WHITE PAPER

How Akamai Slashed Its Public Cloud Costs by 40%

Five steps to gain control of skyrocketing cloud costs

Executive Summary

Public cloud services have transformed the compute landscape, providing a convenient alternative to costly and inflexible on-premises data center infrastructures. However, as organizations have increased their use of public clouds, their cloud spend has risen dramatically. A 2024 report found that many businesses spend $2.4 million to $12 million yearly on public clouds, with nearly one-third of cloud customers surveyed spending more than $12 million annually. Many companies report far greater costs — often 10x greater or more.

Akamai was no exception to this trend. Recognizing aggressive growth in our third-party cloud spend, we embarked on an initiative to migrate third-party public cloud workloads to our public cloud global infrastructure, Akamai Connected Cloud.

This initiative enabled us to reduce our public cloud spend by 40% in the first year — with a projected 70% reduction by the end of 2024 — while improving our business-critical applications' efficiency and performance.

This white paper explains Akamai's strategy for gaining control over spiraling cloud costs, focusing on three key objectives:

1. **Optimize capital allocation and strategic investments**
   Prioritizing strategic investments to support our global business objectives while ensuring the highest possible returns to support our long-term growth.

2. **Ensure financial resilience and support risk management**
   Mitigating cloud concentration and uncontrolled spending for business-critical applications, enabling us to maximize shareholder value while managing our financial and compliance risks in a volatile and uncertain economic and regulatory environment.

3. **Power the next phase of our digital transformation**
   Institutionalizing a cloud-first approach and a framework to foster innovation while avoiding cloud concentration risk and vendor lock-in, with incentives to focus on cloud-native principles and understand holistic workflow costs, enabling us to balance business and technical considerations.

We also discuss the five specific steps that enabled us to achieve these objectives — from setting clear priorities and establishing a holistic view aligned with cloud-native principles, to measuring and optimizing our cloud spend results to drive continuous improvement.

While a migration may not be appropriate for every workload, the principles and actionable steps outlined in this paper are relevant to any organization seeking greater control over cloud costs.

The cloud spend conundrum

Public cloud services have played a central role in fueling digital transformation, increasing agility and application modernization. However, as businesses steadily adopt cloud resources, the cost of that transformation has become considerably higher than most companies predicted or planned for. According to IDC, worldwide spending on cloud computing is projected to surpass $1.35 trillion by 2027. It is a small wonder that in a recent survey, IT leaders said managing cloud spend is the top challenge they face with cloud technologies.

