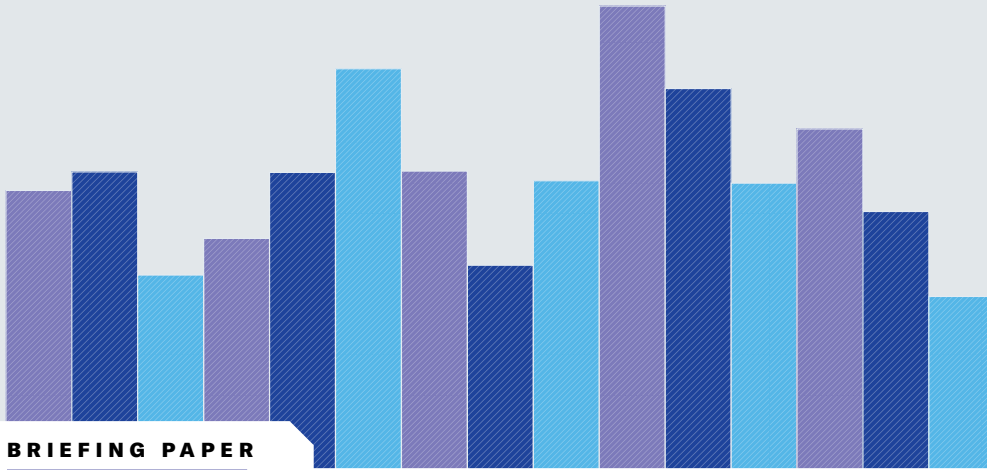Harvard Business Review

ANALYTIC SERVICES

Controlling Cloud Costs with FinOps to Optimize Spending

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If you had to suggest a single phrase to describe the uneasy relationship between CFOs and technology, "It's complicated" might fit the bill. On one hand, a key element of the finance charter is to ensure that the business has the tools it needs to succeed. On the other, CFOs by nature and necessity are often reluctant to sign off on the significant capital expenditures that their IT counterparts view as essential.

With the advent of cloud, the relationship evolved. CFOs were able, at least in part, to shift IT costs from the CapEx to the OpEx ledger. Rather than executing a massive outlay for servers, maintenance, and software licenses, CFOs could structure their budgets around costs that were, while somewhat harder to predict, based on actual usage of computing resources and cloud services. The phrase "pay by the drink" gained currency. As a result of these changes, CFOs became more comfortable talking to chief information officers and vice versa.

One way that this across-the-aisle amity manifested was that finance was brought into conversations that were formerly the sole province of IT. The discussion had essentially evolved from "Should we make a major data center investment?" to "How should we balance our technology investments among on-premises, hybrid, and public clouds?" And, as the cloud-like environment evolved, so did the associated roles. Along with the advent of cloud-specific practices like DevOps, SecOps, and CloudOps, we saw the emergence of FinOps—a distinct, finance-focused discipline that is fully embedded in the day-to-day operations of this evolving hybrid cloud.

In theory, it makes perfect sense. The unique promise of FinOps resides in its laser focus on the ROI of technology wherever it resides, its ability to monitor cloud and service usage in real time and to help make sure that the business pays only for that which is actually needed. In other words, FinOps professionals sought to ensure a tangible return on every cloud dollar spent. But in order to achieve that lofty goal, FinOps required development of a set of tools that would enable higher visibility and governance to ensure investment KPIs are met. The good news is that's exactly what happened—FinOps professionals now have access to an ever-expanding framework that helps them effectively monitor and help control resource usage to drive optimum business outcomes.

What we've described here is a set of trends driving the advent of the FinOps discipline—why it came about and how. The article that follows explores the evolution of the discipline, seeking to better understand the degree to which FinOps has actually permeated cloud environments and to what effect. It's a story that will continue to evolve, with increasing implications for the ways in which IT organizations use cloud technology as a lever for efficiency and growth.

