



Apps upgrade to **Windows Server 2019**

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Introduction

Digital transformation is fundamentally changing the ways organizations do business. The exponential rate at which technology is developing has already drastically transformed business processes and encouraged growth. In the era of digital transformation, business applications are the backbone of any organization, driving essential business processes and helping to engage customers. Many organizations are still running their business-critical applications with monolithic architecture over aging infrastructure and older operating system that are complex, expensive to support, and unable to meet changing business demands.

Microsoft brings digital transformation to your business applications with cloud-enabled and future-ready leading technologies. Windows Server 2019 opens new opportunities for small and medium-sized organizations to modernize legacy business applications and bridge on-premises environments with Azure services. At the same time, this latest operating system takes advantage of the new era of hybrid cloud computing with exciting innovations in modern technologies. Modernizing the operating systems that your business applications run on can directly lead to better application performance, enhanced security posture to protect business applications and data, flexibility to adopt new changes to meet business requirements, and much more.

This guide is intended to help IT decision makers, IT admins, and IT pros understand the importance of transforming legacy business applications using the latest version of Windows Server operating system, featured with modern and innovative technologies. It also covers possible ways to upgrade business applications running on the Windows Server platform to Windows Server 2019.

Outdated IT environments limit innovation and security

Small and medium-sized organizations often have limited IT resources and budgets, so building an up-to-mark IT infrastructure to ensure their business-critical applications are running as expected can be challenging and expensive. In a decade of innovation, cloud computing has brought about a fundamental shift in the way traditional IT infrastructure and technology resources are procured, utilized, and managed. The older versions of Windows Server operating system lack the benefits of the hybrid cloud, such as faster innovation for applications, easier and more efficient app development, scalability to meet business needs whenever they occur and enhanced security capabilities. The many challenges of outdated operating systems and existing infrastructure include:

- Lack of adaptability to meet modern business requirements

- Outdated security that fails to protect applications and data against modern security threats

- Complex operations due to isolated management across different application workloads

- Time-consuming manual process for resource provisioning

- End of support for Windows Server 2008 and 2008 R2

Transform applications with Windows Server 2019

Windows Server 2019 is the operating system that bridges on-premises environments with

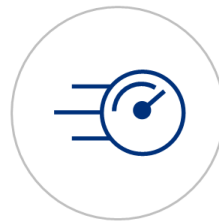
Azure services, adding additional layers of security while helping organizations modernize applications and infrastructure. It maximizes existing investments and builds on Windows Server security, app innovation, and hyper-converged infrastructure (HCI) capabilities to help bridge on-premises investments to the cloud. Windows Server 2019 is designed and engineered to help modernize datacenters, delivering on four key areas:



Unique hybrid datacenter platform



Enhanced security capabilities



Faster innovation for applications



Unprecedented hyper-converged infrastructure

Unique hybrid datacenter platform: Extend your datacenter to Azure to maximize your investments and gain new hybrid capabilities.

Enhanced security capabilities: Elevate your security posture by protecting the datacenter, starting with the operating system.

Faster innovation for applications: Enable the creation of cloud-native apps and modernize traditional apps using containers and microservices.

Unprecedented hyper-converged infrastructure (HCI): Evolve your datacenter infrastructure to achieve greater efficiency and security with enterprise-grade hyper-converged features.

Upgrade or transform your application with Windows Server 2019

When you and your organization decide to move your applications from an older version of Windows Server to Windows Server 2019, you need to identify the optimal way to upgrade or migrate with the least business risk. Microsoft provides comprehensive support for a complete application transformation journey, from assessing existing application workloads running on older versions of Windows Server to migration tools for transforming to the latest Windows Server to optimize workload performance.

Application assessment

Begin your application modernization journey with an assessment phase. Identifying business applications and server roles running on older operating systems helps to define the application portfolio, which calculates complexity, criticality, and risk to prioritize the upgrade or migration of applications and server roles.

Organizations can adopt these steps to assess applications

Discovery and inventory

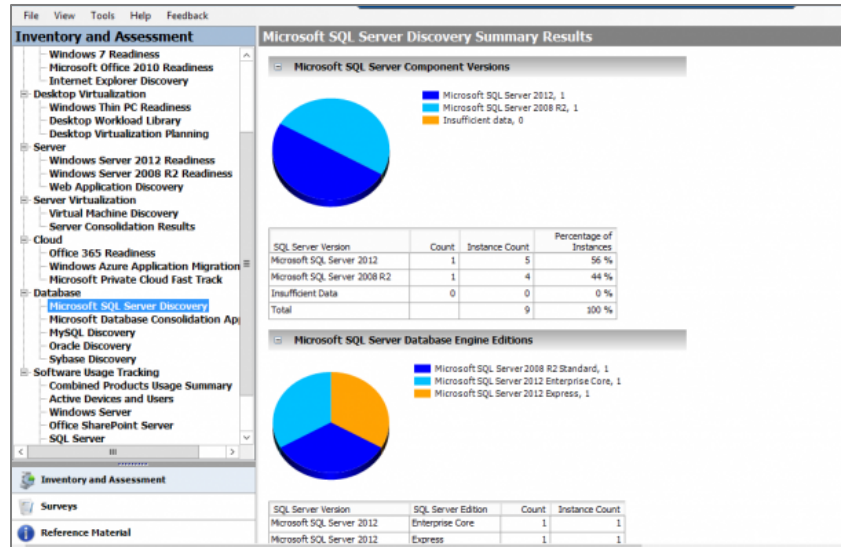
Your organization likely runs numerous application workloads across a range of servers. To kick-start any migration, you need an inventory mechanism that can feed data into subsequent steps. This will help you compile an inventory of physical and virtual servers running any version of Windows Server in your environment. This data can also include profile information and performance metrics about your workloads. At the end of this step, you'll have a complete inventory of servers deployed physically or as virtual machines (VMs) with metadata for each, giving you a comprehensive list of application servers and various server roles you need to upgrade.

Microsoft provides complete support with tools and guidance for your Windows Server migration journey.

Microsoft Assessment and Planning Toolkit

The [Microsoft Assessment and Planning \(MAP\) Toolkit](#) is an agentless, automated, multi-product planning and assessment tool for quicker and easier desktop, server, and cloud migrations. The MAP Toolkit provides detailed readiness assessment reports with extensive hardware and software information as well as actionable recommendations to help organizations accelerate their IT infrastructure planning process and gather more detail on assets that reside within their current environment. The MAP Toolkit also provides server utilization data for Hyper-V server virtualization planning, identifies server placements, and performs virtualization candidate assessments. The MAP Toolkit performs four key functions:

- Discovery and inventory of computers and applications
- Hardware and software migration readiness assessments
- Software usage tracking
- Capacity planning for virtualization
- Public and private cloud migration



The MAP Toolkit uses Windows Management Instrumentation (WMI), Active Directory Domain Services (AD DS), SMS Provider, and other technologies to collect data in your environment and inventory computer hardware, software, and operating systems in small or large IT environments without installing any agent software on the target computers.

