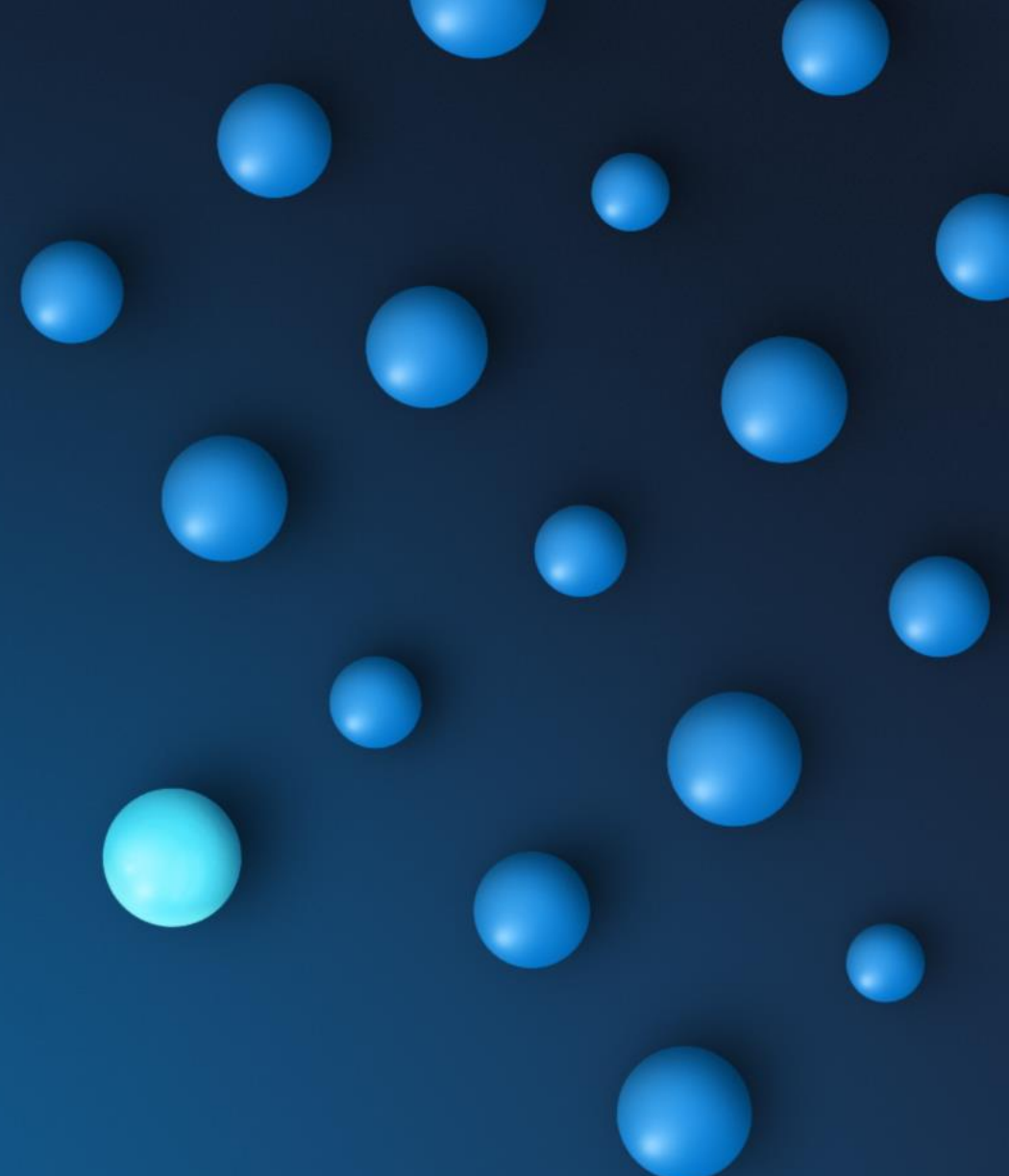




# Windows Server 2022

Overview Deck



# Prerequisites



## You should be familiar with the Windows Server operating system:

- Hybrid cloud model
- Server configuration and management
- Deployment scenarios, such as app modernization or remote desktop infrastructure
- Windows Server licensing



## Resources for more information:

- [Windows Server 2022](#)
- [Additional Assets](#)



# Key SB Market trends

- By 2022, 50 percent of organizations that don't have a **migration plan for Windows Server 2008** will be forced to migrate due to a security incident or compliance issue.
- **SMB momentum toward hybrid** is expected to grow fivefold in 2021 and beyond, helping to optimize the on-premises footprint and reduce overhead costs.
- 79 percent of organizations are on a **path to digital transformation**—deploying modern, flexible infrastructure and advanced IT-enabled capabilities to gain a competitive edge.
- 57 percent of SMBs say they will likely maintain **increased remote work options** for employees in the long term.

Sources (in order from top):

Jeffrey Hewitt, Gartner Blog Network, [What do you do when Windows Server 2008 ends?](#), June 2020.

Anurag Agrawal, Techaisle, [SMB and midmarket hybrid cloud adoption likely to explode exponentially](#), February 2021.

Anurag Agrawal, Techaisle, [Delivering digital transformation benefits to SMB and midmarket customers](#), August 2020.

Darcy Mekis, Intermedia, [New study finds more than half of US SMB owners believe working remotely is here to stay post-pandemic](#), May 2020.

# SB Market trends cont.

- **Ensuring data security and privacy** is the most important way technology companies can help SMB organizations. Surpassing remote communication and collaboration tools for workers to stay connected
- 47 percent of SMBs report their **largest IT security challenge** is keeping data secure, followed by preventing data loss and increasing employee security awareness.
- SMB's top 3 cloud adoption topics of interest are:
  1. **Hybrid Cloud**
  2. Private Cloud
  3. Software as a Service

Sources (in order from top):

Source: [FY21 Q3 SMB Progress Report\\_FINAL\\_032421.pptx \(sharepoint.com\)](#)

Opinion Matters (commissioned by VIPRE), [SMB Security Trends](#), September 2020.



# Windows Server 2022

The cloud-ready operating system to boost your customers' on-premises investments with hybrid capabilities

- Take advantage of cloud innovation
- Improve performance while lowering costs
- Modernize infrastructure for greater efficiency

Your customers can...

# Expect more from Windows Server 2022



## Hybrid capabilities with Microsoft Azure

Extend the datacenter to Azure using a cloud-ready operating system with hybrid capabilities



## Advanced multilayer security

Help protect data and apps at virtually every level of the business, starting with the operating system



## More secure remote working

Empower workers through simplified deployment and management of remote apps and desktops



## Modernized server infrastructure

Help transform existing infrastructure with flexible solutions like software-defined storage and networking

## Optimize with hybrid capabilities

**5x** growth in SMB momentum towards hybrid in 2021 and beyond



# Hybrid capabilities with Microsoft Azure

Your customers can ...

