Microsoft

Cloud migration and modernization with Microsoft Azure

©Microsoft Corporation

Table of contents

Reimagining the next normal 3

How cloud adoption helped businesses survive 4

How should I think about migration and modernization with the cloud? 5

Key considerations for migrating and modernizing 6

What a typical cloud journey looks like 7

How Azure can help you migrate and modernize 13

Are you ready to migrate? 14

©2021 Microsoft Corporation. All rights reserved. This document is provided "as-is." Information and views expressed in this document, including URL and other Internet Web site references, may change without notice. You bear the risk of using it. This document does not provide you with any legal rights to any intellectual property in any Microsoft product. You may copy and use this document for your internal, reference purposes. You may modify this document for your internal, reference purposes. This document is confidential and proprietary to Microsoft. It is disclosed and can be used only pursuant to a non-disclosure agreement.

Reimagining the next normal

In 2020, unprecedented disruption in supply chains, workplaces, and consumer behavior drove massive technology investments to ensure that businesses could continue operations. Enterprises, government, education, and healthcare institutions had to pivot overnight, resulting in accelerated cloud adoption to ensure business continuity. Industry trends predict a continued momentum in cloud adoption—55% of enterprise workloads will be in a public cloud within the next twelve months, according to the 2021 Flexera State of the Cloud report.[1] Twice as many respondents as the previous year report spending more than $1 million per month on public cloud. Gartner also forecasts that worldwide end-user spending on public cloud services is forecast to grow 23.1% in 2021.[2]

Companies entered 2020 with varying levels of cloud maturity. Some companies with already robust cloud adoption were able to work remotely and scale to meet the surge in online consumer demand. Those starting with less mature cloud environments sped up cloud migration and adoption for business continuity when IT infrastructure was inaccessible.
In planning for the future, organizations are evaluating how to maximize the value of existing and future cloud investments. In this e-book, we discuss a structured process and way of thinking about cloud adoption that can be tailored to your business needs.

> Looking ahead, we'll continue to have a significant part of our global workforce in the remote working setup. Microsoft gives us the technological edge, trust, and security we need to reimagine conventional operations and foster a futuristic work culture.

P S Reddy
Global Chief Technology Officer

Startek >

[1] 2021 State of the Cloud Report | Flexera, undated.
[2] Gartner Forecasts Worldwide Public Cloud End-User Spending to Grow 23% in 2021, undated.

How cloud adoption helped businesses survive

Adopting remote and hybrid work models was a top priority for organizations in 2020 and presented both technical and operational challenges as the workforce shifted to accommodate the sudden changes. The urgency of disruption overcame organizational and cultural barriers to cloud adoption, driving two years' worth of digital transformation in two months.[3]

Remote work. With the global workforce working from home, cloud productivity tools such as Microsoft Teams and Azure Virtual Desktop were indispensable to collaboration and operations.

Security. When the global workforce went remote, the risk of data loss and cyberattacks shifted. Organizations discovered that cloud providers can deliver in-depth, multi-layered security that protects data even outside of traditional network boundaries.

Resilience. As conditions changed, the flexible nature of the cloud enabled organizations to scale up and down, while built-in resilience and redundancy ensured that systems were available to serve customers, manage data, and empower employees.

Scalability. When consumer activity shifted online, highly scalable cloud infrastructure helped companies avoid lost revenue and meet the surge in demand.

Cost. Never was the idea of paying for what you consumed more important than in the face of significant revenue loss and uncertain cash flows. The ability of cloud to flip CAPEX to OPEX continued to be a key cost optimization strategy for many organizations.

Innovation. During a time of crisis, an organization's ability to operationalize new ideas was more important than ever. The cloud enabled rapid experimentation at low cost, and put profitable services into production faster than ever.

Lets work together on how you can expand on these benefits by adopting a structured approach to cloud migration and modernization.

"Now we can focus more of our limited time and energy on driving maximum functionality, rather than the physical logistics that go with maintaining and refreshing equipment and infrastructure, and because we can scale up or down based on business or program requirements, we can be sure that we're truly paying for only what we need at any given time."

