



## **Azure Stack HCI & Azure Virtual Desktop:**

What it is, Benefits, Use  
Cases, and More

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## Introduction

In this white paper, we are going to explain the foundational concepts of Azure Stack HCI, what it is used for, its benefits, use cases, and finally how Nerdio manages Azure Virtual Desktop (AVD) for Azure Stack HCI.

Azure Stack HCI is two different technologies coming together:

- Azure – Microsoft’s cloud platform for centralized management, monitoring, and deployment of workloads;
- Hyper-Converged Infrastructure (HCI) – a solution that combines software-defined compute, storage, and networking with hardware.

## What is Azure Stack HCI?

Microsoft explains Azure Stack HCI as a solution that “allows you to deploy Windows and Linux-based virtualized and containerized workloads on a hyper-converged infrastructure (HCI) cluster in your own datacenter, or in a data center managed by a service provider.” It allows customers to extend Azure into their on-premises environment and manage it via the Azure Portal by leveraging Azure Arc.

Azure Stack HCI enables customers to have dedicated compute and storage in their own data center. This allows them to create private clouds, virtualize workloads, and run modern, cloud-native applications on-premises. You can use Azure Stack HCI to support diverse workloads, including AVD, backup and disaster recovery, databases, big data analytics, Kubernetes, and edge computing. Many organizations utilize it to retain certain data and workloads on-premises, ensuring compliance, security, or performance requirements are met.

## Azure Stack vs. Azure Stack HCI: How They Differ

Azure Stack is a hybrid cloud platform that allows organizations to deploy Azure services on-premises. It provides consistent development and management experience across Azure and on-premises environments.

Azure Stack HCI optimizes virtualized workloads and utilizes the Windows Server 2019 operating system. It incorporates software-defined computer, storage, and networking technologies. This solution caters to customers desiring on-premises virtualized workloads while leveraging the ease and flexibility of the Azure ecosystem.

The main differences between Azure Stack and Azure Stack HCI are their intended use cases and the services they provide. Azure Stack is designed for hybrid cloud scenarios, allowing customers to run Azure services on-premises and in the cloud, while Azure Stack HCI is optimized for virtualized workloads and provides a hyper-converged infrastructure solution for on-premises data centers.

## What is Azure Stack HCI Used For?

In the context of this post, the main feature Azure Stack HCI enables is running AVD session hosts on-premises. By running AVD on Azure Stack HCI, end-users get the same desktops and resources they are used to, but with the increased performance that Azure Stack HCI brings by having dedicated computing, storage, and networking in their own data center. Additionally, the AVD desktops are located in data centers close to users and their data. Further, some organizations have mandatory requirements to store that locally and not in the public cloud. Finally, it also brings low-latency connections to their AVD desktops.

## Benefits of Azure Stack HCI

Azure Stack HCI improves performance when there is high latency connectivity to Azure, and compliance by running AVD session hosts on Azure Stack HCI hardware located on-premises. This provides end-users with a low latency connection and fast access to data. New take:

1. Azure Stack HCI offers several benefits that enhance performance and compliance, particularly in scenarios with high latency connectivity to Azure. Here are the key benefits:
2. Improved performance by deploying AVD session host on Azure Stack HCI hardware that is located on-premises, reducing the network latency, and allowing for faster access to applications and data.
3. Compliance and data residency can be strictly enforced with Azure Stack HCI as organizational data remains on-prem.
4. Hybrid cloud flexibility: Azure Stack HCI allows organizations to use Azure services with workloads that run on-prem.
5. Cost optimization with Windows 10 and 11 multi-session running on-prem.

## Use Cases for Azure Stack HCI with AVD

Below are the key benefits an enterprise receives when using AVD for Azure Stack HCI:

A. **Hybrid Cloud:** AVD for Azure Stack HCI can be used to deploy a hybrid cloud infrastructure where customers can leverage their existing on-premises infrastructure to host virtual desktops and applications and integrate with Azure for identity and access management, backup and disaster recovery, and other services.

B. **High-Performance Virtual Desktops:** AVD for Azure Stack HCI can provide high-performance virtual desktops for power users and designers who need access to demanding workloads such as video editing, 3D rendering, and other graphically intensive applications.

C. **Regulatory Compliance:** Some organizations, such as those in the healthcare or financial sectors, have strict regulations around data residency and privacy. AVD for Azure Stack HCI can provide a secure and compliant virtual desktop infrastructure that meets these requirements.

