



# FinOps: A New Approach to Cloud Financial Management

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## Executive Summary

The data center world that existed before the cloud was a world of fixed spending. Once the money was spent, you couldn't optimize it. Optimizations in one area resulted in spending going up in another area, and resources were always constrained. It took weeks or months to get new hardware. Spending, tracking and forecasting were fixed and controlled. There was no variability. It was a world where planning and prediction were straightforward.

In the late 2000s, the cloud came into play. While Amazon wasn't necessarily the first cloud provider, it was the first large, scalable cloud that removed many constraints for its users. You no longer had to wait weeks or months for hardware.

DevOps arrived at about the same time, and transformed IT into a high-velocity service. IT could both deliver features quickly and was lean and agile. Fast feedback loops developed that allowed companies to adapt quickly to customer demand. In effect, the cloud changed the way that software was developed.

Today, we have a world where most enterprises are "cloud-first," or aspire to be. Almost all cloud spending is variable, which means that micro-optimizations can happen at the team level each and every day to change the shape of the cloud spend.

This is a world of OPEX instead of CAPEX, which changes how finances are reported. And, again, there is a complete removal of constraints: The way that cloud infrastructure and software are deployed is completely different than in the world of on-prem data centers.

The problem is that DevOps and the cloud have broken the traditional procurement model, which is static and slow moving. In fact, procurement methods are so out of sync that procurement departments have essentially outsourced their jobs to engineers, who are spending company money at will with very few constraints and controls. The result is that engineers are making financial commitments to the cloud that affect the bottom line of their companies while finance teams are struggling to keep up with the pace and granularity of spend.

There is a solution: It's a new set of patterns and practices called FinOps. FinOps brings together technology, business and finance to master the unit economics of cloud to drive the competitive advantage.

PART 1:

# Introduction

Cloud spending now accounts for a significant portion of IT spend and is expected to grow at five times the current rate through 2020. Yet with all this growth, the cloud operating model is still immature. Operating and managing cloud infrastructure is vastly different from managing traditional on-prem IT infrastructure. In that world, decisions are limited to just a few people who make buying decisions once a quarter or once a year with a 3-5 year investment cycle. In contrast, decision-making in the cloud happens in real-time and is distributed across technology, business and finance teams.

***Organizations are struggling to balance operational and financial control with the need for high-velocity decision making.***

Because of this decentralization, organizations are struggling to balance operational and financial control with the need for high-velocity decision-making. Without that balance, there's cloud bloat, inefficiencies that slow down the business and sticker shock over the monthly cloud bill. Organizations are looking for guidance and best practices that help them work together to speed up innovation while optimizing cloud spending.

A new operating model for the cloud, called FinOps, has emerged. FinOps is a combination of systems, best practices and culture, and increases an organization's ability to understand cloud costs and make tradeoffs. In the same way that DevOps revolutionized development by breaking down silos and increasing agility, FinOps increases the business value of the cloud by bringing together technology, business and finance professionals with a new set of processes.

***FinOps is a combination of systems, best practices and culture.***

With FinOps, you no longer have a siloed team that identifies costs and signs off on them. Instead, you have a cross-functional FinOps team that acts as a best practices and procurement organization. A FinOps team consists of technology, business and finance organizations who manage the cloud vendors and implement rate and discounting optimizations. With FinOps, each service team or product owner has the data that enables them to have some control over their spend and to make intelligent decisions that ultimately impact the cloud bill.

Enterprises that are adopting FinOps all share a few characteristics. They break down silos between organizations. They get huge discounts over what they would have paid in the old world. Their engineers deliver innovation at faster speeds than in organizations with traditional operating models. Procurement shifts its focus to strategic sourcing and owns the relationship with the cloud provider. Finance is a proactive partner that is technically enabled and is focused on optimizing unit economics. Leadership makes intentional and frequent choices between speed, quality and cost.

## The Challenge

What is the penalty for not adopting FinOps? Costs soar, innovation slows down and company margins decline. As one CTO put it, "Cloud spending is like antigravity. It will always float up unless you actively manage it."

A recent survey from 451 Group, [Cost Management in the Cloud Age](#), found that:

- **80%** of the respondents acknowledged that poor cloud financial management has had a negative impact on their business.
- **85%** of the respondents reported overspending their budgets.
- **57%** said that cloud cost management was a daily worry.
- **51%** of respondents from finance said they overspend on cloud compared to 37% of the respondents from IT, which shows a real lack of alignment and communication.

With FinOps, companies see a 10% to 40% efficiency gain. For example, a large industrial manufacturing company in Europe saved \$60,000 a month by resizing their RDS instances on AWS.

***With FinOps, companies see a 10% to 40% efficiency gain.***

The challenge is that FinOps is brand new to most companies. Very few people know how to implement it in an organization and there's not yet a commonly agreed-upon set of published principles. This paper introduces you to the fundamentals.

## Who Should Read This Paper

If your company is relying more than ever on the cloud, then you already know that traditional, static processes don't work when it comes to making informed decisions about cloud infrastructure and cloud spend. No matter your discipline, whether it's finance, engineering or management, you're probably looking for a better way to operate. *FinOps: A New Approach to Cloud Financial Management* is an introduction to FinOps, a set of practices for bringing finance, engineering and management together to ensure that your company is getting the most that it can from the cloud.

The paper is intended for anyone who's interested in extending the cooperative, decentralized approach that you may already appreciate if your company practices DevOps. Broadening that DevOps spirit to include members from finance as well as operations and management is what FinOps is all about.

If you're just starting out, this paper will help you get FinOps introduced into your company. If your company already has a Cloud Center of Excellence (CCoE) or a cross-functional team of people responsible for the cloud infrastructure, this paper will help them incorporate best practices for ensuring that cloud spend is part of their cloud strategy.

**PART 2:**

# The Impact of the Cloud on Business

DevOps and the cloud have broken the traditional procurement model. In effect, procurement now outsources its job to engineers — in fact, so do IT and Finance. Engineers now spend company money at will and make financial decisions about cloud providers such as AWS, Google Compute Platform (GCP) and Azure.

