

# A Guide To Modernizing Core Apps With Cloud

The most common approaches and  
challenges for app modernization

# There's a new push to the cloud, and this time it's different.

As more organizations pivot business models to keep pace with ever-evolving customer demands, it's becoming clear that their current technology just isn't cutting it. Technology and business leaders are looking to modernize digital experiences for both customers and employees. Various teams across the enterprise are seeking to deploy new functionality quickly and with limited risk. And development teams want to implement modular architectures to more easily adapt to rapid change. What's the answer to these concurrent challenges?

In a word, cloud. Cloud technologies and practices offer the most efficient and effective path to modernizing your core applications and accelerating transformation. In a 2021 Forrester survey of more than 21,000 purchase influencers at organizations, "increase the use of cloud" was ranked as the second highest prioritized technology initiative for the IT organization (second only to increasing security and privacy capabilities).

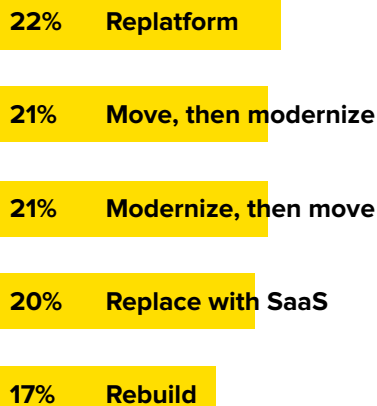
---

Read this guide to learn the five most common approaches that IT teams are using to modernize with cloud and the benefits of each. You'll also learn the five most likely constraints you may encounter along your journey.

# Five Approaches To Modernizing Core Apps With Cloud

If you're heading up software development at your firm, you're likely feeling the pressure. As consumers continue to gain more power and businesses ramp up pandemic recovery strategies, software development leaders (along with their colleagues in infrastructure and operations and enterprise architecture) are on the hook to modernize the applications and systems that accelerate transformation. And all signs are pointing to the cloud to get there. But there is no "one size fits all" cloud strategy.

**"Thinking of all the applications your organization has migrated to public cloud specifically, what percentage of workloads have used the following approaches?"**



Source: Forrester Analytics Business Technographics® Infrastructure Survey, 2020

In our conversations and interviews with IT organizations across numerous industries, five different approaches have emerged for migrating applications to the cloud. Technology organizations are using all of them in roughly equal measure and each has its own advantages, so we'll review them here to help you determine which options might work best in your organization.

## Benefits Key



Optimize software costs



Improve security



Modernize architecture



Improve application functionality



Improve operations



Improve business responsiveness



Minimize business disruption



Optimize infrastructure costs

Each approach below has specific benefits.

This key will help align the approach with the associated benefits.

Approach number one:

### Modernize, then move.

When teams apply this strategy, they dive straight into modernization by breaking monoliths apart into microservices wrapped with APIs and events that result in fewer hard-coded dependencies. If organizations do this well, they see greater freedom to deliver incremental changes and increased velocity.

**Example:** Liberty Mutual launched its modernization of core apps by repackaging code into containers on-premises. That work set the stage for a transition to the public cloud and greater operational effectiveness. Once the data was in the cloud, modernization efforts accelerated, with most new web applications built natively for the cloud and the deployment of 8 million functions as a service. The firm was able to retire 6,000 on-premises systems, close a data center, and reduce overall budget by 9%.



Approach number two:

### Move, then modernize.

This approach often starts by replatforming existing applications, using core cloud compute, storage, and networking services. But then teams begin to chip away at the monolith by “strangling” it one subsystem at a time. Another option: replacing existing subsystems with managed cloud services (e.g., replacing a Microsoft SQL Server instance with Microsoft Azure SQL Database). Moving first, then modernizing, provides immediate operational benefits even before moving to containerization.

**Example:** KeyBank used containers and Kubernetes to scale its new cloud-native workloads, but the bank wanted to bring “burstability” to its traditional VM-based infrastructure, as well. So it used Anthos to move workloads to Google Cloud, keeping some on-premises using hyperconverged infrastructure and managing it all from the cloud.

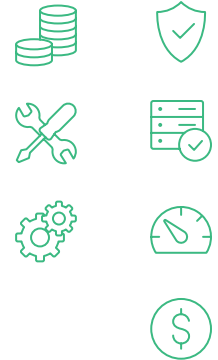


Approach number three:

## Replace with SaaS.

For many years, companies had few options for big core applications such as enterprise resource planning and had to devote substantial IT resources to maintain and upgrade them — often with complex customizations. SaaS providers have targeted those users with a more flexible approach for a range of functions, from HR onboarding to CRM. And interest is high.

**Example:** A state government organization decided to replace a custom mainframe-based case management system with a SaaS alternative. To build the business case, it tallied ongoing maintenance costs and the cost of limited extensibility, which makes it difficult and expensive to meet new mandates. The organization balanced these costs against the expenses of implementation and ongoing maintenance of the new SaaS offering at scale. The benefits of improved modularity and a modern user interface helped amplify the cost savings of the SaaS alternative.

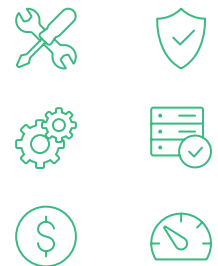


Approach number four:

## Rebuild with a bespoke application.

This option is exactly what it seems: Start over with a brand-new application built with cloud platforms and technologies. The option has two branches: 1) use modern coding platforms or 2) use low-code platforms.

