Cloud adoption using the Microsoft Cloud Operating Model

Executive summary
Contents

About the COM guidance ............................................................................................................ 5
  Cloud Operating Model matrix ................................................................................................. 6
Points to consider .......................................................................................................................... 8
Why move to the cloud ................................................................................................................ 8
  Business benefits of moving to the cloud ................................................................................ 9
    Eliminate capital expenses ....................................................................................................... 9
    Infrastructure resource management in a matter of minutes ................................................... 9
    Elasticity to scale up and down to meet business requirements ........................................... 10
    Decreased time to market/release ....................................................................................... 10
  Application development and modernization ......................................................................... 10
  Spend more time on productivity tasks .................................................................................. 10
  Better performance with enterprise-class computing resources .............................................. 10
  Reliability to ensure maximum business continuity ............................................................... 10
Know where you are in the cloud adoption journey ................................................................. 10
  Types of cloud adopters ......................................................................................................... 11
  Stages of organizational readiness .......................................................................................... 11
Get prepared for cloud adoption ............................................................................................... 12
  Business strategy .................................................................................................................... 12
    Choosing the right cloud platform ....................................................................................... 12
    Finding the right sponsorship ............................................................................................... 13
    Financial planning ................................................................................................................ 13
    Governance, risk management, and compliance ................................................................. 13
  People strategy ....................................................................................................................... 13
    Strategizing for cloud adoption ............................................................................................ 13
      Finding the right team ........................................................................................................ 14
      Evaluation of roles and their skill development for cloud adoption .................................... 14
  Technology strategy ................................................................................................................ 14
    Creating a cloud migration path ............................................................................................. 14
      Assess existing infrastructure and migration portfolio ....................................................... 14
Identify migration approach..........................................................15
Effective capacity planning..........................................................16
Meet governance and compliance requirements..............................16
Begin with your transformation journey........................................16
Migration and modernization.......................................................17
Optimization....................................................................................17
Call to action..................................................................................17
About the COM guidance

This executive summary provides an overview of the Microsoft Cloud Operating Model (COM) guide. Microsoft has defined a cloud adoption framework, the Cloud Operating Model, to help organizations with a simplified cloud adoption journey with Microsoft Azure. The COM guide is designed to provide comprehensive guidance for transforming legacy application workloads with modern and innovative technologies by migrating to the Azure platform. This guide contains detailed information to cover an end-to-end cloud adoption journey, starting from assessing your existing cloud readiness, to defining business and technology strategy and defining a path for cloud adoption, to actually executing a migration from on-premises to Azure and modernizing workloads to make them future-ready. Even if you have already started a migration adoption, or are an advanced adopter of cloud technologies, the COM guide can help you with your cloud migration journey to Azure.

This guide is intended for different levels of user roles within the organization, including business decision makers, IT decision makers, solution architects, and IT pros, to help them with guidance about end-to-end cloud migration from on-premises.

Download a full copy of the Cloud Operating Model guide.
Cloud Operating Model matrix

The matrix below will help you navigate your path to adoption, depending on what level of cloud adoption your organization has achieved.

<table>
<thead>
<tr>
<th>Cloud Operating Model for Foundational Adopters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flow ➔</strong></td>
</tr>
<tr>
<td><strong>Business</strong></td>
</tr>
<tr>
<td>Opportunities for moving to the cloud</td>
</tr>
<tr>
<td>Business use cases</td>
</tr>
<tr>
<td>Cost management</td>
</tr>
<tr>
<td>Governance, compliance, and risk</td>
</tr>
<tr>
<td>Cloud security</td>
</tr>
<tr>
<td>Data governance</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
### Cloud Operating Model for Intermediate Adopters

<table>
<thead>
<tr>
<th>Business</th>
<th>People</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost management</td>
<td>Founding strategic team</td>
<td>Why Azure</td>
</tr>
<tr>
<td>Governance, compliance, and risk</td>
<td>Skill-readiness paths</td>
<td>Integrate Azure hybrid cloud consistency</td>
</tr>
<tr>
<td>Cloud security</td>
<td>Cloud security (CISO guidance)</td>
<td>Define portfolio</td>
</tr>
<tr>
<td>Data governance</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cloud security and compliance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Method to Azure migration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Begin onboarding</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Optimization</td>
</tr>
</tbody>
</table>

### Cloud Operating Model for Advanced Adopters

<table>
<thead>
<tr>
<th>Business</th>
<th>People</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance, compliance, and risk</td>
<td>Founding strategic team</td>
<td>Integrate Azure hybrid cloud consistency</td>
</tr>
<tr>
<td>Cloud security</td>
<td>Skill-readiness paths</td>
<td>Cloud security and compliance</td>
</tr>
<tr>
<td>Data governance</td>
<td>Cloud security (CISO guidance)</td>
<td>Define portfolio</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Method to Azure migration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Begin onboarding</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Optimization</td>
</tr>
</tbody>
</table>
Points to consider