Microsoft Data Migration Assistant

[Data Migration Assistant \(DMA\)](#) enables you to upgrade to a modern data platform by detecting compatibility issues that can impact database functionality on your new version of SQL Server. It recommends performance and reliability improvements for your target environment. Discover issues that can affect an upgrade to an on-premises SQL Server. These are described as compatibility issues and are organized in categories such as breaking changes, behavior changes, and deprecated features.

Discover new features in the target SQL Server platform that the database can benefit from with an upgrade. These are described as feature recommendations and are organized in categories such as performance, security, and storage. DMA replaces all previous versions of SQL Server Upgrade Advisor and should be used for upgrades for most SQL Server versions. Supported source and target versions are listed below:

Source version	Target version
SQL Server 2005	SQL Server 2012
SQL Server 2008	SQL Server 2014
SQL Server 2008 R2	SQL Server 2016
SQL Server 2012	SQL Server 2017 on Windows and Linux
SQL Server 2014	Azure SQL Database
SQL Server 2016	
SQL Server 2017 on Windows	

Microsoft recommends running assessments on production databases during non-peak times. It's also a best practice to perform the compatibility issues assessment and new feature recommendations assessment separately to reduce the assessment duration.

Partner assessment tools

You can also use tools and consulting services from Microsoft like [Movere](#), [Cloudamize](#), [TSO Logic](#), and [Turbonomic](#) to support the assessment process and beyond. With these tools as well as third-party tools, it becomes much easier to select the roles, features, applications, and VMs that are the best candidates for migration.

Application portfolio management

Once you get the list of application servers and various server roles you need to upgrade through the discovery phase, it's time to define the application portfolio. The application portfolio helps assess the technical complexity, risk, and business impact of each application, and classifies it to determine when it should be targeted for upgrade or migration. The

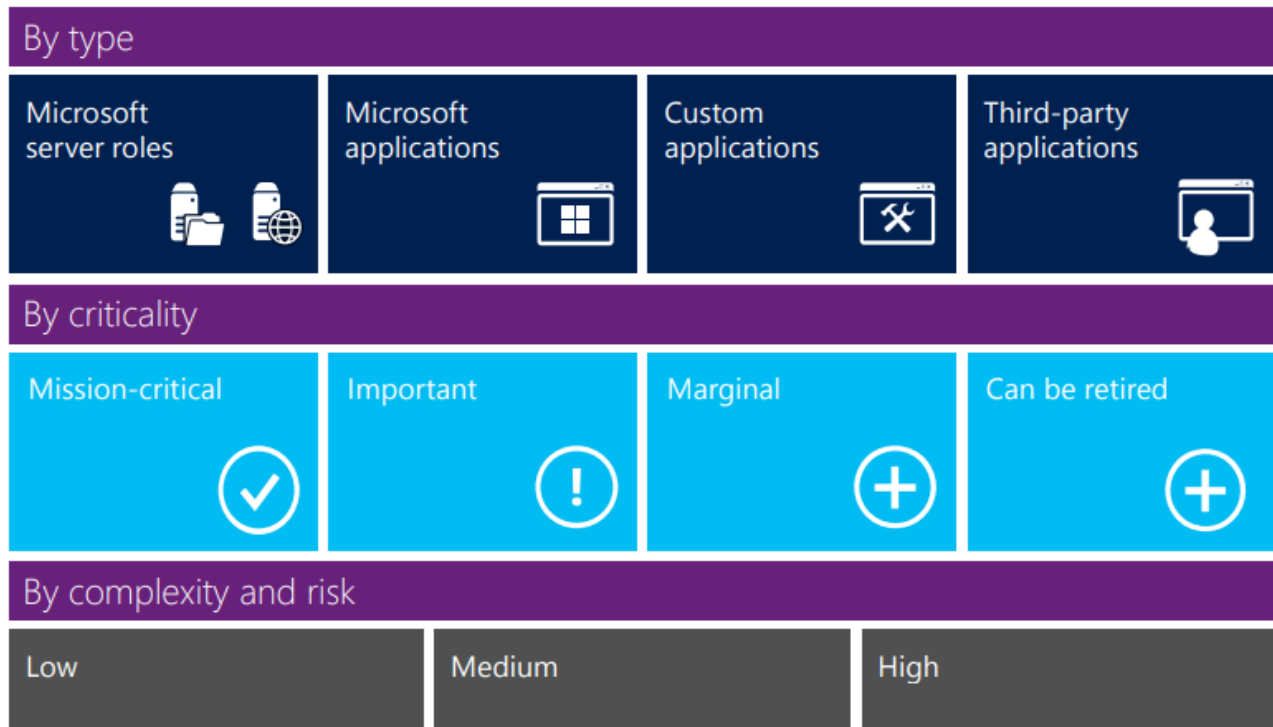
application portfolio must consider both the needs of your business and the requirements of your applications to ensure your upgrade/migration strategy is seamless and cost-effective. While defining the application portfolio, you need to consider different aspects related to the limitations of the application or aging underlying infrastructure. The following questions can help in this process:

Does your application support forward compatibility with Windows Server 2019?

Which applications have workloads that are compatible with new Windows Server 2019? Can they be upgraded to Windows Server 2019?

Which applications can be lifted and shifted directly to the new Windows Server 2019?

Which applications can be transformed or re-architected to leverage cloud-enabled technologies with Windows Server 2019?



Pathway to upgrade or migrate applications to Windows Server 2019

The next step in your modernization journey is upgrading or migrating applications and Windows Server roles to Windows Server 2019. As every workload is unique based on the type of role or business application deployed on it, there's no single set of steps to follow for migration. Choosing the right transformation approach for different applications and server roles in your portfolio can help you extract maximum value from cloud-enabled and innovative technologies.

Microsoft provides multiple tools to seamlessly migrate the application to the latest version of Windows Server to ensure smarter and faster migration with minimal business impact.

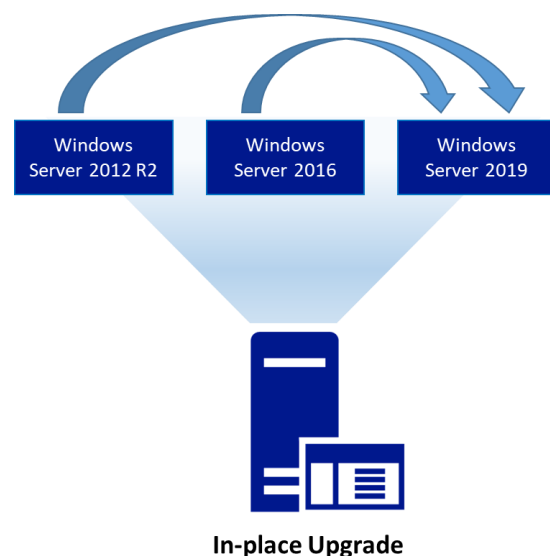
In-place upgrade

In-place upgrades allow an administrator to upgrade Windows operating systems and Microsoft applications while retaining the same hardware, configuration, and installed features. However, before considering an in-place upgrade as an option for your upgrade, you will need to ensure two aspects:

Does your existing operating system support an in-place upgrade to Windows Server 2019?

