

Guide to Datacenter Modernization through Azure Stack HCI

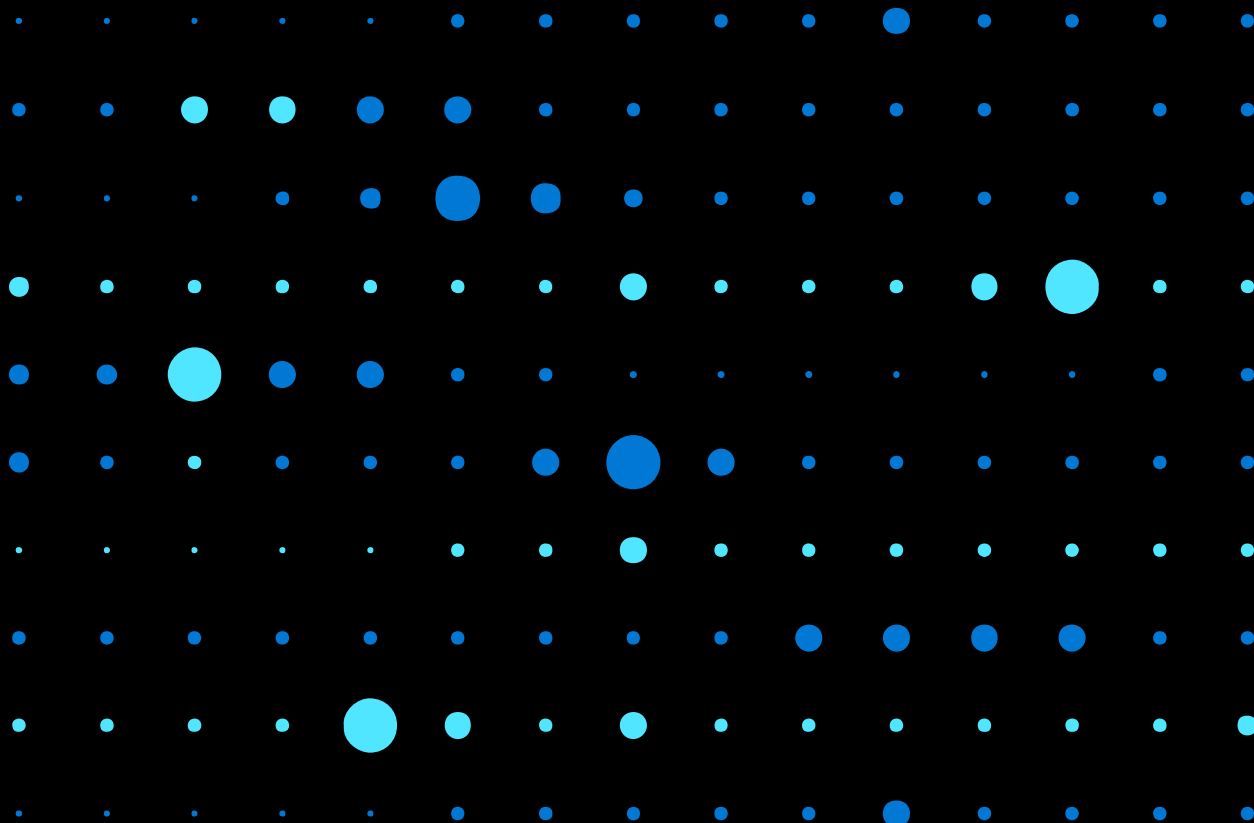


Table of contents

- 01
Introduction.....3

- 02
The power of modernization.....4

- 03
Hybrid cloud and HCI6

- 04
Why Azure Stack HCI?9

- 05
Use cases..... 18

- 06
Price and business model 24

- 07
Getting started 27

- 08
Conclusion..... 28

01

Introduction

Businesses are seeing real benefits from the latest cloud technology, and in turn, migrating more resources and compute power to cloud-based environments. However, not all workloads can live in public clouds. That's why Microsoft and Intel have developed hybrid computing solutions for both on-premises and the cloud.

Introducing Azure Stack HCI: a new hyperconverged infrastructure (HCI) host operating system delivered as an Azure service that provides the latest security, performance, and feature updates.

Azure Stack HCI delivers the technology infrastructure to modernize datacenters, simplify management of on-prem and cloud resources, integrate edge and remote branches into the core infrastructure, and enable better control over users' hardware, scalability, and cloud environment.

As a Hyper-V user, you understand the power and value of top-tier virtualization. Microsoft is committed to giving Hyper-V users the ongoing support and functionality they need to stay on the cutting edge of virtual computing. Azure Stack HCI is the most innovative step forward for Hyper-V and its users.

02

The power of modernization

Hyper-V remains an elite hypervisor—it was not initially designed as a full-service solution for a modern datacenter.

Over the past few years, many things have changed: solid state drives (SSDs) dramatically outperforming hard disk drives, the exponentially increased number of cores and random-access memory required by modern hosting, an increase in remote work, and the advent of cloud, edge, and cluster computing. While Hyper-V has increasingly adapted to these changes, today's needs for a modern computing ecosystem require a more complete solution.

The reality is that many businesses are also leaving legacy systems behind if they haven't done so already. Modernizing older, Hyper-V based systems to Azure Stack HCI can provide an invaluable competitive advantage. Hyper-V remains crucial, but it can become much more powerful with an HCI infrastructure on top of it, powered by Intel® technologies.

There's a cost to waiting too long to modernize. Azure Stack HCI provides greater compute density, reduced carbon footprint, and lower overall costs that can be realized immediately upon migrating. Considering some hardware products have a three-year warranty, which forces regular upgrades or replacements, it makes sense to upgrade to Azure Stack HCI to save on-prem space now, and out-of-pocket upgrade and replacement costs for the foreseeable future.

There are numerous benefits to modernizing older datacenter and implementing a stable, new infrastructure—such as improved nuts-and-bolts functionality, compute power, and time saved thanks to streamlined system management and a unified tool chain. Reduce both cost and complexity while ramping up efficiency, maximizing virtualization, and benefiting from Azure integrations and native disaster recovery.

03

Hybrid cloud and HCI

Hybrid computing combines the best of both worlds

Hybrid computing allows you to connect your on-prem and cloud resources. However, this solution can prove problematic since the resources are still discrete despite being connected. Enabling virtual machines (VMs) to simultaneously live on-prem while still connected to the cloud can impose compute, storage, and networking limitations for the on-prem side of the system. Alternately, upscaling to meet higher demand on the cloud side of the system can likewise become untenably expensive. Often, these limitations necessitate additional products, fixes, or workarounds that can increase cost, complexity, and potential for error.

For example, a hybrid system may suffer from lackluster at-scale management. The best solution is to use Microsoft System Center to manage multiple VMs at a time. If you've already invested in System Center for management, it will work in concert with Azure Stack HCI, and you can further augment that combination with Azure-based hybrid tooling such as Azure Site Recovery and Azure Monitor.