The COM guidance will help your organization be able to:

- Understand how cloud adoption can contribute to meeting today’s modern business requirements
- Access and identify organizational maturity level on cloud readiness
- Strategize different business aspects before considering cloud for your digital transformation
- Successfully assess your existing business processes and infrastructure to define migration portfolio
- Understand evaluations required for user roles, guidance, and training to develop skill sets for cloud technologies
- Use tools to assess cloud compatibility for your existing workloads, databases, and applications
- Perform workload and database migration from on-premises to Azure with a range of tools available from Microsoft and third-party providers
- Modernize your business workloads by optimizing them or building cloud-native applications within Azure

Why move to the cloud

Cloud computing offers a fundamental shift in the way that traditional enterprise infrastructure and technology resources are being procured, utilized, and managed. In the traditional enterprise culture, organizations need to take responsibility for all levels of technologies, from business-critical applications to their underlying infrastructure. Now with cloud computing, responsibilities have been distributed based on the level of cloud offerings between cloud technology providers and the organizations using those services.

With nearly unlimited flexibility in terms of design choices, cloud computing helps organizations that are looking for proven and consistent methodology for the adoption of cloud technologies. It offers them significant cost savings over a traditional datacenter approach and the ability to quickly adopt cloud by moving on-premises workloads or building robust, resilient applications that can scale up as traffic spikes, and scale down as it recedes.

Cloud adoption is on the rise, with 87 percent of organizations saying they plan to merge their on-premises datacenter with a hybrid cloud or the public cloud, based on a recent survey (2017 IDC Worldwide Public Cloud Services Spending Guide). Moreover, worldwide spending on public cloud services and infrastructure is forecast to reach 160 billion USD in 2018, an increase of 23.2 percent over 2017.

---

2. [https://www.idc.com/getdoc.jsp?containerId=prUS43511618](https://www.idc.com/getdoc.jsp?containerId=prUS43511618)
Business benefits of moving to the cloud

Eliminate capital expenses

Cloud computing eliminates the capital expenses of buying hardware and software as well as setting up and running on-site datacenters—racks of servers, round-the-clock electricity for power and cooling, and IT experts who manage infrastructure. It adds up fast.

Infrastructure resource management in a matter of minutes

Most cloud computing services are provided self-service and on demand, so even vast amounts of computing resources can be provisioned in minutes, typically with just a few mouse clicks—giving businesses greater flexibility and taking the pressure off of capacity planning.
Elasticity to scale up and down to meet business requirements

A major benefit of cloud computing services includes the ability to scale elastically. In cloud speak, that means delivering the right amount of IT resources—for example, computing power, storage, bandwidth—right when it’s needed, and from the right geographic location.

Decreased time to market/release

By reducing management overhead and freeing up budget, more time and effort can be focused on rapid software and solution development. Faster deployment of infrastructure-as-a-service (IaaS) and platform-as-a-service (PaaS) platforms will enable your business to release faster and more often.

Application development and modernization

If you are in the software business, your resources are probably spread thin. In addition, using on-premises platforms are likely not enabling you to adopt modern services. The cloud provides an integrated platform for modern development, where development teams can increase speed by up to 33 percent³.

Spend more time on productivity tasks

On-site datacenters typically require a lot of “racking and stacking”—hardware setup, software patching, and other time-consuming IT management chores. Cloud computing removes the need for many of these tasks, so IT teams can spend time on achieving more important business goals.

Better performance with enterprise-class computing resources

The biggest cloud computing services run on a worldwide network of secure datacenters, which are regularly upgraded to the latest generation of fast and efficient computing hardware. This offers several benefits over a single corporate datacenter, including reduced network latency for applications and greater economies of scale.

Reliability to ensure maximum business continuity

Cloud computing makes data backup, disaster recovery, and business continuity easier and less expensive, because data can be mirrored at multiple redundant sites on the cloud provider’s network.

Know where you are in the cloud adoption journey

Many organizations are finding cloud adoption fascinating and wanting to quickly take advantage of modern and innovative technologies. As each organization has different business goals to meet by transforming business to the cloud technologies, there cannot be a linear process for that. One of the most critical pieces of the cloud

adoption journey is identifying where your organization is in the cloud adoption journey, and what stage you’re at for cloud computing readiness. Based on this, your organization can strategize the most suitable migration plan for your cloud adoption.

