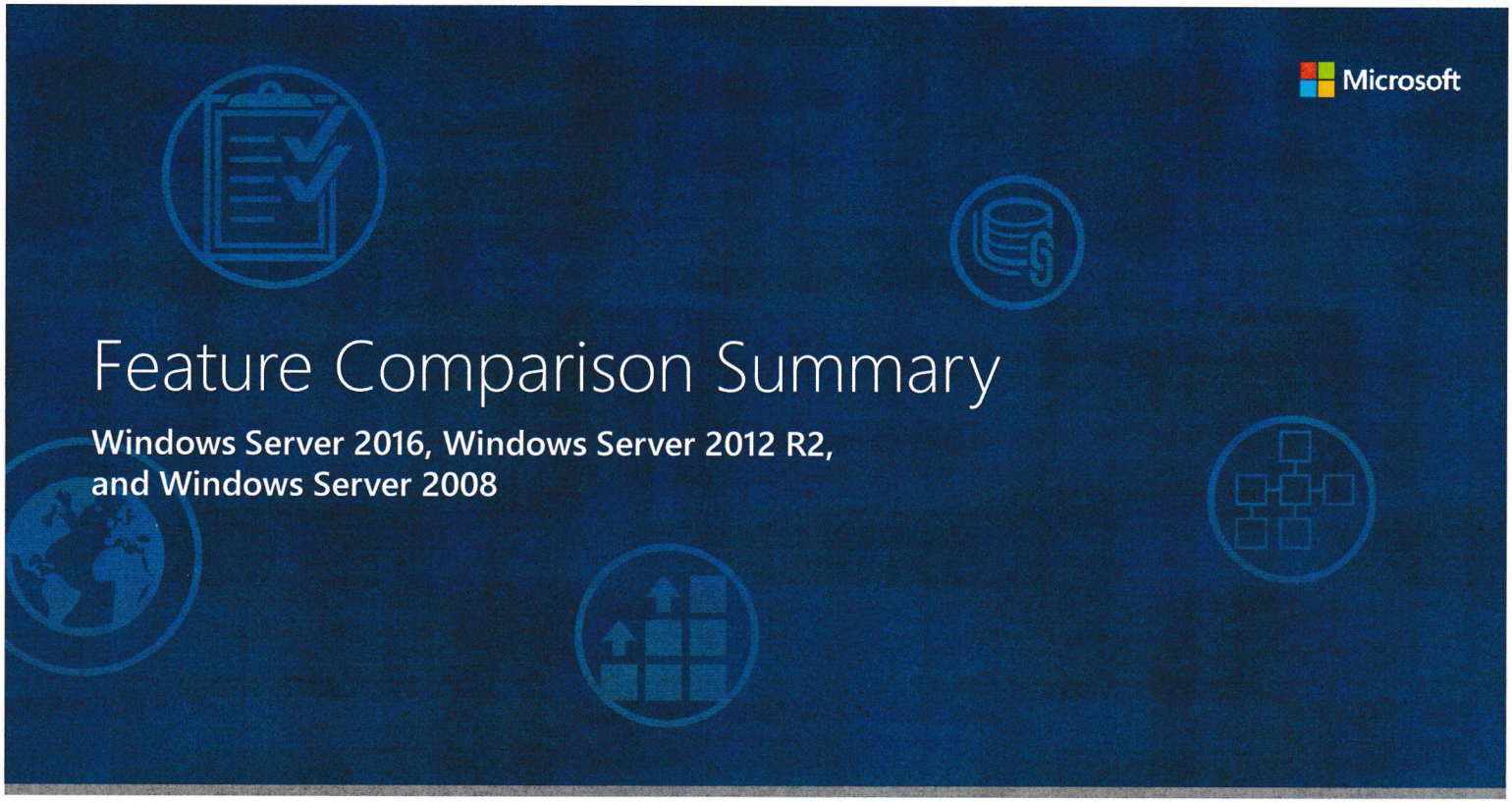

Feature Comparison Summary

Windows Server 2016, Windows Server 2012 R2, and Windows Server 2008

Windows Server 2016 – The cloud-ready operating system

Thanks to cloud technology, the rate of change is faster than ever before, putting more pressure on IT. Organizations demand increased security, efficiency, and innovation, and Windows Server 2016 delivers. Windows Server 2016 is the cloud-ready operating system that supports your current workloads while introducing new technologies that make it easy to transition to cloud computing when you are ready.

How to use this comparison guide

Use this guide to compare specific features of Windows Server versions to understand the differences between the version you are running today and the latest version available from Microsoft.

