Improving ThinkAgile MX Solutions with the New Features in Microsoft Azure Stack HCI 23H2

Version 1.0

Provides information about new features released in Azure Stack HCI Version 23H2

Describes how new HCI features improve ThinkAgile MX

Provides guidance and recommendations for new HCI features deployment

Describes new features that increase use cases for ThinkAgile MX

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1 Introduction

Deploying hyperconverged infrastructure has become the de-facto standard for organizations looking to modernize their aging infrastructure. Large storage deployments are increasingly being replaced by HCI-based solutions for most general-purpose workloads. HCI has proven to deliver better efficiency and price performance in the datacenter. Additionally, customers have been choosing a hybrid approach, migrating certain workloads to the cloud, while keeping other workloads on-premises.

Azure Stack HCI, a host operating system from Microsoft, is Microsoft's HCI solution for customers who wish to run workloads on-premises and extend easily to Microsoft Azure for hybrid capabilities such as Azure Virtual Desktop, back-up, site recovery, storage, cloud-based monitoring and more.

Microsoft requires that Azure Stack HCI be updated at least once every six months to remain in a supported state. The recommendation is to install the quality and security updates as they are released every month. Lenovo ThinkAgile MX Series solutions are built using Lenovo's popular servers and Microsoft Azure Stack HCI software.

More details about the modern Lifecycle Policy that Azure Stack HCI follows is described in detail on Microsoft`s page:

https://docs.microsoft.com/en-us/lifecycle/policies/modern

Also, information about the naming scheme is presented in the following page:

https://docs.microsoft.com/en-us/azure-stack/hci/concepts/updates

Lenovo has worked closely with Microsoft for many years to ensure our products perform smoothly and reliably with Microsoft operating systems and software. Our customers can leverage the benefits of our partnership with Microsoft by taking advantage of HCI solutions that have been certified under the Microsoft Azure Stack HCI program using the Azure Stack HCI operating system.

The benefits of Lenovo ThinkAgile MX Series solutions include:

- Highly available and scale-on-demand compute/storage integrated solutions
- Ease of provisioning new IT services to reduce deployment time
- Better performance and lower Total Cost of Ownership (TCO)
- Flexible infrastructure and data centers

This document provides an overview of the new features implemented in Azure Stack HCI version 23H2 operating system, requirements for using the features and systems administration.

2 Business problem and business value

2.1 Business problem

The proliferation of servers and storage that is taking place generates a series of challenges where a business needs to allocate considerable resources to manage that infrastructure. Also, having separate solutions for each service increases fragmentation and the effort required for managing everything efficiently.

2.2 Business value

Lenovo ThinkAgile MX Series uses Microsoft's Storage Spaces Direct technology to aggregate the storage and compute in one flexible hyper-converged infrastructure (HCI) solution. With the release of Azure Stack HCI version 23H2, every workload is automatically enabled for cloud-based configuration, observability, and advanced security across all your resources with Azure Arc. Azure Virtual Desktop is no longer in preview mode, and it can now be deployed in production environments. Windows Admin Center is still available for making sure that the clusters and the services running can be managed locally from a single interface accessible from any modern browser. In addition to this, more monitoring and administrative tools are available from the Azure portal such as Cloud Based updates and monitoring, monitoring with Insights, Monitor Metrics and more.

Lenovo has worked closely with Microsoft to make sure that our products perform reliably with Microsoft operating systems and software. Our customers can leverage the benefits of our partnership with Microsoft by taking advantage of ThinkAgile MX solutions that have been certified under the Microsoft Azure Stack HCI program.

3 Features and improvements in Azure Stack HCI 23H2

With each new Azure Stack HCI release, Lenovo ThinkAgile MX Series is tested with the new features to verify everything is working without any issues on the hardware. Special attention is given to the capabilities that are closely intertwined with the hardware to ensure a smooth experience.

On clusters that have installed the latest version of Azure Stack HCI 23H2, a series of new features have become available. Most of the new functionality can be accessed from PowerShell or Windows Admin Center.

This new Azure Stack version is focused on improving the security, bringing new features and providing a more stable deployment process.