Azure Stack HCI offers valuable scaling features, such as granular auditing and fleet management, while Azure's monitoring and management tools grant you the elusive "single pane of glass" interface (through integration with Azure Arc) to manage everything in one place. Below is an example of improvements that this new offering can handle. Microsoft has optimized previous aspects of the solution to be more efficient on this new hyperconverged host.

Resync duration for Storage Spaces Direct (shorter is better)

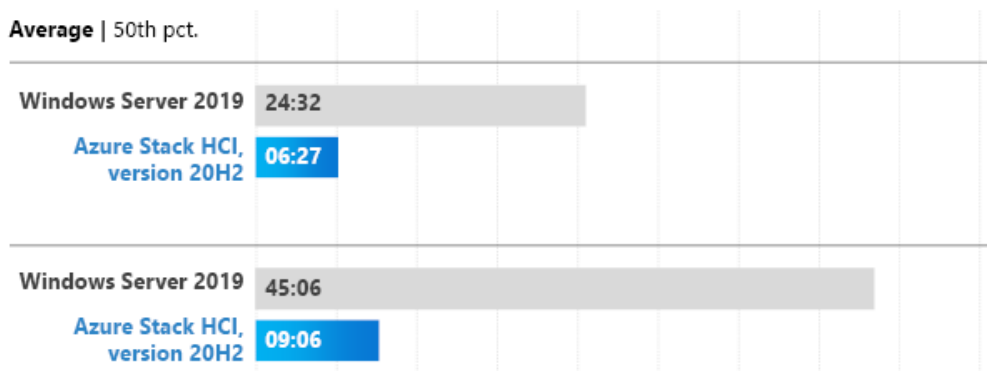


Figure 1. Average results from internal testing, measured by applying a typical monthly OS patch under moderate-intensity input/output across several representative storage access patterns

Hyperconverged infrastructure is the next evolution of hybrid computing

Hyperconvergence is an IT framework that combines virtualized storage, virtualized computing, and networking into a single optimized computing package to reduce datacenter complexity and increase scalability. Hyperconverged platforms include a hypervisor for virtualized computing, software-defined storage (SDS), and software-defined networking (SDN).

With a hyperconverged infrastructure, you benefit from greater simplicity and flexibility than with legacy solutions. The integrated storage systems, servers, and networking fabric are designed to be managed as a single system, across all instances of a hyperconverged infrastructure.

A hyperconverged infrastructure pools all your compute, storage, and network resources in one place, so they can be leveraged by the parts of your system that need them most. It also brings them all together under one management umbrella, so you can control and manage everything—up to and including your edge and remote offices—from one unified interface as depicted in Figure 2. This helps streamline management and shortens the learning curve for new admins by reducing the number of tools they need to master. If you're already a Hyper-V expert, then you're already on your way to becoming an Azure Stack HCI expert as well.

Azure Hybrid: Innovation anywhere with Azure

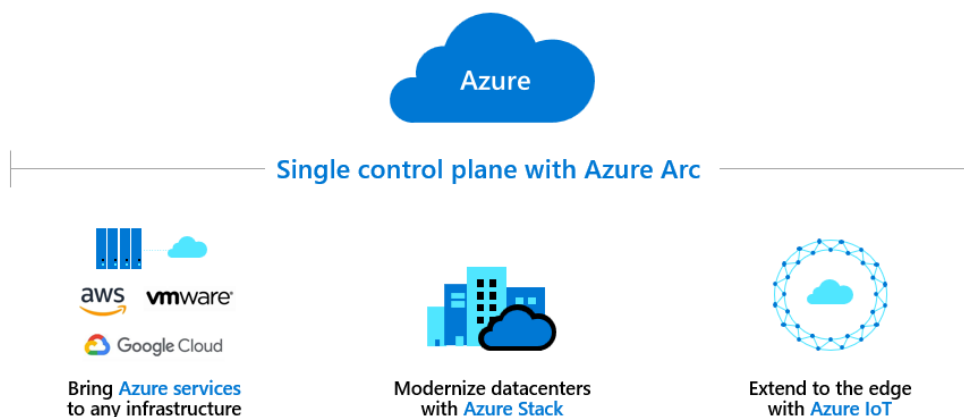


Figure 2. Azure offers unique hybrid capabilities that give you the flexibility to innovate anywhere in your environment

04

Why Azure Stack HCI?

Azure Stack HCI utilizes the virtualization capability of Hyper-V and augments it with the power and versatility of hyperconverged infrastructure technology, giving you familiar tools paired with enhanced performance. It also utilizes the efficiency of an HCI system to reduce your total cost of ownership (TCO) by unifying resource management, leveraging Azure resources, and reducing reliance on expensive legacy on-prem infrastructure such as storage-area network (SAN) hardware.

The diagram below shows that Azure Stack HCI offers great infrastructure as a service with easy-to-use-and-manage capabilities for IT admin daily operations, and integration to Azure through Azure Arc.

Azure Stack HCI: The best infrastructure for hybrid environments

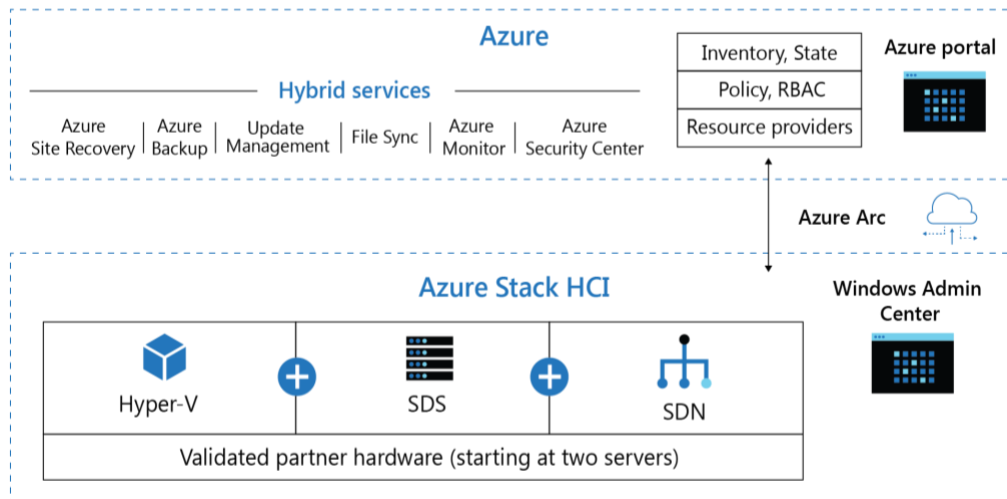


Figure 3. Azure Stack HCI connects to Azure Hybrid services through Azure Arc

Azure hybrid by design

Azure Stack HCI is built to work natively with existing Azure products and integrations such as Azure Arc and Azure Portal. It can also connect to Azure hybrid services like Azure Security Center, Azure Backup, Azure Monitor, and Azure Site Recovery, among others. Your existing Azure Support contract covers Azure Stack HCI through your Azure subscription. This also means that as future Azure Stack HCI capabilities are introduced through Azure, you can immediately utilize them for your on-prem clusters.