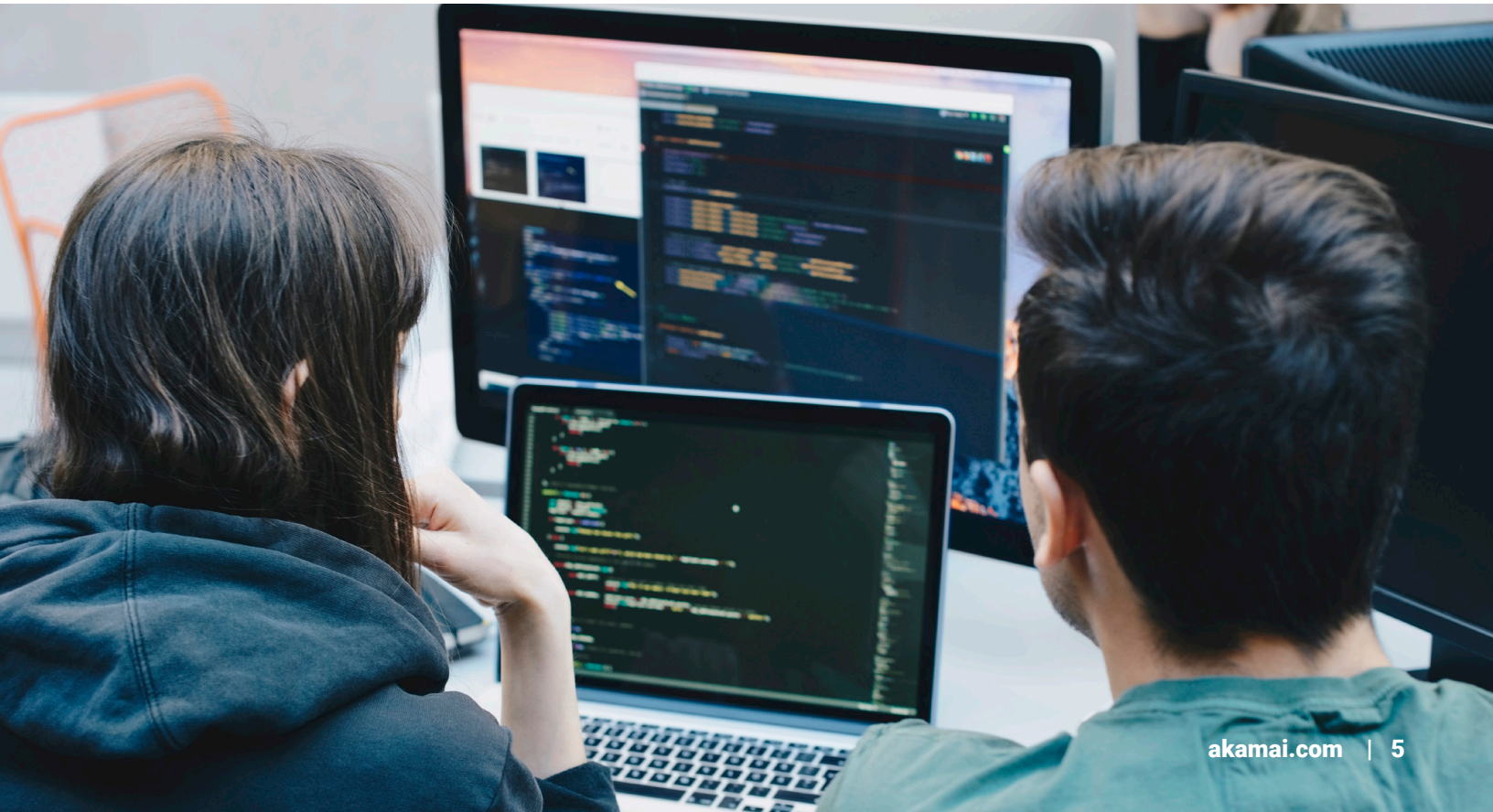
As these costs continue to rise, the mindset that businesses can spend their way to success is shifting. Investors and the public now place a greater emphasis on efficient, sustainable revenue growth. According to finance experts, the COVID-19 pandemic, de-globalization trends, and increasingly stringent regulatory compliance regimes have been driving this shift. The escalating demand to support AI/ML workloads will force businesses to optimize their strategic partnerships with cloud providers to meet customer needs. This is leading corporate CIOs and CFOs to collaborate to assess the use of cloud technologies in their business growth strategies.

Building on our long history of emphasizing operational efficiency, Akamai has paid close attention to the steady increase in our third-party cloud spend. As we assessed our use of public cloud services, we found numerous opportunities for optimization. This led us to embark on a comprehensive initiative to rethink our use of cloud resources, migrating workloads to our public cloud infrastructure where possible and appropriate.

Embarking on a cost-reduction journey

The first step in our journey was understanding how we got where we are. Akamai has been working with cloud services for nearly two decades. Like many organizations, our adoption of public cloud resources was often organic, driven by a need to accelerate time to market and ensure strong revenue growth by delivering competitive solutions. This strategy often included technology acquisitions where we maintained the existing cloud architecture and extended it to maintain momentum in the market.

A few years ago, we found that several mission-critical applications were heavily using third-party cloud services, resulting in rapidly rising cloud costs. This realization highlighted the need to develop an effective strategy for adopting, using, and scaling cloud technologies. We established a strategic initiative to achieve this, naming it Project Cirrus — a reference to the detached clouds found at high altitudes, a nod to our goal of decoupling from our dependence on third-party clouds.



Planning the route with support from leadership

As with any important initiative that touches the entire enterprise, it is critical to establish senior leadership sponsorship. Migrating the infrastructure for business-critical applications does not happen easily or overnight, especially for a publicly traded, global enterprise with thousands of employees. A survey by McKinsey & Company found that transformation initiatives with strong executive sponsorship are 1.6 times more likely to succeed than those without. Deloitte found that organizations with executive sponsors realize an ROI of 2.5 times more from their cloud initiatives compared to those without such sponsorship.

Executive sponsors ensure that a cloud optimization initiative aligns with the broader business strategy, with a clear understanding of potential risks and appropriate risk management measures. Without this alignment, projects can become disjointed and fail to deliver meaningful value — or even compound the risks they were intended to address. Executive sponsors secure critical success factors, including the necessary budget, personnel, and technology resources, with the authority to shift priorities when needed. They also facilitate collaboration among departments, breaking down silos that can impede progress, and championing change management efforts that drive cultural transformation, ensuring all employees understand and support the initiative.

Effective executive sponsorship should begin within the C-suite, including the CEO, with support from the board of directors. For Project Cirrus, our CEO and co-founder served as executive sponsor, with board-level visibility, ensuring the highest level of oversight and strategic guidance. This approach proved essential when strategic decisions impacted other business-critical programs.

