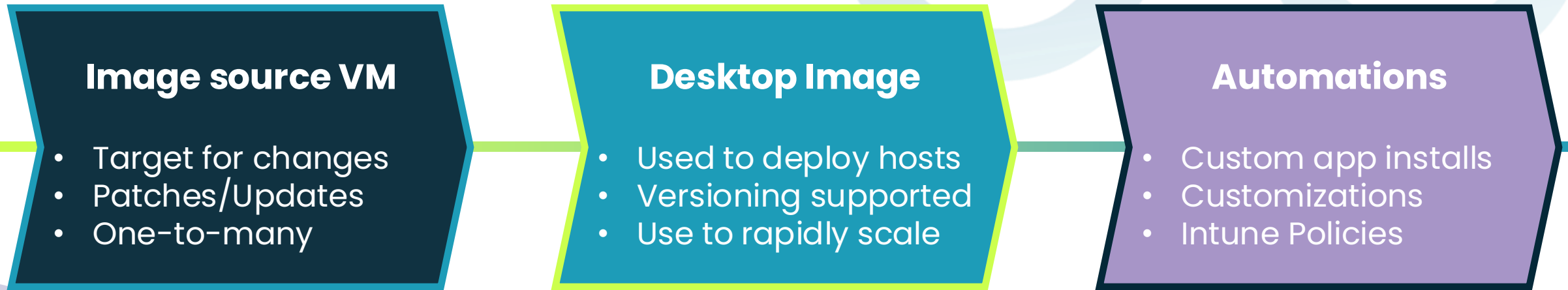


**Avoid installing security solutions on the image source VM(s).**

- This helps to avoid duplicate entries in your security solution.
- Some security solution may also break Sysprep.

# The image source VM is the engine

It is NOT the image itself



# AVD: configuring host pools

---

Optimize host pool properties

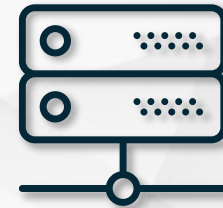
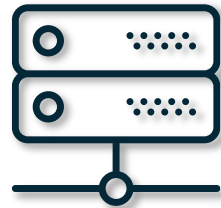


# Host pool overview

Host pools are a grouping of session hosts (VMs) that share common attributes. These VMs serve the end user experience.

# Session hosts & load balancing

## Host Pool + Breadth-first



# Session hosts & load balancing

## Host Pool + Depth-first



# Overview: AVD Workspaces

**These are logical groupings of application groups and virtual desktops in Azure.**

Each host and host pool must be associated with a workspace.

## How are they created?

- You can create them in Azure natively and then link to Nerdio.
- You can also create them in Nerdio.

# AVD: image lifecycle management

---

Image creation & management



# Applying updates & changes

It is NOT the image itself

## Image source VM

- Target for changes
- Patches/Updates
- One-to-many

## Desktop Image

- Used to deploy hosts
- Versioning supported
- Use to rapidly scale

## Automations

- Custom app installs
- Customizations
- Intune Policies

# Update methodologies

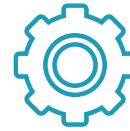
What works best for you?



## Via Scripted Actions

(Preferred)

- Automated!
- Use these with Windows Update for Business (WUfB)



## Via RMM

(Preferred)

- Automated!\*
- \*Uninstall RMM prior to image creation.*



## Manually

(Do this only if you must!)

- Time-consuming.
- Error-prone.

# Nerdio Manager Image Creation Flow

Where you see a Nerdio logo is where the automation happens!

1

## Image Source VM

Access the  
original VM

Apply Updates  
& Changes

Power Off /  
Deallocate



Clone the VM



2

## Clone of Image Source VM

Remove Local  
Accounts



Sysprep the  
cloned VM



Capture as an  
image



Deallocate /  
Delete Cloned  
VM



# Scripted Actions in Nerdio

What are they?

**Anything you can  
do in PowerShell...**

You can do in a Scripted Action

**Scripted Actions are collected in repositories.**

- Nerdio provides a default repository.
- You can connect your own GitHub.

**Two type of scripted Actions.**

- Azure Runbooks – these are for the Azure environment itself.
- Windows Scripts – these are scripts for VMs.

**Scripts can be generalized and use variables.**

- Secure variables.
- Inherited variables
- Environment variables

# Variables

How to do use them

# Variables in Nerdio Manager

When to use them and where.

## Secure

- Can be created at the MSP or the Account Level.
- These variables cannot be passed (inherited) from MSP > Account.
- Encrypted Values are stored in the respective Key Vault (either MSP or Account).
- Can be used with Scripted Actions or Shell Apps at the MSP Level, but can be used with Scripted Actions, Shell Apps, or Intune Policies at client level.

## Inherited / Location

- Only can be created at the MSP Level but can be utilized (inherited) at the MSP or Account Level.
- These are stored in clear-text in the Nerdio Manager Database.
- They can act as a default value and be overwritten at the Account Level.
- Location Variables can only be used with CA Policies. Inherited Variables can be used with Scripted Actions, Shell Apps, or Intune Policies.