Natively integrate with Azure

- Azure Resource Manager (ARM) represents each on-premises Azure Stack HCI cluster.
- Gain visibility into the Azure portal and a foundation for hybrid management.
- No need to fuss with agents or scripts – they're built in.

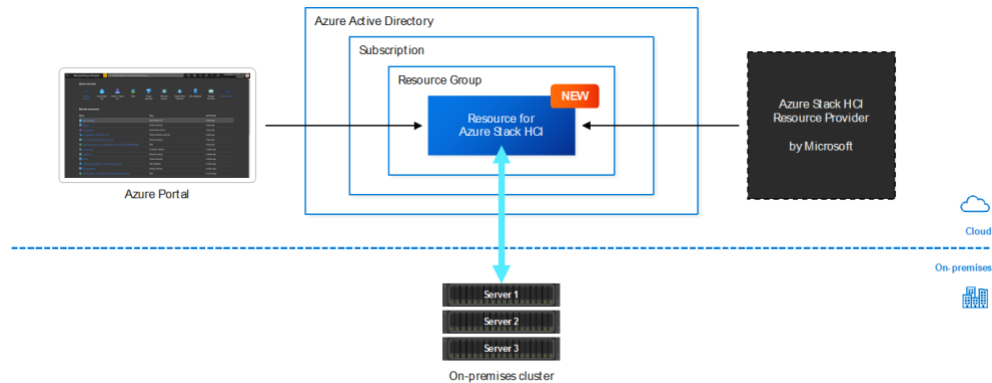


Figure 4. Manage your cloud and on-prem connected clusters from Azure portal

The hybrid design of Azure Stack HCI allows you to monitor and manage your clusters at scale from the Azure portal, enabling you to benefit from fleet management for hosts and VMs. This folds in nicely with your existing Azure workflows, allowing you to control the entire workflow—including apps, databases, VMs, networks, storage, and individual projects—from a single interface. You can also view all of your Azure Stack HCI deployments at once, from New York to Tokyo to Paris and back, so your entire operation is now one unified system.

Hardware partners and solution builders can plug into Windows Admin Center and develop extensions to keep firmware, drivers, and server BIOS up to date and consistent across all cluster nodes. Intel and other Microsoft partners provide a wide variety of solutions, including both validated hardware nodes and pre-racked integrated systems. Customers who purchase an integrated system with Azure Stack HCI already installed can easily upgrade to new capabilities using the new full-stack update feature. Customers who simply purchase validated hardware nodes can easily perform any needed updates separately in accordance with the hardware vendor's recommendations.

Azure Stack HCI as an Azure Service

With Azure Stack HCI, you pay per physical core per month (as opposed to per socket) through your Azure subscription. Use of hyperthreading does not impact license cost. There are no up-front software licensing costs. As a subscription-based model, Azure Stack HCI stays up to date, and you receive new features as they're released.

As an Azure service, customers can see and manage Azure Stack HCI using ARM. Plus, you can extend role-based access control (RBAC) from Azure to your on-premises infrastructure with the help of Azure Arc.

Azure Stack HCI offers a simple support model. Customers using Azure Stack HCI can leverage the Azure support capability that comes with built-in product expertise and a direct-ticket process. This model offers a much simpler, more direct and less expensive support experience than is available for competitive solutions.

As part of the Azure hybrid technologies suite, your HCI as a service benefits from consistent feature and security updates. Customers likewise benefit from the Extended Security Update (ESU) program at no extra cost for workloads currently based on Windows Server 2008/R2. Essentially, you're always up to date, not just with your core Azure Stack HCI service, but with all your native Azure integrations. With activation of the cluster and integration through Azure, you'll benefit from unified Azure billing and be able to leverage Azure support plans.

Converting your system to one unified Azure experience ultimately creates a powerful system that takes less effort to manage, backed by one of the most robust and comprehensive development and support environments in the world.

Enterprise scale

Azure Stack HCI was designed to be a scalable solution: from a simple, two-node system to enterprise-level deployments with 16 nodes running hundreds or thousands of VMs for a single site. You can attain scalability by consolidating your hardware with increased server density and reduced overhead, as Azure can manage many services that once required local resources. By reducing those hardware needs, limiting your on-prem footprint, and virtualizing your system, Azure Stack HCI allows for agile scaling, while reducing your costs per node.

Azure Stack HCI generates savings by eliminating the need for SAN storage, which can be complex, expensive, hard to manage, and limited in scalability. Azure Stack HCI also brings your storage and compute closer together, while reducing the complexity and physical on-prem requirements of a SAN. This equates to significant savings—paying a simple \$10 per core per month—and with Azure Stack HCI, you can manage one intuitive system instead of dozens of complicated ones. Unlike SAN systems, which typically charge for storage capacity by the gibibyte, Azure Stack HCI does not penalize you for adding storage capacity.

The digitization of your datacenter is an element of Azure Stack HCI's wider theme: integrating more and more of your system into the cloud. One facet of this development is the way in which Azure Stack HCI can virtualize your tried-and-true enterprise apps like Exchange, SharePoint, and SQL Server. Another is its capacity to virtualize Windows Server roles like File Server, DNS, DHCP, IIS, and AD. All of this comes while retaining unrestricted access to all of Hyper-V's best features, such as Shielded VMs.

Migrating the majority of your system to the cloud naturally translates to on-prem benefits—specifically, less reliance and upkeep on physical space and hardware.

