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AWS COST OPTIMIZATION & CLOUD FINANCIAL MANAGEMENT

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GoDgtl understands how cloud computing - and the benefits of flexibility, scalability, security, and agility enabled by cloud computing - can transform organizations.



Introduction

Cloud Financial Management is the cost optimization pillar of the Amazon Web Services (AWS) Well-Architected Framework. It provides guidance to help customers apply the best practices in designing, delivering, and maintaining AWS environments.

A cost-optimized workload fully utilizes all resources, achieves an outcome at the lowest possible price point, and meets your functional requirements. This white paper provides in-depth guidance for building capability within your organization, designing your workload, selecting your services, configuring and operating the services, and applying cost optimization techniques.



Cloud Financial Management & Functional Ownership

Cloud Financial Management (CFM) enables organizations to realize business value and financial success by optimizing their cost, usage, and scale on AWS.

Establish a Cost Optimization Function

This function is responsible for establishing and maintaining a culture of cost awareness. It can be an existing individual, a team within your organization, or a new team of key finance, technology, and organizational stakeholders from across a company. The function (individual or team) prioritizes and spends the required percentage of their time on cost management and cost optimization activities.

For a small organization, the function might spend a smaller percentage of time as compared to a full-time function for a larger enterprise. The function requires a multi-disciplined approach with capabilities in project management, data science, financial analysis, and software/infrastructure development. Moreover, the function can improve the efficiency of workloads by executing cost optimizations (centralized approach), influencing technology teams to execute optimizations (decentralized), or a combination of both (hybrid).

The function may be measured against their ability to execute and deliver against cost optimization goals (for example, workload efficiency metrics). Therefore, it is also crucial to secure executive sponsorship for this function. The sponsor is regarded as a champion for cost-efficient cloud consumption and provides escalation support for the function to ensure that cost optimization activities are treated with the level of priority defined by the organization. Together, the sponsor and function ensure that your organization consumes the cloud efficiently and continues to deliver business value.



Establish a Partnership Between Finance And Technology

Technology teams innovate faster in the cloud due to shortened approval, procurement, and infrastructure deployment cycles. However, these can turn into intensive processes, especially when procuring and deploying capital in data centers and on-premises environments, and during cost allocation at project approval.

Establish a partnership between key finance and technology stakeholders to create a shared understanding of organizational goals and develop mechanisms to succeed financially in the variable spend model of cloud computing. Relevant teams within your organization must be involved in the cost and usage discussions at all stages of your cloud journey, including:



FINANCIAL LEADS:

CFOs, financial controllers, financial planners, business analysts, procurement, sourcing, and accounts payable must understand the cloud model of consumption, purchasing options, and the monthly invoicing process. Moreover, due to the fundamental differences between the cloud (such as the rate of change in usage, pay-as-you-go pricing, tiered pricing, and detailed billing and usage information) and on-premises operations, a finance organization must understand how cloud usage can impact various business aspects. This can include procurement processes, incentive tracking, cost allocation, and financial statements.



TECHNOLOGY LEADS:

Technology leads (including product and application owners) must be aware of the financial requirements, (e.g., budget constraints) as well as business requirements (e.g., service level agreements). This allows the workload to be implemented to achieve the desired goals of an organization.

The partnership of finance and technology provides the following benefits:

- Finance and technology teams have real-time visibility into cost and usage.
- The teams can establish a standard operating procedure to handle cloud spending variance.
- Finance stakeholders act as strategic advisors with respect to how capital is used to purchase commitment discounts (for example, Reserved Instances or AWS Savings Plans) and how the cloud is used to grow an organization.
- Existing accounts payable and procurement processes are used with the cloud.
- Finance and technology teams collaborate on forecasting future AWS cost and usage to align/build organizational budgets.
- Better cross-organizational communication through a shared language and shared understanding of financial concepts.

Additional stakeholders within your organization that should be involved in cost and usage discussions include:



BUSINESS UNIT OWNERS:

Business unit owners must understand the cloud business model so that they can provide direction to both the business units and the entire company. This cloud knowledge is critical when there is a need to forecast growth and workload usage, and when assessing longer-term purchasing options, such as Reserved Instances or Savings Plans.



THIRD PARTIES:

If your organization uses third parties (for example, consultants or tools), ensure that they align with your financial goals and can demonstrate both alignments through their engagement models and a return on investment (ROI). Typically, third parties will contribute to reporting and analysis of any workloads that they manage, and they will provide cost analysis of any workloads that they design.



CLOUD BUDGETS AND FORECASTS:

Customers use the cloud for efficiency, speed, and agility, which creates a highly variable amount of cost and usage. Costs can decrease with increased workload efficiency or when new workloads and features get deployed. Cloud usage and costs also rise when workloads scale to serve more of your customers.

Therefore, it is essential to modify your existing organizational budgeting processes to incorporate this variability. You can adjust your existing budgeting and forecasting processes to become more dynamic using either a trend-based algorithm (using historical costs as inputs) or business

driver-based algorithms—for example, new product launches, regional expansion, or a combination of trends and business drivers.