To identify the type of cloud adopter you are and the stage of cloud readiness you are at, let us briefly look into the following sections.

**Types of cloud adopters**

Cloud computing is about bringing digital transformation: encompassing the shift from traditional modes of consuming and administrating IT services to the new on-demand model, where IT resources are provided as a service. Different organizations can be at different stages of cloud adoption, including:

- **New to cloud**: Many organizations are still learning and evaluating cloud technologies, but moving closer to adopting cloud services. They need appropriate adoption strategies, planning, and a defined path to the cloud. These organizations have yet to fully realize their ambitions when it comes to the cloud, and require end-to-end guidance for cloud adoption.

- **Multi-cloud adopters**: Other organizations are aggressively evaluating multiple cloud platforms, or have even already moved their few workloads to the cloud. Migrating these workloads to Azure from other clouds can empower your organizations to be on the most reliable and trusted cloud platform.

**Stages of organizational readiness**

Microsoft has defined organizational readiness stages for different levels of experience in the cloud. Organizations can leverage these levels to understand and identify where they are for cloud adoption readiness and how to move further.

The Cloud Operating Model e-book has defined these levels and mapped them across the end-to-end cloud adoption journey—from strategizing cloud adoption, to defining a path for transformation, to actually executing migration to cloud.

- **Foundational Adopters**: Organizations with little to no experience with cloud. These organizations are still envisioning cloud and require end-to-end guidance for cloud adoption.

- **Intermediate Adopters**: Organizations with foundational experience with cloud technologies. At this stage, they have an understanding of cloud technologies and know about hybrid use cases to some extent, and they are evaluating or have migrated non-priority workloads to cloud.

- **Advanced Adopters**: Organizations with intermediate experience in Azure. They are in the process of cloud adoption for both their production and non-production workloads and want to optimize workload on the cloud.
Get prepared for cloud adoption

Once you have identified your cloud adaptability by addressing your organizational cloud readiness, now it’s time to prepare your business and technology plan for cloud adoption, defining a pathway for your transformation and finally executing migration and optimization.

The Microsoft Cloud Operating Model has been designed as a cloud migration framework for organizations to refer to while thinking about transforming their traditional workloads to the future-ready technologies provided by Azure. To meet different types of organizational goals and timelines, Microsoft has defined a three-step model that centralizes and consolidates strategies to build a customer-ready operating model for onboarding customers into the cloud.

No matter whether your organization is new to cloud, already using cloud technologies to some extent, or at any level of cloud readiness, the Microsoft Cloud Operating Model provides you with complete guidance starting from planning to creating a road map and then to actually executing a cloud adoption.

Business strategy

Choosing the right cloud platform

Microsoft Azure gives you a comprehensive cloud platform to meet constantly changing, modern business requirements. You might wonder how to move forward and adopt the Azure cloud platform. Azure is an ever-expanding set of cloud services to help your organization meet your business challenges. It is the freedom to build, manage, and deploy applications on a massive, global network using your favorite tools and frameworks. Azure is the most trusted cloud platform: startups, government agencies, and almost 90 percent of Fortune 500 businesses are using Azure. Unlike other cloud providers, Azure is the only consistent hybrid cloud, includes more regions than any cloud provider, delivers unparalleled developer productivity, and offers more comprehensive compliance coverage—including meeting the requirements of the General Data Protection Regulation (GDPR).
Finding the right sponsorship

There are many good reasons for enterprises to move to the cloud, and business IT strategies place cloud at the top of the decision-making chain. The effective adoption of cloud services requires changes to an organization’s existing operational practices and procedures. However, the default assumption of most business decision makers within the enterprise is whether cloud services will be able to fulfil the majority of enterprise computing needs. Adopting a cloud strategy requires careful coordination among a variety of stakeholders, including institutional leadership, IT and information security staff, legal teams, compliance experts, and procurement specialists. Once an enterprise cloud strategy is adopted, the implementation of those strategies requires transformation in the IT organization.

Financial planning

Financial planning for cloud adoption requires organizations to decide whether to expand on-premises capabilities, or move certain workloads and functions off-premises to cloud-delivered services. The organizational finance team needs to prepare cost models to estimate how purchasing and procurement of new hardware draws down over time.

Governance, risk management, and compliance

On the other side, organizations need to keep governance and compliance requirements in mind. Governance, risk management, and compliance (GRC) are three facets that help ensure that an organization meets its objectives—whether it is about your business-critical data, applications, or even your underlying infrastructure.