Chuck Foley
Senior Director of Marketing, Cloud-Based Solutions
NetApp

Controlling Cloud Costs with FinOps to Optimize Spending

There's no avoiding the cloud in the modern enterprise environment. Nearly all companies have shifted at least some of their business operations to the cloud. And those already working in the cloud are expanding their footprint, often moving to hybrid and multiple clouds. This expansion was already underway during the digital transformation, and it has certainly continued throughout the pandemic. In fact, at its Gartner IT Symposium/Xpo EMEA event, industry researcher Gartner predicted that by 2025 more than 95% of new digital workloads will run on cloud-native platforms—a 30% increase over 2021.

This widespread increase in cloud operations conveys tangible business benefits, such as increased operational capacity, agility, scalability, and security. Along with those benefits, however, come increased costs and new levels of challenges in managing those costs. Many organizations struggle to manage their cloud spend or even to achieve a clear picture of what they are spending for cloud services or which parts of the company are consuming those cloud resources.

The traditional tactics of managing spending for on-premises IT do not apply to cloud spend. Forecasting for on-premises data centers focuses on ensuring capacity for the long term, and it often results in overprovisioning and overspending. Forecasting for the cloud focuses more on immediate and scalable needs. The flexible concept of capacity that the cloud engenders is leading to a tactical shift and giving rise to a relatively new function for cloud cost management—FinOps, short for financial operations. FinOps is a framework to help companies monitor, manage, and optimize their cloud-based operating expenses.

HIGHLIGHTS

One of the most significant goals of FinOps is to **establish and maintain financial accountability for cloud services spend for everyone across the organization**, from cloud operations managers and DevOps teams to the finance department and senior leaders.

Adopting **FinOps is truly a cultural shift, as it represents a different way of thinking about IT spend**, specifically cloud spend, and a different way of forecasting and budgeting.

As cloud usage continues to increase, adopting a **FinOps framework becomes more important for companies to ensure they're spending efficiently** on cloud resources.

FinOps is a framework to help companies monitor, manage, and optimize their cloud-based operating expenses.

"FinOps is the practice and process of applying account discipline to cloud spend. This is the birth of a new type of analysis, exposing what was previously hidden in generic IT budgets, and it has the potential to drive growth for the next decades of digital transformation," says Michael Delzer, analyst and director of the cloud infrastructure and operations portfolio at Santa Barbara, Calif.-based industry researcher GigaOm.

Rob Martin, director of learning at the FinOps Foundation (which is part of the San Francisco-based open source industry consortium The Linux Foundation), describes FinOps as an evolving cloud financial management discipline and cultural practice that can help organizations achieve the maximum business value from their cloud spend. FinOps also helps engineering, finance, and product groups and business teams break down barriers to better collaborate on data-driven spending decisions.

"It's an evolving practice because the practice of adopting the cloud is still evolving for many," says Martin. "It's a cultural practice more than a technology because it involves not just creating a team that does FinOps for the company but a team that helps the organization evolve to more effectively handle this consumption-based model of the cloud."

This report describes the emerging practice of FinOps and how it can help organizations get a better handle on cloud spend by accurately forecasting and budgeting to optimize investments in cloud services. The report further demonstrates how this is a significant shift in forecasting and budgeting practices, and it examines some of the possible business benefits of adopting this new way of managing cloud spend. Finally, the report will outline some of the first steps involved in adopting a FinOps framework.

The Purpose of FinOps

One of the most significant goals of FinOps is to establish and maintain financial accountability for cloud services spend for everyone across the organization, from cloud operations managers and DevOps teams to the finance department and senior leaders—including technology, business, and finance—and even the executive suite.

Any organization setting out to establish a FinOps practice should follow the core principles of FinOps as outlined by the FinOps Foundation. These principles focus on collaboration, ownership, accountability, and accessibility. The FinOps Foundation recommends that teams fully collaborate, consider cost as an efficiency metric, strive for continuous improvement, and define governance controls for cloud consumption. Everyone across the organization should take ownership of their cloud usage, manage their cloud usage against the budget, maintain visibility into cloud spend, and track usage and spending targets. The overall FinOps effort should be guided by a single team to centrally govern volume discounts, track purchasing of reserved instances, and ensure granular cost allocation.