Does your existing application support forward compatibility with Windows Server 2019?

Refer to Windows Server 2019 and application documentation to validate supportability. If supported, an in-place upgrade can be the most effective way to upgrade to Windows Server 2019 and can be used to upgrade Microsoft applications as a best practice. For example, if your application workload is running on Windows Server 2012 R2 or Windows Server 2016 and your application supports forward compatibility, you can upgrade it to Windows Server 2019.



Depending on the initial operating system and the intended pathway, following these general guidelines will support your pathway:

Upgrades from 32-bit to 64-bit architectures are not supported. All editions of Windows Server 2019 are 64-bit only.

Upgrades from one language to another are not supported.

Upgrades from pre-release versions (previews) of Windows Server 2019 are not supported. Instead, you should perform a clean installation to Windows Server 2019.

Upgrades that switch from a Server Core installation to a Server with Desktop Experience installation (or vice versa) are not supported.

Upgrades from a previous Windows Server installation to an evaluation copy of Windows Server are not supported. Evaluation versions should be installed as a clean installation.

Upgrades work best in VMs where specific OEM hardware drivers are not needed for a successful upgrade.

If the server is a domain controller, see Upgrade Domain Controllers to Windows Server 2016 / 2019 for important information.

The table below briefly summarizes which Windows operating systems can be upgraded to which editions of Windows Server 2019.

If you are running these editions:	You can upgrade to these editions:
Windows Server 2012 Standard Windows Server 2012 R2 Standard Windows Server 2016 Standard	Windows Server 2019 Standard or Datacenter
Windows Server 2012 Datacenter Windows Server 2012 R2 Datacenter Windows Server 2016 Datacenter	Windows Server 2019 Datacenter
Windows Server 2012 R2 Essentials Windows Server 2016 Essentials	Windows Server 2019 Essentials

Common Microsoft applications that support an in-place upgrade to Windows Server 2019:

[Upgrade to SharePoint Server 2019](#)

[Upgrade SQL Server database engine](#)

Migrate applications to Windows Server 2019

When your business applications are not compatible with the in-place upgrade, you can still migrate them from an older version of Windows Server to Windows Server 2019.

Windows server roles migration

Many roles and features can be migrated using Windows Server Migration Tools, a set of Windows PowerShell cmdlets that help your organization easily migrate role and feature

elements and data to the latest version of Windows Server.

Microsoft provides a complete set of migration guides to help migrate specified Windows Server roles and features from one server to another (not in-place upgrades). Unless otherwise noted in the guides, migrations are supported between physical and virtual computers, and between full installation options of Windows Server and servers that are running the Server Core installation option.

Here are some useful resources to understand types of server roles and their migration compatibility across different versions of Windows Server operating systems:

[Server role upgrade and migration matrix for Windows Server 2016](#)

[Recommendations for moving to Windows Server 2016](#)

[Migrating roles and features in Windows Server](#)

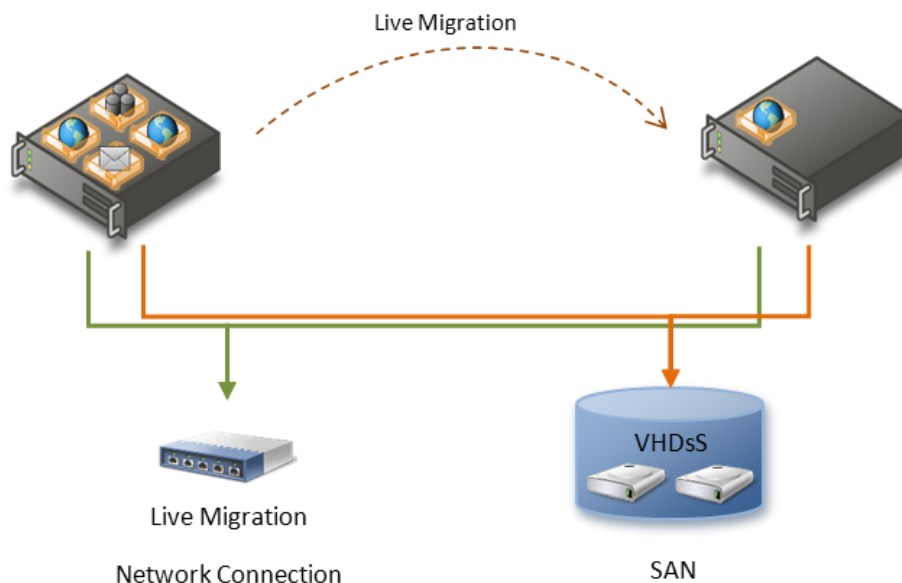
Migrating existing VMs

During Windows Server migration, migrating existing VMs to the latest hardware is vital, as most organizations have adopted virtualization for their application for better resource management, scalability, and availability. If your applications are running on Hyper-V, you can adopt Hyper-V migration options to move VMs to the latest Windows Server 2019 host and then upgrade the operating system of the guest VM. While migrating VMs to a new host with the latest Windows Server and next-generation hardware, it's important to understand the different aspects of VM migration and identify which VM migration approach suits your

migration requirements. This often includes finding the most simplified migration approach with minimal or no business downtime. Windows Server supports the following ways to migrate your existing Hyper-V VMs to modern hosts:

Live migration

Live migration is a Hyper-V feature in Windows Server that allows you to transparently move running VMs from one Hyper-V host to another without any perceived downtime. The primary benefit of live migration is flexibility; running VMs are not tied to a single host machine, which allows actions like draining a specific host of VMs before decommissioning or upgrading it.



Datacenters with multiple Hyper-V physical hosts will be able to move running VMs to the best physical computer for performance, scaling, or optimal consolidation without impacting users. The Hyper-V role in Windows Server 2019, Windows Server 2016, or Windows Server 2012 R2 is installed on the source and destination servers and set up for live migrations. You can do a live migration between hosts running Windows Server 2019 and Windows Server 2016 or Windows Server 2012 R2 if the VM is at least version 5.

