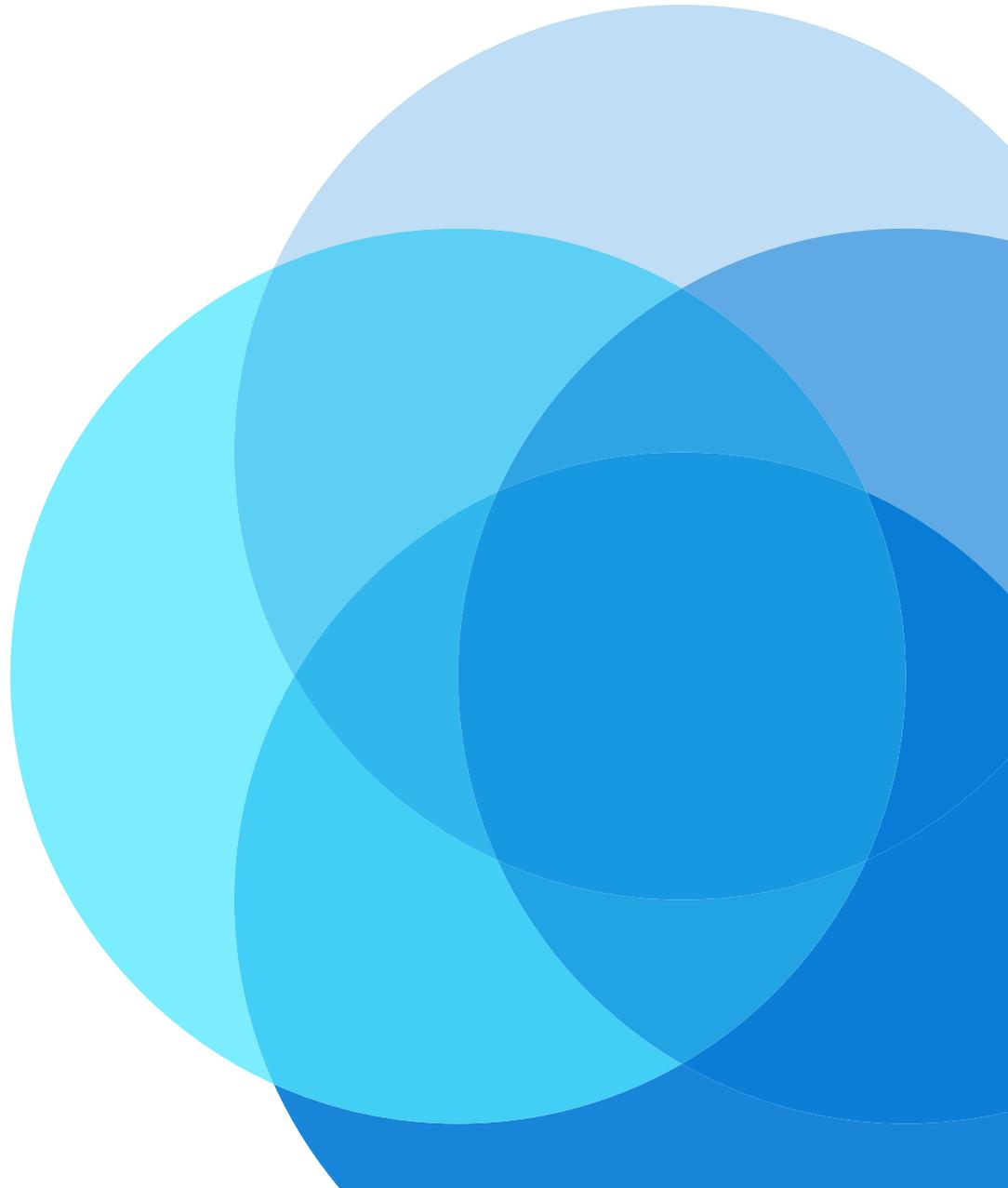


Better on Azure

The benefits of using Azure
for Windows Server and
SQL Server workloads



Why Azure for Windows Server and SQL Server workloads in the cloud?

For more than 25 years, businesses have chosen Windows Server and SQL Server to run their critical workloads. Increasingly, they are moving those workloads to the cloud to support innovation and digital transformation. With end of support for SQL Server 2008 on July 9, 2019, and for Windows Server 2008 on January 14, 2020, migration decisions take on even greater urgency.

Enterprise customers are choosing Azure for their Windows Server and SQL Server workloads. In fact, in a 2019 Microsoft survey of 500 enterprise customers, when those customers were asked about their migration plans for Windows Server, they were 30 percent more likely to choose Azure.

