



**Enterprise Foundations
Training Camp**

Today's Agenda

1

Today's Mission,
Vision and Purpose

2

Nerdio + EUC in
2024

3

Adoption &
Management
Framework

4

Building Image
Source VMs

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User Experience
Settings

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Creating Host
Pools & Session
Hosts

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Creating Images

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Updating Session
Hosts

9

Configuring
Auto-scale

10

Unified Application
Management

11

Settings for
Success

12

Closing & AMA

Creating Image Source VMs

- From the Azure Marketplace
- From an existing VM

End User Experience Settings

- FSLogix Configuration
- RDP Profile Settings

Provisioning Host Pools & Hosts

- Creating dynamic / static pools
- Manually deploying session hosts

Updating Image source VMs

- Manually applying updates
- Using scripted actions to automate

Generating new image versions

- Automating new version generation
- Active vs. inactive images

Updating Session Hosts

- Manually updating hosts
- Automating host updates

Configuring Auto-scale

- Configuring the default schedule
- Enabling auto-healing

Unified Application Management

- Connecting to repositories
- Creating application policies



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**Nerdio + EUC
in 2024**

The current landscape of EUC in 2024



End of Life:

Windows 10
Windows Server 2012



On-premises legacy virtualization is more costly and complex than ever.



Enterprise organizations are questioning TCO CapEX vs OpEX.



Microsoft is winning the Virtual Desktop race in the cloud.



Organizations will soon be monitored on Scope 2 and 3 emissions.



Cloud costs are one of the biggest risks and concerns to cloud transformation.



Compliance and GDPR is top of mind



Microsoft Copilot is the next big disruptor in EUC.



Manager
for **Enterprise**

What to expect in 2024

Releases, improvements, enhancements and more!

NOTABLE NEW FEATURES

NOTABLE

AVD PER-USER COST REPORTING

Report per-user costs by allocating the total cost of AVD deployment

END-USER SELF SERVICE

backup/restore, re-image, resize

AZURE CAPACITY EXTENDER

Mitigate resource exhaustion

UNIFIED APPLICATION MANAGEMENT

Deploy and manage applications

UNIFIED ENDPOINT MANAGEMENT

Manage Intune devices & policies

ADVISOR: VM & POOL RIGHT-SIZING

For dedicated & shared desktops

- Auto-scaling: Peak and off-peak schedules
- Auto-scaling profiles
- Azure hibernate functionality for supported AVD VMs
- UAM 'Shell Apps' feature for scripted application deployment
- Confidential Computing support
- UEM: Intune policy versioning, backup & restore
- UAM: SCCM application search and import functionality
- Rolling drain mode for variable AVD drain windows

APRIL '24

- Azure Stack HCI auto-scaling
- User Cost Attribution: Per-host pool cost data presentation
- User portal: Branding, notifications, and auto-scaling control
- UAM: custom success criteria for application installs
- UAM: MSIX app attach v2
- AVD Single-sign on support
- UEM: AVD Host policy compliance enforcement
- UEM: CloudPC Frontline policy management

- Nerdio Advisor: Auto-Scale Optimizer
- Current Environment Assessment Mode
- Intelligent Rolling drain mode
- UAM: Intune application import
- DR functionality for Nerdio Webapp
- Nerdio native reporting engine
- Nerdio Modeler: Environmental impact models
- Federated webapp hierarchy (Global Manager)
- UAM: SCCM module - scripted install import functionality
- Distributed Winget repositories

RECENT LAUNCHES

COMING SOON

**Roadmap items are subject to change.*

2024 Roadmap

- New licencing model & billing
- Nerdio Advisor: Auto-Scale Optimiser (Public Preview)
- User Cost Attribution: Per-host pool cost data presentation
- Unified Application Management: custom success criteria for application installs
- End user portal: Branding & Notifications
- End user portal: User managed auto-scale
- HCI Stack - Auto-scale (Public Preview)
- AVD Single-sign on support
- Unified Endpoint Management: AVD Host policy compliance enforcement
- CloudPC Frontline policy management

- HCI Stack - Auto-scale - GA
- Federated webapp hierarchy (Global Manager)
- UAM: SCCM module - scripted install import functionality
- Intelligent Rolling drain mode for variable AVD drain windows
- Support multiple group addition for RBAC Control
- RBAC for Unified Application Management
- Secure variables for Shell Apps
- AI driven description generator
- AVD clipboard management

- Current Environment Assessment Mode
- DR (Active / Passive) configuration option for NME webapp
- UAM: Geo-distributed Winget repositories
- UAM: Defender recommendations
- UEM: Support for iOS / Android devices
- UEM: Cloud PC - move across regions
- Nerdio native reporting engine
- AI Personally Identifiable Information (PII) detector
- UEM: Support for iOS / Android devices

- Auto-scale functional refresh
- General UI refresh
- Autonomous endpoint management enhancements (AEM)
- Nerdio Advisor: RI Analytics dashboard
- UAM: Automated application testing (Nerdio Application Advisor) (TBC)
- UEM: Intune Quick-start for W365
- UEM Group management (backup / restore)
- UEM: Intune solution baselines & secure score integration
- WCAG Accessibility - Standardize TAB navigation usage

**Roadmap items are subject to change.*

Want to become a beta tester?

Send a request to **Toby Skerritt** and **Craig Hinchliffe** to request access to features in private preview.

tskerritt@getnerdio.com

|

chinchliffe@getnerdio.com

- ✓ *The Nerdio product team may grant private preview access on a discretionary basis.*
- ✓ *Note that private preview features are subject to change.*
- ✓ *Customers selected for private preview access are expected to provide feedback on feature performance and direction.*



Manager
for **Enterprise**

— **Management Pillars** —

Managing Cost

Analyze cost trends.

Budget vs. Actual Analysis.

Cost-efficient VMs.

Managing Usage

Analyze the number of host pools.

Analyze the number of session hosts.

Analyze storage usage.

Managing Performance

Analyze the performance of Nerdio.
(SQL / App Service)

Analyze the performance of session hosts.
(CPU / Memory / IOPS)

Analyze the performance of storage.
(Throughput / IOPS / Latency)



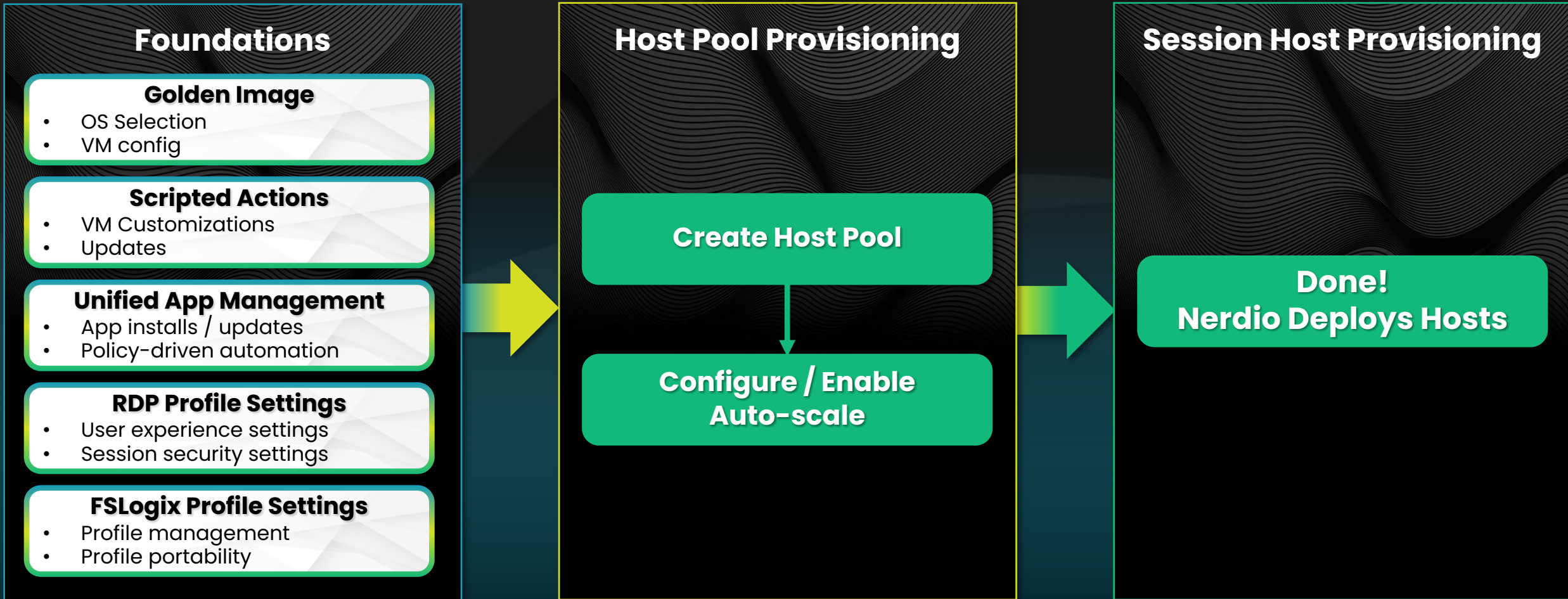
Best Practices

Review your Image Management Strategy.

