# RSAConference2018

San Francisco | April 16-20 | Moscone Center

SESSION ID: PDAC-T10



# PROTECTING CONTAINERS FROM HOST-LEVEL ATTACKS

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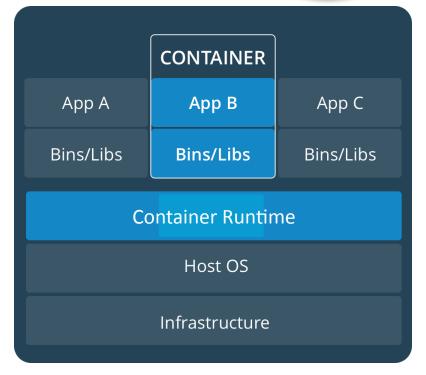
@endophage



#### What are Containers?



	VM	
Арр А	Арр В	Арр С
Bins/Libs	Bins/Libs	Bins/Libs
Guest OS	Guest OS	Guest OS
Hypervisor		
Infrastructure		



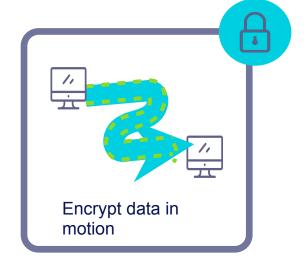




### Missing gap in data protection









Prevent disk theft and image theft

Prevent snooping and unauthorized accesses

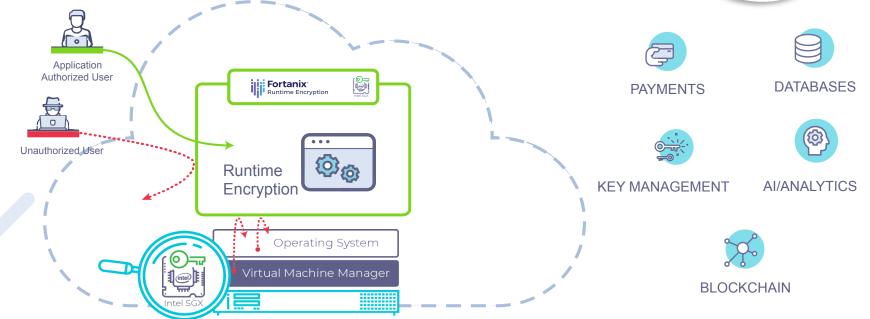
Vulnerable to misuse from attackers and insiders





#### Protect Data in Use: Runtime Encryption and Intel SGX





- Intel Software Guard Extensions (SGX) technology runs apps inside secure enclaves
- Runtime Encryption protects applications even when the infrastructure is compromised





# Data in Use Protection for Apache Webserver

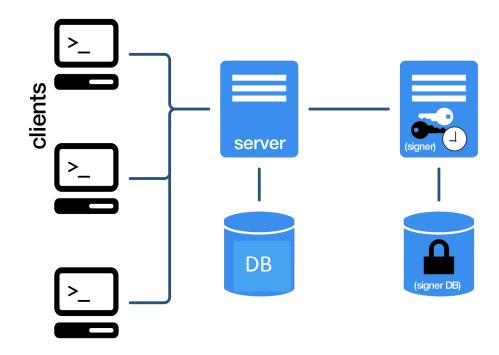






# **Notary Architecture**









# **Docker Notary**











Q&A

## Apply What You Have Learned Today



Identify which containers you run today need runtime encryption

Learn more about Intel SGX – visit the Intel booth at RSA

 Research cloud providers with SGX support – IBM Cloud, Microsoft Azure, and Equinix

