



# Cloud Cost Optimization Toolkit:

Increase Revenue by Uncovering  
Efficiencies in the Cloud





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# Introduction

The countless potential benefits of running workloads in the cloud has made its use nearly ubiquitous among all sizes of businesses in every sector. But much like an intricate hedge maze, it's much easier to get in than to navigate your way through it.

The growing number of cloud services make it appear as if there is unlimited potential in its use. Unfortunately, the complex and varied billing makes it difficult to project specific needs and match it to cloud instances. This leaves most businesses dealing with unexpected and unpredictable cloud costs.

According to a new Frost & Sullivan Report, more than half of IT leaders see cloud workload and cost management as a major challenge. Because public cloud services are very easy to deploy, they lead to escalating costs from these issues:

- » Running instances when they are not in use
- » Choosing the wrong instance types
- » Lack of centralized management

- » Failing to use discounts and plan penalty avoidance
- » Multi-cloud strategies that are short on strategy
- » Poor storage management

Each of these situations alone or in combination represents a cautionary tale that calls for greater scrutiny than is covered in this e-book. However, the primary purpose is to provide businesses with a cloud optimization guide that offers the toolkit they need to understand the best way to maximize cloud use while minimizing costs, which requires:

- » Continuous visibility and tracking
- » Spend optimization
- » Total control over invoicing and billing

The toolkit breaks down into five sections:

- » Visibility and Control
- » Optimization
- » Pricing and Forecasting
- » Optimization Process
- » Creating an Ongoing Cloud

# Visibility and Control

Instances of over-provisioning and under-provisioning are the two biggest avenues of rampant cost overruns in the cloud. While the pay-as-you-go model is meant to be a safeguard against this over- or under-provisioning reality, businesses can still face the problem as workloads and applications evolve unchecked. Organizations need the visibility to track usage of their services and find meaningful repetitive patterns. Only then can they gain the control they need to change their provisioning or create usage schedules based on the patterns.

These schedules make it possible to:

- » **Start/stop services**
- » **Set resource provisioning at desired levels during appropriate times**
- » **Use different types of resources at different times**

While these things are valuable for optimization with a few instances that have obvious patterns, it becomes more difficult for someone to keep an eye on the instance utilization patterns and create management schedules.

Control over cloud usage and spending requires a deeper understanding and visibility into workloads as well as cloud instances. While the major cloud providers offer visibility tools, they bring at least three major drawbacks:

- » **A reactive approach focusing on information and recommendations that require constant monitoring and user intervention**
- » **Service offerings summarizing overall spending through various reports and visualizations, as well as sizing recommendations among other features that often come at a high cost**
- » **Difficulty in using the varied available cloud provider monitoring tools in a multi-cloud configuration that adds to the complexity of cost optimization**



At this point, cloud efficiency metrics come into play by providing high-level measures to monitor the public cloud environment. For example, by tracking the changes of cloud cost and cloud cost savings efficiency, one can easily tell when they need to upgrade or downgrade their instances, or whether there is a malicious attack.

Businesses often have complex budgeting processes that require cloud spending alignment and justification. Most tools for cloud provider metrics lack the granularity and ability to break down those costs in a meaningful way that allows businesses to optimize their costs. The best practice is to monitor cloud usage in real time, establish a design process

that daily controls and addresses issues, and conduct optimization workflows on a weekly basis. There are third-party cloud usage optimization platforms designed to specifically monitor cloud usage in ways that deliver greater detail in cloud usage and spend tracking. This can include:

- » **Capturing all cloud instances across all environments**
- » **Data analysis necessary for cost optimization and detailed accountability sourcing**
- » **Cloud usage tracking based on user, teams, projects, and partners for accurate total cost of ownership (TCO) calculations**



# Optimization and Control

Making the most of cloud usage and spending visibility requires an ability to decipher reports and create actionable plans to take it to the next step of optimization. This process requires on-premises cloud expertise and understanding that most businesses do not have. Effective optimization is about the ability to zero in on and recognize instances of waste, such as lingering temporary workloads, over-provisioning, and under-provisioning.

Optimization also requires an advanced understanding of workload elasticity based on infrastructure requirements. In practice, this requires development of a balanced approach to weighing the benefits of public, private, hybrid, and multi-cloud strategies.

Controls must balance the need to keep unnecessary or redundant cloud instance creation in check with the need for innovation, agility, and growth of the business. Implementing intelligent policy and controls can rein in unchecked cloud expansion and wasted spending, while real-time transparency into cloud utilization can both optimize existing cloud usage and strategically plan for the future. The ultimate goal is to gain the agility, scalability, and computing power to drive innovation and growth—without losing control of costs.

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Effective optimization is about the ability to zero in on and recognize instances of waste.



# Navigating Cloud Pricing and Forecasting

Cloud buyers have access to more capabilities than ever before, but the result is greater complexity. Enterprises have a hard time calculating the cost of a single cloud provider, let alone comparing providers or planning a multi-cloud strategy. This is due to the complexity and variation of pricing among cloud providers.

