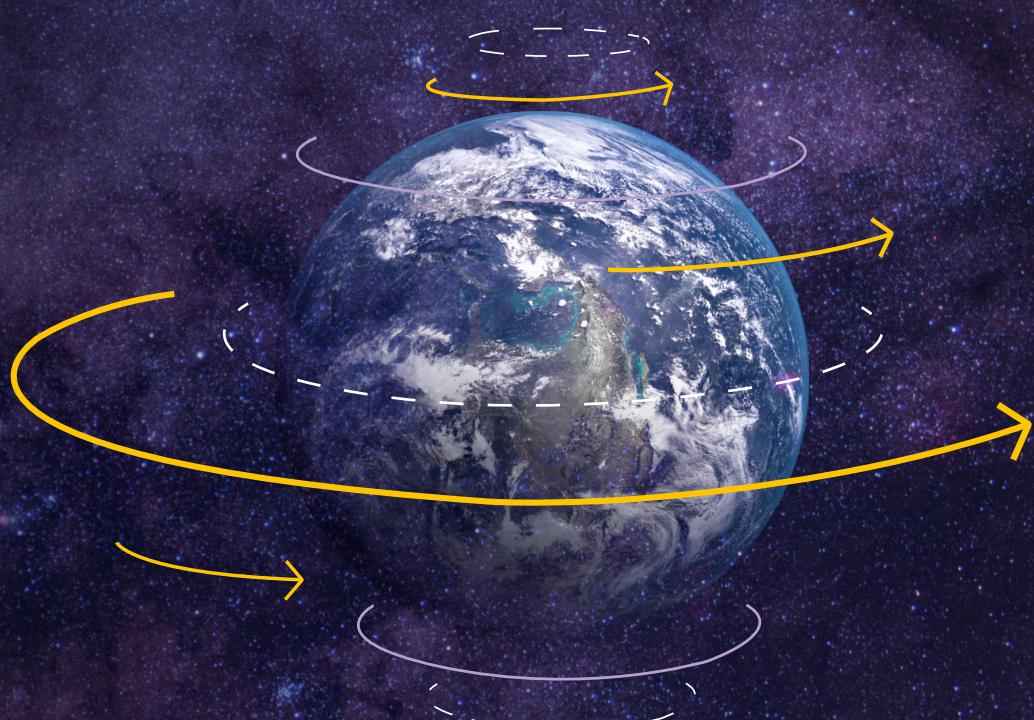
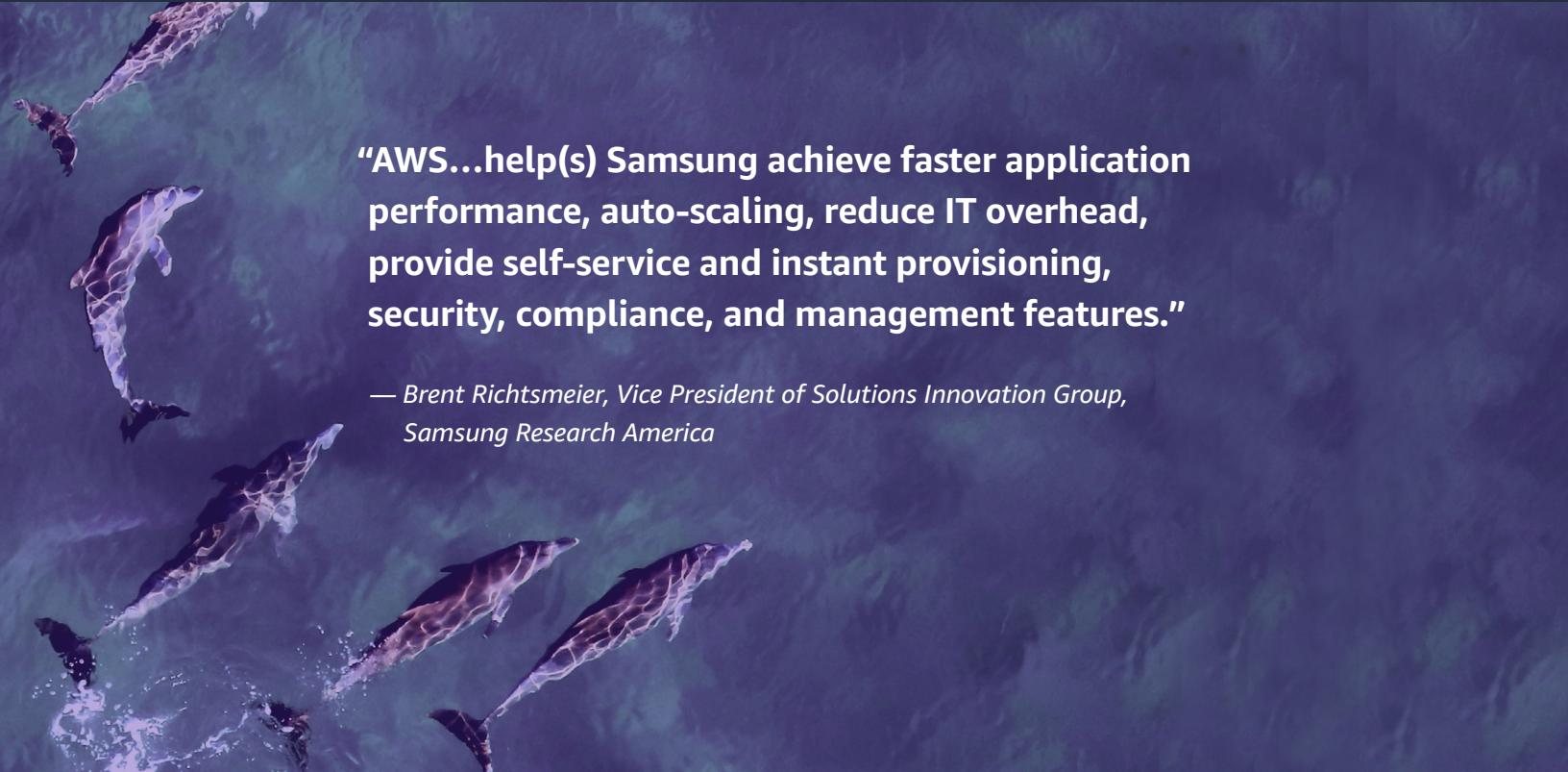