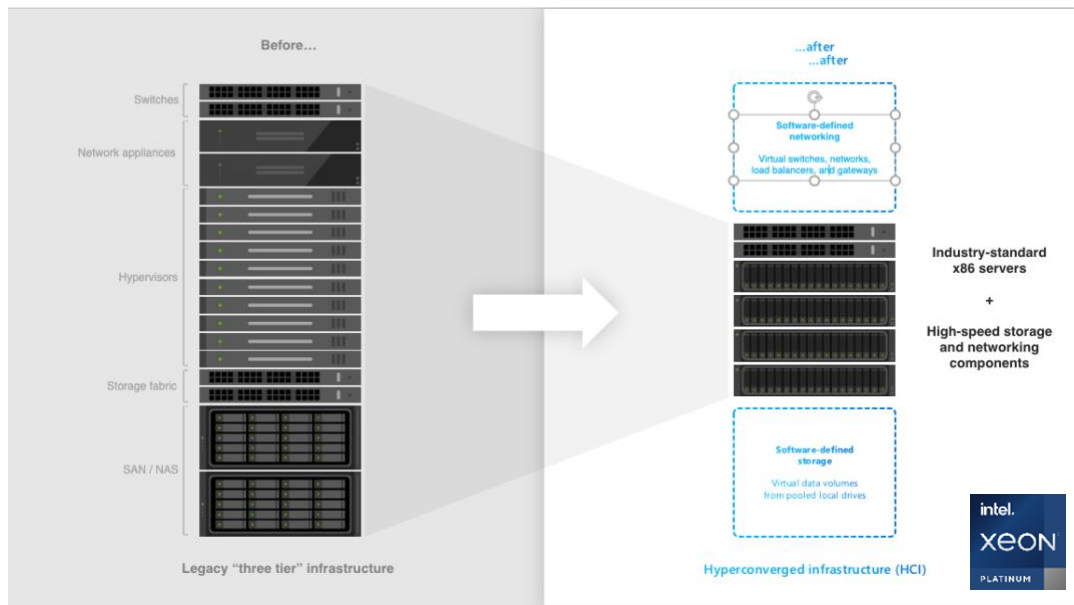


Figure 5. Physical space and hardware: legacy infrastructure v. hyperconverged infrastructure (HCI)

Less physical hardware requires less space, which means lower rent, lower property tax, and ultimately, fewer dollars spent.

Additionally, Azure Stack HCI requires less maintenance—especially with the Azure Support subscription—which presents another form of savings, either in the cost of staff or by freeing up more of their time to be used elsewhere.

There’s an ecological benefit to HCI as well; fewer machines mean reduced production, reduced waste, and ultimately, carbon footprint reduction as high as 67 percent.¹

When it comes to enterprise scale, the linear scalability of performance with Azure Stack HCI is yet another benefit. As you add more nodes to your clusters, performance will grow nearly linearly, making it much easier to do capacity planning and management. Other popular HCI solutions in the market are notoriously nonlinear in performance as you add nodes, making capacity planning a guesswork exercise.

Linear scaling as your users’ needs grow

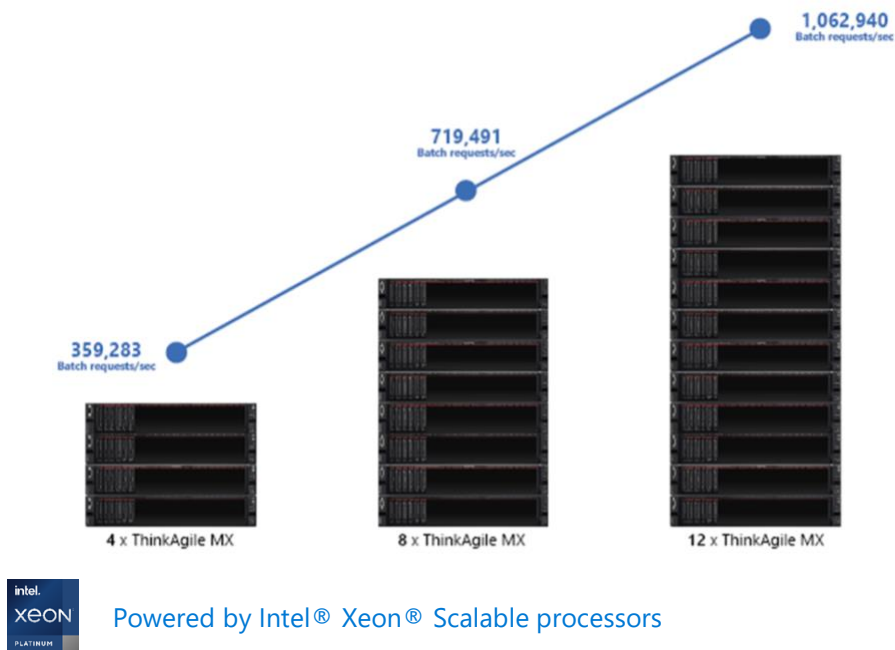


Figure 6. Performance scales nearly linearly as you add more nodes to your clusters

¹ “Hyperconverged Solution Helps ASM Improve Performance and Reach for the Cloud,” July 2016, sponsored by Nutanix <https://www.nutanix.com/viewer?type=pdf&lpurl=/go/idc-buyer-case-study-enterprise-apps-asm>

Simplify operations

We've already touched on examples of simplification, but it really is one of the core benefits of Azure Stack HCI. One key element of that simplification is how valuable it is to have a single-source software vendor. Microsoft provides Hyper-V and all the SDD features in Azure Stack HCI, while also modernizing the cloud with Azure, SQL Server, and countless other products and services that all businesses use. That means Microsoft is uniquely qualified to support, improve, and troubleshoot the interactions between all those critical elements.

[Azure Stack HCI offers you a single software vendor, integrated experience across your edge, remote office branch office \(ROBO\) datacenter, hybrid, and cloud deployments.](#)

You're likely already using Microsoft server software, and the adoption of Azure Stack HCI limits the need for additional training or support.

Familiar management tools such as Azure Portal, Windows Admin Center, and PowerShell are still present, incorporated into a single-management console and control plane that covers your entire system, from compute to storage to networking to clustering.

With a single-software vendor solution, you have one point of contact for everything software related. With that vendor being Microsoft, you keep all your core programs and functionality, and reduce adoption complexity.

Deployment flexibility

Versatility is another advantage of Azure Stack HCI. Unlike other solutions that can require extremely specific, and often expensive, hardware, Azure Stack HCI offers flexibility. Azure Stack HCI works on over 200 validated solutions from over 25 Microsoft partners, many of them based on Intel® technologies, so you can choose the partner who offers the best support and selection for your specific needs. If you have various needs and environments, nearly all the solutions can be configured by varying the processor, memory, storage, and network speed. All the most popular 2U rackmount servers today are validated, as top vendors including Dell Technologies, Hewlett Packard Enterprise, Lenovo, and Fujitsu support Azure Stack HCI.

While every configuration is different, there's a good chance your existing hardware can run Azure Stack HCI, as it's supported by one of the largest computing ecosystems in the world. The broad Microsoft ecosystem will support a wide range of hardware innovations, such as remote direct memory access (RDMA), NVMe, and persistent memory. One notable change from previous offerings is that Microsoft now supports repurposed hardware, which represents another good opportunity for savings. For many companies, using existing hardware may present a budgetary advantage, as the associated expenses will then fall under operational expenses rather than capital expenses.

If your existing hardware is unable to take advantage of recent innovations or deliver adequate performance, you can deploy Azure Stack HCI either via validated nodes or integrated systems. Offered by Microsoft partners, validated nodes are multi-part solutions that have already passed validation tests. Azure Stack HCI is available in a wide variety of configurations, so whatever functionality you're looking for, it's likely the [Azure Stack HCI catalog](#) has the right solution.