An Amazon blog post, [The Digital CFO](#), summarized the differences between how financial decisions were made in the old world of on-prem data centers versus the new world of the cloud.

Old World	The New Cloud Economy
Trailing Indicators, Financial Metrics	Leading Indicators, Performance Metrics
CAPEX and Fixed Costs, Total Costs	OPEX and Variable Costs, Marginal Costs
Cost-Oriented, Vetting Innovation	Growth-Oriented, Championing Innovation
IT as a Cost Center, Guarding Funds & Resources	IT as a Partner, Channeling Funds & Resources
Focused on Plans and Milestones	Focused on Outcomes
Deploying Capital Based on Business Cases	Deploying Capital Based on Staged Investments
Supporting Siloed Activity	Supporting Cross-Functional Activity

At many companies, these shifts in responsibility have resulted in some big problems. Engineering spends more than it needs to, with little understanding of cost efficiency. Finance teams struggle to understand — and keep up with — what is being spent on the mind-boggling number of SKUs (AWS alone has hundreds of thousands of SKUs) and thousands of new features per year. Leadership doesn't have enough input into how much will be spent or the ability to influence priorities, and procurement isn't a deliberate participant in its own outsourcing. In short, DevOps and the cloud demand a new operational model.

To take control of their cloud spend, companies must know:

- What is driving costs
- How to make accurate forecasts
- How to easily identify opportunities to reduce costs
- How to distribute responsibility to optimize the stakeholders' costs

With its modern approach to creating cost-effective cloud infrastructures, FinOps can help answer these questions.



## PART 3:

# What is FinOps?

FinOps is a continuous, iterative journey that traditional enterprises and cloud-native organizations embark on as they continue to adopt the cloud. The goal of FinOps is to balance cost, speed and quality in order to gain cloud efficiencies and keep reinvesting in innovation. It accomplishes this goal with five fundamental capabilities.

***The goal of FinOps is to balance cost, speed and quality in order to gain cloud efficiencies and keep reinvesting in innovation.***

## The Five Pillars of FinOps

FinOps rests on five capabilities:

- Understanding fully loaded costs
- Performance benchmarking
- Real-time decision-making
- Predicting, planning and purchasing capacity
- IT, Finance and LoB collaboration

Here's what those capabilities mean.

## **Understanding fully loaded costs**

FinOps decisions are based on fully loaded costs, which are the true costs for operating in the cloud. These costs are amortized, reflect the actual rates a company is paying for cloud resources and are allocated correctly within the company.

## **Performance benchmarking**

Performance benchmarking gives a company objective evidence on how well it's doing in terms of using the cloud. Benchmarking lets companies know if they're spending the correct amount, if they could be spending less, spending differently or spending in a better way. Companies can use both internal benchmarks and industry standards.

## **Real-time decision-making**

Real-time decision-making is about getting data, such as benchmarks, quickly back to cloud consumers — the people who deploy cloud resources. Real-time decisions enable these people to create a fast feedback loop where they can continuously improve their spending patterns, make intelligent decisions and improve efficiency.

## **Predicting, planning and purchasing capacity**

In the decentralized world of the cloud, many people can deploy what they want, when they want. It's critical that there still be reliable predictions and plans about purchasing capacity.

## **IT, Finance and LoB collaboration**

This final pillar is about cultural change and breaking down silos. While IT, Finance and LoB have historically been separate, with FinOps these three groups work together.

## **Cross-Company Collaboration Is Key**

The goal of FinOps isn't necessarily to spend less. The goals are to make sure a company's cloud spend is optimized and that the company is improving the unit economics of the cloud.

Achieving those goals requires fluid, cross-company communication across multiple teams because slow, static processes don't work with the cloud. The cloud is about agility, innovation, decentralized decision-making and fast adaptation to change. These qualities must be mirrored in how a company makes financial decisions about its cloud infrastructure.

In particular, cross-company collaboration is key because the move from on-prem infrastructure to cloud infrastructure requires a change from fixed spending to variable spending. Variable spending gives individual teams the ability to make daily decisions about how and where to spend money, based on the value that money creates. Teams can measure the impact of that spending and iterate quickly in one of three directions: maximize the quality of their offering, improve speed of delivery or drive down costs — put more simply, good, fast or cheap.

## *The cloud requires variable spending.*

In the same way that DevOps breaks down silos and increases agility, FinOps increases the business value of the cloud by giving all the stakeholders, from finance to engineering to management, a shared set of processes.

The FinOps team meets and discusses choices about cloud infrastructure. The team's goal is to make sure everyone understands the interplay between the actual infrastructure, the infrastructure costs and the business goals. People from finance can take on a financial planning and advisory role. Management can give its perspective on what exactly should be optimized in terms of cost, speed and quality. Development and operations can contribute by explaining what cloud resources they need to build the applications and features that management has identified as adding value to the business.

### **Finance**

Need to make data driven cloud financial decisions

### **IT Ops - DevOps**

Under pressure to deliver and want to move fast with hybrid/cloud-first capabilities, while focusing on operational efficiency

### **Business Leadership**

Motivated to resolve cost, speed, quality/risk tradeoffs and align for business value



FinOps drives best practices and helps people make sensible decisions about real-world trade-offs. Finance teams are still focused on costs and allocation, but now they're partners with the technology and business teams. They can shift from opaque and fixed CAPEX reporting to transparent and fluid OPEX forecasting, and work with financial planning and analysis partners who understand what the drivers of cloud spend are, even when there are thousands of SKUs. For instance, the VP of finance can sit down with IT Ops and have actual conversations about the tradeoffs of going over-budget compared to the value that increased spending brings by enabling the company to ship key features faster, which can mean more revenue. Together, these stakeholders can come to a decision about the best approach to take.