D. **Remote work:** AVD for Azure Stack HCI can provide a flexible and secure remote work environment for employees who need to work from home or other remote locations.

Overall, Azure Stack HCI with AVD provides a versatile and scalable solution for deploying and managing virtual desktops and applications on-premises or in a hybrid cloud environment.

## Considerations of Azure Stack HCI

As with any solution, there are also scenarios when it shouldn't be used:

**A. Limited Scalability Within a Cluster:** An Azure Stack HCI cluster can support a maximum of 16 servers. This is sufficient for small-to-medium-sized organizations. For larger deployments that require more than 16 servers, you can deploy multiple clusters.

**B. Management Overhead:** While Azure Stack HCI simplifies some aspects of deploying and managing virtualized environments, it can still be a complex system to set up and maintain. This can require specialized expertise and additional resources. However, it's familiar for Hyper-V and server admins, allowing them to leverage existing virtualization and storage concepts and skills. Plus, it works with existing data center processes and tools such as Microsoft System Center, Active Director, Group Policy, and PowerShell scripting.

**C. Additional Cost:** Azure Stack HCI requires you to purchase Azure Stack HCI and server hardware, while you don't have to worry about that with Azure. However, Azure Stack HCI utilizes industry-standard hardware (not proprietary) so you can choose the vendor that best meets your needs. Microsoft has a [full list of over 550 Microsoft-validated solutions](#). For example, our partner DataON has over 110 validated Integrated Systems and validated nodes in the Azure Stack HCI Catalog.

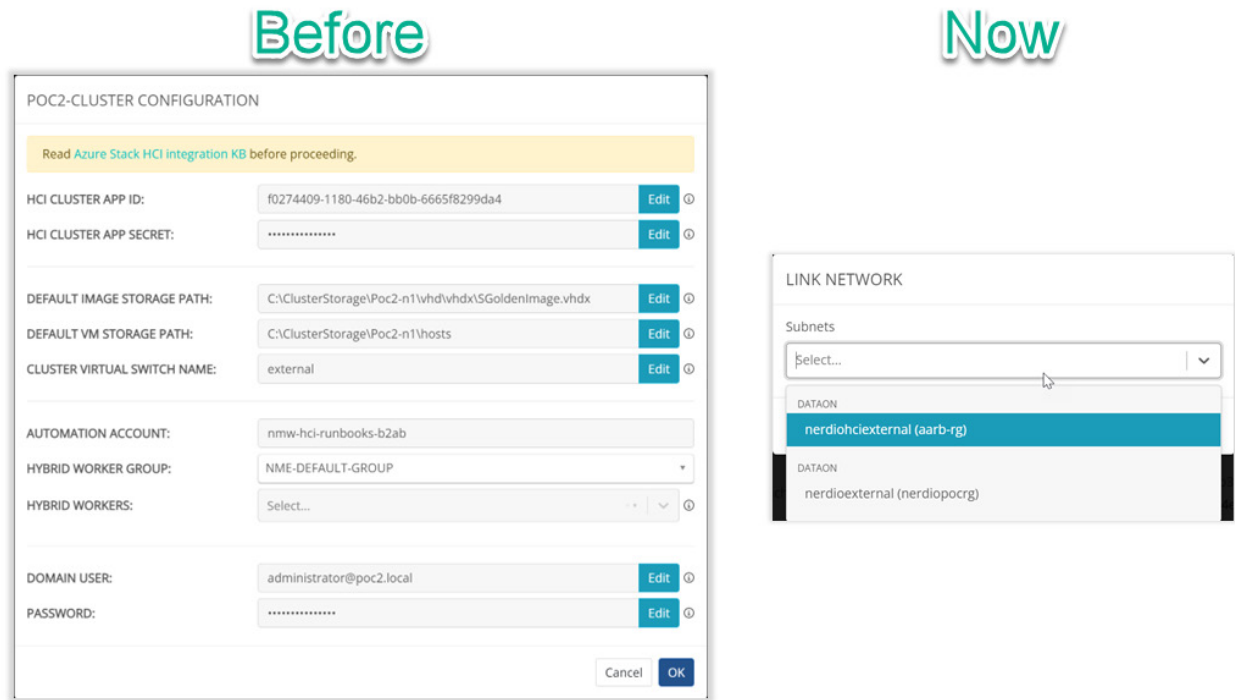
**D. Limited Support:** Azure Stack HCI is a relatively new technology, and there may be limited support options available compared to more established virtualization solutions.

