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+

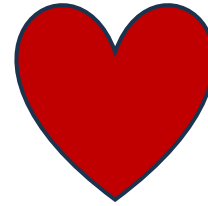


Image Optimization: Boost or Baloney?

What's the fuzz about Image optimization?



Who?

Dr. Benny Tritsch



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@ EUCScore**

Community programs
MVP, NVP, VIPP

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@ braincon**

Community programs
NVP

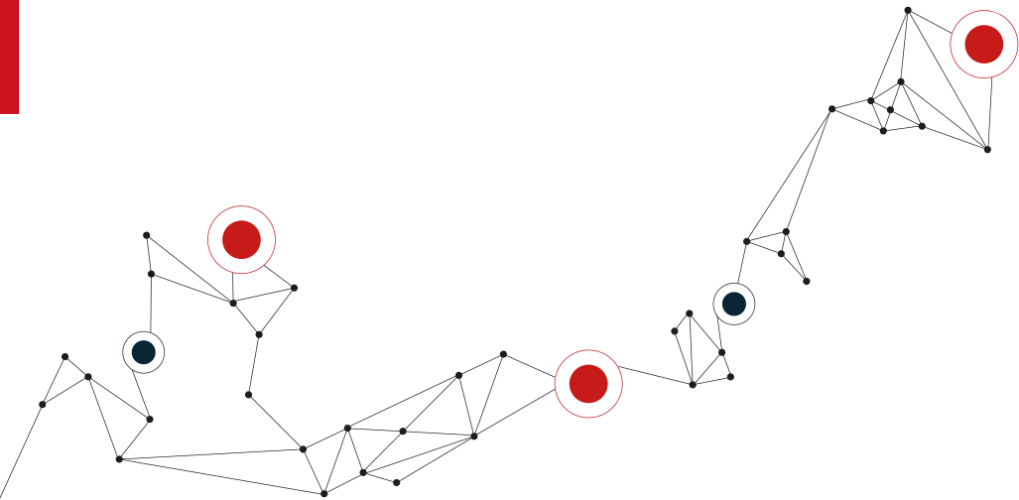
Contact

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What?





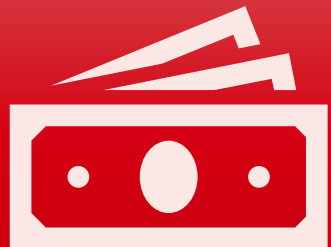
Why Optimize?

Why Optimize?



Performance & Responsiveness

- Shared resources require lean OS
- Fewer background services and scheduled tasks
- Faster logons and application launches
- Consistent, predictable desktop experience



Scalability & Cost Efficiency

- Higher user density
- Reduced CPU, RAM and disk I/O consumption
- Lower infrastructure and cloud costs

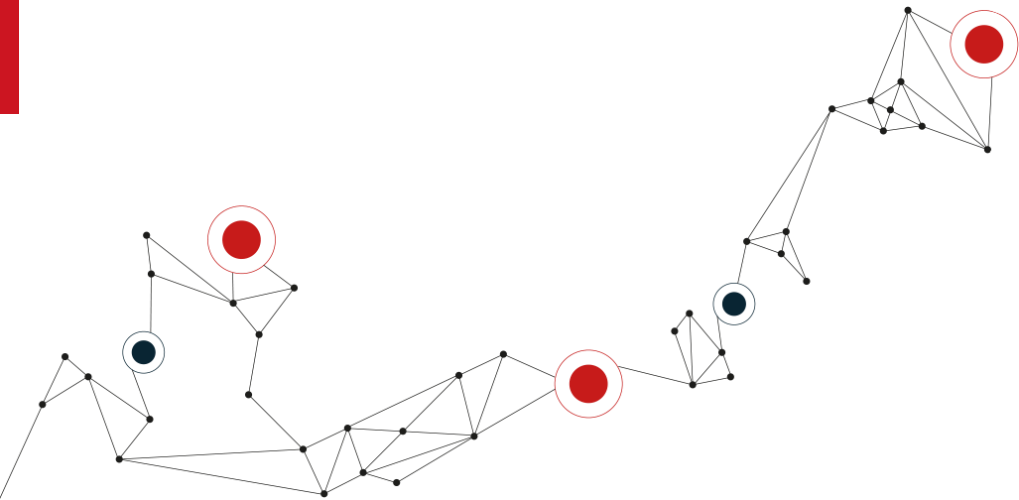


Stability, Security & Operations

- Fewer variables in multi-user environments
- Reduced attack surface and easier compliance
- Vendor recommended configuration
- Easier image maintenance and lifecycle management

Why Optimize?

- Windows Server was not optimized for RDSH workloads
 - General purpose OS
 - RDSH is one role among many
- Windows 11 MultiSession to the rescue!?
 - Does it work better than Server OS out of the box?
 - Lets see...



Test Environment and Setup

Test Setup and Environment

- Tools used:

- Nerdio NME
- ControlUp
- EUCScore



- Windows OS Optimization Tool for Horizon 2512
- Citrix Optimizer Tool v3.5.0.13
- Microsoft Virtual Desktop Optimization Tool (2026-04-04)



Test Setup and Environment

- Image and SKU used:
 - Windows 11 MultiSession 25H2 with M365 apps
 - D8ads v7 (8 vCPUs, 32 GB RAM with NVMe Tempdisk*/**)

Unlike the previous D/E series VMs, the new v6 VMs come with raw, unformatted NVMe disks. Customers should initialize and format the disks into a file system of their preference after the VM starts up.