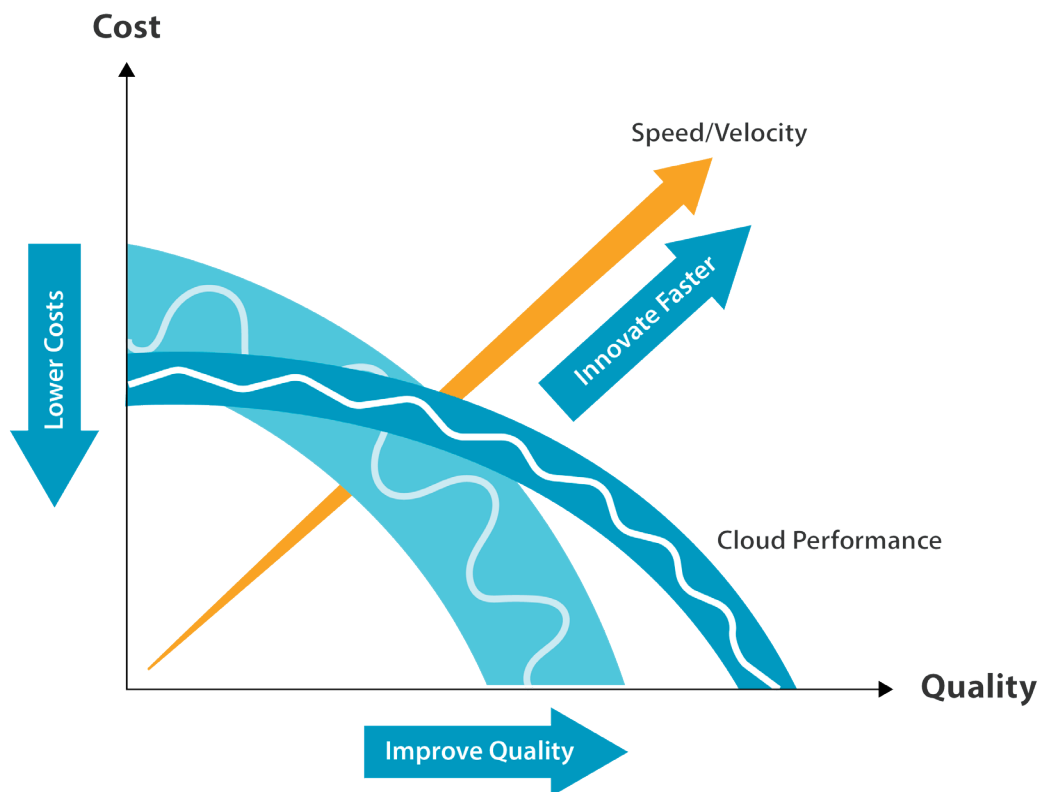
***FinOps brings together technology, business and finance to master the unit economics of cloud to drive competitive advantage.***

PART 4:

# The Golden Triangle



Speed, cost and quality form what is called the The Golden Triangle.



The Golden Triangle shows the relationships between these three parameters. Quality and cost form the axes, and the speed with which new products are created depends on the relationship between the axes. The role of the FinOps team is to give everyone the tools they need to decide where they want to be on the graph. Instead of the focus being on savings and ROI, the goal of FinOps is to make sure everyone works together to improve business outcomes for the company. FinOps ensures that teams have visibility into their spend and are able to be a part of the decisions that impact that spend.

## **Optimizing for Different Sides of the Golden Triangle**

Here are a few examples of what it means to optimize for different sides of the golden triangle.

### **Optimizing on speed over cost**

Your team is understaffed and you have a major release coming up. Instead of running your own MySQL, you decide to use AWS Aurora. You know you'll pay more, but it frees up time to focus on feature development. You recognize that being the best MySQL shop doesn't bring you differentiated value — focusing on improving your upcoming release does. You've just optimized on innovation and speed of delivery over cost.

### **Optimizing on quality over cost**

Your platform is too slow. You could refactor large amounts of code, but your team is understaffed and you have major releases coming up. You decide to throw money at the problem and increase the number of machines in your analytics cluster. You've just optimized on quality over cost.

### **Optimizing on cost over speed**

A rendering service that currently uses EC2 to do occasional file format transformations is too expensive and, because it's a production system for your SaaS offering, it's eating into the margins for the product. You decide to invest the time to refactor the service to trigger serverless functions only when jobs are needed, rather than an on-all-the-time virtual machine. Your costs plummet and margins improve significantly. Your CFO is happy because those improvements ultimately affect the bottom line positively.

## PART 5:

# Involving the Stakeholders



Because it reflects a shift from static, siloed processes to fluid, agile ones, members of a FinOps team must move outside their comfort zone and learn something about each others' disciplines. Remember, it's all about balancing cost, speed and quality, and everyone has a say in how to do that.

## **Finance Learns About the Cloud**

Before FinOps, a finance team might have looked at spending monthly or even quarterly to see, for example, the total cost for compute resources. When dealing with the cloud, a finance team working in isolation can quickly become overwhelmed with the explosion of SKUs and features that are characteristic of cloud vendors.

With FinOps, finance meets frequently with the technology team to understand how those cloud resources are used, what projects might be coming up and what resources they'll need. Instead of examining costs in terms of months or years, the finance members shift the time frame to resolutions of hours or even seconds, which reflect how cloud companies calculate charges.

With the knowledge they get from the business and engineering members, stakeholders

from finance can take specific actions, such as buying RIs or renegotiating terms with a cloud provider.

## Engineering Learns to Consider Costs

A crucial point for engineering is to understand the impact of the shift from CAPEX to OPEX. The cloud has given engineers, who can spin up their own compute resources, the ability to affect OPEX spending, which in turn affects the company's bottom line.

If OPEX spending is treated as a COGS (cost-of-goods expense), engineering actions to procure cloud resources hit the margins of a publicly listed company and can ultimately affect its stock price. It's critical to get a handle on how these costs are reported and allocated.

Just as finance teams have to broaden their scope to understand what makes up the cloud infrastructure, engineers, whether in operations or development, also need to understand how their infrastructure choices affect the company's finances. Being a good engineer isn't just about understanding the tech anymore. Engineers must understand how technological choices have a financial impact and consider cost as a new efficiency metric, which they must take into account when they write code and deploy infrastructure.

