IJARSCT

ISSN (Online) 2581-9429

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Impact Factor: 7.67

Volume 5, Issue 3, March 2025

Role of Identity and Access Management in Zero Trust Architecture for Cloud Security: Challenges and Solutions

Vikas Prajapati
Independent Researcher
Prajapati.vikas2707@gmail.com

Abstract: *Modern cloud computing adoption patterns have caused security issues for digital identity protection and resource authorization to become critical problems. IAM functions as a core element of ZTA in cloud security since it channels access management through authentication protocols and continuous verification frameworks that authorize user permissions. NIST explains that ZTA cuts out the requirement of implicit trust and activates rule-based security through device health assessments with dynamic risk evaluation. User identification is another parameter that drives security decisions. The important security concepts ZTNA, RBAC, MFA and LPA operate within IAM to prevent cyber threats and stop unauthorized system access. The implementation of IAM in Zero Trust environments requires addressing four main hurdles: managing complex identities and their integration with old systems and the need for extra staff to manage these systems while addressing scalability requirements across multiple cloud platforms. The article examines several modern security technologies, such as Just-in-Time (JIT) access and behavior-based access control, and password-less authentication, as well as Security Information and Event Management (SIEM). Organizations that implement these security strategies will be able to enforce better protection while optimizing secure access and developing robust Zero Trust security solutions for cloud protection.*

Keywords: Zero Trust Architecture (ZTA), Identity and Access Management (IAM), Multi-Factor Authentication (MFA), Just-In-Time (JIT) Access

DOI: 10.48175/IJARSCT-23902