

The Enterprise Guide to Successful Cloud Adoption

Achieve success from the start with a framework
powered by observability

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Introduction

Some companies are born in the cloud. But for most—especially large enterprises—cloud migration is a hugely complex process.

With a multitude of applications that have varying lifecycles, teams might be engaged in every phase of cloud adoption—pilot, migration, ongoing modernization, and optimization—all at the same time. What's more, because those applications are always evolving, there is no obvious “end” to the cloud journey.

Staying in control of so many different cloud projects is tough, and spinning so many plates at once puts the business at risk. To help manage this complexity, reduce business risk, and accelerate progress to and in the cloud, companies need a predictable way to gain insight and manage each phase of cloud transformation, for every application, on an ongoing basis.

This is precisely where cloud observability comes into its own.

In this paper, we make the case for observability and explain why underpinning complex cloud migration projects with a single source of truth is the key to their success. We'll explore:

- Drivers for cloud in a digital world
- Cultural and technical challenges of moving to the cloud
- What observability is, and why it is at the heart of a successful cloud adoption journey
- The five phases of a framework for ensuring observability while migrating
- How you can adopt observability for your business

The Rise of Cloud for a Digital World

There are multiple reasons for cloud migration. Executive and technical C-suite leaders look for lower costs. Moving out of the data center reduces hardware, software, and staffing costs. Additionally, in our hypercompetitive world, companies need to be able to move faster to respond to market conditions, challenges, and opportunities.

Whatever the drivers, all businesses want to harness the full potential of the cloud for rapid innovation, instantaneous scaling, optimized costs, and true business agility.

That same need for speed and agility translates into technical teams being under tremendous pressure to move faster. To do this, they embrace modern technologies and processes that allow them to develop, deploy, iterate, and scale faster.

Moving to the cloud can help solve these obstacles for both stakeholder groups, but the transition and the evolution has its own challenges.

For one thing, placing assets in the nebulous “cloud” may present a perceived challenge to technical teams who are used to having physical control over every aspect of their infrastructure and applications. It also potentially requires a number of new skills related to programming, database management, security, and operations.

In fact, the utopian cloud view—the vision of the always agile, responsive, and truly digital business—absolutely relies on a Site Reliability Engineer and/or a hybrid DevOps team. It’s their job to unify software development and software operations so that they can rapidly deploy flexible applications and continually hone them to meet ever-changing business needs.

This in itself is a significant cultural shift for many organizations, one that requires a business-wide commitment to putting software at the heart of operations.

The truly digital, cloud-based business absolutely relies on a business-wide commitment to putting software at the heart of operations.

The Technical Challenges

Even if the company culture is fit for purpose, there are a host of technical stumbling blocks with cloud migration.

What applications do you migrate and when do you migrate them? What dependencies exist between those applications? Would you be best suited to a mixed environment—on-premises, [hybrid cloud](#), public cloud—and if so, how should you manage it?

When it comes to application performance and availability, how do you measure this—both before, during, and after cloud migration—to demonstrate improvements? Can you map your migration to your business metrics? And what about the impact of the transformation on your customers?

Then once you've made the move to the cloud, thoughts turn to the wider business impact of the technical change: how to optimize cloud spend, how to modernize your applications, and what to do if you have different apps in different stages of migration, optimization, and modernization.

The question then becomes: In this climate of overwhelming complexity, how do you achieve your cloud goals?

The Role of Observability in the Cloud Adoption Journey

For a successful cloud adoption journey at every stage, cloud observability is the key.

[Observability](#) isn't a new concept. It originally comes from engineering and control theory and is a measure of how well internal states of a system can be inferred from knowledge of its external outputs.

In the software delivery lifecycle, observability means proactively collecting, visualizing, and applying intelligence to all of your metrics, events, logs, and traces to gain a holistic understanding of your entire software stack. Put simply, observability is about how well you can understand your entire complex system. If monitoring tells you what's wrong, observability tells you why.

In highly complex, distributed environments such as the cloud, traditional methods for predicting failure simply don't work. Observability, therefore, allows you to identify issues you can-

not anticipate as they happen, using your centralized data-driven view to establish why and take action.

Metrics, events, logs, and traces ([MELT](#)) are at the core of observability. The right observability platform will collect, explore, alert, and correlate all telemetry data types, using AI and business intelligence to interrogate this data so you are always one step ahead.

Observability is the key to delivering on the promise of complex cloud environments. Businesses that embrace observability will ensure optimal uptime, faster troubleshooting, and high-quality software deployment at scale while migrating to the cloud.

