

Transforming Cloud Spend into Strategic Value



Understand the cost of Cloud



Optimize your spend

Contributors:

Asad Malik & Jonny James

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Introduction

This white paper is aimed at organizations that are perhaps running two or three applications in native Public Cloud (be they migrations from legacy data centers or new greenfield applications) to larger, corporate enterprises who are advanced users and have several business functions at production-level in Public Cloud.

While this paper is primarily designed to inform, educate and motivate key functions related to Finance, Accounting, and Procurement in understanding the nuances and idiosyncrasies of Cloud Economics, it is also designed to help bridge these key principles for IT, Engineering and Application Development teams.

Further still, for those organizations fortunate enough to have dedicated Cloud Teams, this paper helps to:

- **Introduce some of the key spend levers** available that can be manipulated to help stay on top of cloud costs;
- **Take a deeper dive into one of the popular use cases** that a cost management service addresses: financial governance and accountability

In summary, the objective of the paper is to (1) help run-through some of the areas of focus for financial optimization in the Cloud, and (2) surface up the key areas for financial governance.

Cloudreach Reliability Services

Moving to the public cloud isn't just about getting ahead – it's about staying ahead. And that means continuously improving every aspect of your operations.

1

Why the Need for Cost Management in Public Cloud?

Why focus on cost management?

Recent market research has determined that optimizing cloud costs continue to be the number one challenge to overcome in 2019 for the third year in a row¹, increasing to 64% from 58% in 2018. The report from Flexera (Rightscale © 2019 State of the Cloud Report) goes on to state that the challenge of managing cloud spend grows as cloud use increases.

Then, let's factor in the increase of multi-cloud adoption. Gartner² believes that as soon as next year (2020), enterprises will be mitigating risk of application deployment in the cloud by adopting more than one cloud. With as much as 86% of customers having workloads in two or more clouds, it is no surprise to see the need to invest in a service or solution set for financial optimization and be one step ahead.

Begin managing your cloud costs by focusing on **cloud wastage** and **cost optimization**.

\$13bn spent in the 2018 Public Cloud market was wasted cloud spend.³

1. "Rightscale 2019 State of the Cloud Report from Flexera," Flexera, 2019. <https://info.flexerasoftware.com/SLO-WP-State-of-the-Cloud-2019>

2. "Forecast: Cloud Consulting and Implementation Services, Worldwide, 2017-2022", Gartner, May 2018. <https://www.gartner.com/en/documents/3875202>

3. "\$12.9 Billion in wasted cloud spend this year," ParkMyCloud. January 2018. <https://www.parkmycloud.com/blog/wasted-cloud-spend/>

Waste in the cloud

When you consider that as much as \$13bn (of a \$308.5bn Public Cloud market) was indicated as wasted cloud spend in 2018⁴, it is clear we very quickly need to understand the key issues driving this waste.

Examples of cloud waste include:

Orphaned VMs

Very often, once VMs have fulfilled their function and then terminated, any attached volumes that are not removed continue to incur costs.

Orphaned or excessive snapshots

Snapshots, despite being priced cheaper than VMs, can quickly grow out of control if not monitored. More concerning, if snapshots are set to be automatically created, deletion of previous snapshots are often overlooked and continue to incur unnecessary costs.

Underutilized Instances

The premise behind native Public Cloud invites easier and faster setup to dynamic environments for short-term, high-gain projects such as demos, trials, and proof of concepts. However, these environments need to be tracked and managed to avoid incurring ongoing costs after they are no longer required. For organizations

with several development teams, this can consume budget unnecessarily.

Oversized Instance

A throwback to legacy data center provisioning habits, a lack of understanding the dynamic resourcing capabilities in native Public Cloud translates to being unable to predict requirements needed. This drives the behavior to oversize resources which later cannot be down or right-sized thus incurring unnecessary costs. Gartner has reported as much as 35% of Cloud IaaS are oversized.