There are four key reasons that make Azure the logical choice for Windows Server and SQL Server workloads:

- Defense-in-depth **security** that is easy to implement and manage, including broad compliance capabilities.
- Support for rapid **innovation** with fully managed services across apps, data, and infrastructure.
- Unmatched **hybrid** solutions designed from the ground up to bridge on-premises and cloud seamlessly.
- Compelling **cost** advantages for many customers, with several benefits available only on Azure.

In this whitepaper, we'll examine each of these themes in greater depth to highlight why Azure makes sense for applications that rely on SQL Server or Windows Server.

**Microsoft employs
> 3,500
cybersecurity
professionals and
invests US \$1
billion annually¹ to
protect against,
detect, and
respond to threats.**

Highly secure and compliant

Enterprises already choose Windows Server and SQL Server for their proven security and compliance capabilities. Today, they're discovering that Azure simplifies the implementation of a comprehensive, modern security posture.

Azure delivers multiple layers of security, including the secure foundation of our physical datacenters, operational best practices, and engineering processes that follow industry-standard guidelines.

Microsoft employs more than 3,500 cybersecurity professionals and invests US \$1 billion annually¹ to protect against, detect, and respond to threats. Our security operations work 24x7x365 for our customers.

¹<https://www.reuters.com/article/us-tech-cyber-microsoft-idUSKBN15A1GA>

**Microsoft
Intelligent Security
Graph, collects
>6.5 trillion
signals daily from
Microsoft services**

**Early adopters of
Azure Sentinel
have reported
up to
90%
reduction in
alert fatigue**

One place for security best practices

[Azure Security Center](#) is a unified infrastructure security management system that strengthens your security posture providing advanced threat protection across your hybrid workloads in the cloud and on premises. It offers security recommendations for virtual machines, storage, networking, databases, identity, application services, and IoT, all from a single integrated dashboard.

Azure Security Center leverages the [Microsoft Intelligent Security Graph](#), which collects more than 6.5 trillion signals daily from Microsoft services such as Xbox, Dynamics 365, Office 365, Azure, and our broad partner ecosystem.

By installing an agent on Windows Server, you can get detailed recommendations on which best practices to implement such as installing end-point protection and the latest patches. Azure Security Center also comes with all the capabilities of Microsoft Defender Azure Threat Protection built in to protect your Windows Server and SQL Server workloads.

Customers also have access to [Azure Sentinel](#), a cloud-native Security Information and Event Management (SIEM) solution. It requires no on-premises infrastructure, reducing the complexity of running enterprise SIEM.

With built-in AI, Azure Sentinel enables you to focus on the important threats rather than low-fidelity signals. It also cuts alert noise with intelligent correlation. Early adopters of Azure Sentinel have reported up to 90% reduction in alert fatigue. By bringing together signals from your Windows Server and SQL Server workloads with Office 365, third-party cloud and on-premises applications, and firewalls, Azure Sentinel empowers your team to identify and mitigate increasingly sophisticated cyber threats.

Simplified enterprise governance

Azure provides a consistent policy platform that enables you to efficiently define and apply security policies across your subscriptions or management groups at scale with [Azure Policy](#). Creating preconfigured subscriptions that conform to your organization's policies and requirements can be accomplished quickly using [Azure Blueprints](#). With [Azure Management Groups](#), you can apply policies with flexible hierarchies to multiple subscriptions. And, you can maintain visibility into your resources using [Azure Resource Graph](#) inventory management. All these capabilities are included as part of [Azure Governance](#) capabilities.

> 90**compliance offerings specific to various countries/regions and industries**

Broad compliance capabilities

The regulatory landscape is constantly evolving and expanding, and the complexity of achieving and maintaining compliance increases in the process. This means cloud providers and cloud customers must adhere to broad security standards, such as data classification, access management, encryption, logging and reporting, security incident response, and so forth.

Microsoft Azure provides over 90 compliance offerings specific to various countries/regions and industries. The Azure platform meets some of the most rigorous security and compliance standards in the world. Azure also provides governance, risk, and compliance tools to help you develop your own compliant cloud apps and document your adherence to compliance standards. With these and other solutions, Microsoft does much of the work of compliance for you so you can focus more of your efforts on your core business processes.

For instances in which even your cloud provider must be prohibited from accessing data or compute resources in your cloud environment, there's [Azure confidential computing](#). It offers encryption of data while in use, a protection that has historically been missing from public clouds.

“The Microsoft cloud is essential to our being able to track the elephants, gain new insights into their behavior, and get the information where it needs to go in real time.”