***Engineers must consider cost as an efficiency metric when they write code and deploy infrastructure.***

## Management Sets the Priorities

Management needs to set business priorities so that other FinOps team members can start to think about the tradeoffs between cost, speed and quality. Management also needs to understand what choices are available to finance and engineering to make the most informed decisions that will best support the business. The Golden Triangle is management's guide. They take the broad view and make the decisions on whether to optimize for speed, quality or cost for each product.



## PART 6:

# The Language of FinOps



Communication among FinOps team members is essential if they are to effectively optimize for speed, cost and quality. Because the team includes people from different disciplines, everyone needs to share a common vocabulary for describing cloud spend. This is the language of FinOps.

The two most important terms are cost avoidance and cost optimization. Cost avoidance refers to activities where you turn off a resource or reduce its size to a cheaper option to decrease cost. Cost avoidance is about using less. Cost optimization, on the other hand, is about reducing the rates you pay for what you are using. For example, you might optimize costs on Amazon or Azure with Reserved Instances (RIs) or with committed use discounts on GCP.

Once every member of the FinOps team understands what cost avoidance and what cost optimization is, they can discuss the implications of their cloud bill.

***At its simplest, a bill can be summarized as:  
Spend = Usage x Rate***

This equation says that cost avoidance, which relates to usage, and cost optimization, which relates to rate, are the two levers available to reduce the amount the company spends.

## Measuring Usage

When looking at cost avoidance, it's important to understand how usage is measured.

Usage isn't simply a count of the number of services a company uses. Each of those services uses different units to measure how it's used. To understand the cloud bill, it's important to understand how the cloud provider charges for each of them.

For example, on AWS, for EC2 instances, you're charged by the second. What matters is time, or how long you run the instance. On GCP, for PostgreSQL, you're charged by GB/month, so you're charged according to both quantity and time. On Azure, for every VM, any data coming out of Azure is called "egress traffic" and is charged. The first 5 GB of data are free each month. Above that limit, you're going to have to estimate your "egress traffic." In this case, quantity is a factor. In other words, when you estimate costs, make sure you understand how each resource is measured by the cloud provider to avoid surprises.

## Cost Avoidance Activities

Two of the most common cost avoidance activities are rightsizing and automating. Rightsizing is making sure that your cloud infrastructure uses resources that are "just right." The infrastructure is neither over- nor under-provisioned. Compute instances are fast enough to get the job done without clipping or without having unused power. Likewise, storage isn't larger than needed, volumes aren't unattached and there are no more snapshots than necessary.

Automating takes advantage of the cloud's elasticity by programmatically handling repetitive tasks such as shutting down resources that aren't actively used. For example, a company might write a script that turns off instances that aren't used over the weekend. They might run a script that snapshots and deletes orphaned block storage volumes.

## Making Cost Avoidance Decisions

Making cost avoidance decisions involves the whole FinOps team. Engineering needs to be involved because they will make the actual changes to the infrastructure and they'll understand the implications of those changes in terms of quality and speed of innovation. Management needs to be involved to make sure that business goals are met. Finance is there to track, forecast and monitor how the decisions that engineering and management make impact costs.

## Cost Optimization Activities

Cost optimization decisions can be made by the finance members of the FinOps team once they understand the cost avoidance decisions. For example, the finance team can manage the RIs on Amazon or Azure, or Committed Use Discounts (CUDs) on GCP, and negotiate volume discounts. The finance and procurement teams can use their centralized economy of scale to drive higher coverage of commitments such as RI rates and better commitment terms.

## Measure Everything

The FinOps team should use metrics to make sure every cost avoidance and cost optimization activity is paying off. Are the RIs you have in place being used? Are they saving you money? Are the compute instances you're using for a particular project the right size? Are they delivering enough performance to ensure customer satisfaction? Is the CPU usage well below what the instance can provide?

***Metrics need a target. A measurement without a target is just data.***

All of these metrics need a target. A measurement without a target is just data, meaning you won't know if you're on track or if you need to change something. For example, a target on Amazon might be to make sure that all RIs have 90% utilization. To make sure that target is being met, you can track the actual utilization for every subscription you have on Amazon. Measure the number of hours or seconds that you're applying the discount versus when you're not. If any one of those subscriptions falls below 90% utilization, you can look for ways to modify or exchange those RIs to get better coverage.

Metrics with targets make it possible to have objective conversations with teams that aren't meeting those targets to understand why. Members of the FinOps team can work with them to decide on the best actions for evaluating those targets and, if they're realistic, reaching them.

## PART 7:

# The FinOps Life Cycle



The five pillars of FinOps are incorporated into the FinOps life cycle, which consists of three iterative phases: Inform, Optimize and Operate. A company may be in multiple phases at any given time depending on where each business unit or team is on their journey.

