

A STUDY ON CLOUD FINANCIAL MANAGEMENT USING FINOPS FRAMEWORK

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ABSTRACT

The data center industry is characterized by fixed expenditures. After the money has been spent, the alternatives for optimization become more restricted. When you optimize one part of the business, it drives up the spending in another part of the business, and resources are constantly in short supply. The delivery of new hardware can take up to a few months. There is no room for error in the established and tightly controlled spending, tracking, and forecasting processes. This study's major objective was to research how Financial Operations (FinOps) may be coupled with cloud monitoring technologies. This was done with the end goal of achieving cost optimization in cloud-based environments, which was a secondary target. The method of research that was chosen for this study was the qualitative research method. Companies are able to achieve cost optimization while retaining system performance and functionality, according to the findings of this study, if they put the ideas and techniques supplied in this research to use in their operations. These ideas and approaches are provided in this research.

Keywords: *Financial Management; Cloud Computing; FinOps Framework; Cost optimization.*

1. INTRODUCTION

Cloud spending makes up a sizable amount of IT spending and is projected to grow five times as quickly as it does now through 2020. Despite all of this development, the cloud operating paradigm is still in its infancy. In comparison to managing traditional on-premise IT infrastructure, operating and managing cloud infrastructure is very different. (Marshall, 2022). "Pay as you go" is the name given to the new pricing structure that has appeared as a result of the growth of cloud computing. Due to this pricing structure, users of cloud computing services are spared from having to invest a lot of money on physical servers that could not be used to their full potential, wasting efficiency and resources. Cloud service users are only billed for the resources they really use. However, utilizing this paradigm has led to the transformation of capital expenditures (CAPEX) into variable expenses, also referred to as operating expenses (OPEX). To prevent racking up excessive costs, these charges must now be tracked and managed utilizing modern cost management strategies (Sabharwal et al., 2022). Most firms that have shifted to cloud computing run the risk of exceeding their budget. This happens as a result of unpredictable costs, inadequate cost control, inaccurate predictions, and the vast amount of work needed for manual processes. For managing costs in the cloud, FinOps is an approach that is often used. The FinOps model is a set of standards and best practices that were developed to help

cloud professionals manage and optimize the fluid cloud economy, as well as to encourage collaboration, help them make educated decisions, and help them bring value to their organizations (Coupland, 2021). The following section elaborates the past literatures related to this study.

2. LITERATURE REVIEW

Cloud computing (CC) is defined as the on-demand accessibility of network resources, primarily data storage and processing power, without the need for specific and direct control by the users, as stated by **Butt et al., (2020)**. A qualitative model is proposed by **Sannino (2022)** for assessing the maturity of Cloud Financial Management practices. This model is consistent with the complexity of the Cloud Transformation path that a business has chosen to adopt, and it enables enterprises to identify any gaps and address them with suitable improvement activities. According to FinOps' attitude, **Lloyd (2022)**, opportunities to reduce costs should not be viewed in isolation with a narrow perspective, but rather in the context of a larger frame that includes the facilitation of a greater release velocity of goods and services. Cloud computing is popular today, according to **AitChikh, (2023)**. Thus, organizations rely more on cloud-based solutions to manage data, apps, and infrastructure. The cloud is gaining popularity among businesses due to its scalability, flexibility, and cost-effectiveness.

Cost reduction and security are the biggest concerns facing businesses today. Cloud technology reduces operating costs and speeds time to market. Not all cloud-based programs protect user data adequately. 80 percent of the 12,000 cloud companies allow weak passwords. Hackers might easily access the company's most sensitive data with the stolen and shared password. This study focused on cost management and FinOps issues and their causes.

3. METHODOLOGY

In this study, the research approach that is used is the qualitative research methodology. In this study, monitoring tools and services were demonstrated by putting a variety of apps and resources onto the public cloud and then continuing to monitor the cost and consumption of those resources. This study also contains a review of the pros and disadvantages of multi-cloud monitoring solutions, as well as certain business issues and technical features.

4. RESULTS AND ANALYSIS

The FinOps Lifecycle concept was created to structure practices into a framework that enterprises may use. It consists of three phases that real-world businesses can systematically implement. Instead of trying to force a transformation to their cloud process all at once, this approach enables organizations to tackle the challenges of each phase sequentially. The figure below illustrated the FinOps Lifecycle.

