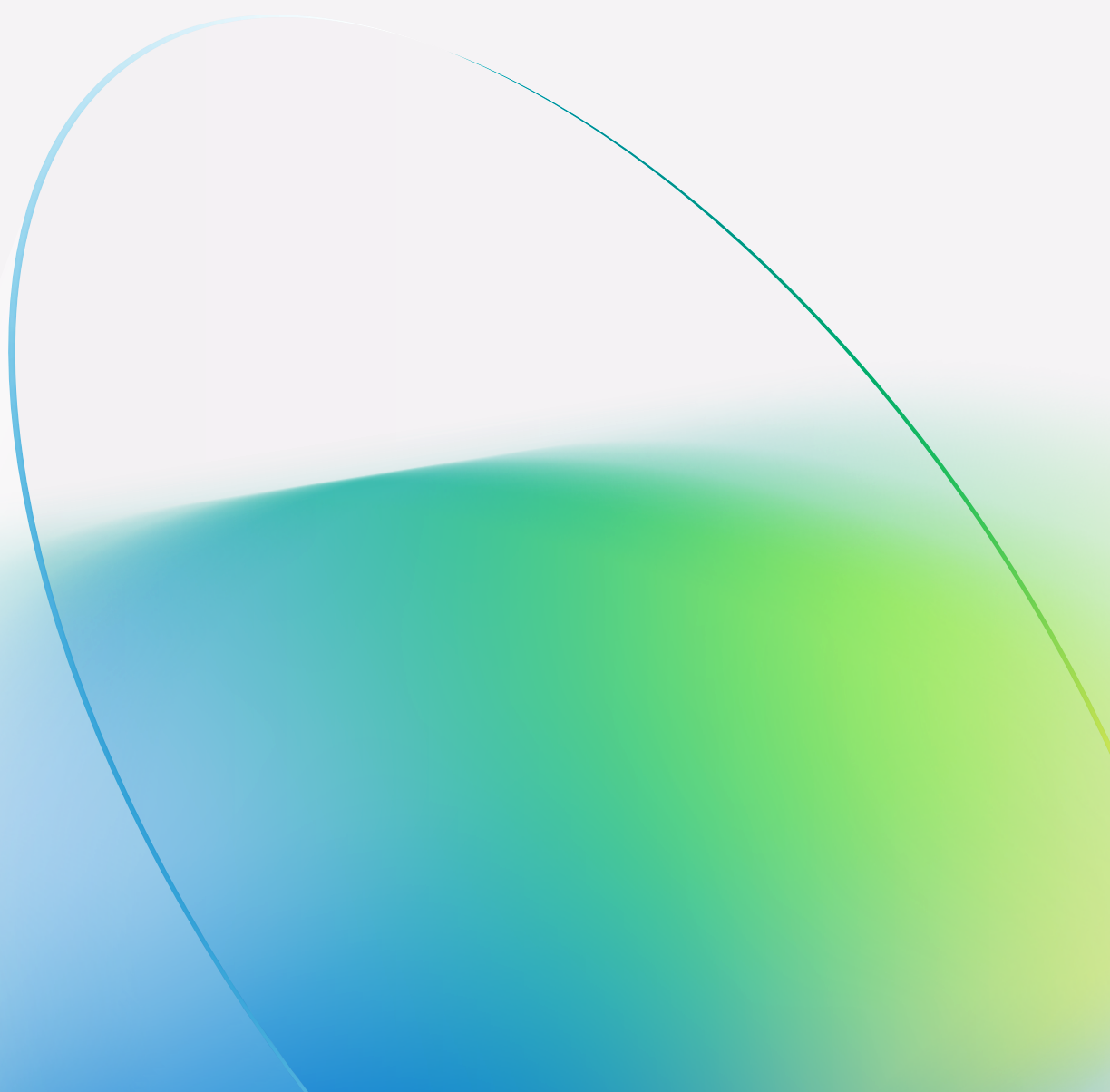




# Migrating and modernizing your IT estate

Cloud transformation in Azure



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### Launch your cloud transformation with Azure

# Introduction

Moving to the cloud offers many advantages over traditional on-premises infrastructure, and a cloud-centric IT infrastructure can help you stay competitive in an era of rapid innovation, evolving AI, and increasing competition. It also provides an opportunity to rethink and transform business strategies, operations, and culture to modernize your infrastructure as you make the most of cloud capabilities.