In 2017, top cloud providers changed their pricing models when AWS and Google moved to a per-second billing model. Microsoft added a Reserved VM Instances option to Azure, which provides discounts to customers who purchase compute capacity in advance for a one-year or three-year period. This was a competitive move toward the similar AWS Elastic Compute Cloud Reserved Instances.

Suggestions only get more complicated because there are numerous cloud providers beyond the top three options, and they all have a wide variety of pricing models. The challenge, with all of these pricing models, is the difficulty for anyone without a high degree of experience in

the cloud (as well as specific business needs) to forecast future resource needs.

Cloud providers have dozens of instance types, with more added continually; however, without a detailed knowledge of current resource needs, the chance of over- or under-provisioning is high. This can lead to major cost overruns in penalties (under-provisioning) or extreme waste of capital (over-provisioning).

Numerous available methods can help optimize cloud spending, but these methods mostly relate to monitoring and forecasting. The ability to forecast is dependant on the amount of data a business has accumulated based on usage patterns. The more data is available, the better and more accurate the forecasting will be.

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# Ways to Optimize Cloud Costs

Cutting cloud costs has become a necessity for every business because of the increase in public cloud usage. However, cost optimization requires a structured, centralized cost management process that should include the following cost optimization methods.

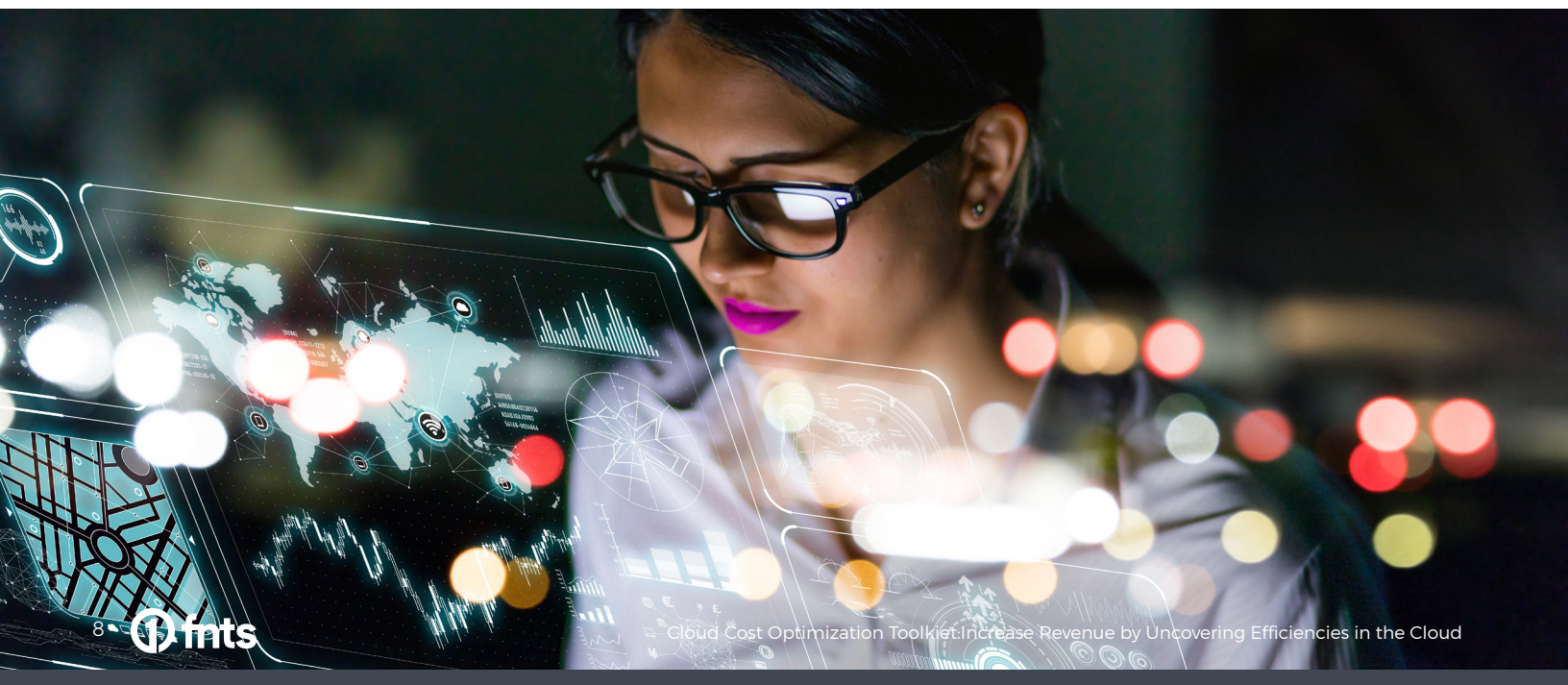
## Auto Scaling

The leading cloud providers have developed auto scaling as a means to curb cloud "zombies" by automatically scaling resources up or down to meet changing demand. However, it can be difficult to get the right results from the process of configuring auto scaling without prior expertise.