Accelerating your AWS migration





“AWS...help(s) Samsung achieve faster application performance, auto-scaling, reduce IT overhead, provide self-service and instant provisioning, security, compliance, and management features.”

— Brent Richtsmeier, Vice President of Solutions Innovation Group,
Samsung Research America

When migrating to the cloud, the ability to move and achieve business value fast is a critical differentiator. Organizations begin to lose momentum, and executive buy-in wanes if progress stalls. When results are realized too slowly (or aren't properly quantified and communicated), the business case for migration weakens—potentially jeopardizing the project's financing and support.

Over the last 13 years, AWS and our partner ecosystem have helped thousands of organizations migrate applications to the cloud to reduce costs, improve operational resiliency, gain business agility, and build a foundation for rapid innovation. Based on this experience, we've built the most complete and proven approach for migrating one to thousands of applications to the cloud—and helping you quickly and efficiently realize, measure, and communicate the tangible benefits of your migration.

Business value

Often, the decision to migrate applications to the cloud starts with a desire to reduce costs; however, our customers find that the strategic value of migrating to AWS goes well beyond the cost savings of retiring legacy infrastructure.

At AWS, our research and experience have led us to identify eight key drivers that compel businesses to migrate to the cloud. These are:

- 1. Cost reduction**
- 2. Agility and staff productivity**
- 3. Improved security and operational resilience**
- 4. Outsourcing and hardware/software end-of-life**
- 5. Data center consolidation**
- 6. Digital transformation**
- 7. Going global quickly, mergers and acquisitions (M&A)**
- 8. New technologies (such as AI/ML and IoT)**

AWS and our partner ecosystem have helped global enterprises such as GE, The Coca-Cola Company, BP, Enel, Samsung, News Corp, and Twenty-First Century Fox migrate quickly and—in many cases—begin reaching the objectives behind their business drivers almost immediately.