**E. Dependency on Azure:** While Azure Stack HCI can operate as a standalone solution, it is tightly integrated with Azure services and requires a connection to Azure for certain features. This can limit its use cases in environments where a connection to Azure is not feasible or desirable.

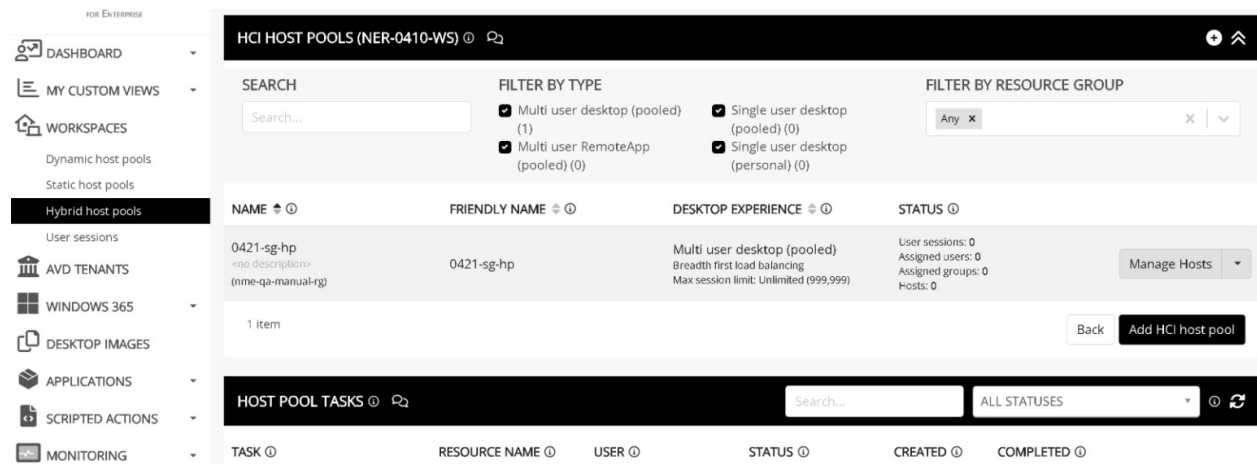
## How Nerdio Helps with Managing AVD on Azure Stack HCI

Nerdio simplifies the management of AVD in Azure and on Azure Stack HCI.

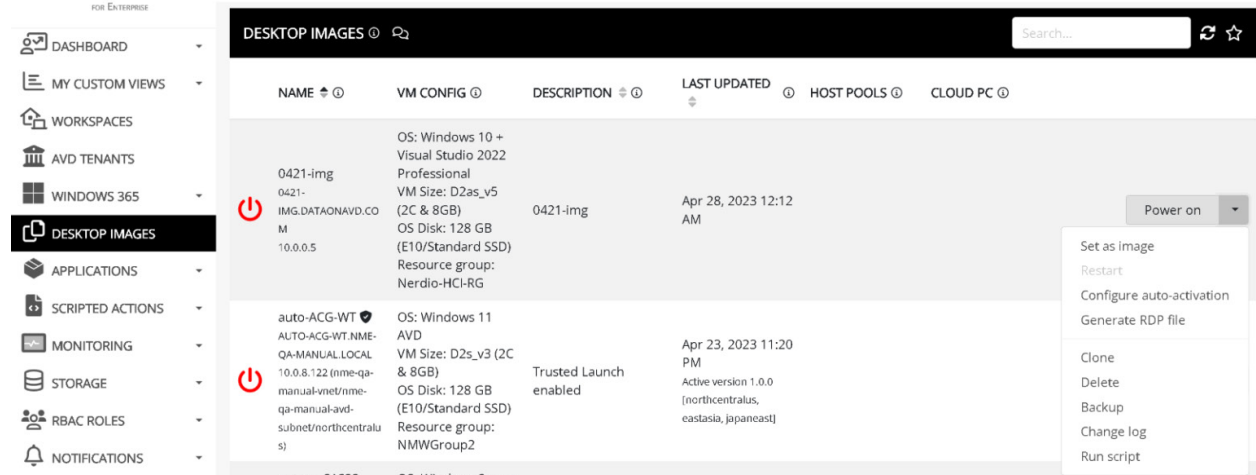
In previous versions, Nerdio Manager supported AVD on Azure Stack HCI with Hybrid Workers. Microsoft has since rolled out a new option using Resource Bridge. With Resource Bridge linking your Azure Stack HCI cluster to Nerdio Manager has been simplified.