The FinOps Foundation further recommends that any reports on cloud usage and spend be accessible and timely, provide visibility into provisioning levels to ensure accuracy,

and help drive continuous improvement. Business decisions must be driven by the business value of cloud usage, following usage and spend variances and benchmarking best practices at the team level and across the industry. And finally, it's important to fully take advantage of the cloud's variable cost models, comparing pricing levels and ensuring that instances are the right size and scope.

GigaOm's Delzer sees FinOps as part of three pillars of cloud management. "First comes deployment to the cloud with predictability and self-service using automation, which becomes cloud management," he says. "Second is automation without performance governance, which leads to over- and under-provisioned applications and issues with proper use of cloud credits and long-term commitment discounts, which then lead to cost overruns. Finally, the idea of cost optimization introduces the idea of financial accountability to IT cloud spend."

FinOps is a relatively nascent practice, with an estimated 20% to 30% of companies actually putting it into effect. "The '[Flexera 2022] State of the Cloud' report says it's in the mid-20% range of companies that have a FinOps team. An IDC Survey Spotlight estimates 30% of organizations worldwide have adopted FinOps in some way, so it's somewhere in that 20% to 30% range," says Martin.

The "Flexera 2022 State of the Cloud" report indicates that FinOps is a rapidly growing priority and financial management discipline within the modern enterprise—and with good reason.[1] Cloud spend is rising rapidly and is frequently not well managed. Survey respondents reported that their spend on public cloud exceeded budget by an average of 13%. They also said that they expect cloud spend to increase by 29% in the coming year. Respondents estimated that their companies waste an average of 32% of their overall cloud
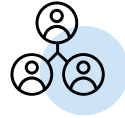
"It's a cultural practice more than a technology because it involves not just creating a team that does FinOps for the company but a team that helps the organization evolve to more effectively handle this consumption-based model of the cloud," says Rob Martin, director of learning at the FinOps Foundation.

spend, an increase from 30% last year. These trends make cost optimization and accurate forecasting more critical than ever.

The "State of FinOps 2022" survey, produced by the FinOps Foundation, focused specifically on the FinOps framework.[2] This survey revealed that 37% of respondents were just starting a FinOps practice, 42% had a relatively established practice in place, and 12% reported a mature and evolving practice. **FIGURE 1**

The extent to which cloud spend is increasing and the relative inefficiency that companies report in how they manage cloud spend are helping create the need for FinOps. Companies are eager to get a better handle on cloud spend, with 59% of the "Flexera 2022 State of the Cloud" survey respondents reporting that a top cloud initiative for this year is to optimize their existing cloud use and cost savings.

FIGURE 1

Companies Increase Focus on Cloud Spend

How companies are dealing with rising cloud spend levels and inefficient spending practices

42%
Reported a relatively established FinOps practice last year

37
Reported just starting a FinOps practice last year

12
Reported a mature and evolving FinOps practice last year
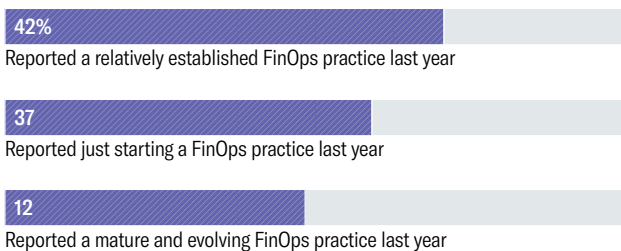
Source: FinOps Foundation, 2022

Mindset Shift

Adopting FinOps is truly a cultural shift, as it represents a different way of thinking about IT spend, specifically cloud spend, and a different way of forecasting and budgeting. Instead of planning for future capacity, team leaders can more closely consider their needs for the here and now, ensuring capacity for the present and the immediate future without planning—and spending—for months down the road.