*Cloud transformation* is the process of moving your digital estate, including applications, data, infrastructure, and workflows, from on-premises or legacy systems to cloud-based environments. However, it's not just about migrating IT systems. It also involves rethinking how technology supports your business goals and how a cloud-first mindset can keep your organization agile and competitive.

Keep in mind that this process isn't a one-time, all-or-nothing event, but an iterative, ongoing journey. It begins with establishing clear business goals, identifying key business domains for transformation, and then creating the right strategy and roadmap for implementation. By adopting this cloud transformation process, you can start to take full advantage of the scale, power, and cost optimization available in the cloud and help your business stay continuously ahead of the curve.

## Common cloud adoption goals for business decision-makers and IT leaders

- Increased business agility and accelerated pace for adopting new technologies
- Speed and time to market with differentiated experiences and new business models
- Security and compliance
- Cost optimization

This e-book offers high-level guidance for developing a cloud transformation strategy, with an emphasis on modernizing workloads, increasing your business agility, and integrating next-generation technologies, including AI, into your products and business processes. Additionally, it provides a summary of how Azure products and services can help you achieve your cloud-computing goals.

# The business value of cloud transformation

Cloud transformation offers you significant advantages over legacy IT practices. A shift to cloud-based infrastructure and services can grant your IT operations greater agility, scalability, and efficiency, while reducing operational costs, and can accelerate time to market. Ultimately, cloud transformation empowers your business to become more resilient and competitive.

Following are some key ways that the cloud can support your business goals:

## Agility and faster service development

Using modern application architectures and development practices, businesses can automate manual operations in the cloud and deploy new services and products quickly, without disruption or downtime.

## Innovation

Modern apps can integrate more easily with cutting-edge technologies, like AI, real-time analytics, automation, and IoT services, delivering more personalized, responsive interactions.

## Scalability and flexibility

Cloud-native applications can automatically scale resources up or down as needed, matching demand and improving performance.

## Reduced latency

Globally distributed datacenters help to reduce latency and to improve responsiveness.

## Reduced global expansion cost

The cloud has a global reach, so it's easier to expand into new markets without major upfront investment.

## Improved reliability and resilience

Built-in redundancy, auto-healing, global availability zones, automated backups, disaster recovery, and load balancing help keep services running smoothly with minimal downtime.

## Centralized, enterprise-grade security

Cloud workloads take advantage of Zero Trust models, built-in encryption, authentication, monitoring, automated security patching, and powerful security tools, applied consistently across a unified platform.

## Easier maintenance and management

Containerization, orchestration, and centralized monitoring make modern cloud-based apps easier to maintain, scale, and troubleshoot, freeing up teams to focus on more urgent business goals.

## Cost efficiency

By using cloud-native services, like serverless computing or managed databases, modern applications can use pay-as-you-go models to save costs and reduce the need for large capital expenses. In addition, this reduction in operational overhead,<sup>1</sup> coupled with more effective security management, can lower your infrastructure's total cost of ownership.