**Examples:** Liberty Mutual took the first route (use modern coding platforms), employing cloud-native technology to push data out of its traditional core to build its own content management system on the public cloud, walking away from established vendors in that space. On the other hand, Banco Santander Consumer Portugal took the low-code approach. Over the past few years, it worked with KPMG to replace 70% of its core systems with 14 applications built on OutSystems.



Approach number five:

## Replatform.

We include this lift-and-shift approach for completeness. While it's a fine tactic for teams looking to evacuate data centers and reduce ongoing operational expenses, it's a poor way to achieve the digital-first goals of app modernization. Development teams should view replatforming as a first step in a subsequent refactoring and/or rearchitecting of applications, not an end in itself. Teams taking this approach may see a reduction in hardware operating costs or change where an app is hosted, but a simple migration to a public cloud does little to make the software elements of an application easier to operate. And without changes to application architecture that increase modularity, leaders should expect minimal improvement to release velocity. Replatforming also does little to improve customer experience and nothing to improve an application's user interface.



# Five Constraints That Will Shape Your Modernization Approach

When implementing any of these strategies, there will be constraints to work around. To help you get ahead of them, we've identified five common constraints that we have heard in interviews and client reviews. When selecting an approach for each application in your portfolio, evaluate these constraints to see if they would impact your strategy and weigh them against the benefits of the approaches above to determine which approach will work best. These constraints will vary by application, and as a result, expect to use multiple modernization approaches for your broad portfolio of applications.

Constraint number one:

## **1** Cost-to-value assessment.

In short, the business case for your application modernization effort must work. You don't have the time and resources to modernize everything, but some modernization efforts are mandatory at almost any cost; the most common examples are badly outdated and poorly supported legacy systems or systems that no longer comply with evolving regulations. You'll need to prioritize modernization projects within your portfolio to align with budget constraints. It's vital that you assess costs for a single application across each of the modernization approaches or risk breaking the bank due to poor planning. A specific modernization project could cost significantly more when using one approach versus another.

Constraint number two:

## **2** Special application requirements.

Some applications aren't easily moved to cloud-native architectures because of ultra-low latency requirements, data gravity issues, or a need for ACID-compliant transactions. In other cases, application interdependencies like shared databases will limit options for modernization. Mainframe-era programming languages and related product dependencies such as the IBM z/Transaction Processing Facility (z/TPF) will narrow choices for modernization, too. Public cloud providers are aware of this and aiming to fill this gap, however, so expect more options to emerge over time. For specialty apps, you may need to consider blending integration, x86 replatforming, and semiautomated conversions.

3

Constraint number three:

### **Risk of disruption to business operations.**

Sometimes, the impact to the business would be so significant, it would preclude a thoroughgoing modernization of a critical core application. But there are workarounds: For example, opting for a more cost-effective and easier-to-maintain SaaS alternative to an existing app could be a compromise, even if the functionality is inferior to the current app. Another tactic: using the Strangler pattern to gradually replace pieces of the old system while it continues to operate with new pieces, letting the new system grow and eventually “strangle” the old one. The Strangler pattern is valid for both the “modernize, then move” and the “move, then modernize” approaches.

Constraint number four:

### **Technical features of a cloud platform.**

The hyperscale public cloud providers have vast capacity — but it isn’t always available when, where, and how you need it. Support for hybrid cloud services, on-premises integration options, and security interconnects varies. If low latency is a critical priority in your modernization strategy, make sure your cloud provider can support colocation of older technologies and adequate network capacity. This not only affects vendor selection but must also influence your modernization approach, as certain approaches are heavily tied to certain technologies. Approaches can also accentuate or alleviate shortcomings, making them a key consideration early in your modernization journey.

4

Constraint number five:

### **Confidence concerns in software-delivery software processes.**

Custom development requires both development talent (either on staff or via partners) and modern development processes. Without confidence in either, you may end up delaying your modernization or favoring approaches that replace existing solutions with managed services or low-code extensions. If you’re modernizing custom applications with new custom services, be prepared to compete for talent and to invest in modern software development. Developers are attracted to organizations with a commitment to modernization and the opportunity to work with cloud-native technologies.

5

---

For most organizations, success in digital transformation hinges on the ability to modernize core and legacy applications. With these cloud approaches and constraints in mind, you can build a more successful roadmap that avoids major issues and accelerates your modernization efforts to gain business benefits more quickly.

## Take The Next Step

If you're ready to learn more about modernizing your core applications with the cloud, check out these resources.

### Five Keys To Innovating Faster With Cloud

Learn how to use cloud to power your organization's innovation and adaptiveness in this new guide.

[GET THE GUIDE](#)

### The Cloud Platform Landscape And What You Need To Know

Watch this session from Forrester's Technology & Innovation event to hear analyst Lee Sustar review the models and drivers behind using cloud to modernize your technology.

[WATCH THE SESSION](#)

### Forrester Decisions for Technology Architecture & Delivery

Learn more about our service designed to help the technology architecture and delivery function accelerate delivery, improve value streams, and positively impact critical business outcomes.

[LEARN MORE](#)

FOLLOW FORRESTER



Americas: +1 615.395.3401

EMEA: +44 (0) 2073 237741

Asia Pacific: +65 6426 7006