Speaking at DevOps Perth, a virtual event for developers, Mike Fuller, chair of the technical advisory council for the FinOps Foundation and coauthor of *Cloud FinOps: Collaborative, Real-Time Cloud Financial Management*, explained why companies increasingly need to have a FinOps practice in place. "There is significant cloud spend happening across the world," he said. "And the spend model

> "I'll do the framework assessment, look at where they are now, and determine what it's going to take to go from a crawl to a walk to a run. Then I'll put a roadmap together to drive the organization forward," says Michelle Dupuis, cloud financial operations lead at EBSCO Information Services.

goes from CapEx to OpEx. The costs go from a fixed model to a variable-cost model."

This shift in thinking is a fundamental difference not only in how IT and business leaders process and consider costs but also in how they optimize those costs in forecasting and operational processes. "The thing that's truly different about the cloud is this ability to go in and turn off half your data center on any given day. That's something CIOs [chief information officers] just don't have the muscle memory to do right now," says the FinOps Foundation's Martin.

Even companies just now moving to the cloud often overprovision because they're thinking about cloud capacity the same way they used to consider their data center capacity. They strive to establish and maintain sufficient storage and processing capacity. "All that time we used to spend doing business cases and thinking through scenarios was all speculative. Now what you have to do is manage what you're running every week or every month," he says. "You're doing the same things but in an entirely different cadence."

Getting Started with FinOps

For companies just adopting a FinOps framework, there are several steps and areas of focus that can help ensure success. Michelle Dupuis, cloud financial operations lead at Ipswich, Mass.-based EBSCO Information Services, a division of library services provider EBSCO Industries Inc., advises that companies start out with a comprehensive assessment of how they are budgeting and forecasting cloud costs. "I'll do the framework assessment, look at where they are now, and determine what it's going to take to go from a crawl to a walk to a run. Then I'll put a roadmap together to drive the organization forward," she says.

Dupuis defines the critical capabilities as understanding the shared spend, understanding the tagging process to help determine where costs should be allocated and how to handle unallocated costs, and formalizing the governance process. "Then the million-dollar questions everyone wants to know are 'What's your forecast?' and 'Where's the spend?' Everybody spends a lot of time on budgeting and forecasting," she says.

Building the FinOps team is another critical step. Even though it might start out as a single person or a shared resource

in some companies, it will become increasingly important to build a multidisciplinary team to monitor KPIs and identify opportunities for cost optimization. "You'll want someone doing the finance stuff. You'll usually want someone who can script—someone who is good working with tools, because there's a lot of work manipulating data. You'll usually have a governance person and perhaps a security resource," says Dupuis.

She points out that the size and mix of the team will be different for each company's different needs. Dupuis recommends that the team meet on a weekly or biweekly basis and that the company have a broader steering committee as part of the cloud business office to provide that regular review. Then the FinOps team may report to the CIO or the chief technology officer (CTO).

Delzer agrees on the need for a multidisciplinary team. He advises that companies start by assigning a representative from IT or corporate finance to ensure that the data and any reports are usable, accurate, and trusted so that finance can take action on them for future spending. Then the organization's leaders should determine which function will own FinOps and to whom FinOps will report, such as the CIO or CTO, the CFO, or even the CEO. The FinOps team can define a taxonomy that IT and finance can both use when collaborating on budgeting and spending issues. Delzer notes that it's a good idea to start a FinOps program even if all other efforts are initially ad hoc.

FinOps certifications are now a factor for those looking to get involved with the practice as well. There are "FinOps certified practitioners," who help individuals validate and demonstrate their knowledge of FinOps fundamentals, and "FinOps certified professional" levels, which are geared toward those with more experience in FinOps to help advance their knowledge. There's also a "FinOps for engineers" certification to help engineers better understand how to derive business value from the cloud.