**Help achieve greater IT efficiency and cost savings with a cloud-ready operating system**

Drive profit with cloud-ready hybrid capabilities that help enhance efficiency and lower costs for key functions like backup and disaster recovery

Help maximize their IT team's time and productivity with centralized, unified server administration through Windows Admin Center

Glean deeper insights into their infrastructure, network, and application with Azure Monitor

Help improve workload uptime by automating frequent, time-consuming, and error-prone management tasks with Azure Automanage

Extend management capabilities to organize, govern, and help secure their multi-cloud environments with Azure Arc



# Advanced multilayer security

Protect with  
multilayer security

**47%** of SMBs report their  
largest IT security challenge is  
keeping data secure.<sup>2</sup>

Your customers can ...

**Help protect their business apps and data with next-level security capabilities**

Rely on holistic security to help protect both infrastructure and intellectual property against cybersecurity threats and advanced malware

Safeguard sensitive data with Secured-core solutions to help protect against inspection, theft, and tampering

Help maximize protection against emerging threats with comprehensive security across hardware, firmware, and operating system

Help detect and prevent zero-day exploits, network attacks, and data breaches with advanced threat protection

Meet industry standards for data security to help ensure data stays protected whether it resides on-premises or in the cloud





## Empower remote workers

**57%** of SMBs say they  
will likely maintain increased  
remote work options. <sup>4</sup>



# More secure remote working

Your customers can ...

**Enable remote users to easily run apps and desktops from nearly anywhere**

Enable workers to be productive from wherever they're working with enhanced security and more seamless access to remote desktops and apps

Keep workers engaged with an enhanced remote user experience that provides access to powerful features like high-performance storage and graphics

Save time by equipping IT with streamlined tools to help perform consolidated local and remote desktop server management

Save money with simplified remote desktop license management, which enables better allocation of Client Access Licenses (CALs) for Remote Desktop Services



Transform server  
infrastructure

79% of SMBs are on a path  
to digital transformation.<sup>3</sup>



# Modernized server infrastructure

Your customers can ...

**Modernize with Windows Server 2022  
solutions for greater scalability, security, and  
cost effectiveness**

**Achieve greater datacenter efficiency and better  
resource management with Windows Server  
software-defined datacenter solutions**

**Scale more effectively and economically  
with high-performance software-defined storage  
and networking that's affordable for businesses  
of virtually every size**

**Get best-in-class performance, scalability, and  
availability for business-critical workloads  
like Microsoft SQL Server on Windows Server 2022**

**Take the lead in app innovation with a modern  
containerized platform for help with building  
more secure, reliable, and powerful apps**

# Deliver customer value

Help your customers accelerate success  
by adopting modern technology



Help maximize investments by extending the datacenter to Microsoft Azure



Help protect business-critical data and apps with multilayer security capabilities



Empower remote employees to work comfortably and productively from nearly anywhere



Streamline server management across on-premises and cloud



Embrace server modernization to help improve performance and enable app innovation

# Windows Server 2022 Editions

Enterprise class technology to drive any sized business

Windows Server 2022 Essentials Edition	Windows Server 2022 Standard Edition	Windows Server 2022 Datacenter Editions
is ideal for small businesses with up to 25 users and 50 devices	is ideal for customers with physical or minimally virtualized environments	is ideal highly virtualized and software defined datacenter environments.
25 users/50 devices CALs are included	<b>Unlimited</b> , based on CALs	<b>Unlimited</b> , based on CALs
1 physical or virtual <sup>1</sup>	<b>2</b> VMs	<b>Unlimited</b> VMs
Must be root of domain	<b>2</b> Hyper-V containers <sup>2</sup>	<b>Unlimited</b> Hyper-V containers
Available in ROK and OEM	Available in COEM, ROK, and OEM	Available in COEM, ROK, and OEM

# Windows Server 2022 Licensing:

## Windows Server 2022 Essentials update



New SKU to replace Essentials – Windows Server 2022 Essentials (10 Core)



No changes to Windows Server 2022 Standard and Datacenter licensing

### Windows Server 2019 Essentials

1-5 CPUs

Up to 25 users or  
50 devices  
– CALs are included

1 physical and  
virtual instance

Must be  
root of domain

### Windows Server 2022 Essentials (10 Core)

10 cores  
single socket server (1 CPU)

Up to 25 users or  
50 devices  
– CALs are included

1 physical and  
virtual instance

Must be root of domain;  
may not market to bypass the

16-core minimum Windows  
Server license

# ISR/LOR Contest



# \$500

## Individual Prizes

SPIF rules apply + ISG min attn 100%

## ISRs | LORs | TSRs

30 Inside sales teams Small Business North America

**When:** W1-W13 Q3FY22

### **Mechanics:**

- 15 matches: Texas vs Tennessee Teams compete weekly on ISG attn
- ISRs vs ISRs | LORs vs LORs | TSRs vs TSRs
- Teams with higher ISG attn score one point per week
- By the end of Quarter the 15 teams that score more points win the match and **take it all!**
- Within the winning teams **Individual reps** win \$500 (ISG min attn 100%)

Are you ready?



Thank you



# Appendix





# Advanced multi-layered security

**Elevate** your security posture of your organization starting with the operating system

---

- ✓ Apply advanced multi-layer protection against threats enabled easily with secured-core server
- ✓ Secure connectivity to business-critical assets with latest in network security innovation
- ✓ Protect data-in-use with confidential computing

# Secured-core server

Secure hardware, firmware and OS capabilities to help protect against advanced threats



## Advanced protection

Defense-in-depth protection over multiple layers across hardware, firmware and OS

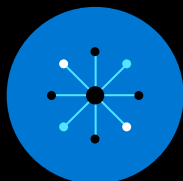
- Security with Windows Defender System Guard provides system integrity against firmware attacks
- Virtualization-based security (VBS) isolates critical parts of the system from advanced malware



## Preventative defense

Disrupt practical attack vectors proactively

- VBS features such as HVCI and Credential Guard prevent entire classes of vulnerabilities and better protect sensitive assets like credentials
- Trusted Platform Module 2.0 (TPM 2.0) provides hardware root-of-trust used as a secure foundation.



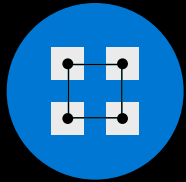
## Simplified security

Server OEMs develop systems with certified built-in security

- Collaboration with ecosystem partners to simplify security enablement
- Windows Admin Center provides an easy access to configure secured-core server

# Secure connectivity

Latest in network security innovation for Windows Server



## Transport

- Faster and more secure encrypted HTTPS connections
- TLS 1.3 enabled by default on Windows Server 2022



## Secure DNS

- Encrypted DNS name resolution requests with DoH



## SMB

- SMB AES-256 encryption for the most security conscious
- East-West SMB encryption controls for internal cluster communications
- Get industry standard encryption without compromising performance using SMB encryption with RDMA



# Hybrid capabilities with Azure

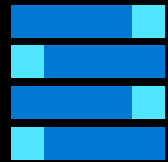
**Expand** your datacenter to Azure for greater IT efficiency

---

- ✓ Use improved tools for hybrid server management with Windows Admin Center
- ✓ Extend Azure services to on-premises using [Azure Arc](#)
- ✓ Easily migrate file servers with improved Storage Migration Service
- ✓ Simplify IT management and enhance security with Azure Automanage for Windows Server