Joerg Dallmeier
Director of Infrastructure and Operations

Conestoga College Institute of Technology and Advanced Learning >

[3] 2 years of digital transformation in 2 months | Microsoft, undated.

How should I think about migration and modernization with the cloud?

For many organizations, **migration**—the process of moving workloads to cloud infrastructure as a service (IaaS) quickly and with minimal changes—is a valuable tactic to speed cloud adoption. Migrating apps as-is to the cloud helps flip capital expense (CAPEX) to operational expense (OPEX) and quickly gain agility and scale. However, while this is often the starting point for the cloud journey, it's rarely the end.

Modernizing applications, data, and operations requires more in-depth evaluation and retooling of existing workloads. As the future comes into focus, organizations should consider how they can take advantage of platform-as-a-service (PaaS) capabilities like built-in security, patching, high availability, and auto-scaling. Modernizing may also involve breaking an application into modular parts that can be easily replaced or updated.

Most organizations start with rapid lift-and-shift migration due to timeline pressures, legacy workloads, and the need to maintain fine-grained control over their workloads, while others start with **modernization** and work extensively on applications to ready and optimize them for the cloud before putting them into production. When it comes to the sequence of migrate first and modernize later, or doing them in parallel, both are valid strategies.

Each migration and modernization journey is unique and depends on your workload complexity and business priorities.

Key considerations for migrating and modernizing

The first step in deciding how your cloud journey will continue is to understand your key challenges and desired outcomes, as those can help shape your migration and modernization strategy.

Common triggers

What a typical cloud journey looks like

Once you have a clear idea of what you're trying to achieve, the next step is to plan your journey using a clear, yet flexible, framework. Microsoft has helped thousands of organizations migrate and modernize on the Microsoft Azure Cloud. Based on these experiences, we developed the Microsoft Cloud Adoption Framework for Azure. Using the framework as a starting point, you can build a roadmap to achieving your organizational goals.

A holistic approach maximizes value

Cloud migration and modernization involves significant organizational change management spanning people, process, and technology. Taking a holistic approach will not only help you navigate the journey successfully, but ensure that your organization realizes new benefits—including cost optimization, productivity, agility, and scale—once your applications and databases are migrated and modernized with Microsoft Azure. There are three aspects to beginning your cloud journey: planning, implementation, and operations.

> Technology innovation is a fundamental piece of any modern retail company's strategy... It allows us to stay relevant in today's marketplace and connect with customers in the ways that suit them best. Healthcare is a deeply personal concern, and we see technology as a way to personalize our service and create more value for customers while also transforming healthcare around the world.

Mike Maresca
Global Chief Technology Officer

Walgreens Boots Alliance >

Planning for cloud migration and modernization

Define your strategy

Define and document your motivations
Document business outcomes and motivations, such as exiting your datacenter, increasing cost saving, or designing for greater agility.

Involve and align key stakeholders
Facilitate a smoother, faster migration that meets organizational goals by enlisting broad support. Create a center of excellence with a cross-functional team made up of IT, finance, and business owners.

Engage a cloud migration and modernization partner
Augment your cloud skillset and reduce risk as you migrate and modernize your workloads. Team up with a managed service provider that offers support through the entire process and beyond.

"We started by looking at which environmental machines weren't being used. We quickly looked at the utilization of machines and large storage accounts. These things were costing us high amounts of money and weren't being used very often or at all."

Ian Margetts
Infrastructure Services Lead

ASOS

Planning for cloud migration and modernization continued

Plan for your move

Discover and assess your apps, databases, and infrastructure
Get insights into your dependencies using automated cloud migration tools. Inventory your infrastructure and assess your on-premises environments. Get right-sizing guidance, workload-level cost estimates, and performance metrics.

Make a business case for migration and modernization
Evaluate the potential cost savings of migrating to Azure by calculating and comparing your total cost of ownership (TCO) for Azure with that of a comparable on-premises deployment.

Build a holistic plan
Account for workload priorities, timelines, milestones, resources, and funding. Then break up your overall plan into migration and modernization projects, each with a group of related workloads. Get buy-in from leadership and your new migration center of excellence.