People strategy

Strategizing for cloud adoption

The transformation to cloud computing represents a great opportunity for any organization, but it is not something to jump into blindly. Choosing the right cloud solution typically involves going through a steep learning curve in which many company stakeholders are directly involved. Whether you are new to cloud or already using cloud services, now is the time to define a strategy for your cloud adoption journey. When building a business strategy for cloud adoption, you need to analyze opportunities for cloud movement, financials, turnaround time, global reach, performance, and many more.

Understanding business strategies for cloud adoption

- Engage senior members of IT—and, indeed, business leaders from around the enterprise—to understand all aspects of the cloud and which of the many options and approaches to take
- Establish strategy and goals for a cloud migration activity
- Develop key measurements to quantify savings more particularly
- Create and ensure adherence to business applications and data, providing extensibility where needed, managing changes, implementing data classification, ensuring regular and controlled taxonomy updates, and many more
- The Cloud Strategy Team must prepare documentation with detailed information about the goals of the migration, proposed timeframes, recommended technical strategy (that is, technical platform and tools), and expected results and benefits
Finding the right team

You can begin your strategic planning by forming a Cloud Strategy Team with members from different departments to cover aspects such as business decision making, finance, IT infrastructure, and application groups. Such a team can help with cloud analysis and experimentation. In addition, it can build (or facilitate building) the architectures, patterns, and guidance for deployment of the re-envisioned applications or services, to finally manage communications to key stakeholders and promote the program’s success and learnings.

Evaluation of roles and their skill development for cloud adoption

Migration to the cloud will force the roles and responsibilities of IT professionals to evolve. The human resources team would be responsible for working with relevant department leaders to build readiness and training plans for the affected individuals. Nearly all roles in IT will evolve. Many will require specialized training, such as in new tools or processes. For example, enterprise architects, evolving from senior technologists, solution architects, and in some cases relationship managers, will maintain the portfolio and understand how to extract the most business value from large collections of applications and people.

While preparing your organizational infrastructure for cloud adoption, it is also necessary to develop skill sets for your internal IT team, so that during and after migration, they can effortlessly perform cloud operations. IT staff members may feel anxious about their roles and positions as they realize that a different set of skills is needed to support cloud solutions. However, agile employees who explore and learn new cloud technologies don’t need to have that fear. They can lead the adoption of cloud services and help the organization understand and embrace the associated changes. Microsoft and partners offer a variety of options for all audiences to develop their skills with Microsoft Azure services, including Microsoft Virtual Academy, Microsoft IT Pro Cloud Essentials, Microsoft IT Pro Career Center, and more.

Technology strategy

Creating a cloud migration path

Once the decision is made to adopt cloud for digital transformation and innovation, it is essential to define a path to the cloud. This pathway can help you with a set of defined approaches to better understand your existing infrastructure and get ready for the cloud adoption, which will include assessing on-premises infrastructure and apps/data, creating a portfolio, and defining a cloud adoption path.

Assess existing infrastructure and migration portfolio

The first step for creating a cloud adoption path is to assess your existing application and service workloads and underlying infrastructure to identify what workloads are ready to lift and shift, what workloads need repackaging to move to cloud, and what workloads cannot move to cloud. You can prioritize these workloads and define the migration portfolio. Then it would require defining or updating user personas and responsibilities, where users would need to get training to develop appropriate skill sets for the new roles.

By breaking down the migration process into three steps—Assess, Migrate, and Optimize—you can solve the most pressing migration challenges and deliver the reliability, performance, and security your business stakeholders expect. As you begin assessing your existing infrastructure where you need to group on-premises applications and
workloads and evaluate them for cloud compatibility, Azure provides free enterprise-class assessment tools. These tools include the Microsoft Assessment and Planning Toolkit, Microsoft Data Migration Assistant (DMA), Azure Migrate, and Service Map. All of these can help you inspect your on-premises environment, whether physical or virtual, and review a checklist and detailed report on steps you need to take to move your environment to Azure.

Identify migration approach

Before selecting the cloud approach that is right for your organization, it is important to understand key concepts and models. As every application is unique, there is no single set of steps to follow for modernization. Some applications are ready to modernize; some may require minor changes in code; and still others may need a complete redesign to make them cloud-ready. Choosing the right migration approach for different applications in your portfolio can help you extract maximum value from cloud-enabled and innovative technologies. The COM framework gives you a more complete understanding of these different approaches, including when to use which approach with sample scenarios.