Lack of utilizing discount schemes from providers

Many organizations are either unsure, confused or simply unaware that there are discounting frameworks available to help better budget for resources from cloud providers. However, with each provider having different pricing models, it is easy to see how this can be a daunting task to approach and understand.

4. "\$12.9 Billion in wasted cloud spend this year," ParkMyCloud. January 2018.
<https://www.parkmycloud.com/blog/wasted-cloud-spend/>

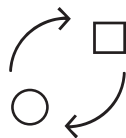
Cost optimization can help

While the key issues resulting in unnecessary cloud waste have been described above, these issues are often compounded when the bill arrives.

While leveraging discount schemes on offer would initially be the first action any organization would pursue to bring down costs, several other factors are at play, leaving many organizations unable to consistently predict and budget their monthly cloud spend. These include:

- **Lack of understanding** of complex pricing models, often changing every two to four weeks
- **Volatile application usage** of resources, changing weekly, sometimes daily
- **Lack of governance and accountability** (and thereby inability to charge individual business units for cloud usage)
- **Optimization measures not in place** to counter the waste factors described above (e.g. shutting down orphaned, aged, excessive, underutilized and over-provisioned resources)
- **Finance and IT-based business functions are not informed correctly** on best practices or do not have teams with the singular focus cloud cost management demands.

What are the spend levers available to help stay on top of cloud costs before they start affecting the bottom line?



Right sizing



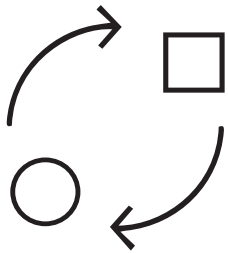
Elasticity



Pricing Models & Purchasing Options



Tagging



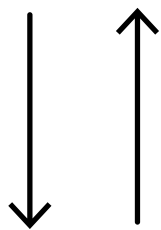
Rightsizing

Based on traditional practices for provisioning resources, it is often the case that resources are planned at larger capacities than actually needed. This means paying for capacity seldom being used to full effect. Rightsizing ensures these resources are not underutilized and no unnecessary budget is wasted.

Rightsizing is based on a scoring method per resource (CPU, memory file system and network throughput utilization), and used to determine

the appropriate instance type for the residual instance workload. The score is compared to the previous month score to determine the best rightsizing recommendation.

However, such metrics can only be accurately captured by directly retrieving utilization data which often requires software to capture this information. This helps derive recommendations for which instances can be downgraded at no expense to performance.

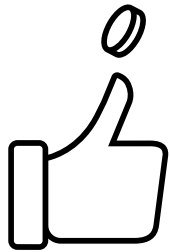


Elasticity

Elasticity relates to resources that can be adjusted in terms of volume or time-based.

Volume-based matches scale to the intensity of demand, (compute cores, storage sizes, or network bandwidth).

Time-based relates to scheduling resources to be turned off when not being used. A great use case includes select, non-production environments (eg. development testing projects) which tend to display burst workload characteristics. Outside of in-demand windows, these resources often sit idle.



Pricing models and purchasing options

With as many as 500k+ pricing changes across CSPs almost every other week⁵, it is easy to see why organizations are often unable to stay updated on the latest pricing models.

Factoring in the added complexity, many organizations are also now adopting multi-cloud to mitigate risk of application deployment, the initial investments being made into this activity in-house often come

up short as this task is frequently a secondary function of one or more individuals and does not garner the attention it demands.

Within a short timeframe, organizations are back onto the market to find solution/service providers to help stay on top of these changes, a one-stop shop that can cover multi-cloud use cases as well as align these models to the business context of their organization.

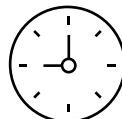
With this in mind, what are some of the purchasing options available?



On-demand: A straightforward approach, instances/services charged at a flat, hourly rate with no long term commitments. Can be costly without governance in place.

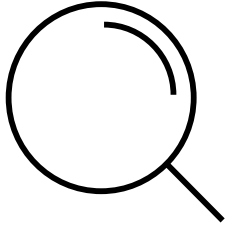


Reserved Instances: Reserving instances allows customers to make savings by committing to paying upfront for a longer term.



