

Four reasons to refactor your applications

Easily transform your architecture to deliver modern AI applications to your distributed users

Introduction

To compete in today's fast-moving, digital world takes modern applications that can cost-effectively deliver more personalized, real-time, collaborative experiences to users, anywhere, any time. Legacy systems and fragmented data can make it difficult for your organization to innovate and roll out the capabilities you require, such as agentic AI applications, to meet the increasing needs of all your users.

As a result, most organizations are undertaking application modernization initiatives — **95%** of respondents to a recent survey believe application modernization is essential for their success; **60%** of businesses will have modernized up to half of their cloud architecture to drive agility and innovation by 2027.

Application modernization projects often encounter stumbling blocks and go over budget, due to the technology and operational complexities and security concerns that arise when integrating new solutions into the technology stack. One way to address these challenges and meet your organization's modernization objectives is to **refactor** your applications.

Refactoring transforms and builds your application infrastructure using modern technologies such as AI, serverless, and microservices to improve performance, better manage technical debt, and future-proof capabilities without impacting existing behavior or functionality. It involves:

- Improving code readability
- Making the code more modular, testable, and maintainable
- Simplifying complex logic
- Removing duplications and inefficiencies
- Improving performance on a global scale

The following are the top four reasons organizations are looking to refactor their legacy applications and build new application components and infrastructure.

1. Reduce costs

Managing and maintaining fragmented point solutions and on-premises technologies can quickly consume your budget. Consolidating on a single,

Key takeaways

- 60% of businesses will have modernized up to half of their cloud architecture to drive agility and innovation by 2027
- 50% more is the cost of delaying application modernization efforts, due to legacy application operations and maintenance¹
- 71% of organizations find it challenging to provide a unified security posture across different hosting environments²

63%



of engineering teams say technical debt is slowing down application delivery—and refactoring is the most common solution³

1. IBM, Four steps to app modernization success, 2022

2. Enterprise Strategy Group, Cloudflare and Accenture Application Modernization Survey, Q1 2025

3. Stripe Developer Coefficient Report 2023

cloud-based platform can help you lower your technical debt and free up budget over time.

Refactoring can help you take advantage of the cost efficiencies of serverless development and AI inference at the edge. A serverless development platform ensures you pay only for what you use - you can scale up or down without having to worry about reserving or potentially overprovisioning resources when your needs change. Running your AI models at the edge reduces latency and central compute load, helping you save on bandwidth costs, as well as cloud GPU and compute costs.



50% more is the cost of delaying application modernization efforts, due to legacy application operations and maintenance⁴

30% approximate infrastructure cost savings were realized by companies migrating to modern platforms according to IDC⁵

A serverless and edge platform abstracts away infrastructure management, so your team doesn't have to spend their time on OS patching, capacity planning, or cluster management, reducing both your labor costs and risk of downtime. Simplifying the codebase and eliminating duplicative or inefficient solutions in your environment can help further reduce development and maintenance costs. As a result, developers can quickly and easily adapt functionality and integrate with other services without having to do full rewrites to deliver the applications (AI) you want, now and in the future.

2. Improve application performance

Performance matters when delivering personalized experiences that will keep your customers happy. Refactoring allows you to run your applications on a cloud-based infrastructure built to scale and deliver the performance required by all your modern and AI-powered applications. Look for platforms that are:

- Distributed: allowing you to develop and run the applications wherever your users are, around the globe for optimal performance, as opposed to needing a massive data center in each region.
- Composable: giving you the agility you need to quickly assemble and roll out high performing applications with composable services with primitives on a programmable network.
- Serverless: enabling you to automatically scale in response to changing demand with serverless development and compute.
- Observable: ensuring continuous real-time monitoring to catch issues early and support effective remediations that minimize disruptions and speed recovery.

A distributed serverless, cloud-based infrastructure that provides composable services with primitives gives you the speed and agility you need to run your applications at the network edge, close to the users who need it, for the best experience.

3. Increase developer velocity and speed time to market

Modern platforms built for the AI-era simplify the integration of the services you require, in any combination, to quickly create the applications you need. Infrastructure as code (IaC) integrations and primitives, such as well-documented application programming interfaces (APIs) and services, make it easy for developers to put capabilities together in any number of ways to speed responsiveness, roll out new capabilities, and innovate faster.



