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POSITION PAPER

5 key considerations for modernizing your apps and building for what's next

A decision-making guide to shorten time-to-value and scale AI

With 37% of organizations increasing IT spend to support AI workloads, application modernization is not just about optimization — it's about future-proofing your infrastructure to support next-generation services.[1] Nearly every organization today has a digital component, and application modernization continues to reshape the role of technology — elevating information technology from a supporting function to a key driver of business value. Organizations invest in app modernization for their web apps, mobile apps, employee apps, and other types of apps to deliver personalized, real-time, and collaborative experiences to distributed users while maintaining cost efficiency.

95%
of IT leaders believe that application modernization is essential for their organization's success.

Source: Red Hat

Application modernization challenges

Traditionally, app modernization projects using a unilateral approach across the organization — where every app is modernized in the same way — tend to be expensive and over budget. Yet, organizations continue to undertake these types of projects because the organizational challenges continue to hinder the organization's competitiveness, operations, security, reliability, and scalability.

Despite the clear benefits of application modernization, the complexity that often accompanies modernization can be daunting. From slow time to market and increased costs to organizational misalignment, app modernization can introduce considerable hurdles. An effective approach must ensure that all services work together for predictable costs, improved development and security team efficiency, and greater business value.

70%
of digital investments are late, over budget, and/or out of scope.

Source: The Boston Consulting Group

Forward-thinking CIOs, CTOs, and other executives take newer approaches focused on decentralized decision-making by development teams, increasing AI usage, and regaining control over infrastructure and security.

The routes to application modernization

There are three common approaches to modernizing applications, and there are different situations where an organization will choose each path:

- **Rehost:** Moving applications from on-premises environments to the cloud "as-is," with no code changes to the underlying app.
- **Replatform:** Optimizing app infrastructure (e.g. with containers, serverless, or managed services) for multicloud and hybrid environments.

1. Insight Enterprises. "The Path to Digital Transformation: Where Leaders Stand in 2023." https://www.insight.com/en_US/content-and-resources/2023/ebook-the-path-to-digital-transformation--where-leaders-stand-in-2023.html. Accessed 15 April 2025.

- **Refactor legacy apps or build new apps:** Transforming and building new app architecture to use modern technologies (e.g. AI, serverless, and microservices architectures) and manage tech debt.

Within an organization, different teams may be working on different types of modernization projects in parallel. At a large bank, for example, one team may be focused on rehosting an employee app from an on-prem, owned datacenter to the cloud, while another team may be charged with replatforming a customer-facing app for global scalability and security policy consistency. The decision depends on criteria such as:

- Application architecture
- Business needs
- IT modernization costs and value
- IT and developer skill sets
- App performance, security and compliance requirements

Five key considerations

Here are five key considerations to keep in mind to get maximum value out of your app modernization projects.

1. **Decide early on which type of app modernization project is most feasible and strategic.**
   Whether you decide to rehost, replatform, or refactor an application is as much a business and strategic decision as it is a technology decision. Consider your business motivation for improving your application. You may choose different types of modernization projects for different apps, depending on the needs.
   - **Start with rehosting the app or app infrastructure** if you don't have time for an app rewrite and you want to: cut costs, stop managing hardware, instantly improve app performance, start moving some app services to the cloud, or be more agile with infrastructure management.
   - **Try replatforming the existing app** if you don't have time for an app rewrite and you want to: enhance app functionalities with third party libraries, easily integrate with outside systems or tools, or streamline security, visibility, compliance or policy management.
   - **Consider refactoring your legacy app or building a new app from scratch** if you want to: take full advantage of AI services, build full stack apps with internet-optimized AI and app primitives, have a tech-enabled development team, or want to implement DevOps approaches in other parts of your business.

2. **Embrace a strategic cloud partner to migrate, accelerate, and secure apps in the cloud when rehosting apps**
   Rehosting an app is often referred to as a "lift and shift" process, because the app code and architecture isn't changed when the app infrastructure or app code itself is moved to the cloud. Rehosting an app accelerates app performance and response times, helps organizations easily scale to meet user demand, and reduces costs associated with on-premises application management and maintenance.

Organizations that successfully rehost apps:

- **Partner** with a cloud provider that migrates, accelerates, and secures apps in the cloud — without burdening development and engineering teams with infrastructure management
- **Adopt** security services designed to protect hybrid and multicloud environments
- **Retire** on-premises app services tools to optimize costs and management

3. An app replatforming project is the ideal time to consolidate vendors and spend

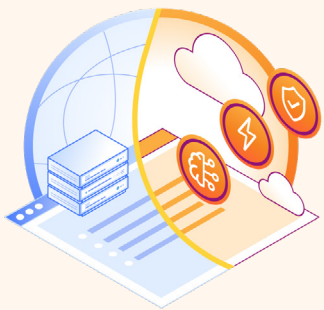
Replatforming can further consolidate application infrastructure across hybrid and multicloud environments. This helps to drive user engagement while reducing the total cost of ownership (TCO) of modernization initiatives, cloud vendor lock-in, egress costs, and overall cyber risk.

- **Maximize app scalability and availability** by choosing a cloud provider that offers migration capabilities from traditional cloud environments to the edge.
- **Consolidate application infrastructure** to further reduce app infrastructure misconfigurations and risk with centralized visibility and policy management in one control plane.

4. Refactor apps faster with AI and automation

Refactoring applications means re-engineering infrastructure and components for cloud- and edge-native environments. Refactoring an app makes it possible to create AI-enabled revenue streams or user experiences while reducing costs tied to legacy development, technical debt, and fragmented security tools. Organizations can also unlock the shortest time-to-value when they adopt serverless, secure, and composable infrastructure that supports both traditional and AI-driven workloads.
By refactoring apps or building new apps, organizations can:

- **Build dynamic applications** with serverless development and inference at the edge.
- **Reduce developer burden** with built-in security and access controls designed for hybrid environments.
- **Use built-in security services** that can reduce developer effort and manual oversight.
- **Build full-stack and AI-native applications faster** with pre-built primitives, integrated into your connectivity cloud.



The lack of the right supporting infrastructure is a key reason for failed AI projects.

Source: RAND National Security Research Division

5. **The right partner makes all the difference — and shortens time-to-value**
   Choosing the right partner is key to unlocking the fastest time-to-value for application modernization initiatives. Cloud-based vendors that can help you rehost, replatform, and refactor your applications on a single global network enable you to accelerate development efforts and application deployment, protect new attack surfaces, and reduce the vendor lock-in and associated costs of a single public cloud provider.

Shorten time-to-value for app modernization with Cloudflare

Cloudflare's connectivity cloud enables the shortest time-to-value for your app modernization strategy. By choosing to rehost, replatform, refactor, or build a new app with Cloudflare, you innovate and ship apps faster, while also lowering costs. Cloudflare enables your developers to build with AI and app primitives and regain control over complex app infrastructure with our application, developer, and SASE services.

In addition to a comprehensive suite of tools to simplify the development process, our connectivity cloud also enhances the scalability and cost-effectiveness of AI apps, making Cloudflare an ideal partner for developers looking to innovate in the AI space. And by unifying data visibility and control across web, SaaS, private applications, and AI tools, Cloudflare allows for consistent application of security policies across all locations, users, and applications — driving economic outcomes for your business, including:

- 238% ROI over three years[2]
- 29% boost in security team efficiency[2]
- 13% boost in IT team efficiency[2]
- $1 million saved via better app availability[2]
- $1.1 million saved by deprecating legacy IT services[2]

Next step:

➔ Discover how Cloudflare helps speed time to value for application modernization initiatives

2. Forrester TEI study