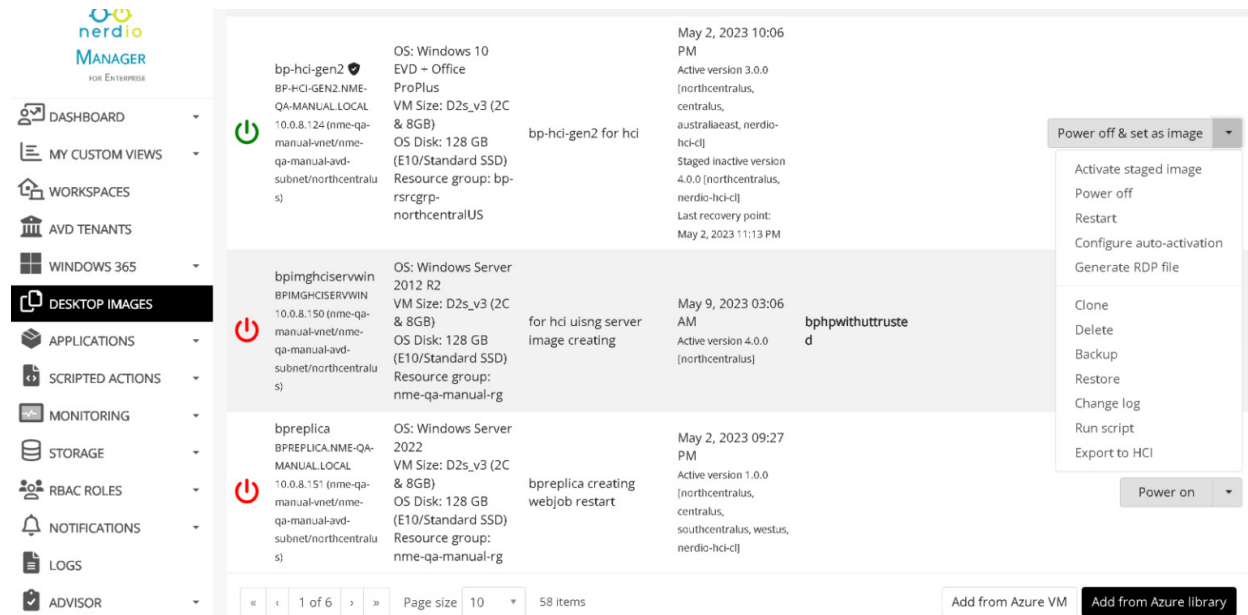
Nerdio allows IT administrators to manage host pools in Azure and Azure Stack HCI from one management portal.



IT administrators can use Nerdio Manager to create, manage, and update images. The process remains the same regardless of where the host pools are going to be hosted. The only difference comes from the extra time needed to “push” the image to Azure Stack HCI.



Both Azure Image Gallery and Azure VMs can be used as sources of the image.



## Key Takeaways

This article covered Azure Stack HCI and how it differs from Azure Stack. It explores the use of Azure Stack HCI, its benefits, and use cases, which include hybrid cloud deployment, high-performance virtual desktops, regulatory compliance, and remote work. It highlights some considerations of Azure Stack HCI, including limited scalability, complexity, cost, limited support, and dependency on Azure. Lastly, the article explains how Nerdio Manager simplifies the management of AVD on Azure Stack HCI.

## About Nerdio

Nerdio empowers IT professionals and Managed Service Providers (MSPs) to deploy, manage, and optimize virtual desktops in Microsoft Azure. Nerdio Manager for Enterprise is a packaged Azure application that runs in users' own tenant without compromising security and compliance by allowing third-party vendors access into the IT environment. Nerdio Manager for MSP is an Azure managed application that enables MSPs to automatically provision a complete virtual desktop environment in Azure in under an hour, connect to an existing deployment in minutes, manage all their clients in a single pane of glass admin portal, and optimize their virtual desktop environment with powerful auto-scaling. For more information, visit [www.getnerdio.com](http://www.getnerdio.com).

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