## Environmental

- Environmental Variables are retrieved at the MSP or Account level based on the environment (i.e. Subscription, Tenant, etc.) but cannot be passed from MSP > Account.
- The only Environment Variable you can adjust is the CustomerName (this is the Account Name in NMM).
- MSP EVs can be used with Scripted Actions or Shell Apps, but Account Level EVs can be used with Scripted Actions, Shell Apps, or Intune Policies.



# A few more details

Which can be created, edited, overwritten or deleted

## Which can be created, edited, overwritten or deleted

MSP vs Client level variables

### **MSP level variables:**

- Secure, Inherited, and Location variables can be created, edited, or deleted.

### **Account level variables:**

- Secure variables can be created, edited, or deleted.
- Inherited and location can only be overwritten.

# Variable limitations

Variables can be just about anything within these guidelines

## Variable Names

- 20-character limit
- Alphanumeric characters are allowed
- Hyphens - **are** allowed
- Underscores \_ are **not** allowed
- Special characters and punctuation are **not** allowed (for example, ~!@#\$%^&\*()[]{}.,<>/?\')

## Variable Values

- Alphanumeric, special characters, punctuation, underscores, and hyphens are all allowed

# Variables in Nerdio Manager

Real world examples from our SEs

## Secure

- AVD with Entra ID for FSLogix.
- For private data that shouldn't be stored as clear text.
- Scripts that use API Secrets.

## Inherited / Location

- Home page URL.
- SharePoint document sync.
- Desktop Wallpaper.
- Named Locations for Conditional Access policies.

## Environmental

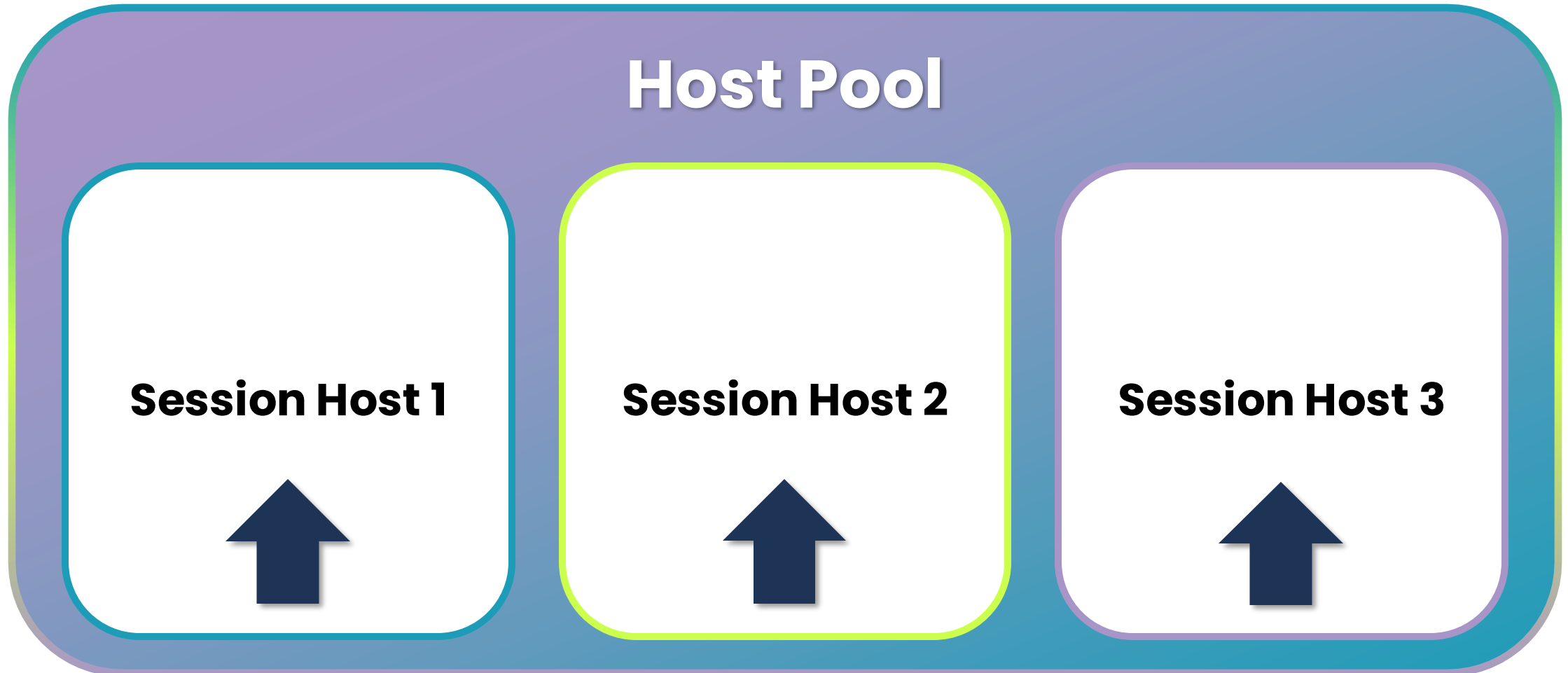
- OneDrive known folder redirection.
- Customer, tenant, subscription related scripts and policies.

