

AZURE STACK HCI: BRANCH OFFICE AND EDGE

Leverage your Azure Stack HCI investment to run key virtual applications and workloads in a highly available, resilient fashion on hardware designed for Branch office and edge scenarios with industry-leading support for 2 node configurations including: Nested resiliency, USB thumb drive cluster witness, and browser-based administration via Windows Admin Center. Below, you will find a how-to guide for Azure Stack HCI Branch office and edge configurations that includes:

- Plan and deploy Supermicro hardware and OS/tools to support Azure Stack HCI Branch office and edge scenarios.
- Step by step documentation to enable Branch office and edge support including IoT and cloud-driven Container management.

How to deploy branch office and edge on Azure Stack HCI

1. Hardware and OS configuration for Branch office and edge environments

Supermicro has offered various product lines, including the latest gen X13 Hyper 2U, X13 UP CloudDC 1U, X13 UP WIO 1U with single-socket Intel 4th Gen processor, X12 Ultra 1U, X12 UP single processor server, AMD A+ H13 1U and 2U Hyper, A+ H13 1U/2U CloudDC, A+ H12 1U Ultra X12 2U Mainstream and 1U WIO, X11 Ultra servers and X13 2U 4-node GrandTwin SYS-211GT-HNC8R, optimized for the branch office and edge deployment scenarios.

X13 2U 4-node GrandTwin SYS-211GT-HNC8R



Supermicro SYS-211GT-HNC8R

Scale
4 to 16 nodes

Single Node Data

- 8 to 64 cores Intel 5th Gen
- 256GB to 4TB memory
- 4.8TB to 92TB raw storage
- NVMe
- 25GbE (Up to 100GbE)

X12 2U Mainstream:



Supermicro SYS-620P-TR

Scale
2 to 16 nodes

Single Node Data

- 16 to 80 cores Intel 3rd Gen
- 128GB to 1024GB memory
- 8TB to 160TB raw storage
- HDD
- 25GbE (Up to 100GbE)

X13 Hyper 2U Hybrid:



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



Supermicro SYS-621H-TN12R – Hybrid

Scale

2 to 16 nodes

Single Node Data

-  15 to 120 cores Intel 4th Gen
-  128GB to 4TB memory
-  4TB to 160TB raw storage
-  NVMe + HDD
-  25GbE (Up to 100GbE)

X13 UP CloudDC 1U All-flash NVMe:








Supermicro SYS-111C-NR – All Flash NVMe

Scale

1 to 16 nodes

Single Node Data

-  8 to 60 cores Intel 4th Gen
-  64GB to 2TB memory
-  3.75TB to 76.8TB raw storage
-  NVMe
-  25GbE (Up to 100GbE)

X13 UP WIO 1U All-flash SATA SSD:



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




Supermicro SYS-511E-WR-HCI – All Flash SSD

Scale

1 to 4 nodes

Single Node Data

-  8 to 52 cores Intel 4th Gen
-  64GB to 1TB memory
-  4TB to 31TB raw storage
-  SATA SSD
-  25GbE (Up to 100GbE)








Supermicro SYS-111E-WR-HCI – All Flash SSD

Scale

1 to 4 nodes


Single Node Data

-  8 to 52 cores Intel 4th Gen
-  64GB to 1TB memory
-  4TB to 76.8TB raw storage
-  SATA SSD
-  25GbE (Up to 100GbE)



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A+ H13 CloudDC 1U/2U All-flash:




Supermicro AS-1115CS-TNR – All Flash NVMe

Scale
1 to 4 nodes

Single Node Data

- 16 to 128 cores AMD 4th Gen
- 192GB to 3.072TB memory
- 3.84TB to 150TB raw storage
- NVMe
- 25GbE (Up to 100GbE)




Supermicro AS-1015CS-TNR – All Flash NVMe

Scale
1 to 4 nodes

Single Node Data

- 16 to 128 cores AMD 4th Gen
- 192GB to 3.072TB memory
- 3.84TB to 60TB raw storage
- NVMe
- 25GbE (Up to 100GbE)