## **The Inform Phase**

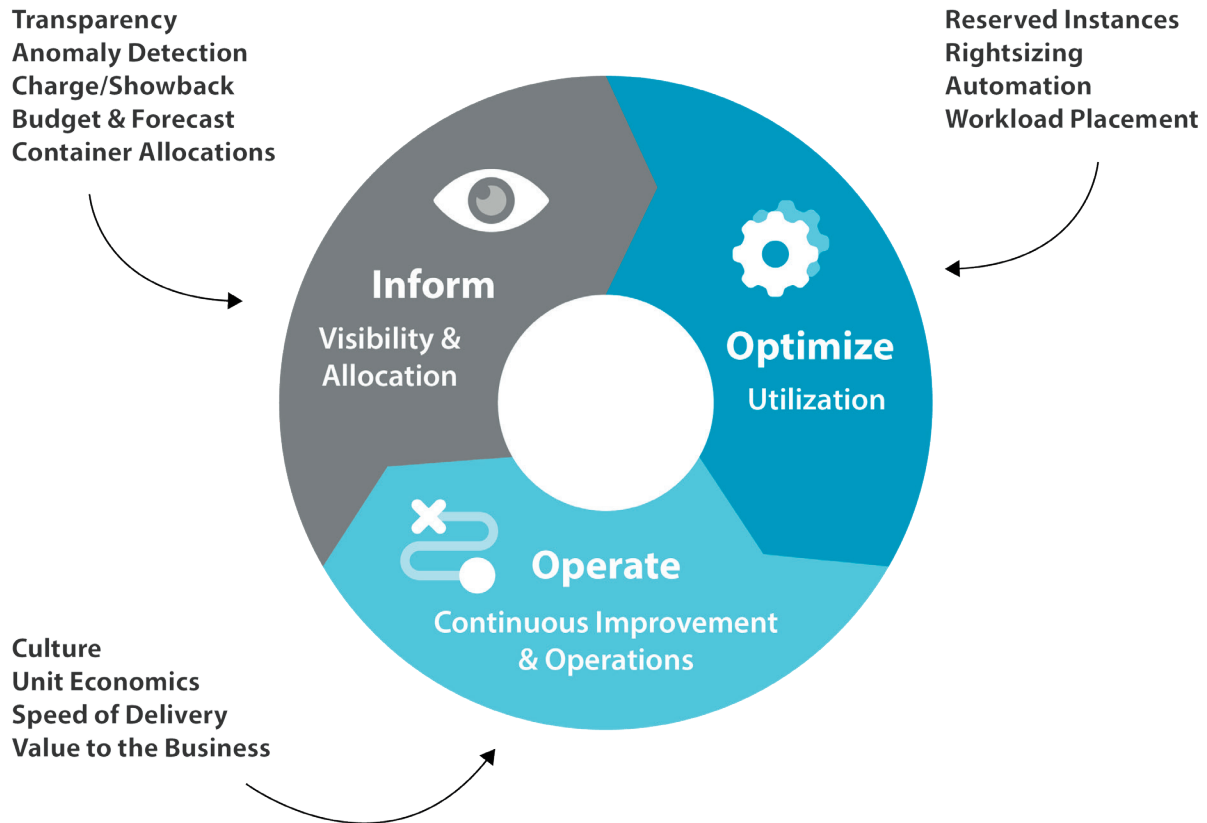
The Inform phase incorporates the first two pillars: understanding loaded costs and performance benchmarking. During the Inform phase, you get visibility into IT spend, drill down into granular cost allocation and learn to create shared accountability. Teams learn what they're spending down to the penny and why by using various benchmarks and analyses. For the first time, individuals can now see the impact of their actions on the bill.

## **The Optimize Phase**

The Optimize phase incorporates the third and fourth pillars: real-time decision-making and predicting, planning and purchasing capacity. This phase empowers teams to take the right optimization actions, such as rightsizing or improving RI coverage based on the company's goals.

# The Operate Phase

The Operate phase is all about the final pillar: IT, Finance and LoB collaboration. In this phase, these three groups work together to focus and scale operational efforts through continuous improvement.



**PART 8:**

# FinOps Life Cycle Activities



Each phase of the life cycle influences the other phases and the cycle never stops. A FinOps team is always in one part of the cycle or another, performing its associated activities.

## Inform

### Understand Fully Loaded Costs

- Visibility into IT spend
- Granular cost allocation
- Team-level budgets & tracking

### Performance Benchmarking

- Trending & variance analysis
- Internal team benchmarking
- Industry peer-level benchmarking

## Optimize

### Real-Time Decision Making

- Remove underutilized services
- Automation of resources
- Understand if resources are under- or over-provisioned

### Predict, Plan & Purchase Capacity

- Rightsizing instances & services
- Centralized RI buying process
- Comparing pricing

## Operate

### IT, Finance & LOB Collaboration

- Finance moves at the speed of IT
- Continuously improve for efficiency & innovation
- Defined governance & controls for cloud usage

## Inform Phase Activities

*The Inform phase is about gaining visibility.*

The Inform phase is about gaining visibility. There are several activities that take place.

### Identify Anomalies

Anomaly detection isn't just about identifying expense thresholds: It's also important to identify unusual spikes in usage. Given the dramatic rise in cryptojacking, anomaly detection is becoming increasingly important.

### Create Chargebacks and Showbacks

As organizations adopt the FinOps model of pushing spend accountability to the edges of the organization, they are finding that chargeback and showback models are becoming increasingly important.

### Create Budgets and Forecasts

Using the data that's available to them, a FinOps team should be able to generate forecasts of cloud usage for different projects and propose what budgets for different projects should look like. These budgets and forecasts should consider all aspects of cloud architecture, including containers.

### Create Scorecards

Scorecards let the FinOps team compare how well different project teams are doing, in terms of optimizing cost, speed and quality. They're a quick way of looking for areas that can be improved.

## Optimize Phase Activities

*The Optimize phase institutes improvements.*

The Optimize phase institutes improvements. Cost avoidance and cost optimization really come into play during this phase, with cost avoidance usually coming first. Here are some activities that take place.

### Rightsizing

During the Inform phase, you might discover that you're paying for more powerful compute resources than you need. During the Optimize phase, you can switch to less powerful, less expensive instances. Another example is to see if you have storage you're not using or that could be replaced with smaller sizes. Perhaps some projects can use hard drives rather than SSD-based storage.

## **Automation**

Automation eliminates some human error and puts repeatable, documented procedures in place. It's a great way to eliminate waste. For example, using the information you discovered during the Inform phase, you might find that, on AWS, there are 15 EC2 instances that are still running but always idle. Eliminating them is a quick, easy way to save money. Another example is to automatically shut down instances over weekends and holidays when they aren't being used.

## **Reserved Instances or Committed Use Discounts**

As a cost reduction measure, the finance team can evaluate metrics on existing RIs (for AWS and Azure) or Committed Use Discounts (for GCP) to make sure the ones they have are effective. They can then look for opportunities to buy more.

## **Workload Placement**

Workload placement is another cost reduction measure. Once it understands engineering's infrastructure requirements, finance can look at multiple cloud vendors and compare pricing options.

## **Operate Phase Activities**

***The Operate phase stresses continuous improvement of processes.***

The Operate phase stresses continuous improvement of processes. Once optimizations are in place, management often wants to take a step back to ensure spending levels are aligned with company goals. They might want to discuss particular projects with other FinOps team members to decide if they want to continue to operate them as they have been or make some changes. Here are the activities that take place during the Operate phase.