# Updating production hosts

---

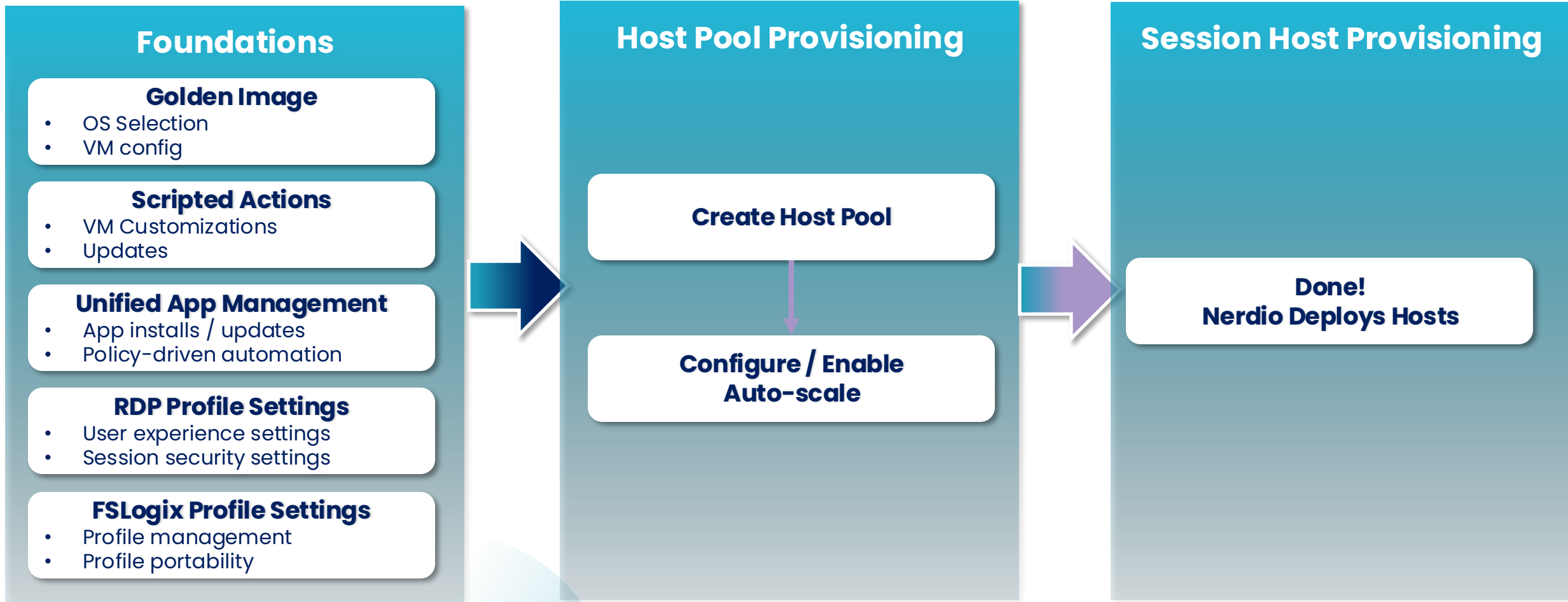
How to do it

# Re-imaging to update session hosts



# How to manage apps for AVD

Adoption & Management process





# AVD: extend UAM to cloud endpoints

---

Create and deploy applications to your hosts

# Unified Application Management

Unify your management of applications

## What is UAM?

### Unified App Management

- Unified approach to application management
- Streamline deployment, updates, removal of apps
- Has support for a variety of scenarios
- Uses existing technologies