Supermicro AS-2015CS-TNR – All Flash NVMe

Scale
1 to 4 nodes

Single Node Data

- 16 to 128 cores AMD 4th Gen
- 192GB to 1.152TB memory
- 3.84TB to 180TB raw storage
- NVMe
- 25GbE (Up to 100GbE)

A+ H13 Hyper 1U and 2U All-flash:




Supermicro AS-2025HS-TNR-HCI – All Flash NVMe

Scale
1 to 4 nodes

Single Node Data

- 32 to 256 cores AMD 4th Gen
- 384GB to 3TB memory
- 7.68TB to 184.32TB raw storage
- NVMe
- Up to 100GbE



Supermicro AS-1125HS-TNR-HCI – All Flash NVMe

Scale
1 to 4 nodes


Single Node Data

- 32 to 256 cores AMD 4th Gen
- 384GB to 3TB memory
- 15.36TB to 61.44TB raw storage
- NVMe
- Up to 100GbE



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A+ H12 Ultra 1U All-flash:




Supermicro AS -1124US-TNRP-HCI – All Flash NVMe

Scale
2 to 16 nodes

Single Node Data

- 16 to 128 cores (AMD 3rd Gen)
- 128GB to 8TB memory
- 15.36TB to 92.16TB raw storage
- NVMe (Gen4)
- Up to 100GbE

A+ H12 WIO 1U All-flash:



Supermicro AS -1114S-WN10RT-HCI – All Flash NVMe

Scale
2 to 16 nodes

Single Node Data

- 8 to 64 cores (AMD 3rd Gen)
- 128GB to 4TB memory
- 15.36TB to 76.8TB raw storage
- NVMe (Gen4)
- Up to 100GbE




Supermicro AS -1114S-WN10RT-HCI – All Flash SSD

Scale
2 to 16 nodes

Single Node Data

- 8 to 64 cores (AMD 3rd Gen)
- 128GB to 4TB memory
- 960GB to 76.8TB raw storage
- SATA SSD
- Up to 100GbE

X12 Ultra 1U All-flash:



Supermicro SYS-120U-TNR-HCI – All Flash NVMe + SSD

Scale
2 to 16 nodes

Single Node Data

- 16 to 80 cores (intel 3rd Gen)
- 128GB to 4TB memory
- 3.75TB to 75TB raw storage
- NVMe + SSD
- Up to 100GbE



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X12 UP 1U All-flash:




Supermicro SYS-510P-MR – HCI – All Flash NVMe

Scale
2 to 4 nodes

Single Node Data

- 8 to 32 cores (intel 3rd Gen)
- 64GB to 256GB memory
- 4TB to 32TB raw storage
- NVMe
- 25GbE



Supermicro SYS-510P-MR – HCI – All Flash SSD

Scale
2 to 4 nodes

Single Node Data

- 8 to 32 cores (intel 3rd Gen)
- 64GB to 256GB memory
- 3.84TB to 30.4TB raw storage
- SSD
- 25GbE

X11 Ultra 1U/2U All-flash/Hybrid:




Supermicro SYS-1029U-TN10RT-HCI

Scale
2 to 16 nodes

Single Node Data

- 8 to 56 cores (intel)
- 128GB to 6TB memory
- 4TB to 153TB raw storage
- NVMe
- Up to 100GbE



Supermicro SYS-2029U-TN24R4T- HCI

Scale
2 to 4 nodes

Single Node Data

- 8 to 56 cores (intel)
- 128GB to 6TB memory
- 4TB to 367TB raw storage
- NVMe
- Up to 100GbE








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Supermicro SYS-1029U-TRT – HCI - Hybrid

Scale
2 to 4 nodes

Single Node Data





-  8 to 56 cores (intel)
-  128GB to 6TB memory
-  4TB to 60.8TB raw storage
-  NVMe + SSD + HDD
-  Up to 40GbE



Supermicro SYS-1029U-TRT – HCI – All Flash

Scale
2 to 4 nodes

Single Node Data

-  8 to 56 cores (intel)
-  128GB to 6TB memory
-  4TB to 60.8TB raw storage
-  NVMe + SSD
-  Up to 40GbE



Supermicro SYS-6029U-E1CR4-HCI – ALL Flash

Scale
2 to 16 nodes

Single Node Data

-  8 to 56 cores (intel)
-  128GB to 6TB memory
-  12TB to 96TB raw storage
-  NVMe + SSD
-  Up to 100GbE



Supermicro SYS-6029U-E1CR4-HCI - Hybrid

Scale
2 to 16 nodes

Single Node Data

-  8 to 56 cores (intel)
-  128GB to 6TB memory
-  12TB to 96TB raw storage
-  NVMe + SSD + HDD
-  Up to 100GbE

2. Plan Hardware Deployment

Please contact us for comprehensive deployment guidance.