- Azure Location:
 - West Europe

* <https://citrixguyblog.com/2026/01/29/azure-virtual-desktop-handling-temp-disk-and-pagefile-correctly-on-azure-v6-vm-skus/>

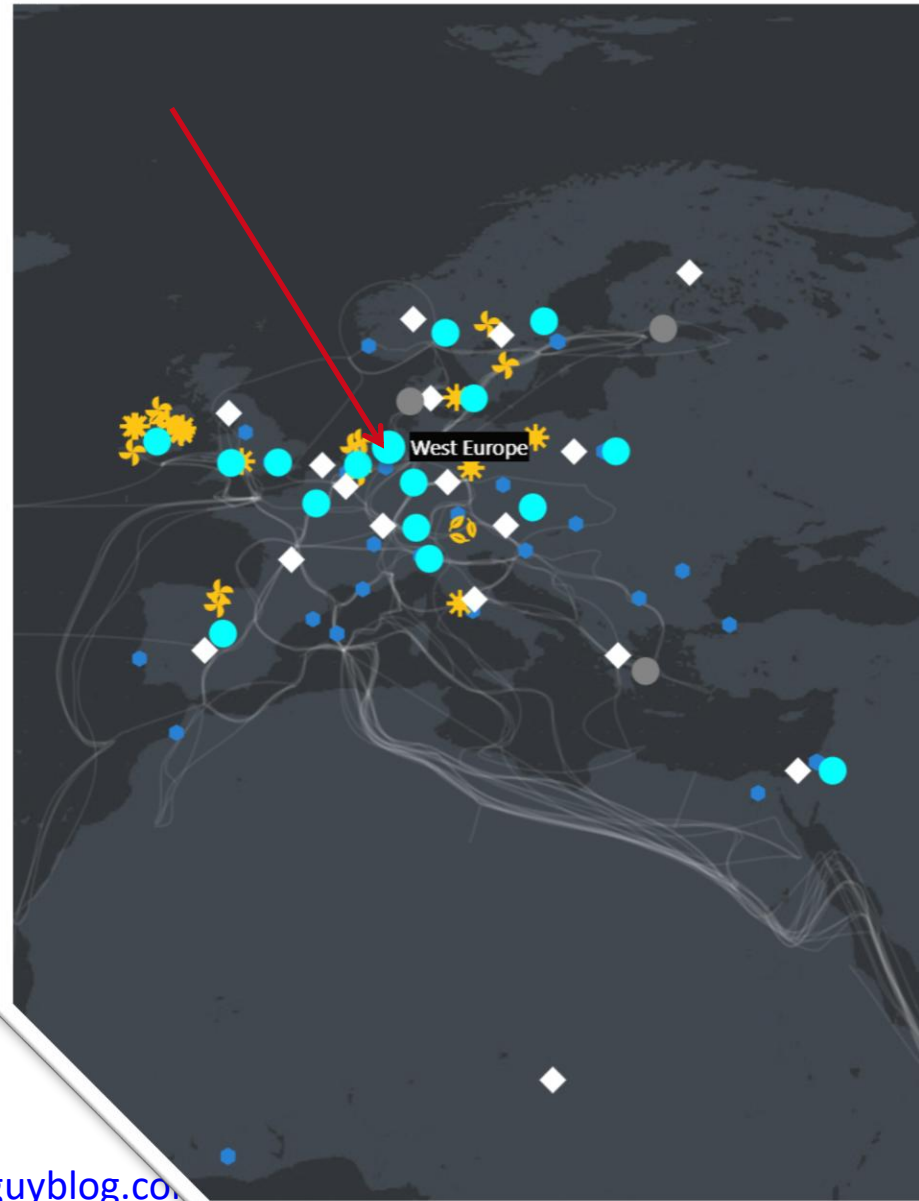
** <https://www.beckmann.ch/blog/2026/03/08/initializing-the-temp-drive-on-azure-v6-vm-skus-nvme-with-nerdio/?lang=en>

Test Setup

- Image and
 - Windows
 - D8ads

Unlike the previous
initialize and form

- Azure Loc
 - West



West Europe

Region with Availability Zones

Location

Netherlands

Data residency

Stored at rest in Europe

[Learn more](#)

Year opened

[2010](#)

Availability Zones

Available with three zones

Products

[See products in this region](#)

Disaster recovery

[Learn more about options for this region](#)

Sustainability

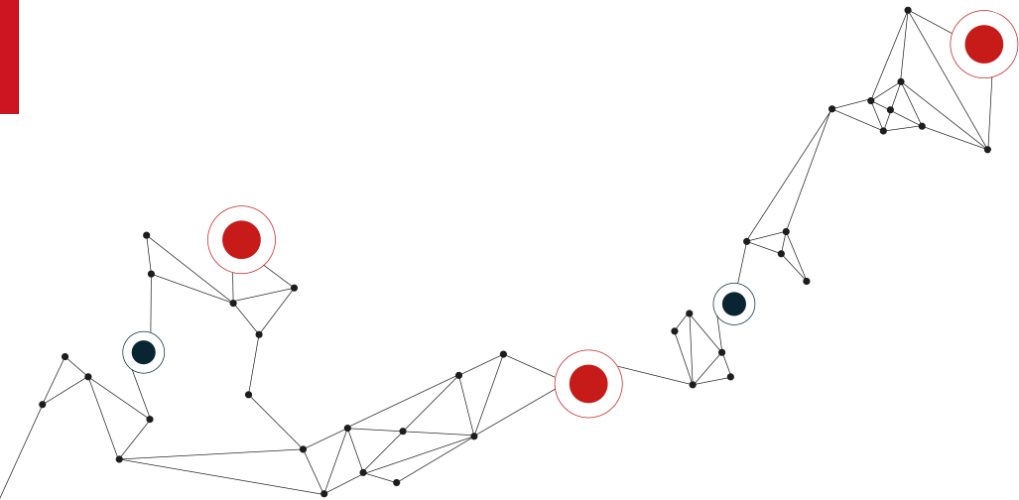
Microsoft Circular Center available

customers should

* <https://citrixguyblog.com>

** <https://www.beckmann.ch/blog/2026/03/08/initializing-the-temp-drive-on-azure-v6-vm-skus-nvme-with-nerdio/?lang=en>

[re-v6-vm-skus/](#)



Nerdio Setup

Nerdio Setup

- Workspace
 - vdws-E2EVMC

- Hostpool
 - vdpool-win11ms-unoptimized
 - vdpool-win11ms-osot
 - vdpool-win11ms-ctx
 - vdpool-win11ms-vdot

- Desktop Image
 - img-gal-25h2-t5

Nerdio Setup

- Download the binaries
 - Citrix Optimizer Tool
<https://support.citrix.com/external/article/CTX224676/citrix-optimizer-tool.html>
 - Windows OS Optimization Tool for Horizon
https://customerconnect.omnissa.com/downloads/details?downloadGroup=CART_OSOT_1_2_HZN_2603&productId=1720&rPid=119362
 - Windows Virtual Desktop Optimization Tool (2026-04-04)
<https://github.com/The-Virtual-Desktop-Team/Virtual-Desktop-Optimization-Tool>

Nerdio Setup

- Create Shell App

Edit Osot



General
Detect
Install
Uninstall
Versions

Please read [this KB](#) to learn more about shell apps.