# Unified Application Management

Unify your management of applications

## Deployment technologies

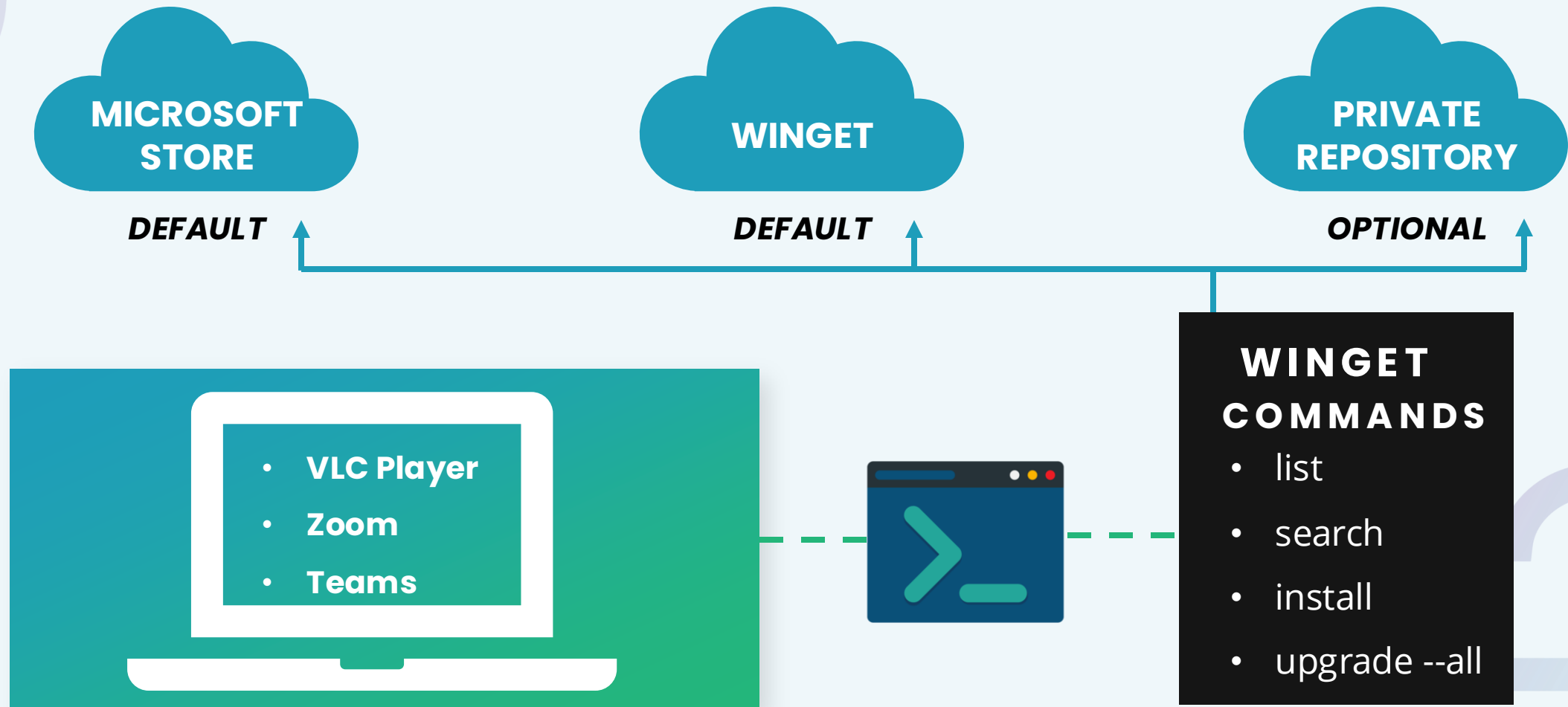
### WinGet

- Azure connected (virtual) – native Azure tech called extensions
- Intune connected (physical) – Intune to push WinGet commands

### Shell apps

- Azure connected (virtual) – native Azure tech called extensions
- Intune connected (physical) – Intune to push customized script packages
  - can call WinGet commands if needed

# Overview: Winget



# AVD: Auto-scaling

---

For host pools & Azure Files

# Auto-scale

## Automate based on capacity

- Avoid overspending during times of less demand.
- Add capacity when it counts.

## Automatically heal broken hosts

- Reboot hosts that are not responding.
- Re-image devices that don't respond after automation.

## Create multiple schedules

- For weekends, holidays, and more.
- You can use a main schedule combined with an alternate.

## Automatically update / re-image host pools.

- When pool numbers don't match, Auto-scale can take steps to fix.
- This could be creating or deleting new hosts or just working on existing.



# Auto-scale

Schedules...