Foundation for a successful migration

Organizations that migrate a substantial application portfolio early in their journey—and combine those efforts with modernization initiatives—generally derive the biggest business results from their AWS migrations.

Guardian Life Insurance offers a prime example. In just two years' time, the company migrated 200 legacy applications to AWS and shut down all of its

data centers. It retrained 200 technical staff for the cloud and 2,500 employees to work using an agile operating model, transforming into a more innovative company within a highly regulated industry. Along the way, Guardian Life Insurance introduced automated build-and-deployment pipelines and sped up provisioning of an entire application stack—shortening the process from weeks down to just one to two days.¹

“In the current dynamic business environment, organizations have to adapt at a very rapid pace. Business agility enabled by lower-cost cloud computing technology offers the unique ability to address this disruptive shift.”

— *IDC White Paper, sponsored by Amazon, “Fostering Business and Organizational Transformation to Generate Business Value with Amazon Web Services,” February 2018*

The three-phase migration process and the seven migration patterns (“The 7 R’s”) described in the next sections serve as guiding principles to structure your cloud migration journey in ways that help you realize fast, continuous, quantifiable business value.

[Learn more about migrating to AWS now >](#)

The three-phase migration process

We understand that every migration is different; however, based on our experience with over a million active customers and helping organizations of all ages, industries, and geographies migrate to the cloud, we have seen a standardized migration process take shape. This process can generally be broken into three phases of activities: **1) Assess, 2) Mobilize and 3) Migrate and modernize.** Following this three-phase approach is the best way for your organization to efficiently and quickly migrate tens, hundreds, or thousands of applications.



¹<https://diginomica.com/how-guardian-lifes-shift-to-aws-enabled-it-to-go-agile-cut-costs-and-partner-with-insurtech-start-ups>

It is important to note that, while each phase is a common component of a successful migration, they are not discrete phases. In fact, when migrating many applications, this will be an iterative process. As you iterate and migrate more applications, you will be able to drive repeatability and predictability in processes and procedures, accelerating and optimizing your migration efforts.

“The capabilities provided by AWS and the strength of their offerings and their teams are unmatched in the industry.”

— *Jon Bergman, CIO, The LYCRA Company*



Phase 1: Assess

In this phase, you'll assess your on-premises resources and build a right-sized and optimized cost projection for running applications in the cloud. A number of AWS services and tools can help.

Our Migration Readiness Assessment is a process of gaining insights into how far along you are in your cloud journey, understanding your current cloud-readiness strengths and weaknesses, and building an action plan to close identified gaps. You can use the [AWS Cloud Adoption Framework \(CAF\)](#) as a guide to help ensure that you have a holistic view of the transformation initiative that is required for an effective move to the cloud.

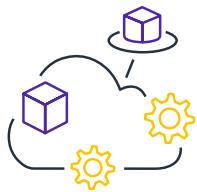
[Refer to the AWS Migration Readiness Guide to learn more >](#)



Phase 2: Mobilize

In this phase, you'll address gaps in your organization's readiness that were uncovered during assessment, with a focus on building your baseline environment (the “landing zone”), driving operational readiness, and developing cloud skills.

The AWS Application Discovery Service automatically collects and presents detailed information about application dependencies and utilization to help you make more informed decisions as you plan your migration. AWS Migration Competency Partners, such as RISC Networks, Cloudamize, ATADATA Deloitte, and Turbonomic, also provide deep discovery and planning tools. [AWS Migration Hub](#) automates the planning and tracking of application migrations across multiple AWS and partner tools, allowing you to choose the migration tools that best fit your needs.



Phase 3: Migrate & Modernize

During this phase, each of your applications will be designed, migrated, and validated. [AWS Migration Hub](#) allows you to quickly get progress updates across all of your migrations, easily identify and troubleshoot any issues, and reduce the overall time and effort spent on your migration projects.

For many applications, the best approach is to rapidly move to the cloud and then rearchitect in AWS. CloudEndure, an AWS company, provides [CloudEndure Migration](#) to quickly rehost a large number of machines from multiple source platforms (physical, virtual, or another cloud) to AWS, without worrying about compatibility, performance disruption, long cutover windows, or long-distance data replications.

