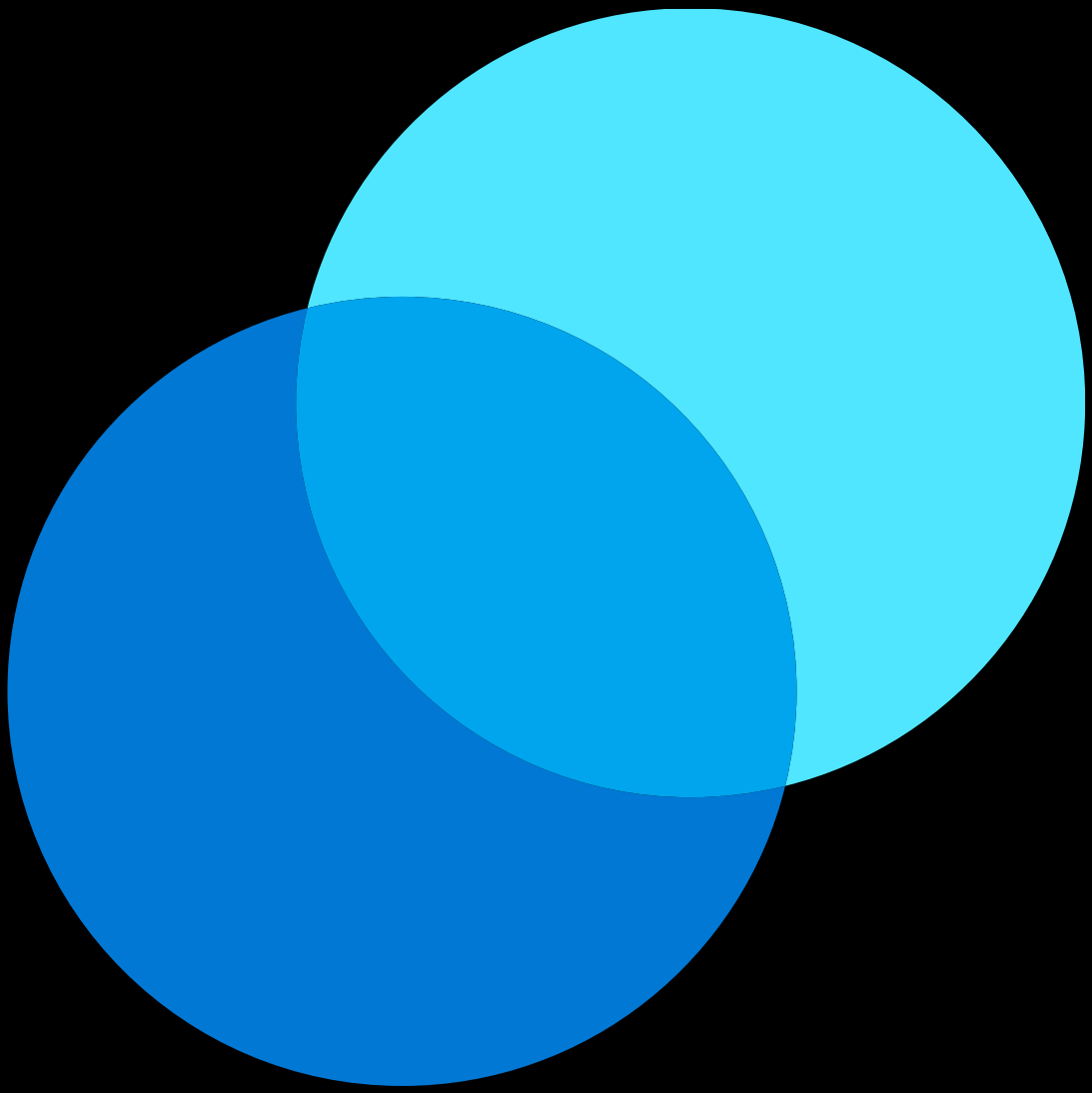
Microsoft Azure

intel

Azure Stack HCI: Hybrid Cloud Essentials



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Introduction

Many businesses are now hosting applications in the public cloud. A cloud hosting strategy brings many benefits, including simpler maintenance and improved scalability. Not surprisingly, the global hyperconverged infrastructure (HCI) market is expected to reach $31.36 billion by 2026.[1]

But cloud hosting isn't necessarily the best option for every business or workload. Yours might be one of the many organizations that continue to host services on local infrastructure. Maybe this helps you keep your operating expenses lower, or you'd like to stick with a hosting strategy that's working just fine.

