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Project Title: Application and Evaluation of Cloud Security Posture Management (SCPM)

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Keywords: Security, cloud, posture management, SCPM, breach, vulnerability, multi-tenancy

Project Summary:

The potential for attack on computer systems is on the increase. Cybercriminals have, in the past year, focused their attention on easy targets as companies downsized and repositioned with the majority of employees working from home. However, while this threat will not disappear post-Covid, it is anticipated that cybercriminals will re-focus attention on the cloud as more companies migrate infrastructure, storage and services. Fortunately, the industry has evolved a set of tools for general application to cloud infrastructures, under the umbrella of Cloud Security Posture Management (CSPM). These tools mitigate **unmanaged** risks and have been explored by both industry and academia within single tenant cloud environments. However, the application and effectiveness of these measures when applied to a **multi-tenant cloud environment** has not received the same degree of academic attention. Kumar and Reddy (2020) describe multi-tenancy as a framework that lets “tenants share the same hardware resources, including mutual apps and database instances that enable the user to fit their needs as they do in a dedicated setting. Multi-tenancy has the ability to share hardware services and offer a high degree of device configuration” (Kumar and Reddy 2020, p.810). Small configuration errors in the construction of multi-tenancy cloud environments increases the attack surface and can escalate breaches of security, where one tenant can access the data of other tenants, or where one tenant can use the resources of another tenant to further escalate attacks, CSMP provides a potential solution. This proposal addresses the application of CSPM to multi-tenancy environment.

Candidate Qualifications/Requirements:

A first or second-class upper division undergraduate degree in a relevant computing discipline. Majors in cloud computing would be an advantage and knowledge of security in a cloud environment would be beneficial.