Review the Nerdio auto-scaling best practices and usage.

Review the Nerdio logs and notifications

Adoption & Management Framework



Five Foundational Elements

- ✓ **Create image source VM**
Create a central point for managing updates.
- ✓ **Use automations to update**
Update the image source VM on a scheduled basis.
- ✓ **Define user experience settings**
Configure FSLogix and RDP Profile Settings.
- ✓ **Create UAM Policies**
Install and update applications with policies.
- ✓ **Create Host Pools & Configure Auto-scaling**
Use auto-scaling to leverage your foundations and automate host deployment and management!





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Building Image Source VMs

Golden Desktop Images

What is a golden desktop 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.

Scoping Images



OR



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.

Items to avoid on Images

Consider whether to 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.

Zscaler

- This can be installed on single-user VMs. It is not compatible with multi-session VMs.

Image-incompatible antivirus

- These can interrupt or cause issues with Sysprep
 - *Many solutions can be made -mage-compatible. If not, avoid installing them on the image source VM.*

Per-user Install Applications

- We recommend installing these *after* host provisioning via UAM or Intune.

Creating Golden Images

1

Identify the scope

- Can one golden image solve for every session host?
- If not, how many golden images do you need?
- Do you need a single-user or multi-user image?

2

Plan for before and after

- Which applications must be included on the image?
- Which applications can be installed after host provisioning?
 - *Can post-deployment app installs be automated?*

3

Create the image source VM

- New from the Azure Marketplace.
 - *Start fresh and create from an ideal default state.*
- New from existing Azure VM.
 - *Import an existing VM to create images.*



The image source VM is the engine

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



Lab 1

Walkthrough

- ***Image Source Creation Options***

Lab

- ***Add an image source VM***

Utilizing the latest
Intel[®] Xeon[®] Processor
to accelerate your AVD
workloads with Nerdio

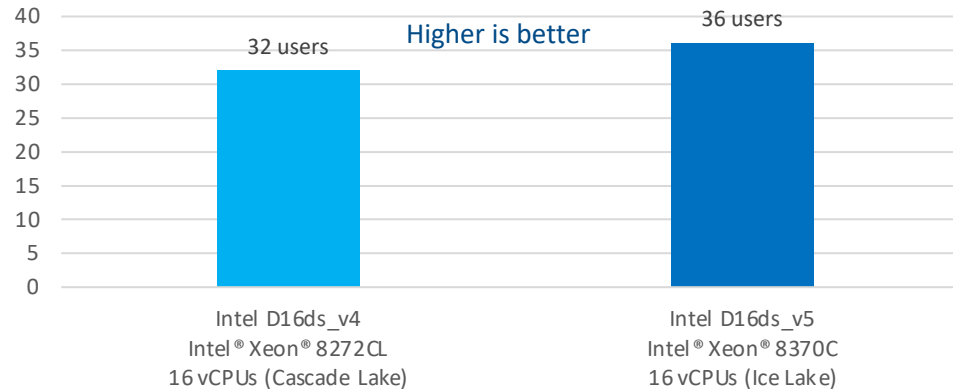
Why Intel?

- CPU Selection matters.
 - Even if you are utilizing an instance from the same underlying CPU manufacturer .
- Example:
 - Going from an Intel v4 VM in Azure to a v5 VM, can provide up to 24% better performance in overall performance on Microsoft applications including Teams
 - In addition, you can go from 32 to 36 users on a single VM; 12% more AVD users.
- Think about the performance gains if you or your client were running on v3 and just moved to v5, the performance gains would be significant. In most cases gen to gen improvements are 15-20% range.
- More often than not, newer VM's are the same cost or pennies difference. But offer better price/performance that often lowers your overall cost.

Intel Azure Windows Virtual Desktop Performance

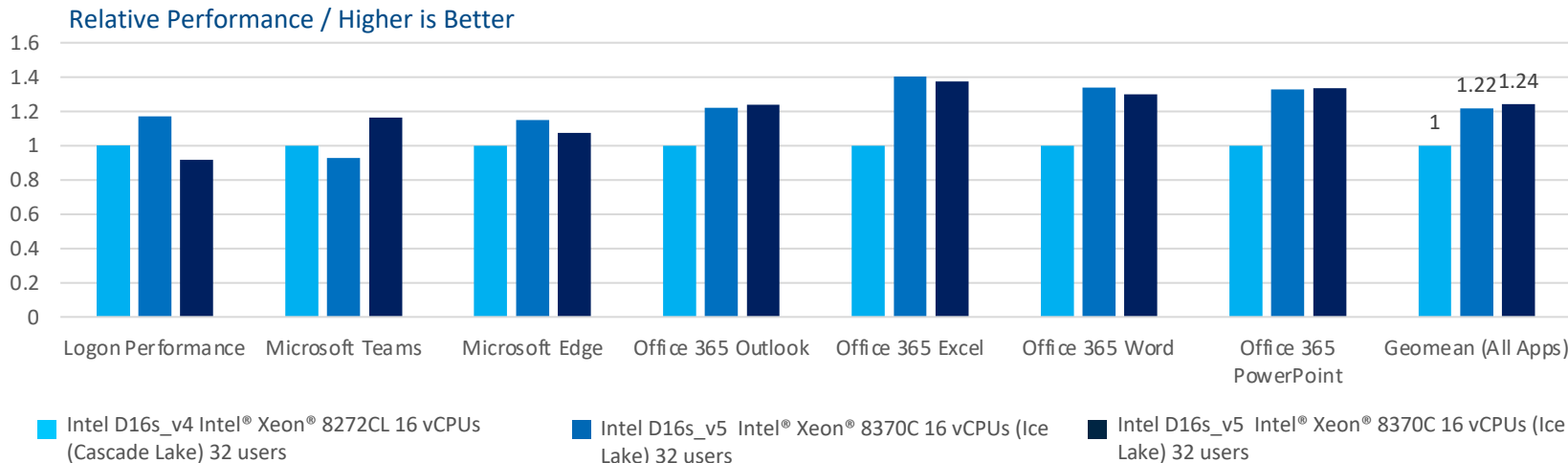
Support more users and Higher Application Performance with v5 Instances

Maximum Number of Knowledge Worker Supported



Up to 12% more VDI users on latest Gen Intel® Xeon® Processor v5 instances

Intel Azure Windows Virtual Desktop Generation Performance



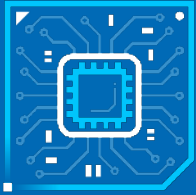
New Gen Intel Xeon Processor D16ds_v5 instances are up to 24% faster than prior v4 Gen instances

Tests performed in January 2022 using Login Enterprise version 4.6.5 with Knowledge workload with Microsoft 365 and Microsoft Teams on Azure's East US zone using Windows 10 20H2 host pools with a max session limit of 120 users, breadth-first load balancing and premium SSDs. Standard D16ds v5 equipped with 16 vCPUs, 64 GiB of RAM, 600 GB of temp storage, Intel 8370C CPU. Standard D16ds v4 equipped with 16 vCPUs, 64 GiB of RAM, 600 GB of temp storage, Intel 8272CL CPU.

Intel® Architecture Instance Types on Azure

Legend:

- Generally Available
- Public Preview



General Compute

Balanced compute, memory, and network resources for general-purpose workloads: analytics, databases, and enterprise applications

Confidential Computing

Protection for code and data while in use in the cloud using protected enclaves based on Intel® Software Guard Extensions

Compute-Optimized

Enhanced execution resources for compute-bound workloads: data science, ML/AI inference, gaming, high-performance computing

Memory-Optimized/ Large Memory

Enhanced memory resources for memory-bound workloads: in-memory databases/applications/analytics, SQL HANA, SQL Hekaton

5th Gen Intel® Xeon® Scalable processors

COMING SOON

4th Gen Intel® Xeon® Scalable processors

Dv5 / Dsv5

DCesv5

ECesv5

DCesv5

ECesv5

Ev5 / Esv5

Mv3

3rd Gen Intel® Xeon® Scalable processors

Dv5 / Dsv5

Ddv5 / Ddsv5

DCsv3

DCv3

Ev5 / Esv5

Edv5 / Edsv5

2nd Gen Intel® Xeon® Scalable processors

Dv2 / Dsv2

Dv4 / Dsv4

Dv3 / Dsv3

Ddsv4

Fsv2

HC

Fx

Ev3 / Esv3

M

Edv4 / Edsv4

HLI

Intel® Xeon® Scalable processors

Dv2 / Dsv2

Dv3 / Dsv3

Dv2 / DSv2 11-15

Ev3 / Esv3

Mv2

Intel® Xeon® E Processors

DCsv2

DCv2

Intel® Xeon® v4 Processors

Dv2 / Dsv2

Dv3 / Dsv3

Dv2 / DSv2 11-15

Ev3 / Esv3

Intel® Xeon® v3 Processors

Dv2 / Dsv2

Dv3 / Dsv3

Dv2 / DSv2 11-15

M

Which VM is Best for Your Environment?