To support workloads hosted on-premises, businesses are increasingly embracing HCI because it helps improve performance while reducing datacenter complexity. HCI is a software-defined, unified system that combines all the disparate and siloed elements of a traditional datacenter: secure storage, compute, network, and management. This integrated solution runs on off-the-shelf x86 servers to replace expensive, purpose-built hardware. With Azure Stack HCI, you can decrease complexity and increase scalability and performance.

Hosting workloads on-premises with Azure Stack HCI enables you to:

- Decrease datacenter complexity.
- Increase scalability.
- Lower your costs.
- Improve performance and availability.
- Simplify operations.

This e-book provides an overview of the Azure Stack HCI host platform and describes how it can help you operate your hybrid cloud seamlessly.

[1] IDC Converged Infrastructure Tracker, Q1'20

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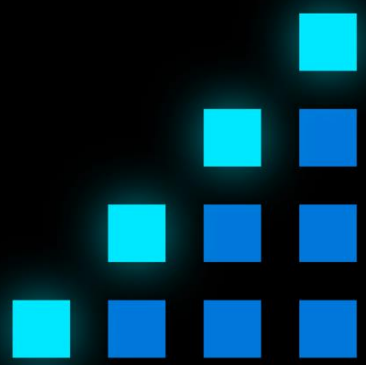
Azure Stack HCI: Ideal for datacenter modernization



Azure Stack HCI offers an unmatched combination of performance, scalability, convenience, and simplicity.

Hybrid by design

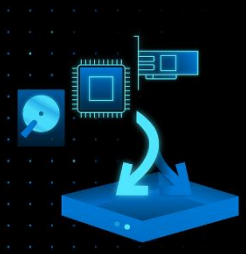
Host locally with the benefits of Azure and always-up-to-date HCI delivered as a service.

Enterprise scale, affordable price

Reduce datacenter complexity and total cost of ownership through HCI technology.

Simplified operations

Simplify management and operate hybrid infrastructure seamlessly with built-in Azure capabilities and integration tools including Windows Admin Center and Azure Arc.



Flexible deployment

Deploy with flexibility to meet your hybrid cloud needs with validated hardware solutions.

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Hybrid by design

Host locally with the benefits of Azure and always-up-to-date HCI delivered as a service.

Modernize your datacenter

Azure Stack HCI is built from the ground up to take you to the advanced level of HCI without sacrificing legacy functionality. While Azure Stack HCI optimizes on-premises hardware by improving workload virtualization, it also integrates with key Azure hybrid services.

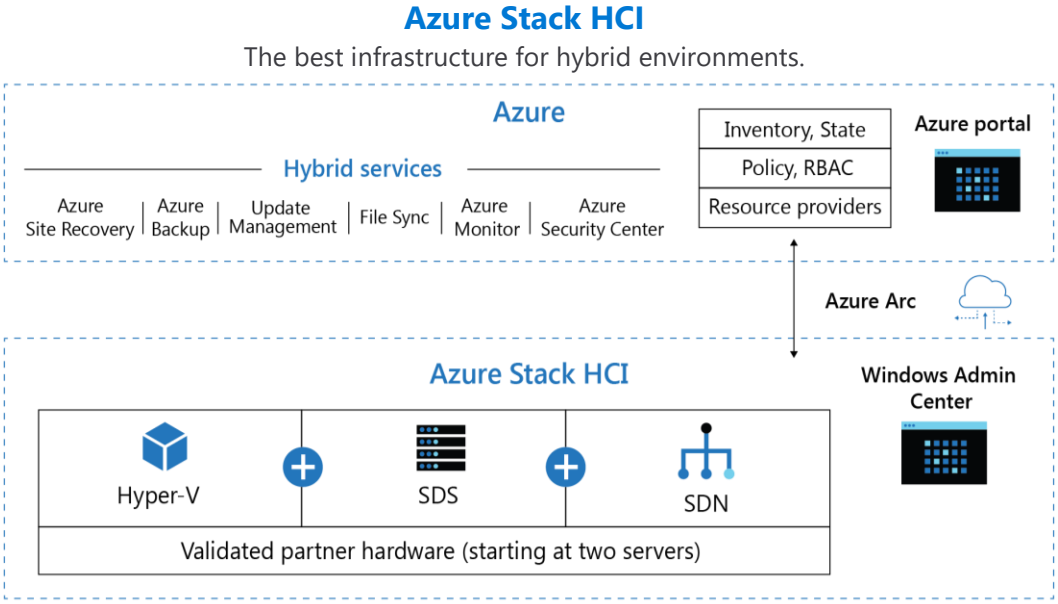

Figure 1. Azure Stack HCI connects to Azure hybrid services through Azure Arc.