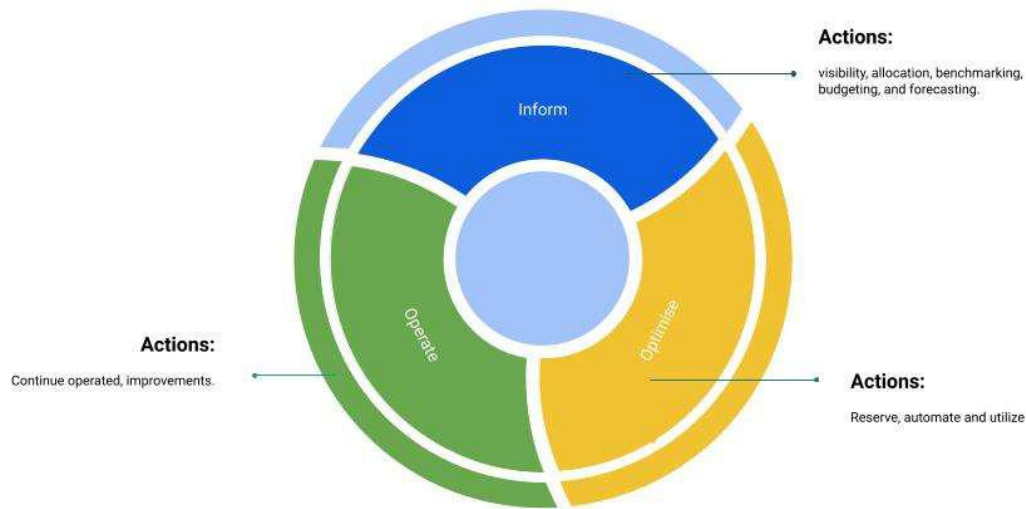


Figure 1: 5 FinOps lifecycle

Amazon Web Service (AWS), Azure, and Google Cloud Platform are the three primary cloud service providers examined in this study that are often used in the market. Each of these cloud service providers integrates the FinOps concept management tool into the subscription of their customers, with related service fees and charges. There are many similarities among the features and functionalities, but they all serve the same objective of assisting clients in tracking and optimizing their cloud expenditure, predicting costs, and managing budgets.

The cost management's capabilities and important elements include:

- Analyze and visualize consumer prices and AWS consumption with the help of AWS Cost Explorer.
- AWS Budgets: To establish a spending limit for cloud services.
- AWS Cost Anomaly Detection: By using machine learning to track cloud charges and usage over time, you can receive email warnings about out-of-the-ordinary expenditures.

Budgeting, cost optimization, and cost analysis are all provided by the Azure cost management tool. They also offer thorough instructions and a video to assist users in getting started. Everyone employed by the same organization, including the DevOps team and the financial force team, has access to the cost management tool because it is a FinOps tool of Azure. The Azure expense management dashboard shown in Figure below comes from my personal account on the Microsoft portal. With the left side menu, you can quickly keep an eye on your settings.

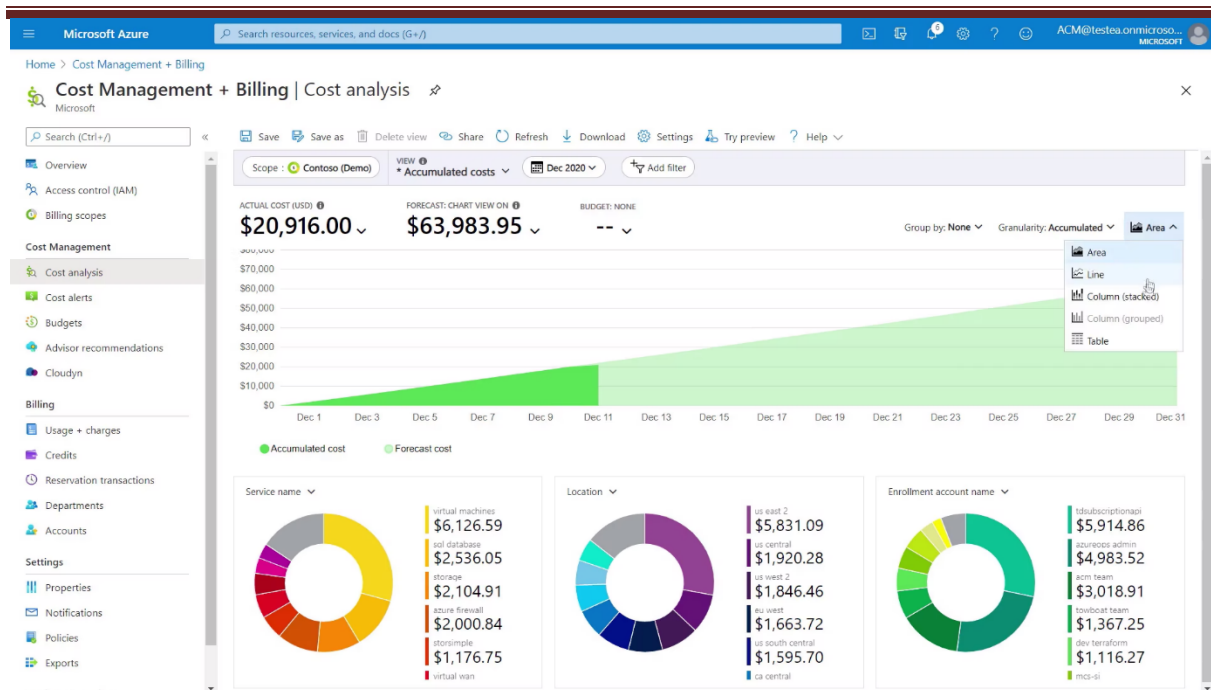


Figure 2: Azure cost management¹

The cost management's capability and important features include:

- Generating reports that incorporate cloud spend in the Azure portal.
- Establish budgets, methods of payment, and invoices.
- Billing details, including tax and legal entity information.
- Track costs, set up cost alerts, and allocate costs.