Spot Instances: Unused instances, available at less than the price of an on-demand instance. Best used for dev/test workloads - not critical applications.

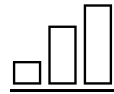
5. "The untapped opportunity for MSPs is optimization-as-a-service," 451 Research. November 2018.



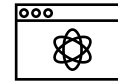
Tagging

Tagging is the practice where resources are 'tagged' with cost-related metrics, to help tie together the resource back to the business cost.

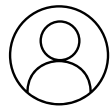
These metrics include, but are not limited to:



Cost
Center



Application
Dependencies



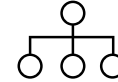
Resource
Owner



Account
Dependencies



Project Identification
Code



Business
Function

The list goes on. However, while tagging is seen as a necessary requirement, many organizations have not benefited in best practices for tagging strategies and how best to align the tagged resources back into the business.

Such strategies help to deliver the following benefits:

- Identify best cost optimization measures
- Better alignment of resources due to business context applied
- Richer reporting and visualization of cloud usage
- Precise accountability of resources consumed helping to chargeback to individuals / teams / applications
- Stronger foundation for budgeting and forecasting
- Reinforcing governance, further improving regulatory compliance

With these benefits in mind, it is very easy to see the need for a tagging strategy becoming one of the most popular requests made of service providers. Organizations need to monitor the tagging status of resources and setup alerts to notify for gaps to be removed or action enforcement. This can only happen if organizations actually implement tagging enforcement policies. Further sophistication to this process includes deploying hierarchical tagging tooling to automate and deliver improved operational efficiency.

With cost management now influencing and driving the governance agenda more than it has ever before, exploring this critical use case becomes increasingly important.

2 | Focus on Governance

Driving the governance agenda

At a high-level, organizations are driven by three use cases: cost, security and governance. All three need to meet certain compliance when organizations are using cloud as a mechanism to drive innovation. More and more, cost is now starting to influence and drive the behaviour of security and governance, but the principles are often misunderstood or at least the approach needed to deliver effective cost management to support overall corporate governance.

Financial governance and accountability varies from one organization to another. For larger, corporate enterprises, this could even take the form of departments

varying from other departments.

This can all be based on either application set, account-base, or even the industry being serviced. However the consistent take away is that a unified approach is needed to ensure the organization has the necessary controls in place to be accountable for the budget spend against the activity it is associated with.

Looking at financial governance and accountability from a holistic perspective provides insight into today's challenges of procurement for cloud, one of the underlying causes of ineffective cost governance.

At a high-level, organizations are driven by three use cases: **cost**, **security** and **governance**.

The economics of public cloud

The economics of public cloud are different from the traditional procurement of legacy systems.

IT/Engineering would determine the technical needs of an organization and ask the procurement team (acting as a central approver) to sign on the best deal for resources and ensure those assets depreciate in a predictable manner. This well practiced art delivered best 'bang for your buck,' but if provisioned incorrectly, cost of failure was high (not to mention taking weeks / months for each procurement cycle to complete).

Fast forwarding to the present day, IT-related functions (e.g. development teams, shadow IT) can now use easy financing options e.g. credit cards, to procure resources as and when required, bypassing the traditional, slow procurement process. This is great for organizations to innovate faster, with increased agility and ability to scale. This, however, leaves finance behind with the problems articulated earlier in this paper.

Let's take a look at some key areas of consideration to deliver effective cost governance.

Role assignment

The organization should start by clearly and precisely defining roles and responsibilities for each of the business functions. These include:

- **Internal IT**
- **Production Engineering**
- **Application Development Teams**
- **Dedicated Cloud Teams**
- **Finance / Accounting / Procurement**
- **Other functions (e.g. shadow IT)**

Each of these should then be assigned executive sponsorship, accountable for adhering to the "rules of cost management engagement." Failure to comply could be responded to by that business function, account, individual, and/or application being penalized by having their resources reduced or removed.