Integrated systems come pre-wired, pre-racked, and pre-configured. They're already optimized and ready to go, acting as a plug-and-play deployment option. Intel® Select Solutions and Azure Stack HCI combine to ease migration by providing an out-of-the-box solution pre-loaded with familiar tools and functionality. Intel Select Solutions are based on extensive testing to determine the best price and performance configurations to meet the requirements of a range of workloads. Each configuration is verified to meet or exceed a specific performance threshold, providing confidence that the solution can meet your needs without extensive additional testing or proofs of concept. Multiple original equipment manufacturers deliver these integrated systems to market.

Stretch clustering

Azure Stack HCI brings, for the first time, a stretched cluster solution for business continuity and disaster recovery to Hyper-V users.

Storage Replica and stretched clusters work in tandem. Storage Replica provides the replication of volumes across sites for disaster recovery, with all servers staying in sync, while stretch clustering provides automatic failover to restore production quickly, without the need for manual intervention.

Storage Replica supports both synchronous and asynchronous replication. Synchronous replication mirrors data across sites in a low-latency network with crash-consistent volumes to ensure zero data loss at the file-system level during a failure. Asynchronous replication

mirrors data across sites beyond metropolitan ranges over network links with higher latencies, but without a guarantee that both sites have identical copies of the data at the time of a failure.

Stretched clusters occur in two types: active-passive and active-active. Active-passive site replication is where there's a preferred site and direction for replication. Active-active replication is where replication can happen bi-directionally from either site.

An active site has resources and provides roles and workloads for clients to connect to. A passive site does not provide any roles or workloads for clients and is waiting for a failover from the active site for disaster recovery.

Sites can be in two different states, cities, floors, or rooms. Stretched clusters using two sites provides disaster recovery and business continuity should a site suffer an outage or failure. If you're locally replicating (within a low latency zone), you can use active-active replication, while if your datacenters are far from one another, you can use active-passive replication. Either way, you're covered against catastrophe in case one of your datacenters unexpectedly goes down.

Since Azure Stack HCI's stretch clustering is built in at the platform level, it's much easier and less expensive to deploy than non-HCI options or alternatives.

[Azure Stack HCI offers built-in encryption, as well as cluster validation to protect against potential hardware or configuration problems before a cluster goes into production.](#)

Cluster validation helps to ensure that the Azure Stack HCI solution that you're about to deploy is truly dependable. You can also use cluster validation as a diagnostic tool on configured failover clusters.

Stretch clustering not only protects your data and progress, it presents opportunities for greater synchronicity across your system. One valuable example might be operating a single dev environment simultaneously in two datacenters. Functionally, Azure Stack HCI's stretch clustering creates an on-premises cloud environment with integral benefits: security, agility, and redundancy.

05

Use cases

Datacenter modernization

Digital transformation in an enterprise starts with refreshing the datacenter infrastructure. By replacing monolithic and legacy SAN-based storage with Azure Stack HCI, you'll dramatically reduce the footprint of your datacenter from 30 percent to as much as 60 percent.²

This reduced footprint is shown below in an example of a customer who has been able to reduce their footprint while achieving a higher level of performance. The reduced rack space also provides power and cooling savings.

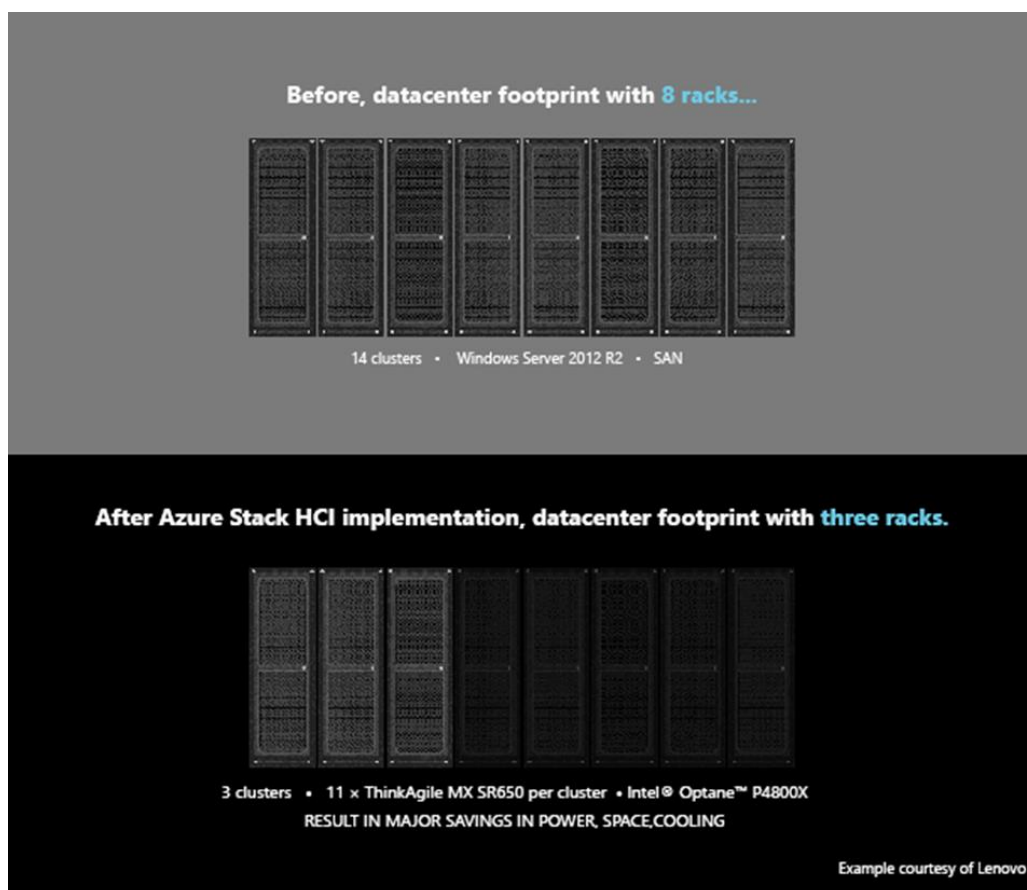


Figure 7. Datacenter footprint – Before and After Azure Stack HCI implementation. Intel® Xeon® Scalable processor-powered clusters

2 Microsoft Internal Case Study

Azure Stack HCI transforms your datacenter by enabling you to virtualize and consolidate aging physical servers onto a modern, more secure platform. You can better secure older VMs with no-cost ESUs for Windows Server 2008 and Windows Server 2008 R2, and you can improve security for the host with Secure Boot, Trusted Platform Module 2.0, BitLocker encryption, and built-in mitigations for hardware and firmware-based attacks.

The integration with Azure and Azure Arc further enhances the modernization benefits available through Azure Stack HCI. Thanks to this integration, Azure Stack HCI on-premises cluster can make use of Azure Active Directory accounts and RBAC from Azure. Critically, you can create and manage VMs from the Azure portal leveraging Azure Arc. This integration is designed to maximize your datacenter efficiencies by leveraging the public cloud.