Planning resources

Cloud migration and modernization planning tools

- Azure migration business case video
- Cloud economics
- Azure TCO calculator
- Migrate to the Cloud with Azure Migrate e-book
- App Migration Toolkit

Getting-ready tools

- Self-guided skill-building courses on Microsoft Learn
- Documentation: What is a landing zone?
- Documentation: Landing zone implementation options

"Innovation is why we're going with a cloud-specific architecture. Having on-demand capabilities has been helpful. Azure Kubernetes Service, security, and best-in-cloud capabilities to modernize our business are key to our success."

Jim Saber
Group Vice President of Cloud IT and Operations

Albertsons Companies >

Driving effective implementation of cloud strategy

Build landing zones, then migrate and modernize in waves.

Get ready for the move

Build cloud skills
Get your IT and app development teams up to speed on cloud technologies, migration tools, and operational processes with upfront training investments.

Set up landing zones for your workloads
Help avoid governance issues during and after migration by using landing zone best practices. Preconfigured landing zones include networking, identity, management, security, and governance elements that balance agility with organizational standards.

Review best practices for Azure readiness
Help ensure the proper configuration of your current and future landing zones by expanding and validating landing zone modifications with Azure readiness best practices.

Migrate your workloads

Make cloud migration easier with centralized tools
Discover, assess, and migrate your workloads with a comprehensive resource like Azure Migrate—the central hub for all of your migration automation needs.

Assess, migrate, optimize, and promote workloads iteratively
Use an iterative process of migrating one workload at a time or a small collection of workloads per release. Help ensure that workloads are ready to meet production demands by assessing, migrating, optimizing, and promoting them with each iteration.

Prepare to expand your scope with cloud migration best practices
Review the Azure cloud migration best practice checklist to take your migration beyond basic cloud-native tools. Get guidance on specific topics, including: VMware migration, SQL Server migration, and global market support.

Chevron accelerates its move to the cloud, sharpens competitive edge with SAFe® built on Azure DevOps

With 40 scrum teams moving applications to the cloud, global energy provider Chevron needed to improve collaboration between its development and operations groups. By switching to Azure Boards, Chevron has already saved $500,000 (US) in licensing costs and reduced operating expenses. "The speed to business capability is very important for Chevron," says Vicki Harris, Manager of Public Cloud at Chevron. "Using Azure DevOps, we can deliver solutions much faster than we ever could before."

Read the full story >

Driving effective implementation of cloud strategy continued

Modernize your apps and data

Modernize iteratively at any stage
Modernization involves refactoring, rearchitecting, or rebuilding your apps and data. Use modernization to achieve benefits like boosting app innovation, increasing agility, and accelerating developer velocity.

Refactor apps and databases for speed and productivity
Refactor (or repackage) when you want to make minimal changes to apps so that they connect easily to Azure. For example, refactor relational databases directly into a cloud database service like Azure SQL Database.

Rearchitect apps and databases for cloud scalability and productivity
Rearchitect when you want to modify and extend app functionality and code to optimize for cloud scalability. For example, break down monolithic apps into groups of microservices that work together and scale easily.

Rebuild with cloud-native technologies to accelerate developer velocity
Rebuild when you need to recreate an app using Azure cloud solutions. Consider rebuilding if your existing apps have limited functionality or lifespan.

Implementation resources

App and data modernization tools and services

- Introduction to data platform modernization
- Azure platform-as-a-service (PaaS)
- Azure App Service
- Azure SQL
- Azure Functions

Cloud migration tools and corresponding Azure services

- Azure Migrate
- Azure Database Migration Service
- Azure Database Migration Guide
- Azure IaaS
- Azure App Service
- Azure SQL
- Azure Virtual Desktop

"Nobody understands .NET and SQL Server better than Microsoft, which, through Azure, gave us a robust set of managed services for migrating our legacy applications to the cloud."

Bev Kite
Chief Information Officer

Academy of Motion Picture Arts and Sciences >

Governing, managing and securing your cloud environments

Govern and secure your workloads

Get visibility into, and more control over, your security posture
Quickly detect and respond to threats across hybrid environments with intelligent threat protection from a solution like the Azure Security Center.