Monitor and manage clusters through Azure Arc and Azure Monitor.	Connect to hybrid-specific Azure services.
Get regular updates.	Rest easy with built-in virtual machine security.
Take advantage of native disaster recovery through stretch clustering.	Enjoy simplified remote management with Windows Admin Center, including enhanced telemetry, monitoring, and vendor plug-in support.

Azure Stack HCI is delivered as an Azure service

Azure Stack HCI is included in your existing Azure subscription. It integrates with Azure Resource Manager and the Azure portal through Azure Arc to facilitate resource management at a global level. This also means a single vendor for support and billing.

Save time and resources with regular and consistent feature and security updates.

Access Azure hybrid services such as Azure Security Center, Azure Backup, and Azure site recovery.

Consolidate effort when you apply your existing Azure support plan to Azure Stack HCI.

Simplify invoicing with unified Azure billing.

Azure Stack HCI is a resource in the Azure portal

By exposing all clusters together under the Azure portal, Azure Stack HCI lets you monitor and manage distributed clusters in one place.

Keep everything in one place to reduce complexity.

Use familiar Azure apps to monitor your clusters.

Take advantage of scaling features such as granular auditing and fleet management.

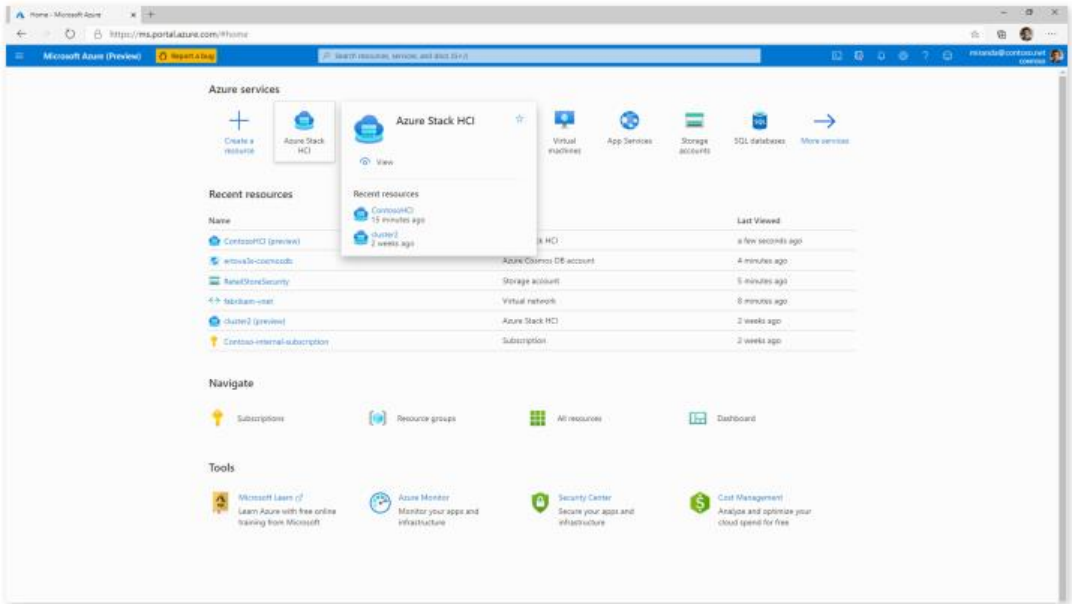

Figure 2. Access Azure Stack HCI and manage your clusters through the Azure portal.

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Enterprise scale, affordable price

Reduce datacenter complexity and total cost of ownership through HCI technology.

Azure Stack HCI has the power and scalability enterprises require, at an attractive price

Azure Stack HCI is built to accommodate everything from a small, 2-node deployment to a 16-node deployment spread across offices and datacenters around the world. It can effectively help you cut costs—from purchasing to maintenance to operations—all while reducing required physical space. Azure Stack HCI is integrated with both Azure and Azure Arc. This enables global monitoring and management as part of your existing subscription—services that would cost more elsewhere.

