Microsoft

Secure. Evolve. Innovate.

with Windows Server 2016

The cloud offers a new model that delivers faster time to value and innovation. Many organizations, however, face business requirements that are best met by a hybrid cloud model. For organizations that need it all—security, efficiency, and innovation—Windows Server 2016 delivers. It is the cloud-ready operating system that supports your current workloads while introducing new technologies that make it easy to transition to cloud computing.

Security at the OS level

Windows Server 2016 includes built-in breach resistance to help thwart attacks on your systems and meet compliance goals. Even if someone finds a way into your environment, the layers of security built into Windows Server 2016 limit the damage they can cause and help detect suspicious activity.

- **Protect your virtual machines.** Use the unique Shielded Virtual Machines feature to encrypt your VMs with BitLocker and help ensure they can run only on hosts approved by the Host Guardian Service.
- **Help secure admin credentials.** Protect admin credentials from Pass-the-Hash attacks using Credential Guard and Remote Credential Guard, and control administrator privileges with Just-In-Time Administration and Just Enough Administration, which together help minimize the time and capability granted for specific privileges.
- **Protect the operating system.** Resist breaches with built-in Control Flow Guard, which helps prevent memory corruption attacks, and Windows Defender, optimized for server roles. Help ensure only trusted software can be run on the server with Device Guard.
- **Improve ability to detect attacks.** Use advanced auditing capabilities to help detect malicious behavior.
- **Meet compliance requirements.** Built-in security components help address certification requirements for government and industry data-protection regulations, including SOX, ISO 27001, PCI DSS 3.2, and FedRAMP. Find more information at www.microsoft.com/en-us/cloud-platform/windows-server-security#compliance.

Run Windows Server 2016 in the cloud

Most organizations today run a mixture of on-premises and cloud-based workloads. Windows Server 2016 is designed to work as well in the cloud as on-premises. Many customers already "lift and shift" applications into a Windows Server-based IaaS virtual machine in the cloud; they gain immediate benefits of scale and agility, while letting someone else run the compute and storage infrastructure. Others are updating traditional .NET-based applications by moving them into Windows Server containers. Containers provide immediate agility benefits, and make it easier to update and extend applications using new cloud-based services.

Save up to 50 percent on Azure

Windows Server customers with Software Assurance can use their existing licenses to save up to 50 percent on Azure IaaS virtual machines. Check out the Azure Hybrid Use Benefit to get started at www.azure.com/ahub.

"We're moving towards a world where we don't need to know where our data is—on-premises or in the cloud. The combination of Storage Spaces Direct, Hyper-V, scale-out flash storage, and SMB3 allows us to focus on functionality rather than location. With Windows Server 2016, migration is no longer a project, just a task."

– Ulf Preisler, IT Director
Danske Fragtmænd

Evolve your infrastructure

Datacenter admins are struggling to reduce costs while handling more data. Meanwhile applications stretch the operational fabric and create infrastructure backlogs that can slow business. As organizations push the boundaries of highly virtualized environments, they can use Windows Server 2016 capabilities to gain cloud-like efficiencies in their datacenters. Advanced software-defined compute, storage, and networking features can help meet operational and security challenges.

Resilient compute

Run your datacenter with a highly automated, resilient server operating system.

- **Trust your workloads to an enterprise-class hypervisor.** You can be confident your workloads will perform on Hyper-V, which Microsoft uses to run hyper-scale datacenters around the globe. When needed, you also can easily migrate a Hyper-V workload from on-premises to a Windows Server VM in Azure.
- **Reduce datacenter footprint.** Increase availability and reduce resource usage with "just enough OS" using the Nano Server installation option, with an image that is 25x smaller than Windows Server 2016.
- **Upgrade efficiently.** Upgrade infrastructure clusters to Windows Server 2016 with zero downtime for your Hyper-V or Scale-out file server workloads, and without requiring new hardware, using Mixed OS Mode cluster upgrades.
- **Stay open.** Deploy applications on multiple operating systems with best-in-class support for Linux on Hyper-V.
- **Automate server management.** Use PowerShell and Desired State Configuration to automate routine operations.
- **Manage remotely.** Control Windows servers from anywhere using Server management tools, a new Azure-based GUI—especially useful for managing headless installation options such as Nano Server.

Affordable high-performance storage

Storage systems are critical to the performance of most business applications. But traditional, expensive, manually configured storage systems can prevent organizations from realizing the efficiency benefits of a software-defined datacenter. In contrast, the Azure-inspired, software-defined storage capabilities in Windows Server 2016 use policies and automation to reduce costs and add scale.

- **Reduce storage cost.** Build highly available, scalable hyper-converged storage solutions at a fraction of the price of SAN or NAS. With Storage Spaces Direct, use industry-standard servers with local storage, including high speed solid-state drives.
- **Create affordable business continuity.** Prepare for the worst using Storage Replica synchronous storage replication for disaster recovery among datacenters.
- **Prioritize storage resources.** Ensure critical applications receive priority access to storage resources using storage Quality of Service (QoS) policies.

Remote Desktop Services with Windows Server 2016

Desktop virtualization is one way IT leaders can more securely deliver applications to the wide array of devices that mobile workers use on the job. Because apps don't execute on the client devices, IT also helps secure corporate data, extends the life of older equipment, and gets more out of newer, lower-cost hardware. The remote desktop experience just got better with Windows Server 2016:

Support for cloud-managed domain services

Deploy easily in the cloud or on-premises, helping mobile workers be productive anywhere, anytime.

More efficient cloud deployment

Reduce the number of VMs required for deployment in Azure IaaS, which combines services into a single VM.