Build and scale your apps and workloads quickly while maintaining control
Establish and maintain the right mix of standard and custom policies to govern your cloud subscriptions and resources compliantly.

Manage and cost-optimize your cloud environments

Become familiar with the tools, offers, and guidance from your cloud provider
Monitor and adjust cloud spend and drive operational efficiencies with exclusive offers such as reserved instance discounts or reuse your on-premises licenses in the cloud.

Simplify management
Manage your workloads across all environments with a solution like Azure Arc. Monitor workload performance with real-time insights and trends. Help ensure your workloads stay protected with cloud backup and disaster recovery solutions.

Operation resources

Secure and manage

- Azure Security Center
- Azure Sentinel
- Azure Arc
- Azure Monitor
- Azure Backup

Govern

- Documentation: Cloud governance with the Cloud Adoption Framework
- Azure Policy
- Azure Blueprints

Optimize costs

- Pay less with Azure
- Blog: Seven ways to optimize costs with Azure
- Azure Cost Management
- Azure pricing calculator
- Azure Hybrid Benefit
- Azure Reservations
- Azure Advisor

Chevron accelerates its move to the cloud, sharpens competitive edge with SAFe® built on Azure DevOps

This leading provider of marine services in the energy sector sought a faster, more agile, more scalable IT infrastructure, and toward that end, found Azure the ideal cloud platform. "Azure was the right choice for us, as it provides a platform where we can harvest the benefits a hundred times faster than on traditional hardware," said Kasper Thiesen, Head of IT. "It also gives us the flexibility and ownership of our operations that we needed, alongside reducing the costs of running our datacenter by at least 20 percent."

Read the full story >

How Azure can help you migrate and modernize

Migrate and modernize to Azure to gain the resiliency and innovation needed to accelerate your business today, and help you reimagine it for tomorrow. Migration unlocks innovative practices as your organization adopts cloud IaaS technologies and cloud operations models, which pave the way for further innovation by modernizing with PaaS and fully managed services.

By moving to Azure, you pay less for best-in-class, highly resilient infrastructure at global scale. Azure helps you focus on modernizing your application portfolio with highly productive, fully managed services—leaving the operational burden to us. We have you covered on security with world- class expertise and AI-infused security intelligence.
You move on your terms with hybrid flexibility throughout. We have comprehensive programs to support you in your cloud transformation, every step of the way.

Migration	Modernization
Pay less, use enterprise-grade infrastructure	Innovate faster by modernizing your applications and data
Move on your terms with hybrid flexibility	
Protect your most valuable assets with trusted cloud security every step of the way	

Comprehensive programs to help customers move with confidence

"We're leaner now. Now that we're in the cloud, we have fewer systems to manage and can focus on bigger things."

Keith Weller
Vice President of Enterprise Technology Services

American Cancer Society >

Are you ready to migrate?

Get the right mix of expert help to simplify your journey and move your applications, data, and infrastructure with the Azure Migration and Modernization Program. The Azure Migration and Modernization Program helps you reduce risk, offset transition costs, and skills-up your organization while ensuring a successful move. We're here to help at every step.

Proven approach: Cloud Adoption Framework and Well-Architected Framework

In-depth assistance from FastTrack for Azure engineers

Expert help from specialized services partners

Free tools/automation: Azure Migrate

Cost-effective offers and incentives

Technical skill building

Get started with your migration readiness assessment

The Strategic Migration Assessment and Readiness Tool (SMART) is a short online questionnaire that scores your readiness to migrate across 10 dimensions.

Recommended approach

- Use SMART to get a quick understanding of your readiness
- Engage in a Solution Assessment for a detailed migration and modernization plan

Be SMART
Migrate with a plan

aka.ms/smarttool >

Learn more at Azure.com/AMMP >

"Not only did moving to the cloud give us the versatility to be able to scale up and scale down in any country where we needed to operate, but it also gave us the robustness from a disaster recovery perspective."

Willie Ryan
Global EHS and IT Director

Actavo >

Watch the video >