Cost scales predictably from edge to datacenter

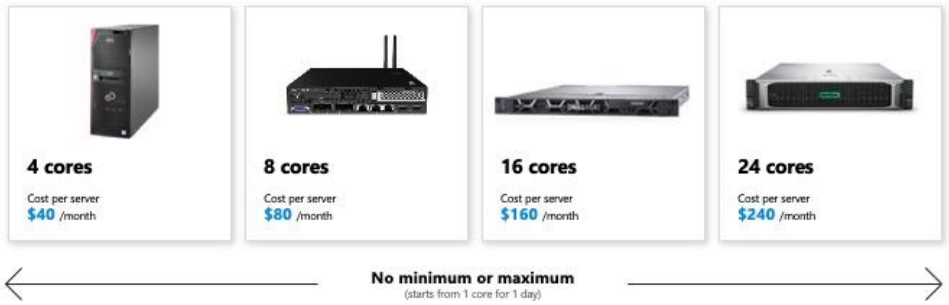

Figure 3. At $10 per core per month, Azure Stack HCI offers affordable pricing for your hybrid cloud workloads.

Simplify both service and support using a sole vendor for the host operating system, the hypervisor, the HCI infrastructure, and often the guest operating system.

Unlock additional functionality without upsells or tiers. The entire stack—compute, storage, and network—are all unified.

Bring more of your compute power to your most remote locations. A reduced physical footprint makes hybrid computing for edge and remote office/branch office (ROBO) scenarios viable.

Optimize functionality and performance at no additional cost as more features and updates are released with Azure Stack HCI's subscription format.

Scale easily with a transparent cost of $10 per core per month.

High value at any scale

With a cost savings of up to 62 percent, Azure Stack HCI offers great price performance. While competitors may require specific hardware solutions, Azure Stack HCI is available on over 150 validated hardware configurations. Additionally, Azure Stack HCI performance scales linearly as more nodes are added.

Take advantage of no-cost extended security updates for Windows Server 2008.

Save costs when you pay per core per month, not per socket.

Simplify with the single-package, standalone Azure Stack HCI host software stack. Competitors will need many products to achieve comparable function.

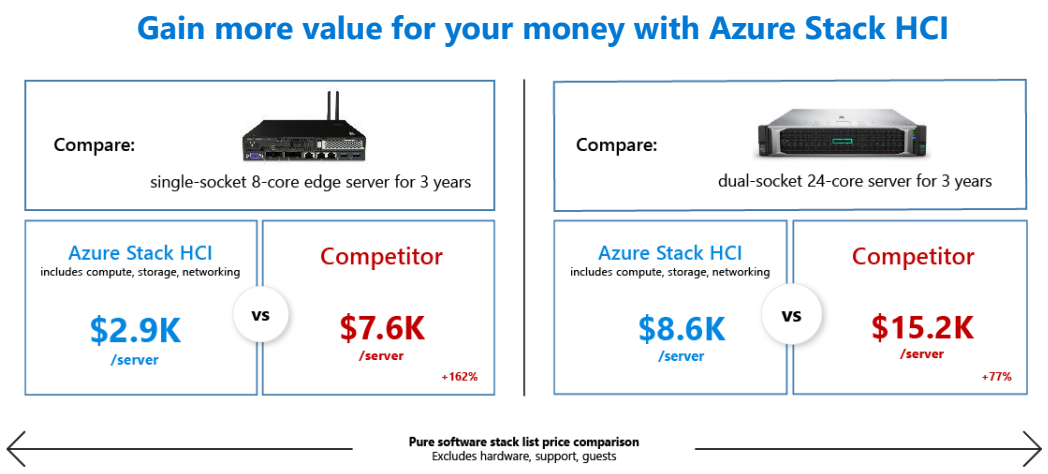

Figure 4. Azure Stack HCI offers up to 62 percent cost savings versus the competition.

Great SQL Server performance

Azure Stack HCI allows SQL Server to run natively (kernel mode) without the need for an agent removing an unnecessary dependency from the process.