**– Nancy Scott,
Coordinator of
Elephant Behavioral
Science, Dallas Zoo**

Designed for innovation

Speeding novel solutions to market is a key reason for migrating to the cloud. Achieving this goal requires freeing IT and development talent from mundane management tasks. You also need flexible, scalable, and highly available cloud infrastructure as a foundation. Windows Server and SQL workloads on Azure meet these needs, supporting increased agility and rapid innovation.

“The RFID and Microsoft solution really has the potential to increase the quality of life and care we can provide to animals worldwide. It’s also an incredible tool to help us tell the story of elephants in human care today.”

– Nancy Scott
Coordinator of Elephant Behavioral Science,
Dallas Zoo

Use [Cognitive Services](#) to add search functionality, vision, or speech to your App Service web app

Using NoSQL at global scale is easy with [Azure Cosmos DB](#)

Quickly move apps to the cloud

Migrating your ASP.NET applications from on-premises to Azure can be accomplished in as little as a few minutes with [Azure App Service](#). It enables you to build and host web apps, mobile back ends, and RESTful APIs in the programming language of your choice without managing infrastructure. It offers auto-scaling and high availability, supports both Windows and Linux, and enables automated deployments from GitHub, Azure DevOps, or any Git repo.

Once on Azure App Service, you can integrate managed functionality from Azure to deliver advanced capabilities much faster than building them from scratch. For example, you can add search functionality, vision, or speech to your App Service web app using [Cognitive Services](#). You can globally scale databases connected to your App Service web app using [Azure SQL Database](#) and [Azure Database for MySQL](#). Using NoSQL at global scale is easy with [Azure Cosmos DB](#). Quickly extend the functionality of your web applications and APIs with serverless technologies including [Azure Functions](#), [Logic Apps](#), and [API Management](#) capabilities.

Microsoft offers extensive tools and support for the end-to-end application development cycle, enabling you to adopt an agile DevOps approach for efficient innovation. With these capabilities, you can plan smarter, collaborate better, and ship faster. For example, [Azure Monitor](#) provides intelligent and proactive analytics so you can analyze and continuously improve the performance of your applications. Using [GitHub](#) and [Azure DevOps](#) empowers you to create highly efficient deployment pipelines that enable rapid release cycles.

Trained on millions of databases, the intelligent security and performance features in [Azure SQL Database](#) mean consistent and predictable workload performance

Intelligent databases that are always up to date

When you migrate SQL Server databases to the Azure cloud, you can adopt [Azure SQL Database managed instance](#) for evergreen SQL that never needs to be patched or upgraded along. At the same time, you gain end-to-end SQL Server Engine compatibility for migration without code changes. For customers who need ultimate control over low-level SQL Server features, Azure provides robust Infrastructure as a Service (IaaS) to ensure you can still gain the benefits of the cloud while using your chosen version of SQL Server.

Choosing Azure for SQL opens other new possibilities, as well. For example, you can host larger SQL databases than any other cloud with [Azure SQL Database Hyperscale](#), a highly scalable service tier for SQL databases that adapts on-demand to your workload's needs.

You can also harness the power of artificial intelligence to monitor and secure your workloads. Trained on millions of databases, the intelligent security and performance features in Azure SQL Database mean consistent and predictable workload performance. Intelligent performance tuning automatically adapts to the needs of your application. Automatic threat detection identifies unusual log-in attempts or potential SQL injection attacks. With features such as these, you spend less time managing your database and more time delivering innovative solutions.

A global network

Azure has more global regions than any other cloud provider—offering the scale needed to bring applications closer to users around the world, preserving data residency, and offering comprehensive compliance and resiliency options for customers. This frees your teams to focus on building better applications rather than worrying about performance or compliance.

Applications on Azure benefit from high availability, disaster recovery, and backup on Azure's global network. You can build redundancies at the virtual machine (VM), datacenter, and regional levels based on your business needs. And, stay compliant with your country's or region's legal and regulatory requirements relative to the location of your data.

“We clearly needed a hybrid solution, but we wanted to use the same tool set, administration, and training for both platforms. Only Microsoft checked all the boxes.... That’s why we chose Azure Stack HCI solutions.”

– Christopher Rivers, Director Information Technology, Canadian Museum for Human Rights

Consistent hybrid capabilities

“We needed a solution that gave our developers and administrators the ability to use common tool sets on-premises and in the cloud, while meeting our security requirements and keeping capital and operational costs to a minimum”

– Christopher Rivers
Director, Information Technology,
Canadian Museum for Human Rights.