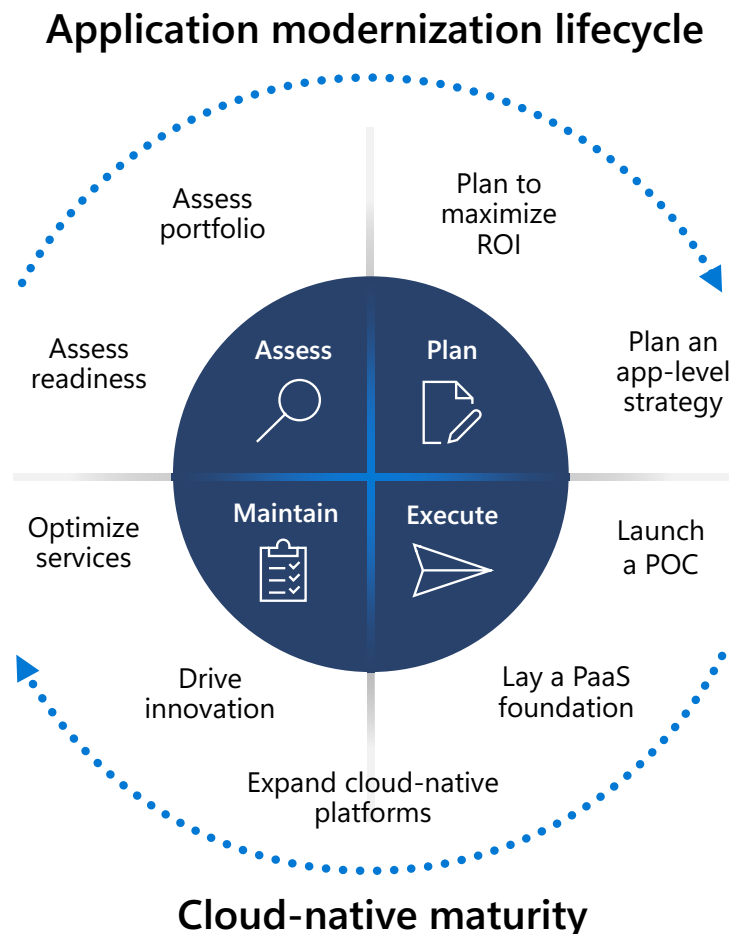
<sup>1</sup> Source: IDC white paper, sponsored by Microsoft, [The Business Value of Migrating and Modernizing IT Estate with Microsoft Azure](#), #US53301225, April 2025.

# Migration and modernization: The foundation of cloud transformation

Modern applications are designed to fully use the cloud's capabilities. Built using modular microservices, packaged in containers, and managed through automated, scalable infrastructure, they're developed with agility and resilience in mind, allowing you to build, deploy, and update features rapidly without disrupting your wider infrastructure. Today's *IT modernization* is the process of transitioning your organization's existing applications, processes, and data management methods to use this kind of modern cloud-first approach.

## The application modernization lifecycle

*Application modernization*, a central component of cloud transformation, is a continuous cycle of assessment, planning, execution, and maintenance. As you move workloads to the cloud, this process helps your applications better integrate cloud-native features and can improve your apps' scalability, agility, security, and compliance.



## Assess

A thorough assessment evaluates your organization's IT assets and identifies outdated systems, potential security vulnerabilities, and areas for optimization. Identification of candidate workloads to modernize and move to the cloud is an important output of this process.

## Plan

During the planning cycle, you evaluate modernization strategies for candidate workloads with a focus on return on investment (ROI) and with the goals of prioritizing financial objectives and getting stakeholders to buy in.

## Launch a proof of concept (PoC)

Any new modernization cycle starts with the launch of a PoC to determine the validity of your modernization strategy.

## Lay a platform as a service (PaaS) foundation

A cloud-first mindset is the foundation of your strategy. This involves adopting PaaS to manage costs and to increase scalability where possible. It also involves adopting modern agile development practices and CI/CD pipelines to automate testing and deployment.

## Expand the use of cloud-native platforms

In this phase, your application modernization rolls out your cloud-native approach to as much of your production environment as possible.

## Drive innovation

As your organization executes and maintains a cycle of application modernization, you find new ways to use AI and other advanced technologies. This allows you to further streamline your production environment and get new services to market faster.

## Optimize existing services

The cyclical nature of this process means that you're continuously evaluating already modernized workloads in search of new ways to enhance efficiency, lower cloud costs, and improve performance, security, and compliance.

## Planning for cloud adoption

As you consider your many options for moving workloads to the cloud, charting a course that optimizes your existing tools and talent is key, as is ensuring that the migration process doesn't put excess strain on your teams and systems.

## Evaluate your workloads

A key part of the assessment phase of the modernization journey is evaluating your IT estate for workloads and identifying the best candidates for modernization and cloud adoption. For these candidates, you need to determine the best modernization strategy for each workload.



