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FINOPS AND OBSERVABILITY: OPTIMIZING CLOUD RESOURCE MANAGEMENT FOR COST EFFICIENCY

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Abstract

The integration of Financial Operations (FinOps) with observability practices represents a transformative approach to cloud resource management and cost optimization. As organizations face increasing complexity in cloud environments, the need for sophisticated financial management and operational oversight has become paramount. This article explores how the combination of FinOps principles with advanced observability techniques, enhanced by artificial intelligence and machine learning, enables organizations to achieve better control over cloud expenditure while maintaining optimal performance. The article examines the evolution of cloud cost management, the role of AI-powered resource optimization, and the implementation of effective chargeback models, demonstrating how these integrated approaches contribute to improved financial accountability and operational efficiency in cloud computing environments.

Author Keywords

FinOps, Cloud Observability, Resource Optimization, Artificial Intelligence, Financial Accountability.

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Reference

- [1] Oleksandr Kushchov, "Global Trends in the Development of Cloud Solutions and Technologies," ResearchGate, December 2023. Available: https://www.researchgate.net/publication/377273883_GLOBAL_TRENDS_IN_THE_DEVELOPMENT_OF_CLOUD_SOLUTIONS_AND_TECHNOLOGIES
- [2] Perry Tapiero "Understanding FinOps: Principles, Tools, and Measuring Success," Anodot Learning Center, 2023. Available: https://www.anodot.com/learning-center/understanding-finops-principles-tools-and-measuring-success/
- [3] Aditya Nidmarti et al., "Cloud Trends Around the World in 2023," BVP Atlas, 2023. Available: https://www.bvp.com/atlas/cloud-trends-around-the-world-in-2023
- [4] Mary Shacklett, "3 Tips for Cloud Cost Optimization," EdTech Magazine, 24 September 2024. Available: https://edtechmagazine.com/higher/article/2024/09/cloud-cost-optimization-3-best-practices-for-higher-ed-perfcon

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- [5] Joanna Kosinska et al., "Towards the Observability of Cloud-native applications: The Overview of the State-of-the-Art," ResearchGate, January 2023. Available: https://www.researchgate.net/publication/371230230_Towards_the_Observability_of_Cloud-native_applications_The_Overview_of_the_State-of-the-Art
- [6] Kris Bliesner, "Switching from a FinOps Observability to a FinOps Orchestration Mindset," Spiceworks, 22 December 2022. Available: https://www.spiceworks.com/finance/analysis/guest-article/switching-from-a-finops-observability-to-a-finops-orchestration-mindset/
- [7] Satyanarayan Kanungo, "AI-driven resource management strategies for cloud computing systems, services and applications," ResearchGate, April 2024. Available: https://www.researchgate.net/publication/380208121_AI-driven_resource_management_strategies_for_cloud_computing_systems_services_and_applications
- [8] Dinesh Soni & Neetesh Kumar, "Machine learning techniques in emerging cloud computing integrated paradigms: A survey and taxonomy," Science Direct, 8 June 2022. Available: https://www.sciencedirect.com/science/article/abs/pii/S1084804522000765
- [9] Jason Stading, "The Basics of Good Cloud Financial Management," ISG, 2023. Available: https://isg-one.com/articles/the-basics-of-good-cloud-financial-management
- [10] Thijis Baars & Ravi Khadka, "Cost model for services in cloud computing," 3 September 2014. Available: https://www.sciencedirect.com/science/article/abs/pii/S0167739X14001502
- [11] Perry Tapiero, "What Is a FinOps Framework?," Anodot Learning Center, 2024. Available: https://www.anodot.com/learning-center/finops-framework-2024/
- [12] Niraj Pandita et al., "Fin Ops for cloud value- Conscious enterprises," TCS Consulting Services, 2024. Available: https://www.tcs.com/what-we-do/services/consulting/white-paper/cloud-cost-management-optimization-finops-framework
- [13] Ken Kaplan, "IT teams opt for fin ops to maximize value of Hybrid multicloud," Nutanix, 13 October 2023. Available: https://www.nutanix.com/theforecastbynutanix/business/rise-of-finops-to-manage-hybrid-multicloud-costs
- [14] Tahseen Khan & Wenhong Tian et al.,"Machine learning (ML)-centric resource management in cloud computing: A review and future directions," 6 May 2022. Available: https://www.sciencedirect.com/science/article/abs/pii/S1084804522000649.

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