A Measured Approach to Cloud Observability

To get observability right, you need a framework that is aligned to each phase of your cloud journey—one that:

- Identifies clear activities and outcomes for each phase
- Builds in time for your team to learn new skills
- Establishes best practices that you will use and refine throughout your cloud project
- Boosts efficiency through repeatable approaches and processes
- Allows you to evolve to a Cloud Center of Excellence
- Puts data and insight at the heart of your cloud transformation

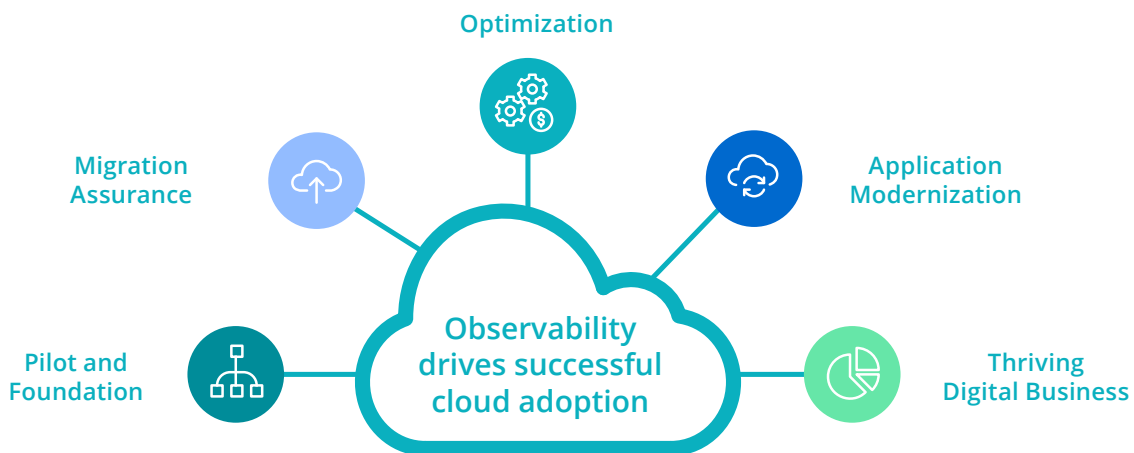
Observability allows you to identify issues you cannot anticipate—the “unknown unknowns”—as they happen.

The Five Phases of a Cloud Observability Framework

There are five standard phases to ensuring observability before, during, and after a cloud migration:

1. Pilot and foundation
2. Migration assurance
3. Optimization
4. Application modernization
5. Thriving digital business

Let's explore these phases in more detail.



Phase 1: Pilot and foundation

Every successful project is built on great foundations. It's here that you'll experiment: build new applications in the cloud, try out new services, define the standards and procedures that your business will use, and decide what observability best practices look like to you.

Goals: To learn and master cloud, instrumentation, and the basics of observability: what you're observing, how, and why it's beneficial.

Expected outcomes:

- **A cloud pilot, with data you can measure.** This means combining cloud-based service performance data with host, application, and end-user metrics, events, logs, and traces for full-stack visibility.
- **A standard approach to instrumentation, with a set of practices that you can replicate.** Setting standards at this stage will accelerate later adoption by uncovering issues and roadblocks sooner.
- **Observability best practices aligned to your business and goals.** For cloud migration to be successful, you need a unified view of your pilot and IT environments businesswide to support the technical migration and your business goals.

Phase 2: Migration assurance

There are three main stages to the migration phase of any cloud journey. Before migration, you should assess and, if possible, baseline your current infrastructure and application usage, architecture, and complexity to guide your migration approach. During migration, you'll make use of your instrumentation best practices, spotting issues and roadblocks well in advance in order to smooth the path ahead. And after migration, you'll want to prove your success: measuring against available baselines you set pre-migration. Or, validate against agreed-upon availability, performance, and error levels, and ideally achieve vital key performance indicators (KPIs).

Goals: A fast, efficient, low-risk migration, wholly controlled and validated by observability-driven measurements from before, during, and after.

Expected outcomes:

- **Faster migration to the cloud through pre-migration complexity profiling.** By baselining your current on-premises architecture, you can scope your migration, understand its complexities, and set your priorities. This helps you identify migration dependencies and boost migration speed.
- **Lower risks, lower costs, and reduced mean time to detect failure through observability.** For a fast and successful migration, it's vital you catch and correct any anomalies quickly. Seeing everything is the key to success. Root-cause analytics, application diagnostics, and full-stack observability will help to reduce risks and costs and accelerate migration.

**Observability
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a fast, efficient,
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- **A measurable view of migration performance.** As you complete each stage of your migration, you can compare the baseline of each application against the previous one. Once migration is complete, if available, you can then compare the on-premises baseline against the migrated cloud baseline, or validate your availability, performance, and error KPIs.

Phase 3: Optimization

During optimization, you start exploring the cloud's full potential. Observability lets you optimize the provision of resources, balancing historical usage patterns with your real-time customer demands.

Goals: To achieve greater scalability, cost optimization, speed, and agility, all in support of your KPIs and analytics.

