

# 7 Best Practices for Public Cloud Cost Optimization

## Introduction

Whether a company is just starting out with public cloud or has used cloud services for years and reached a high level of maturity, managing cloud consumption costs and overall cost optimization should be a high priority. If managed poorly or not at all, cloud costs can quickly spiral out of control — at many organizations, that’s precisely what has happened.

“The State of IT Modernization 2020,” a recent Insight-commissioned study by International Data Group (IDG), shows that public cloud cost overruns are common. According to the study, which surveyed 200 business and IT executives in the U.S., 69% of respondents reported their organizations experienced higher-than-expected public cloud costs. On average, costs were 62% higher than anticipated.<sup>1</sup>



**Nearly 7 in 10** organizations have experienced higher-than-expected cloud costs, demonstrating **the importance of effective cloud planning and management.**

Some reasons for unexpected cloud costs:

- Data egress charges
- Organic or unplanned adoption
- Unintended over-subscription
- Unanticipated demand
- Workloads not optimized for cloud

This happens because, for many enterprises, cloud cost optimization is not a focal point. A key selling point of the cloud is expected cost savings, so it’s a natural assumption that cost is not something businesses need to worry about. In reality, it should be a big concern.

While reasons for cost overruns vary, the top reasons cited were data egress charges, unplanned cloud adoption, and merger and acquisition activity.<sup>1</sup> These, among other challenges to achieving effective cloud cost optimization, require a business to apply best practices to realize maximum value from cloud service investments.

## Cloud cost optimization challenges

When asked to identify the top three IT modernization challenges in 2020, 31% of executives surveyed cited the need to optimize their current cloud environment to manage cloud costs, better utilize cloud service provider capabilities, and utilize cloud services in a more native way.<sup>1</sup>

Hurdles abound for organizations when it comes to optimizing cloud costs. But some of the challenges stand out as being particularly common. Here are five of them.



### Large numbers of users potentially have access to cloud resources

In the days when organizations deployed pretty much everything IT-related on-premises in their own data centers, IT executives had a fairly good handle on who bought and used which resources.

In general, fewer people had easy access to resources such as data center servers or storage systems. A limited number of users could gain access, and CIOs had visibility into this. All of this made cost containment more attainable.

The public cloud is another story. Services are more easily accessible to many more users within an organization. Virtually every major department — marketing, sales, finance, etc. — can start up cloud-based services when they need them, and those departments have many potential users of those services.

Clearly, this presents a potential challenge from a cost optimization standpoint.



### With cloud resources, the sky's the limit

It's not just a matter of more users having access to resources. The cloud, by its nature, has seemingly limitless capacity and presents opportunities for users to spend more on those resources.



With on-premises infrastructures, the technologies in place had natural limitations in terms of capacity. Companies would buy servers of certain sizes, and capacity was allotted as needed. Of course, capacity could always be added when demand increased, but management had a handle on costs.

Public cloud services don't have the same limitations, and it's easy for companies to experience runaway spending as different departments power up more and more workloads.

IT does not have the controls it's accustomed to having in terms of size or the number of resources people can consume.

There's much fluidity regarding workloads and the cloud. The IDG report notes that 84% of organizations moved select workloads from a public cloud to an alternative cloud or non-cloud location.<sup>1</sup> That includes organizations that are just beginning their IT modernization journey, as well as those that are farthest along, reflecting the complexity of assessing and optimizing workload placements.

About two-thirds of the organizations surveyed that have completed their initial IT modernization initiatives have switched from an all-private or all-public cloud strategy to a hybrid cloud approach.<sup>1</sup> This again highlights the trial-and-error many companies undergo to find the optimal cloud path for their needs.



## The work-from-home model leverages the cloud

The COVID-19 pandemic has forced many employees to work from home for an indefinite period of time, and this has contributed to a fast rise in the use of cloud services.

An April 2020 report by MarketsandMarkets™ forecasts that the global cloud market will grow from \$233 billion in 2019 to \$295 billion in 2021, and notes that the pandemic has pushed many enterprises to support the growing mobile workforce and adopt enterprise mobility tools and services.<sup>2</sup> This has led to a jump in demand for cloud communication and collaboration services.

Businesses want employees to have the same level of productivity they had while working in the corporate office, and to do so they need to quickly spin up many virtual desktops. Aside from that, with more people working remotely, there's the possibility of users creating more resources in the cloud without the knowledge or approval of IT.

As a result, companies are using more cloud resources than planned for the year, which means higher costs.



## The risk of moving resources before rearchitecting them

One key to achieving cloud and cost optimization is rearchitecting applications when needed. Because organizations may move to the cloud, this process — which involves revamping applications based on a modern microservices architecture — is often overlooked. This is a big mistake from a cost optimization standpoint.

