THE CLOUD COMPUTING TRAP:

How Hidden Costs Evaporate the Bottom Line

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EXSTRATUS

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- Industry estimates suggest more than a third of cloud computing expenditures go to waste.
- Finance managers are struggling to deal with increasing and unpredictable Amazon Web Services (AWS) costs.
- The waste stems from the divide between engineering and finance — engineers see AWS instances as easy and cheap to add, while financial controllers see the cumulative negative effect on the P&L.
- Absent a culture of cost consciousness, the volume of losses will compound over time.
- The most effective partners bridge the gap between finance and development teams to provide both immediate and long-term cost reduction strategies.
- Using an AWS cost reduction specialist, Civitas Learning saved $1.5 million in AWS costs in one year.

Introduction

Each year, companies worldwide waste millions of dollars on inefficient use of Amazon Web Services (AWS) – as much as 35 percent of total cloud spend.[1] It's not hard to imagine how this happens. A front-line engineer needs a virtual machine (VM) for a project and, figuring that it only costs a few cents an hour, makes sure he has extra power in case he needs it. Worse, he forgot to shut down the previous VM he was using, which continues to accrue costs. These seemingly minor expenses add up quickly over time, and they become a major problem when multiplied by all the engineers and projects for an entire department. It should come as no surprise when a finance leader scans the P&L and stops cold at the AWS line item; it jumped 25 percent in a month, and now it's heading even higher.

Each engineer's decision is based on noble intentions: they want to deliver great products and services. And while finance leaders recognize that transitioning IT infrastructure to the public cloud can save costs and convert cap-ex to op-ex, these rollouts come with significant challenges — and, if not proactively managed, significant expenses. IT teams must focus on cloud security and learn new skills on the fly, all within a rapidly changing infrastructure, leaving little time to oversee a cost driver that finance teams know little about.

Despite the challenges, these transitions to the cloud aren't going to stop. Industry analyst firm IDC projects worldwide spending on public cloud services and infrastructure will reach $400.0 billion in 2025. Over IDC's 2021-2025 forecast period, overall public cloud spending will experience a 28.8 percent compound annual growth rate – nearly seven times the rate of overall IT spending growth.[2]

When business leaders are asked about those technologies, it's easy to see why IDC's analysts have such a bullish outlook for the market. Some 58 percent of the CFOs who participated in a

2019 EY survey said they need to "build their understanding of digital (cloud and SaaS), smart technologies and sophisticated data analytics". This is still the case today and that wasn't just high-tech or tech-savvy companies; nearly two-thirds of responding CFOs from automotive, transportation and industrial-products companies said the same.[3]

With 45 percent share, AWS dominates the Infrastructure-as-a-Service market, one of the fastest growing cloud segments. But despite its established presence in the market — and despite all the AWS tools and services provided by Amazon and third parties alike — **companies continue to have little understanding of what their AWS dollar buys**. Development teams are not tasked with monitoring instances that go underutilized. There's little incentive to streamline those resources, and even less awareness of outside services that can help manage AWS efforts.

A fundamental disconnect between engineering and finance underlies these problems. Usage can cost mere pennies per hour, so engineers typically have authority to launch an instance without formal financial approval. And when they do reach that threshold — for example, when an e-commerce company expects an influx of traffic on the site during a peak shopping season — the tendency to overestimate what's needed to keep the site stable overrides any concern about wasted server capacity.

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Culture Clash

Finance and IT teams typically approach their work from different mindsets, each side driven by a divergent set of incentives. Engineers' rewards derive from performance, and they're motivated by a chance to work on big problems — to make an impact on users' lives and the world at large. To most of them, the work of cost reduction is uninspiring. Meanwhile, finance teams know that the grandest of projects won't make a difference if the work isn't financially sustainable. These are not mutually exclusive goals, yet too often the focus on each leaves blind spots in between — spaces that begin to accumulate waste.