# Azure Arc enabled Windows Servers

Bring on-premises and multi-cloud Windows Servers to Azure with Azure Arc



## Reach

Virtual machine  
& bare-metal  
Domain agnostic



## Management

At-scale searchable inventory  
Unified management experience  
Consistent VM Extensions



## Governance & security

Built-in Azure policies  
Server security baseline  
Role-based access control  
Compliance across environments



Any infrastructure, same tools



# Manage Windows Server from anywhere

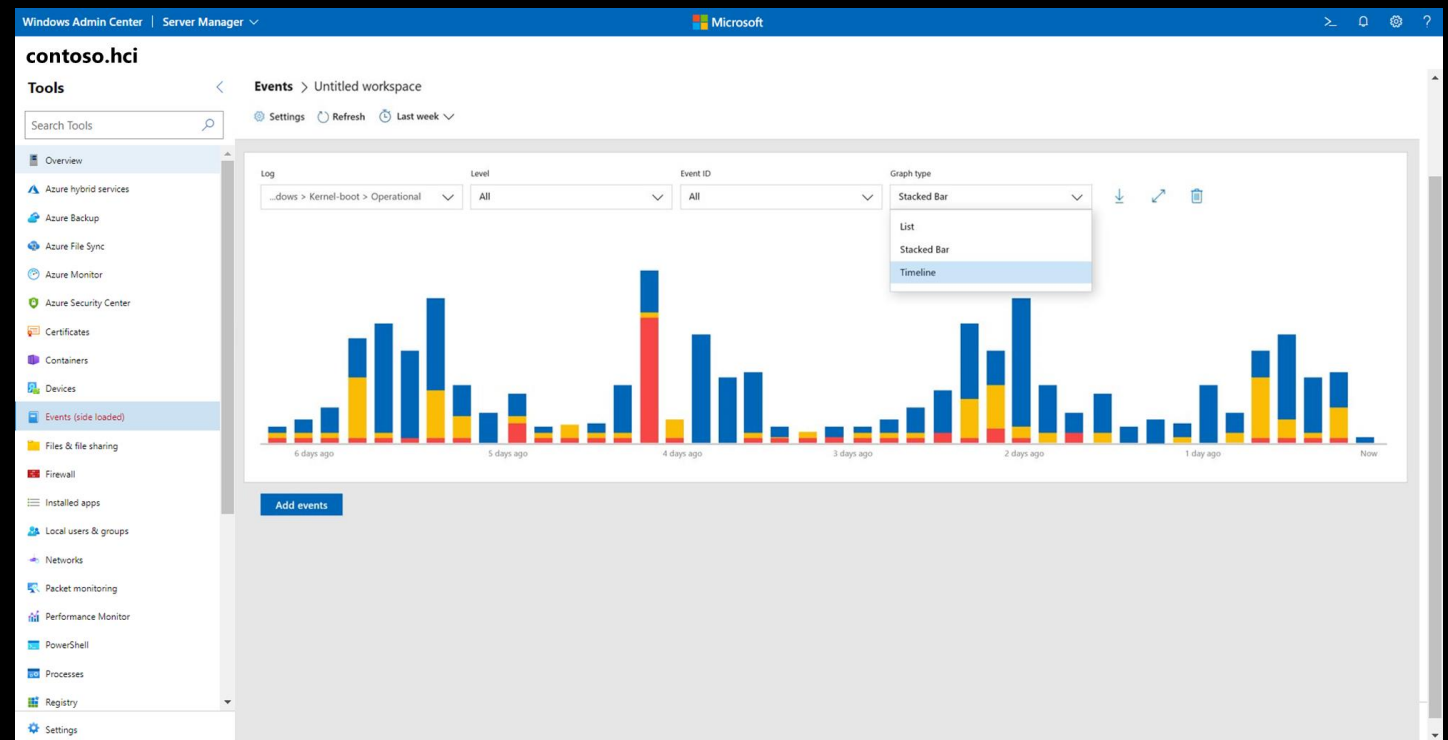
## with Windows Admin Center v2103

**Windows Admin Center v2103 is now generally available** with the latest and greatest features for your server management experience

### Introducing...

- A new look to Event Viewer
- Improved virtual machine management with unique customization and seamless live migration support
- Automatic in-app updates that keeps your Windows Admin Center gateway and extensions always up-to-date
- Significant performance and accessibility improvements with an upgrade to HTTP/2
- Support for management over a web proxy

And so much more!

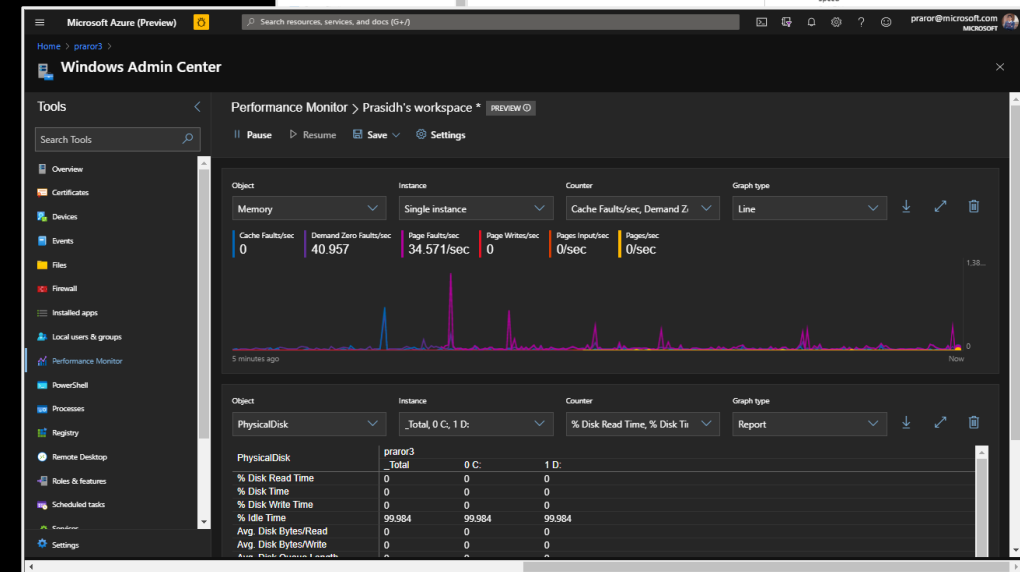
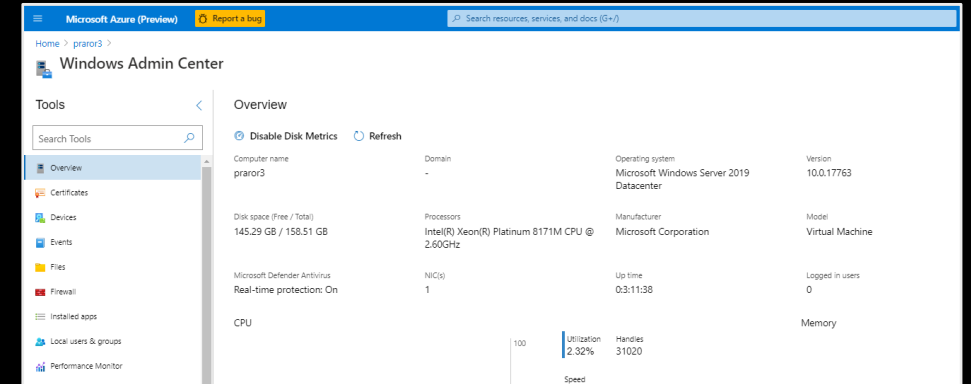