## Default Schedule

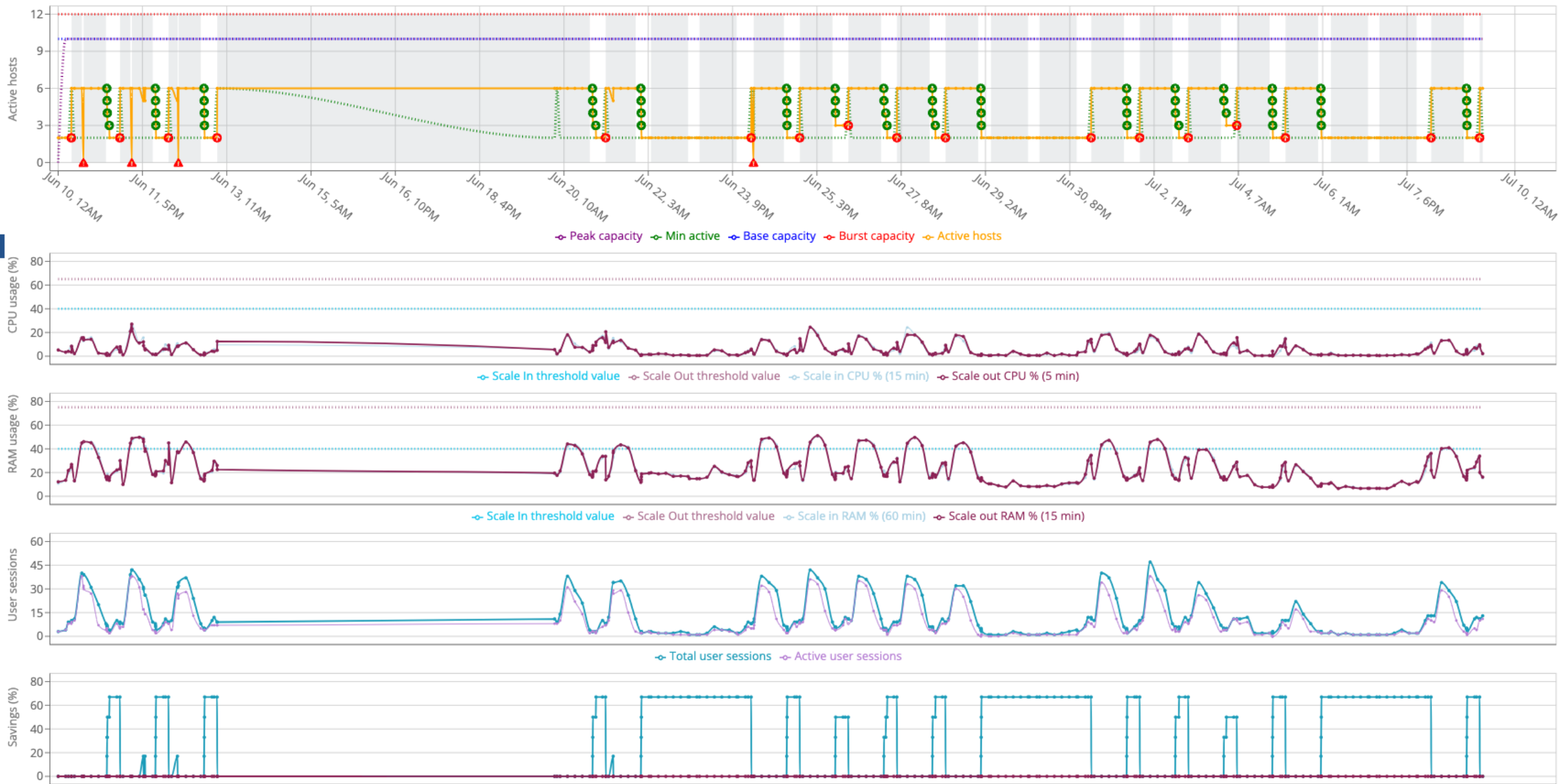
Your default schedule defines how auto-scale operates:

- How many hosts to maintain
- Peak hour time frames
- Common changes in capacity needs

## Alternative Schedule

This changes how auto-scale works in situations such as:

- Holidays
- Planned changes in capacity needs
- Any other pre-planned change in activity



**Auto-Scale History**

**\*30-day history pictured.**

# Auto-scale profiles

One-to-many

**Created at the MSP level,  
used at the customer  
account level**

Not all settings are configured by  
an Auto-scale profile.

**You can create a profile and assign it at the global level.**

- Assign to host pools
- Define schedule

**Auto-scale profile types:**

- Pooled
- Schedule-based (Personal)
- User-driven (Personal)

**You can configure most settings, except VM specific details.**

# Auto-scale profiles

One-to-many

## When to use the different profile types?

In most cases, Pooled (default) is used.

### Pooled

- Used most often and when using multi-session pooled hosts

### Schedule-based (Personal)

- When using personal dedicated hosts and you want to run on a schedule
  - You can choose the time to power on, off, and how aggressive you want to be

### User-driven (Personal)

- When using personal dedicated hosts and you want to run based on user actions
  - It is using “Start on connect” and can be stopped when users log off (after a certain time frame)

# Backup & recovery

---

How to keep your Azure resources safe

# Backups

Keep your resources safe

## Allows you to administer backups for your critical AVD resources, including:

- Session hosts for person and pooled desktops
- Desktop images
- Servers (virtual machines)
- Azure file shares

## More details:

- Uses native Azure, as well as native Azure policies (backups once a day or every 4hrs).
- You can specify retention for daily, weekly, monthly, and yearly.
- Can now see boot diagnostics or “**Validation Status**” on backups page.
- Ability to restore from our portal\* - Azure File shares allows files and folders / VMs restore entire contents.



# Boot diagnostic insights

Validate your backups!