Live migration makes it possible to keep VMs online even during maintenance, increasing productivity for both users and server administrators. Datacenters will also be able to reduce power consumption by dynamically increasing consolidation ratios and powering off un-used physical hosts during times of lower demand. When paired with Windows Server Failover Clustering, live migration allows the creation of highly available and fault-tolerant systems. Live migration can also work without failover clustering. To learn more about configuration and execution steps for live migration, visit the following pages:

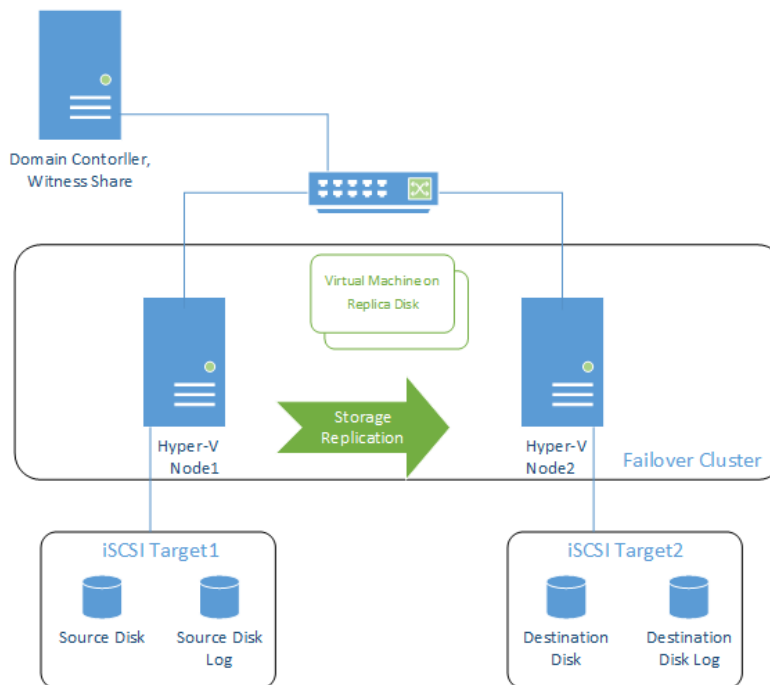
[Set up hosts for live migration without Failover Clustering](#)

[Use live migration without Failover Clustering to move a VM](#)

Hyper-V VM replication

Hyper-V Replica is an integral part of the Hyper-V role. It contributes to your disaster recovery strategy by replicating VMs from one Hyper-V host server to another to keep your workloads available. Hyper-V Replica creates a copy of a live VM to a replica offline VM. Hyper-V Replica works with any server network and storage vendor and provides unlimited replication capability out of the box.

Hyper-V Replica asynchronously replicates selected VMs from a primary Hyper-V host to a replica Hyper-V host across either LAN or WAN links. After initial replication is complete, subsequent changes are replicated at a defined interval. Hyper-V Replica enables replication for existing VMs to the different host whether migrating to the newest version of Windows Server operating system, updating new hardware, or adding a new host to the cluster.



To know more about setting up Hyper-V Replica, visit the following page:

[Set up Hyper-V Replica](#)

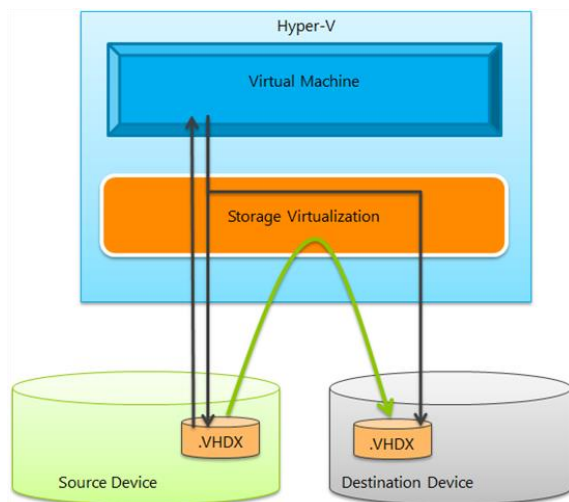
[VM replication using Hyper-V Replica](#)

Back up and restore

Another method for migrating existing Hyper-V VMs is to back up and restore VMs. Hyper-V uses the Volume Shadow Copy Service (VSS), also known as Volume Snapshot Services, to backup and restore VMs to another Hyper-V host. If the backup integration services are installed in the guest operating system, a VSS requester is installed that will allow VSS writers in the guest operating system to participate in the backup of the VM. Hyper-V uses one of two mechanisms to back up each VM:

Saved state: The default backup mechanism is called the "saved state" method, where the VM is put into a saved state during the processing of the PrepareForSnapshot event, snapshots are taken of the appropriate volumes, and the VM is returned to its previous state during the processing of the PostSnapshot event.

Child VM snapshot: The other backup mechanism uses VSS inside the child VM to participate in the backup.



To understand more about the process of backing up and restoring the VM, visit the following links:

[Overview of processing a backup under VSS](#)

[Overview of processing a restore under VSS](#)

Business application migration

Apart from Windows Server roles and features, you should plan the migration of workloads—whether you are migrating Microsoft Applications or custom application from older operating systems to Windows Server 2019. Migrating existing applications to Windows Server 2019 requires extensive planning, including the identification of whether the existing application is compatible with Windows Server 2019. To take full advantage of Windows Server 2019 bundled with next-generation hardware, it's recommended that you upgrade your application to a recent version to better meet compliance, security, performance, and optimization requirements. Depending on the forward compatibility of your business application with Windows Server 2019, there are multiple ways to migrate your business-critical applications:

Relocating your application as is on

Windows Server 2019: When your existing application supports forward compatibility with Windows Server 2019, you can migrate your application as is to Windows Server 2019. Relocating existing applications to the modern platform is key to overcoming the limitations and challenges of older operating systems and aging infrastructure, as well as unlocking new opportunities to leverage advanced and future-ready capabilities with a precise blend of software and hardware.

Virtualize application workload: Most organizations have already adopted or are on the way to adopting virtualization using Hyper-V. You can virtualize your application workload and host it to Windows Server 2019 to accelerate your application performance, security, and availability with enterprise-class HCI. This application migration approach can bring the latest

cloud-inspired innovation to your datacenter using software-defined compute, storage, and networking technology from Microsoft and your choice of hardware certified by the Windows Server Software-Defined program.

Upgrade to re-host your application: For applications currently running an older version of Windows Server that aren't forward compatible with Windows Server

2019, a best practice is to upgrade the application and make it ready to re-host. This migration approach gives you the opportunity to modernize your business applications with the capabilities offered by the latest version of the application, and at the same time leverage cloud-enabled innovation capabilities provided by Windows Server 2019 bundled with modern hardware.

Microsoft applications

Small and medium-sized organizations use many Microsoft applications for their business processes or to develop custom and third-party applications. The following are commonly used Microsoft business applications and their migration approaches.

Microsoft Exchange

For on-premises migration, you must consider which version of Exchange Server your organization has and which version of Exchange Server can seamlessly work with Windows Server 2019. The following table identifies the operating system platforms on which each version of Exchange can run. Supported platforms are identified by an X character.