Name *

OSOT

Description

Omnissa OS Optimization Tool

Publisher *

Omnissa

Public



Close

Reset

Update

Nerdio Setup

- Create Shell App

Edit Osot



General
Detect
Install
Uninstall
Versions

Configure custom script to detect whether application is installed on the host or not.

```

1 $basePath = $env:ProgramFiles
2 $programFolderName = "Omnissa\OS Optimization Tool"
3 $programFolderFullPath = Join-Path $basePath $programFolderName
4
5 $programFolderExists = Test-Path $programFolderFullPath
6 if (!$programFolderExists) {
7     return $false
8 }
9
10 $programFileName = 'OSOT.exe'
11 $programFileFullPath = Join-Path $programFolderFullPath $programFileName
12
13 return Test-Path $programFileFullPath

```

Script status: **healthy** ▾

Snippets ▾

Nerdio Setup

- Create Shell App

Edit Osot



General
Detect
Install
Uninstall
Versions

Configure custom script to install the application.

```

1  # Detect if OSOT is already installed
2  $osotPath = "${env:ProgramFiles}\Omnissa\OS Optimization Tool\OSOT.exe"
3  if (Test-Path $osotPath) {
4      | $Context.Log('OS Optimization Tool already detected')
5  } else {
6      # Download and install OSOT
7      $basePath = $env:TEMP
8      $installerFolderName = "OSOT $(New-Guid)"
9      $installerFolderFullPath = Join-Path $basePath $installerFolderName
10     if (Test-Path $installerFolderFullPath) {
11         | Remove-Item $installerFolderFullPath -Recurse -Force -ErrorAction Stop
12     }
13     New-Item -Path $basePath -Name $installerFolderName -ItemType Directory -Force |
14     Out-Null
15
16     # Update to latest version URL from Omnissa (example for 2506; check docs.
17     | omnissa.com)
18     $installerName = 'OmnissaHorizonOSOptimizationTool-x86_64-1.2.2512.19957824724.
19     | exe'
20     $installerFullPath = Join-Path $installerFolderFullPath $installerName
21     $installerUrl = 'https://lab.brainon.de/software/
22     | OmnissaHorizonOSOptimizationTool-x86_64-1.2.2512.19957824724.exe'
23     Invoke-WebRequest -URI $installerUrl -OutFile $installerFullPath

```

Script status: **healthy** ▼

Applied to 1 version ▼

Nerdio Setup

- Create Shell App

Edit Osof ⌵

General

Detect

Install

Uninstall

Versions

Configure custom script to uninstall the application.

```
1 $Context.Log('Nothing to do here...')
```

I

Script status: healthy ▾

Snippets ▾

Nerdio Setup

- Create Shell App

Edit Osot ⌵

General

Detect

Install

Uninstall

Versions

Select version

General

Name *

Preview Unzip

File

Status Disabled

Override install

Status Disabled

Nerdio Setup

- Set as Image

Set img-gal-25h2-t5 as An Image i

i **Do you want to set img-gal-25h2-t5 as an image?**

Note: Please ensure that Azure agent is installed and AVD agent is not installed.

Run the following scripted actions before set as image: i Disabled

Applications management i Enabled

Applications i

- 1. + Install OSOT [1.0] (ShellApps) x
- 2. Add new application... x

- Install app
- Install group
- Uninstall app
- Uninstall group

OSOT [1.0] v

Reboot after installation i

Select whether application management operations should run on the Source VM or the Clone VM.
Source: Applications will be installed/uninstalled on the original VM before image creation.
Clone: Applications will be installed/uninstalled on the cloned VM after it is created but before it is Syspreped.

Target VM i Clone Source

OSOT [1.0] (ShellApps) x

Application... x

- Install app
- Install group
- Uninstall app
- Uninstall group

OSOT [1.0] v

Reboot after installation ⓘ

Select whether application management operations should run on the Source VM or the Clone VM.

Source: Applications will be installed/uninstalled on the original VM before image creation.

Clone: Applications will be installed/uninstalled on the cloned VM after it is created but before it is Syspreped.

Target VM ⓘ Clone Source

Nerdio Setup

- Resize or Re-Image Hosts

Resize or Re-Image Hosts ⓘ

Are you sure you want to resize/reimage Windows 11 Entra ID?

▶ Run Now
📅 Schedules (1)

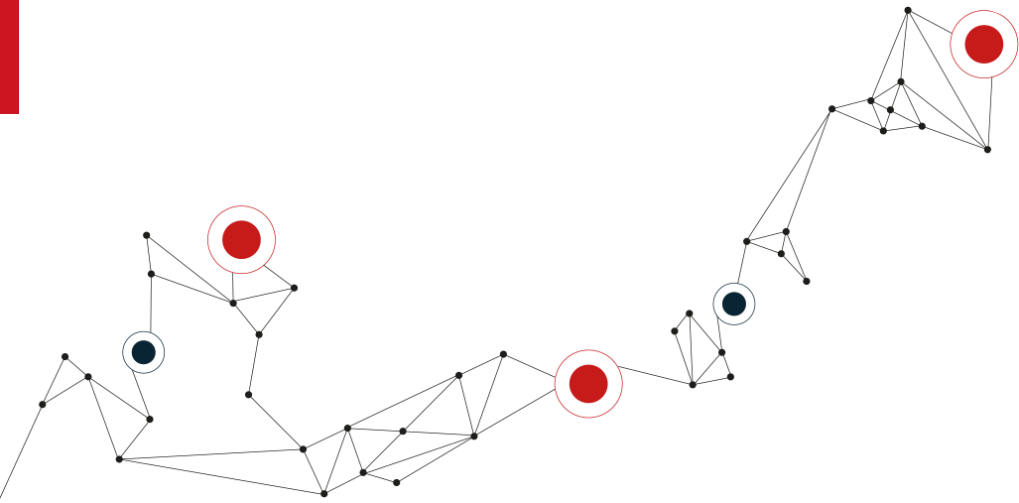
Info

Resize or re-image all hosts in the Host Pool.
 You can change the desktop image, VM size and/or OS disk.
 Changes will apply to all session hosts. The selected parameters will also be set as the default for future hosts that are added.