EBSCO's Dupuis sees these certifications as increasingly critical to ensuring the widespread adoption and recognition of the importance of FinOps. "There's the continuous education required to remain licensed. There are requirements to achieve the certification and requirements to maintain it," she says. "That's really important because it keeps you involved."

> "FinOps is critical to both forecasting and ensuring that you're spending wisely, optimizing current spend, meeting service level agreements, and maximizing cloud credits and the use of reserved instances," says Michael Delzer, analyst and director at GigaOm.

Driving Greater Business Value

As cloud usage continues to increase, adopting a FinOps framework becomes more important for companies to ensure they're spending efficiently on cloud resources. "FinOps is critical to both forecasting and ensuring that you're spending wisely, optimizing current spend, meeting service level agreements, and maximizing cloud credits and the use of reserved instances," says Delzer.

A FinOps framework can help organizations track the business value of their cloud spend. Organizations will benefit from the level of financial visibility, accountability, and control of cloud spend that FinOps can provide. Not following a FinOps framework can lead not only to wasted spending and an inability to forecast accurate budgets but also to performance and availability issues when cloud service operations are not optimized. "It's a real game changer for the way we look at costs, and it comes back to that level of visibility," says Martin. "I can turn stuff off that I don't need and I can buy services immediately in exactly the right size."

Finance and IT leaders involved in FinOps efforts are shifting their forecasting to a more near-term focus to avoid overspend. "The risk of long-term contracts for reserved instance discounts or not applying cloud credits correctly leads to overprovisioning," says Delzer. "Unused credits that could have been used to lower monthly bills or overcommitting to reserved instance types before capacity requirements are known will give you a one-to-three-year commitment to something you can't use or a commitment to a system that is too large for your needs."

Dupuis is currently working on building her FinOps team, developing a roadmap, and identifying opportunities for cost optimization. "We're looking at shared spend, reducing that, and understanding where it comes from. The other big focus is taking advantage of savings plans and reserved instances," she explains.

Establishing metrics is another function that is critical to ensuring an effective FinOps practice. "You want a metric that you're aligning to 80% or 90% coverage, for example. You need to build out KPIs around the cloud. You have to measure. You don't know what you don't measure," says Dupuis. "You have to learn how to measure estimations of time and cost. That's how you learn. Then you improve from there."

The Future of FinOps

Many organizations are striving to establish a FinOps framework: they are taking steps to determine how to evaluate and cross-reference cost and business performance metrics, identifying which monitoring functions to automate, and determining how to maintain a vigilant FinOps initiative to optimize all their cloud platform investments.

The widespread adoption of FinOps is expected to increase dramatically. Most respondents to the FinOps Foundation's inaugural "State of FinOps" survey in 2021 reported having four people on their FinOps team and that they expected that number to double in the coming year.[3] The foundation also estimated that FinOps teams would grow 47% from the previous year and as much as 75% the next year.

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FinOps can help organizations monitor and optimize their cloud spend so that they can more accurately budget, forecast, and allocate cloud resources. "FinOps will become a thing that every company does. Every company that uses the cloud can use the language we create, the framework we create, and the best practices we create," says Martin. "Every company that has been adopting the cloud can come along and learn from all the mistakes and through all the individual work that has already been done."

And that learning and evolving are an endless cycle. "It's a continuous loop with FinOps," says Dupuis. "It's a continuous improvement cycle that will never stop."

"FinOps will become a thing that every company does. Every company that uses the cloud can use the language we create, the framework we create, and the best practices we create."

Rob Martin, director of learning, FinOps Foundation

Endnotes

1   Flexera, "Flexera 2022 State of the Cloud Report," 2022. https://info.flexera.com/CM-REPORT-State-of-the-Cloud?lead_source=Website%20Visitor&id=Blog.

2   The FinOps Foundation, "The State of FinOps 2022," 2022. https://data.finops.org/.

3   Ibid.

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