Expected outcomes:

- **Right-size infrastructure and cloud services to optimize your cloud spend.** Observability lets you continually improve cloud-based procurement and utilization, correcting any over- or under-provisioning to balance cost and performance.
- **Define best practices concerning elasticity and scalability.** Performing an elasticity and scalability assessment sheds light on current workloads and usage, identifying areas for improvement and ways to manage traffic spikes.
- **Transparently track and forecast consumption.** Observability lets you plan for a variety of growth scenarios while keeping your cloud costs on track. It also gives complete transparency to application and business owners, so they can provision cost-effectively for short- and long-term needs.

Phase 4: Application modernization

It's in the fourth phase that you can take steps to achieve the full promise of the cloud, but only if you're ready. It calls for a "modernization mindset": a true understanding of cloud benefits, coupled with a commitment to transform not only your applications but also your business. For many organizations, this requires a shift in culture toward true DevOps collaboration.

Goals: To make data-driven business decisions and use the power of observability to drive faster deployment cycles and help you seize opportunities.

Expected outcomes:

- **A cultural and operational shift toward DevOps.** With an observability platform, DevOps can help transform the rest of the business by prioritizing technology investments.
- **Fine-tuning of digital customer experiences.** Full end-to-end observability shows you where latency, errors, or anomalies exist within your distributed systems for faster troubleshooting. It also offers the chance to optimize your online customer experience.

- **Enhanced performance, quality, and management of key applications.** Using architectural patterns in observability data, you can identify your strategic applications and their components, for more informed refactoring and modernization decisions. This enhances the availability, scalability, and reliability of the apps that drive your business.
- **Team performance analysis to drive best practices.** Which teams achieve the best infrastructure/application performance, and who is truly optimizing the costs and effectiveness of their cloud investment? Observability will highlight this, showcasing team performance, setting standards and best practices, and driving better business results.

To begin realizing the full potential of the cloud, your business needs a “modernization mindset.”

Phase 5: Thriving digital business

This is the utopia of an established cloud solution. Consumers expect a digital experience that is always-on, optimized, and high quality. But the key to continued optimization is observability. And that means consolidating insights.

Goals: A thriving, agile, innovative, and cost-effective digital business running on a single source of truth, unafraid to make transformational decisions, and deliver continually optimized customer experiences.

Expected outcomes:

- **Ongoing enhanced productivity consolidating tools and processes.** Replacing multiple tools with a single observability platform will empower observability, eliminating silos and streamlining processes.
- **Regular observability health checks for cloud best practices.** Running regular insight-based health checks into the complex cloud environment will offer complete visibility over the entire digital stack and identify any instrumentation gaps.
- **Technology that maps to business goals, driving business innovation.** By correlating business KPIs with your technology strategy, your technology plan can be used to drive and measure the success of your digital initiatives.
- **True insight into the costs of running a digital business.** Observability enables you to calculate and manage the cost of sale for your entire digital operation, measuring the business value of technology investments to further evolve your technology plan.

Beyond the Cloud: Observability for the Business

If done well, putting observability at the core of the cloud strategy will ensure migration success and help you optimize and transform your whole business.

That's precisely what [New Relic One](#) is designed to support. This massively scalable observability platform collects and contextualizes all operational data from any source, simplifying instrumentation, data ingestion, exploration, correlation, and machine learning-powered analysis, to drive observability across the organization.

New Relic's [Cloud Observability Framework](#) presents a road map with discrete solutions for success in any cloud journey phase. Built on the observability power of New Relic One and our in-depth knowledge of developing and operating in the cloud, the Cloud Observability Framework facilitates a cloud journey that makes your team and business more agile and innovative in the cloud. The earlier you instrument everything with New Relic One and our Cloud Observability Framework, the faster you get to the cloud. The New Relic One platform incorporates three products:

- **[Full-Stack Observability](#):** Analyze and troubleshoot problems easily across your entire software stack.
- **[Telemetry Data Platform](#):** Ingest, visualize, and alert on all of your telemetry data in one place.
- **[Applied Intelligence](#):** Automatically detect anomalies, correlate issues, and reduce alert noise.

A Total Economic Impact™ study conducted by Forrester Consulting in 2019 finds customers leveraging the New Relic platform are able to deploy applications to the cloud 90% faster and reduce 95% of the cost associated with deploying applications in the cloud. [Read the full study.](#)

Next Steps

The cloud is a major disruptor that's transforming what everyone expects from businesses. Today, customers and employees alike expect a digital experience that's always-on, flexible, and high quality. And when cloud adoption is underpinned by observability, that's precisely what companies can deliver. But for many, this means embracing a transformative way of working. To become a thriving digital business, you need a thriving digital culture: one that puts technology, transparency, and end-to-end insight at the heart of operations.

Given the speed of competition, choosing an observability-based cloud adoption strategy and approach is essential to your short and long-term business agility and success. Find out more about how [New Relic One and the Cloud Observability Framework](#) can help to empower your goals of safe, assured, and insight-driven digital transformation.