

Optimization of Serverless Mobile Cloud Applications for Enhanced Security and Resource Efficiency

Tapankumar A. Kakani

Software Developer, Saurashtra University,
Department of IT, Pactiv Evergreen Inc. Mundelein, IL, USA

Abstract: *Serverless mobile cloud applications, while highly scalable and cost-efficient, face critical challenges in terms of security vulnerabilities and inefficient resource management. These challenges are amplified by the dynamic nature of mobile environments and the reliance on third-party infrastructure. This research specifically addresses the problem of securing data transmission, managing authentication and optimizing the allocation of computing resources in serverless mobile cloud architectures. To resolve these issues, the paper proposes a novel, integrated framework that leverages machine learning to predict application resource demands and proactively scale serverless functions. The approach includes the implementation of multi-factor authentication, role-based access control, and encryption protocols to enhance data confidentiality and system integrity. This research demonstrates significant improvements in application performance, reduced infrastructure costs, better cache management, and a notable reduction in latency and miss rates. The proposed model enhances serverless mobile cloud applications' reliability, scalability, and cost-effectiveness by combining adaptive security mechanisms with intelligent resource provisioning*

Keywords: Serverless, Mobile Cloud, Resource Management, Encryption, Infrastructure, Security