- Needs to be sized for your environment
 - Personal or Pooled?
 - Simple workloads or complex?
 - Any Compliance or Regulatory req's?
- Follow Nerdio's and Azure sizing
 - Please consider the latest Dv5 for your customers
- Monitor customer success and adjust as needed for best experience and TCO



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Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See backup for configuration details. No product or component can be absolutely secure.

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Using logs to resolve errors

Waiting for proper vm configuration	Apr 1, 2024 03:30 PM Apr 1, 2024 03:33 PM	✓ COMPLETE	Wait for 3 minutes
Prepare config	Apr 1, 2024 03:33 PM Apr 1, 2024 03:33 PM	✓ COMPLETE	Uninstall TreeSize app added to config
Get or create config-1317c55a8281d09ffd1478943de8a77a blob	Apr 1, 2024 03:33 PM Apr 1, 2024 03:33 PM	✓ COMPLETE	Created new blob Container: app-management-configs Result file: ec66ddb-d1fd-4e58-b922-66e0be7e9258.json
Get or create result-1317c55a8281d09ffd1478943de8a77a blob	Apr 1, 2024 03:33 PM Apr 1, 2024 03:33 PM	✓ COMPLETE	Created new blob Container: app-management-configs Result file: 5cca2fad-d287-4b54-918b-e517eea3b9ee.json
Upload text to blob	Apr 1, 2024 03:33 PM Apr 1, 2024 03:33 PM	✓ COMPLETE	Success
Install Application Management Extension	Apr 1, 2024 03:33 PM Apr 1, 2024 05:05 PM	❗ ERROR	An existing VM extension of type CustomScriptExtension detected. Going to remove it. Logging old result: > VM extension details: Installation failed Extension was removed Installation is still in progress > Exception details Download App management logs Error: An error occurred extension installation
Load results from storage container	Apr 1, 2024 05:05 PM Apr 1, 2024 05:05 PM	❗ ERROR	Error: Results unavailable
Stop VM	Apr 1, 2024 05:05 PM Apr 1, 2024 05:05 PM	✓ COMPLETE	Success

Close

Contacting Nerdio Support

When to contact Nerdio Support

- If you see and cannot resolve an error in Nerdio, reach out!

Contact Methods

- nme.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.

NERDIO MANAGER FOR ENTERPRISE SCOPE OF SUPPORT

Nerdio Support Scope

USER EXPERIENCE

APPLICATIONS

END POINT/INTUNE

OPERATING SYSTEM

SESSION HOST
PRE-STAGING

SCRIPTED ACTION
EXECUTION

POLICY
DEPLOYMENT

CUSTOM IMAGE
DEPLOYMENT

ENABLING START
ON CONNECT

FSLOGIX APP
MASKING

CONFIGURATION
PROFILE MANAGEMENT

AZURE MARKETPLACE
IMAGE DEPLOYMENT

END USER
NERDIO ACCESS

UNIFIED APPLICATION
DEPLOYMENT

CONDITIONAL ACCESS
POLICY MANAGEMENT

SCRIPTED ACTION
EXECUTION

AVD DESKTOP
ASSIGNMENT

MSIX APPATTACH
INTEGRATION

OUT OF SCOPE

FSLOGIX PROFILE
TROUBLESHOOTING

MSIX APP
PACKAGE CREATION

CUSTOM POLICY
CREATION

TROUBLESHOOTING
OS ERRORS

END USER CONNECTIVITY
TROUBLESHOOTING

CUSTOM SCRIPTED
ACTION

CONDITIONAL ACCESS
POLICY CREATION

TROUBLESHOOTING
PERFORMANCE

LOCAL DEVICE
(PRINTER/SCANNER)
SUPPORT

TROUBLESHOOTING
UNIFIED APPLICATION
PACKAGE CREATION

INTUNE BEST PRACTICE
AND ARCHITECTURE
SUPPORT

MONITORING

REMOTE DESKTOP CLIENT
SUPPORT

OS LEVEL APPLICATION
ERRORS/TROUBLESHOOTING

INTUNE PORTAL
ERRORS

RMM AND AV BEST
PRACTICE

ENABLING START ON
CONNECT
PREREQUISITES

LICENSING

END USER
AUTHENTICATION



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User Experience Settings

Introduction 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 / Azure NetApp Files / File Server).*
- 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 host pools for centralized management.*

Best Practices for 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)
- Azure NetApp Files (1 TiB minimum required)

Introduction to RDP Profile Settings

What is an RDP Profile?

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

How do RDP Profiles work?

- Can be created at the settings menu and then assigned to host pools.
 - *You can also create them on a per-host pool basis.*
- This allows you to centralize management and make changes from one location.

Best Practices for RDP Profile Settings

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., USB 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.*



Lab 2

Walkthrough

- ***Configuring FSLogix***
- ***RDP Profiles***



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Host Pools & Session Hosts

Host Pool Overview

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

Multi-user Desktop (pooled)

- A full desktop experience.
- Users share resources on their assigned host (one-to-many).

Multi-user RemoteApp (pooled)

- Publish remote applications to local user machines.
- Apps are hosted on session hosts (one-to-many).

Single-user Desktop (pooled)

- A full desktop experience.
- Each user is assigned to a single host (one-to-one).

Single-user Desktop (personal)

- A persistent, full desktop experience.
- A VM is assigned to each user (one-to-one).

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.
- Workspaces can contain a combination of static and dynamic host pools.

How are they created?

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

Host Pool Types

Dynamic Host Pools

- Contain a flexible number of session hosts.
- Compatible with Nerdio auto-scale.
- If auto-scale isn't configured, the pool will not scale in / out based on workload.

Static Host Pools

- Contains a set number of session hosts as defined by an administrator.
- Not compatible with auto-scale.
- Host pools from an existing environment appear as static pools.
 - They can be converted to dynamic.



Lab 3

Lab

- ***AVD Workspaces***
- ***Create a Dynamic Host Pool***
- ***Add Session Hosts***

Walkthrough

- ***Adjusting Host Pool Properties***



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Creating Images

Applying Updates and Changes



Methodologies

Via Scripted Actions

- Automated!
- Leverages what you've already built!

Via Windows Update for Business

- Automated!

Manually

(Do this only if you have to!)

- Time-consuming.
- Error-prone.

Create an image – the Nerdio way!

1

Image Source VM

Access the original VM

Apply Updates & Changes

Power Off / Deallocate



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Clone the VM



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2

Clone of Image Source VM

Remove Local Accounts



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Sysprep the cloned VM



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Capture as an image



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Deallocate / Delete



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Scripted Actions in Nerdio

Scripted Actions are collected in repositories.

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

Two types 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

Variables in Nerdio

Secure Variables

- Stored in the key vault. Only available for scripted actions (NO Intune policies).
- Can be used with generalized scripts to provide boutique customizations.



