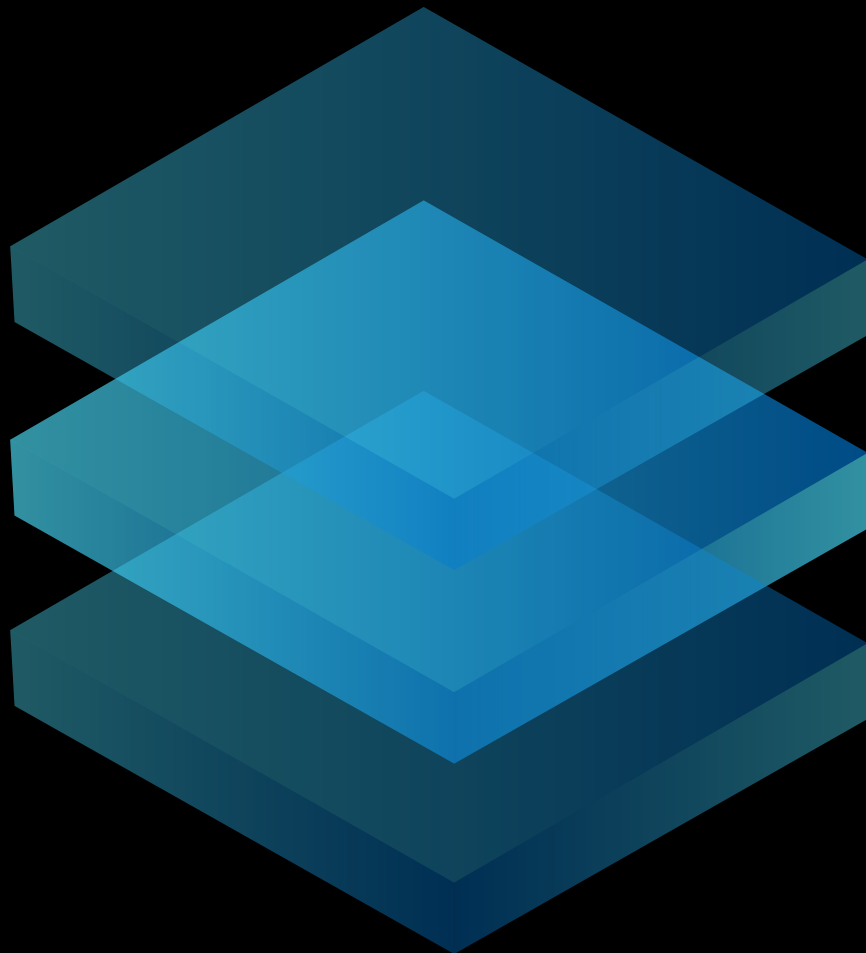




Cloud Skills Resource Kit:

Migrating Windows Server and SQL Server



This is for you if...

You are an applications engineer, database administrator, data architect or other IT professional currently working with Windows Server or SQL server on-premises, and want to learn more about how your skills can translate to a cloud environment.



Estimated reading time:
about 10 minutes

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Transferring your skills and knowledge to the cloud

More and more organisations are making the move to cloud-based workloads, applications and databases – a trend that accelerated in 2020 due in part to new business priorities and an increasingly remote workforce.

With cloud-based solutions, organisations can not only deliver new features faster and at scale, IT managers also have more flexibility to focus on strategic priorities.

But while the cloud offers clear benefits, transitioning to the cloud must be done in a way that doesn't disrupt legacy infrastructure and applications, and is easy and translatable for IT professionals.

Where does this leave teams who have worked with on-premises systems successfully for years using Windows Server and SQL Server? How can these teams learn the skills necessary to migrate essential systems without sacrificing operational efficiency?