Network and Switch Connectivity

Supermicro 2-node optimized solutions supports the switchless network architecture in which the two nodes are back-to-back directly connected without connecting to a network switch. This architecture uses minimum hardware footprint to achieve highly available environment for running virtualized workloads.




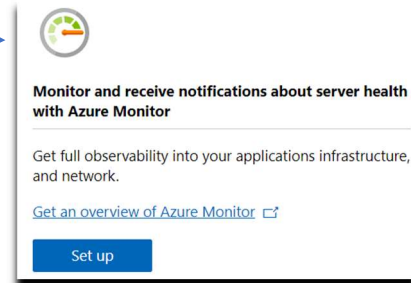
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Step by Step guide to [deploy Azure Stack HCI](#). Also install [Windows Admin Center \(WAC\)](#) for managing Azure Stack HCI.

From Windows Admin Center (WAC), set up **Azure Monitor** to gain insight into your application, network, and server health of your Azure Stack HCI Branch office and edge deployment.

Additionally, you can set up additional  Azure hybrid services such as Backup, File Sync, Site Recovery, Point-to-Site VPN, Update Management, and Security Center in WAC.



3. Enable Branch office and edge Modern Application support

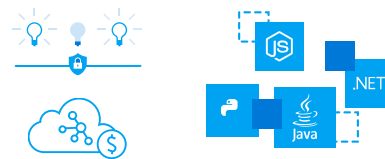
Once your Azure Stack HCI Branch office and edge setup is complete, follow the steps below to enable your environment to support Azure

What

What is Azure IoT Edge?

- Open source software from Microsoft
- Runs on Windows or Linux
- Built to run "on the edge" for near-real time responses
- Secured by software and hardware mechanisms
- Available AI Toolkit
<https://github.com/Azure/ai-toolkit-iot-edge>

- Open programmability: Java, .Net Core 2.0, Node.js, C and Python support
- Offline and intermittent connectivity support
- Natively managed from Azure IoT Hub



...combines AI, cloud and edge computing to containerize cloud workloads—such as Azure Cognitive Services, Machine Learning, Stream Analytics, and Functions—and run them locally on devices from a Raspberry Pi to an industrial gateway or converged edge server and manages edge applications / devices with Azure IoT Hub.

How do I deploy Azure IoT Edge on Azure Stack HCI?

1. [Create a VM on your Azure Stack HCI using Windows Admin Center](#)
(For supported OS versions, VM types, processor architectures and system requirements, click [here](#))
2. If you do not already have an Azure account, get your free account [here](#)
3. [Create an Azure IoT Hub](#) in the Azure Portal



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4. [Register an IoT Edge device](#) in the Azure Portal
(The IoT Edge "device" is the Windows or Linux VM running on your Azure Stack HCI installation)
5. [Install and start the IoT Edge runtime](#) on the VM you created in step 1
(You will need the device string created in step 4 above to connect the runtime to your Azure IoT Hub)
6. [Deploy a module to IoT Edge](#)
(Pre-built modules can be sourced and deployed from the [IoT Edge Modules section of the Azure Marketplace](#))

NOTE: In addition to gathering and processing IoT data from IoT sensors, Azure IoT Edge can also be utilized to deploy Containers with general purpose usage capabilities. Adding Azure IoT Edge to your Azure Stack HCI Branch office and edge deployments modernizes your environment to support [CI/CD pipeline](#) application deployment framework. Your DevOps personnel can deploy and iterate on Containerized applications that IT builds and supports via traditional VM management processes and tools>

Summary

With completion of the Azure Stack HCI Branch office and edge deployment and the installation and configuration of Azure IoT Edge, you now have a platform capable of running complex, highly available workloads in VMs and Containers for Branch office and edge deployments.