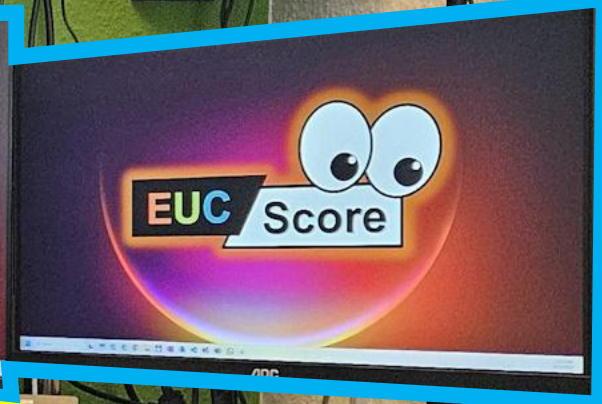
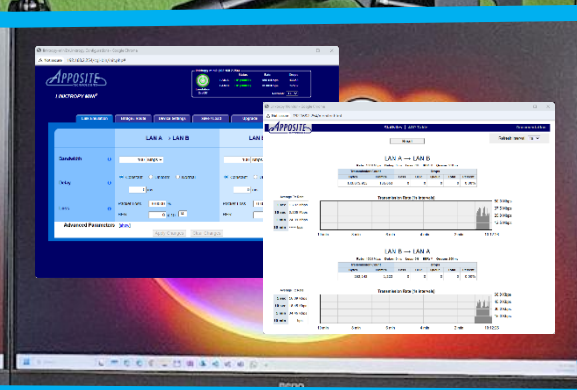
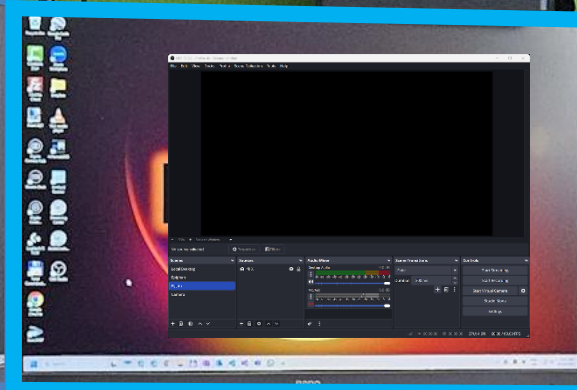
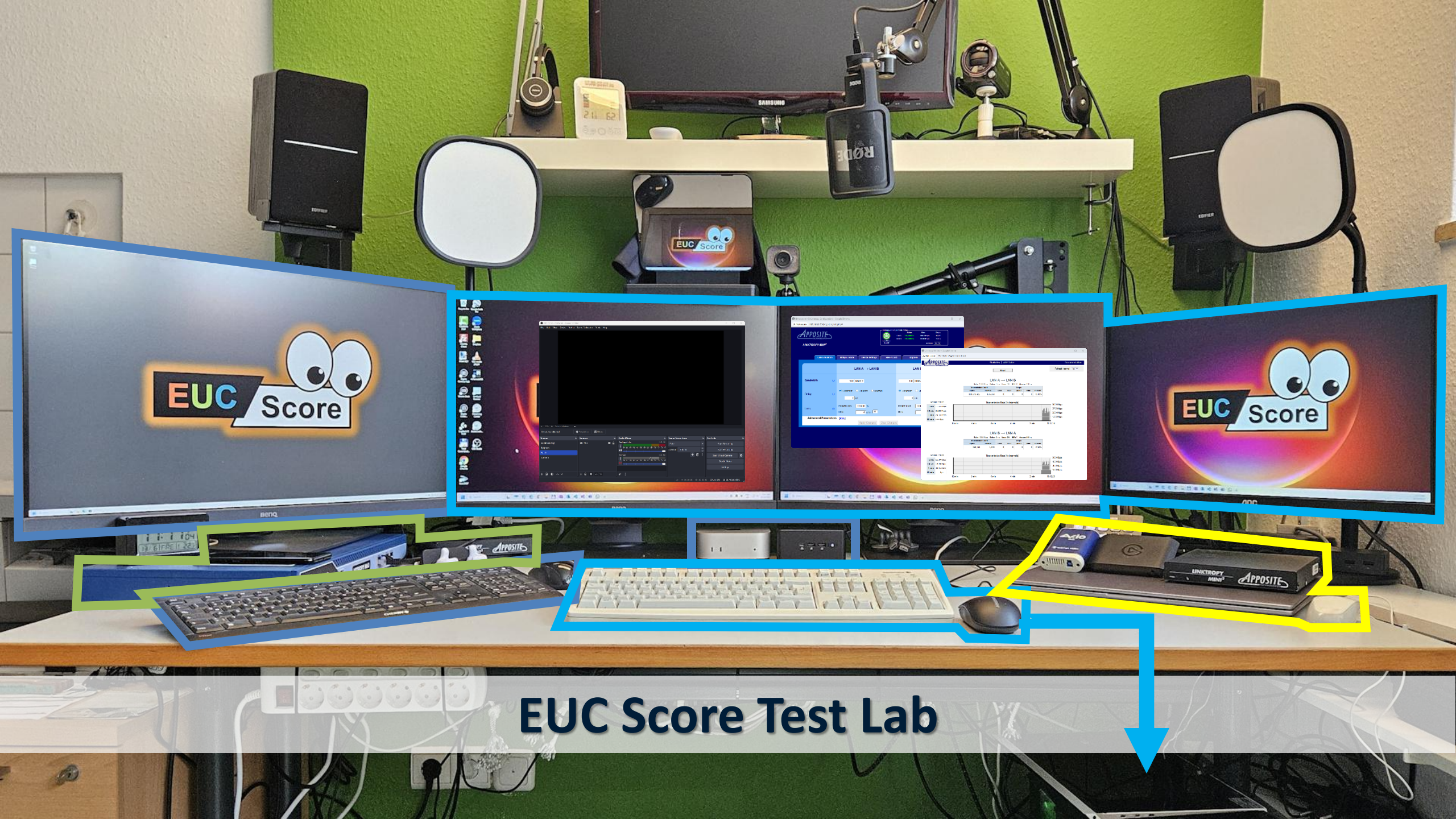
Host pool name Windows 11 Entra ID