Lab 4

Walkthrough

- ***Adding Secure Variables***
- ***Adding Scripted Actions***

Lab

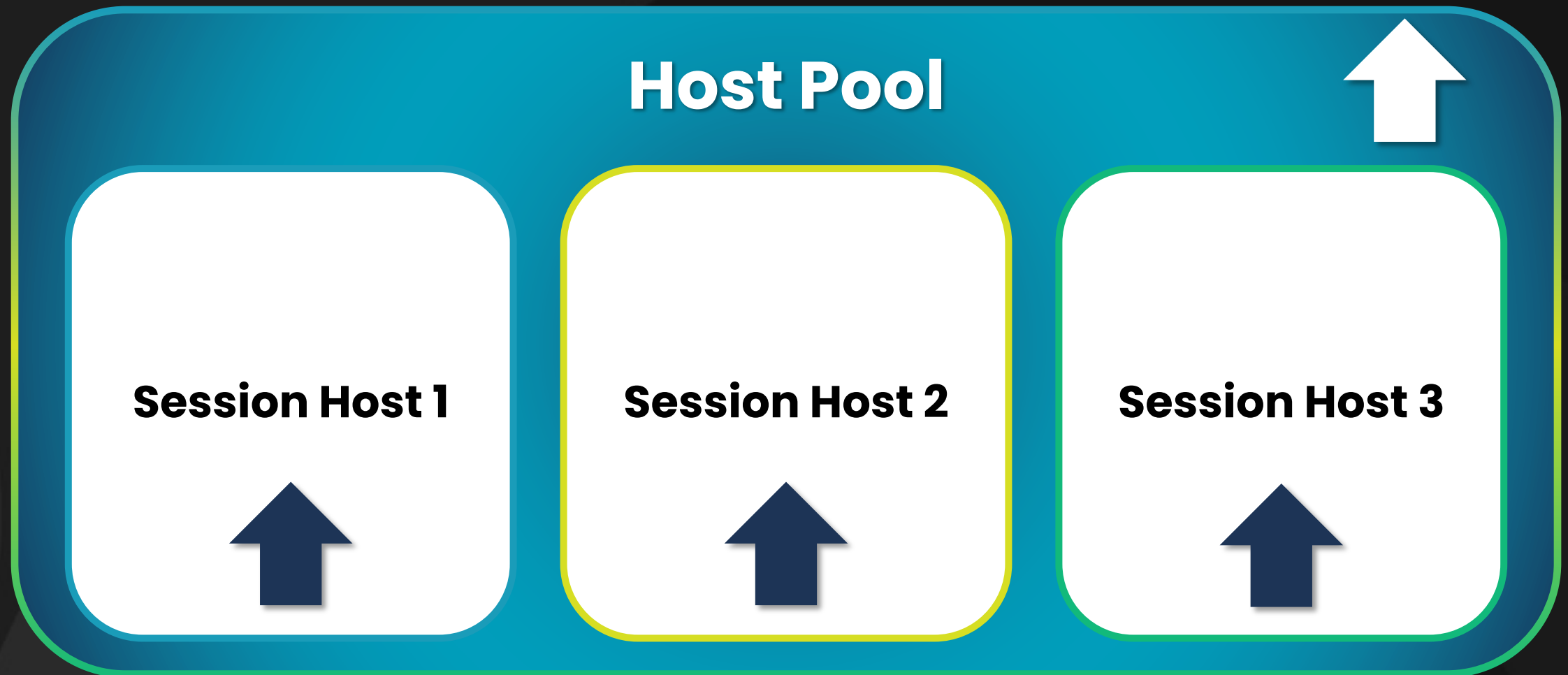
- ***Updating the Image Source VM***
- ***Creating Desktop Images***



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Updating Session Hosts

Updating Session Hosts





Lab 5

Walkthrough

- ***Updating individual hosts***

Lab

- ***Updating host pools***



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Configuring Auto-Scale

Auto-scale in Nerdio Manager

- Automate the volume of resources based on capacity.
 - Avoid overspending during times of less demand.
 - Add capacity when it counts.
- Automatically heal broken hosts.
- Create schedules for weekends, holidays, and more.
- Automatically update / re-image host pools.

Auto-scale

Default Schedule

Your default schedule defines how auto-scale operates daily.

- 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



Lab 6

Lab

- ***Configuring Auto-scale***



Part 10
**Unified Application
Management**

Unified Application Management



Winget

Public repo is connected by default + connect your own!



SCCM

Manage applications imported from SCCM.



Intune Application Deployments

Manage Intune application deployments



MSIX App Attach / App Attach

Mount MSIX App Attach images to session hosts.



Shell Apps

For complex applications incompatible with Winget.



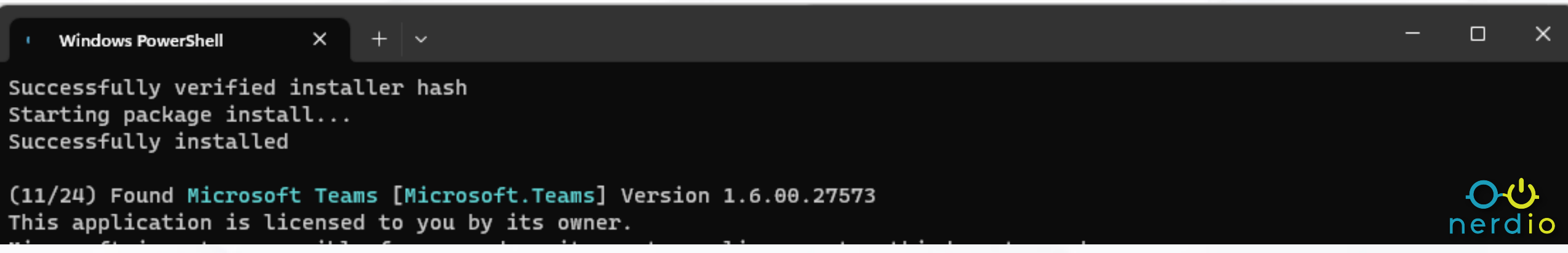
Winget Overview

What is it?

- Winget gives administrators an easy way to manage, upgrade, install and uninstall applications.

How does it work?

- Winget is built into Windows 10 & 11.
- It manages applications via repositories.
 - *E.g., Microsoft Store, GitHub, public Winget repository, custom repositories.*



```
Windows PowerShell x + v - □ ×  
Successfully verified installer hash  
Starting package install...  
Successfully installed  
  
(11/24) Found Microsoft Teams [Microsoft.Teams] Version 1.6.00.27573  
This application is licensed to you by its owner.
```



**MICROSOFT
STORE**

DEFAULT



WINGET

DEFAULT

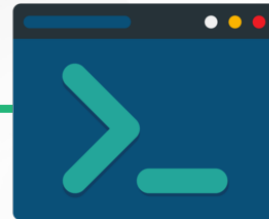


**PRIVATE
REPOSITORY**

OPTIONAL



- VLC Player
- Zoom
- Teams



**WINGET
COMMANDS**

- list
- search
- install
- upgrade --all



Lab 7

Lab

- ***WinGet commands***

Launch Winget via Powershell

Winget --info

- Shows the version of winget and the default locations of install folders, etc.

```
Windows PowerShell
PS C:\Users\tony> winget --info
Windows Package Manager v1.6.2771
Copyright (c) Microsoft Corporation. All rights reserved.

Windows: Windows.Desktop v10.0.22621.2361
System Architecture: X64
Package: Microsoft.DesktopAppInstaller v1.21.2771.0

Winget Directories
-----
Logs                                     %LOCALAPPDATA%\Packages\Microsoft.DesktopAppInstaller_8wekyb3d8bbwe\LocalState\Diag...
User Settings                           %LOCALAPPDATA%\Packages\Microsoft.DesktopAppInstaller_8wekyb3d8bbwe\LocalState\sett...
Portable Links Directory (User)          %LOCALAPPDATA%\Microsoft\WinGet\Links
Portable Links Directory (Machine)      C:\Program Files\WinGet\Links
Portable Package Root (User)            %LOCALAPPDATA%\Microsoft\WinGet\Packages
Portable Package Root                    C:\Program Files\WinGet\Packages
Portable Package Root (x86)             C:\Program Files (x86)\WinGet\Packages
Installer Downloads                      %USERPROFILE%\Downloads

Links
-----
Privacy Statement   https://aka.ms/winget-privacy
License Agreement   https://aka.ms/winget-license
Third Party Notices https://aka.ms/winget-3rdPartyNotice
Homepage            https://aka.ms/winget
Windows Store Terms https://www.microsoft.com/en-us/storedocs/terms-of-sale

Admin Setting      State
-----
LocalManifestFiles Disabled
```

View Winget Sources

Winget source list

- Use this command to list and manage sources for Windows Package Manager.
- You can add, remove, update, reset or export repositories.

```
Windows PowerShell
PS C:\Users\tony> winget source list
Name      Argument
-----
msstore   https://storeedgefd.dsx.mp.microsoft.com/v9.0
winget    https://cdn.winget.microsoft.com/cache
PS C:\Users\tony> |
```


List Winget Apps on PC

Winget list

- Lists all the applications on your computer, its versions and whether or not there is an available manifest in winget's sources.
- All applications can be managed regardless of whether they were first installed with winget.

```
Windows PowerShell
PS C:\Users\tony> winget list
```