When the two sides come together to strike a balance between cost and service delivery, alignment is seldom reached. Engineers point to the system's features and performance, while cost managers look at the elegant black box and wonder why it requires so many resources. To optimize AWS usage, businesses need a way to marry technical expertise with financial acumen.

Different companies, different demands

This basic scenario plays out across a wide spectrum of businesses, but how it evolves depends on a firm's digital history. Most younger firms and startups that are "raised in the cloud" build AWS into their development operations from Day One. For these businesses, the problem of spiraling AWS costs tends to emerge when they hit a growth spurt. It might come after a Series B or C round, which they use to launch an expansion. They now have the cash to expand their infrastructure, but they also have a board asking about cost controls. They want to grow their engineering teams quickly, but the processes that preserve efficiency and reduce waste have yet to develop.

Legacy companies with existing digital footprints run into different problems. They're in the midst of transitioning their owned infrastructure into a public or hybrid cloud. Rather than leaking money to poor resource management, they accrue significant waste by virtue of shifting to new platforms. Their IT ecosystem is optimized for a data center model, not an hourly fee model, and the expertise required to efficiently manage that change isn't in-house yet.

Finally, there are legacy companies creating new cloud-based experiences for their customers— for example, an athletic wear company adding an e-commerce site, a new fitness app and a social media community. They often build those capabilities through acquisitions, and each acquired company might have its own preexisting AWS or other cloud platform. The acquirer is faced with the need to merge those platforms and eliminate redundancies while maintaining a rapid development pace.

No matter which of these scenarios a company finds itself in, it's not hard to see how easily costs can slip out of control — and how important it is to rein them back in.

The Field of Responses

The range of pain points generated by the spread of cloud computing has spawned a similar range of solutions, some more effective than others. For AWS, the list of service providers starts with Amazon itself. However, the suite of AWS-supplied optimization services is somewhat ancillary to its broader services provisions. A company that pays $500,000 for an

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CHALLENGES BY BUSINESS TYPE

RAISED IN THE CLOUD
Established startups see AWS costs rise during growth spurts, while boards demand greater financial controls.

LEGACY
Engineering teams retain a data center mindset even as they shift resources to the cloud.

MERGERS & ACQUISITIONS
As companies acquire tech resources to fuel growth, they add redundant or unnecessary AWS usage.

enterprise support package might also receive cost optimization services that are, in reality, strategic recommendations rather than hands-on executional support. After all, AWS focuses primarily on feature development in its web services offerings, not cost optimization for its customers. It can't invest the significant hands-on time required to drive real change throughout an infrastructure and team.

An existing set of companies, including Cloudability, CloudHealth, CloudCheckr and Cloudyn offer automated solutions. These Software-as-a-Service (SaaS) programs connect to an AWS account and report on performance — for instance when a server's CPUs are underutilized and can be downsized. While this information can be useful, the tools offer little more than reporting; it still requires an engineering team's significant time to manage the tool, derive insights, and execute a plan In other words, these tools offer some amount of cost visibility, not cost reduction, and it's easy for the team to forget about the tool when more important issues arise nearly every day.

Finally, managed-service providers offer richer consultations, but most of these firms serve as generic cloud consultants. The ones that narrow their focus to AWS deliver a generalist's array of services, everything from cloud migrations to security testing. Few work solely on AWS cost optimization, taking the deep-dive, hands-on approach needed to unearth hidden opportunities for significant cost reduction.

The Specialist Approach

Only managed-service providers who focus specifically on AWS cost optimization can deploy the depth of expertise necessary to not only evaluate a company's complex AWS usage, but also provide cost-performance insight

> *...companies continue to have little understanding of what their AWS dollar buys. "*

RANGE OF SOLUTIONS

AWS SUPPORT SERVICES
Amazon not incented to optimize away inbound revenue.

AUTOMATED SOLUTIONS
More like tools, these can help identify costs but rarely reduce them over the long term.