# The 6 Rs of cloud migration and modernization

The migration and modernization process is a spectrum. Applications can have unique requirements and complexities. There's no one-size-fits-all solution—you can adopt multiple paths within your larger cloud adoption strategy. As you evaluate workloads, consider these common strategies, known as the 6 Rs:

**Rehost.** Often referred to as *lift and shift*, rehosting involves moving applications from on-premises infrastructure to the cloud, without altering the underlying code or architecture, often using virtual machines (VMs) to emulate previous environments. This approach is typically fast and cost-effective, making it ideal for organizations to quickly migrate to the cloud. It can serve as a first step toward modernization and can offer scalability and management advantages over on-premises, but it doesn't benefit from cloud-native capabilities.

**Replatform.** Also known as *lift, tinker, and shift*, replatforming involves migrating applications to the cloud with slight optimizations or modifications—often related to the platform or runtime environment—without making extensive changes to the core codebase. For example, this might involve switching to a managed database service or using containers for app hosting. This approach can improve performance, scalability, and maintainability, while keeping the effort and risk relatively low compared to full refactoring.

**Refactor.** Refactoring goes deeper by modifying the internal code of an application to better align with cloud-native capabilities, such as microservices architecture, serverless computing, or cloud-specific APIs. The goal is to enhance scalability, performance, agility, and security, while preserving the application's existing functionality from an end-user perspective. This strategy requires a greater investment of time and development resources but can significantly improve long-term efficiency and innovation potential.

**Rebuild.** When an application is too outdated or complex to be replatformed or refactored effectively, rebuilding from scratch may be the most strategic choice. Rebuilding allows developers to redesign the application using modern development practices, frameworks, and cloud-native technologies. This path involves the most effort and carries higher upfront costs, but it provides a clean slate to address legacy limitations, improve maintainability, and incorporate new business requirements or digital capabilities.

**Retire.** As you evaluate applications for your cloud migration assessment, you might identify some as obsolete or redundant. In these cases, the best course of action is to retire and decommission the applications, which can reduce operational overhead, lower costs, and simplify the overall IT landscape, freeing up resources to focus on more strategic systems.

**Retain.** Sometimes, migrating an application to the cloud isn't practical in the short term. This strategy involves keeping certain applications on-premises or in their current environment, either temporarily or permanently. This may be due to factors like high migration costs, technical complexity, regulatory requirements, or tight integration with legacy systems. By retaining applications, you can prioritize migrations and make more informed decisions about modernization timelines.



The right modernization approach depends on a number of factors, including:

- Time and budget.
- Necessity of cloud-native features.
- Compatibility of available platforms and service.
- Skills within your teams.
- Security and compliance needs.
- Your internal technical readiness.

Whenever possible, you should take advantage of fully managed PaaS products as part of your modernization process. PaaS offloads much of the management burden of traditional VM-based application and data hosting. These services offer preconfigured tools, frameworks, and services, such as databases, authentication, messaging, and integrated CI/CD pipelines to streamline operations.

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## Consider your hybrid strategy

A hybrid cloud approach combines existing on-premises assets with cloud-hosted services. You benefit from your existing investments while taking advantage of cloud services and infrastructure for specific applications or services.

A hybrid infrastructure might be temporary as you work through adopting a fully cloud-native infrastructure, or there might be technical, cost, or other business reasons to keep at least some of your workloads on existing infrastructure. When thinking about what you want to move to the cloud, consider the following issues that might make keeping some of your workloads on-premises necessary or desirable:

### Regulatory or compliance requirements

Some data, especially in fields like healthcare, finance, or government, might need to remain on-premises due to strict data residency requirements, privacy laws, or other regulations. With a hybrid model, organizations can modernize while keeping relevant assets compliant.

### Legacy systems integration

Some legacy applications might be difficult or costly to migrate. With a hybrid approach, businesses can keep those applications on-premises and still take advantage of cloud services, such as analytics, AI/machine learning, or cloud-based storage.

