

Accelerate Your Hybrid Cloud Journey with QCT's Azure Stack HCI Solution

We stand on the edge of a new technological revolution that will fundamentally alter the way we live, work and relate to one another. The first technological revolution used water and steam to mechanize production. The second used electric power to create mass production. The third utilized electronics and information technology to automate production. Now a fourth revolution



is here, characterized by a fusion of technologies that is agile and has the ability to adapt to change. In business, organizations that are dealing with these technological disruptions are better equipped and able to manage changes brought about by digital transformation. We've seen this across multiple industries where new competitors that can meet changing customer needs are faster than their incumbents to quickly build and lead markets.

Similarly, as the pandemic impacted business operations, organizations had to adapt and rapidly shift teams so they could work from home and work remotely. Regardless of location and connectivity, these infrastructures also had to be easily accessed. In some cases, this ability to cope with rapid change allowed businesses to continue to thrive amid difficult circumstances. One of the core reasons those companies had the ability to adapt and flourish in trying times was that they either had already adopted or were ready to adopt a cloud infrastructure. This put them at a competitive advantage over those who were weighed down with inflexible systems housed in on-premises data centers that were built with the assumption that most workers would be at a central office connected over a private network.

However, not all workloads are suited for cloud environments. Security, compliance, latency and other factors mean some workloads are better suited for on-prem data centers. This has been a major driver for businesses to adopt hybrid cloud. Many organizations faced a steep learning curve as they discovered that hybrid cloud offered them many advantages. One of the best ways to realize that advantage is to adopt Azure Stack HCI.





Rising to hybrid cloud challenges with Azure Stack HCI and Azure Arc

Microsoft Azure has long been recognized as a leading cloud platform that can offer businesses a wide range of services and flexibility to meet their needs. And it has now moved beyond the cloud. Azure Stack HCI is a hyper-converged infrastructure operating system that is delivered as an Azure service in your own data center, giving your business an Azure-like experience. It provides the latest security, performance and feature updates. Once deployed, it can run Windows and Linux virtual machines (VMs) in your data center or at the edge.

Azure Stack HCI is hybrid by design with native integration with Azure Cloud. Businesses can seamlessly leverage many Azure services on Azure Stack HCI. For example, Azure Site Recovery and Azure Backup can be used to deliver higher availability for their Azure Stack HCI cluster. And Azure's Update Management function allows companies to keep their Azure Stack HCI cluster up to date with the latest patches and security updates.

Newer technologies offer organizations new opportunities and new solutions to the problems they're facing today. But solving those problems and challenges means taking advantage of new tools and approaches that can enable better business models. With hybrid cloud now being the new standard operating environment for businesses—IDC says over 90% of enterprises have a combination of public cloud, private cloud and legacy systems,¹ and Gartner says 75% of midsize and large organizations have a multi or hybrid cloud strategy²—modernizing existing data center systems and operations so they work in concert with cloud services makes them easier to manage.

The biggest challenge faced by organizations adopting hybrid infrastructure models is that each platform requires its own management system, which creates unwanted complexity. Azure Arc extends the cloud-based management system into your on-premises Azure Stack HCI environment and across different public clouds.

Azure Arc gives you a single pane of glass through which you can manage your on-prem and hosted applications, services and systems. It is capable of multi-cloud management beyond the Microsoft ecosystem. VMs running on other public clouds, such as AWS and GCP, can connect through Azure Arc and be managed from Azure. Physical servers and hosted services running in a data center can be integrated through Azure Arc and managed centrally with Azure Resource Manager, providing a holistic view of a business's overall IT infrastructure.

1 "IDC Expects 2021 to be the year of multi-cloud as global COVID-19 pandemic reaffirms critical need for business agility," IDC.com, March 31, 2021.

2 "At Gartner IT Infrastructure, Operations & Cloud Strategies Conference 2020," Gartner.com, May 2020.





The most powerful branch office and edge solution: Azure Stack HCI

In remote office and branch office environments, there are significant constraints on the physical space, and IT expertise is often limited, making Azure Stack HCI an ideal solution. Businesses can launch their Azure Stack HCI deployment with just two nodes with back-toback networking. This significantly reduces the expense for space and high-speed networking.

When an organization adds a new office with Azure Stack HCI, those satellite offices and sites can take advantage of the same tech as Azure Cloud, which can be critical where there is a need to maintain on-prem systems, or where connectivity is limited or unreliable. While connectivity and cloud performance have massively improved over the years, there are times when being able to run large queries on SQL Server is more effective and efficient locally. SQL Server is optimized to deliver highest performance on Azure Stack HCI. Azure Stack HCI can be used as the foundation for critical business systems. For example, an on-prem instance of a CRM or ERP solution can be used locally with summarized data sent to a cloud-based instance to facilitate consolidated reporting. As there's no need for the raw data to be shared across the entire organization, only the data needed for consolidated reporting needs to be shared. This is made easier as the platforms and applications in the cloud are the same as those running locally.

Unleash the agility of cloud native application with AKS on Azure Stack HCI

Kubernetes is now the most popular container orchestration platform, but it can be complex to deploy and manage. Hence, companies are looking for ways to deploy and manage it reliably and securely. Azure Kubernetes Service (AKS) on Azure Stack HCI (AKS-HCI) is an on-prem implementation of AKS that enables organizations to deploy Kubernetes



at scale quickly, without the need to manage complex installation and configuration. And because Microsoft provides centralized control, this assures compatibility and simplifies management and support.