# Windows Admin Center

## Available in Public Preview Azure

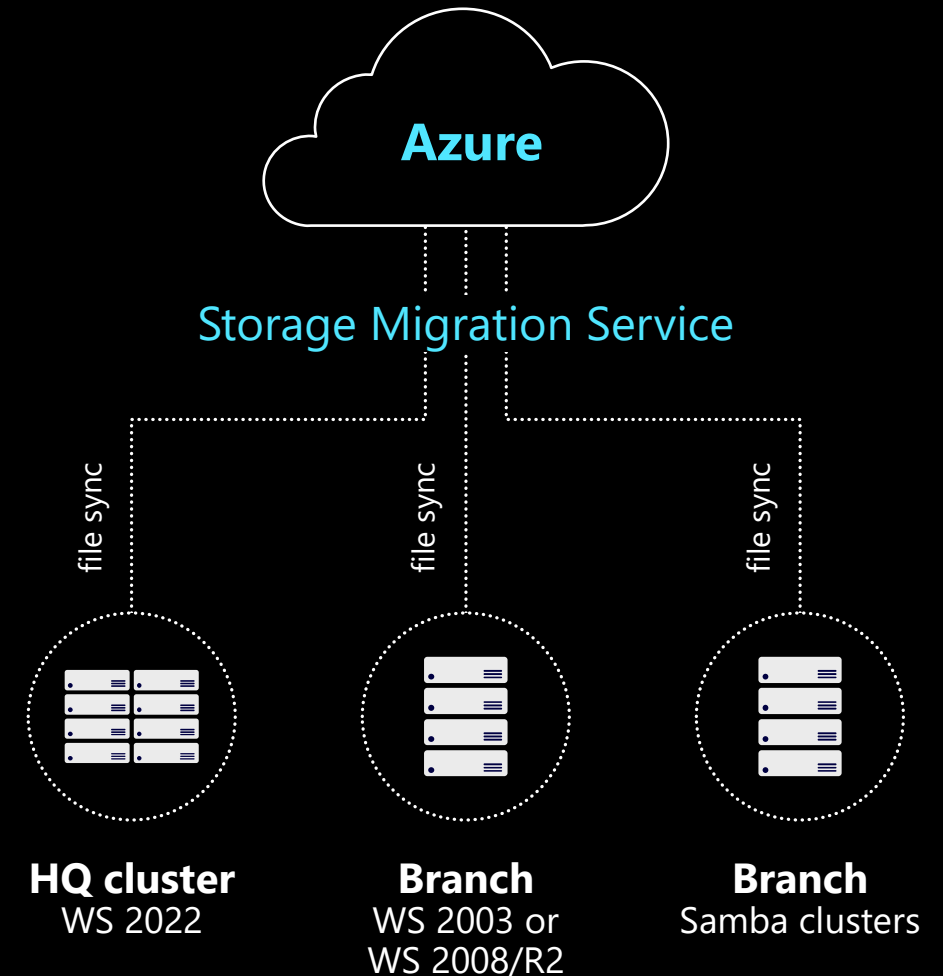
Your favorite server management tool available natively in the Azure Portal

- ✓ Included to manage your Azure VMs
- ✓ Granular management, configuration, troubleshooting, and maintenance functionality
  - Support for VMs with Private IP addresses
  - Integrated certificate experience
- ✓ Available for Windows Server 2016 and 2019 VMs
- ✓ Always up to date with the newest features



# Storage Migration Service with Windows Server 2022

- Migrate emulated file servers from NetApp FAS to Windows Server clusters
- Enable Azure File Sync during migrations and SMS can migrate your data onto a modern Windows Server Virtual Machine on Azure