Operating system platform	Exchange 2019	Exchange 2016 CU3 and later	Exchange 2016 CU2 and earlier	Exchange 2013 SP1 and later	Exchange 2010 SP3
Windows Server 2008 SP2					X
Windows Server 2008 R2 SP1				X	X
Windows Server 2012		X	X	X	X
Windows Server 2012 R2		X	X	X	
Windows Server 2016	X	X			
Windows Server 2019	X	X			

For on-premises migration, you must consider which version of Exchange Server you are running and if it is forward compatible with Windows Server 2019. Updating Exchange Server brings you substantial new features and improvements made over the years. This includes changes in the architecture for Exchange deployments. You can deploy coexistence scenarios that are supported for Exchange 2019 and earlier versions of Exchange.

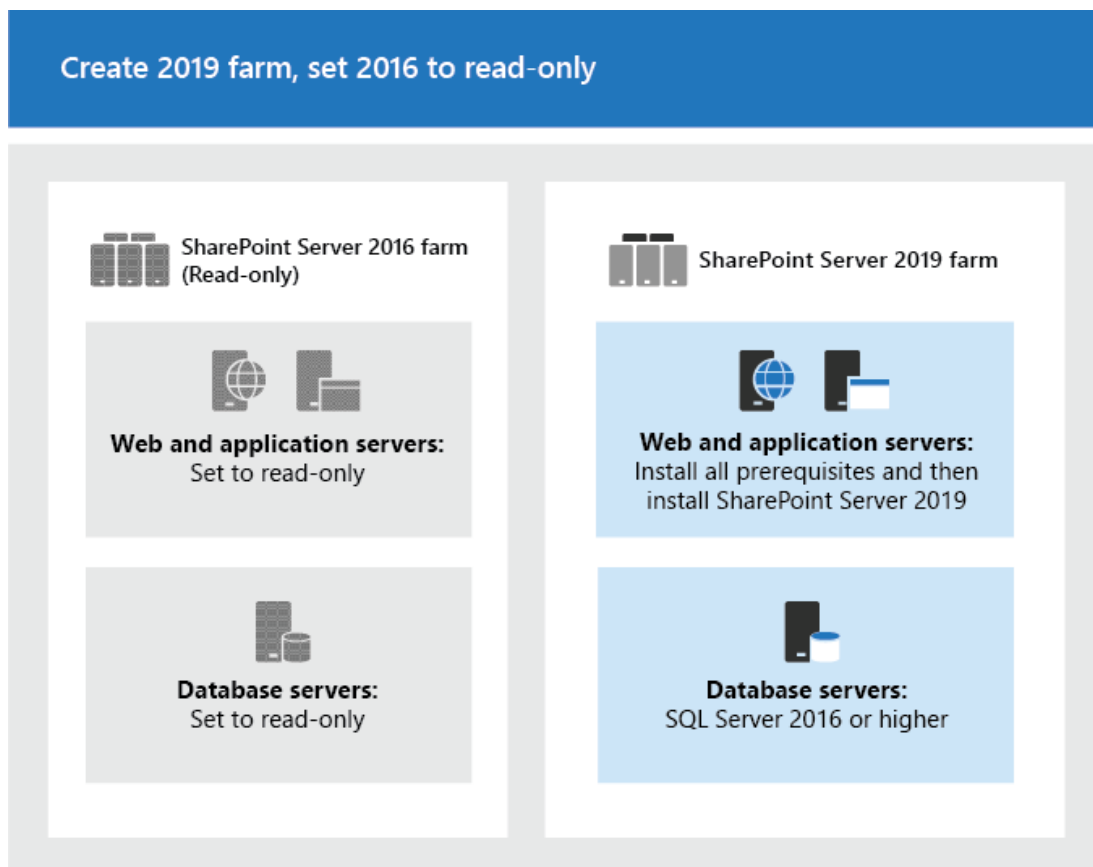
Alternatively, you can migrate Microsoft Exchange on older Windows operating systems to Exchange Online, a hosted email for business. You can enable hybrid deployments of Microsoft Exchange on an older operating system with Office 365 tenants that can be upgraded to the latest version of Office 365.

Microsoft SharePoint

The adoption of Windows Server 2019 is a great opportunity to also upgrade to the latest version of Microsoft SharePoint. Microsoft SharePoint 2019 is designed to help you achieve new levels of reliability and performance, delivering features and capabilities that simplify administration, protect

communications and information, and empower users with a mobile, intelligent intranet and content collaboration solutions that work across devices and screens.

SharePoint Server 2019 supports the upgrade from SharePoint Server 2016. When you upgrade from SharePoint 2016 products to SharePoint Server 2019, you must use a database attach upgrade, which means that you upgrade only the content for your environment and not the configuration settings. After you have configured a new SharePoint Server 2019 environment, you can copy the content and service application databases from the SharePoint 2016 products environment to the SharePoint Server 2016 environment. A backup and restore process is used to copy the database, and you can also choose to set the databases to read-only in the SharePoint 2016 products environment so that users can continue to access their information without changing it. [Get started with upgrades to SharePoint Server 2019.](#)



Alternatively, you can migrate to SharePoint Online (SPO), a component of Office 365. SPO is a cloud-based collaboration platform that lets you and your organization store, organize, and share data and easily communicate with each other. With SPO, you can share common resources and applications on portals, search to discover information and expertise across your organization, and stay in the know with personalized news in SharePoint home and the SharePoint mobile apps.

Depending on the size and quantity of files you need to move, there are different options available for migrating content to SharePoint Online from your on-premises SharePoint. What data do you want or need to move? Where is the content currently stored? Taking the time to plan your migration, including taking an inventory and assessment of your data, is key to a successful migration.

Method	Description
SharePoint Migration Tool	<p>The SharePoint Migration Tool (SPMT) can easily migrate your files from SharePoint on-premises document libraries, lists, or regular files shares.</p> <p>To download the tool, see: SharePoint Migration Tool To use the PowerShell version of the SPMT, see: Migrate to SharePoint online using PowerShell</p>
OneDrive sync client	After installing the OneDrive Sync client, you can drag and drop files to a folder on the computer and the content will automatically sync with either OneDrive or SharePoint Online.
Manual upload	Upload files one at a time from the SharePoint Online tenant.