Many enterprises use the migration effort to also modernize their businesses by refactoring their legacy technology portfolio. Some proven ways to do this include **infrastructure automation** (elastic infrastructure, containers, AI/ML), **agile development practices** (DevOps, test automation, CI/CD, observability), **cloud-native architectural patterns** (stateless, microservices, serverless, data lakes), and **product-based operating models** (product teams, business outcome alignment, full-stack vs. platform structures). These methods accelerate innovation and increase agility, resiliency, and efficiency to accelerate your speed to market and customer outcomes.



Seven common patterns for migration: “The 7 R’s”

There's more than one way to migrate an app. Common migration patterns usually follow one of six basic patterns—but when you migrate to AWS, you'll gain a seventh option (relocate), rounding out what we refer to as “The 7 R's.” Creating a detailed strategy that identifies the best pattern(s) for your applications is essential to accelerating your journey into the cloud and achieving your desired business objectives. Below are the details on each of these seven patterns as we see them adopted most often by our customers.

1. Rehost

– **Also known as “lift-and-shift”**

In a large-scale migration scenario, where you need to migrate and scale quickly to meet a business case—such as a data center lease termination—we find that the majority of applications are rehosted.

Most rehosting can be automated with tools such as [CloudEndure Migration](#). For times when you can't install an agent on the server, [AWS Server Migration Service](#) offers agentless capabilities, which make it easier and faster for you to migrate thousands of on-premises workloads to AWS from a snapshot of the existing servers.

2. Re-platform

– **Sometimes referred to as “lift-tinker-and-shift”**

This entails making a few cloud optimizations in order to achieve tangible benefits but without changing the core architecture of the application. For example, if you're managing a messaging broker today, you can easily replace

this with the fully managed [Amazon MQ service](#)—without rewriting your applications or paying for third-party software licenses. Or, if you’re migrating a Windows-based application that requires file storage, you can use the fully managed [Amazon FSx for Windows File Server](#).

To reduce the amount of time you spend managing database instances, you can move to a database-as-a-service offering such as [Amazon Relational Database Service \(RDS\)](#). When moving from one database source or version to a new platform or software version, [AWS Database Migration Service](#) keeps the source database fully operational during the migration, enabling near-zero downtime during the cutover.

3. Refactor

- **Change the way the application is architected and developed, usually done by employing cloud-native features**

Typically, refactoring (or rearchitecting) is driven by a strong business need to add features, scale, or improve performance that would otherwise be difficult to achieve in the application’s existing environment.

If your organization is looking to boost agility or improve business continuity by moving to a service-oriented architecture (SOA), this strategy may be worth pursuing—even though it is often the most expensive solution.

4. Relocate

- **Move vSphere-based applications to AWS without application changes**

[VMware Cloud on AWS](#) allows you to quickly relocate hundreds of applications virtualized on vSphere to the AWS Cloud in just days and to maintain consistent operations with your VMware Cloud Foundation-based environments. Once in the AWS Cloud, your applications are easier to optimize or rearchitect to take advantage of the breadth and depth of AWS services.

5. Repurchase

- Replace your current environment, casually referred to as “drop and shop”

This is a decision to move to a newer version of software or purchase an entirely new solution. You may also be looking for a new software licensing model that allows you more flexibility to match your business needs. [AWS Marketplace](#) is a curated digital catalog where you can find, buy, deploy, and manage third-party software and services that you need to build solutions and run your business.

6. Retain

- Do nothing, for now

You may have portions of your IT portfolio that you are not ready to migrate or believe are best kept on-premises. Keep in mind that, as more of your portfolio moves to the cloud, allocation of data center expenses across fewer applications may eventually drive a need to revisit the retained applications.