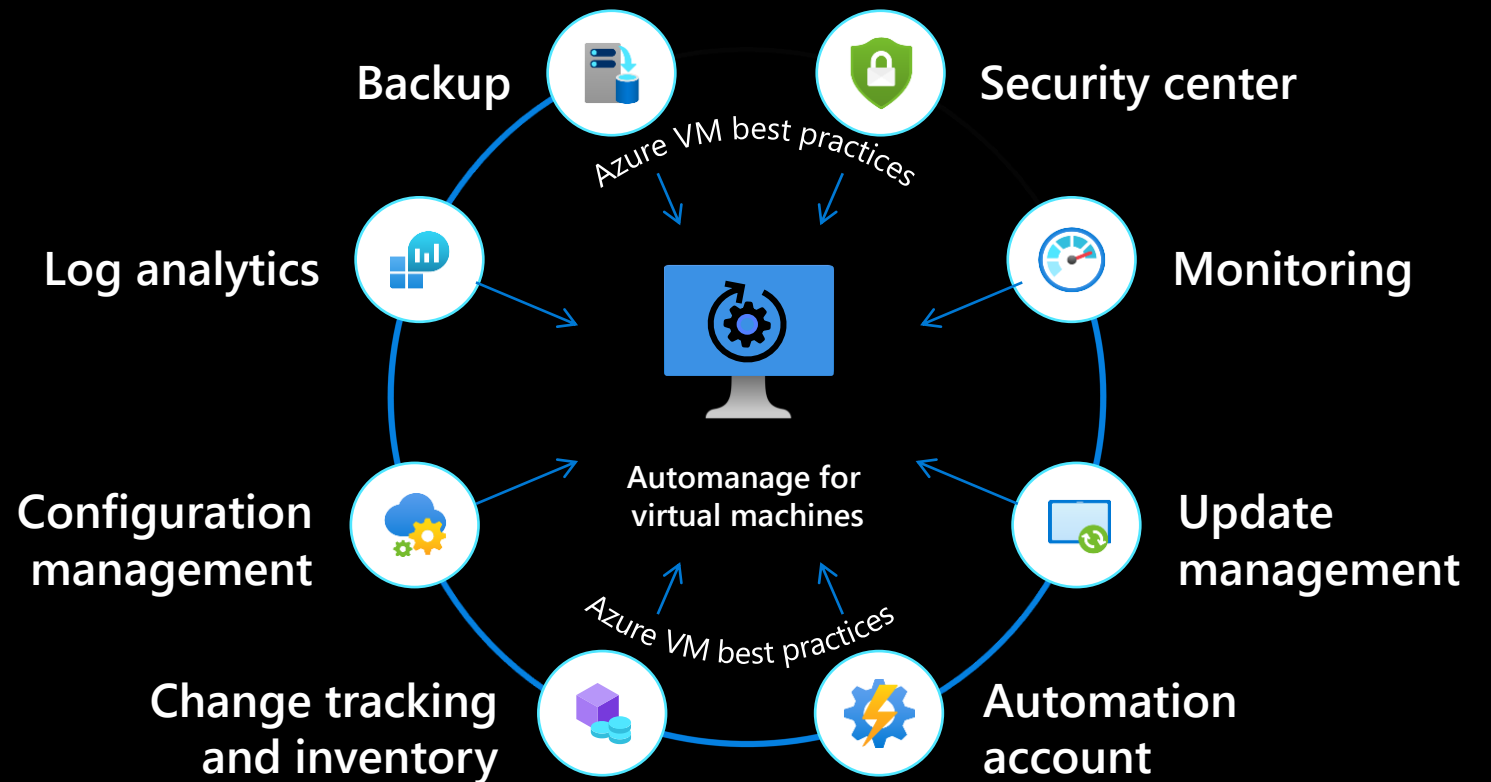




# Azure Automanage

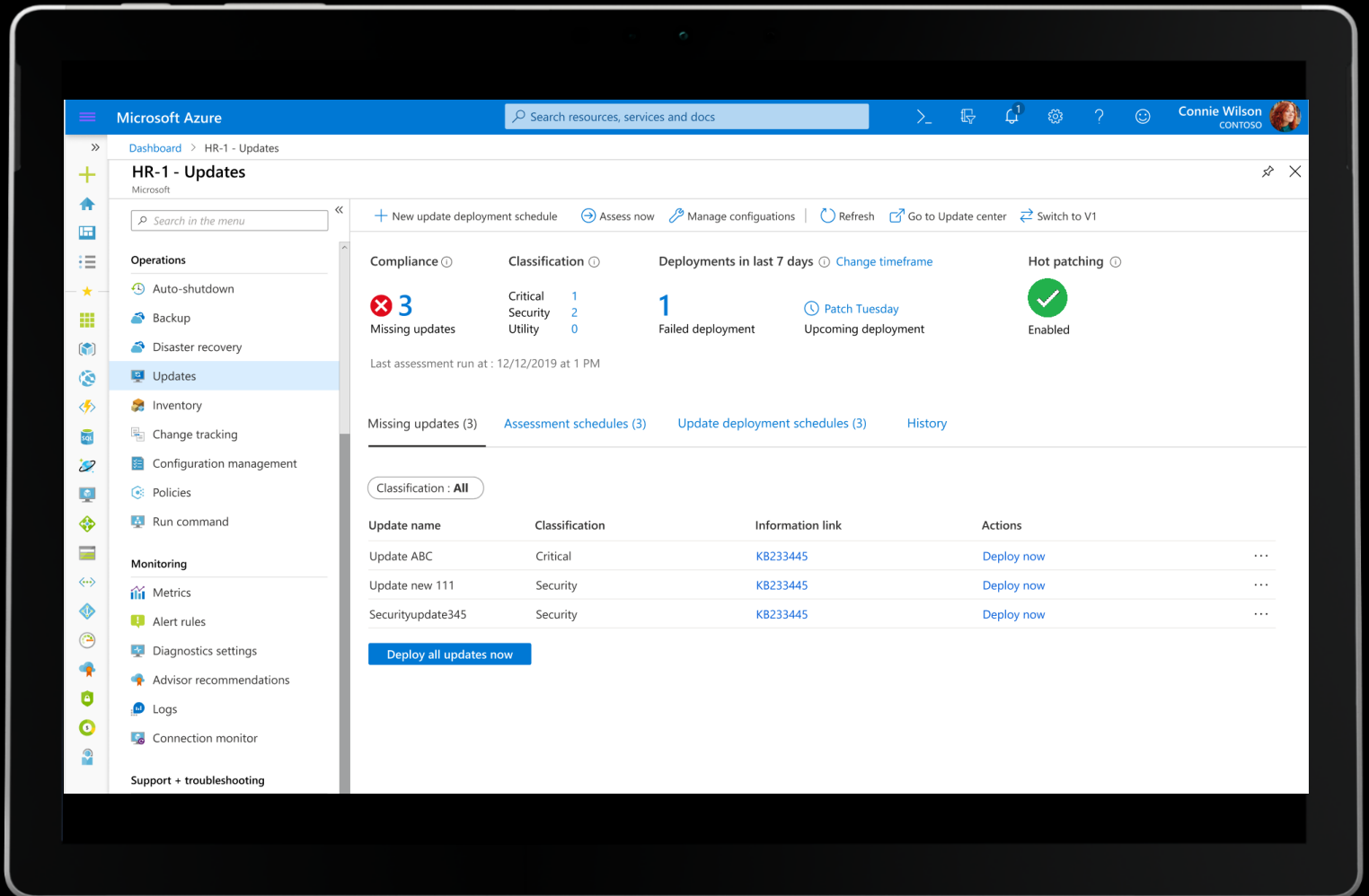
## Simplify IT Operations for Windows Server VMs

- Exception only management of Windows Server VMs
- Ease of service discoverability once enrolled in Azure Automanage
- Security patches applied without reboot to protect against critical security threats



# Azure Automanage for Windows Server

- Automatically apply security patches to new Windows Server VMs to protect against critical threat
- Maintain high-availability for apps and services running on Windows Server VMs while keeping your environment protected
- Automatic enrollment for ease of service discoverability





# Flexible application platform

**Empower** developers and IT pros with application platform to build and deploy diverse applications

---

- ✓ Run business critical workloads such as SQL Server with 48TB of memory, and 2048 logical cores.
- ✓ Improve container application deployment with smaller image size and simplified authentication.
- ✓ Accelerate modernization of .NET applications with the new containerization tool in Windows Admin Center.
- ✓ Scale containerized applications with Kubernetes using improvements in network policy implementation.

# SQL Server: Better together with Windows Server 2022

**48 TB**

Memory and highly-optimized for large memory systems

**64** sockets

**2048** logical processors

Support for massive scale-up systems

**Isolated apps**

Confidential computing with Intel Secured Guard Extension (SGX) on Intel Ice Lake

# Accelerate app modernization with Windows containers



---

## Better Container Platform

- General container **scalability** and **performance** improvement
- Support for **IPv6** and multiple subnets for flexibility in Kubernetes deployments



---

## Increased App compatibility

- Run **globally-scalable** applications with virtualized time zones in Windows containers
- gMSA v2 allows for **Active Directory** dependent applications on non-domain joined container hosts



