The Security in Elastic Secure Infrastructure

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Abstract

Bolted is a new architecture for bare-metal clouds that enables tenants to control tradeoffs between security, price, and performance. Security-sensitive tenants can minimize their trust in the provider and achieve similar levels of security and control that they can obtain in their own private data centers, while security-insensitive customers may opt out of these security measures; experimentally we show omitting encryption-based protections can improve micro-benchmark performance by 8x and that of complex applications by over 50%. Our prototype exploits a novel provisioning system and specialized firmware to enable servers to be securely provisioned rapidly (3x faster than commonly used insecure provisioning systems), allowing highly secure tenant enclaves of machines to be created and modified elastically.

Speaker Bio

Amin Mosayyebzadeh is a BU PhD student under Prof. Krieger's supervision. His research interests are cloud computing, distributed systems and parallel computing. Currently, he works on elastic secure cloud in MOC. The goal of the project is to have a secure bare metal cloud with fast and elastic provisioning. The team argues that tenants should control their own security with minimal trust in the provider.