As part of this digital transformation journey, it's important to simplify datacenter operations by using tools that provide a single point for technical support and unify management of compute, storage, clustering, and networking. Through Microsoft tooling and support, Azure Stack HCI delivers a unified, single software vendor vision.

Edge computing and branch offices

Azure Stack HCI represents Microsoft's renewed focus and investment in edge infrastructure.

With this investment in mind, Azure Stack HCI helps to ensure branch offices and edge locations that have unique space, noise-level, cooling, form factor, and mounting requirements have access to the on-prem resources and security needed for particularly demanding jobs. Gone are the days when work was limited by physical location—with a small ROBO Azure Stack HCI solution, you can now access a VM to perform virtually any job from anywhere.

For that ROBO scenario, Azure Stack HCI keeps size requirements and per-location costs low by providing an option for HCI in just two nodes and through direct, back-to-back networking. This approach avoids the space and expense of a high-speed switch. Space requirements and costs are minimized because no external storage is needed in the solution.

If you have multiple branches or remote locations, these cost savings at each site rapidly add up in your favor.

The combination of compact design, affordable price, and unique features such as nested resiliency brings both availability and reliability to ROBO scenarios, while the Azure integration allows you to monitor your ROBO scenarios from a single interface, accessible from the convenience of your home office.

Additionally, Azure Stack HCI partners offer low-cost solutions with low core count that are still capable of running the typical number of VMs in ROBO. You can further reduce costs by making use of Azure cloud services for the cluster quorum witness, or for backup and security, without having to deploy additional on-premises infrastructure. Once again, the integration of Azure Stack HCI with Azure and Azure Arc empowers you to monitor your Azure Stack HCI deployments from a centralized view in the Azure portal, which can significantly lighten the management burden on your IT administrators.

Put simply, Azure Stack HCI reduces on-prem needs in ROBO or edge scenarios, while simultaneously improving performance and minimizing costs. Specifically, with a per-core-per-month cost, you can save significantly by utilizing one of the low-core-count servers available from the [Azure Stack HCI catalog](#). Many ROBO scenarios run fewer than 12 VMs, and in those cases 4-to 8-core count servers can handle the entire workload with Azure Stack HCI. The graph below demonstrates how Azure Stack HCI allows edge scenarios to scale gracefully.

Efficiency scales for edge applications

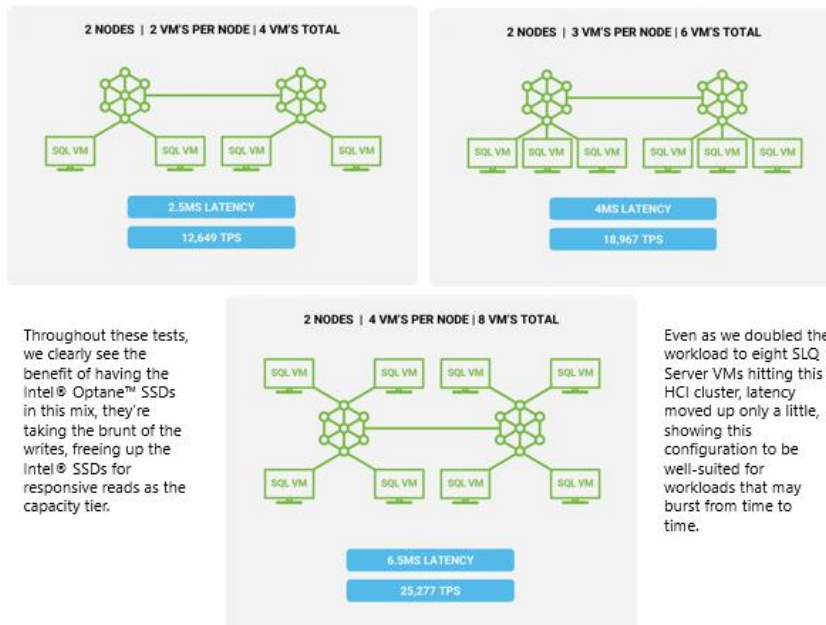


Figure 8. Azure Stack HCI can effectively scale for ROBO scenarios

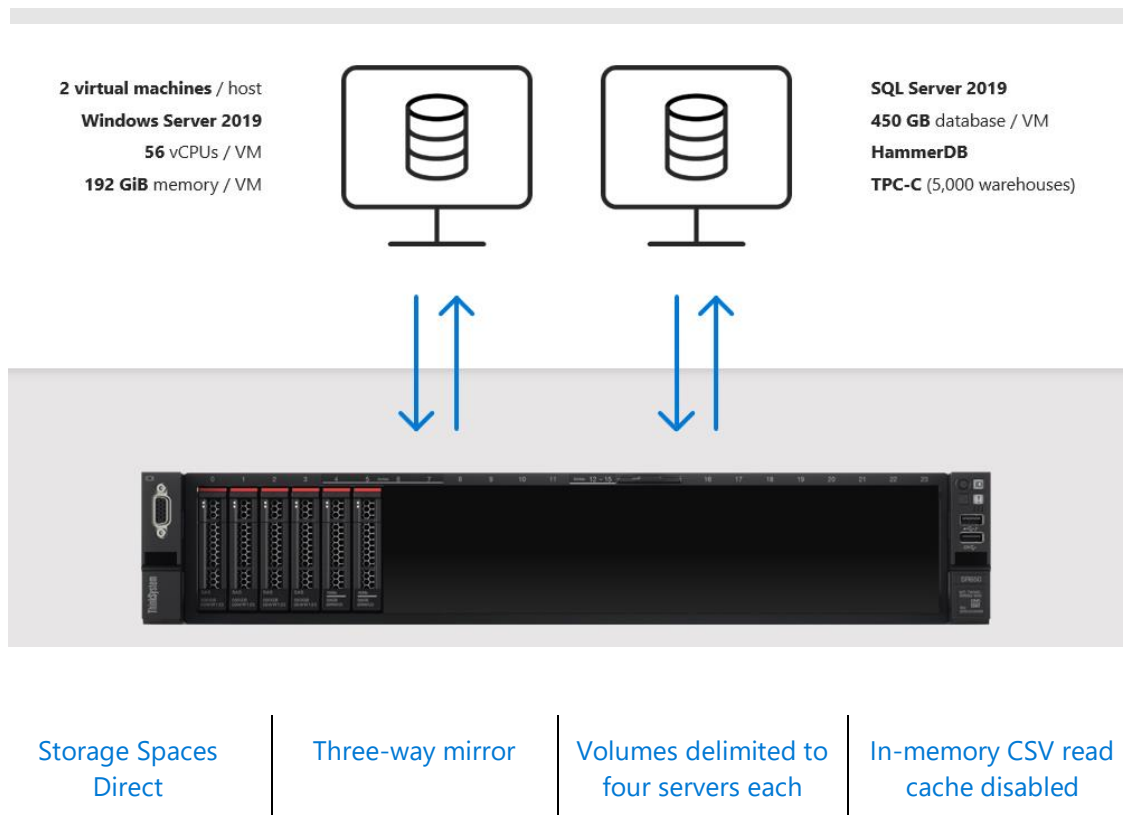
This graphic is courtesy of DataOn and StorageNewsletter.