Security is a top priority for IT teams. New threats have made it harder than ever for IT to secure data and applications. Windows Server 2016 gives you new capabilities to help prevent attacks and detect suspicious activity, with features to control privileged access, protect virtual machines, and harden the platform against emerging threats

Scenario	Feature Description	Windows Server 2008 R2	Windows Server 2012 R2	Windows Server 2016
Security	**Shielded Virtual Machines:** Uses BitLocker to encrypt disk and state of virtual machines.	○	○	●
	Host Guardian Service: Ensures Hyper-V hosts running Shielded Virtual Machines are allowed and healthy hosts.	○	○	●
	Just Enough Administration (JEA): Lets you provide only the privilege that is required for privileged accounts.	●	●	●
	Just-in-Time Administration (JIT): Gives you the ability to provide only the privilege that is required, when it is required.	◑	●	●
	Credential Guard: Uses virtualization-based security to guard credential information.	○	○	●
	Remote Credential Guard: Works in conjunction with Credential Guard for Remote Desktop Protocol (RDP) sessions to deliver Single Sign-On (SSO), eliminating the need to pass credentials to the RDP host.	○	○	●
	Code Integrity: Allows only authorized executables to run on the machine.	○	○	●
	AppLocker: Provides policy-based access control management for applications.	◑	●	●
	Windows Defender: Automatically protects machines from malware while allowing legitimate applications to run.	◑	◑	●
	Control Flow Guard: Natively configured to block common vectors of attack.	○	○	●
	Generation 2 virtual machines: Allows VMs to use hardware-based security to leverage Secure Boot, BitLocker, etc.	○	◑	●
	Enhanced Threat Detection: Provides better log information.	○	◑	●
	Dynamic Access Control: Enables administrators to apply access-control permissions and restrictions based on well-defined rules.	○	●	●
	Windows Firewall with Advanced Security: Allows granular firewall configuration.	○	●	●
	BitLocker: Uses a hardware or virtual Trusted Platform Module (TPM) chip to provide disk encryption for data and system volumes.	◑	●	●
	Small-footprint Hyper-V host (Server Core/Nano Server): Minimizes attack surface with a Hyper-V host running minimum required components.	◑	◑	●

○ Not Supported ◑ Limited Support ● Fully Supported

Datacenter operations seem to earn more scrutiny than budget these days. New applications stretch the operational fabric and create infrastructure backlogs that can slow business. IT organizations are expected to do more with less, but an aging infrastructure with little automation becomes a hindrance to moving forward. As organizations look beyond server virtualization for more efficiency, they can use Windows Server 2016 capabilities to meet operational and security challenges, freeing up IT resources to plan and innovate on future solutions that drive business success.

Scenario	Feature Description	Windows Server 2008 R2	Windows Server 2012 R2	Windows Server 2016
Software-Defined Datacenter	**Cluster OS Rolling Upgrade:** Enables you to upgrade your server clusters from Windows Server 2012 R2 to Windows Server 2016 while continuing to provide service to your users.	○	○	●
	Linux support: New support for Linux Integration Services (LIS) and FreeBSD Integration Services (BIS) provides increased performance, management and access to Hyper-V features.	◑	◑	●
	Hot Add and Remove for disk, memory and network: Add or remove a network adapter and adjust the amount of memory assigned while the VM is running, without any interruption. The memory adjustment capability works even when you have Dynamic Memory turned on for a Hyper-V host.	○	◑	●
	Network Controller: Provides a centralized, programmable point of automation to manage, configure, monitor, and troubleshoot virtual and physical network infrastructure in your datacenter.	○	○	●
	Switch Embedded Teaming: Allows grouping of up to eight network adaptors in one of more software-based network adaptors.	○	○	●
	Network Function Virtualization (NFV): Allows you to deploy network functions such as gateways, load balancers, and firewalls, as virtual appliances or in the network fabric.	○	○	●
	Converged Networking: Provides ability to converge both RDMA and Ethernet traffic using a single network adaptor.	○	◑	●
	PacketDirect (PD): Provides a high network traffic throughput and low-latency packet processing infrastructure.	○	○	●
	Distributed Firewall: This new feature protects the network layer of virtual networks.	○	○	●
	Software Load Balancer (SLB): This feature is a Layer-4 load balancer that represents a version of the Azure offering and has been deployed at scale in the Azure environment.	○	◑	●
	Storage Spaces Direct: Enables industry standard servers with local storage to build highly available and scalable software defined storage.	○	○	●
	Storage Quality of Service (QoS): Gives the ability to create storage QoS policies on a Scale-Out File Server and assign them to one or more virtual drives on Hyper-V virtual machines.	○	◑	●