**Uses Azure AI OCR tech to verify the bootability of server and desktop image backups.**

- Ensuring the reliability of your backups and images

**Uses Azure AI OCR tech to verify the bootability of server and desktop image backups**

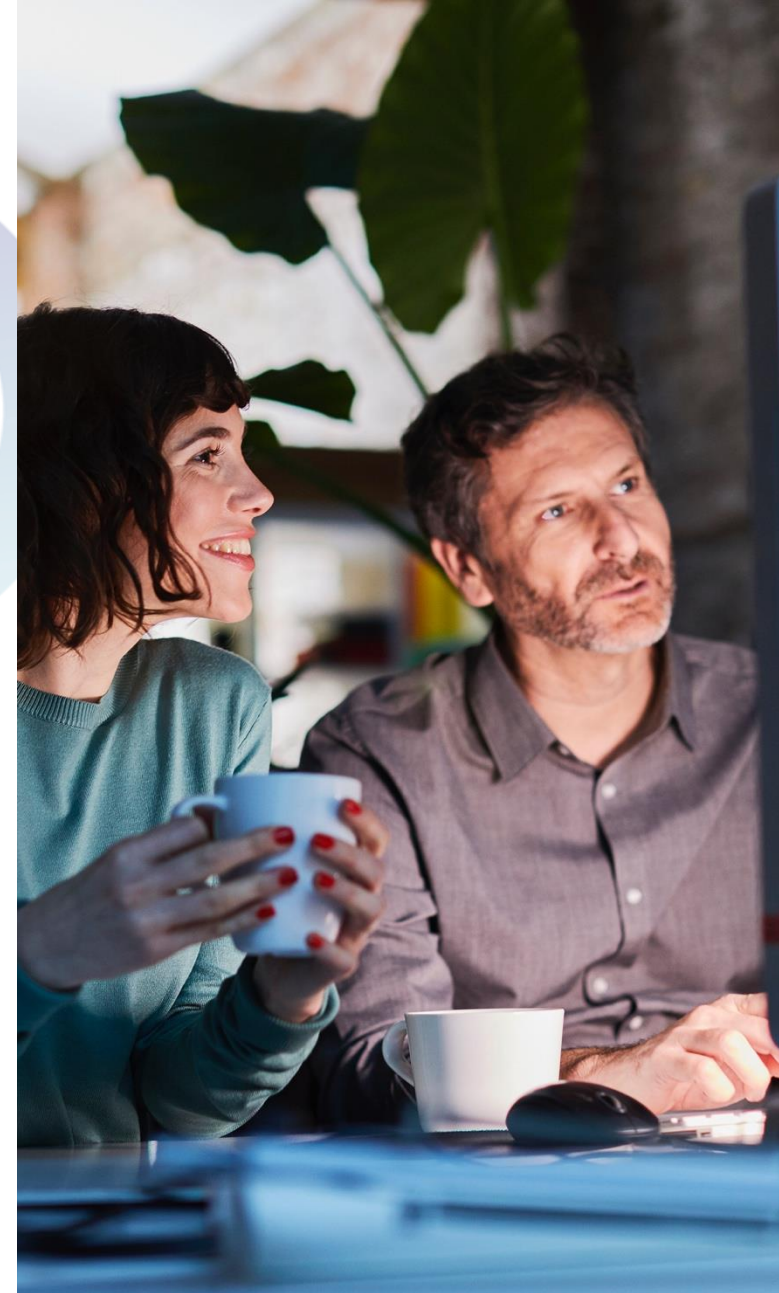
- Automatically validate successful boot to Windows login screen
- Prevent potential issues with backups and images proactively

So many new features...

# Nerdio Manager for MSP

Newest updates – release 6.3 (August 12<sup>th</sup>)


- **FSLogix 25.06 support**
- **Schedule VPN connection resets**
- **Intune device and application filters**
- **Side-by-side comparison for updated Intune policies**
- **Notifications – now has a policy management and risky users method**
- **UAM – now warns when using in combination with CIS hardened images**
- **Tell NMM webapp to send task logs to Log Analytics for SIEM connection**



# Need more?


Contact your PSM to learn about Nerdio University!

Nerdio Endpoint Management  
Fundamentals (NEMM-100)




GET STARTED

Nerdio AVD Fundamentals  
(NAVDM-100)




GET STARTED

Nerdio Windows 365  
Fundamentals (NEW365-100)



GET STARTED

Nerdio Manager for MSP Foundations (NMM-201)



GET STARTED

# Microsoft Azure changes

As of September 2025 - an Azure NAT Gateway will be required for all AVD environments.

