

# **A Taxonomy of Virtualization Security Issues in Cloud Computing Environments**

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Objectives: To identify the main challenges and security issues of virtualization in cloud computing environments. It reviews the alleviation techniques for improving the security of cloud virtualization systems. Methods/ Statistical Analysis: Virtualization is a fundamental technology for cloud computing, and for this reason, any cloud vulnerabilities and threats affect virtualization. In this study, the systematic literature review is performed to find out the vulnerabilities and risks of virtualization in cloud computing and to identify threats, and attacks result from those vulnerabilities. Furthermore, we discover and analyze the effective mitigation techniques that are used to protect, secure, and manage virtualization environments. Findings: Thirty vulnerabilities are identified, explained, and classified into six proposed classes. Furthermore, fifteen main virtualization threats and attacks are defined according to exploited vulnerabilities in a cloud environment. Application/Improvements: A set of common mitigation solutions are recognized and discovered to alleviate the virtualization security risks. These reviewed techniques are analyzed and evaluated according to five specified security criteria.

Almutairy, Nadiyah M. 1, Al-Shqeerat, Khalil H. A. 1 and Al Hamad, Husam Ahmed 2, (2019), A Taxonomy of Virtualization Security Issues in Cloud Computing Environments, Indian Journal of Science and Technology.