On-premises and cloud working together

Despite all the momentum toward cloud migration and increased spending on cloud technologies, the reality for many organisations is that the shift won't necessarily happen overnight (nor should it). Many organisations are taking a balanced, hybrid approach – adopting and integrating cloud services to solve specific problems or address needs, while learning the skills necessary for migration. This is especially true for organisations still making good use of their on-premises IT investments, or that must take regulatory considerations or other needs into account. These realities are why the hybrid cloud market is expected to grow from USD 45.7 billion in 2019 to USD 128 billion by 2025.¹

Start small, start focused

Moving to the cloud is a big undertaking, so the best way to reduce uncertainty is to start small. If you begin with a specific problem or pain point, essentially as a proof-of-concept, then you will gain experience and confidence that can be applied to more and bigger projects.

Of course, it's natural to proceed cautiously. After all, the problems with on-premises solutions are at least familiar ones, often with known solutions. And the cloud doesn't mean perfection, either – it still requires IT professionals for management and support, and sometimes they need new skills.

¹ ['Hybrid Cloud Market – Growth, Trends, and Forecast \(2020-2025\)', Mordor Intelligence, 2020.](#)

The key is finding the right entry point or problem that the cloud can solve, at a pace that makes sense for your business and teams, and then building on that. This approach not only gives you more control, but lets you see for yourself how the cloud is a truly useful platform instead of an abstract concept.

This white paper will review some of the inefficiencies and challenges IT teams face in their on-premises environments, and show how these become ideal opportunities to try cloud solutions with Azure. In other words, you will learn how to adopt the right cloud services that make sense for your organisation.



Skilling up to the cloud: Six use cases for Windows Server & SQL Server users



1. File server management

One of the more burdensome yet essential tasks that IT teams spend time on is managing file servers. Storage becomes a major issue as these servers get full, while file retrieval and backup can also cause management headaches.

The cloud can simplify these tasks, but the potential work and risk involved to move huge file servers with sensitive data over to the cloud can seem like a non-starter – in addition to many users being familiar with mapped drives and not wanting to learn a new cloud-based storage tool.

A perfect starting point in this situation for Windows Server users is a hybrid approach that seamlessly blends on-premises and cloud storage. Using a service like [Azure File Sync](#) and [this simple learning module](#), you can transform your on-premises Windows Server file share into a quick cache of a serverless Azure file share – enabling you to centralize your organisation's file shares in the cloud with no disruptions.



Through this approach, you'll be able to maintain the performance, efficiency, security and compatibility of an on-premises file server while capitalising on the benefits of Azure Files.

- ✓ Synchronise data between multiple on-premises data stores for cross-location file sharing.
- ✓ Quickly overcome on-premises storage limitations by holding unused data in the cloud with tiered storage.
- ✓ Replace or provision new on-premises file servers with seamless replication from Azure Files to Windows Servers.



2. Site backup and recovery

Beyond day-to-day file server management, IT teams must plan for the unexpected – unplanned outages, natural disasters or other incidents that can put data at risk.

While most organisations have some type of business continuity and disaster recovery strategy, the on-premises backup and recovery process falls far short of what's possible in the cloud. For example, recent IDC research showed that compared to on-premises environments, backup in the cloud can be 76% faster and data recovery can be 66% faster.²

Once you've taken the simple step of using Azure File Sync to create a hybrid file sharing environment from your Windows Server on-premises instances, you can take advantage of Azure's integrated [site backup and recovery features](#) right away. This includes native integration with existing tools and providers, a centralised interface for defining and managing policies across all your environments and workloads and even new capabilities like built-in security controls and cloud-based failover for your on-premises virtual machines (VMs).

In short, you'll completely change your day-to-day workload. You can remove the headache and downtime of dealing with local power outages or network issues, avoid drudgery like patching a server OS or replacing faulty hard disks, backup everything you need without concern for capacity and storage limitations and deploy or recover file servers without having to rebuild from outdated backups.

² ['Business Continuity in the Cloud: Simple, Secure, and Cost-effective'](#), IDC, 2020.



3. Security

A common roadblock to the cloud can be security, especially if you are used to dealing with complex on-premises environments.

