

A Comprehensive Framework to Ensure Data Security in Cloud Computing: Analysis, Solutions, and Approaches

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Abstract : Cloud computing has completely transformed the way many businesses operate. Traditionally, confidential data of a business is stored in computers located within the premise of the business. Therefore, a lot of business capital is put towards maintaining computing resources and hiring IT teams to manage them. The advent of cloud computing changes everything. Instead of purchasing and managing their infrastructure, many businesses have started to shift towards working with the cloud with the help of a cloud service provider (CSP), leading to cost savings. However, it also introduces security risks. This research paper focuses on the security risks that arise during data migration and user authentication in cloud computing. To overcome this problem, this paper provides a comprehensive framework that includes Transport Layer Security (TLS), user authentication, security tokens and multi-level data encryption. This framework aims to prevent unauthorized access to cloud resources and data leakage, ensuring the confidentiality of sensitive information. This framework can be used by cloud service providers to strengthen the security of their cloud and instil confidence in their users.

Keywords : Cloud computing, Cloud security, Cloud security issues, Cloud security framework

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