## **Evaluating Unit Economics**

An important step is to tie cloud spend to actual business outcomes. If your business is



growing and you're scaling in the cloud, it's not necessarily a bad thing that you're spending more money. This is especially true if you know what the cost is to service a customer and you're continuously driving it down. Tying spend metrics to business metrics is a key step in your FinOps journey.

Unit economics generally track the cost per "X." For some companies, X could be the cost per MAU (monthly active user), cost per subscriber or cost per transaction. Focusing on unit economics means you're tying spending to a revenue metric. This connection gets you out of the world of simply counting how much you are spending and into the realm of tracking how many dollars you are spending to make a dollar.

Unit economics provide a clear, common lexicon for all levels of the organization to discuss cloud spending in a meaningful way. Instead of management setting arbitrary spend goals, they can set targets that are tied to outcomes. For example, a ride sharing company in San Francisco is focused on tracking their cost per ride. If they know that their cost per ride is \$0.50 and that each of those rides makes \$1, they know that spending more is actually better than spending less. The management advice becomes, "Don't worry about the total bill. Make sure you're driving down the cost per ride."

## **Evaluating Culture**

The Operate phase is a good time to evaluate how well FinOps culture is being adopted. Problems such as poor utilization of resources or poor RI coverage are often due to poor communication and the result of continuing to be siloed.

## **Evaluating Speed of Delivery**

Speed of delivery is controlled by the Golden Triangle's two axes: cost and quality. Management might want to discuss particular projects with other FinOps team members to decide if they want to adjust those two levers to see if they can increase the speed of delivery.

## **Evaluating Value to the Business**

Again, management may want to evaluate whether cloud spend reflects the value of the project to the business. This is another opportunity to discuss particular projects with other FinOps team members to decide if they want to continue to operate them as they have been or make some changes.

## PART 9:

# FinOps in Action

Let's take a look at how a FinOps team operates, using the example of a streaming video service. For a single stream, the current infrastructure delivers content in 600ms and costs \$0.01. By running tests, the company discovers that improving the infrastructure can cut the time to 400 milliseconds, but the cost goes up to \$0.011 per stream. That's a 10% increase in cost, but the company also finds that customers begin consuming 20% more paid content. That's clearly a win: the company spends more, but makes more than it's spending.

The company does more tests that push costs up to \$0.015, but cut delivery speeds down to 200 milliseconds, with a further incremental 15% improvement in the consumption of paid content. But this strategy seems dubious. There's a 27% incremental increase in costs for only a 15% incremental increase in revenue. Is it worth it?

To answer that, the technology team needs to start thinking in terms of cost and revenue. The finance team must be on board with the fact that not only did the infrastructure change increase costs, but it increased the COGS costs in a production system, which directly affects gross margins. The cost of that change to the business was much more expensive than it would have been in an R&D test environment that's not a part of the company's COGS.

The finance and technology team members come into conflict on the “right” thing to do. The head of operations says getting streaming speeds down to 200 milliseconds is a win, despite the disproportionate ratio between the speed improvement and the cost of it. The finance people say the extra speed isn’t worth the extra 27% cost because it’s only driving 15% more revenue and eating into product margins.

However, there’s a third factor to consider. Two factors, unit cost per stream and speed of deliver, are easily measured. The third factor, however, is the business value of fast delivery times. This is where FinOps really shines. It gives a balanced perspective to what otherwise might be one-sided decisions.

The members of the FinOps team who represent management also have a voice. They understand that, on paper, the finance partner’s argument makes sense. But they also realize that, over time, faster load times have a snowball effect on customer satisfaction. Even though the immediate impact on revenue impact doesn’t justify the extra cost, the long-term brand loyalty value does. The executive team breaks the tie and decides to spend the money.



## PART 10:

# A Financial Management Platform for the Cloud



If the FinOps team is going to make sure the company is getting the most it can from its cloud providers, it clearly needs accurate, timely information about usage and rates. How can it get that information?

One approach is “build your own.” Companies use spreadsheets to keep track of the data and analyze it to draw conclusions. Building your own seems to have the virtue of simplicity (although that might be deceptive) and it might work well if a company is small or has simple reporting needs like a single product run by a single team. However, once a company starts to increase both its cloud spend and complexity of cloud usage, they find that spreadsheets don’t scale well. There are too many virtual machines, too many variables, not enough in-house expertise and too many changes on the provider’s end to keep accurate records by hand.

The other option is a third-party cloud financial management platform. If you know your use of the cloud is increasing and you want to institute FinOps in your company, a platform that gives all the stakeholders access to accurate data and timely recommendations is a good choice. But what should a cloud financial platform offer?

**Speed of Delivery.** A third-party platform lets you start saving immediately. Install the platform, let the program collect all the data and start getting recommendations on ways to optimize. Building your own system is time-consuming and the delays will cost you.

**Accurate Financials.** Accurate financials are essential if you're going to drive informed decision-making and reduce risk. For example, the platform should account for amortization, cloud provider discounts, credits and prepayments (such as RIs on Amazon and Azure).

**Actionable Analytics.** Analytics are not the the same as spreadsheets, which are simply compilations of data. Analytics need to be actionable and customizable, and you should get actual recommendations for both cost optimization and cost avoidance. You also should be able to easily tailor information for particular stakeholders. For example, management might want high-level information about cloud spend while engineers are interested in their own projects.

**Built-in Expertise.** Most companies don't have years of expertise with the cloud or much accumulated data. A cloud financial platform should provide that. It should be able to use large amounts of historical data, which it's collected from many customers, to enrich the recommendations it makes to you.

**Machine Learning.** The platform should have an analytics engine that learns from past behavior and adapts to rapid changes.

**Adaptability.** Cloud providers are known for constantly making changes. For example, they might change their billing from hourly to by the millisecond, or they might deprecate their billing API. An in-house company that's built its own solution can rarely keep up with their providers, while a third-party platform insulates you from these changes.