Traditionally, IT teams approached security in terms of firewalls and blocking network traffic – a perimeter approach where usernames and passwords were generally enough to keep systems safe and secure and most access attempts were considered benign by default. IT teams today know that an identity-based approach paired with a unified network segmentation strategy (spanning IT, security, applications and more) is now paramount. Instead of basing security around a single perimeter, leaders are using multifactor authentication, identity signals, behavioural analytics and layered privileges built around network segmentation to manage the security of applications, data and users.

The challenge for on-premises IT teams is that it's not always clear exactly how identity-based security should be implemented in the cloud. How should fundamentals like authentication and access control be managed across cloud and on-premises environments? What new risks and threats need to be accounted for when applications and data are lifted and shifted into the cloud?

One solution for IT teams moving to Azure is to use a universal identity platform like [Azure Active Directory](#) (Azure AD) paired with [Azure Security Centre](#). Azure AD provides a single sign-on and multifactor authentication solution that is replicated across your on-premises and cloud environments. It provides on-site and remote employees with seamless, secure access to their files from any location and incorporates required compliance standards such as HIPAA.

Azure Security Centre acts as your foundation for security management and advanced threat protection. It makes it simple to assess the security posture of your environments, uses AI and automation to cut down on alerts while quickly identifying threats and has integrated tools like Azure Defender to protect all of your hybrid cloud workloads (including application containers and IoT devices).

With Azure AD and Azure Security Centre, you'll streamline day-to-day security management and access governance with powerful tools for securing your new hybrid environments and workloads.

Azure Security Centre

- Assess and visualise your security state across all environments with Azure Secure Score.
- Simplify and manage your compliance against a wide variety of regulatory and company requirements with centralised policies.
- Protect hybrid workloads including servers, data, storage, containers and IoT devices with Azure Defender.
- Cut down false alarms, rapidly detect threats and streamline investigations with the power of AI and automation.

Azure AD

- Automate the detection and remediation of identity-based risks with [identity protection](#).
- Manage, control and monitor sensitive resources with just-in-time, [privileged access](#).
- Adopt a Zero Trust posture with [conditional access](#), using multiple identity signals (e.g., device, location, app) for enforcement decisions.
- Quickly integrate new identities or extend access to applications and data without compromising security.



Two environments, one admin tool

Regardless of the cloud skills you choose to adopt for Windows Server, keep in mind that you can seamlessly manage it all with [Windows Admin Centre](#) – a browser-based tool for remotely managing Windows Server across any environment, including on-premises or hosted in Azure.

Windows Admin Centre can save you significant time by streamlining day-to-day management tasks, such as applying updates, resolving server issues or visualising performance or capacity needs. You can also use it to easily set up and manage all of the new Azure integrations previously mentioned, from Azure Files to backup and recovery to Azure Security Centre.



4. SQL Server in the cloud

Running SQL Server in the cloud or using a cloud-native Azure SQL managed instance provides practically the same on-premises experience, but brings significant benefits.

For example, [SQL Server on Azure VMs](#) is popular because it's essentially a lift-and-shift of your on-premises VMs into the cloud. You don't need to learn any new skills and it removes the headache of managing hardware. In addition, you get free benefits such as extended security updates for Windows and SQL 2008/r2, along with access to tools like [SQL Server IaaS Agent](#). Using SQL Server IaaS Agent, you'll be able to automate management of SQL Server, including portal and licence management, backup and patching and compliance fulfilment.

You also have other cloud-heavy options if you're planning to make a bigger jump to Azure SQL. For example, with [Azure SQL Managed Instance](#) you don't need to manage VMs or the SQL Server engine – everything is kept up-to-date with the latest features and functionality. As another option, with [Azure SQL Database](#) you're abstracting away everything, but the database service itself, for a fully managed database solution with the highest availability and performance.

Regardless of whether you use Azure SQL VMs, Azure SQL Managed Instance or Azure SQL Database, you'll have access to Azure's performance, scalability and high availability – along with extras like automated indexing, security services and a variety of powerful tools.

While extending a Windows Server file share to the cloud is a relatively simple process, migrating a SQL Server to the cloud can be slightly more complicated based on existing application dependencies. Nevertheless, you have several tools and options at your disposal, which don't require an all-or-nothing migration. Start by exploring [Azure Database Migration Service](#) to see how you can easily lift and shift your SQL Server instances and applications into the cloud. You can do a full migration with little downtime or start by migrating select applications over to new SQL Server VMs on Azure, managed instances or SQL Databases.



