Sensing in Hybrid Clouds

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Document Markings

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Overview

Why this isn’t a vendor issue
Security in hybrid clouds
Three
Four
Why This Isn’t Just a Vendor Issue

Cloud hosting services are dedicated to provision

The organization that uses cloud services is responsible for security

- Provisioning and monitoring is done jointly with cloud service provider (CSP)
- Identify requirements and expectations, compare with contract statements
- Content, not infrastructure
- Abuse, not activity

A using organization may host services on more than one vendor

Understand trade-offs and risks
Shared Responsibility Model – 1

Traditional IT

- Application
- Data
- Runtime
- Middleware
- Operating System
- Virtualization
- Servers
- Storage
- Networking

You Manage

Infrastructure (as a Service)

- Application
- Data
- Runtime
- Middleware
- Operating System
- Virtualization
- Servers
- Storage
- Networking

Delivered as a Service

Platform (as a Service)

- Application
- Data
- Runtime
- Middleware
- Operating System
- Virtualization
- Servers
- Storage
- Networking

Delivered as a Service

Software (as a Service)

- Application
- Data
- Runtime
- Middleware
- Operating System
- Virtualization
- Servers
- Storage
- Networking

Delivered as a Service
<table>
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Security in Hybrid Cloud

Deploy services across both public and private clouds, in cooperation with on-premises services

You manage:
• Previous shared responsibilities
• Local administration
• Mission and load between on-premises and cloud hosting
• On-premises security
• Interaction between on-premises and cloud assets
Storing Security and Other Information

Security data (traffic capture and service logs) is high velocity

Need to make conscious decision where to store data

• Blob “hot” storage is more expensive than “warm” or “cold” storage.
• Warm and cold storage are slower and can get expensive if data is accessed too often.
• Data warehouse (e.g., Redshift) adds complexity to storage questions (similar to in-house, but not identical).

Need to properly control access to security data.
Security Issues: Dealing With Mixed Security

Detecting issues:
• Events
• Identities

CSP shared responsibilities:
• Monitor infrastructure and services
• Sensing infrastructure for backend

Client shared responsibilities:
• Profiling system, services, usage
• Incident response
• Coordination
Security Issues: Turning Data Into Information

Context
Precursors vs. Indicators vs. false alarms
Microanalysis
Macroanalysis
Reporting

Precursors vs. Indicators vs. false alarms
Monitoring Capabilities

Bridging:

- Address spaces
- Traffic volume differences
- Port/Protocol differences (due to gateways, tunneling)
- Timing differences (clock drift and traffic delays)

Varying views of events

- Proxies and retransmission
- Traffic view vs. service view
- De-interleaving traffic
- Partial capture
Summary

Hybrid clouds are increasingly with us
Need to address monitoring and analysis challenges
Mix of commercial, academic, and governmental efforts
Questions?

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