The on-prem deployment is designed to work alongside the cloud-based Azure Kubernetes Service. It also takes advantage of the Windows Admin Center and PowerShell, which allow data center administrators to use management tools that they are already familiar with to deploy and manage their Kubernetes clusters. AKS-HCI is specifically designed with hybrid deployments in mind. Getting your on-prem and cloud deployments to work together is simplified with Azure Arc. Azure Arc-enabled Kubernetes extends the reach of Azure Resource Manager to on-prem AKS-HCI clusters so administrators can apply consistent governance and configurations to their Kubernetes clusters across clouds and on-prem environments.

Microsoft's commitment to openness and flexibility is in full evidence as AKS-HCI works with both Windows and Linux containers, making it a flexible option to mix Windows and Linux deployments in the same Kubernetes cluster.

Underpinning this is robust security by design supported by Azure Security, container host images are made and secured by Microsoft, which also provides updates and patches to ensure threat actors are kept at bay. And AKS-HCI integrates with Active Directory and Group Managed Service Accounts (GMSA) to provide a comprehensive role-based control capability.

QCT offers optimized Azure Stack HCI solutions

Azure Stack HCI is a powerful, flexible and secure software platform for businesses embracing hybrid cloud. But to get the greatest possible value, it needs to run on built-forpurpose hardware.

Hardware platforms need to support a variety of different use cases—from VDI, database workloads to hosting business critical applications and implementing container technology. Organizations need hardware solutions with optimized configurations providing the right amount of CPU, memory, storage and networking to fulfill the requirements of various workloads.

Quanta Cloud Technology (QCT) has forged strong relationships with Microsoft and Intel to develop highly optimized hardware platforms to support Azure Stack HCI. QCT provides a complete portfolio of Azure Stack HCI certified systems that are supported on 3rd Gen Intel® Xeon® Scalable processors.

Its new Microsoft Azure Stack HCI certified QuantaGrid D53X-1U platform packs huge compute power into its 1U chassis within a very small footprint. This makes it an ideal choice for running Azure Stack HCI at remote offices and hosting a wide variety of applications and



services for SMBs. With 3rd Gen Intel® Xeon® Scalable processors and up to 12TB of memory with Intel® Optane™ persistent memory (PMem), it is a powerful platform for hosting Microsoft SQL Server to deliver extreme performance for OLTP workloads.

The QuantaGrid D53XQ is an Azure Stack HCI certified 2U general purpose server. It delivers great flexibility and supports a broad spectrum of diverse workloads. With the support of Intel® Optane™ persistent memory (PMem) and powerful 3rd Gen Intel® Xeon® Scalable processors, more VMs can be handled on a single system which greatly improves TCO. It is a compelling solution for running AI inference workloads at the edge with support for dual width GPUs and Azure Stack HCI's GPU support feature. Azure Stack HCI can be managed easily through the Windows Admin Center. However, it provides limited ability to manage the underlying hardware. This results in administrators needing separate tools to manage the hardware. QCT's extension for Windows Admin Center (QCT WAC Extension) is an extensive hardware management feature that gives operation teams a single view for hardware and software management. This single management console reduces the complexity of managing and monitoring the entire software and hardware stack.

The QCT WAC Extension supports administrators from the moment they commence setting up their environment all the way through to monitoring everything once its



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operational, detecting issues and facilitating support services. It provides comprehensive features to manage the underlying hardware throughout the entire system life cycle.

- System health monitoring: provides dashboards with important metrics including CPU and memory utilization, inlet temperature, I/O loading and more to monitor system health.
- 2. Real-time performance monitoring: provides detailed, real-time metrics of RDMA and individual disk performance.
- **3. Advanced disk mapping:** provides a clear visualization of disk map with information such as disk model, disk type, disk location and health status.
- **4. SMART prediction:** predicts possible failure of the drives with an algorithm to allow for predictive maintenance.
- **5. Inventory management:** delivers clear visibility of all servers with information such as OS, firmware, BIOS, drivers and BMC.
- 6. Historic event tracking and alert service: helps keep track of event logs in the system and sends real-time alerts to IT Admin when issues occur, allowing quick response.

In addition, QCT Scale-up as a service allows customers to dynamically adjust the number of system cores they use to match the Azure Stack HCI subscription level they are using. Customers only pay for the processing cores they need. For example, during a quiet period, an organization may only require a relatively small number of processor cores. During those times, they can scale back their Azure Stack HCI costs and the hardware cost by disabling unneeded processor cores. During peak periods, the Azure Stack HCI service can be scaled up and more local processor cores can be enabled.

Built for the future

Numerous companies are seeking to modernize their infrastructure to stay ahead in the fast-changing business environment. Microsoft Azure Stack HCI provides the agility and adaptability they need, combining the flexibility of cloud services and the reliability of on-prem systems. Above all, it launches a per core subscription service, allowing customers to expand and contract their subscriptions according to their changing needs.

Getting the greatest possible value out of Azure Stack HCI requires purpose-built hardware. QCT offers a complete portfolio of Azure Stack HCI certified systems powered by 3rd Gen Intel® Xeon® Scalable processors to deliver ideal performance. QCT also provides its WAC Extension to ease the management burden for system administrators, as well as QCT Scale-up as a Service to ensure businesses only pay for the hardware capacity they need when it's required.

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