---

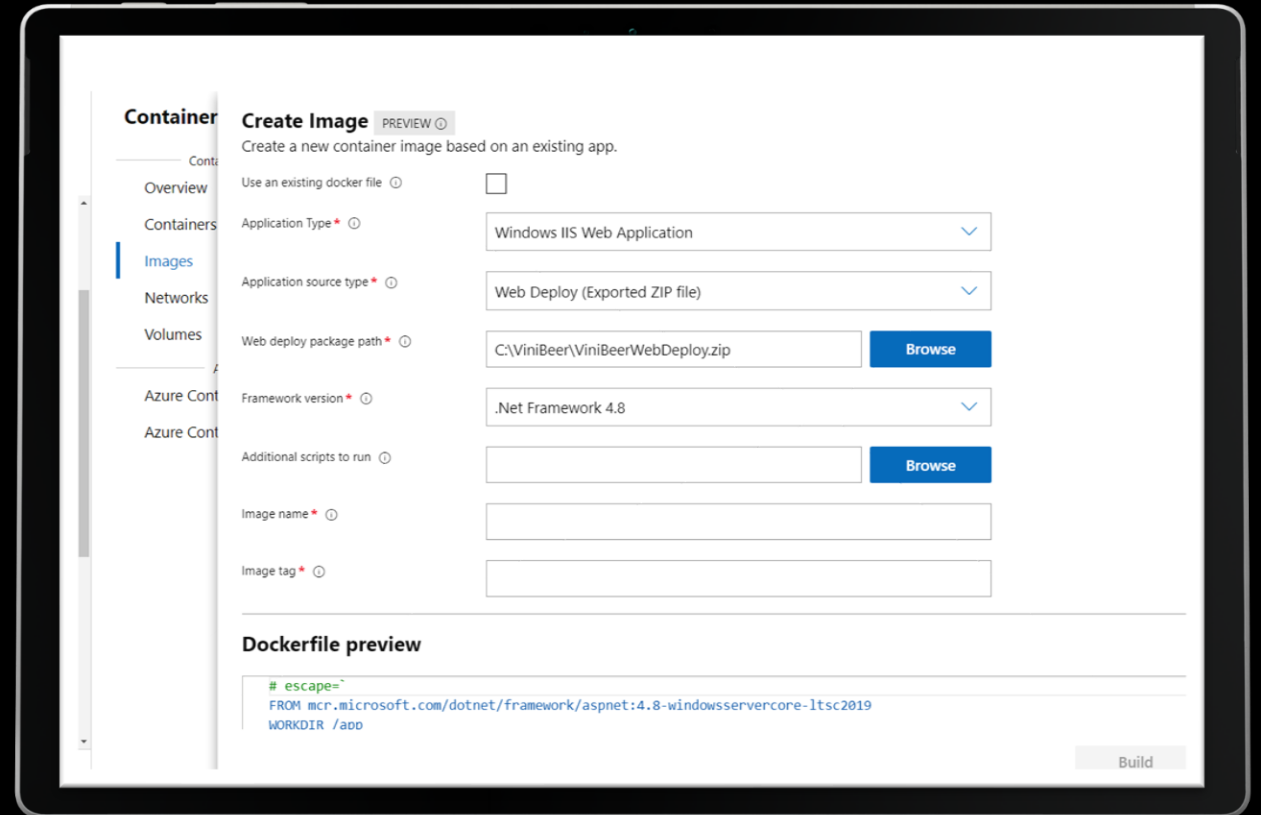
## More Kubernetes Integration

- Alignment with industry standard **containerd**, bringing latest and greatest to Windows containers
- Enabling consistent **network policy** implementation across **hybrid Kubernetes clusters**

# Improved tools for app modernization

## Container tool in Windows Admin Center

- ✓ Easily containerize applications with an easy to use and friendly UI on Windows Admin Center
- ✓ Support for containerizing ASP.Net, Web Deploy, .Net, and MSI applications
- ✓ Deploy containerized applications to AKS and AKS on Azure Stack HCI directly from Windows Admin Center
- ✓ Skip the overhead of writing dockerfiles and YAML files and let Windows Admin Center do that for you!



# Windows Server 2022 Feature Summary

Use Cases	Key Features	WS 2019 Std	WS2019 DC	WS2022 Std	WS2022 DC	AzStack HCI
<b>Security All-up</b>	Secured Core	-	-	●	●	●
	System Guard for data corruption attacks	-	-	◐	◐	◐
	Secure DNS client over HTTPS (DoH)	-	-	●	●	●
	Secured data at rest and in transit (AES-256 Encryption)	-	-	●	●	●
	Support for TLS 1.3	-	-	◐	◐	◐
<b>Physical Machine</b>	Increased Memory Support (5-level paging support to support larger memory servers)	-	-	◐	◐	◐
<b>Virtualization Server</b>	Virtualization Rights	2 VMs	unlimited	2 VMs	Unlimited	-
	Software Defined Network/Storage	-	○	-	◐	●
	Storage Spaces Direct	-	○	-	◐	●
	Storage Replica	-	○	-	◐	●
	In-place upgrades from WS2012 to WS2021	-	-	●	●	●
<b>Containers</b>	Containers Rights	Unlimited	Unlimited	Unlimited	Unlimited	-
	Hyper-V containers	Limited	○	Limited	◐	◐
	Faster and small images	○	○		◐	◐
<b>Hybrid</b>	Hotpatch	-	-	-	-	●
	Extended Network	-	-	-	-	●
	SMB over QUIC	-	-	-	-	●

● 2021 new feature  
 ◐ Enhancement  
 ◑ Quality improvement  
 ○ 2019 feature as is  
 - Not present

\*Only major and medium value features listed

# Windows Server 2022 Licensing:

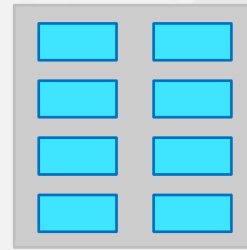
## Windows Server 2022 Standard and Datacenter

Windows Server 2022 licensing model

Licensing based on Physical Cores

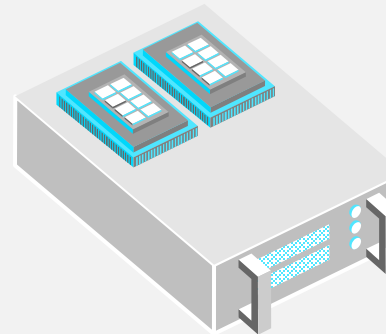
To be compliant all physical cores must be licensed