Desktop image ⓘ

img-gal-25h2-t5 (Nov 10, 2025 03:56 PM/1.0... ✕ ▼

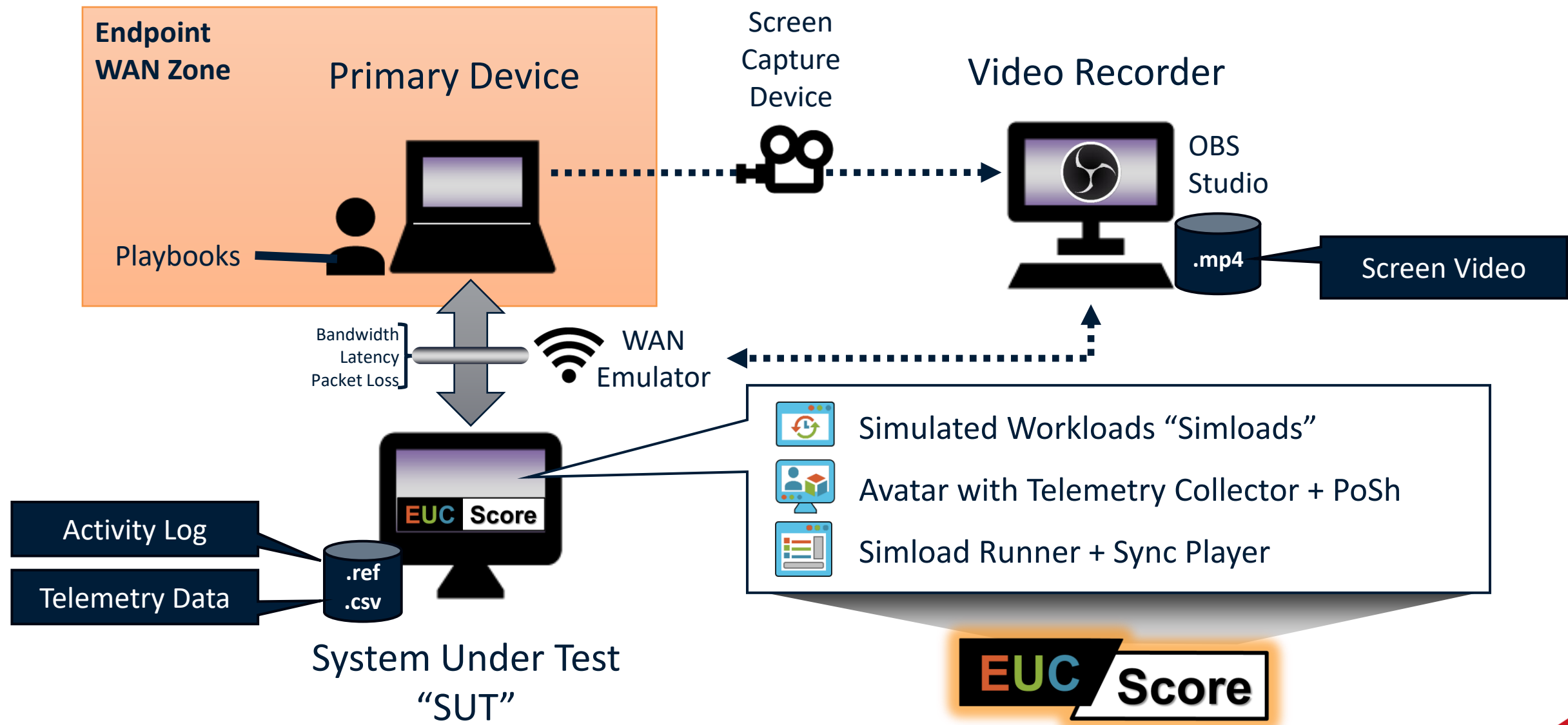


EUC Score Setup

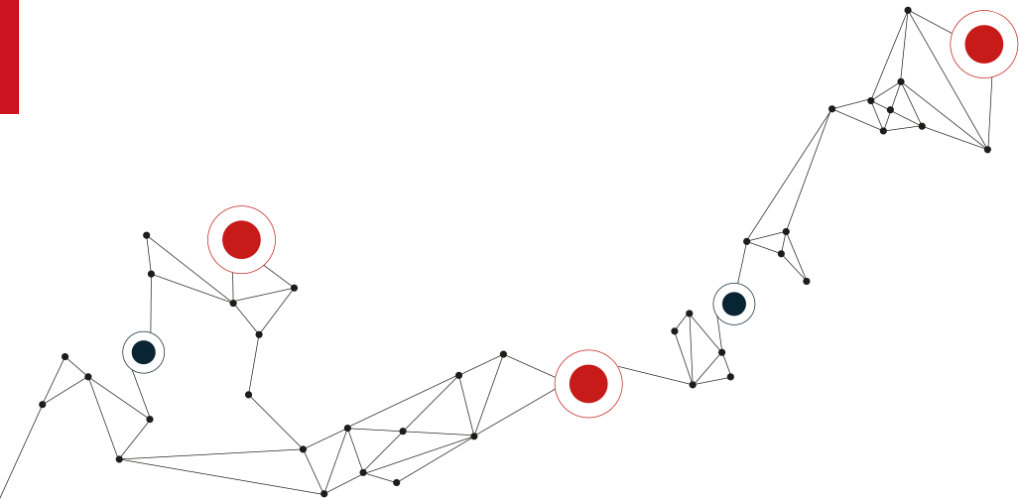


EUC Score Test Lab

EUC Score Enterprise Test Lab



EUC Score




Results

Citrix Optimizer Tool Report

citrix

Template:	Windows 11 version 21H2, 22H2, 23H2, 24H2, 25H2 (2009) from Citrix
Author:	Cloud Software Group, Inc.
Category:	OS Optimizations
Template Version:	1.8
Description:	OS optimizations for Windows 11 version 21H2, 22H2, 23H2, 24H2, 25H2 (2009)