74% of organizations say app modernization helps them deliver new features faster⁶

68% of executives say modern app architecture is critical to leveraging AI effectively⁷

4. IBM, Four steps to app modernization success, 2022

5. IDC, <https://www.vmware.com/docs/vmware-idc-business-value-of-azure-vmware-solution>

6. Forrester, <https://www.forrester.com/blogs/introducing-the-forrester-wave-applications-modernization-and-migration-services-q1-2024/>

7. "The state of AI in early 2024: Gen AI adoption spikes and starts to generate value," McKinsey, May 2024, <https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai-2024>

A platform that gives your developers control without forcing them to learn a new way of working or having to be an expert in everything will help your organization be more agile and responsive. Platforms that enable the programmatic management of pipelines through existing tools and APIs can accelerate application development, deployment, and updates, while improving application integrity and scalability.



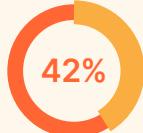
Refactoring is associated with **up to 40% reduction in post release defects** when paired with testing automation⁸

4. Increase security and compliance

Refactoring can remove deprecated code, identify hardcoded secrets, or surface insecure libraries, as well as provide an opportunity to implement uniform security controls. Most application developers aren't security experts, so it's important to have automated, built-in capabilities that help you consistently apply robust security measures. Point solutions can introduce unnecessary complexity and overhead that leads to latency and risks. When you refactor security and compliance can be streamlined with a composable, unified control plane.



71% of organizations find it challenging to provide a unified security posture across different hosting environments⁹



42% fewer security incidents were experienced by modernized applications¹⁰

A unified policy engine allows you to write rules once from a single control plane and apply them everywhere for consistent data protection and security. Role-based access, secure logging, and the ability to quickly audit all activity are also table stakes that will help you reduce the risks and costs associated with your security and compliance program. A platform with a distributed architecture can implement security controls at the edge to ensure optimal performance. This also allows you to address data localization requirements to comply with industry and government standards, like FedRAMP, HIPAA, and GDPR.

Refactor your applications with Cloudflare's connectivity cloud

Cloudflare's [connectivity cloud](#) helps your organization quickly modernize applications, offering a unified, scalable, and secure approach for your refactoring projects. Cloudflare's connectivity cloud enables you to accelerate building, consuming, and deploying AI services and full stack apps with Internet-optimized AI and app primitives. We offer a global network closest to users with programmable app and AI compute, storage, security, and delivery primitives that can be easily integrated into existing tech stacks without a significant learning curve.

With Cloudflare, you can refactor your applications to:

Reduce costs

Minimize technical debt with the simplicity of Cloudflare's unified, cloud-based platform and flexible pricing models. Reduce operational expenses by eliminating the need to deploy, manage, and maintain your infrastructure - Cloudflare does it all for you, so you can focus your time and efforts on other strategic initiatives.

Improve application performance and scalability

Run workloads on Cloudflare's infrastructure that was built for the scale and performance of your modern AI applications and addresses the needs of your globally distributed users by running applications at the edge. Applications, APIs, and AI services can be

8. IBM DevOps Performance Study

9. Enterprise Strategy Group, Cloudflare and Accenture Application Modernization Survey, Q1 2025

10. IBM, <https://newsroom.ibm.com/2023-07-24-IBM-Report-Half-of-Breached-Organizations-Unwilling-to-Increase-Security-Spend-Despite-Soaring-Breach-Costs>

instantly deployed across 335+ cities, with no regions to configure, no extra setup. Our global cloud network provides over 348 Tbps of network capacity with Anycast networking and fiber backbone. Our modular, natively-integrated AI, development, delivery, security, and observability capabilities offer reusable primitives for quickly assembling full-stack AI apps.

Increase developer velocity and speed to market

Our developer-oriented IaC integrations and API-first approach enhances the developer experience and streamlines developer time. We make it easy to deploy new services, identify and threats, and manage pipelines programmatically within tools of your choice, all via our well-documented, versioned APIs. This reduces operational overhead and gives your developers complete control over development, infrastructure, and security.

Increase security and compliance

Gain built-in security and monitoring to reduce risks and increase application availability and reliability. These applications are inherently protected from Internet threats by our secure network, reducing the need for developers to be security experts.

Next steps

→ [Discover how Cloudflare helps streamline and support application modernization initiatives](#)