High-performance SQL

Azure Stack HCI can achieve industry-best performance for SQL Server databases. This is accomplished in part by the ability to run SQL on HCI without the need of an agent in kernel mode, removing a dependency from the process and accelerating performance. If your current SQL databases are struggling in your legacy environment, Azure Stack HCI is both an instant fix and a meaningful leap toward modernizing your datacenter.

Benchmark setup (courtesy of Lenovo)

Lenovo has demonstrated the ability to reach 1,062,940 batch requests per second using the TPC-C benchmark workloads.



Credit to <http://www.tpc.org/tpcc>

Figure 9. Benchmark setup, courtesy of Lenovo

Intel delivers breakthrough memory for Azure Stack HCI

Intel has been collaborating with Microsoft to optimize its technology portfolio as the foundation for Azure Stack HCI. To support the maximum performance for SQL Server, you can use high-bandwidth SSDs with NVM Express (NVMe) and Intel® Optane™ persistent memory (PMem) in a single storage tier. You can find these options in Azure Stack HCI validated nodes or integrated systems. Intel® Optane PMem is strongly correlated with the best performance of SQL databases. As you can see below, Intel® Optane PMem has more than doubled the performance on its latest 2nd Gen Intel® Xeon® Scalable processors.

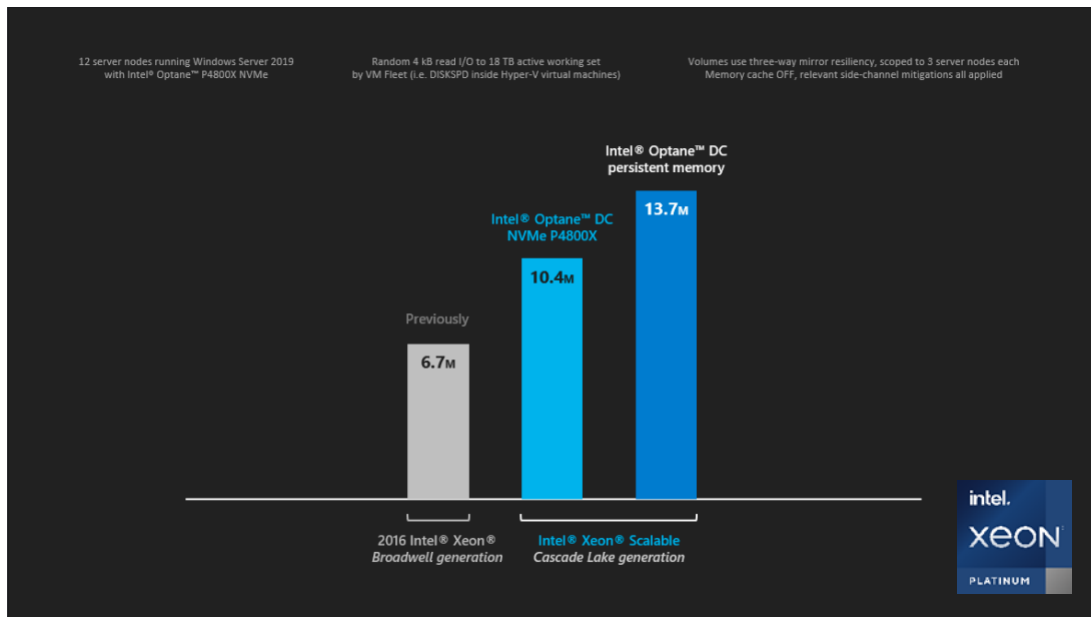


Figure 10. Intel® Optane™ persistent memory performance

06

Price and business model

Azure Stack HCI is significantly cheaper than traditional server/storage architecture solutions

Azure Stack HCI represents a tremendous savings opportunity by eliminating SAN costs, both in financial and physical terms. It synergizes with many of the Windows or Azure services you're already paying for, scales with your business, and reduces carbon footprint. It saves on security as well, shipping with Windows Defender ATP and virtualization-based security (Credential Guard, Remote Credential Guard, etc.) already built in, and Azure Security Center only a few clicks away.

Azure Stack HCI can save you up to 62 percent versus popular competing options, and that's before factoring in additional savings on support, security, or hardware. Plus, there are built-in savings associated with Azure Stack HCI being a part of your Azure subscription, compared to a third-party solution that likely requires additional hardware, training, maintenance, and integrations.

As a subscription service, Azure Stack HCI is truly a future-focused investment. You'll continue to benefit from new features, integrations, and updates in perpetuity, so the value of your subscription will only increase while your TCO stays low.

Azure Stack HCI is a unique solution that improves performance while lowering cost. It's significantly cheaper than competing HCI options, yet still outperforms their offerings in important arenas like SQL Server performance. Refer to the following chart for a more in-depth price comparison.