Execution Summary

Result:	 Success! Template has been processed successfully
Mode:	Execute
Success:	143 / 156
Failed:	0 / 156
Skipped:	13 / 156
Engine Version:	2.9
Target Computer:	MZe-UO-0
Target Computer OS:	Microsoft Windows 11 Enterprise multi-session build 2009
Start Time:	2026-04-02 17:37:23
End Time:	2026-04-02 17:38:22

System Under Test:
 Azure West Europe Netherlands, Azure Virtual Desktop, D8ads v7 VM, Windows 11 Enterprise multi-session, AMD EPYC 9V45 8vCPUs @ 2.60GHz, 32GB RAM, 128GB NVME Premium SSD, 1920x1080 Screen Resolution @ 30Hz, Single Monitor Setup

Connection:
 SxS RDP, 100mbps bandwidth, 15ms RTT, 0.0% packet loss

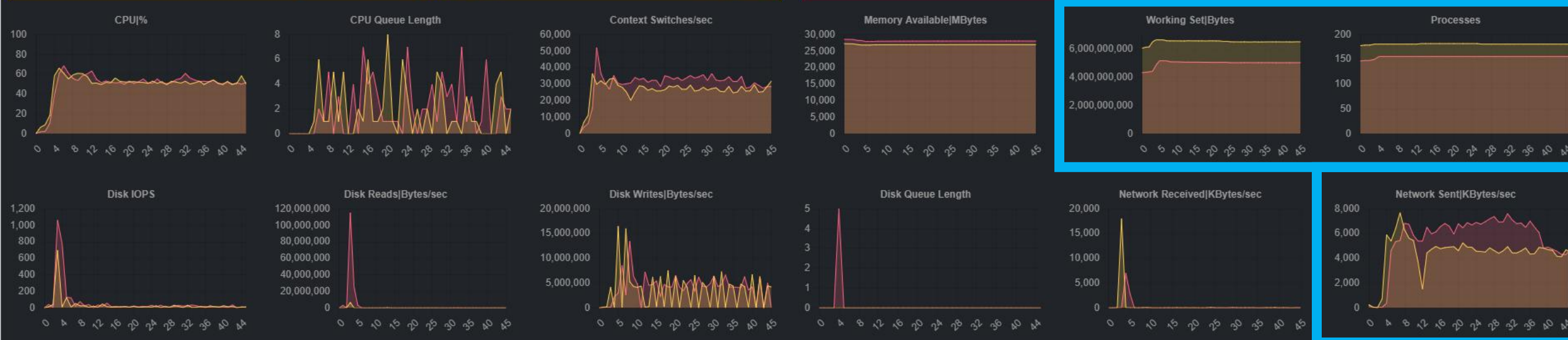
Endpoint:
 ASUS NUC 15 PRO, Windows 11, Intel Core Ultra 7 255H 16Cores @ 2.0GHz, 32GB RAM, Samsung SSD 990 EVO Plus 1TB, Intel Arc 140T GPU, 2GB VRAM, Windows App 2.0

System Under Test:
 Azure West Europe Netherlands, Azure Virtual Desktop, D8ads v7 VM, Windows 11 Enterprise multi-session, AMD EPYC 9V45 8vCPUs @ 2.60GHz, 32GB RAM, 128GB NVME Premium SSD, 1920x1080 Screen Resolution @ 30Hz, Single Monitor Setup, Citrix Optimizer Tool

Connection:
 SxS RDP, 100mbps bandwidth, 15ms RTT, 0.0% packet loss

Endpoint:
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Citrix Optimizer Tool



Horizon Windows OS Optimization Tool



Horizon[®] Windows OS Optimization Tool

Result

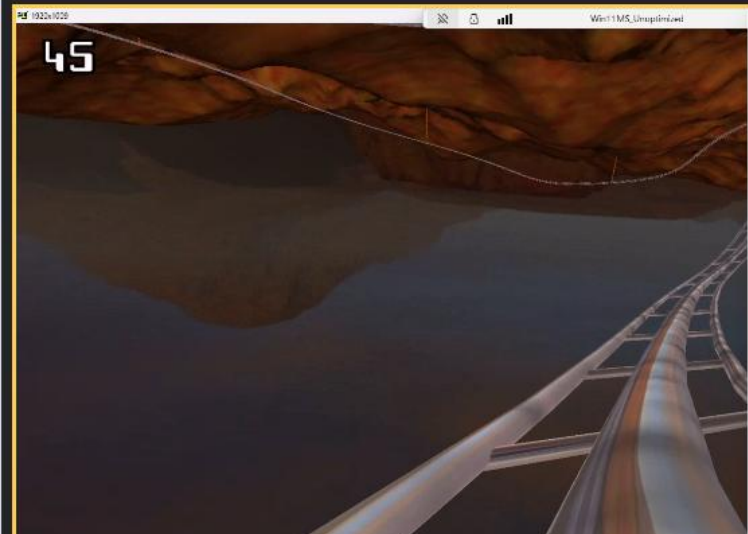
Date: 04/07/2026 10:05:19 **Template:** Default optimization template for Windows 10 (1809-22H2) and Windows 11 (22H2) or Server 2019 and Server 2022