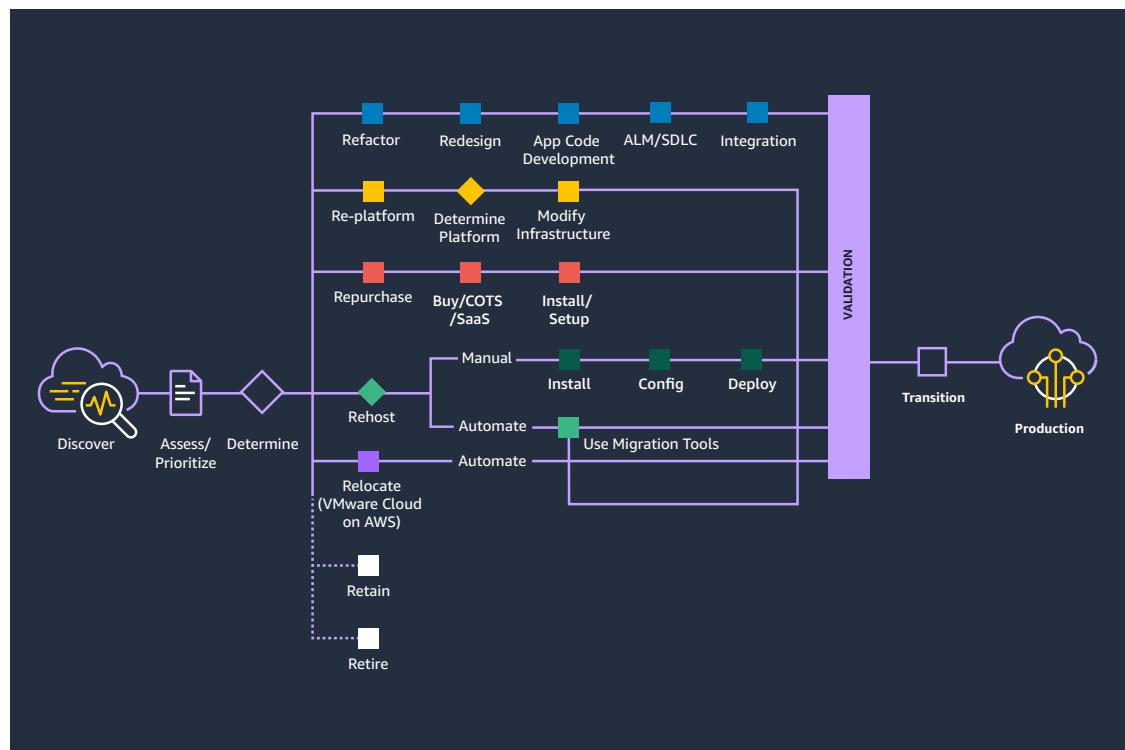
For applications that remain on-premises, [AWS Outposts](#) bring the same hardware and software in the AWS Cloud, the same services and APIs, the same management tools, and the same support and operating model to

virtually any data center, co-location space, or on-premises facility. With AWS Outposts, you have a truly consistent hybrid cloud, so you can develop once and deploy across AWS Outposts on-premises or in the AWS Cloud without having to recertify your applications.

7. Retire

– Decommission or archive unneeded portions of your IT portfolio

By rationalizing your IT portfolio and identifying assets that are no longer useful and can be turned off, you can strengthen your business case and direct your team's attention toward maintaining the resources that are more widely used.



Resources to help you migrate with confidence

As the leading public cloud provider, AWS gives you the confidence to set bold migration goals—knowing you'll have the services and support to migrate quickly and realize desired business outcomes early and continuously.

Most migration experience

With over a million active customers and a global cloud presence since 2006, AWS has the most experience helping organizations of all ages, industries, and geographies migrate to the cloud. Backed by our partner ecosystem, we've helped customers successfully migrate all types of workloads to AWS and completed large-scale migrations of tens of thousands of servers. These experiences mean that we've seen, evaluated, and solved a wide range of potential scenarios.

Due to our extensive history, we have the richest set of migration guidance and documentation in the industry. We share our insight and experience via [AWS Prescriptive Guidance](#) to ease the process of planning and execution. It all adds up to a proven blend of software, services, and support that help you migrate with confidence.

Most comprehensive and mature migration tools

We've taken our years of experience with migrations and developed a comprehensive set of first- and third-party tools and services to help simplify and accelerate your cloud journey. Our migration tool catalog includes an end-to-end set of tools to ensure your investment achieves your desired business outcomes—as quickly and thoroughly as possible.

