Section: PUBP-6727

Mutual Monitoring in the Cloud

Alexander Stein

1 Problem Statement

Cloud computing infrastructure is essentially ubiquitous, but adoption is not without challenges. Cloud service providers must cater to customers in regulated sectors, complying with cybersecurity frameworks that create high barriers to entry. One barrier is ongoing evaluation of the provider's cybersecurity posture, often resulting in centralized bureaucracies. FedRAMP oversees and documents a prominent example of such a program, the Continuous Monitoring Program.

Are these bureaucracies an optimal solution, or a last resort that fails to keep pace with cloud technology as it proliferates and evolves? If they are a last resort, is there a better way?

2 Solution Statement

I will use this research to design and evaluate an alternative to centralized continuous monitoring, mutual monitoring. The foundation of mutual monitoring will be federated data services, known in other security use cases as transparency services. The services will necessarily change cloud service provider and customer behavior, while also incentivizing auditors to sell value-add analytics services in these data services, and possibly obsolete centralized authorities like FedRAMP.

Week #	Description of Task	Status
W1	Initialize code repository for prototype service	Complete
W1	Present proposal to advisors and integrate feedback; obtain commitment from advisors	In Progress
W1	Read FedRAMP documentation for ConMon processes	In Progress
W1	Begin outline of FedRAMP ConMon critical analysis	In Progress

3 Completed Tasks (Last 2 Weeks)

4 Tasks for the Next Project Report

5 Questions or issues I'm having

6 Methodology Paragraph Summary

7 Timeline

8 Evaluation

9 Report Outline

10 References

References

Cyber Safety Review Board. (2024). *Review of the summer 2023 microsoft exchange online intrusion.* CISA. Retrieved 2025-05-20, from http://web.archive.org/web/20250419152028/https://www.cisa.gov/sites/default/files/2025-03/CSRBReviewOfTheSummer2023MEOIntrusion508.pdf

FedRAMP. (2023). *Fedramp collaborative conmon quick guide.* Retrieved 2023-05-22, from http://web.archive.org/web/20250404235629/https://www.fedramp.gov/assets/resources/documents/FedRAMP_Collaborative_ConMon_Quick_Guide.pdf

FedRAMP. (2025). *Fedramp csp authorization playbook.* Retrieved 2025-05-18, from https://web.archive.org/web/20250413105351/https://www.fedramp.gov/assets/resources/documents/CSP_Authorization_Playbook.pdf

Gartner. (2024). *Gartner forecasts worldwide public cloud end-user spending to total $723 billion in 2025.* Retrieved 2025-05-18, from https://web.archive.org/web/20250415023404/https://www.gartner.com/en/newsroom/press-releases/2024-11-19-gartner-forecasts-worldwide-public-cloud-end-user-spending-to-total-723-billion-dollars-in-2025

Lewis Commission. (2025). *Faster into the cloud: Accelerating federal use of cloud services for security and efficiency.* Center for Strategic and International Studies. Retrieved 2025-05-18, from https://web.archive.org/web/20250116234900/https://csis-website-prod.s3.amazonaws.com/s3fs-public/2025-01/250115_Lewis_Cloud_Commission.pdf

stackArmor. (2024). *How much does fedramp compliance cost?* Retrieved 2025-05-18, from https://web.archive.org/web/20240808151743/https://stackarmor.com/how-much-does-fedramp-compliance-cost/

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