Scenario	Feature Description	Windows Server 2008 R2	Windows Server 2012 R2	Windows Server 2016
Software-Defined Datacenter	**Data deduplication:** Provides volume savings of up to 90% by storing duplicate files on a volume once using logical pointers.	○	◑	●
	Storage Replica: Provides storage agnostic, block-level, synchronous replication between servers for disaster recovery, and allows stretching of a failover cluster for high availability.	○	○	◑
	Site-Aware Failover Clusters: Enables nodes in stretched clusters to be grouped based on physical location, enhancing key cluster-lifecycle operations, such as failover behavior, placement policies, heartbeating between nodes, and quorum behavior.	○	○	●
	Windows PowerShell 5.0: Provides enhanced scripting capabilities for configuration, management and deployment of software-defined datacenter components.	●	●	●
	Storage health monitoring: Provides continuous monitoring, reporting, and maintenance to support Storage Spaces Direct.	○	○	●
	Mixed mode cluster: Provides ability for Windows Server 2012 R2 cluster nodes to operate with Windows Server 2016 nodes.	○	◑	●
	Azure Witness for cluster: Enables Azure blob storage as a witness in a quorum for a stretched cluster.	○	○	●
	StorSimple: Provides hybrid storage capabilities storage for your inactive data, while keeping your mission-critical data on-premises for the highest levels of performance.	●	●	●
	Virtual machine storage resiliency: Provides intelligent means to retain virtual-machine session states to minimize the impact of minor storage disruptions.	○	○	●
	Azure Consistent Storage: Delivers three critical Azure-consistent storage services for Azure Stack customers: blob, table and account management.	○	◑	●
	NVGRE, VXLAN, OVSDB support: Used to create encrypted tenant overlays between Hyper-V virtual machines.	○	◑	●
	RDS RemoteFX vGPU: Provides a rich desktop remoting experience (up to 4k) by allowing multiple VMs to share the same physical GPU for graphics acceleration.	○	◑	●
	High-availability RDS Connection Broker: Helps create a fault-tolerance connection broker for Remote Desktop scenarios.	○	◑	●
	RDS VM architecture for cloud: Windows Server 2016 can leverage Azure services for more cost effective solutions. (Application Proxy, AD Domain Services).	○	○	●
	MultiPoint Services Role: New role in Windows Server 2016 that enables low cost-per-seat by allowing multiple users to run their own sessions while connected to one machine.	○	○	●
	Server Management Tools: Allows remote server management of on-premises servers using Azure capabilities.	◑	◑	●
	Nano Server installation option: New remote-administered option for private clouds and datacenters.	○	○	●

Use Windows Server 2016 to deliver new ways to deploy and run the applications that can help you win, keep, and engage customers, whether on-premises or in Microsoft Azure. The cloud makes application innovation easier than ever. Now you can create new applications using containers, Nano Server, and microservices. For organizations that continue to run existing client-server applications, Windows Server 2016 is a great option as well.

Scenario	Feature Description	Windows Server 2008/R2	Windows Server 2012/R2	Windows Server 2016
Cloud-Ready Application Platform	**Windows Server containers:** Creates an isolated application environment (kernel, system drivers, etc.), in which you can run an application without fear of changes due to applications or configuration.	○	○	●
	Hyper-V containers: Provides a highly isolated environment in which to operate, where the host operating system cannot be affected in any way by any other running container.	○	○	●
	Windows PowerShell Desired State Configuration (DSC): Provides a set of PowerShell language extensions and cmdlets to declaratively specify how you want your software environment to be configured.	●	●	●
	Azure Service Fabric for Windows Server: Enables you to create a multi-machine Azure Service Fabric cluster in your own datacenter or in other public clouds.	●	●	●
	Visual Studio Code: Supports development operations such as debugging, task running and version control to provide just the tools a developer needs for a quick code-build-debug cycle.	●	●	●
	.NET Core: Helps create modern web apps, microservices, libraries and console applications that run on Windows, Mac, and Linux.	●	●	●
	Nano Server installation option: New, lightweight option for Windows Server 2016, perfect for running applications from containers or microservices.	○	○	●
	Windows PowerShell 5.0: Provides enhanced scripting capabilities for configuration, management and deployment of software-defined datacenter components.	●	●	●

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