### Performance and latency concerns

For workloads that require low latency, such as real-time trading platforms or factory floor systems, keeping part of the infrastructure local ensures responsiveness, while less time-sensitive services can be hosted in the cloud.

### Business continuity and disaster recovery

Hybrid cloud architectures can enhance resilience by replicating data and services across on-premises and cloud environments. If one environment goes down, the other can continue operating, improving disaster recovery capabilities.

### Cost optimization

Running all workloads in the cloud isn't always the most cost-effective option. A hybrid setup enables organizations to optimize costs by keeping predictable, stable workloads on-premises and using the cloud for scalable or spiky workloads.

### Enhanced security

Hybrid infrastructure allows you to extend powerful cloud-native security systems to your on-premises workloads. This can help you improve overall visibility into your security posture and can add advanced threat detection and response capabilities across your entire IT estate.

# The Azure advantage for cloud adoption

Azure is the Microsoft cloud computing platform, offering a wide range of tools and resources for building, deploying, and managing applications and services. To streamline your cloud migration and modernization, Azure provides highly reliable, enterprise-ready cloud infrastructure, databases, and managed compute services. Across cloud-native, multicloud, or hybrid environments, Azure helps you deploy next-generation solutions quickly and efficiently.

In this section, we explore some of the advantages that Azure offers and how adopting modern cloud technologies on the Azure platform can translate into tangible business outcomes.

## Advantage #1: Increased business agility

Moving workloads to Azure can increase your organization's agility, giving you the flexibility, speed, and scalability you need to adapt quickly to changing market demands and customer needs. With Azure, you can deploy new applications rapidly, scale services up or down based on demand, and experiment with new ideas—without heavy upfront investments in infrastructure.<sup>2</sup>

Development tools, automation capabilities, and global infrastructure integrated into Azure support more efficient operations and continuous delivery. IT teams can manage resources more dynamically, apply updates with minimal downtime, and take advantage of real-time insights to make informed decisions. This agility not only improves productivity but also positions your organization to innovate faster, stay competitive, and evolve as your business needs change.

## Advantage #2: AI innovation at scale

Modernizing your workloads to use cloud-native Azure-based technologies lays the groundwork for AI innovation at scale, and Microsoft Foundry helps you integrate AI into business operations seamlessly. It includes services that support machine learning, natural language processing, computer vision, and much more.

Foundry is the central hub for exploring and building AI solutions on Azure. It includes access to Azure OpenAI In Foundry Models, Azure Machine Learning, and other services. It can also be used alongside Microsoft Copilot Studio to build everything from no-code AI apps to sophisticated, custom-developed AI-powered solutions.

<sup>2</sup> Source: IDC white paper, sponsored by Microsoft, [The Business Value of Migrating and Modernizing IT Estate with Microsoft Azure](#), #US53301225, April 2025.

### **A responsible and trustworthy AI base**

End users want privacy, transparency, and accountability integrated into AI-enabled applications so they can use them with confidence. And you need to know that your AI apps will operate according to your organizational values and comply with regulatory obligations.

To help address these concerns, Microsoft has adopted a Responsible AI Standard which, beyond simply providing guidance, establishes core principles that are integrated into Foundry, helping to ensure that you can trust the AI apps you build.

#### **The Microsoft Responsible AI Standard: Six principles**

##### **Fairness**

AI systems must treat all individuals equitably.

##### **Inclusiveness**

AI systems should empower and engage everyone.

##### **Reliability and safety**

AI systems should consistently perform securely and safely.

##### **Transparency**

AI systems should be easy to comprehend.

##### **Privacy and security**

AI systems must prioritize security and safeguard privacy.

##### **Accountability**

Individuals should be answerable for AI systems.

### **Advantage #3:**

#### **Faster time to market with scalable cloud-native technologies**

In addition to generally increasing your business agility, Azure can help reduce time to market for new products or features. Building or modernizing your apps to use cloud-native architecture prepares you to benefit from the variety of services available on the Azure platform. These include on-demand access to scalable infrastructure, prebuilt services, and powerful development tools that can accelerate the entire application lifecycle, from idea to deployment.