Policy definition and attribution

Once roles have been defined, the next step is to start to develop policies as part of an overarching framework. All functions need to have clear visibility as cost management should be everyone's responsibility. Attribution is a key foundation principle paving the way for actionable accountability.

Policy definition helps to set up operational budgets and deliver a range of much-needed benefits:

- **Introducing a mindset change** helps to deliver well-aligned teams, cloud business cases, and cost-effective business operations.
- **Monitoring cost trends**, spikes in usage helping to focus investigative measures (answering the question 'why did we spike in usage that month/week/day?')
- **Visibility of usage** across multi-cloud environments
- **Aggregating cloud usage** for simpler reporting and easier dashboarding (not to mention clearer invoicing!)
- **Cost allocation / attribution** to deliver on the promise of shared responsibility versus attempts to control siloed cost centers.

Promoting a culture of cost accountability

Introducing a culture of cost-effectiveness per role goes a long way to contribute to cost governance nirvana. For example, for developers, each line of code written should come along with an understanding of how this has a direct impact on money spent by the company.

Introducing a mindset change across the business helps to deliver

well-aligned teams which helps to better understand cloud business cases which delivers cost effective business operations.

By better understanding the return of cloud investments (based on rich visualization of usage and attribution), organizing resources and allocating costs to departments and teams becomes an easier exercise.

Better budgeting and forecasting

This task is no longer the preserve of Finance, Accounting and Procurement. More importantly, it has been also recognized that this is a continual effort (one of monitoring and controlling spend on an on-going basis and not a one-time, annual process).

With infrastructure being procured from multiple touchpoints within the business, a budgeting process needs to be implemented company-wide, with regular check-ins from each business unit to review budgets, updated costs incurred, identify cost management strategies best suited for their organization and most important of all, implementation of those agreed actions.

This is not an easy task, especially as, when Cloud adoption increases, so too does overspending. In fact, 80% of customers will overshoot cloud budgets due to lack of cost effective cost optimization by 2020, as determined by Gartner⁶.

To help mitigate risk, better use and management of cloud resources (with well-defined policies) should be a given. To back this up, only key authorized people within the organization should have the authority to provision resources.

This helps to deliver enforcement to specific applications or accounts and, coupled with business context, provides a richer ability to maintain cloud cost management across the organization.

80% of customers will overshoot cloud budgets due to a lack of cost effective cost optimization by 2020, as determined by Gartner.⁴

6. "How to Identify Solutions for Managing Costs in Public Cloud IaaS," Gartner, January 2018. <https://www.gartner.com/en/documents/3847666/how-to-identify-solutions-for-managing-costs-in-public-c0>

In summary, organizations that have a great command of governance in place will ensure the following areas are covered:



3 | Key Takeaways

An evolving space

The Cloud cost management space is evidently one that is going to continue to evolve. As new technologies and consumption methods become available to an increasingly broadening target market, remaining ahead of the overspend bell curve is going to be a key challenge for many businesses. Whether or not companies can be successful in doing this will likely depend on a few key contributing factors.

- **Remaining agile within a changing environment is key.** Businesses must be able to adjust to take advantage of new pricing structures and technologies if they are to optimize Cloud spend and benefit from working with multiple Cloud Service Providers. Agile working practices must evolve in parallel with cloud service adoption, otherwise, one will hold the other back and restrict value.
- The path to achieving Cloud spend optimization nirvana is one that requires **multiple angles of attack**. There is no silver bullet piece of software or service that will cover everything. Instead, companies should endeavour to utilize software driven, application-centric cost management, and augment this with intelligently applied and up to date best practice optimization techniques. In addition, businesses should look to promote a global cost effectiveness culture and make another move away from the traditional IT/Finance resource procurement methods of yesterday.
- Finally, by adhering to the guidelines set out above, businesses will be able to **continue taking advantage of the innovation** that comes with public Cloud, whilst minimizing the impact of overspend as their cloud adoption increases on their journey ahead.

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Let's talk about
about how Cost
Reliability could
help your cost
management
initiatives.

Get in touch.