

Cloud Security and Privacy in Financial Institutions: Challenges, Frameworks, and Future Directions

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Abstract: *The adoption of cloud computing in financial institutions has transformed the way data is processed, stored, and analyzed, enabling increased agility, scalability, and cost efficiency. However, these benefits are accompanied by critical concerns surrounding data security, privacy, and regulatory compliance. This paper explores the evolving threat landscape, outlines the regulatory pressures specific to the financial industry, and presents frameworks and best practices for secure cloud deployment. Drawing on case studies and emerging technologies such as AI-based threat detection and confidential computing, we propose a strategic roadmap to enhance cloud security and privacy in financial institutions. The study also highlights the intersection of cybersecurity and financial governance, emphasizing the role of multi-stakeholder collaboration in shaping a resilient digital banking infrastructure.*

Keywords: Cloud security, financial data privacy, regulatory compliance, zero-trust architecture, encryption, hybrid cloud, confidential computing, cyber security in finance, multi-cloud security