Microsoft SQL Server

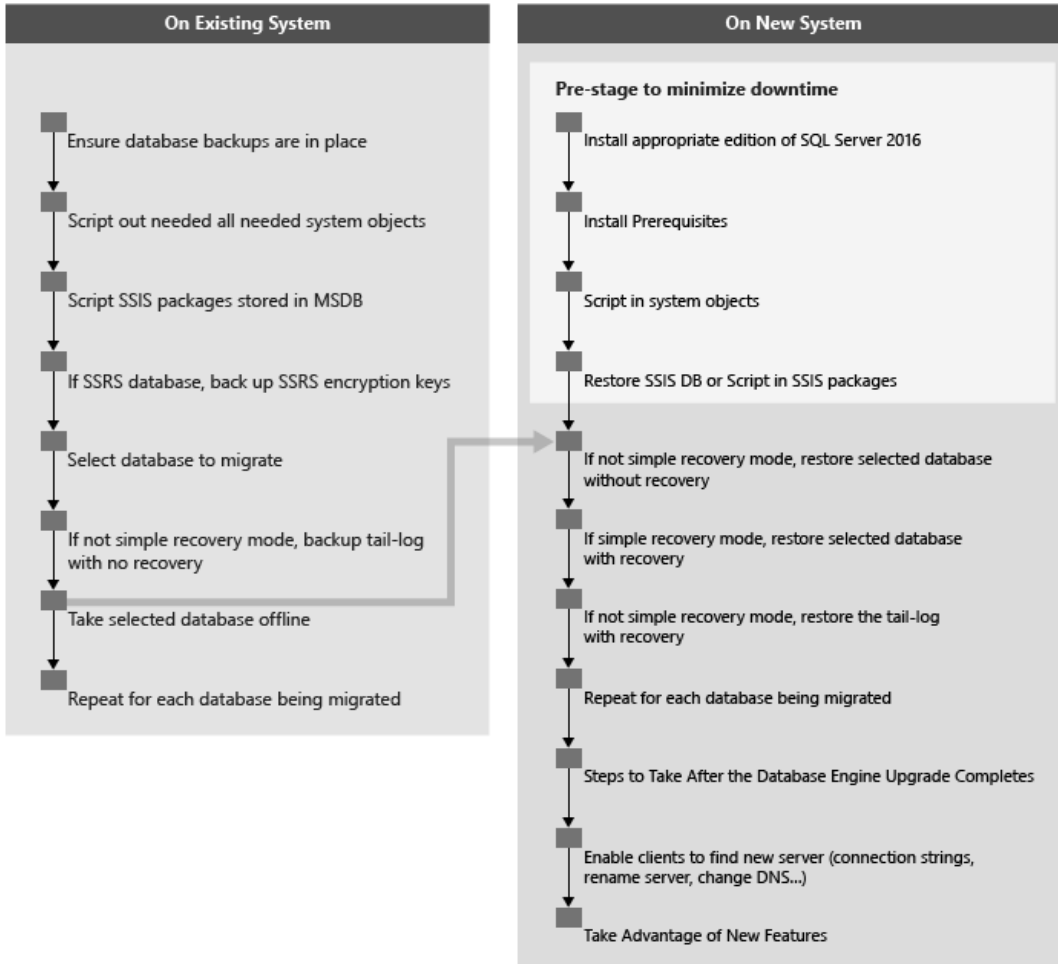
When you are planning to migrate SQL Server Database, there are many things to consider. If you are migrating from an older version of SQL Server running on an older operating system, you should maintain the current environment while you build a new SQL Server environment on new hardware and with the new Windows Server 2019 operating system. After installing SQL Server in the new environment, performing a number of steps will prepare the new environment so that you can migrate the existing user databases from the existing

environment to the new environment while minimizing downtime.

Once the new SQL Server environment has the same system objects as the existing environment, you can then migrate the user databases from the existing system to the SQL Server instance in a manner that will minimize downtime on the existing system. You can migrate the database either using backup and restore or by repointing LUNs if you are in a SAN environment. The steps required for a new installation upgrade vary slightly depending on whether you are using attached storage or SAN storage, as shown below:

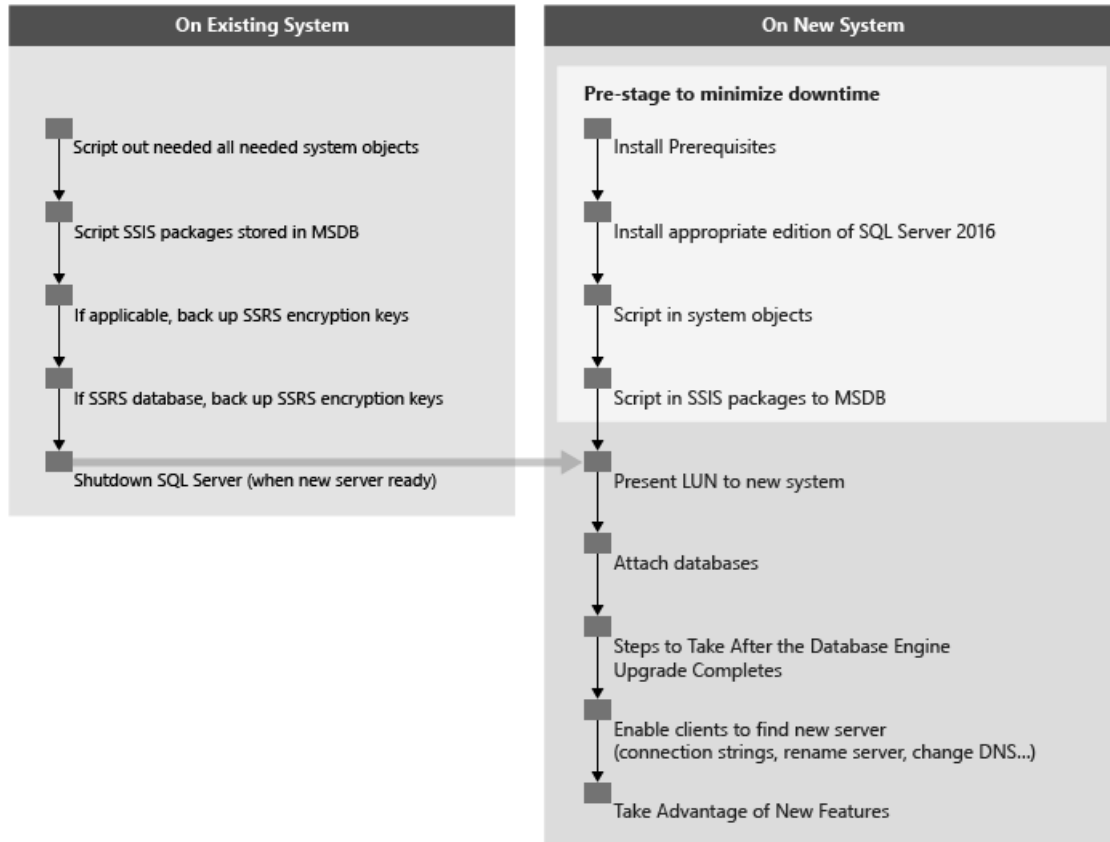
Attached storage environment: If you have a SQL Server environment that uses attached storage, the following diagram and the links within the diagram will guide you through the steps required for a new installation upgrade of the Database Engine.

**SQL Server 2016 Relational Engine
New Installation Upgrade Method Using Backup and Restore with Attached Storage**



SAN storage environment: If you have a SQL Server environment using SAN storage, the following diagram and the links within the diagram will guide you through the steps required for a new installation upgrade of the Database Engine.

**SQL Server 2016 Relational Engine
New Installation Upgrade Method Using Detach and Attach with SAN Storage**



Storage migration

With Windows Server 2019, it's easier to migrate data from older operating systems. Microsoft provides different solutions for migrating data to the modern Windows Server or Azure.