The other reality is that not all applications are candidates for auto scaling unless they undergo complete re-architecting. Rather than starting from scratch, application re-architecture eliminates obsolete application code that makes agile cloud functionalities such as auto scaling impossible. The goal is to have that agility while preserving and enhancing business-relevant functionality.

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The leading cloud providers have developed auto scaling as a means to curb cloud “zombies.”





## Implement Management Tools

Many cloud vendors also offer management tools for cloud spending that can offer a range of monitoring automation and optimization services designed to reduce spending. The drawbacks are that these tools provide varying levels of granular visibility and expense based on plans.

## Implement Chargeback Reporting

A simple management strategy can help cut costs while ensuring the responsibility of internal business departments or units for their own cloud costs, this requires the use of third-party services or vendors' reporting tools to map a utilized service back to each business unit.

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Most cloud vendors offer discount programs that can deliver greater cost optimization opportunities.

## Take Advantage of Discount Programs and Pre-purchasing

Most cloud vendors offer discount programs that can deliver greater cost optimization opportunities. In addition, many have spot instances with reduced workload fees based on specific time usage windows. These opportunities require organizations to have a detailed understanding of their infrastructure and needs in order to make the most of them.



# Creating an Ongoing Cloud Optimization Strategy

With every business, needs are constantly changing due to growth, innovation, and changing market forces. This is why businesses need an ongoing cost optimization strategy that can respond to those changing needs. The following solutions reach the heart of creating a holistic and agile cloud cost optimization strategy.

## Create a Center of Excellence

If possible, organizations should develop an internal team that makes cost optimization a key role. This team would be in charge of policy enforcement to reduce the risks and sprawl that inevitably stem from a decentralized acquisition of cloud services.

The drawbacks are that not every business has the personnel to take on this task as well as their primary IT duties. That being said, there are ways to centralize cloud usage visibility and optimization to make the process much easier.

## Use a Cloud Management Vendor and Portal

Many organizations decide that tackling these cost optimization chores on their own takes too much time and skill. Instead, they leverage software and/or services from a cloud cost management and technology vendor. Because SMBs through enterprises all face a shortage of skills, expertise, and personnel, an MSP with deep cloud experience can provide ways to consolidate and manage the optimization process.

The right MSP can also provide access to a sophisticated [cloud portal](#) that can greatly simplify monitoring and management in a multi-cloud environment, which can enhance optimization processes. More than just cloud cost optimization, businesses need visibility and a single pane of glass to monitor and make changes across a unified cloud strategy.

These management tools make it possible to consolidate both internal and external clouds into a single user-facing application for easy management and resource provisioning. By creating a holistic view across private and public cloud management technologies and locations, these tools facilitate better execution and planning of workload placement.

Within the bigger picture, organizations would have the ability to provision systems, applications, and environments in a fraction of the time it would take otherwise. This greater control over service environments and hybrid deployments can make it possible to curb the shadow IT aspects of incremental cloud deployment

and sprawl. In addition, organizations would get role-based access controls as part of a unified operational dashboard for greater enterprise infrastructure continuity.

Very few businesses have the means of implementing a holistic approach for gaining the visibility, centralized management, and real-time reporting that can make true cloud cost optimization a reality. Even fewer have the means of creating a single pane of glass management portal for hybrid cloud strategies. By partnering with an MSP with both [public](#) and [private](#) cloud expertise, as well as a management portal framework, businesses can make the most of their cloud strategy today and tomorrow.





# The First National Technology Solutions Difference

As you select an IT MSP, you probably know that not all vendors are the same. Here are just a few of the ways that First National Technology Solutions is different.

Our industry-certified IT experts are available when problems arise, something that doesn't happen just during office hours. Round-the-clock support means we're ready to roll up our sleeves and get to work whenever you call. And you won't have any trouble being understood when you contact us. Why? Our customer support teams are strictly U.S.-based.

You probably know that service-level agreements (SLAs) are standard in the industry but not all are created equal. We offer customized SLAs to give you more flexibility, rather than forcing you to accept a set of existing terms. It's the same deal with our contracts.

Our people work with a range of operating systems and database

types. We'll make sure you have secure storage and backups. Our ultimate goal is to manage your IT systems so that you never have a problem. But if you do, we're pros at disaster recovery.

Don't fall victim to unexpected IT expenses. You'll like how our fixed monthly costs and predictable fee structure will keep your budgeted costs right where you expect them to be.

With FNTS, you can turn over some or all of the IT reins to us. Our wide range of industry experience, our partnerships with top solution providers, and our comprehensive service offerings will keep your technology systems running smoothly. All you have to do is what you do best: Take care of your customers. Schedule a consultation to learn more today.



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