

## 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 [Thomas-Krenn.AG](#) 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. Thomas-Krenn.AG Azure Stack HCI Systems
  - [Azure Stack HCI Rack-Series Variants](#)
  - [Azure Stack HCI Micro-Cluster Variants](#)
2. Plan your Azure Stack HCI environment with [Azure Stack HCI Solutions from Thomas-Krenn.AG](#)
  - Maximum flexibility and scalability
  - 2x Intel 3<sup>rd</sup> Generation Scalable CPUs each Node
  - Up to 4 TB RAM each Node
  - Up to 2x 200 GbE RDMA-Network each Node
  - Individual calculated Storage-Capacity available <sup>(1)</sup>
    - NVMe-Storage

(1) [Nested two-way Mirror](#) is highly recommended for 2-Node-Azure-Stack-HCI-Clusters

Please consider backup and restore times for large-capacity configurations. Most data protection solutions are not able to ingest and restore at speeds businesses expect.


3. Network and Switch Connectivity
  - [RoCE/RDMA](#) technology for Storage Spaces Direct Traffic.  
With RoCE there is additional DCB and PFC configuration required. Network devices have to support this capabilities.
  - Available as switch-connected or direct-attached solution <sup>(2)</sup>
    - One single/standalone switch
    - Two redundant/stacked switches
    - Direct-attached for RDMA (storage & cluster) traffic

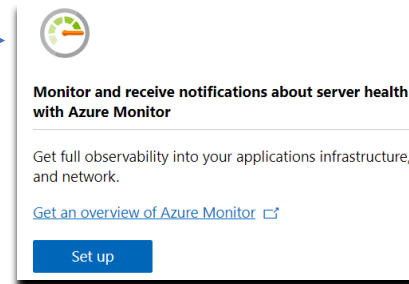
(2) Thomas-Krenn.AG recommends a switched configuration. The switch helps the cluster determine whether loss of node connectivity is due to node or network failure, ensuring more predictable failover behavior.

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

## AZURE STACK HCI: BRANCH OFFICE AND EDGE

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.

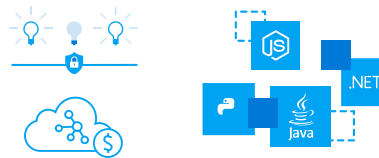


### Enable Branch office and edge Modern Application support

Once your Azure Stack HCI Branch office and edge setup is complete, follow the steps below to enable your environment to support modern Container-based application development and IoT data processing by deploying a VM running Azure IoT Edge.

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
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](#))

## AZURE STACK HCI: BRANCH OFFICE AND EDGE

*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.