COST AWARENESS PROCESS:

Implement cost awareness in your new and existing organizational processes. It is recommended to reuse and modify existing processes where possible to minimize the impact on agility and velocity. **The following recommendations will help implement cost awareness in your workload:**

- Ensure that change management includes cost measurement to quantify the financial impact of your changes. This practice will help you proactively address cost-related concerns and highlight cost savings.
- Ensure that cost optimization is a core component of your operating capabilities. For instance, you can leverage existing incident management processes to investigate and identify the root causes for cost and usage anomalies.
- Accelerate cost savings and business value realization through automation or tooling. When thinking about the cost of implementing, frame the conversation to include an ROI component to justify the investment of time or money.
- Extend existing training and development programs to include cost-awareness training throughout your organization. It is recommended that this includes continuous training and certification to build an organization capable of self-managing cost and usage.



REPORT AND NOTIFY ON COST AND USAGE OPTIMIZATION:

You must regularly report cost and usage optimization within your organization. You can implement dedicated sessions to cost optimization or include it in your regular operational reporting cycles for your workloads. AWS Cost Explorer provides dashboards and reports. You can track your progress of cost and usage against configured budgets with AWS Budgets Reports.

You can also use Amazon QuickSight with Cost and Usage Report (CUR) data to provide highly customized reporting with more granular data. Implement notifications on cost and usage to ensure that any changes in them can be acted upon quickly. AWS Budgets allow you to provide notifications against targets. We recommend configuring notifications on both increases and decreases and in both cost and usage for workloads.



MONITOR COST AND USAGE PROACTIVELY:

It is recommended to monitor cost and usage proactively within your organization, not just when there are exceptions or anomalies. Highly visible dashboards throughout your office or work environment ensure that key people have access to the information they need and indicate the organization's focus on cost optimization. In addition, visible dashboards enable you to promote successful outcomes and implement them throughout your organization actively.



CREATE A COST-AWARENESS CULTURE:

Implement changes or programs across your organization to create a cost-awareness culture. It is recommended to start small, then as your capabilities increase and your organization's use of the cloud increases, implement large and wide-ranging programs.

A cost-awareness culture allows you to scale cost optimization and cloud financial management through best practices that are performed in an organic and decentralized manner across your organization. This culture creates high levels of capability across your organization with minimal effort, as compared to a strict top-down, centralized approach. Small changes in culture can have significant impacts on the efficiency of your current and future workloads. **Examples of this include:**

- **Gamifying cost and usage across your organization:** You can do this through a publicly visible dashboard or a report that compares normalized costs and usage across teams (for example, cost per workload and cost per transaction).
- **Recognizing cost efficiency:** Reward voluntary or unsolicited cost optimization accomplishments publicly or privately and learn from mistakes to avoid repeating them in the future.
- Create top-down organizational requirements for workloads to run at predefined budgets.



QUANTIFY BUSINESS VALUE FROM COST OPTIMIZATION:

In addition to reporting savings from cost optimization, it is recommended that you quantify the additional value delivered. Cost optimization benefits are typically quantified in terms of lower costs per business outcome. For example, you can quantify On-Demand Amazon Elastic Compute Cloud (Amazon EC2) cost savings when purchasing Savings Plans, which reduce cost and maintain workload output levels.

You can quantify cost reductions in AWS spending when idle Amazon EC2 instances are terminated, or unattached Amazon Elastic Block Store (Amazon EBS) volumes are deleted. Quantifying business value from cost optimization allows you to understand the entire set of benefits to your organization. In addition, since cost optimization is a necessary investment, quantification will enable you to explain the return on investment to stakeholders.

Quantifying business value can help you gain more buy-in from stakeholders on future cost optimization investments and provides a framework to measure the outcomes for your organization's cost optimization activities. The benefits from cost optimization, however, go above and beyond cost reduction or avoidance.

Some of the examples of improvement include:

- **Executing Cost Optimization Best Practices:** For example, resource lifecycle management reduces infrastructure and operational costs and creates time and unexpected budget for experimentation. This process increases organizational agility and uncovers new opportunities for revenue generation.
- **Implementing Automation:** Auto Scaling is one of the examples of implementing automation to ensure elasticity at minimal effort and increase staff productivity by eliminating manual capacity planning work.
- **Forecasting Future AWS Costs:** Forecasting enables finance stakeholders to set expectations with other internal and external organization stakeholders, and helps improve your organization's financial predictability. You can use AWS Cost Explorer to perform forecasting for your cost and usage.

How Does GoDgctl Collaborate With AWS?

GoDgctl brings a team of experienced cloud experts who work directly with AWS to bring value and real solutions for your cloud projects. With direct access to AWS resources and in-house cloud consulting talent, GoDgctl is ready to guide you through your cloud journey regardless of where you are on that path. Whether it's more knowledge-based information on cloud topics such as security, or governance and compliance, or basic cloud migration aspects, or even if an assessment is needed, GoDgctl can provide a roadmap for your path to project completion and success.



Sources

For more details on operational resiliency, refer to the **Well-Architected Reliability Pillar** whitepaper.

Refer to the following resources to learn more about AWS best practices for budgeting and forecasting cloud spend.

- Reporting your budget metrics with budget reports
- Forecasting with AWS Cost Explorer
- AWS Training
- AWS Certification
- AWS Cloud Management Tools partners

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