**Normalization.** Many enterprises use multiple cloud vendors to make sure they don't get locked into a single provider. However, each vendor has its own terminology. A financial management platform should be able to translate the language of each cloud provider into the language of your business so you see label-naming conventions that make sense to you.

**Integration.** It's critical to be able to integrate all your data into other financial and engineering systems your company uses. To do that, the cloud financial system must support a public API.

**Sanity Checks.** Even very large enterprises, which can afford to build cloud financial platforms themselves, need a sanity check. A third-party platform can give you confidence that the recommendations your own system makes are valid.

## PART 11:

# Cloudability and FinOps



Cloudability is a cloud financial management platform that uses data science, machine learning and automation to enable IT, finance and business teams to continually optimize cloud consumption to improve the unit economics of cloud. Its eight years of detailed data and \$9 billion of spend history mean it has the expertise and historical data to make sure your FinOps team succeeds.

Cloudability has a fully documented public API that supports all parts of the platform which, among other things, means you can integrate with business systems as well as DevOps and orchestration tools. You can also use the API to automate repetitive processes, such as shutting down instances when they aren't being used.

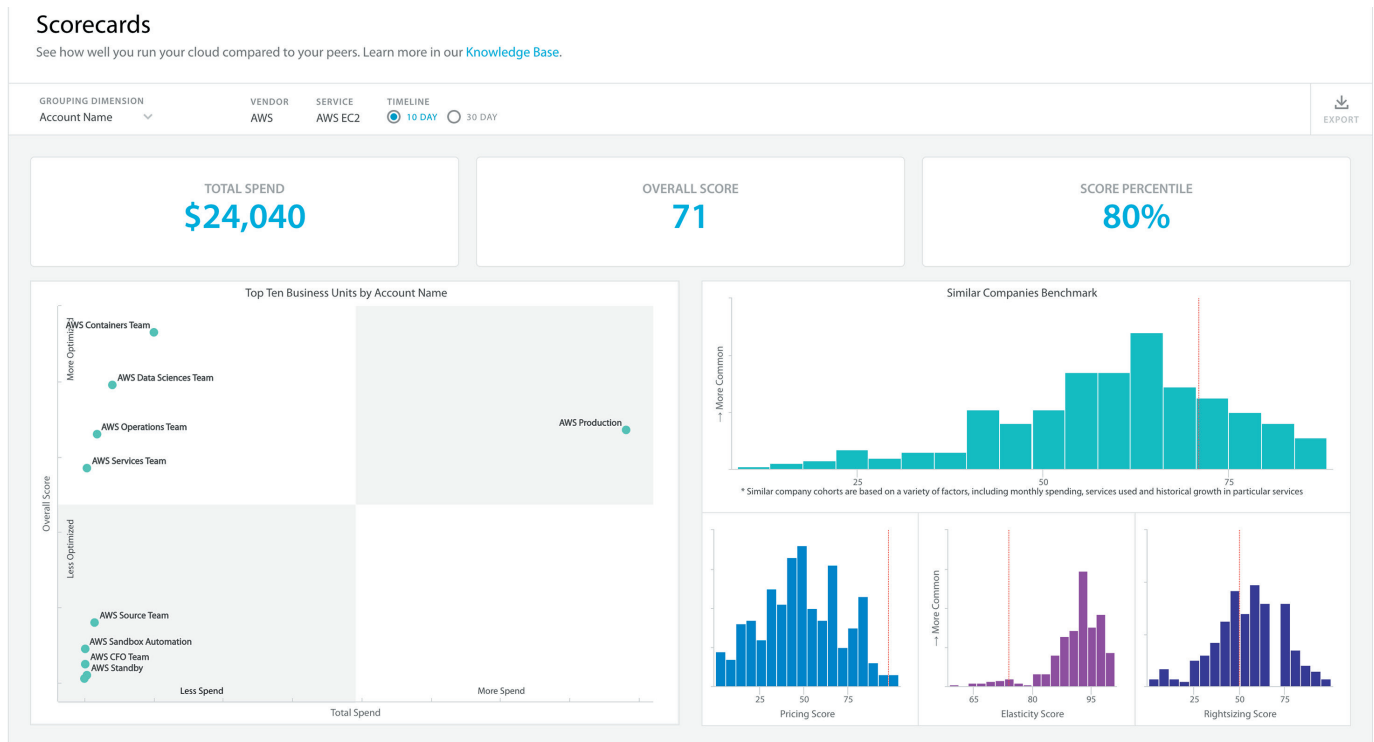
Of course, Cloudability provides a wide range of actionable insights, such as Scorecards, Anomaly Detection and Business Mapping. These are just a few examples of how Cloudability can help you successfully adopt FinOps practices and processes.

***"It's peace of mind with Cloudability. I have my finger on the pulse of the company and nothing is changing without my awareness."***

- Rocco Corage, Director of Operations, Cloud Nation

# Scorecards

The Cloudability Scorecards feature help you understand how well you're running your cloud. They give you a bird's-eye view on how each of the teams are doing in terms of cost optimization and cost avoidance.



You'll see a team's scores for pricing, rightsizing and elasticity. The pricing score lets you know how well cost optimizations, such as RIs and volume discounts, are working. The rightsizing score lets you know if the workloads are running on correctly sized resources. The elasticity score lets you know how well automation and autoscaling are being used.

***“Cloudability does more than talk about cost management best practices. They deliver actionable results and insights that help us make our AWS infrastructure as efficient as possible.”***

- Paul Forte, Director of Technology, Cimpres

# Anomaly Detection

Anomaly Detection lets you find the needle in the haystack — that unexplained spike in resource usage that’s driving up your bill. The Anomaly Detection feature is enabled by default and starts working right out of the box. Cloudability processes anomaly data as soon as a new billing file is available from the cloud provider, which means that anomalies are detected quickly and can be addressed as soon as they’re found.

### Spending Anomalies

A summary of unusual spending patterns. Learn more in our [Knowledge Base](#).