5. Database automation

One of the benefits of moving SQL Server to the cloud is the ability to [automate tasks](#), from regular maintenance and multi-instance administration, to performance, resource and failure alerts. Database administrators find they're able to deliver entirely new value to the business after abstracting away much of the hardware provisioning, OS maintenance and database administration-related drudgery.

For example, on top of provisioning and maintenance benefits, both Azure SQL Database and Azure SQL Managed Instance use automatic, continuous performance tuning based on AI and machine learning to ensure peak performance and stable workloads. These databases dynamically adapt to changing workloads, with the automatic tuning learning horizontally across all databases on Azure. Your fully managed SQL service can also simplify and perform time-consuming and complex tasks on your behalf, including automated backups and disaster recovery.



6. Modern, intelligent apps

The cloud also offers your teams access to powerful, intelligent Azure services that can help them build modern apps faster. For example, teams can implement agile CI/CD pipelines using [Azure DevOps](#) to accelerate app development. Using [App Service](#), they can quickly build applications on top of Azure's cognitive services, like AI-powered search; or teams can use a tool like [Azure Data Factory](#) to create workflows for ingesting, preparing and transforming app data at scale. You can even use Azure SQL Database to quickly spin up new sandboxed database environments for development teams to test new applications and services.



Resource guide

Microsoft Learn for Azure

- [Free learning resources](#), including (with your Azure subscription) a free sandbox to try out Azure SQL database.

Azure and cloud fundamentals

- [Azure Fundamentals part 1: Describe core Azure concepts](#)
- [Azure demo and live Q&A](#)

Windows Server migration

- [Windows Server webinar miniseries: Month of Cloud Essentials](#)
- [Create a Windows virtual machine in Azure](#)
- [Migrate on-premises Windows Server instances to Azure IaaS virtual machines](#)
- [Monitor Windows Server IaaS Virtual Machines and hybrid instances](#)
- [Implement a Windows Server hybrid cloud infrastructure](#)
- [Implement Windows Server hybrid cloud management, monitoring and security](#)

SQL Server migration

- [Azure SQL Fundamentals](#)
- [Azure SQL for beginners videos](#)
- [Compatibility Certification](#)
- [The Azure SQL workshop](#)
- [Deploy SQL Server in a virtual machine](#)
- [Deploy Azure SQL Database](#)

Certifications

- [Administrator certification path](#)
- [Data Engineer certification path](#)



Looking ahead

Learning cloud solutions does not have to be about learning a new platform end-to-end. As outlined here, it can be about solving specific problems and focusing on where the cloud can help most, while maintaining necessary on-premises operations.

After all, IT transformation is not always a straightforward proposition. Difficult-to-move applications could prolong the time spent operating in a hybrid model. For some hybrid may be an end state, whereas for others it might merely be a stopping point on the journey to a fully public cloud. Wherever you are on your journey, the key is to make cloud migration seamless, and executable across multiple environments.

The [Azure Migration and Modernisation Programme](#) can help accelerate your progress with proactive guidance and the right mix of expert help at every stage of your migration journey. Get help migrating infrastructure, databases and apps – and move forward with confidence.

The [Azure Hybrid Benefit](#) allows you to bring your existing on-premises Windows Server and SQL Server licenses (with active Software Assurance or subscriptions) to Azure, at a significant cost savings. This also allows teams to move at their own pace, with dual-use rights so you can maintain your on-premises operations as needed.

If you don't already have one, you should create an [Azure free account](#). The Azure free account provides 12 months of popular free services, USD 200 credit to explore Azure services for 30 days, and more than 25 always-free services. You can also reach out to your local Microsoft representative to speak to an Azure sales specialist.

Next steps

[Get expert help with the
Azure Migration and Modernisation
Programme >](#)

[Use your licences with the
Azure Hybrid Benefit >](#)



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