Microsoft is committed to enabling a hybrid approach to cloud adoption. We understand that customers have business imperatives to keep certain workloads and data on premises, and our goal is to meet them where they are and prepare them for the future by providing robust technology options that meet their needs.

Azure was designed and built to natively support hybrid environments from its inception. Ever since, Microsoft has helped customers operate their hybrid environments seamlessly across on-premises, cloud, and edge.

Azure Stack, available in 92 countries, empowers you to build and run cloud-native applications with Azure services in your local datacenters or in disconnected locations

Azure enables you to build extremely fast private connections between Azure and local infrastructure, allowing both to and through access using Azure ExpressRoute at bandwidths up to 100 Gbps

Enabling modern IT in hybrid scenarios

Microsoft is the only cloud provider in the market that offers a comprehensive set of hybrid solutions. [Azure Stack](#), available in 92 countries, empowers you to build and run cloud-native applications with Azure services in your local datacenters or in disconnected locations. Microsoft also recently introduced [Azure Stack HCI solutions](#) so customers can run virtualized applications on-premises in a familiar way and enjoy easy access to off-the-shelf Azure management services such as backup and disaster recovery.

To simplify hybrid IT management, we provide [Windows Admin Center](#), a free, modern, browser-based application that allows you to manage Windows Servers on-premises, in Azure, or in other clouds. Using Windows Admin Center, you can access Azure management services to perform tasks such as disaster recovery, backup, patching, and monitoring.

Fast networking is critical to success in hybrid environments. Azure enables you to build extremely fast private connections between Azure and local infrastructure, allowing both to and through access using [Azure ExpressRoute](#) at bandwidths up to 100 Gbps. [Azure Virtual WAN](#) makes it possible to quickly add and connect thousands of branch sites by automating configuration and connectivity to Azure and for global transit across customer sites, using the Microsoft global network.

Another key piece of the hybrid puzzle is identity. In fact, over 90% of enterprise customers use Active Directory on-premises. With Azure, customers can easily connect on-premises Active Directory with [Azure Active Directory](#) to provide seamless directory services for all Office 365 and Azure services. Azure Active Directory gives users a single sign-on experience across cloud, mobile and on-premises applications, and secures data from unauthorized access without compromising productivity.

Customers are also extending their hybrid environments to the edge so they can take on new business opportunities. Microsoft offers [Azure Data Box Edge](#), a cloud managed compute platform for containers at the edge, enabling you to accelerate local machine learning workloads and data processing. Additionally, we recently announced [Azure SQL Database Edge](#), enabling developers to create a SQL database and run the same code on-premises, in the cloud, or at the edge.

You can save up to 80% when you combine reservation savings with Azure Hybrid Benefit.

The most cost-effective choice for many customers

While innovation has supplanted cost savings as the primary driver of cloud migration for many businesses, moving to the cloud needs to make sense for your bottom line. Azure offers benefits that can result in substantial cost savings in many cases.¹

The [Azure Hybrid Benefit](#) for Windows Server and SQL Server is one example. It is a pricing benefit for customers who have licenses with Software Assurance, which helps maximize the value of existing on-premises Windows Server or SQL Server license investments when migrating to Azure. Eligible customers can save up to 40% on Azure Virtual Machines (infrastructure as a service, or IaaS), and save up to 55% on Azure SQL Database (platform as a service, or PaaS) and SQL Server on Azure Virtual Machines (IaaS) with Azure Hybrid Benefit.

Combining these benefits with [Azure reservation pricing](#) can increase savings even further. Giving us visibility into your one-year or three-year resource needs in advance allows us to be more efficient. In return, we pass these savings onto you as discounts of up to 72% compared to pay-as-you-go pricing for select Azure services. You can save up to 80% when you combine reservation savings with Azure Hybrid Benefit.

In addition, [Azure cost management](#), free to all Azure customers, helps you monitor and optimize what you spend in Azure. Not only do all these savings help your bottom line, but they also free up the budget you need to innovate with cloud services, create new business value and compete more effectively in your industry.

¹Actual savings may vary based on region, instance type, or usage.

Accelerate innovation with Azure

As you plan your migration of SQL Server and Windows Server workloads to the cloud, consider the potential benefits of choosing Azure as your destination. Intelligent security and broad compliance capabilities help you protect your data. Managed services, a global network, and reduced administrative burden put the focus on innovation. And, for hybrid workloads, only Azure provides a complete solution. All in a highly cost-effective platform, designed and built to be the best for applications that rely on Windows Server and SQL Server.

Learn more about the benefits of choosing Azure as your cloud platform.