

AZURE STACK HCI: TRUSTED ENTERPRISE VIRTUALIZATION

Technical Use Cases
For Azure Stack HCI



Branch office and edge



Virtual desktop infrastructure



High-performance Microsoft SQL Server



Trusted enterprise virtualization



Scale-out storage

Leverage your Azure Stack HCI investment to run workloads on a highly secure infrastructure by choosing the hardware designed for the Trusted enterprise virtualization scenario, with unparalleled levels of operating system security enabled with [virtualization-based security \(VBS\)](#) and hybrid cloud capabilities made easy through Windows Admin Center.

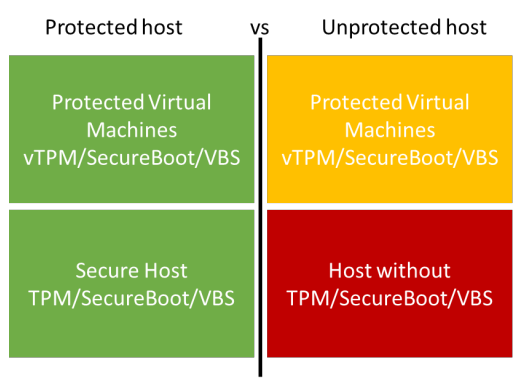
Below, you will find a how-to guide for building an infrastructure for the Trusted enterprise virtualization scenario on Azure Stack HCI that includes:

- Overview of Trusted enterprise virtualization scenario
- Step by step guidance of deploying VBS-enabled Azure Stack HCI and Azure Security Center via Windows Admin Center

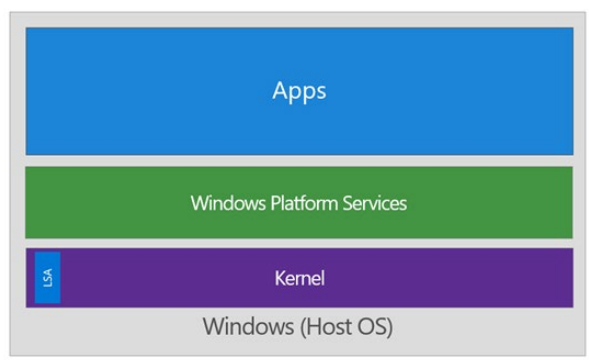
Overview of Trusted enterprise virtualization scenario

Virtualization-based security (VBS) is a key component of the [security investments in Azure Stack HCI](#) to protect hosts and virtual machines from security threats.

For example, the [Windows Server 2019 Security Technical Implementation Guide \(STIG\)](#) is published as a tool to improve the security of Department of Defense (DoD) information systems, and lists VBS and hypervisor-protected-code-integrity (HVCI) as general security requirements. It is imperative to use host hardware that is VBS and HVCI enabled, in order for the protected workloads on virtual machines to fulfil their security promise because protection of virtual machines is not guaranteed on a compromised host.



VBS uses hardware virtualization features to create and isolate a secure region of memory from the normal operating system. Windows can use this "virtual secure mode" to host a number of security solutions, providing them with greatly increased protection from vulnerabilities in the operating system, and preventing the use of malicious exploits which attempt to defeat protections. VBS uses the Windows hypervisor to create this "virtual secure mode", and to enforce restrictions which protect vital system and operating system resources, or to protect security assets such as authenticated user credentials. With the increased protections offered by VBS, even if malware gains access to the operating system kernel the possible exploits can be greatly limited and contained, because the hypervisor can prevent the malware from executing code or accessing platform secrets.



One such example security solution is HVCI, which uses VBS to significantly strengthen code integrity policy enforcement. Kernel mode code integrity checks all kernel mode drivers and binaries before they're started and prevents unsigned drivers or system files from being loaded into system memory.

HVCI leverages VBS to run the code integrity service inside a virtual secure mode, providing stronger protections against kernel viruses and malware. The hypervisor, the most privileged level of system software, sets and enforces page permissions across all system memory. Pages are only made executable after code integrity checks inside the virtual secure mode have passed, and executable pages are not writable. That way, even if there are vulnerabilities like buffer overflow that allow malware to attempt to modify memory, code pages cannot be modified, and modified memory cannot be made executable.

How to deploy VBS and HVCI-enabled Azure Stack HCI

1. Plan Hardware Deployment

All the Azure Stack HCI solutions by primeLine are certified for the Hardware Assurance Additional Qualification, which tests for [all the functionality needed for VBS](#). However, VBS and HVCI are not automatically enabled in Azure Stack HCI and Step 2 will guide you how to enable them.

Warning: Hypervisor-protected code integrity (HVCI) may be incompatible with devices not listed in the Azure Stack HCI catalog. Microsoft strongly recommends using an Azure Stack HCI validated solution from one of our hardware partners at <https://www.microsoft.com/en-us/cloud-platform/azure-stack-hci-catalog> for the Trusted enterprise virtualization scenario.

These primeLine egino HCI Series SKUs are recommended for Trusted Enterprise Virtualization scenarios.


egino HCI Series 22242i-C624-NN1
egino HCI Series 22242i-C624-NN2
egino HCI Series 22242i-C622-NS1
egino HCI Series 22242i-C624-NS2
egino HCI Series 22242i-C624-XN2
egino HCI Series 22242i-C622-XS1
primeLine egino HCI Series G2 22242i-C624-NA1
primeLine egino HCI Series G2 22242i-C624-NS1

We recommend to contact our Azure Stack HCI experts for individual configuration for the use case. primeLine offers services for deployment, management and training on the product.

2. Deploy VBS-Enabled Azure Stack HCI

- Deploy Azure Stack HCI
 - [Step by Step guide to deploy Azure Stack HCI](#)
 1. Install Windows Server 2019 Datacenter
 2. Add Roles and Features
 3. Setup Failover Clustering and enable a Cluster Witness
 4. Setup Storage Spaces Direct
- [Enable virtualization-based protection of code integrity](#)

3. Set up Azure Security Center through WAC

- [Install Windows Admin Center \(WAC\)](#)
- From Windows Admin Center (WAC), set up Azure Security Center to add threat protection and quickly assess your security posture of your workloads.
 - You can also setup additional  Azure hybrid services such as Backup, File Sync, Site Recovery, Point-to-Site VPN, Update Management, and Azure Monitor in WAC.

Resources

- [Windows Server Security and Assurance](#)
- [Microsoft Security Compliance Toolkit](#)
- [Windows 10 Enterprise Security](#)
- [Top 10 ways to secure Office 365 and Microsoft 365 Business plans](#)

Summary

With completion of the Azure Stack HCI Trusted enterprise virtualization deployment and the configuration of VBS / HVCI, you now have a platform with the highest security standards for protecting security sensitive workloads on both physical and virtual machines.