

# Executive Summary: Enterprise Cloud Strategy

This summary provides an overview of the full 140-page eBook, *Enterprise Cloud Strategy* (2nd ed.), by Barry Briggs and Eduardo Kassner, from Microsoft Press. For a full copy of the eBook visit: <https://aka.ms/enterprise-cloud-strategy-2>.

## Key takeaways

- The macroeconomics of the cloud mean cloud vendors can achieve economies of scale that no single enterprise can, and there are many opportunities for cost savings.
- Before deciding how to adopt the cloud, it is key to understand the different concepts and approaches across public, private, and hybrid, along with SaaS, IaaS, PaaS, and containers.
- Once the relevant models have been selected, the cloud journey can be described in three phases: experimentation, migration, and transformation.
- Moving to the cloud requires organizational alignment and needs everyone's buy-in. Many tools are available to support this process, and are detailed in the book.
- It is important to stay up to date with security, risk management, and governance. Examples of relevant regulations include PCI-DSS, and the emerging European standard GDPR. There are a wealth of resources in the Azure Trust Center to support this.
- Beyond cost savings, the goal in any cloud shift ultimately should be to radically expand the capabilities of your application portfolio and drive increased returns through business transformation.
- New application models, data storage, and utilization approaches, along with the emerging worlds of artificial intelligence and machine learning, can for very little cost provide revolutionary benefits to organizations and their customers.

## What is the cloud, and why?

Most people now agree that the cloud has become a core element of any enterprise's technology strategy. Indeed, in the past few years we have seen the conversation around cloud adoption move from "if" to "when" and "how." It is, in short, a fact of life. Its value proposition is many-faceted, ranging from significant cost savings over a traditional data center approach to the ability to quickly build robust, resilient applications that can scale up as traffic spikes, and scale down as it recedes. It also enables innovation; this is key given that the goal of any enterprise strategy is to create competitive differentiation and advantage. The emergence of a global computing cloud heralds the arrival of whole new classes of innovation across applications and markets. Indeed, such new forms of innovation can actually transform an organization, a business, and its culture. Inside the full book you can find a number of case studies from various global companies, all of whom have reaped rewards by their transformative use of the cloud.

## Start with understanding the definitions

Before selecting the cloud approach that is right for your organization, it is important to understand the key concepts and models. The most important of all is the notion that computing is provided as a service, meaning that the cloud enables a set of capabilities that can be rented, used for a period of time, added on to as more are needed, and dispensed with when no longer needed. You pay for what you use and no more.

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# Public, private, and hybrid clouds

- In a private cloud, cloud technologies are hosted in an on-premises data center: in other words, a “cloud” that belongs to you.
- This might be necessary in scenarios where certain applications or data cannot be moved off-premises.
- Private clouds can be useful because they can implement a technology stack that is consistent with the public cloud.
- A public cloud, on the other hand, is managed and maintained by a large technology vendor, which makes computing, storage, and software available on a rental basis.
- The leading public cloud vendors have data centers all over the world with literally millions of servers available for use.
- Enterprises can either take advantage of applications that already exist in the cloud or can upload their own proprietary applications.
- Hybrid clouds are useful when an enterprise wishes to keep some of its applications on-premises while moving others into the public cloud.
- Every enterprise will have a hybrid cloud at some time: Even if they plan to completely move all of their applications off-premises, there will be a time during the transition when some applications have moved and others have not.

## “As-a-service” models

There are also different types of cloud service models (IaaS, SaaS, PaaS, and containers).

In **IaaS**, you are only renting the server hardware and a small amount of software (the hypervisor) to host your application’s virtual machine (VM). The VM consists of the operating system, associated system software, and the application itself. IaaS means that VMs are simply moved from on-premises to the cloud.

In **SaaS**, you simply “rent” an application from a vendor, such as Microsoft Office 365, for email and productivity. This is by far the most cost-effective of all the options because typically the only work involved for the IT department is provisioning users and data and, perhaps, integrating the application with single sign-on (SSO).

In **PaaS**, the cloud provider maintains all system software, removing the burden of upgrades and patches from the IT department. In a PaaS deployment model, all that the enterprise needs to focus on is deploying its code on the PaaS machines; the cloud provider ensures that operating systems, database software, integration software, and other features are maintained, kept up to date, and achieve a high service level agreement (SLA).

**Containers** lie somewhere between IaaS and PaaS and are a means by which applications can share a single instance of an operating system. This provides the appropriate isolation and security guarantees and prevents applications from “stepping” on one another. Because starting a containerized application typically does not involve loading and initializing an entire VM with an operating system, container startups can be very fast, so scaling up and down can be very efficient.

# Building a roadmap for your journey to the cloud

What if you were able to achieve both efficiency and innovation in all the business domains and applications across your entire portfolio? What if you could take advantage of the cloud and all of its resources and features to get a “the whole is greater than the sum of its parts” effect? With a good roadmap to lead the way, you can. This chapter covers what it means to move your enterprise to the cloud.

## The three stages of cloud migration

When planning migration to the cloud, there are many ways to think about a roadmap. From our experience, however, we’ve seen three common stages: **experimentation, migration, and transformation**. In almost every case we’ve seen, these stages do not take place sequentially, rather all at the same time. This is often because one group in the enterprise will be experimenting with certain applications in the cloud, while others have already moved on to (for example) a SaaS application. The benefit of this is that you don’t have to wait for the experimentation phase to be completed in one area before trying something transformative in another.