LAST 7 DAYS  
Feb 07, 2019 - Feb 13, 2019

Date	Type	Account Name	Service
Feb 09, 2019	1 Day	AWS Production	AWS EC2
Feb 08, 2019	1 Day	AWS Production	AWS EC2
Feb 09, 2019	1 Day	AWS Production	AWS EC2
Feb 10, 2019	1 Day	AWS Production	AWS S3
Feb 07, 2019	1 Day	AWS Data Sciences Team	AWS EC2
Feb 10, 2019	1 Day	AWS Production	AWS EC2
Feb 07, 2019	1 Day	AWS Operations Team	AWS Elasticsearch Se

### Details

ACCOUNT NAME: **AWS Production** UNUSUAL SPEND: **\$133.93**  
SERVICE: **AWS EC2** COST (TOTAL): **\$709.49**  
USAGE FAMILY: **Instance Usage** DATE: **Feb 09, 2019**

APPLICATION : COST-PARQUET   SERVICE : COST-PARQUET   ENVIRONMENT : PRODUCTION   TEAM : DATA   NAME : (NOT SET)

#### Unusual Spend (\$133.93) for Feb 09, 2019

# Business Mapping

Business Mapping lets you restructure your cloud spend to fit your organization. With Business Mapping, companies can view and report on cloud spend at the application or business level rather than just looking at raw cloud provider services like Amazon EC2 or S3. Businesses can optimize the unit economics of a given application, product or business unit.

*“Having Cloudability provide visibility across our cloud footprint has allowed us to make informed data driven-decisions resulting in significant savings. Using Business Mapping to match our organisational structure to our cloud spend has enabled us to give more responsibility to delivery teams and greatly streamlines our chargeback processes.”*

- Paul Forte, Director of Technology, Cimpress



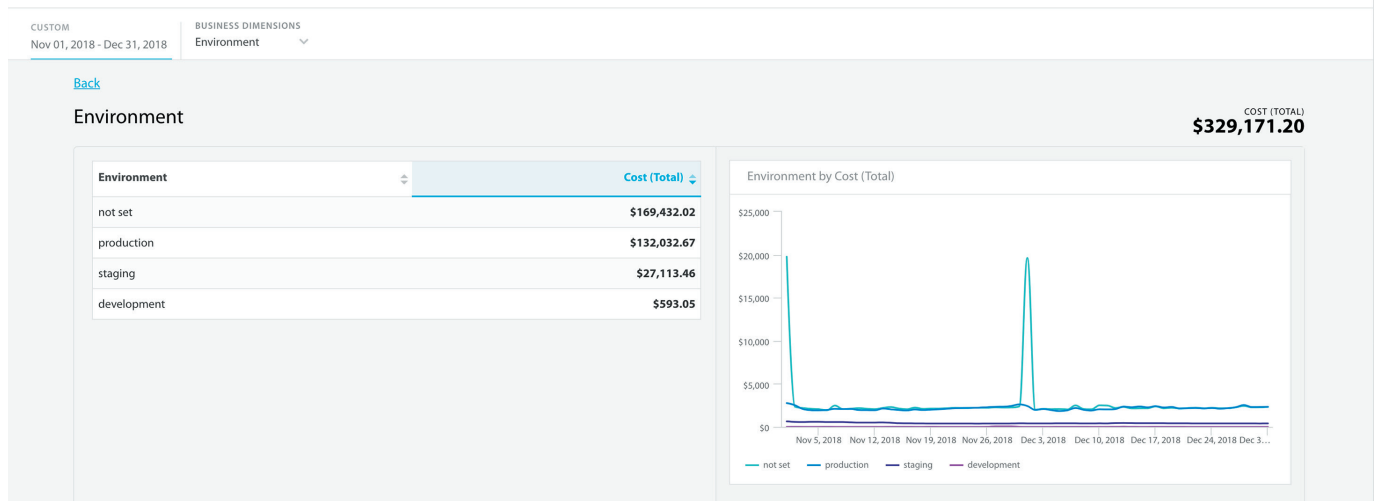
A key use case of Business Mapping is to ensure a full and accurate chargeback of cloud costs allocated to a specific application, product, service and business unit. Chargebacks are an essential activity during the Inform phase of the FinOps life cycle.

Business Mapping also makes applying governance rules during the Operate phase easy for issues such as tag compliance, geodata location compliance and allocation criteria based on project life cycle status.

Business Mapping produces Business Dimensions, a layer of cost classification that can be referenced in Reports, Dashboards and Views to provide a business view of the world from which to drive timely decisions.

## Business Mappings

Organize your cloud infrastructure to match your business. Learn more about Business Mapping in our [Knowledge Base](#).



# Main Points

- Financial planning and procurement models for on-prem infrastructure are slow moving, static and centralized.
- DevOps and the cloud have broken the old procurement models.
- Decision-making in the cloud must happen in real-time and be decentralized.
- FinOps is a new operating model for the cloud, a combination of systems, best practices and culture.
- FinOps brings together technology, business and finance to master the unit economics of cloud to drive competitive advantage
- A FinOps team is cross-functional, including stakeholders from finance, engineering and management.
- A FinOps team works together to optimize for speed, quality or cost.
- FinOps teams rely on cost avoidance and cost reduction to take control of cloud spend.
- Metrics and targets are critical for FinOps.
- FinOps practices ensure that a company's cloud spend is optimized and that the company is improving the unit cost of the cloud.
- The FinOps life cycle has three phases: Inform, Optimize and Operate.
- A third-party cloud financial management system means you can start saving money immediately.
- A third-party financial management system has many advantages such as scalability, accurate financials and actionable recommendations.
- Cloudability is a cloud financial management platform that uses data science, machine learning and automation to continually optimize cloud consumption to improve the unit economics of cloud.

# Contact Us

Of course, these are just a few of the ways Cloudability can help you succeed with FinOps. There are many other features as well, such as Rightsizing and RI recommendations.

If you'd like to know more, visit our website at [www.cloudability.com](http://www.cloudability.com) or sign up for a free trial at [get.cloudability.com/signup](http://get.cloudability.com/signup).