Any of the solutions offered by Lenovo's ThinkAgile MX series, either the edge solutions or full-size servers, support the new improvements and features released.

3.1 Azure Kubernetes Services deployment and management capabilities

Azure Kubernetes Services (AKS) is a core component of Azure Stack HCI and starting with version 23H2, it is now included with the cluster deployment. AKS will also be updated via the normal update packages that are delivered to the Azure Stack HCI cluster.

Management fragmentation has been reduced as management can be done either by the Azure CLI or by the Azure portal. Special attention was added to the CLI to have a more consistent experience while managing the cluster. Also, the node pools can be scaled up or down from the same Azure CLI console.

Azure Container Registry can be used to deploy container images from a private container registry. Additionally, both Linux and Windows containers are supported.

Detailed information about each new AKS feature can be found in the following article:

https://learn.microsoft.com/en-us/azure-stack/hci/whats-new#aks-on-azure-stack-hci-version-23h2

3.2 Azure Virtual Desktop (AVD) for Azure Stack HCI

Azure Virtual Desktop (AVD) is now available for Azure Stack HCI and it allows placing the virtual machines on either Azure or the local azure stack HCI cluster. By placing the virtual machine in the local Azure Stack HCI cluster, the latencies are reduced, and overall performance is increased. This also solves another requirement that some companies might have regarding the data governance that might not allow placing sensitive information in the public cloud.

Storage costs can also be reduced by using the existing local resources and enabling ReFS deduplication and compression on the cluster shared volume. In the case of many identical VMs the

storage gains can be significant.

Azure Virtual Desktop and Lenovo MX series offers the best of both worlds; powerful and flexible computing and storage solutions that meet diverse needs. Lenovo MX Edge solutions can be used for easily deploying desktops and apps in remote or edge locations without requiring a dedicated datacenter, saving time and money.

The up-to-date list of Lenovo MX series can be viewed in the following location:

https://www.lenovo.com/gb/en/servers-storage/sdi/thinkagile-mx-series/

More information about the Azure Virtual Desktop for Azure Stack HCI can be found in the following article:

https://learn.microsoft.com/en-us/azure/virtual-desktop/azure-stack-hci-overview

3.3 Azure Migrate (preview)

Azure Migrate facilitates the migration of data from the local Hyper-V instance to either Azure or the on-premises Azure Stack HCI cluster.

The migration process is managed from the Azure portal where the migration process is administered. The targeted virtual machines for migration do not require any preparation before the process and the data traffic is kept local between Hyper-V and Azure Stack HCI to increase speed and reduce the need for internet traffic.

The migration supports both Windows and Linux VMs. And for the VM OS it still supports Windows Server 2008 R2.

For up-to-date detailed information about the requirements and process, the following article can be accessed:

https://learn.microsoft.com/en-us/azure-stack/hci/migrate/migration-azure-migrate-hci-overview

3.4 Cloud based deployment

The deployment of Azure Stack HCI version 23H2 can be done by either using the Azure portal or by using the Azure Resource Manager (ARM) deployment template.

The Azure portal approach for deploying the cluster uses a wizard divided into several logical sections. Each one has certain mandatory fields and before starting the deployment, a validation of the parameters and nodes is done.

For more information about the prerequisites and step by step deployment, see the following article:

https://learn.microsoft.com/en-us/azure-stack/hci/deploy/deploy-via-portal

Deployment by using an ARM template can also be used. A template that is filled in with the specific parameters can be used to get started.

For more information about this and other requirements, see the following article:

https://learn.microsoft.com/en-us/azure-stack/hci/deploy/deployment-azure-resource-manager-template

3.5 Web proxy support

As some of our customers may have an Azure Stack HCI cluster that is secured without an internet connection, this release of Azure Stack HCI comes with support for setting up a web proxy server for internet access.

Detailed information on configuring the web proxy server can be found in the following article:

https://learn.microsoft.com/en-us/azure-stack/hci/manage/configure-proxy-settings-23h2

3.6 Cloud based updates and monitoring.

Azure Stack HCI can now receive updates and be monitored from the Azure portal. Cloud based monitoring, once it is enabled, identifies issues as soon as they appear. The enablement of this option does not add additional costs to the subscription and the alerts can be configured to notify the team that is managing the service via one of the supported incident management partners.