System Information

OS	Microsoft Windows 11 Enterprise multi-session	System Name	MZe-UO-0
Version	(26200.8117)	User Name	localadmin
Processor	AMD EPYC 9V45 96-Core Processor	Windows Directory	C:\Windows
System Type	64-bit	Physical Memory	31.99 GB
Windows Locale	United States	Display Controller	Current Display Controller Configuration
Display Adapter RAM	N.A	Network Adapter	Microsoft Hyper-V Network Adapter

Step Details:

Result		Optimizations	Description
▼ SmartScreen			
SUCCESS	⚠	Disable SmartScreen Filter for Store Apps - User Registry	Disable SmartScreen Filter for Store Apps - changed to selected
SUCCESS	⚠	Disable SmartScreen - Machine Policy	Disable Windows SmartScreen
SUCCESS	⚠	Prevent managing Edge SmartScreen Filter - HKLM Registry	If the user is not prompted to turn on SmartScreen Filter. All website addresses that are not on the filter's allow list are sent automatically to Microsoft without prompting the user.



System Under Test:
 Azure West Europe Netherlands, Azure Virtual Desktop, D8ads v7 VM, Windows 11 Enterprise multi-session, AMD EPYC 9V45 8vCPUs @ 2.60GHz, 32GB RAM, 128GB NVME Premium SSD, 1920x1080 Screen Resolution @ 30Hz, Single Monitor Setup

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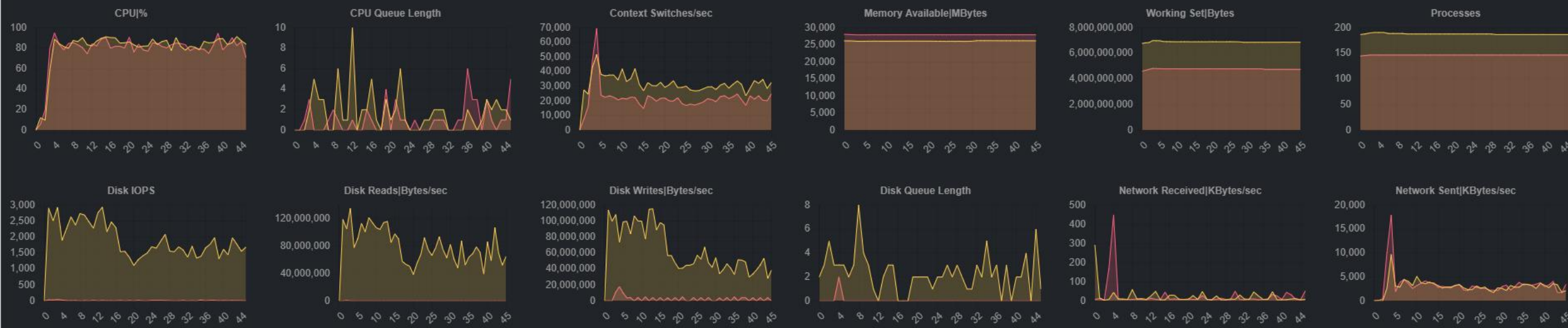
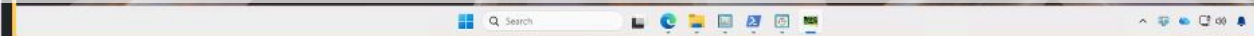


System Under Test:
 Azure West Europe Netherlands, Azure Virtual Desktop, D8ads v7 VM, Windows 11 Enterprise multi-session, AMD EPYC 9V45 8vCPUs @ 2.60GHz, 32GB RAM, 128GB NVME Premium SSD, 1920x1080 Screen Resolution @ 30Hz, Single Monitor Setup, Horizon Windows OS Optimization Tool

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Endpoint:
 ASUS NUC 15 PRO, Windows 11, Intel Core Ultra 7 255H 16Cores @ 2.0GHz, 32GB RAM, Samsung SSD 990 EVO Plus 1TB, Intel Arc 140T GPU, 2GB VRAM, Windows App 2.0

Horizon Windows OS Optimization Tool



Windows Virtual Desktop Optimization Tool

```
TimeCreated      : 4/7/2026 5:32:43 PM
Id               : 1
LevelDisplayName : Information
ProviderName    : WDOT
Message         : WDOT Total Run Time: 0 Hours 1 Minutes 13 Seconds

TimeCreated      : 4/7/2026 5:32:43 PM
Id               : 90
LevelDisplayName : Information
ProviderName    : DiskCleanup
Message         : Clearing BranchCache cache

TimeCreated      : 4/7/2026 5:32:43 PM
Id               : 90
LevelDisplayName : Information
ProviderName    : DiskCleanup
Message         : Clearing out ALL Recycle Bins

TimeCreated      : 4/7/2026 5:32:43 PM
Id               : 90
LevelDisplayName : Information
ProviderName    : DiskCleanup
Message         : Removing files not in use in C:\Users\LOCALA~1\AppData\Local\Temp directory

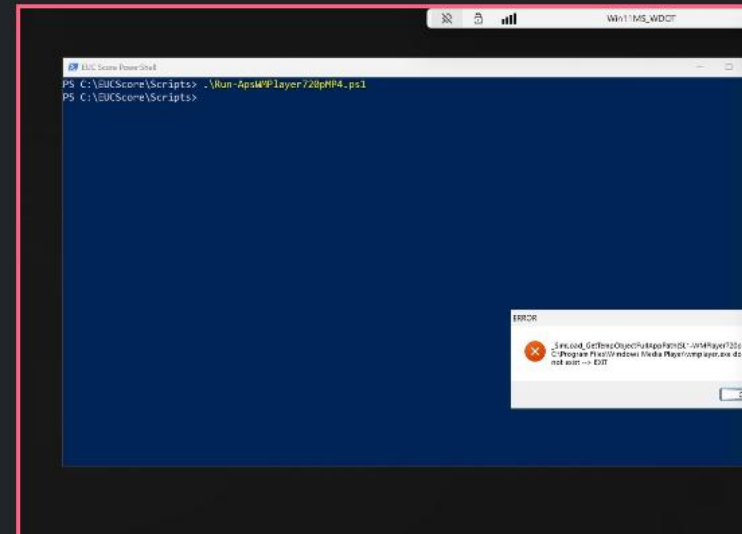
TimeCreated      : 4/7/2026 5:32:43 PM
Id               : 90
LevelDisplayName : Information
ProviderName    : DiskCleanup
Message         : Cleaning up WER report archive
```