Measuring improvement in random 4 kilobit (kB) read input/output

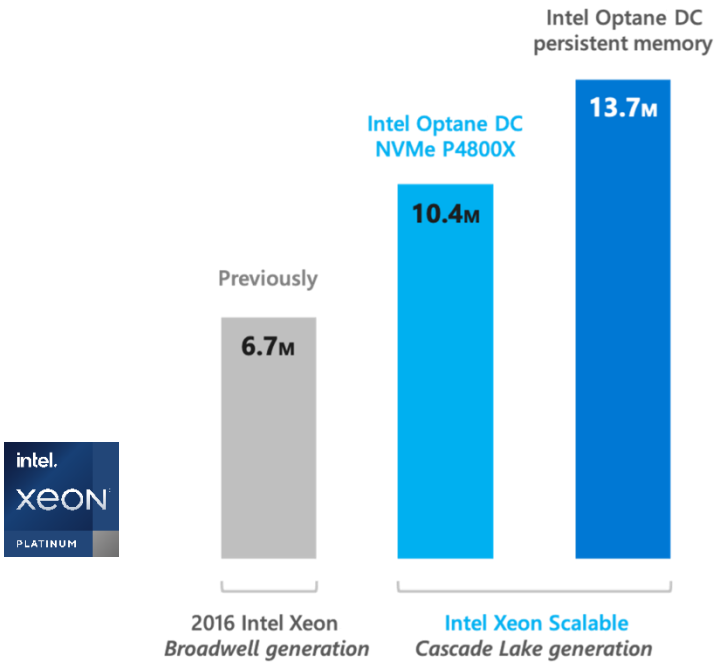

Figure 5. With Intel NVMe and Optane persistent memory, Azure Stack HCI delivers breakthrough performance.

The above graph shows the improvement in random 4kB read input/output that can be achieved using various Intel technologies. These technologies also benefit SQL Server workload performance optimization.

Achieve maximum performance using high-bandwidth solid-state drives.	Attain top performance with NVM Express and Intel Optane persistent memory.	Run SQL Server databases on-premises for low latency and data sovereignty.

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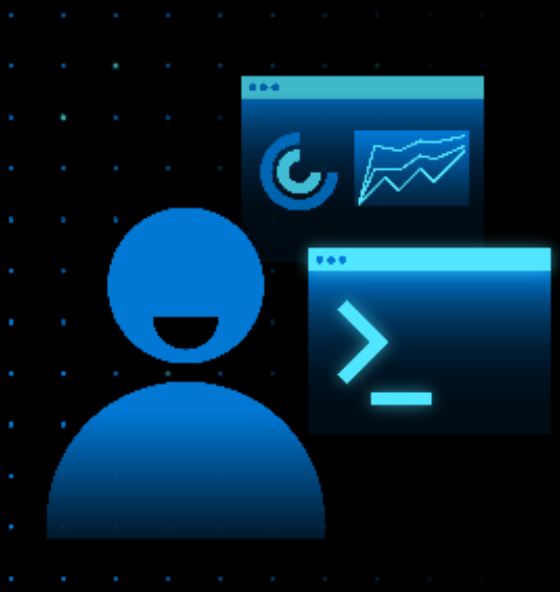
Simplified operations

Simplify management and operate hybrid infrastructure seamlessly with built-in Azure capabilities and integration tools including Windows Admin Center and Azure Arc.



When you modernize datacenters with Azure Stack HCI, you gain the ability to improve scalability and performance, lower your costs, and make your workloads easier to manage and secure. In addition, Azure Stack HCI comes with built-in stretch clustering and a choice of third-party software support. Azure Stack HCI also makes it easier to implement edge and ROBO scenarios.