Storage Migration Service

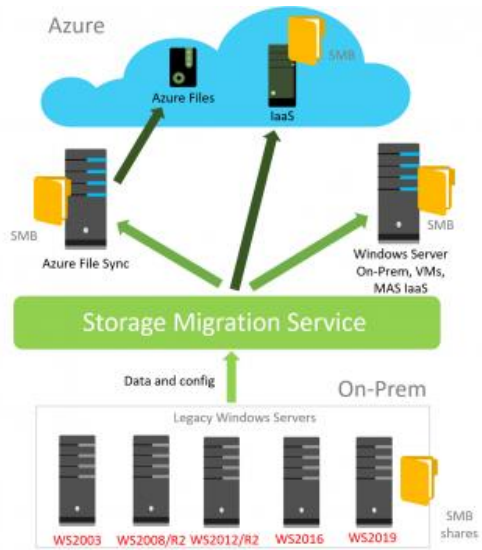
[Storage Migration Service \(SMS\)](#) is a new server role introduced with Windows Server 2019 in both Standard and Datacenter editions. SMS provides orchestrated workflow with Windows Admin Center, a graphical management system that allows scalable migrations of many servers simultaneously to new targets running on-premises or in Azure. SMS helps you migrate servers and their data without reconfiguring applications or users. You can migrate unstructured data from anywhere into Windows Servers 2019 and Azure with consistency and scalability.

SMS operates in the following three distinct phases:

Inventory: Performs inventory for related storage, networking, security, sharing configuration, and data for the workloads you want to migrate.

Transfer: Defines source and destination nodes from inventory list and decides what data to transfer.

Cutover: New servers take over the identity of the old servers. The old servers enter a maintenance state where they are unavailable to users and applications for later decommissioning, while the new servers use the subsumed identities to carry on all duties.



The table below briefly summarizes which Windows operating systems VMs are supported for source and destinations for SMS.

Supported source operating systems	Supported destination operating systems
Windows Server 2003 Windows Server 2008 Windows Server 2008 R2 Windows Server 2012 Windows Server 2012 R2 Windows Server 2016 Windows Server 2019	Windows Server 2012 R2 Windows Server 2016 Windows Server 2019*

*Windows Server 2019 will have double the data transfer performance due to its inclusion of the SMS proxy service.

Azure File Sync

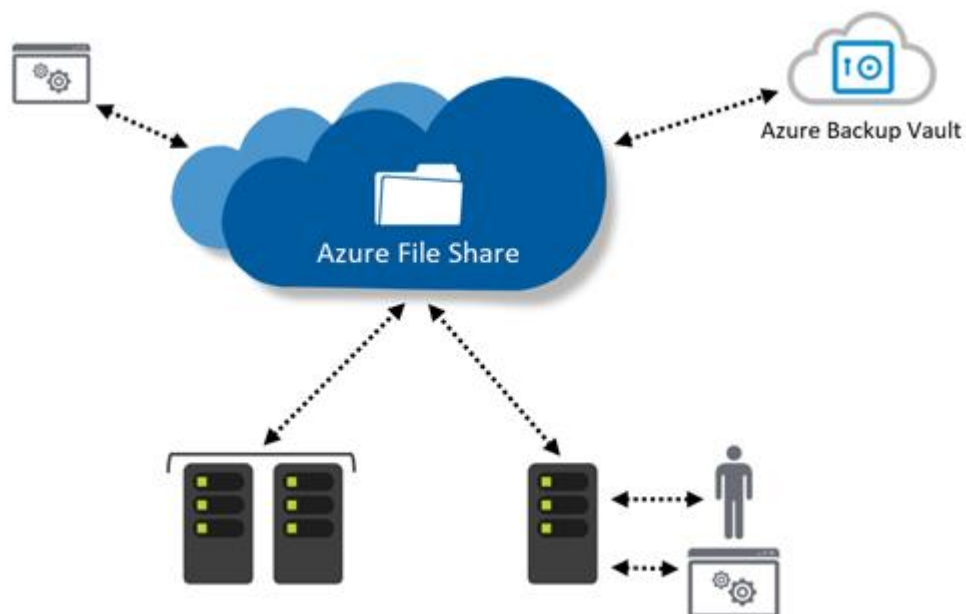
[Azure File Sync](#) extends on-premises file servers into Azure, providing cloud benefits while keeping the flexibility, performance, and compatibility of an on-premises file server. Azure File Sync replicates files from your on-premises Windows Server to an Azure file share, enabling you to centralize your file services in Azure while maintaining local access to your data. Azure File Sync provides:

Multi-site access: Provides write access to the same data across Windows servers and Azure Files.

Cloud tiering: Store only recently accessed data on local servers.

Integrates with Azure backup: No need to back up your data on-premises.

Fast disaster recovery: Restores file metadata immediately and recalls data as needed.

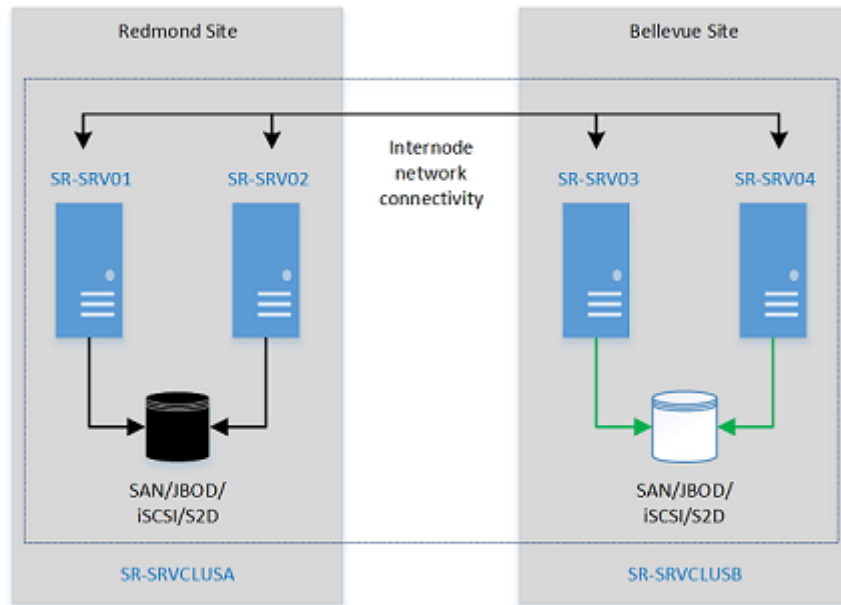


Replace or supplement on-premises file servers:

Azure Files can be used to completely replace or supplement traditional on-premises file servers or NAS devices. Azure file shares can also be replicated with Azure File Sync to Windows Servers, either on-premises or in the cloud, for performance and distributed caching of the data where it's being used.