1



Minimum  
8 cores/  
processor

2



Minimum 16  
cores/server



# Windows Server 2022 Licensing Scenarios

Windows Server 2022 Standard and Datacenter

Windows Server 2022 licensing model

Licensing based on Physical Cores

## Customer wants to license

- 1** 1 physical server    2 processors    4 cores each

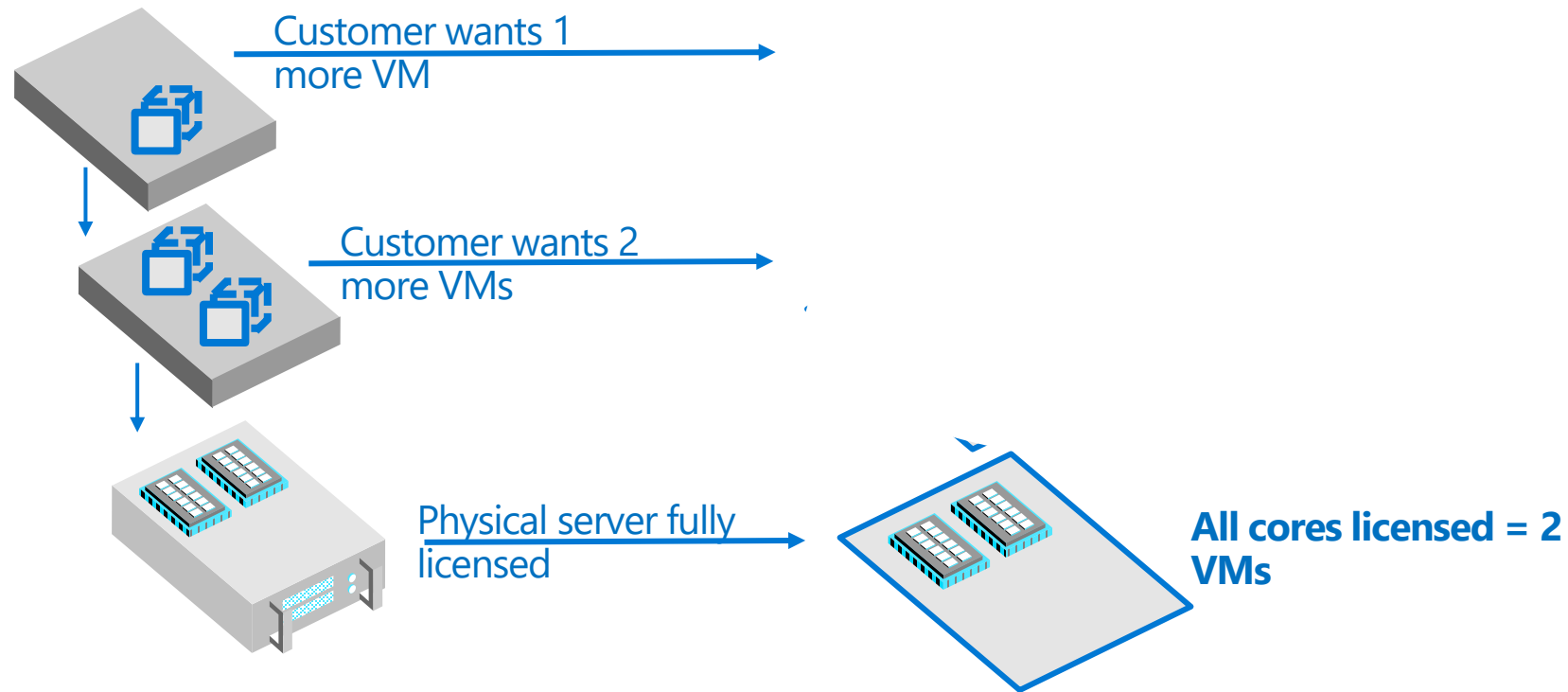
  - ✗ 4 cores/proc does not meet minimum license requirements
  - ✓ Minimum is 8 cores/processor .
  - ✓  $2 \text{ Processors} * 8 \text{ Cores/processor minimum} = 16 \text{ Cores to license}$
- 2** 1 physical server    1 processor    8 cores each

  - ✗ Server does not meet minimum cores/server requirements
  - ✓ Minimum is 16 cores/server
  - ✓  $1 \text{ Processors} * 16 \text{ Cores/server minimum} = 16 \text{ Cores to license}$
- 3** 1 physical server    2 processors    12 cores each

  - ✗ All cores must be licensed to be compliant
  - ✗ Additional 8 cores licensing required to be compliant
  - ✓  $2 \text{ Processors} * 12 \text{ Cores/processor} = 24 \text{ Cores to license}$

# Windows Server 2022 Standard Licensing Scenarios for Virtualization

Every time all the cores are licensed on the physical server you are granted 2 VMs<sup>1</sup>



<sup>1</sup>VMs are licensed only in 2 packs

# Windows Server 2022 CAL Licensing

## Windows Server 2022 Standard and Datacenter

- CALs are required to access any virtual instance of Windows Server and must be purchased separately.
- 2022 CALs provide access to Windows Server 2019 or any version.
- CALs from any previous Windows Server version only work for that version or any previous version.
- When you upgrade to Windows Server 2022, you need to purchase new Windows Server 2022 CALs.