This portfolio of [AWS migration tools](#) provides automation and intelligent recommendations based on AWS machine learning to simplify and accelerate each step of the migration process. Using automated discovery and data collection about your environment, you can plan your migration and develop your business case with confidence. By using technology such as continuous, real-time replication, we minimize disruption during migration and deliver near-zero downtime during the cutover to AWS.

Most complete migration solutions

In deep coordination with our partners, we've developed a broad set of programs and solutions to accelerate each step of the migration process.

[AWS Professional Services](#) and [AWS Migration Competency Partners](#) are experts in these methodologies and best practices. Global systems integrators such as Accenture, Cognizant, Deloitte, Hewlett Packard Enterprise, and Tata Consultancy Services—as well as regional partners such as 2nd Watch, Slalom and MegaZone—successfully demonstrated completion of multiple large-scale migrations to AWS to receive the Migration Competency Partner designation.

No matter where you are on your cloud journey, our Professional Services can help bridge your skills and experience gaps while you ramp up your internal teams leveraging [AWS Training and Certification](#). [AWS Managed Services](#) (AMS) eliminates much of the burden of post-migration operations by providing ongoing management, cost optimization, and operations for your AWS infrastructure—leaving your team free to focus on applications and building their skills in the cloud.

[AWS Support](#) provides ongoing guidance through our AWS Premium Support plans. We hire highly trained engineers to ensure expert technical assistance from the start of the support case—all the way through to resolution.

Ready for a transformational migration?

The organizations that get the most business benefits from their AWS migrations are the ones that migrate significant parts of their application portfolios at the start of their journeys—while leveraging AWS expertise to develop their organizational, operational, and technical capabilities at every phase along the way.

If you want to be like those leading businesses, the [AWS Migration Acceleration Program \(MAP\)](#) will help you get there. MAP combines all the proven components of our migration solutions—including our methodologies, AWS and partner tooling, AWS and partner professional services, AWS Training, and AWS Support—with your own capabilities and investments to help ensure a successful migration.

Following the guidance in this eBook will enable you to maximize the benefits of the cloud by migrating to AWS with urgency, purpose, and foresight. The end result: business transformation that helps you free up IT resources for projects and tasks that add real value, reach milestones and benchmarks faster, and create an ever-stronger migration business case that reinforces the buy-in, enthusiasm, and commitment of everyone at your organization.

[Contact AWS Sales](#) to get started with a free Migration Assessment.

Continue learning



1. EXECUTIVE SUPPORT

[AWS Executive Insights](#)



2. RE-SKILLING STAFF

[AWS Migration Training](#)



3. CLOUD TRANSFORMATION PRINCIPLES

[What are Your Cloud Transformation Principles?](#)



4. SECURITY

[Security at AWS](#)



5. CLOUD CENTER OF EXCELLENCE (CCOE)

[A Leader's Guide to Cloud Transformation](#)



6. REHOST OR REFACTOR?

[The Great Cloud Refactoring Debate](#)



7. AVOIDING DIGITAL TRANSFORMATION PITFALLS

[Effective Patterns for Enterprise IT](#)

[Best Practices to Make Your Cloud Migration a Success](#)



8. AWS ENTERPRISE STRATEGY BLOG

[Enhance and accelerate your transformation journey with leadership perspectives from AWS and other large enterprises](#)

ABOUT AWS

For 13 years, Amazon Web Services has been the world's most comprehensive and broadly adopted cloud platform. AWS offers over 165 fully featured services for compute, storage, databases, networking, analytics, robotics, machine learning and artificial intelligence (AI), Internet of Things (IoT), mobile, security, hybrid, virtual and augmented reality (VR and AR), media, and application development, deployment, and management from 69 Availability Zones (AZs) within 22 geographic regions, spanning the U.S., Australia, Brazil, Canada, China, France, Germany, India, Ireland, Japan, Korea, Singapore, Sweden, and the UK. Millions of customers—including the fastest-growing startups, largest enterprises, and leading government agencies—trust AWS to power their infrastructure, become more agile, and lower costs. To learn more about AWS, visit [aws.amazon.com](#).