Guided by our executive sponsor and his team, we pursued a five-step process for Project Cirrus.

Step #1

Set clear business objectives and priorities

The criticality of the workloads and the materiality of our cloud spend required a strategic approach. We identified three project objectives aligned with our strategic business priorities.

1. **Optimize capital allocation and strategic investments**
   This objective is focused on prioritizing investments to support business objectives and generate returns to drive long-term growth.

   While our initiative is centered around migrating workloads to Akamai's cloud, we recognize that, in some cases, a multicloud architecture would result in better outcomes. Effective financial planning, coupled with advanced analytics to continuously monitor cloud usage and spending, helps identify inefficiencies and optimization opportunities. Having this insight enables us to take advantage of Reserved Instances (RI) and other discounts offered by cloud providers — in some cases, saving up to 75% compared to on-demand pricing. In addition, we can implement automation to optimize resource allocation, enabling us to shut down unused resources and right-size instances, which can reduce cloud waste by up to 40%.

2. **Ensure financial resilience and support risk management**
   This objective involves mitigating cloud concentration and uncontrolled spending for business-critical applications, enabling us to maximize value while managing financial risks.

   According to a report by Deloitte, companies that effectively negotiate cloud contracts can achieve savings of 20% to 30%. While reducing cloud spend is important, financial resilience and risk management transcend cost considerations. The need for processing power to support cloud applications drives increased demand for data center construction and more compute resources, while supply chain constraints create barriers to these projects and delay timelines.

   By establishing a strategic framework for investing in cloud technologies, Akamai's global risk and compliance teams work more closely with our product engineering and finance teams to plan for first-party versus third-party cloud investments, enhancing resilience and mitigating risk.

3. **Power the next phase of digital transformation**
   This objective aims to institutionalize a cloud-first approach aligned with cloud-native principles to avoid cloud concentration risk and vendor lock-in. We empower our teams to weigh performance, efficiency, and portability to improve decision-making based on a holistic view of costs, including vendor-specific solutions and the potential impacts on people and processes.

   Investing in technologies that enhance cloud performance — such as containerization, serverless computing, and AI-driven optimization tools — can lead to long-term cost efficiencies. Another study found that companies investing in cloud optimization can increase IT productivity by up to 35%. Institutionalizing a decision framework and governance model to inform future cloud architecture decisions is an important goal of our initiative. As we continue to develop applications, acquire new technologies, and optimize our business-critical applications, we plan to provide our teams with guidance for evaluating opportunities for modernizing product architectures and choosing the right cloud platform to meet their business objectives.

Step #2

Establish a holistic view

To achieve our key tactical objectives — optimizing our use of cloud services and migrating strategic workloads to Akamai's cloud computing platform — our teams needed a holistic view of business-critical applications. Without this, it is difficult to determine where and how much we are spending on third-party cloud and whether that spending is justified.

To achieve this objective, we needed to gain visibility of the operating plans associated with each application, including customer adoption and use, as well as the strategic roadmaps for each. From there, the project teams set about quantifying the workloads each application generated, where they were deployed, and their lifetime costs using forward-looking projections. This step, which accounted for the bulk of the work, set the stage for the migration efforts.

Once we established the inventory of applications and workloads that leveraged third-party clouds, the team evaluated each implementation's effectiveness and efficiency. They prioritized the migrations based on strategic impacts — where we could maximize efficiency and cost savings without undue risk and revenue impact — and the level of effort.

Step #3

Align to cloud-native principles

The solutions touched by Project Cirrus are customer-facing and revenue-generating, and as such, they are held to strict SLAs. Redesigning them forced us to look closely at optimizing for performance, cost, and scale simultaneously, balancing the goals of managing cloud costs and maintaining margin profiles with the need to provide superior customer experiences.

Embracing cloud-native principles for building, managing, and deploying applications was a foundational thesis for our migrations. The goal was to create flexible, scalable, and resilient applications that we could update quickly to meet customer demands. This perspective differs from a cloud-friendly approach, which refers to applications that function in the cloud but do not fully exploit cloud-specific optimizations. Since Akamai has an open platform, we wanted to take this a step further. We followed the cloud-native model defined by the Cloud Native Computing Foundation (CNCF), which calls for using open-source software and technologies such as containers, microservices, and service mesh to develop portable, scalable applications, avoiding lock-in to any single provider's platform.

Step #4

Eliminate vendor lock-in and cloud concentration risk

Cloud platforms are designed to be easy to use, which makes them extremely sticky. Once our engineering teams started using compute services on a given platform, they organically expanded to other services to create resilient, scalable applications. As a result, we needed to redesign exceptionally complicated, integrated webs of technology. This presented a unique opportunity to foster innovation.