With PaaS offerings, like Azure App Service, Azure Kubernetes Service (AKS), and Azure DevOps, your developers can build, test, and release applications faster by eliminating management of complex back-end systems and physical infrastructure. Automation tools, such as CI/CD pipelines, streamline testing and deployment, and integrated monitoring and analytics help you identify and resolve issues quickly.

By removing barriers to development and speeding up iteration cycles, you can build and run scalable applications faster so you're ready to integrate the latest cloud technologies, such as AI.

### **Advantage #4:**

#### **Improved cost controls**

With Azure, you can manage IT costs by shifting from large, upfront capital expenditures to a flexible, pay-as-you-go model. You only pay for the resources you actually use, so you can scale spending in direct alignment with your business needs. Azure also provides built-in tools, like Microsoft Cost Management, which offers visibility into usage patterns, forecasts expenses, and recommends ways to optimize resources.

### **Azure Hybrid Benefit: Designed to help you save**

Azure Hybrid Benefit lets you apply your existing Windows Server and SQL Server licenses to cloud-hosted resources. This can lead to significant cost savings compared to standard pay-as-you-go rates and extends to the Azure SQL PaaS environment and Azure SQL Managed Instance, so you can maximize cost efficiency as you modernize your apps.

You can also use your existing SQL Server licensing for Azure Arc, which helps you meet compliance requirements by offering unlimited virtualization options on Azure Dedicated Host and the Azure VMware Solution. These cost optimizations also extend to Linux, where customers have reported savings of up to 76% on their workloads using Azure Hybrid Benefit for Linux.<sup>3</sup>

### **Azure Consumption Commitment: Save more**

If you know ahead of time that you're going to need to purchase a certain amount of Azure services, you can use the Azure Consumption Commitment to reduce cloud costs, gain pricing predictability, and unlock additional value from your Azure investment. By committing to a certain level of Azure spend over a set period (typically one to three years), you can benefit from significant discounts and qualify for added incentives, such as free support and Azure credits.

## **Advantage #5:**

### **High performance for all workloads**

Azure provides high performance for a wide variety of workloads by offering specialized, optimized infrastructure and services tailored to the unique needs of each platform, framework, or application type. Whether you're running traditional enterprise apps or cloud-native solutions, Azure combines compute

flexibility, purpose-built services, and intelligent resource management to help ensure consistent, reliable performance at scale.

Azure enables high performance for all workloads by offering:

- VMs that provide specialized sizes and features (such as GPU, high-memory SKUs, specific CPU types, and more).
- Managed database and app services with built-in tuning.
- Native integration with enterprise systems.
- Scalable, low-latency global infrastructure.
- Platform support for legacy and modern development stacks.

Whether you're modernizing legacy systems or building cloud-native applications, Azure gives you the flexibility and performance foundation you need to succeed.

## **Advantage #6:**

### **Unified hybrid cloud management**

With a hybrid infrastructure, you can approach your cloud migration and modernization efforts in a gradual, phased manner while continuing to use resources hosted on your on-premises infrastructure.

Azure Arc is a suite of services that extends the Azure platform into your on-premises environments. You can use it to provide a unified management experience for your entire hybrid IT estate. It allows you to integrate your on-premises resources, such as Windows Server instances, Linux servers, SQL Server or PostgreSQL server instances, or even Kubernetes clusters, into the Azure Resource Manager tool set. This simplifies governance and management across your various environments and streamlines maintenance, monitoring, and upgrade processes.

<sup>3</sup> [Azure Hybrid Benefit—Hybrid Cost Calculator](#), Microsoft.

## Advantage #7:

### Powerful security tools

Security is built into the Azure platform through a multilayered approach that spans physical datacenters, infrastructure, and operations. Azure includes built-in threat detection, identity and access management, encryption at rest and in transit, and network security controls, such as firewalls and Distributed Denial-of-Service (DDoS) protection.

Azure Policy and role-based access control (RBAC) help ensure that governance and compliance policies are enforced. Azure also supports Zero Trust principles, requiring verification at every step, and is regularly audited to meet a broad range of industry certifications and regulatory standards.