For example, a company might have 100 virtual machines running on-premises and then decide to spin up the same 100 machines in the public cloud without giving any thought to rearchitecting them.

The problem is, running these virtual machines in the cloud just as they did in the data center will likely result in overprovisioning. Without taking the time to rearchitect them, a company misses the opportunity to use smaller systems to reduce costs.



## Underutilized or unused resources

It's difficult to know how much a particular cloud resource will be needed over the course of time, especially when there are wild fluctuations in demand. Paying for cloud services that are used less than expected or not at all is a common problem for enterprises.

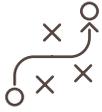
When virtually anyone in an organization can create resources in the cloud, there are bound to be some that are underutilized or unused.

Storage is a good example of where a company often has underutilized or unused resources. A group of users might spin up test environments and, once testing is complete, forget to delete the environment from the cloud. In that case, the company continues paying for storage that's not even being used.

In particular, instances that need GPUs tend to be costly. There's usually an overprovisioned workload hiding in that batch of instances that is contributing to cloud cost overruns.

## Best practices for optimizing costs

By implementing a number of best practices, organizations of every size — from the smallest businesses to the largest global enterprises — can be successful at cloud cost optimization. Here are a few recommended best practices.



### Create an optimization strategy as early as possible

While it's never too late to launch a cost optimization strategy, it is best to do this as early in the cloud migration process as possible — ideally before the first contract is signed. This approach can help companies avoid a lot of unforeseen expenses down the road.

Many companies don't think about cloud cost controls before they start building in the cloud. Cost control often doesn't seem as important as getting into the cloud quickly to gain agility, scalability, and a competitive edge.

Whether an enterprise is launching an Infrastructure as a Service (IaaS), Platform as a Service (PaaS), or Software as a Service (SaaS) initiative, or some combination of the three, strategic planning for cost containment should be discussed and in place from the start.

### Cost Optimization Saves Government Provider Millions in AWS Spend

With a newly expanded cloud environment, this company had to keep cloud costs from growing in tandem. Starting with a customized proof of concept, they realized \$1.1 million in savings in the first year through better resource utilization and other optimization measures.

[Read the case study](#)



### Make governance part of the strategy

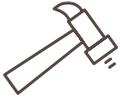
Mention governance to business executives and users, and the likely response will be less than enthusiastic. But before moving wholesale into a public cloud service, companies need to make the effort to introduce and enforce governance.

If an organization fails to govern how cloud services are provisioned; how they are being used, maintained, and deleted; and who is creating and using them, it might end up paying for it later. Lack of controls can lead to runaway costs.

It is important to adapt existing governance programs or develop new programs for the cloud. This may seem counterintuitive for those primarily focused on innovation.

However, while some would rather focus on innovation, governance needs to be at the forefront, as it was years ago when IT Infrastructure Library (ITIL), a set of detailed practices for IT service management focused on aligning IT services with the needs of the business, was a high priority.

When people do think about governance and the cloud, they tend to think about security only. But governance also includes operations, roles and responsibilities, approvals, etc., and is more of a cost management function than people realize.



## Rearchitect applications when you need to

As mentioned earlier, failing to rearchitect applications when needed can lead to added costs and a lack of cloud optimization.

The process of rearchitecting before moving applications to the cloud can lead to a number of benefits. For one, it can reduce costs, particularly when it involves large applications that are expensive to run on legacy hardware-based infrastructure. Cloud-based features such as containers can drive additional cost efficiencies.

Also, rearchitecting applications for the cloud can enable them to perform better and more reliably. This is especially vital for applications critical to major business processes such as customer support and transactions.



## Determine which workloads are best for the cloud, then effectively manage them

Poorly managed workloads can be among the biggest resource consumption problems with using the cloud. It's all too common for organizations to discover workloads still running in the public cloud that should have been decommissioned months earlier.

In some cases, workloads should never have been moved to the cloud in the first place. Workload and platform alignment is essential to optimizing cloud costs and should be one of the earliest steps to figure out which workloads are ideally suited for this environment.

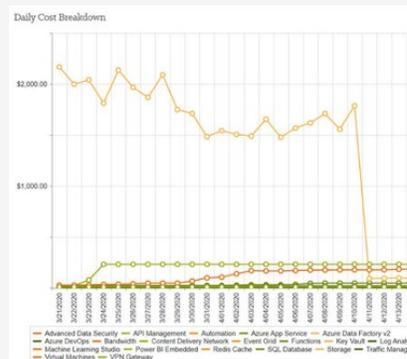
Companies need to take a hard look at their workload characteristics and put metrics in place to measure the best-fit deployment situation — on-premises, physical resources versus public cloud service. It's much more cost-effective to do this before moving to the cloud in the first place, to inform the cloud strategy, architecture, and design.