- What is a NAT Gateway?
  - A managed service that allows instances in a private subnet within a Virtual Private Cloud (VPC) to access the internet or other resources outside the VPC, while preventing external services from initiating connections with those instances.
- What is changing?
  - Microsoft is making all AVD environments use a technology that locks down those resources. NAT Gateway is the easiest.
- Does it cost extra?
  - Yes, about \$32 a month
- What happens if I don't get it changed?
  - Microsoft says it SHOULD be only for new VNets.  
*Previously, virtual machines that were created in a virtual network without a defined explicit outbound method were assigned a default public IP address that enables public endpoint connectivity. Any virtual machines (existing or newly created) in existing VNets that use default outbound access will continue to work after this change*
- How does NMM help?
  - **Coming soon** new environments will have the option to be created with a NAT Gateway
  - Current AVD environments
    - You will need to create NAT Gateway inside of NMM
      - 1. Browse to customer account
      - 2. Select Network blade
      - 3. Choose NAT Gateway
      - 4. Click "Add NAT Gateway" button on right
      - 5. Specify settings
        - » Add the rest of settings here (RGs, Subnets etc)

# Partner benefits & changes

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Microsoft NCE & Partner benefit changes

# Partner Benefits

Microsoft changes

## 3 New Options

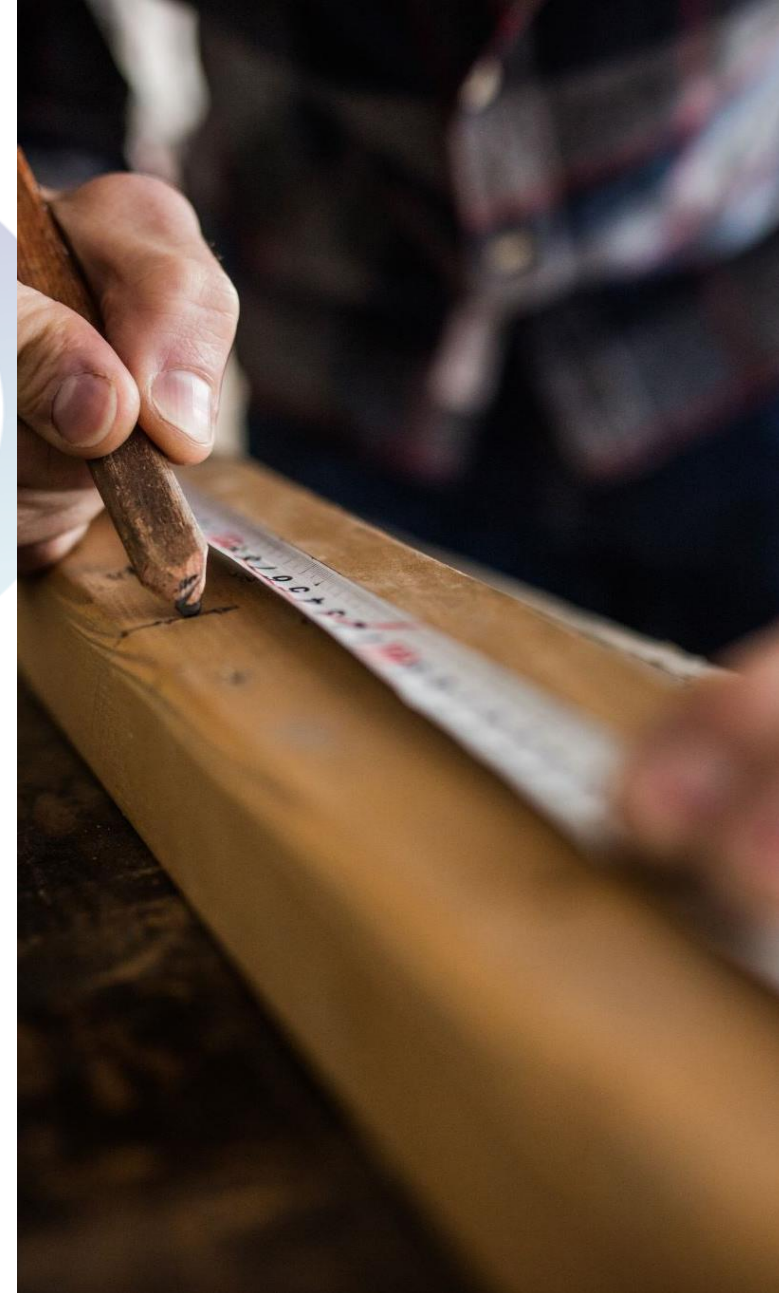
	Partner Launch	Success Core	Success Expanded
Microsoft 365 Business Premium	5 Seats	15 Seats	35 Seats
Azure Credits	USD 700	USD 2,400	USD 4,000
Visual Studio Professional	1 Subscription	8 Subscriptions	15 Subscriptions
Microsoft Dynamics 365 Sales Enterprise	4 Seats	15 Seats	35 Seats
Microsoft Dynamics 365 Business Central	4 Seats	15 Seats	35 Seats
<b>Total retail value+</b>	<b>USD 13,792</b>	<b>USD 62,068**</b>	<b>USD 390,684***</b>
<b>Annual fee***</b>	<b>USD 345</b>	<b>USD 895</b>	<b>USD 3,995</b>

After January 21st 2025, MAP will no longer be available. If you purchase on or before, you get another year.