Microsoft Defender for Cloud provides comprehensive security management and threat protection across hybrid and multicloud environments. It can help you strengthen your security posture by continuously assessing resources for misconfigurations and vulnerabilities and by offering recommendations to mitigate security risks. Defender for Cloud also integrates threat detection for a wide array of resources so you can identify attacks on workloads in real time.

## Advantage #8:

### A trusted, resilient cloud platform

Azure delivers a resilient platform that supports compliance, gives users control, and enables organizations to operate with confidence in the cloud. Following are just a few reasons to trust Azure as your cloud platform:

- **Global compliance.** Azure supports over 100 compliance offerings<sup>4</sup>, including the General Data Protection Regulation (GDPR), Health Insurance Portability and Accountability Act (HIPAA), International Organization for Standardization 27001 (ISO 27001), and Federal Risk and Authorization Management Program (FedRAMP). Services like Azure Policy can help you automate compliance management, enforce governance, and meet your data sovereignty requirements.
- **Operational transparency and control.** Microsoft provides clear service-level agreements (SLAs), a detailed shared responsibility model, and transparency into platform operations. Tools like Azure Monitor, Log Analytics, and Azure Activity Logs give organizations deep visibility into performance, usage, and security events, while Azure Resource Manager and Microsoft Cost Management enable granular control over infrastructure and spending.
- **Resilience from the ground up.** Azure is designed for high availability and disaster recovery, with services such as Azure Site Recovery for automated failover and Azure Backup for secure and scalable data protection. Its global network of availability zones and regions helps ensure that workloads can remain online, even during localized disruptions.
- **Commitment to responsible innovation.** Azure supports ethical and secure development through services like Azure confidential computing, which protects data in use via trusted execution environments, and DevOps tools like GitHub Advanced Security and Azure DevOps, which integrate security directly into the software development lifecycle.

<sup>4</sup> [Azure compliance documentation](#), Microsoft



## Advantage #9:

### Training resources for all skill sets

One of the biggest concerns that decision-makers have around cloud migration is the perceived lack of cloud-management skills in their organizations. To help your existing staff build their cloud-ready skills using the latest Azure technologies, Microsoft Learn offers an array of on-demand learning modules, courses, self-paced training, learning hubs, step-by-step documentation, and more. In addition, your teams can benefit from expert Azure support at every step of your modernization and migration process to help ensure that your move to Azure is a success.



# Launch your cloud transformation with Azure

With an expected \$1 trillion in value generated for US Fortune 500 companies by 2030,<sup>5</sup> the cloud is poised to deliver significant results for organizations that move their infrastructure and databases to the cloud. What does that mean for you and your business?

Cloud transformation can help your IT infrastructure and workloads harness the full potential of the cloud and prepare your organization to adopt the latest AI and low-code technologies. Modernizing using Azure can offer numerous benefits for your organization, including:

- **Cost savings.** Azure offers a pay-as-you-go model and can reduce spending on redundant hardware or unused capacity.
- **Flexibility and scalability.** Scale compute, storage, and network resources, up or down, without concerns about physical infrastructure. Choose from public, private, or hybrid cloud deployment models based on security and compliance needs.
- **Code-to-cloud security.** Cloud-native security with Microsoft Defender for Cloud helps safeguard data and apps from threats, giving you continuous and unified visibility across cloud and hybrid environments.
- **Innovation and productivity.** AI, machine learning, IoT, blockchain, and serverless computing help address business challenges and streamline the software development lifecycle, from planning to deployment.

- **High-performance support for the workloads and technology you already use.** Critical applications can run seamlessly in Azure while minimizing the need for your existing teams to learn new skills or processes.

Designed to handle diverse workloads, from simple web applications to complex, cutting-edge AI solutions, Azure enables your organization to stay agile and secure in a constantly changing technological landscape.



<sup>5</sup> Forrest, Will, et al. [Cloud's trillion-dollar prize is up for grabs.](#) *McKinsey Quarterly*, February 26, 2021.



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