Name	Id	Version	Available Source
HubSpot Sales for Outlook	6C5E90BB606C5CAB5254045AB06A642244B963E...	3.0.1.310	
7-Zip 23.01 (x64)	7zip.7zip	23.01	winget
HubSpot for Windows	9afbc8c9443d1363	1.0.0.142	
AMD Chipset Software	AMD_Chipset_IODrivers	4.06.10.651	
Adobe Media Encoder 2023	AME_23_4	23.4	
AORUS ENGINE	GIGABYTE.AORUS-ENGINE	1.9.5.0	2.1.2.0 winget
ASRRGBLED v2.0.71	ASRock RGB_LED_is1	2.0.71	
Adobe Creative Cloud	Adobe Creative Cloud	5.10.0.573	
Adobe Genuine Service	AdobeGenuineService	8.3.0.61	
Adobe Notification Client	AdobeNotificationClient_enpm4xejd91yc	3.0.1.1	
Battle.net	Battle.net	Unknown	
Logitech Capture	Capture	2.06.12	
Microsoft Clipchamp	Clipchamp.Clipchamp_yxz26nhyzhsrt	2.7.10.0	
Adobe Dreamweaver 2021	DRWV_21_3	21.3	
Discord	Discord.Discord	1.0.9018	winget
EVGA Unleash RGB	EVGA Unleash RGB	1.0.25.0	
Messenger	FACEBOOK.317180B0BB486_8xx8rvfyw5nnt	1950.4.225.0	
FileZilla 3.65.0	FileZilla Client	3.65.0	
f.lux	flux.flux	4.126	winget
GIMP 2.10.34-2	GIMP.GIMP	2.10.34	winget
GoToMeeting 10.19.0.19950	LogMeIn.GoToMeeting	10.19.0.19950	winget
Google Chrome	Google.Chrome	117.0.5938.150	winget
Greenshot 1.2.10.6	Greenshot.Greenshot	1.2.10.6	winget
Adobe InDesign 2023	IDSN_18_3	18.3	
Adobe Illustrator 2023	ILST_27_6_1	27.6.1	
Logitech Options	Logitech.Options	10.10.58	winget
Microsoft Teams (work or school)	MSTeams_8wekyb3d8bbwe	23257.2618.2432.4374	

List Apps with Available Upgrades

Winget upgrade

- Returns a list of any installed applications with a newer version available for upgrade.

```
Windows PowerShell
PS C:\Users\tony> winget upgrade
Name                               Id                               Version    Available    Source
-----
AORUS ENGINE                       GIGABYTE.AORUS-ENGINE           1.9.5.0    2.1.2.0     winget
Windows Terminal                   Microsoft.WindowsTerminal       1.17.11461.0 1.18.2681.0 winget
OBS Studio                          OBSProject.OBSStudio            26.1.1     29.1.3      winget
Microsoft .NET Runtime - 6.0.16 (x64) Microsoft.DotNet.Runtime.6      6.0.16     6.0.22      winget
EA app                              ElectronicArts.EADesktop         13.18.0.5531 13.27.0.5540 winget
6 upgrades available.

The following packages have an upgrade available, but require explicit targeting for upgrade:
Name                               Id                               Version    Available    Source
-----
Teams Machine-Wide Installer       Microsoft.Teams                  1.3.0.28779 1.6.00.27573 winget
PS C:\Users\tony> |
```

Upgrade all Applications

Winget upgrade --all

- Upgrades all applications on your upgrade list to the latest version shown in the manifest.

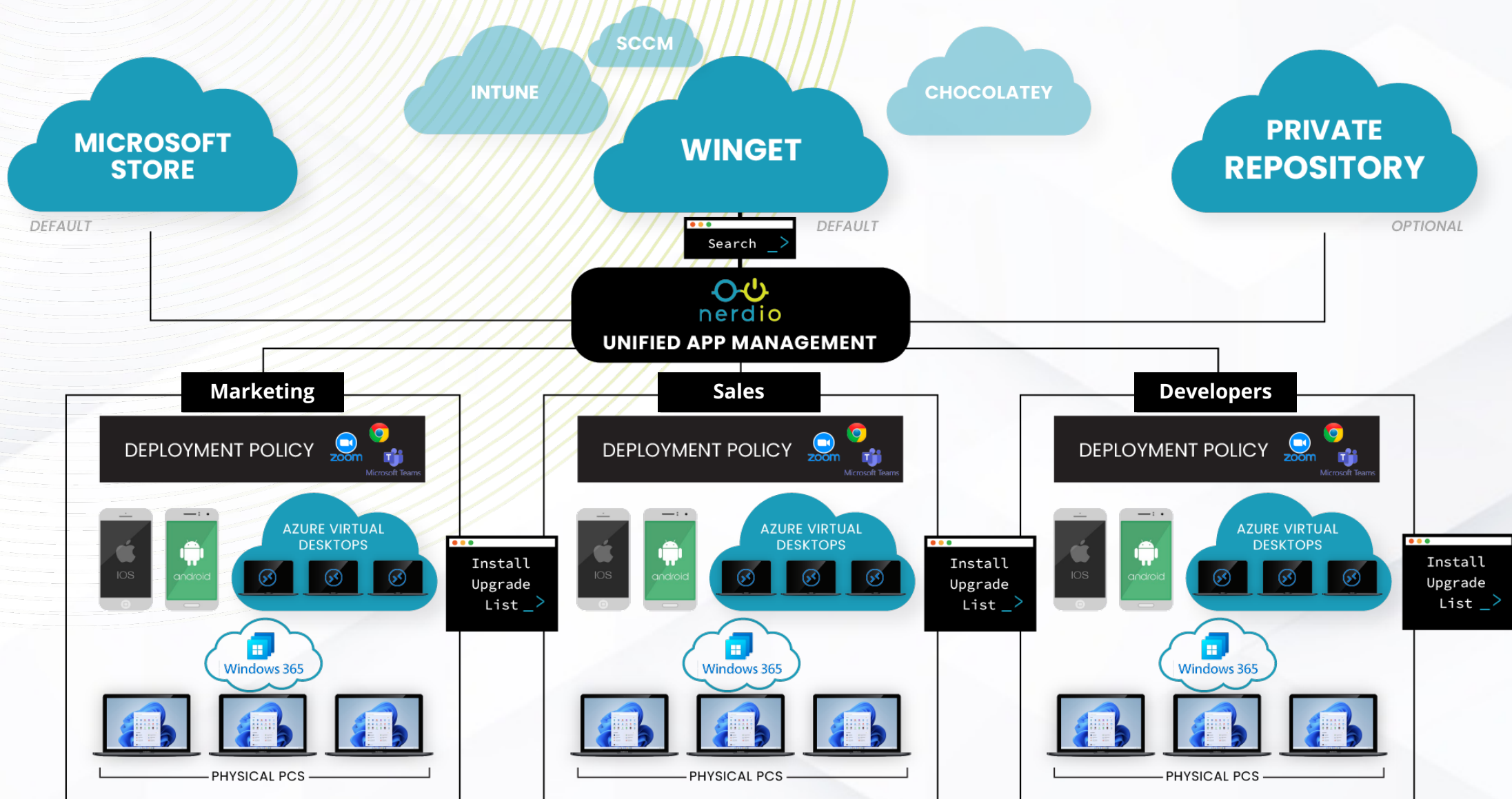
```
Windows PowerShell
PS C:\Users\tony> winget upgrade --all

Name                               Id                               Version   Available   Source
-----
AORUS ENGINE                       GIGABYTE.AORUS-ENGINE           1.9.5.0   2.1.2.0     winget
Windows Terminal                   Microsoft.WindowsTerminal       1.17.11461.0 1.18.2681.0 winget
OBS Studio                          OBSProject.OBSStudio            26.1.1     29.1.3      winget
Microsoft .NET Runtime - 6.0.16 (x64) Microsoft.DotNet.Runtime.6      6.0.16    6.0.22     winget
EA app                              ElectronicArts.EADesktop        13.18.0.5531 13.27.0.5540 winget
6 upgrades available.

The following packages have an upgrade available, but require explicit targeting for upgrade:
Name                               Id                               Version   Available   Source
-----
Teams Machine-Wide Installer      Microsoft.Teams                  1.3.0.28779 1.6.00.27573 winget

Installing dependencies:
This package requires the following dependencies:
- Packages
  Microsoft.UI.Xaml.2.8 [>= 8.2306.22001.0]
  Microsoft.VCRedist.2015+.x64
(1/5) Found AORUS ENGINE [GIGABYTE.AORUS-ENGINE] Version 2.1.2.0
This application is licensed to you by its owner.
Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.
Downloading https://download.gigabyte.com/FileList/Utility/vga_utility_aorus_setup_v2.1.2.exe
An unexpected error occurred while executing the command:
Download request status is not success.
0x80190194 : Not found (404).

(2/5) Found Windows Terminal [Microsoft.WindowsTerminal] Version 1.18.2681.0
This application is licensed to you by its owner.
```