## Windows Server CALs are version specific



Windows Server 2022

Windows Server 2019

Windows Server 2019/  
2012 and prior editions

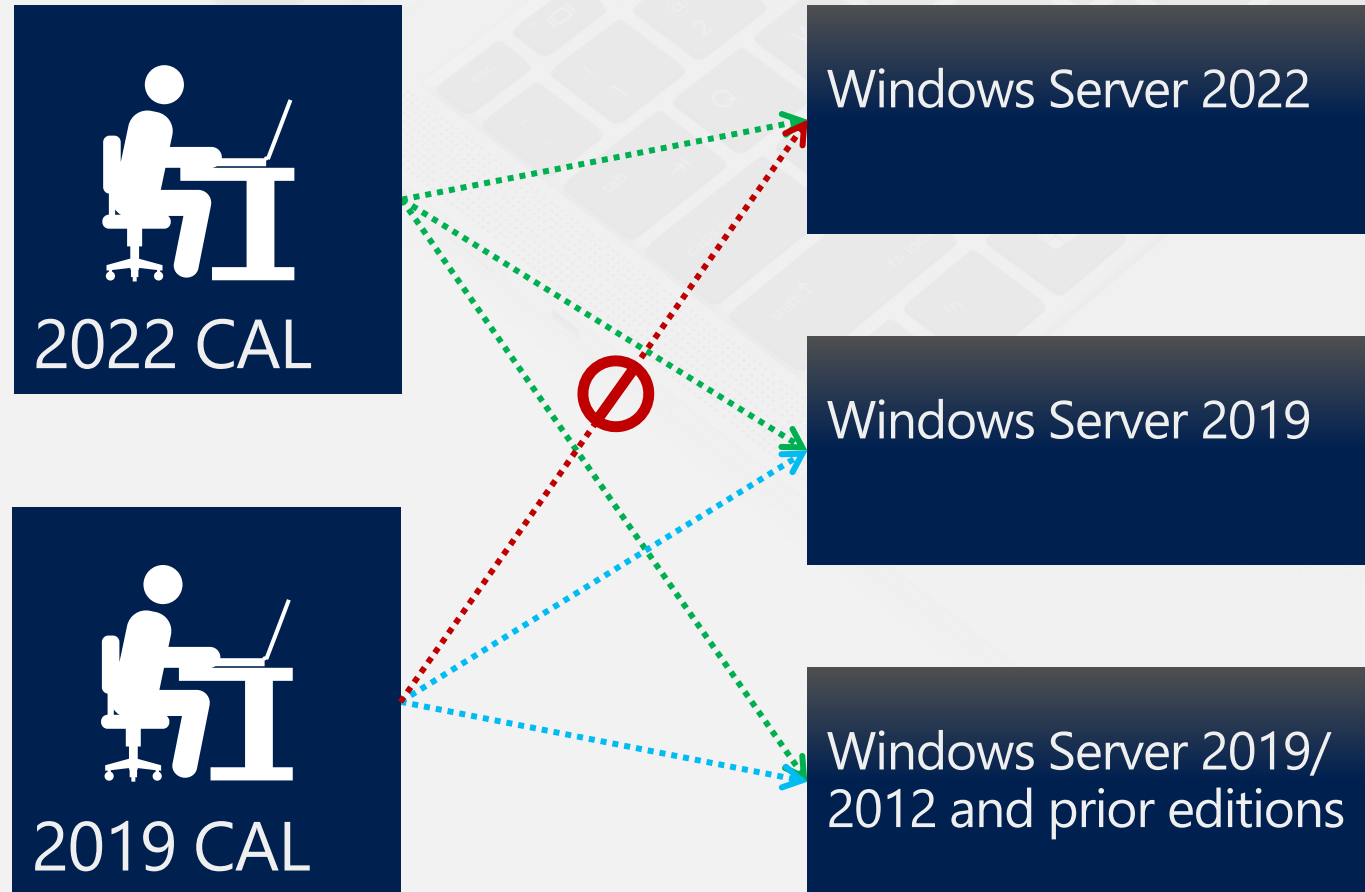


# Windows Server 2022 CAL Licensing

## Windows Server 2022 Standard and Datacenter

- CALs are required to access any virtual instance of Windows Server and must be purchased separately.
- 2022 CALs provide access to Windows Server 2019 or any version.
- CALs from any previous Windows Server version only work for that version or any previous version.
- When you upgrade to Windows Server 2022, you need to purchase new Windows Server 2022 CALs.

## Windows Server CALs are version specific



# Types of Windows Server 2022 CALs

## Windows Server 2022 Standard and Datacenter

- CALs are required to access any virtual instance of Windows Server and must be purchased separately.
- 2022 CALs provide access to Windows Server 2019 or any version.
- CALs from any previous Windows Server version only work for that version or any previous version.
- When you upgrade to Windows Server 2022, you need to purchase new Windows Server 2022 CALs.



Ideal for companies with employees who need to have roaming access to the corporate network using multiple devices, as well as from unknown devices.



Ideal for companies with multiple users for one device, such as shift workers.



Ideal for companies with users that need to access programs or the full desktop remotely.

# Windows Server 2022 Downgrading

<b>Windows Server Datacenter 2022</b>			
Downgrade Right distance	Downgraded Version or Edition	Bit Rights that apply	Licensing Rights that apply
N-2	Datacenter 2019	Datacenter 2019	Datacenter 2022
N-2	Standard 2019	Standard 2019	Datacenter 2022
N-2	Datacenter 2016	Datacenter 2016	Datacenter 2022
N-2	Standard 2016	Standard 2016	Datacenter 2022

<b>Windows Server Standard 2022</b>			
Downgrade Right distance	Downgraded Version or Edition	Bit Rights that apply	Licensing Rights that apply
N-2	Standard 2019	Standard 2019	Standard 2022
N-2	Standard 2016	Standard 2016	Standard 2022

# Windows Server Product Lifecycle

Windows Server release	Availability	Mainstream support end date	Extended support end date
Windows Server 2022 (Long-Term Servicing Channel) (Datacenter, Standard)	08/18/2021	10/13/2026	10/14/2031
Windows Server 2019 (Long-Term Servicing Channel) (Datacenter, Essentials, Standard)	11/13/2018	01/09/2024	01/09/2029
Windows Server 2016 (Long-Term Servicing Channel) (Datacenter, Essentials, Standard)	10/15/2016	01/11/2022	01/11/2027
Windows Server 2012/R2 (Datacenter, Essentials, Standard, Foundation, Embedded)	11/25/2013	10/09/2018	10/10/2023

# Windows Server Product Lifecycle

Windows Server release	Availability	Mainstream support end date	Extended support end date
Windows Server 2022 (Long-Term Servicing Channel) (Datacenter, Standard)	08/18/2021	10/13/2026	10/14/2031
Windows Server 2019 (Long-Term Servicing Channel) (Datacenter, Essentials, Standard)	11/13/2018	01/09/2024	01/09/2029
Windows Server 2016 (Long-Term Servicing Channel) (Datacenter, Essentials, Standard)	10/15/2016	01/11/2022	01/11/2027
Windows Server 2012/R2 (Datacenter, Essentials, Standard, Foundation, Embedded)	11/25/2013	10/09/2018	10/10/2023



# Windows Server 2022 FAQ

---

Is there any change to Windows Server 2022 Licensing?

- Windows Server 2022 Standard & Datacenter have no changes to licensing.
  - Windows Server 2022 Essentials changed
    - 10 Cores on a single socket server
    - Up to 25 uses or 50 devices
    - Must be root of domain
- 

Do I need to buy CALs for Windows Server 2022?

- Any user/device accessing data, applications, or managed by Windows Server 2022 will need a CAL.
- 

Can I split a 16-core license between two 8 core servers?

No, each server must be licensed with a minimum on 16 cores.

---

Do I need to buy CALs for Windows Server 2022?

- Any user/device accessing data, applications, or managed by Windows Server 2022 will need a CAL.

# Windows Server 2022 FAQ

---

Can I use WAC as a Domain Controller?

- No, Windows Admin Center is a locally deployed, browser-based app for managing Windows servers, clusters, hyper-converged infrastructure, as well as Windows 10 PCs. It is a free product and is ready to use in production.
- 

Can I install Windows Server 2022 if my server does not have TPM 2.0?

- A Trusted Platform Module (TPM) chip is required in order to use certain features such as BitLocker Drive Encryption. If your computer uses TPM, it must meet these requirements:
  - Hardware-based TPMs must implement version 2.0 of the TPM specification.
  - TPMs that implement version 2.0 must have an EK certificate that is either pre-provisioned to the TPM by the hardware vendor or be capable of being retrieved by the device during the first boot.
  - TPMs that implement version 2.0 must ship with SHA-256 PCR banks and implement PCRs 0 through 23 for SHA-256. It is acceptable to ship TPMs with a single switchable PCR bank that can be used for both SHA-1 and SHA-256 measurements.
  - A UEFI option to turn off the TPM is not a requirement..
- [See: Hardware requirements for Windows Server | Microsoft Docs](#)

# Windows Server 2022 FAQ

---

How does Azure Arc integrate with Windows Server?

- Azure Arc simplifies governance and management by delivering a consistent multi-cloud and on-premises management platform. Azure Arc enables you to:
  - Manage your entire environment, with a single pane of glass, by projecting your existing non-Azure, on-premises, or other-cloud resources into Azure Resource Manager.
  - Manage virtual machines, Kubernetes clusters, and databases as if they are running in Azure.
  - Use familiar Azure services and management capabilities, regardless of where they live.
  - Continue using traditional ITOps, while introducing DevOps practices to support new cloud native patterns in your environment.
  - Configure Custom Locations as an abstraction layer on top of Azure Arc-enabled Kubernetes cluster, cluster connect, and cluster extensions.

Today, Azure Arc allows you to manage the following resource types hosted outside of Azure:

- Servers - both physical and virtual machines running Windows or Linux.
- Kubernetes clusters - supporting multiple Kubernetes distributions.
- Azure data services - Azure SQL Managed Instance and PostgreSQL Hyperscale services.
- SQL Server - enroll instances from any location with SQL Server on Azure Arc-enabled servers