# Things to consider

## Notes for partner benefits -

- New benefits use Azure bulk credits instead of monthly (MAP).
- MS states you CAN have MAP and new Partner Benefits Packages.
- If you choose to purchase new Partner Benefits packages, and not renew your legacy GOLD or SILVER, you will LOSE the status.
- Even with a current MAP and legacy status, you can purchase new Partner Benefits packages at any time. No need to wait.
- If you have renewed a MAP or legacy, you cannot get a refund if wanting to change to the new packages.
- You CANNOT purchase more than one of the same packages.
- You CAN purchase more than one level in separate subscriptions.





# NCE changes

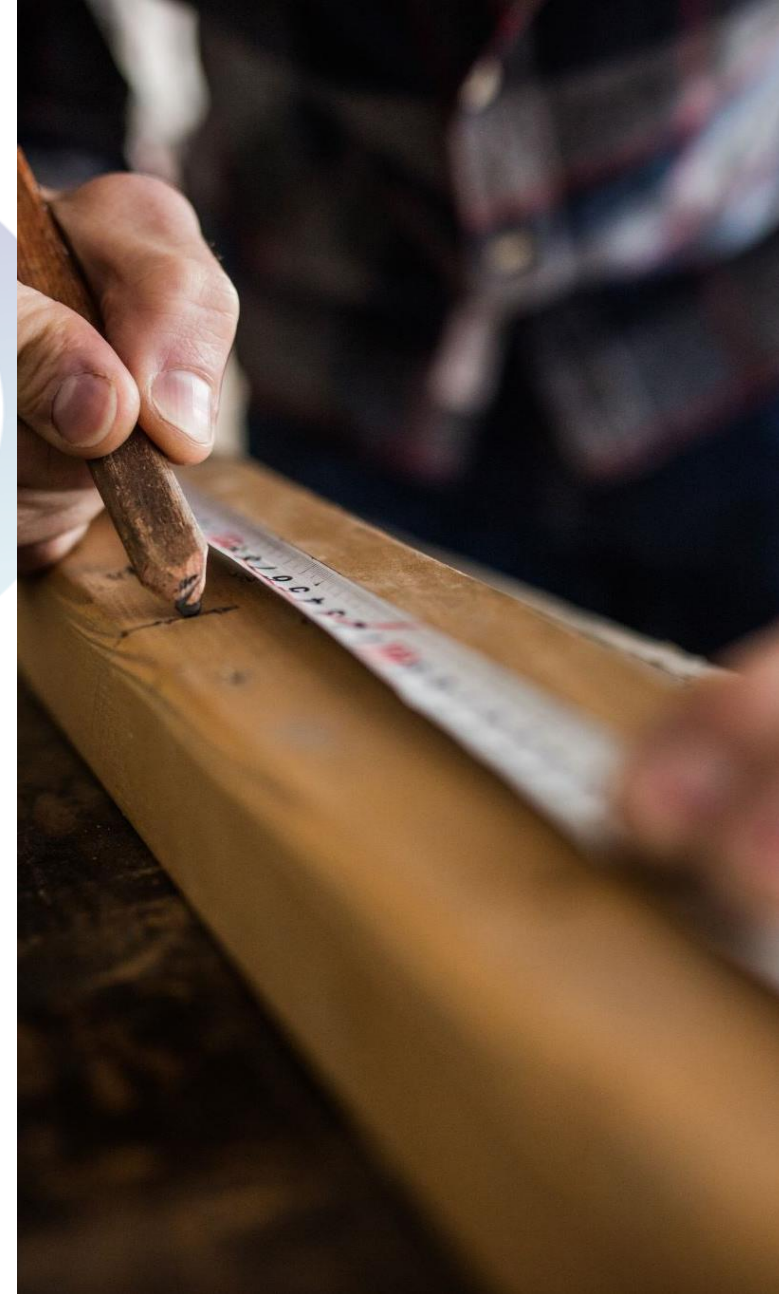
From Microsoft -

**Partners can transfer NCE subscriptions between indirect providers and direct bill partners.**

- This allows two separate MSPs and two separate distributors to transfer NCE subscriptions if the originals agree.
  - Transfers must be approved by the current IP / DB and the new IP / DB within 30 days.
- If the transfer is mid-term, this will not open a seven-day window.
  - The subscription keeps the same terms and end date.

**The future partner is responsible for payments to Microsoft for the remainder of the term.**

- If the current partner is billed monthly for an annual term subscription, the current partner will no longer receive invoices.
- If the current partner made up-front payments for the entire subscription, they would receive a prorated refund.
- Seems to be for net new as well as existing – per MS blog post



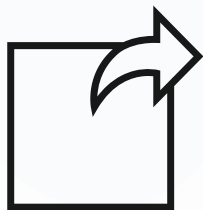


# Share your feedback!

Take the MSP Foundations Training Camp survey

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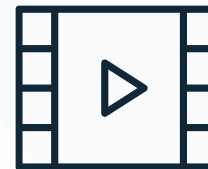
- Feedback helps us to continue holding these events.
- What did we do well?
- Any suggestions on how we can improve?



Ready to get started?



New to Azure?



Stay updated