Better value for money with Azure Stack HCI

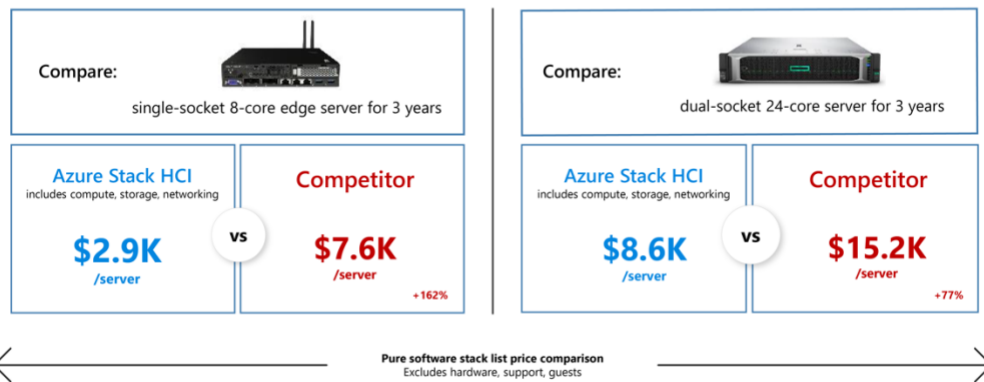


Figure 11. Price comparison: Azure Stack HCI v. competition

Hardware considerations

- Microsoft has been collaborating with Intel to optimize our technology portfolio as a foundation for infrastructure modernization with Azure Stack HCI. We have been working with Intel on two critical fronts: performance and security. By providing the flexibility to securely move, store, and process data across any environment from cloud to edge, Microsoft Azure Stack HCI combines high-performing virtualized compute, storage, and networking on industry-standard servers with components optimized for 2nd Generation Intel Xeon Scalable processors.
- 2nd Gen Intel Xeon Scalable processors provide a broad range of SKUs to help users to scale the performance of their Azure Stack HCI clusters to meet the requirements of different workloads.
- Azure Stack HCI takes advantage of Intel Optane PMem, which is large-capacity memory combined with data persistence. As a result, you can consolidate workloads with greater levels of performance and capacity. Intel and Microsoft also are utilizing Intel's Total Memory Encryption technology to help increase VM protection.
- Adding the Intel Optane SSD to Microsoft Azure HCI can help organizations eliminate datacenter storage bottlenecks and enable bigger, more affordable data sets. It can accelerate applications, reduce transaction costs for latency-sensitive workloads, and improve overall datacenter TCO with a smaller datacenter footprint.
- Intel® Ethernet 800 Series Network Adapters enable Microsoft Azure Stack HCI to move volumes of data efficiently and securely across clouds, on-prem, and edge environments, while supporting multiple storage protocols and maximizing virtual resources. With Intel Ethernet 800 Series Network Adapters, Azure Stack HCI users have options when selecting storage protocols with both iWARP and RoCEv2 RDMA supported. The Intel Ethernet 800 Series Network Adapters deliver up to twice the virtualization resources than the previous-generation network adapters.
- As part of the continuous improvements offered by an Azure Stack HCI and through collaboration with Intel, Azure Stack HCI users can also look forward to upcoming Intel features: Multi-Key Total Memory Encryption and Secure Core, both of which will be available with the 3rd Gen Intel Xeon Scalable processors. Microsoft requested these innovations be designed with Azure Stack HCI in mind.

07

Getting started

If you'd like to use your existing hardware, you'll need to check our [Azure Stack HCI catalog](#) to verify if it's HCI capable, then set up or modify your Azure subscription and download the software. Otherwise, you can simply start by picking out your hardware. Consider starting with Intel Select Solutions for Azure Stack HCI in the Azure Stack HCI catalog, as these are already validated by the server OEM, performance verified by Intel, and certified by Microsoft for Azure Stack HCI.

The Azure Stack HCI catalog offers both a wide variety of validated nodes and pre-racked integrated system solutions with a low barrier to entry. There are at least 200 configurations provided by over 25 device partners. Nearly all the solutions are running on various Intel Xeon Scalable processors, Intel Optane technologies, and Intel® Ethernet Converged Network Adapters.

Once you've picked out your preferred hardware, you'll just need to set up your subscription and support plan to make sure you've got all the integrations and backup you need.

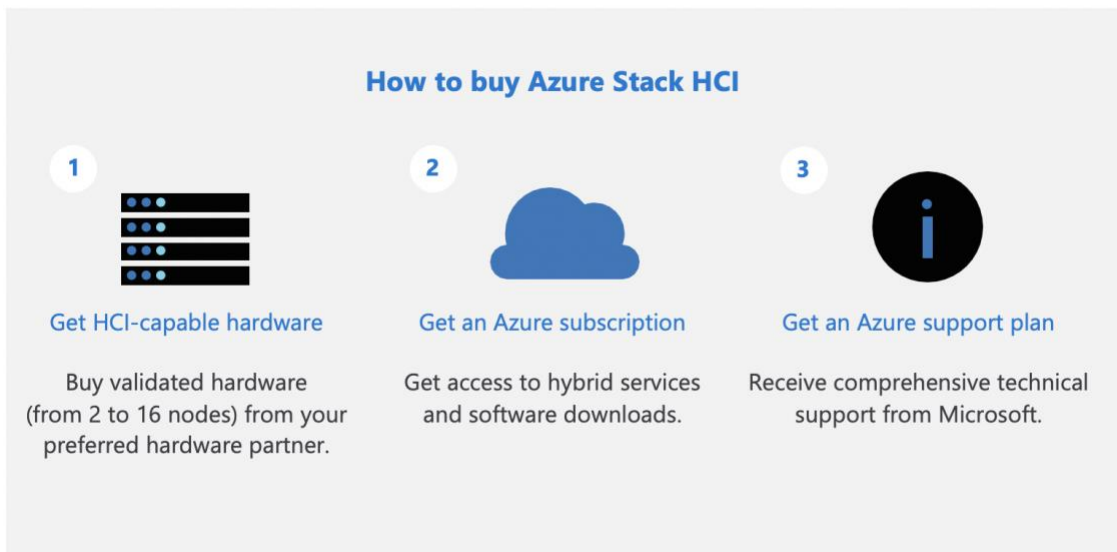


Figure 12. To deploy Azure Stack HCI, you need to buy compatible hardware, an Azure subscription, and a support plan

Conclusion

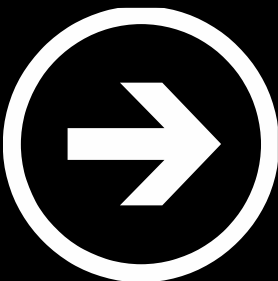
Azure Stack HCI offers the optimal infrastructure for Hyper-V users, building a scalable, high-efficiency system around your existing Hyper-V and Windows Server expertise.

Hyper-V remains the core of your virtualization efforts, and you can leverage existing skills and expertise as Azure Stack HCI allows you to leverage more tools, compute flexibility, and support.

With Azure Stack HCI, easily extend your on-premises management to the cloud through Azure hybrid services for backup, monitoring at scale, disaster recovery, and more. Scale your business by consolidating on-prem infrastructure more efficiently at lower costs, without sacrificing storage, functionality, or power. Bring everything together with a single software vendor solution and unified experience, while streamlining service and support.

As an Azure service, Azure Stack HCI helps you benefit from the wider Azure ecosystem, in addition to ongoing updates, improvements, and features throughout your subscription. Plus, you can optimize an Azure Stack HCI experience on a single underlying Intel platform 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.

Azure Stack HCI is a new beginning for Hyper-V users, offering helpful updates and additions to provide you with the virtualization capabilities, at-scale management, and autonomy the ever-changing IT world demands. It's an effective solution to put your business in the best possible position for ongoing success, flexibility, and evolution.



Try out Azure Stack HCI:

aka.ms/AzureStackHCI/Download

Learn more about Azure Stack HCI: azure.com/hci

Learn more about Intel technologies: intel.com



Copyright © 2021 Microsoft, Inc. All rights reserved. The content in this document is intended for informational purposes only. Microsoft makes no warranties, express or implied, with respect to the information presented here. Microsoft Azure Stack HCI is either registered trademarks or trademarks of the Microsoft group of companies. All other trademarks are property of their respective owners.

Information in this document, including URL and other internet website references, is subject to change without notice. Complying with all applicable copyright laws is the responsibility of the user.