Some workloads, deployed in a particular way, are clearly more cost-effective to run in the cloud. This might include transient non-production workloads; batch processing; serverless deployments; and virtual appliance services, including firewalls, cloud-native applications, applications with performance logic built in to scale up or down as needed, etc.

It's also important for IT to know whether workloads need to be rearchitectured for the cloud, what kind of storage is needed to support the workloads, whether they are heavily networked, and how they are used.

### One Rogue Workload Cost More Than 50% of Consumption Spend

A company hosting their SaaS environment in a public cloud sought assistance with best practices and cost management. Finding and suppressing one rogue workload resulted in a more than 50% reduction in the company's consumption spend.



Represents the reduction in consumption (cost) once the rogue workload was suppressed.



## Use available cost containment tools

There's no shortage of effective, cloud cost management tools in the market. These include Role-Based Access Control (RBAC) products that enable administrators to put constraints on what users do, and solutions that tag cloud resources, such as virtual machines, in such a way that tells managers which department has created which resources.

However, just because the tools are out there to help companies execute cost containment doesn't mean they are being purchased or used.

Many IT leaders have not deployed these resources, or have used them to a limited extent, because of the assumption that cloud resource consumption will remain steady over time. In fact, in most cases, resource consumption will grow.



## Hire an experienced partner for help

Much about the cloud is still new to many organizations and creating a cost optimization strategy is not easy. This is where bringing in outside expertise might be a good idea.

Cloud service providers and consultants can help organizations deploy and maintain cost management and tracking tools, as well as implement processes to help keep cloud costs under control.

If a company has not acquired the needed expertise to perform cost management and tracking, it's likely going to struggle.

Expert partners can also help companies deal with any issues that might arise related to cloud service contracts or help them find the most cost-effective approaches. For example, it might make more economic sense to purchase a year's worth of a particular service, because of discounts, rather than go with a short-term plan. A cloud cost containment expert would be able to determine what works best for the business.



## Consolidate the cloud payment process

Use of the public cloud has forced companies to make cultural changes in how they handle paying for services. In the days of on-premises IT, businesses typically stopped worrying about the bill after the initial hardware purchase.

With the cloud, companies have to monitor billing constantly. The concept is still new enough that some IT leaders forget some of the details related to payments. They rely on estimates and don't check actual consumption versus predictions until they get the bill.

Then there's the issue of so many different departments within the organization receiving bills for various cloud services. Particularly with organizations that struggle with communication or process silos, this sprawl can lead to higher payments and outlays for duplicate services in use by different departments.

A good way to address this is to bring all cloud billing and payments under one organization — whether it be IT, finance, procurement, or some other function. The point is to consolidate billing as much as possible under a single entity that is in control.

## Summary — Go slow to go fast

In today's hypercompetitive, fast-paced business environment, there's a temptation to rush into technology ventures and ask questions later. But it makes sense to go slow to go fast, meaning companies can enjoy the benefits of the cloud to a much greater extent if they take the time early on to evaluate and address all cost containment factors.

The cloud consumption model is so different from the on-premises purchase-and-use framework that it simply catches many companies off guard, potentially exposing them to huge losses. One Insight client spent an entire year's public cloud budget in just four months.

The stakes are high for any organization that fails to effectively practice cloud cost optimization. Companies with small technology budgets could spend down those resources on cloud services alone if they're not careful.

The "cloud first" concept has been sweeping through many industries and organizations for several years now. However, the priority shouldn't be taking a cloud-first approach for everything, but going cloud first for everything that makes sense for the organization and can be controlled from a cost standpoint.

When a company is committed to discovering and deploying effective cloud cost management tools, especially from the start, they will be much more likely to see an effective use of cloud that translates to rewarding value for their cloud investment.

And while implementing such solutions requires slowing down up front, the process can be much faster and simpler than many expect. Partners such as Insight Cloud + Data Center Transformation (CDCT) provide the comprehensive cloud cost containment solutions that so many companies need. CDCT provides a host of services designed to help every client make the most of cloud.

Workload alignment services from CDCT help a company strategize their plan for cloud adoption through understanding the application landscape, developing migration plans, identifying current costs and financial implications, and creating a business case for workload transformation. This careful approach supports immediate and long-term cost-effective use of cloud.

For organizations that are farther down the cloud maturity path, ongoing Cost Optimization Services from CDCT can help assess cloud cost overruns and develop strategies for addressing those specific challenges.

To learn more about workload alignment and other cloud cost optimization solutions, visit: [insightCDCT.com/contact-us](https://insightCDCT.com/contact-us)

<sup>1</sup> The State of IT Modernization 2020. (February 2020). Marketpulse Research by IDG Research Services, commissioned by Insight.

<sup>2</sup> COVID-19 Impact on Cloud Computing Market by Service Type (Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS)), Vertical and Region - Global Forecast to 2021. (April 2020). MarketsandMarkets.

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