System Under Test:
 Azure West Europe Netherlands, Azure Virtual Desktop, D8ads v7 VM, Windows 11 Enterprise multi-session, AMD EPYC 9V45 8vCPUs @ 2.60GHz, 32GB RAM, 128GB NVME Premium SSD, 1920x1080 Screen Resolution @ 30Hz, Single Monitor Setup

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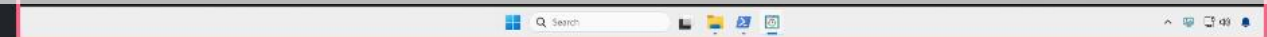
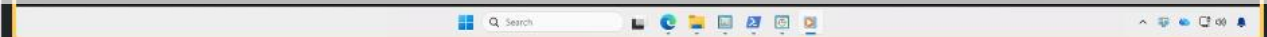


System Under Test:
 Azure West Europe Netherlands, Azure Virtual Desktop, D8ads v7 VM, Windows 11 Enterprise multi-session, AMD EPYC 9V45 8vCPUs @ 2.60GHz, 32GB RAM, 128GB NVME Premium SSD, 1920x1080 Screen Resolution @ 30Hz, Single Monitor Setup, Windows Desktop Optimization Tool

Connection:
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Endpoint:
 ASUS NUC 15 PRO, Windows 11, Intel Core Ultra 7 255H 16Cores @ 2.0GHz, 32GB RAM, Samsung SSD 990 EVO Plus 1TB, Intel Arc 140T GPU, 2GB VRAM, Windows App 2.0

Windows Virtual Desktop Optimization Tool



Optimizer Settings Summary

Category	All 3 Tools (65 total)	2 Tools (95 total)	Unique (190 total)
Services	DiagTrack, WerSvc, WSearch, Themes	OSOT+Citrix: DPS, fdPHost OSOT+VDOT: RetailDemo Citrix+VDOT: AJRouter	OSOT: 25 (OneDriveSync) Citrix: 10 (BTAGSvc) VDOT: 5 (Xbox services)
Tasks	Compat.Appraiser, QueueReporting, WinSAT	OSOT+Citrix: ServerManager OSOT+VDOT: SpeechModelDownload Citrix+VDOT: StartComponentCleanup	OSOT: 35 (UpdateOrchestrator) Citrix: 10 (MapsToastTask) VDOT: 5 (XblGameSave)
Registry/ UI	Telemetry keys, MinAnimate=0	OSOT+VDOT: NoToastAppNotif OSOT+Citrix: Solid wallpaper Citrix+VDOT: NGEN optimization	OSOT: 70 (Edge policies) Citrix: 5 (SAN policy) VDOT: 25 (OOBE tweaks)



Summary

- All optimizers were installed on separate VMs via Nerdio and each compared with an out-of-box (OOB) reference VM without optimization
- Optimizers tested
 - **Windows OS Optimization Tool for Horizon 2512**: Improved working set and reduced number of processes, but same perceived user experience as OOB
 - **Citrix Optimizer Tool v3.5.0.13**: Improved working set and reduced number of processes, but same perceived user experience as OOB
 - **Microsoft Virtual Desktop Optimization Tool (2026-04-04)**: Aggressive removal of some system tools, slightly improved system metrics, but same perceived user experience as OOB
- With optimizers on single-user VMs, no changes—or only minimal changes—are observed in the perceived user experience
- However, the optimized systems have more free resources that can benefit demanding applications - fewer background services and scheduled tasks, resulting in reduced CPU, RAM, disk I/O consumption, and process numbers

Call to Action

If you want to learn more about EUC
Score, send me an email

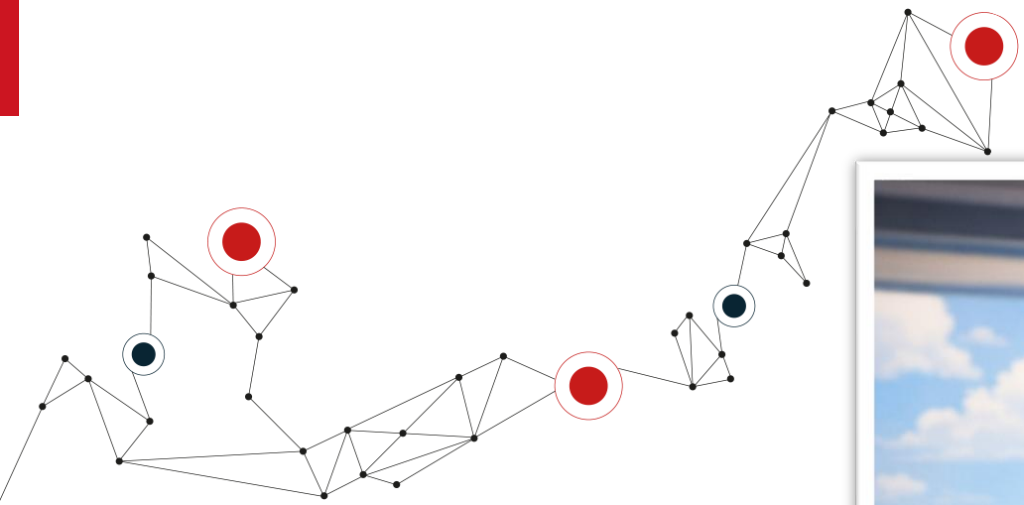
info@eucscore.com



<https://eucscore.com>

NOTE: The EUC Score toolset is free for
community benchmarking tests when the results
are made freely available to the public





Questions?



<https://eucscore.com>



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<https://eucscore.com/freeware>



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- Test Results (Sync Player): <https://eucscore.com/results>
- Terminology (Glossary): <https://eucscore.com/terminology.html>
- Lab Equipment: <https://eucscore.com/equipment.html>