This is another feature, along with the Lenovo ThinkAgile MX nodes, to make your edge cluster management easier and more efficient. They enable you to manage and maintain servers and apps at multiple edge locations with minimal overhead administrative tasks.

For more information about the cloud-based updates and cloud-based monitoring, the following two links can be accessed:

https://learn.microsoft.com/en-us/azure-stack/hci/update/azure-update-manager-23h2

https://learn.microsoft.com/en-us/azure-stack/hci/manage/health-alerts-via-azure-monitor-alerts

3.7 Monitor metrics

Enabling Monitor Metrics on an Azure Stack HCI cluster allows monitoring of resources that are used by critical applications. The availability, performance, and operation of these applications or business processes can be monitored without any additional costs one this is enabled.

Also, custom graphs and alerts can be created, including sending the data to Grafana.

More information about can be found in the following article:

https://learn.microsoft.com/en-us/azure-stack/hci/manage/monitor-cluster-with-metrics

3.8 Enhanced monitoring with Insights

With Insights, ThinkAgile MX deployments that have Azure Virtual Desktop (AVD) deployed can monitor the status of deduplication and compression on the ReFS volume. Enabling deduplication and compression can substantially increase the storage savings and decrease the initial costs in an AVD scenario.

More information about setting up the feature and updated information can be found in the following article:

https://learn.microsoft.com/en-us/azure-stack/hci/manage/monitor-features

3.9 Azure Arc VM management

With the current Azure Stack HCI release new capabilities and updates are available, including the following:

- Simplified Arc Resource Bridge deployment. The Arc Resource Bridge is now deployed as part of the Azure Stack HCI deployment
- New RBAC roles for Arc VMs
- A new consistent command line experience is available to create VMs and VM resources
- Support for static IP addresses
- Support for storage paths, custom storage paths for Arc VMs can be specified
- Support for Azure VM extensions on Arc VMs on Azure Stack HCI. These extensions can be managed using the Azure CLI or the Azure portal
- Trusted launch for Azure Arc VMs

For more information about these capabilities the following article can be accessed:

https://learn.microsoft.com/en-us/azure-stack/hci/whats-new#azure-arc-vm-management

3.10 Security capabilities

To increase the general security of the cluster, Azure Stack HCI comes with a few new features enabled by default such as:

- New security baseline with over 300 security settings
- SMB signing and BitLocker encryption is enabled on the operating System and cluster shared volumes
- Windows Defender Application Control is enabled and limits the applications and code that can be run by default

For more information the following article can be accessed:

https://learn.microsoft.com/en-us/azure-stack/hci/whats-new#security-capabilities

3.11 Capacity management

A single node cluster is supported to help a customer optimize the costs of opening a new location, and it can be easily extended to more nodes as the business expands.

The steps for this process can be found in the following article:

https://learn.microsoft.com/en-us/azure-stack/hci/manage/add-server

And in the case that an unforeseen event took place, and the server needs to be repaired the following article can be used:

https://learn.microsoft.com/en-us/azure-stack/hci/manage/repair-server

3.12 ReFS deduplication and compression

The Resilient File System (ReFS) deduplication and compression feature is specifically designed for active workloads such as Azure Virtual Desktop (AVD) on Azure Stack HCI where the gains regarding storage will have an obvious impact. The feature can be enabled with either Windows Admin Center or PowerShell.

For more information about this feature, see the following article:

https://learn.microsoft.com/en-us/azure-stack/hci/manage/refs-deduplication-and-compression

Conclusion

The new features described in this paper improve the ThinkAgile MX Series solutions from Lenovo and provide customers with better value for their HCI investment. It also opens up ThinkAgile MX offerings to more use cases and makes it an attractive option for more customers.

Resources

https://learn.microsoft.com/en-us/azure-stack/hci/whats-new

https://www.lenovo.com/gb/en/servers-storage/sdi/thinkagile-mx-series/

https://learn.microsoft.com/en-us/azure/virtual-desktop/azure-stack-hci-overview

https://learn.microsoft.com/en-us/azure-stack/hci/whats-new#aks-on-azure-stack-hci-version-23h2

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