Users of Google Cloud can access a platform for expense control. Google Cloud offers a flexible hierarchy structure to arrange resources, folders, projects, and resources in a way that helps to align company objectives in order to deliver better accountability. To further assist users in learning and comprehending how to utilize the feature to monitor their cloud expenses and generate reports, Google Cloud also offers thorough advice documents and tutorial videos. A Google cloud dashboard is shown below. You can customize the billing and other options in the left menu by clicking the top bar.

¹<https://azure.microsoft.com/en-in/products/cost-management>

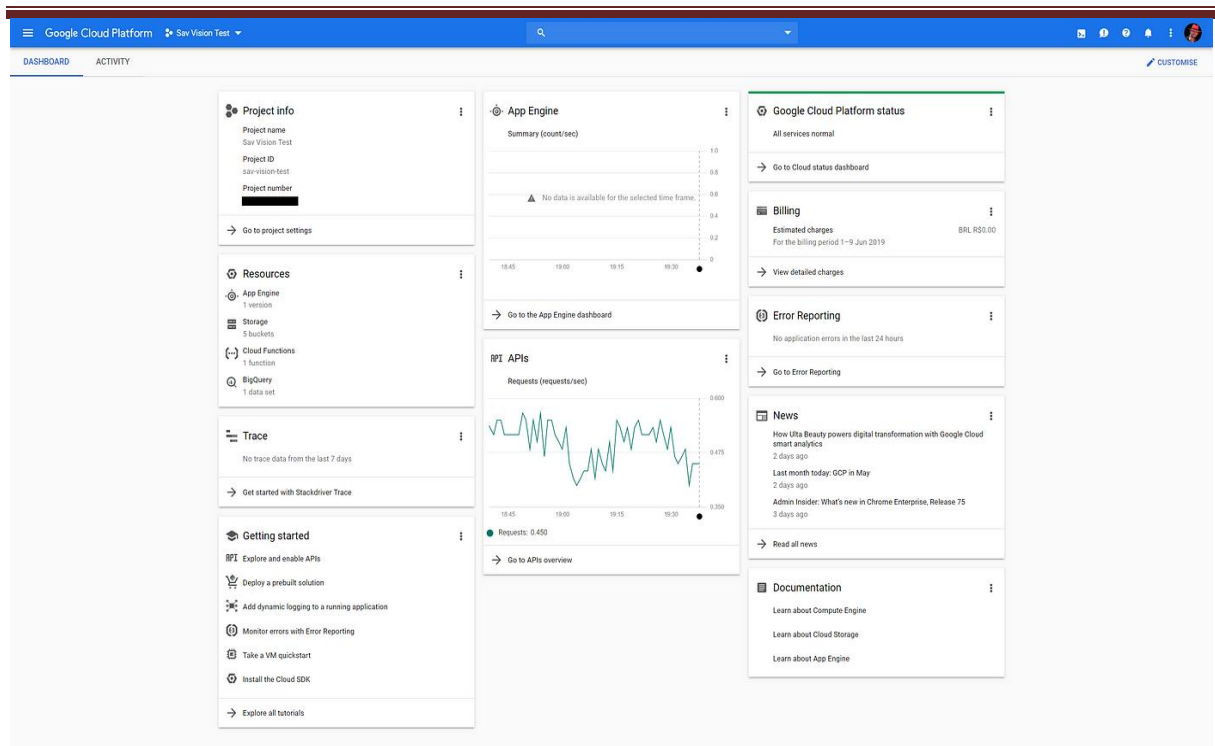


Figure 3: Google Cloud Dashboard²

5. CONCLUSION

Small businesses can increase their use of the cloud by adhering to the FinOps lifecycle to save costs and waste. This is accomplished through gathering information on cloud cost, improving cost management, and reducing cloud cost. FinOps may assist small businesses in ensuring that their cloud deployments adhere to corporate policies and cost-cutting objectives while enhancing security and efficiency. This can be done by establishing budgets, categorizing resources, and employing cost-optimization strategies like instances reservations and rightsizing. These products are pricy, challenging to manage, and might not be accessible to small enterprises. Small organizations may find multi-cloud billing monitoring tools to be worthwhile investments as they use more cloud services. If they use many cloud service providers, have complicated pricing plans, or require cloud cost visibility. At this point, a cost monitoring tool may assist them in comprehending and managing cloud charges among providers and in arriving at the best financial choices.

²<https://medium.com/google-cloud/gcp-dashboard-overview-c80ffd0ed521>

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