Better graphics experience

Graphics cards (GPUs) can be assigned to a virtual machine, unleashing the full power of available server-class graphics cards to virtual desktops and apps, thus using the native driver of the GPU.

Enhanced connection broker

Connection broker can now handle up to 10,000 concurrent connections.

Azure-inspired networking

Traditional network infrastructures are rigid and complex. Organizations can respond faster to market changes by moving the network control layer from hardware to software to create a software-defined network. This enables them to centrally configure and manage physical and virtual network devices such as routers, switches, and gateways, resulting in automatic load balancing and the ability to shift workloads without setting switches. IT can continue to use existing physical switches, routers, and other hardware devices with the virtual controllers, while achieving deeper integration between the virtual network and the physical network.

- **Manage by policy.** Deploy and manage workloads across their entire lifecycle with hundreds of networking policies (isolation, QoS, security, load balancing, switching, routing, gateway, DNS, etc.) in a matter of seconds using a scalable Network Controller.
- **Enhance network security.** Dynamically segment your network based on workload needs using a distributed firewall and network security groups to apply rich policies within and across segments. Layer enforcement by routing traffic to virtualized firewall appliances for even greater levels of security.
- **Gain workload mobility.** Take control of your hybrid workloads, including running them in containers, and move them across servers, racks, and clouds using standards-based VXLAN and NVGRE overlay networks and multi-tenanted hybrid gateways.

Application innovation

Increasingly, organizations use apps to help differentiate themselves from the competition. Apps help win, engage, and support customers. Developers building and updating the apps tend to have little patience for the realities of IT infrastructure. They don't want to wait long for IT services, and they want apps in production to work the same way the apps work on developers' machines.

Windows Server 2016 supports application innovation using container technology and microservices. Containers can help speed application deployment and streamline the way IT operations and development teams collaborate to deliver applications. In addition, developers can use microservices architectures to separate app functionality into smaller, independently deployable services, which make it easier to upgrade part of the app without affecting the rest.

Windows Server 2016 helps organizations update and innovate with their apps in three ways:

- **Secure fabric for existing applications.** Give your hard-working client-server applications some assistance. You can run existing apps on Windows Server 2016 without modifying them, which enables them to take advantage of enhanced security and efficiency features.

Management options

Microsoft System Center 2016

Whether you have a few servers or a few thousand, System Center provides efficient deployment and management functionality.

PowerShell and Desired State Configuration

Define, deploy, and manage your software environment through PowerShell scripting and Desired State Configuration, using a single console.

Server management tools

Use Server management tools, a free cloud service, to manage Windows Server instances both on-premises and in Azure.

Operations Management Suite

To manage and help protect workloads in multiple cloud types, you can extend management to Operations Management Suite (OMS) services for visibility and control across Azure, AWS, Windows Server, Linux, VMware, and OpenStack systems.

"Most of our application portfolio consists of older legacy applications that are cumbersome to update. By moving these applications into Windows Server containers and embracing a microservices architecture, we can break these big applications apart and update the pieces independently. This will reduce customer downtime and increase business agility."

– Stephen Tarmey
Chief Architect
Tyco International

- **Deliver container benefits to existing apps.** Containers help you move existing applications into a modern DevOps environment with little or no code changes, while gaining benefits such as continuous application delivery and better security. Containers can help you introduce new architectures, including microservices, which improve application agility and scale. Also, when developers package apps into containers for delivery to IT, they help standardize on a platform that streamlines deployment on-premises, to any cloud, or to a hybrid architecture across clouds. Now developers can use a production-ready, fully-supported version of Docker Engine to build, ship, and run containers in Windows Server 2016
- **Build cloud-native and hybrid apps.** Create new microservices applications using fewer and compressed resources, and more agile "just enough" technologies. Use containers to build, test, and deploy the apps to any cloud, including Microsoft Azure cloud infrastructure. Developers will appreciate the lightweight Nano Server installation option, which delivers Windows Server 2016 as a quick-start, practical platform optimized for building next-generation applications with containers or microservices.

Windows Server 2016 editions

Windows Server 2016 Datacenter for highly virtualized datacenter and cloud environments.

- Features exclusive to the Datacenter Edition include Shielded Virtual Machines, software-defined networking, Storage Spaces Direct, and Storage Replica.

Windows Server 2016 Standard for physical or minimally virtualized environments.

Windows Server 2016 Essentials for small businesses with up to 25 users and 50 devices.

Installation options

Customers who choose the Datacenter or Standard editions are able to customize their installation of Windows Server 2016 by choosing from three options:

Option	Scenario	Details
Server Core	Small-footprint, headless operating system removes the desktop UI from the server and runs only required components.	• Includes local graphical tools such as Task Manager and PowerShell for local or remote management. • Does not include MMC or Server Manager. • Supported as Long Term Servicing Branch (LTSB).
Nano Server	Extremely small, headless operating system ideal for reducing your datacenter footprint or running applications that use containers and microservices.	• Manage remotely, via PowerShell or the web-based Server management tools, or use existing remote management tools such as MMC or System Center. • Requires Software Assurance and Current Branch for Business servicing model.
Server with Desktop Experience (previously known as Server with a GUI)	Provides user experience for those who need to run an app that requires a local user interface or for a Remote Desktop Services Host.	• Experience a full Windows client shell and experience, consistent with Windows 10. • Use with Microsoft Management Console (MMC) and Server management tools available locally on the server. • Supported as Long Term Servicing Branch (LTSB).

Take the next step. Learn more at
www.microsoft.com/windowsserver

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