Migration approaches for your migration portfolio include the following:

- **Rehost** – Often referred to as “lift-and-shift” migration, this no-code option lets you migrate your existing applications to Azure quickly
- **Refactor** – Refactoring, often referred to as “repackaging,” is a cloud migration approach that lets you minimally alter application code or apply configuration changes necessary to connect the application to Azure PaaS and take better advantage of the cloud
- **Rearchitect** – You can modify or extend an existing application’s code base to optimize the application architecture for cloud scale
- **Rebuild** – Rebuilding an application from scratch using cloud-native technologies from Azure

Once you are all done with your migration portfolio, including user role evolution, capacity planning, security controls, and choosing the right cloud migration path, you are ready to move forward to begin your transformation journey.
Effective capacity planning

Moving further, capacity planning is a critical concern for any organization. Accurate capacity planning can ensure optimized utilization of your underlying infrastructure and allows you to pay only for the resources you are using. To simplify your capacity planning, Azure provides a free Azure Site Recovery Capacity Planner tool that allows you to analyze the source environment workloads, bandwidth requirements, resource requirements on the target, and any additional server resources that are required on the source side.

Meet governance and compliance requirements

Similar to capacity planning, Azure also helps organizations meet their governance and industry-standard compliance requirements. Azure platform services support the same technologies that millions of developers and IT professionals already rely on and trust. When you build on, or migrate IT assets to, a public cloud service provider, you are relying on that organization’s abilities to protect your applications and data—the services and controls they provide help manage the security of your cloud-based assets. Extensive security capabilities built into the Azure platform, combined with the security tools and intelligence provided by Microsoft, help improve your organization’s security posture.

Begin with your transformation journey

Now it is time to step forward with the onboarding process for your cloud adoption journey, where you will perform the actual migration of your apps from on-premises or another cloud to Azure. For onboarding, you can choose among three options: migrate yourself, with help from Microsoft; use the Microsoft FastTrack program for
Azure, or connect with Microsoft Azure Solution partners. No matter what adoption method you choose, to help organizations like yours build confidence with Azure and achieve faster adoption, Microsoft has defined Azure migration and modernization processes to provide guidance and tools that help effortlessly migrate workloads to Azure.

Migration and modernization

In the next phase for performing migration from on-premises to Azure, Microsoft provides enterprise-class tools to move virtual machines, databases, workloads, and applications from on-premises into Azure. Based on your migration requirements, you can choose from various migration tools including Azure Site Recovery, Azure Database Migration Services, and even third-party tools such as CloudEndure. Any tool usage will be based on project goals and environment specifics.

Application modernization is a journey to digitally transform your business applications to make them future-ready. Based on your application portfolio and whether you have already identified your applications to modernize, or after onboarding your application to Azure, you may be planning to take the next step to modernize your applications. Azure Cloud Services enables your business applications to innovate quickly and deliver faster time-to-value and a wide range of future-ready cloud services. Azure services give you flexibility to modernize business applications whether you choose application optimization or build cloud-native applications based on the application nature.

Optimization

After successfully onboarding your business application to the cloud, the next step is to optimize your Azure infrastructure and modernize your workloads. Streamline your Azure cloud resources continuously to enhance security, improve performance, and maximize ROI with free cost management tools. Azure Cost Management tools allow you to track cloud usage and expenditures for your Azure resources and other cloud providers.

Call to action

Azure provides you with the most comprehensive cloud platform that is able to meet the ever-changing needs of modern business requirements, and makes Azure the right choice for cloud adoption now. Azure is the freedom to build, manage, and deploy applications on a massive, global network using your favorite tools and frameworks. Azure is also the most trusted cloud platform, where startups, government agencies, and almost 90 percent of Fortune 500 businesses have chosen as their cloud computing platform. Unlike other cloud providers, Azure is the
only consistent hybrid cloud, has more regions than any cloud provider, delivers unparalleled developer productivity, and offers more comprehensive compliance coverage—including meeting the requirements of the General Data Protection Regulation.

Download a full copy of the Cloud Operating Model guide.

Visit the following sites to learn more about the Cloud Operating Model and Azure:

- Cloud Operating Model
- Azure Migration Center
- Get started with Azure
- Azure migration partners
- Training to build expertise in Azure

---

1FastTrack for Azure is now available to eligible customers who satisfy the following criteria:

- Be located in one of these countries (English-only):
  - United States
  - Canada
  - Australia
  - United Kingdom
  - New Zealand
  - Western Europe*

*FastTrack for Azure is available as English-only in these Western European countries: Austria, Belgium, Denmark, Finland, Ireland, Italy, Luxembourg, Netherlands, Nordics, Norway, Portugal, Spain, Sweden, and Switzerland

- Have an identified Azure project estimated to consume a minimum of 5,000 USD per month (or local currency equivalent) of Azure services
- Have an active, paid Azure subscription
- Not be directly supported by a Microsoft Cloud Solution Architect
- Be ready to build and deploy a FastTrack-supported Azure solution