Lab 8

Walkthrough

- ***Creating UAM Policies***

Lab

- ***Creating & Assigning UAM Policies***



nerdio

Framework Review

Adoption & Management Framework

Foundations

Golden Image

- OS Selection
- VM config

Scripted Actions

- VM Customizations
- Updates

Unified App Management

- App installs / updates
- Policy-driven automation

RDP Profile Settings

- User experience settings
- Session security settings

FSLogix Profile Settings

- Profile management
- Profile portability

Host Pool Provisioning

Create Host Pool

Configure / Enable
Auto-scale

Session Host Provisioning

Done!
Nerdio Deploys Hosts



Manager
for **Enterprise**

Additional Settings for Success

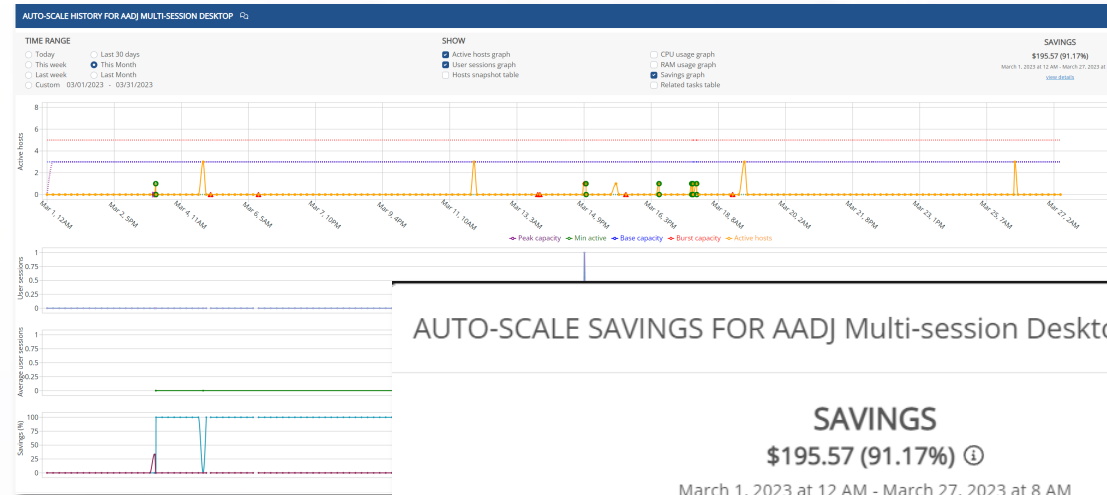
Best Practice #1



Review Auto-scaling savings

Check Auto-scaling monthly savings for each host pool.

- The minimum should be around 40% – 60% depending on usage.
- Review Auto-scaling history and filter by **User Sessions** and **Savings Graph**.
- Review Autoscaling savings for each Host pool.



AUTO-SCALE SAVINGS FOR AADJ Multi-session Desktop

SAVINGS
\$195.57 (91.17%) ⓘ
March 1, 2023 at 12 AM - March 27, 2023 at 8 AM

	MAXIMUM ⓘ	PEAK ⓘ	ACTUAL ⓘ	SAVINGS ⓘ
COMPUTE ⓘ	\$315.50	\$163.40	\$3.09	\$160.31 (98.11%)
STORAGE ⓘ	\$85.19	\$51.11	\$15.84	\$35.27 (69.00%)

OK

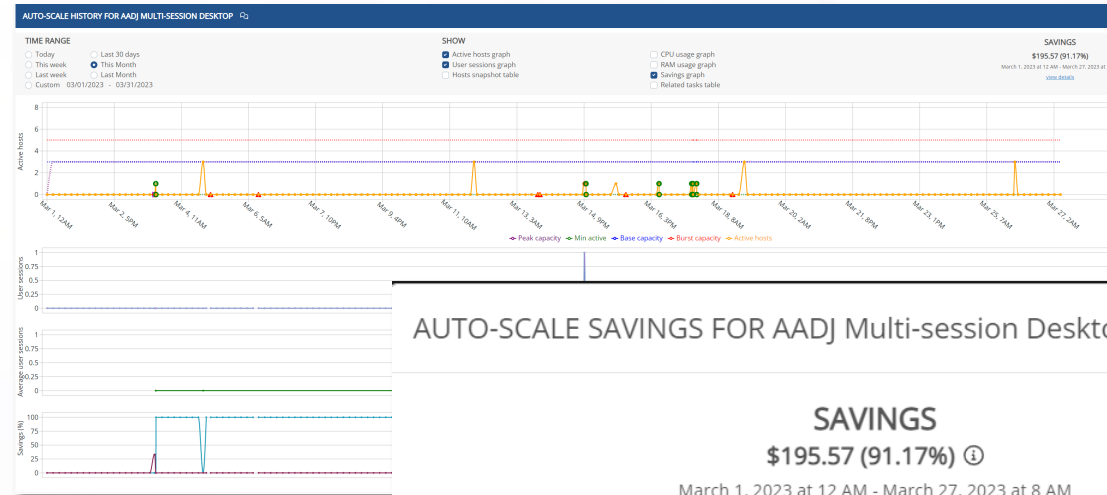
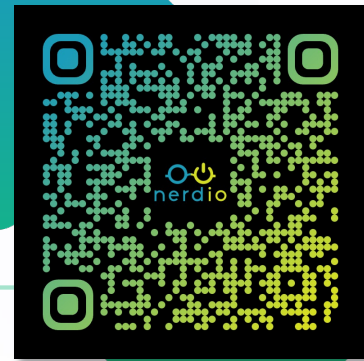
Best Practice #2

Optimize Auto-scale for Hosts

Is Auto-scale configured optimally?

- Determine if hosts are properly sized.
- Are there too many or too few sessions per host?
- Is the best load balancing option in place?

Make incremental changes and monitor – don't set and forget!



AUTO-SCALE SAVINGS FOR AADJ Multi-session Desktop

SAVINGS
\$195.57 (91.17%) ⓘ
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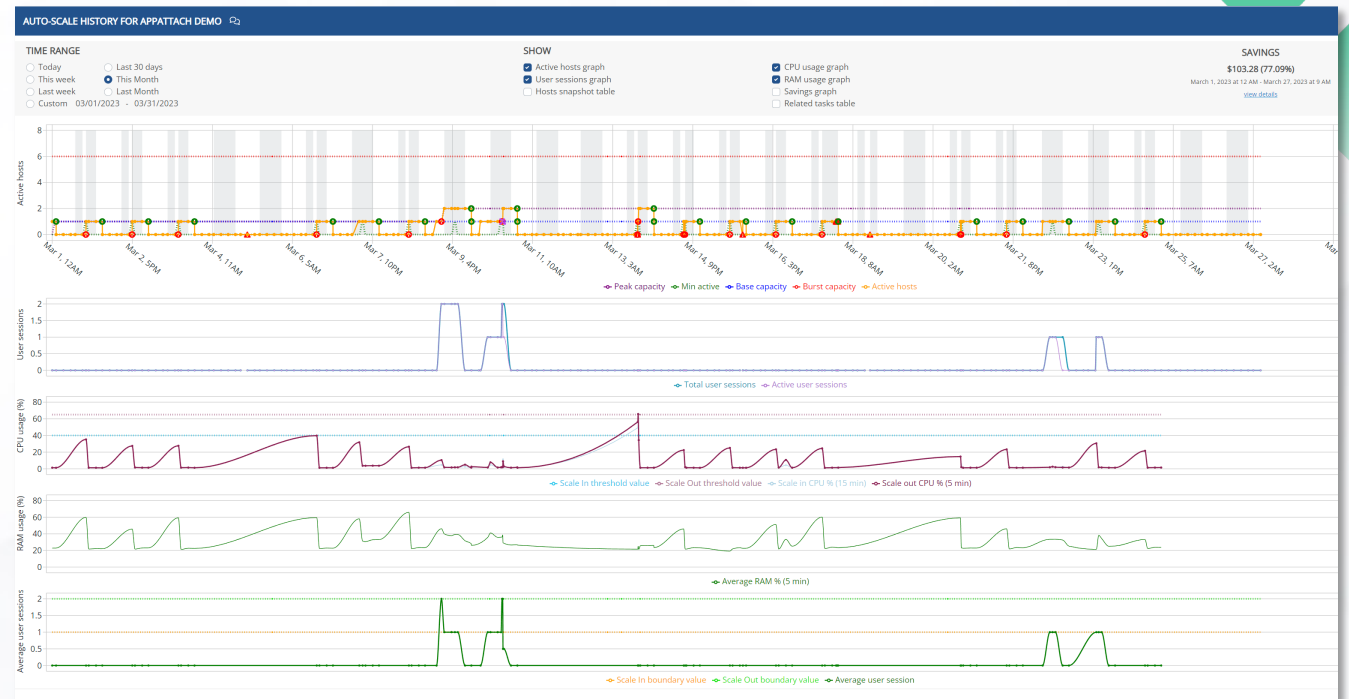
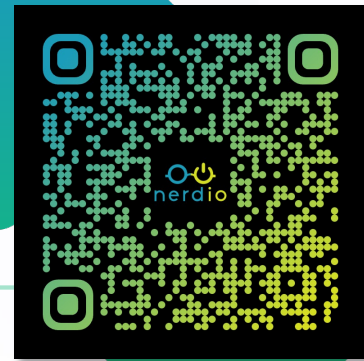
OK

Best Practice #3

Review Host Sizing

Check utilization and sizing.