As a company with deep roots in internet innovation, Akamai uses open-source services where possible (and logical), creating our own solutions to complete our service architectures. Tapping into our category-creating startup roots, we accelerated our distributed cloud development, extending the Akamai cloud computing platform. Through Project Cirrus, we became our own high-value customer — identifying, addressing, and improving upon the limitations of our platform.

Step #5

Measure and optimize

Evaluating the results of our migration efforts was an essential step for Project Cirrus. **We realized a savings of 40% in our cloud spend the first year.** We calculated these savings based on the public cloud costs we eliminated versus our own cloud infrastructure costs as we shifted applications and workloads onto our platform. **We project a total savings of 70%** in year two and beyond, as Project Cirrus matures.

Cost reduction was just part of the project benefits. Project Cirrus also aims to improve service performance. Our product engineering teams measure each application and its workload individually to assess performance. Key results to date include:

- **Improved latency**
  For one service that monitors and analyzes employee activity for security threats, we saw an **80% decrease in data pipeline latency**, from 75 seconds to 15 seconds. Minimizing pipeline latency is critical for this application because the results of the analysis get implemented in security policies that either trigger automated action or alert security practitioners to take action. We developed this application using a cloud-friendly approach, implementing a write-intensive, proprietary implementation on a public cloud. The engineering team re-architected it as a cloud-native application, using in-memory, open-source software on Akamai Connected Cloud.

- **Improved query and workload performance**
  For another service that provides insights into security events on our platform, **query performance improved by more than 40%** (from 3.2 seconds to less than 2 seconds), and **end-to-end workload performance improved by 70%**, from 100 seconds on the third-party cloud to 30 seconds on Akamai Connected Cloud. The application processes security logs to extract events, analyze them against a set of policies, and then provide insight into the best actions users should take. The initial architecture leveraged a hosted data store on a third-party cloud. The product engineering team developed a new data store specifically designed to optimize query performance for this type of workload. This stabilized the inserting of data into the data store, resulting in more consistent performance and fewer errors and retries.

The importance of a cloud governance model

Our experience with Project Cirrus taught us several important lessons. One of these lessons is the critical importance of implementing a robust process and governance model. Given the proliferation of tools and services that workers in every department use to improve their productivity and run their areas of the business, it is critical to provide oversight into how and why third-party cloud resources are used.

Various frameworks can be applied, based on factors including cloud maturity and industry. But any such model should encompass security, compliance, cost control, and efficient resource utilization, and provide guidance and direction to avoid impacting innovation. Key considerations for a cloud governance model include:

- **Workload:** Understanding the nature of the application and workload, and what data is being created, consumed, and managed.
- **Access control:** Ensuring specific requirements around infrastructure, workload, and application access — including treatment for organizations, departments, and individuals — are addressed.
- **Compliance, security, and data governance:** Ensuring relevant regulations — including SOX, GDPR, HIPAA, FedRAMP, and other industry-specific regulations — are accounted for.
- **Cost allocation and budgeting:** Ensuring all of the associated costs are projected effectively, with a clear understanding of the factors that impact cost increases over time.
- **Usage monitoring and reporting:** Identifying the KPIs, targets, variance thresholds, and the tools used to monitor, alert, report, and analyze workload performance and costs.
- **Approval workflows:** Establishing approval processes, including the departments and positions that need to be involved and the factors that impact them, is critical for the types of data or cost thresholds that represent higher risk to the business.
- **Awareness, training, and continuous improvement:** Developing a learning model to educate team members on the governance model and its key considerations; instituting a scheduled review and refinement process to drive continuous improvement based on lessons learned.

Conclusion

Cloud computing is essential for delivering applications and services in today's connected business ecosystem. Given the ease and convenience of public cloud services, it's no surprise they can rapidly grow to become a major budget expenditure as companies expand their products and services to drive growth.

As we are discovering through Project Cirrus, it is possible to realize impressive savings by undertaking a comprehensive reassessment and applying some core principles to optimize your use of cloud services. While Akamai has the benefit of our distributed cloud computing platform, applying the principles described in this paper can even help companies without this advantage better understand their cloud utilization and chart a course for gaining control over their spend while improving performance and agility.

Akamai powers and protects life online. Leading companies worldwide choose Akamai to build, deliver, and secure their digital experiences — helping billions of people live, work, and play every day. Akamai Connected Cloud, a massively distributed edge and cloud platform, puts apps and experiences closer to users and keeps threats farther away. Learn more about Akamai's cloud computing, security, and content delivery solutions at akamai.com and akamai.com/blog, or follow Akamai Technologies on X, formerly known as Twitter, and LinkedIn. Published 08/24.