## Experimentation

In this essential phase, two processes take place. First, engineers and others create the IT department’s first cloud applications, with the objective of learning what the cloud is all about: how to develop, test, deploy, monitor, and maintain a cloud application. Concurrently, businesses and IT departments envision the art of the possible; they design new solutions to demonstrate how to advance the status quo; and they envision newer, expanded, more agile, and better applications or services.

The culture of experimentation may seem jarring to traditional IT approaches, which often focus on carefully controlled development and risk reduction. Enabling experimentation, however, will greatly enhance the cloud adoption process. The principles we recommend are to go fast, push the boundaries, make data-driven decisions, simplify, and, above all, communicate.

Go fast	Push the boundaries	Make data-driven decisions	Simplify	Communicate
<ul style="list-style-type: none"><li>• Fail fast, learn fast</li><li>• Try many, use the best</li></ul>	<ul style="list-style-type: none"><li>• Design net new applications and capabilities for PaaS/SaaS</li><li>• Refactor legacy apps for PaaS/SaaS</li><li>• Build your plan-of-record to take advantage of cloud capabilities</li><li>• Think “experience”</li></ul>	<ul style="list-style-type: none"><li>• Manage your costs</li><li>• Use telemetry to gain insight into operational efficiency</li><li>• Understand your blockers</li><li>• Manage your plan-of-record</li></ul>	<ul style="list-style-type: none"><li>• Retire, retire, retire legacy applications wherever possible</li><li>• Aggressively right-size</li><li>• Review frozen and cold servers weekly</li><li>• Clean up Configuration Management Database (CMDB) data</li></ul>	<ul style="list-style-type: none"><li>• Communicate customer and stakeholder impacts—transparency is key</li><li>• Share learnings and best practices</li></ul>

*In this chapter we explore how a thoughtful approach to experimentation can yield great rewards.*

# Migration

Sooner or later, it becomes obvious that running a large portion of the IT portfolio—perhaps even the majority of it—in the cloud makes sense. The migration phase is in many ways the most demanding because the bulk of the IT portfolio is moved to the cloud in one form or another. It also requires cooperation and collaboration across a number of different functions, including technical and operations staff, the executive team, business sponsors, security professionals, regulatory compliance staff, legal, and HR. To begin the process, we recommend setting up a cloud strategy team with representatives from each to ensure all understand the implications, agree upon the same outcomes, and are able to ready their teams accordingly. An example of ours is below, and in the full book we explore the unique roles and considerations for each group.



*Forming a cloud strategy team with representatives across groups will set up your migration for success.*

## Portfolio analysis and prioritization

It can be daunting to know where to start when your enterprise manages hundreds or thousands of applications running on perhaps tens of thousands of virtual machines (VMs). Your application portfolio database, if you have one, is key; and if you don't have one, this section guides you on the tools you can use. For example, top-down and bottom-up analysis can help to illuminate which applications can be moved first, and which should wait.

## DevOps makes teams more productive

Developing, configuring, deploying, managing, and updating applications in the cloud afford many new opportunities to make teams more productive and to reduce costs. Previously separate teams of developers and operations staff are coming together to make the processes of putting applications in the cloud seamless, fast, and efficient. In this chapter we take a look at how you can enhance your use of DevOps to streamline delivery and improve quality.

## Security and governance are key, and the Azure Trust Center is here to help

It is important to stay up to date with security, risk management, and governance by visiting the Azure Trust Center. Examples of relevant regulations include PCI-DSS and the emerging European standard GDPR. This is a chapter not to miss!

# Transformation

In the transformation phase (which will often coincide with the migration phase) selected applications are redesigned to take maximum advantage of the cloud. This affords greater scale, integration with other cloud services, and other advantages that were not previously possible.

## Moving the mundane

Many of the more mundane tasks of IT, such as backup and restore, can be performed inexpensively and securely. With messaging buses and integration brokers, enterprises can quickly connect to B2B sites, as well as by extending corporate directories to the cloud. And, as we show, over time it may become useful to mirror cloud computing paradigms back into the data center.

## Embracing new application models

Containers, the actor model, and serverless computing are examples of new application models. Containers allow faster performance and better utilization of hardware, and enable legacy applications to be moved to the cloud. The actor model abstracts out infrastructure concepts such as servers, which can open new ways to manage large numbers of Internet of Things (IoT) devices. With serverless applications, applications evolve towards a modular model where you create and pay only for your business logic, with chunks of processing logic connected together to create an entire business application. In many ways, serverless applications have the most attractive time-to-value: There's no coding involved. Download the guide to understand the possibilities created by new application models through use cases and architectural examples.

## Manage and utilize data like never before

The cloud also offers capacious storage capacity at very low cost. This means that data that was once ignored, such as telemetry, or user comments, can be captured, managed, and analyzed. To handle all of these differing kinds of data a plethora of database technologies have emerged in the past few years. In this chapter we examine how traditional database technologies have moved to the cloud, the new "NoSQL" data management technologies, and how you can use advanced analytic and BI capabilities to derive new insights from all this data.

## Building smart applications

Cloud-native applications can also take advantage of services such as machine learning and artificial intelligence (AI). The cloud, with its massive amount of computing power and nearly infinite storage capacity, has enabled AI to enter the mainstream, and this is revolutionizing computing. This thought-provoking section explores the many emerging possibilities to transform your organization through the advanced capabilities of the cloud.

Download the full 140-page Enterprise Cloud Strategy eBook for detailed guidance, sample scenarios, case studies, and cloud architecture blueprints.

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