- Are host CPU and memory resources being used predictably?
- Are hosts sized correctly?
 - *Are you under or over-spec'd?*
 - *Is your environment cost-efficient?*



Best Practice #4

Use FSLogix

Deliver a consistent user

experience.

- Configure FSLogix and apply settings within Nerdio Manager.
- Create multiple FSLogix configurations.
- Centrally manage FSLogix.
- Simplify images – install and hide apps with app masking, built into Nerdio.

The screenshot displays the Nerdio Manager interface for configuring FSLogix. On the left, a sidebar lists various management options, with 'FSLogix' selected. The main area shows the 'USE FSLOGIX PROFILES' settings, which are currently turned 'On'. A dropdown menu is set to 'Custom', and the 'FSLogix Profiles path (VHDLocation):' is configured to '1. profiles (\avddesktopdemo.file.core.windows.net/profiles)'. Below this, a 'DISCOVERED APPLICATIONS' table lists several applications with their installation directories and paths found. A 'CREATE RULE SET' dialog box is open in the foreground, showing the configuration for a rule set named 'Enable VSCode'. The rule set is enabled and includes the application 'Microsoft Visual Studio Code'. The dialog also shows the user 'Neil McLoughlin (nmcloughlin@getnerdio.com)' assigned to the rule set. At the bottom right of the dialog, there are buttons for 'Cancel', 'Save & apply', and 'Save & close'.

NAME	INSTALLATION DIRECTORY	PATHS FOUND
Microsoft 365 Apps for enter		
Microsoft Edge		
Microsoft Monitoring Agent		
Microsoft OneDrive		
Microsoft Search in Bing		
Microsoft Visual Studio Code		

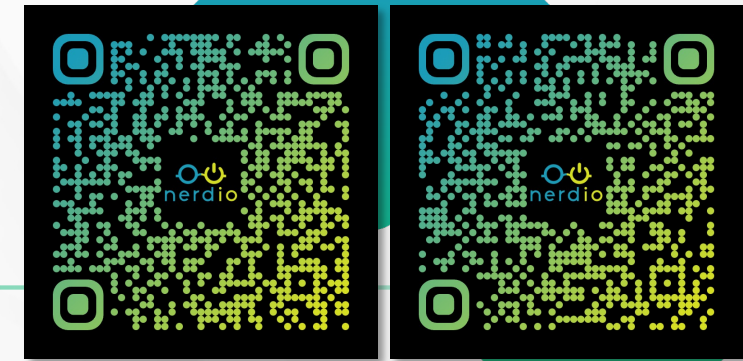


Best Practice #5

Review Storage Sizing

Check utilization and sizing.

- Is storage sized appropriately for FSLogix? Consider performance
 - *IOPS, throughput, latency*
- Enable auto-scaling in Nerdio Manager to reduce unnecessary costs.



MANAGE AUTOSCALE FOR FSLOGIX

AUTO-SCALE On

A premium file share is billed by provisioned share size, regardless of the used capacity. Share sizes can range from 100 GiB to 102,400 GiB. IO and network bandwidth limits scale with the provisioned share size.

When turned on, storage auto-scale will grow the provisioned share size in response to anticipated usage demand or increased storage latency. It will also decrease the provisioned capacity to reduce costs when the extra performance is no longer needed (not more than once every 24 hours).

1 PROVISIONED SIZE (QUOTA)

Quota unit: Absolute (GiB) Relative (%) Absolute (GiB)

Minimum size: 10 GiB (100 GiB)

Maximum size: used capacity (14.72 GiB) + 15 GiB, less than 102400 GiB (100 GiB)

	PERFORMANCE	
	MINIMUM	MAXIMUM
BASELINE IO/S	500	500
BURST IO/S	4000	4000
EGRESS RATE	66.00 MiBytes/s	66.00 MiBytes/s
INGRESS RATE	44.00 MiBytes/s	44.00 MiBytes/s

2 SCHEDULED QUOTA INCREASE Off

3 SCALING LOGIC

Select auto-scale trigger: Success Server Latency (avg)

Increase quota (scale out) by 10 GiB if Success Server Latency exceeds 20 ms for 5 minutes (current latency: 2.75 ms)

Decrease quota (scale in) by 20 GiB if Success Server Latency drops below 10 ms for 15 minutes (current latency: 2.75 ms)

Provisioned size (quota) can be decreased only 24 hours after the last quota increase. Last quota increase: Oct 29, 2022 05:28 AM

Best Practice #6



Log Analytics Workspace (LAW)

Review utilization and sizing.

- Modify retention period to suit requirements.
 - *Consider user cost attribution and auto-shrink.*
- Change counters in Nerdio Manager to suit your needs.

nmw-app-law-y2pj2xm7slpds
Created: Apr 6, 2022 01:54 AM
Workspace type: AVD diagnostics (default)

Retention period: 30 days
Monthly usage (last 31 days): 1.7 GB ⓘ
Log data retention (beyond 31 days): 0 GB ⓘ

CONFIGURE NMW-APP-LAW-Y2PJ2XM7SLPDS WINDOWS COUNTERS

Collect performance counters from Log Analytics agents at custom intervals to gain insight into the performance of hardware components, operating systems, and applications.

PRESET:

Windows performance counters

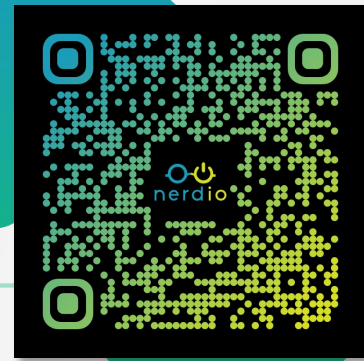
NAME	SAMPLE RATE (SECONDS)	CURRENT USAGE (%)
User Input Delay per Process(*)\Max Input Delay	60	87 %
User Input Delay per Session(*)\Max Input Delay	60	3.4 %
PhysicalDisk(*)\Avg. Disk sec/Read	60	1 %
PhysicalDisk(*)\Avg. Disk sec/Write	60	1 %
PhysicalDisk(*)\Avg. Disk Queue Length	60	0.79 %
Processor Information(_Total)\% Processor Time	60	0.77 %
Memory(*)\Available Mbytes	60	0.77 %
Memory(*)\Pages/sec	60	0.71 %
PhysicalDisk(*)\Avg. Disk sec/Transfer	60	0.67 %
Memory(*)\Page Faults/sec	60	0.66 %
Memory(*)\Committed Bytes In Use	60	0.49 %
LogicalDisk(C:)\Avg. Disk Queue Length	60	0.43 %

Best Practice #7

Enable Auto-heal

Automate common fixes via script.

- Define what you consider to be a broken host.
- Configure reboots and recovery actions to take to resolve the issue.



5 AUTO-HEAL BROKEN HOSTS ⓘ On

Auto-scale can automatically attempt to repair "broken" session hosts by restarting, running scripted actions (e.g. re-install AVD agent), and deleting/recreating them.

Host is broken if AVD agent status is: Unavailable x SxS stack listener not ready x and Has no active sessions
FSLogix not healthy x Upgrade failed x
Needs assistance x Stale heartbeat (>2hrs) x

Minutes before first action: ⓘ

Recovery actions:

1. Restart AVD Agent (Individual) [Nerdio, Preview] x
2. Restart VM x
3. Reinstall AVD Agent (Individual) [Nerdio, Preview] x
4. Delete VM (and re-create by auto-scale) x

Minutes between recovery actions: ⓘ

Best Practice #8

Use Reserved Instances (RI)

Reserved Instances reduce the cost of session hosts.

- Especially useful if there is an always-on base capacity present.
- Use the modeler to project the impact of reserved instances.
- RIs can be analyzed on a per-host pool basis.