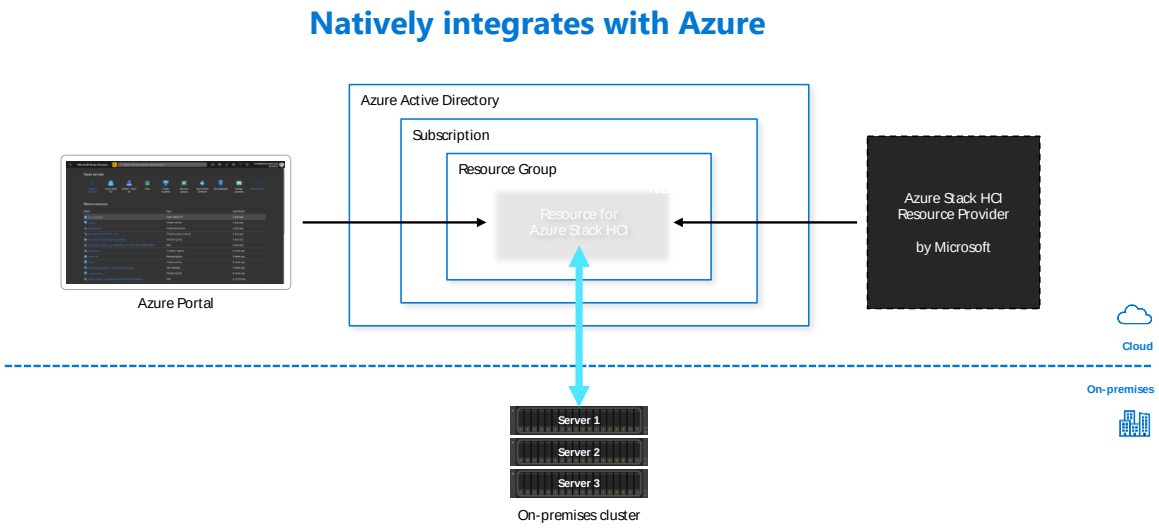


Figure 6. Manage your cloud and on-prem connected clusters from the Azure portal.

Run edge or ROBO scenarios with as few as two nodes.

Use familiar tools and processes for a short learning curve.

Stretch clustering

Stretch clustering provides automatic disaster recovery across datacenters and protects against unplanned outages and malfunctions. In short, Azure Stack HCI delivers a unified, single-software vendor vision.

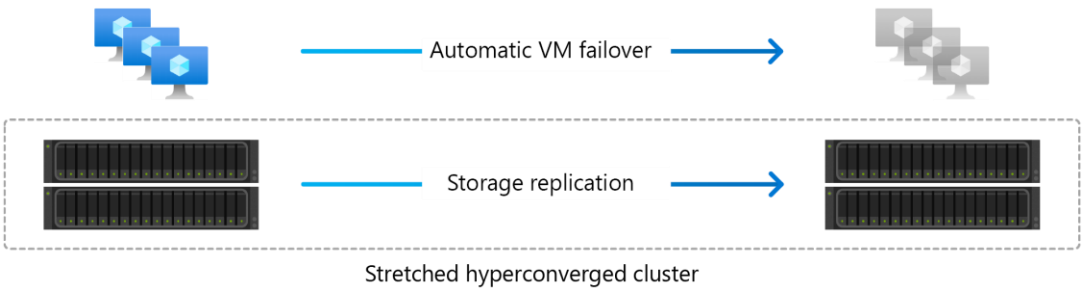


Figure 7. Azure Stack HCI comes built in with stretch clustering so you can protect against unplanned outages and disasters.

Run synchronous replication for immediate backup, or asynchronous for optimized speed.

Use built-in encryption and cluster validation to ensure proper configuration.

Take advantage of native disaster recovery services built in through the stretched cluster capability.

Respond with flexibility from disparate operational sites that can be in different rooms, buildings, or cities.

Simplify HCI management with Windows Admin Center

Windows Admin Center is a locally deployed, browser-based app for managing Windows servers, failover clusters, and Azure Stack HCI, as well as Windows 10 PCs. It comes at no additional cost beyond Windows.

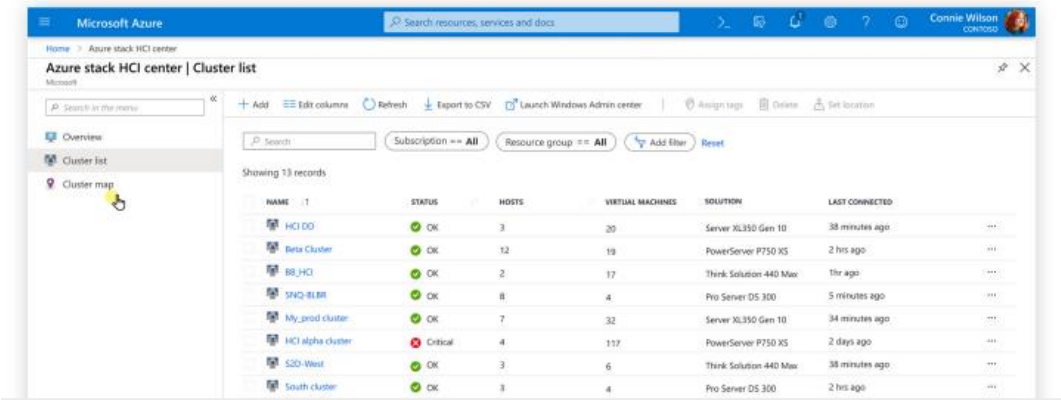


Figure 8. Manage your local operations under a single management layer with Windows Admin Center.