Lift and shift applications:

Azure Files makes it easy to lift and shift applications to the cloud that expect a file share to store file application or user data. Azure Files enables both the classic lift and shift scenario, where both the application and its data are moved to Azure, and the hybrid lift and shift scenario, where the application data is moved to Azure Files, and the application continues to run on-premises.



Storage Replica

[Storage Replica](#) is a Windows Server technology that enables replication of volumes between servers or clusters for disaster recovery. It also enables you to create stretch failover clusters that span two sites, with all nodes staying in sync. Storage Replica supports synchronous and asynchronous replication.

Synchronous replication

Mirrors data within a low-latency network site with crash-consistent volumes to ensure zero data loss at the file-system level during a failure.

Asynchronous replication

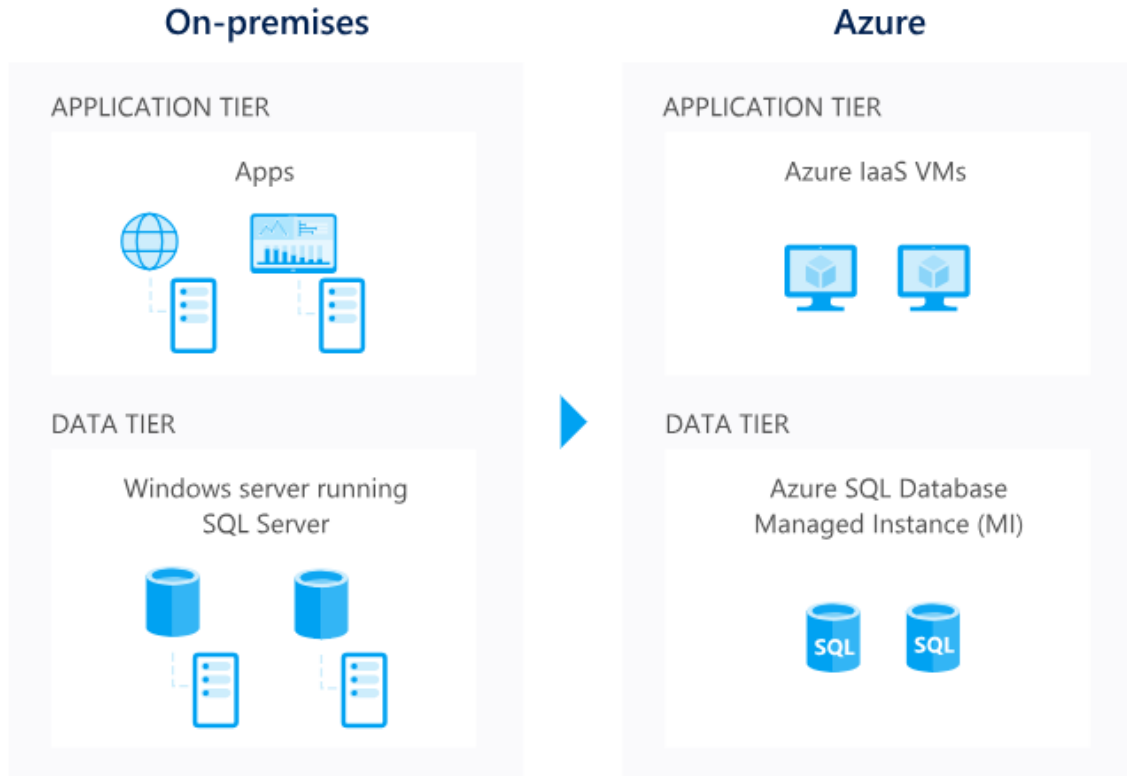
Mirrors data across sites beyond metropolitan ranges over network links with higher latencies, but without a guarantee that both sites have identical copies of the data at the time of a failure

Customize applications

For many organizations, line-of-business (LOB) applications have been developed either for business processes or internal use and are the most critical part of the IT infrastructure. While contemplating the adoption of Windows Server 2019 for digital transformation, it's crucial to think about how to move these legacy applications. You must decide whether the application should be moved as is with the lift and shift strategy or if it should be redesigned and transformed to become cloud-ready.

Rehost applications

Rehosting applications is often referred to as lift and shift migration. The application is migrated as is to Windows Server 2019 for better scalability, reliability, and security, and the organization can leverage cloud-enabled technologies without the risks or costs of making code changes. If you want to rehost the custom application, you should work with an application development team and identify possible ways to migrate an application from an older version of Windows Server to Windows Server 2019.



Modernize applications

To enable digital transformation, organizations require the next generation of modern, integrated, and intelligent applications that help businesses grow and evolve. Windows Server 2019 is a cloud-ready operating system that delivers new layers of security and Microsoft Azure-inspired innovation for the applications and infrastructures that power your business. Transform your legacy application by modernizing your application deployment architecture to retain your existing application code and business logic.

Windows Server 2019 helps you secure and modernize existing enterprise server apps with little to no code changes, package existing apps in containers to realize the benefit of a more agile DevOps model, and then deploy on-

premises, to any cloud, or in a hybrid model. Combine the benefits of containers with Service Fabric and the proven Windows Server platform to achieve business agility with cloud apps.

Containerize applications

Move your traditional applications into a modern DevOps environment with little to no code changes. Use containers to gain control and consistency by enabling “write once, run anywhere” apps that can be deployed on-premises, to any cloud, or in a hybrid architecture across clouds. For an additional layer of isolation, deploy your app with Hyper-V isolation, which packages the same container image with its own dedicated kernel and ensures tighter isolation in multi-tenant environments. With constant improvements to Windows Server containers and Windows Subsystem on Linux (WSL), customers can now run Linux containers

side-by-side with Windows containers on a Windows Server, and Linux users can bring their scripts to Windows using industry standards like OpenSSH, curl, and tar.

Build cloud-native and hybrid applications

Windows Server 2019 ships with cloud-ready technologies for building cloud-native applications with microservices architectures. Create with familiar tools, including third-party frameworks such as Node.js. Using proven Azure Service Fabric technology along with Windows Server 2019, build always-on, scalable, and

distributed applications that can be run in Azure, on-premises, or in a hybrid model.

To know more about Windows Container services and how to deploy, following the links below:

[About Windows Container](#)

[System requirements for Windows Containers](#)

[Container Host Deployment—Windows Server](#)

[Create Service Fabric clusters on Windows Server or Linux](#)

Next steps

Take the next step. Learn more at:

Build your future with Windows Server

www.microsoft.com/windowsserver

Introduction to Windows Server 2019

<https://www.microsoft.com/en-us/cloud-platform/windows-server>

What's new in Windows Server 2019

<https://docs.microsoft.com/en-us/windows-server/get-started-19/whats-new-19>

Windows Server 2019 and Microsoft Server application compatibility

<https://docs.microsoft.com/en-us/windows-server/get-started-19/app-compat-19>

Install | Upgrade | Migrate to Windows Server 2019

<https://docs.microsoft.com/en-us/windows-server/get-started-19/install-upgrade-migrate-19>