Monthly savings: **\$227.15 (94.6%)**
Named user cost: \$2.16/month
Monthly active user cost: \$12.96/month

Monthly savings: **\$154.11 (79.53%)**

Manage Hosts

- Manage
- Autoscale
- Hosts
- Applications
- Properties
- Clone host pool
- Delete host pool

Configure
History
RI analytics
Force start

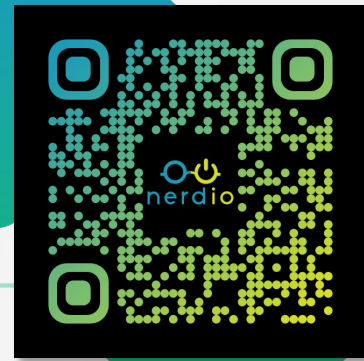
RI ANALYTICS FOR MULTI SESSION DESKTOP

Today Last 30 days
 This week This Month
 Last week Last Month
 Custom 10/03/2023 - 11/01/2023

CPU-hours for selected dates: 62.72
Projected CPU-months: 0.09

Reserved Instances (RI) Recommendation:
Region: southcentralus
VM family: D2as_v4
Total CPU cores: 0

Close

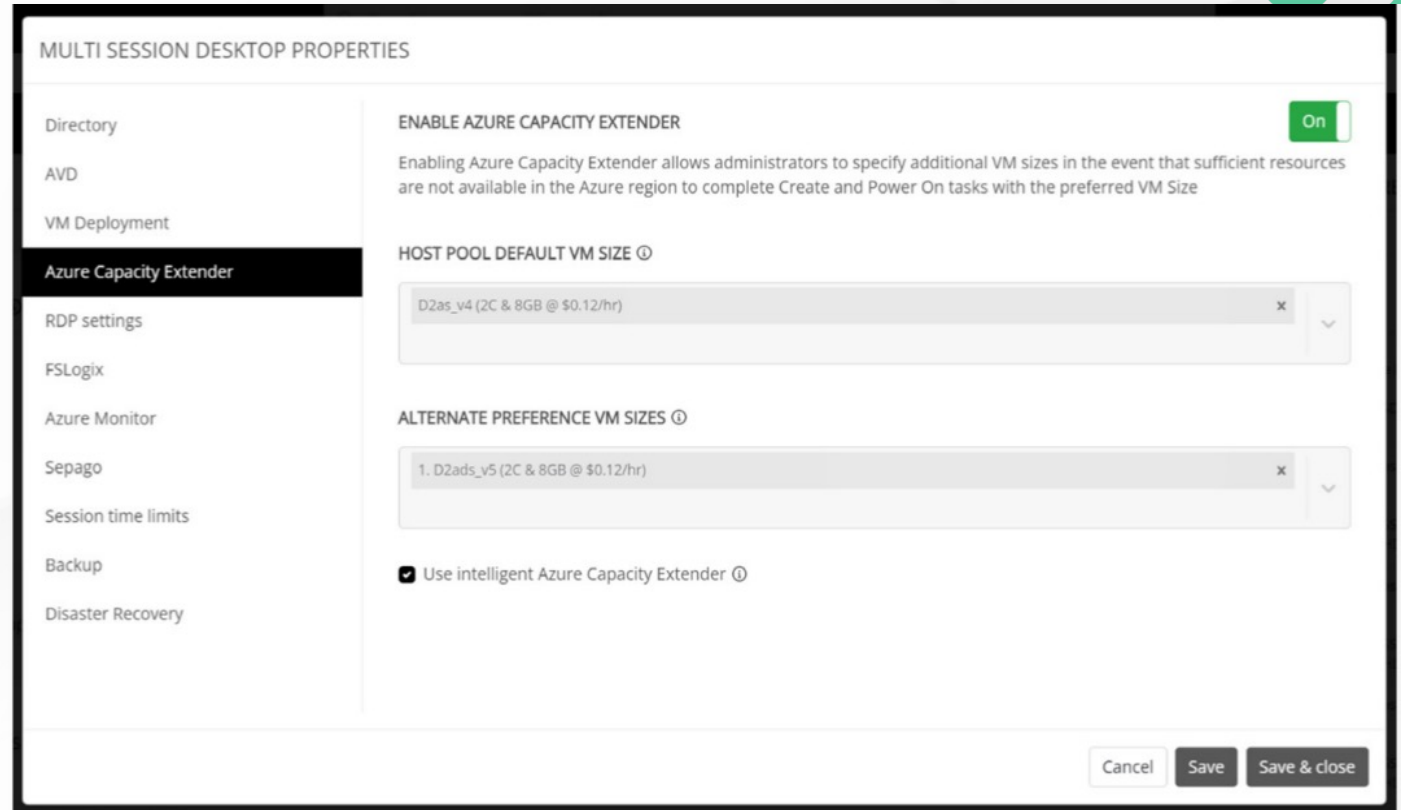
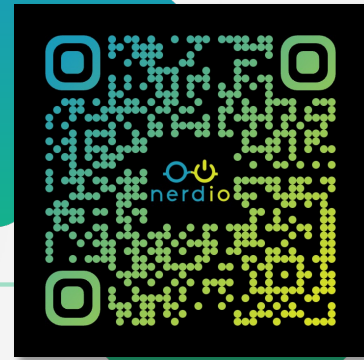


Best Practice #9

Use Azure Capacity Extender (ACE)

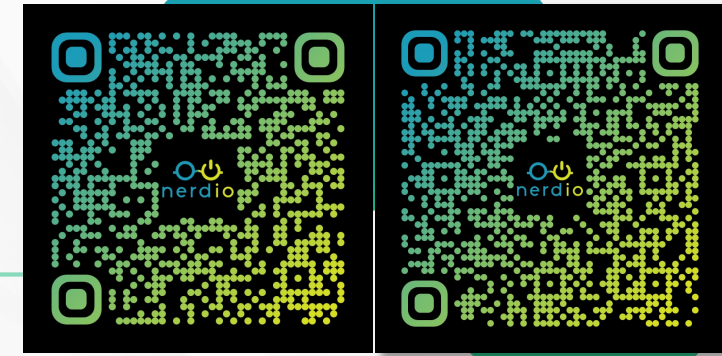
How does it work?

- ACE is enabled on host pools.
- It allows Nerdio Manager to provision machines on alternative VM sizes if the default is unavailable.
- Unless you have specific requirements, we recommend using ACE!



Best Practice #10

Use the VM Rightsizing service



How does it work?

- VMRSS gathers and assesses resource demand over time.
 - This produces data-driven recommendations to resize over / under-provisioned desktop VMs.
- VMRSS works for both personal and pooled desktops.

D2as_v5 (2C & 8GB) CPU 2% [50%-80%] MEM 50% [50%-80%]

D2as_v4 (2C & 8GB) CPU +1.1% MEM +2.6% SAVINGS +46.1% MONTH EST. -\$21.23

D2s_v4 (2C & 8GB)

VM RIGHT SIZING FOR DEDICATED PERSONAL HOST POOLS CONFIGURATION

It is a predefined rule. It cannot be changed, but can be cloned and/or disabled.

NAME: VM Right sizing for dedicated personal host pools

DESCRIPTION:

HOST POOLS: Any

ANALYZERS: VM Right Sizing

VM Right Sizing Settings

NAME:

CPU INCREASE TRIGGER: 80 %

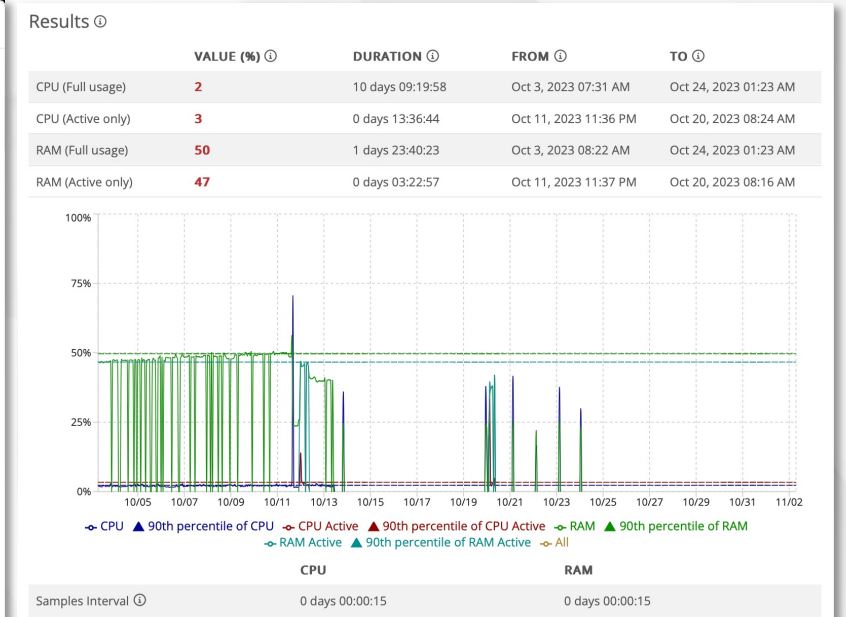
CPU DECREASE TRIGGER: 60 %

RAM INCREASE TRIGGER: 80 %

RAM DECREASE TRIGGER: 60 %

Active Sessions Only

Cancel OK



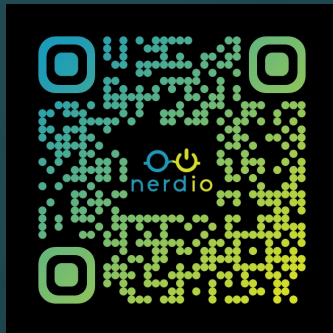


Thank You!

What's Next?

Ready to get started?

Connect with Nerdio here!



Review us on G2

Get a \$25 Amazon gift card!

