JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

Navigating Technology Risk and Governance in Small and Medium Enterprises (SMEs) Amid Multi-Cloud Adoption

Author: Abhijit Dasgupta; Co-Author: Dr. Atul Pati Tripathi; Institution: Swiss School of Business and Management Geneva; Communication

Abstract

The COVID-19 pandemic accelerated the adoption of cloud technologies by enterprises of all sizes. While large enterprises faced challenges with initial adoption due to complex decision-making processes, small and medium enterprises (SMEs) rapidly embraced cloud solutions to ensure business continuity and competitive agility. However, the exponential growth in multi-cloud and hybrid cloud environments has introduced significant governance challenges, particularly for SMEs with limited resources and expertise.

This paper explores the trends in cloud adoption, focusing on the challenges faced by SMEs in managing technology risks, such as data governance, operational inefficiencies, and financial oversight. It highlights the gaps in existing frameworks and proposes a comprehensive governance approach tailored for SMEs to address these issues effectively. The findings are supported by a case study and existing research, providing actionable insights for SMEs to establish resilient governance structures in a multi-cloud environment.

Introduction

The adoption of cloud computing has transformed the way enterprises operate, offering unprecedented scalability, flexibility, and cost efficiency. While early adoption trends were predominantly seen in large organizations, the pandemic drove SMEs to embrace cloud solutions at an accelerated pace. This was not limited to basic services like email or collaboration tools but extended to mission-critical processes, including Customer Relationship Management (CRM), payroll, legal compliance, and recruitment.

Although this shift enabled SMEs to achieve faster time-to-market and operational agility, it also exposed them to multifaceted risks. These include data residency and security concerns, the complexity of managing multiple service providers, and operational inefficiencies arising from fragmented IT landscapes. Unlike larger organizations, SMEs often lack the expertise, resources, and frameworks required to govern technology effectively in such environments.

Challenges in Multi-Cloud Governance

As SMEs integrate cloud solutions from multiple providers, they encounter challenges across key areas of IT governance:

1. **Operational Management**: Managing changes, incidents, and releases across different platforms introduces complexity.
2. **Financial Oversight**: Usage-based pricing models make it difficult to predict and control cloud costs.
3. **Data Governance**: Ensuring compliance with data protection laws while managing data classification, retention, and localization is a daunting task.
4. **Performance Management**: Dependence on multiple cloud services impacts the ability to meet performance SLAs.
5. **Asset Management**: Inventorying and tracking IT assets across disparate environments remains challenging.

These issues are compounded by a lack of a unified governance framework that addresses the diverse needs of SMEs, leaving them exposed to security vulnerabilities, operational inefficiencies, and cost overruns.

Studies indicate that over 85% of enterprises have adopted hybrid or multi-cloud strategies (Nutanix, 2019; Flexera, 2020). However, governance frameworks offered by major cloud providers like AWS, Microsoft, and Google primarily focus on security and compliance, neglecting broader governance challenges. For example, Baron (2019) identified misconfigurations and a lack of visibility as key risk factors in multi-cloud environments, while Levite and Kalwani (2020) highlighted the absence of comprehensive regulatory frameworks for cloud governance.
The need for a holistic governance framework tailored to the unique requirements of SMEs is evident. Existing models often fail to account for the resource constraints and operational realities faced by smaller enterprises, necessitating a more nuanced approach.

Proposed Framework

This study proposes a governance framework specifically designed for SMEs operating in multi-cloud and hybrid environments. The framework focuses on the following pillars:

1. **Integrated Risk Management**: Combining operational, financial, and security risk assessments into a unified governance strategy.
2. **Cost Optimization Tools**: Leveraging automated tools to track and manage cloud expenditures effectively.
3. **Data Discovery and Classification**: Implementing scalable solutions to identify and classify sensitive data across cloud platforms.
4. **Performance Monitoring**: Establishing KPIs that account for the interdependencies of cloud services.
5. **Human Resource Development**: Building internal capabilities through targeted training programs to bridge skill gaps.

A global SME with a cloud-first strategy was analyzed to validate the framework. The company faced challenges in managing its hybrid cloud environment, including escalating costs and fragmented data

governance. By implementing the proposed framework, the SME achieved a 20% reduction in operational costs and significantly improved compliance with regulatory requirements.

Recommendations

1. SMEs should begin by assessing their current governance maturity and identifying high-priority areas for improvement.
2. Cloud service providers must enhance their governance offerings to cater to SMEs, focusing on simplicity and cost-effectiveness.
3. Policymakers should collaborate with industry stakeholders to establish clear regulatory guidelines for multi-cloud environments.

Summary

The rapid adoption of cloud technologies has created both opportunities and challenges for SMEs. While multi-cloud strategies provide scalability and flexibility, they also introduce complexities that traditional governance models fail to address. This paper outlines a tailored governance framework to help SMEs navigate these challenges effectively. By adopting a structured approach to technology risk and governance, SMEs can unlock the full potential of cloud computing while mitigating associated risks.

References

1. Baron, H. (2019). *Security Challenges in Hybrid and Multi-cloud Environments.* Cloud Security Alliance.
2. Chelliah, P.R., & Surianarayanan, C. (2021). *Multi-Cloud Adoption Challenges for the Cloud-Native Era.*International Journal of Cloud Applications and Computing, 11(2), 67–96. doi:10.4018/ijcac.2021040105
3. CloudEnsure-Cloud Governance Platform. (2021). *Cloud Governance Model - The Best Approach to be Followed.*
4. Dhirani, L.L., & Newe, T. (2020). *Hybrid Cloud SLAs for Industry 4.0: Bridging the Gap.* Annals of Emerging Technologies in Computing, 4(5), 41–60. doi:10.33166/aetic.2020.05.003
5. Levite, A., & Kalwani, G. (2020). *Cloud Governance Challenges: A Survey of Policy and Regulatory Issues.*Carnegie Endowment for International Peace.
6. Microsoft. (2022). *Hybrid & Multicloud Perceptions Survey.*
7. Nutanix. (2019). *2019 Enterprise Cloud Index Report.*
8. SearchCloudComputing. (n.d.). *6 Cloud Governance Framework Principles and Challenges.*
9. BMC Blogs. (n.d.). *Hybrid Cloud Governance & Compliance.*
10. Mathenge, P. (n.d.). *The Flexera 2020 State of the Cloud Report.*