Connect on-premises servers with relevant cloud services through the integrated Windows Admin Center.

Take advantage of software such as Veeam or Commvault. Azure Stack HCI benefits from all Windows Server-supported software packages.

Add functionality to Windows Admin Center with third-party extensions, including disk mapping, historical data reporting, system alerts, call-home service, deployment enhancements, and more.

Get flexible integration with Windows Admin Center and compatibility with third-party management extensions such as DataON, Dell Technologies, Lenovo, Fujitsu, Hewlett Packard Enterprise, and others.

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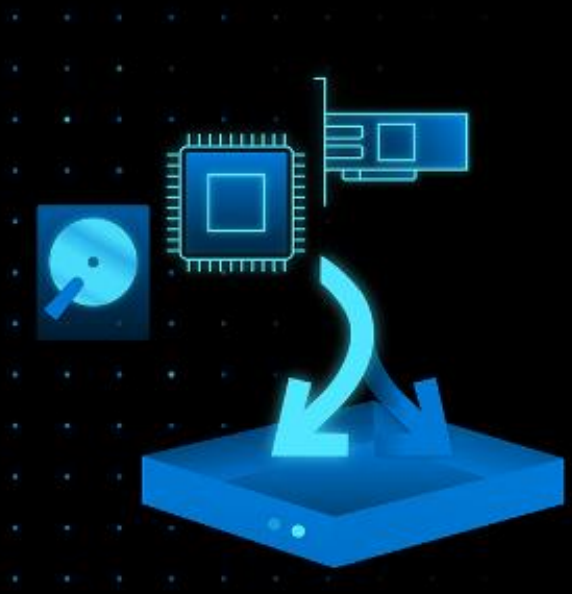
Flexible deployment

Deploy flexibly to meet your hybrid cloud needs with validated hardware solutions.



Azure Stack HCI works on over 150 hardware configurations.

Azure Stack HCI has a diversity of deployment options. If you're looking for minimum cost, you can likely use existing hardware. If you're looking to buy new equipment, you'll have over 150 validated solutions to choose from. You can also customize nearly all the solutions by varying the processor, memory, storage, and network speed.

Get the best performance with integrated system solutions that are pre-wired, pre-racked, and pre-configured.

Support Azure Stack HCI with existing or repurposed hardware that meets Azure Stack HCI-validated node requirements.

Accommodate the needs of your business, whatever the size, with validated node solutions.

Maximize outcomes when you run Azure Stack HCI on new hardware.

A variety of solutions

Many of Microsoft's top device partners, including Intel, Dell Technologies, Fujitsu, Hewlett Packard Enterprise, and Lenovo, can support Azure Stack HCI.

Nodes are available with Intel NVME flash storage and Intel Optane persistent memory for extremely high performance.

With the variety of validated node solutions comes a wide range of cores, from 4 cores for ROBO to 28 cores per socket for large datacenters.

The newest QLC flash NVMe storage offerings provide high-performance large storage when paired with Intel Optane caching tier.

Azure Stack HCI partners

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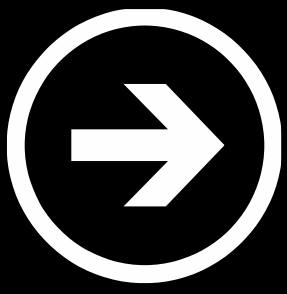
Conclusion

Operate your hybrid cloud seamlessly with Azure Stack HCI

Traditional datacenters require the expense and hassle of updating hardware every few years. Move to the hybrid cloud to save money, simplify operations, and improve performance.

Optimize your Azure Stack HCI experience on a single underlying platform from Intel that provides scalable compute, storage, and networking capabilities with the broad range of Intel Xeon Scalable processors, Intel Optane technologies, and Intel Ethernet 800 Series network adapters.

With Azure Stack HCI, you can easily extend your on-premises management toolset into the cloud through Azure hybrid services for backup, monitoring at scale, and more. Integrating Azure Stack HCI with Azure services means you can modernize your aging server and storage infrastructure, gaining many of the benefits of hybrid solutions. It's an effective solution for organizations needing higher performance, scalability, and flexibility.



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