GENERIC SERVICE PROVIDERS
Provide breadth over depth and lack cost optimization expertise.

and take immediate action to eliminate wasteful usage. This specialist approach can save customers as much 35 percent on their AWS bill within 30 days, and it provides a foundation on which to establish a tailored, long-term strategy for maintaining financial discipline without constraining the creativity and ambition of engineering teams. A set-and-forget approach might plug one leak, but it won't yield additional cost savings absent an equal emphasis on broader change management.

Civitas Learning realized the advantages of the specialist approach when it sought to bring its AWS costs under control. The Austin, Texas, company, which develops software used by higher-education institutions to analyze student data, saw its AWS spend rising from one month to the next, often sharply and unpredictably. It set out to gain better insight into what was driving those increases. It tried both Amazon's and a third-party's support services and management tools, but found little success with either one. The company briefly considered hiring an in-house developer to tackle the problem, but realized that the cost of hiring an experienced AWS engineer was hard to justify. Ultimately it turned to Exstratus, an AWS managed-services specialist that focuses on cost optimization.

Ultimately it turned to Exstratus, an AWS managed-services specialist that focuses on cost optimization. Using its combination of financial and technical expertise, Exstratus brought together engineers and managers to identify the various factors that drove Civitas' AWS spending. After identifying both the useful and the wasteful cost drivers, the company's teams immediately started addressing the inefficiencies. Within one month, the monthly bill had been cut by 10%. And within a year, Civitas had saved more than $1.5 million in AWS costs.

Further, Exstratus helped Civitas instill an effective cost-management culture across departments. Engineers gained insight into and accountability for infrastructure costs without sacrificing the flexibility and ease of use that makes AWS such a powerful tool for the business.

CIVITAS MONTHLY AWS COSTS PER CUSTOMER
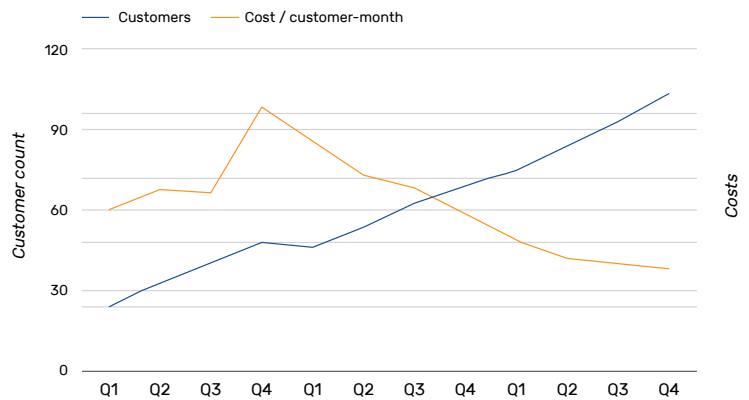
Exstratus' cost savings specialization helped Civitas reduce AWS cost-per-customer by 40%, dramatically improving profits from operations.

Summary

While spending on cloud computing, including Amazon Web Services, will continue to soar, companies don't need to resign themselves to spiraling costs. By combining deep financial and technical expertise with AWS cost optimization strategies, businesses can bring spending under control while freeing resources for revenue generating activities.

To learn more or request a free consultation, please visit www.exstratus.com or call 888-500-9553.

Few executives who oversee finances have the technical expertise needed to challenge an IT staff's explanation of costs and dig beyond vague answers. This is partly because they don't know the right questions to ask. Here are basic questions you can ask:

1. How much does each of your engineers spend on testing and development infrastructure?
2. What's our cost per customer-month or visitor-month? Our cost per launched product per month?
3. What's our overall server utilization rate?

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TO REQUEST A NO-RISK SAVINGS ESTIMATE.

[1] Exstratus; RightScale
[2] IDC press release, Worldwide Public Cloud Services Spending Forecast to Reach $400.0 Billion in 2025, *Aug. 05*, 20*21*
[3] EY DNA of the CFO (2019)