Securing data in the cloud

Own your keys in the Cloud – Securosys global Cloud HSM-solution

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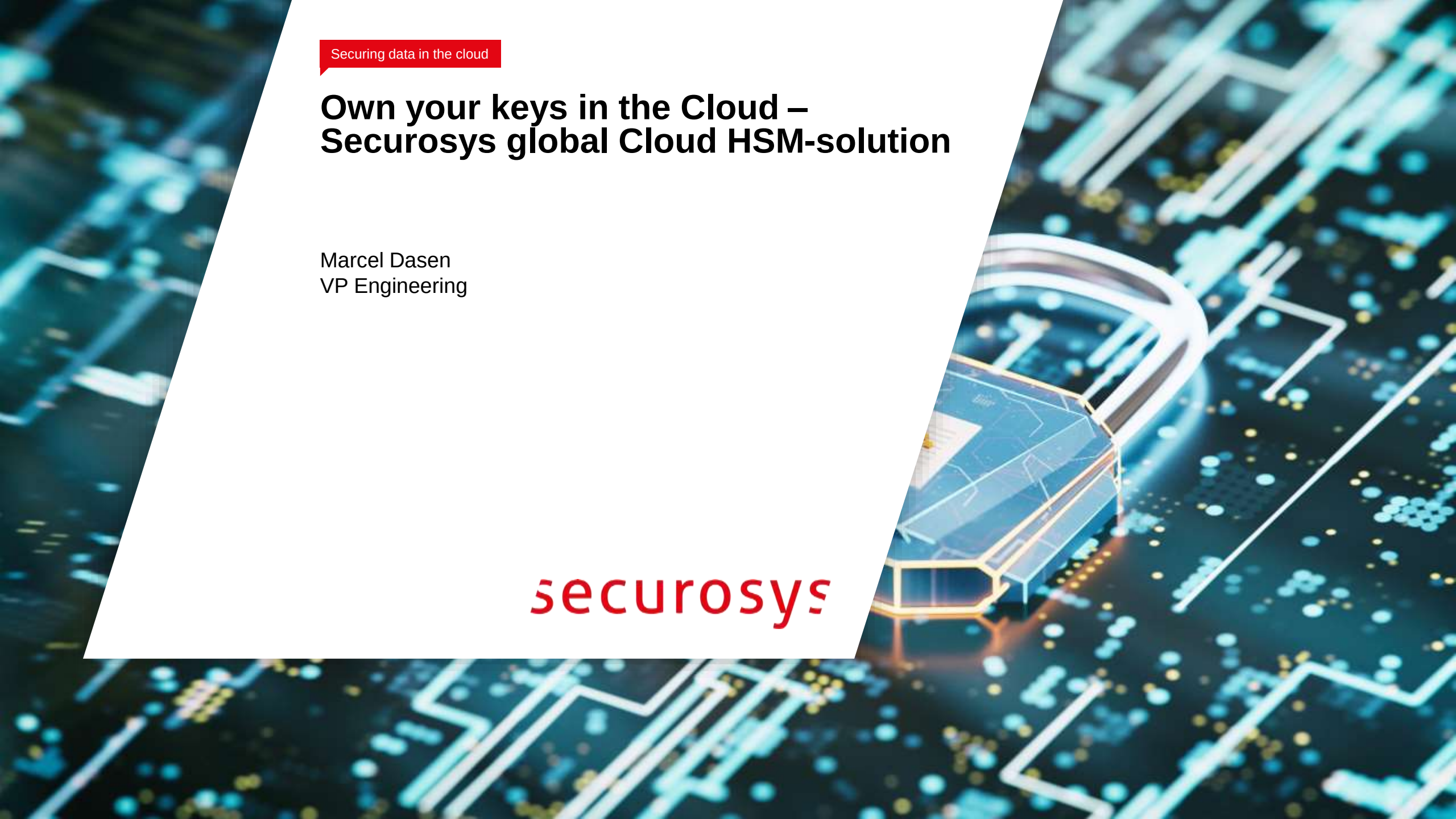
VP Engineering

securosys

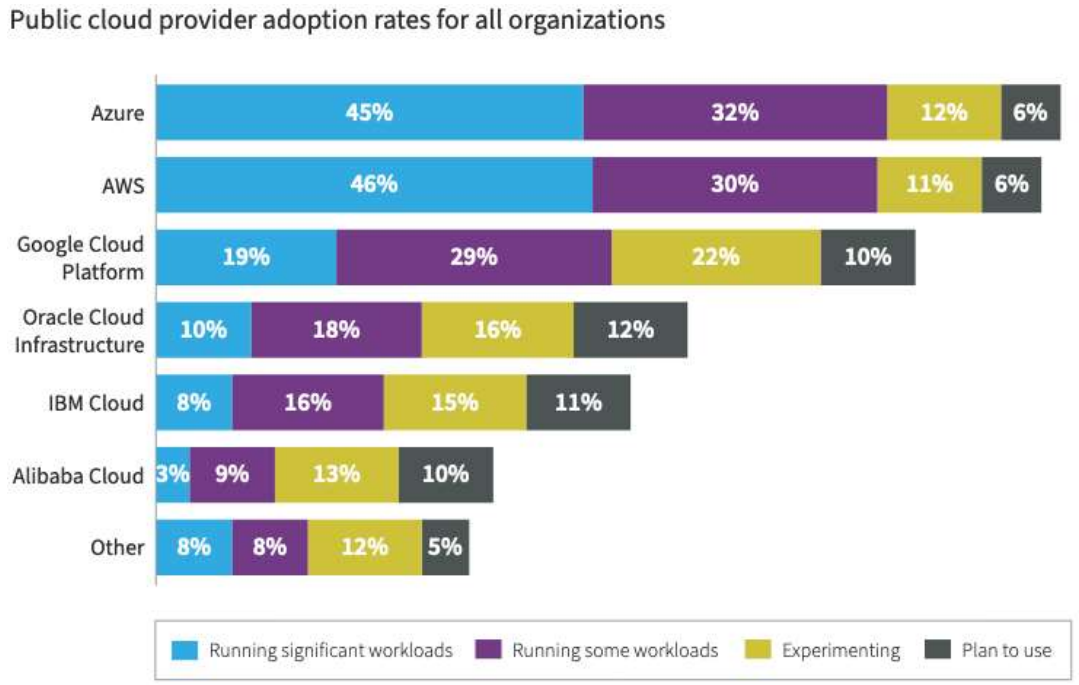


Stats 2022

Adoption of Cloud

Cloud Computing Status 2022 (Key Statistics)

- 94% of global enterprises use the cloud by 2019
- 15% growth of SMB cloud
- as of 2022 Microsoft Azure and AWS are the largest players



Flexera 2022 State of the Cloud Report

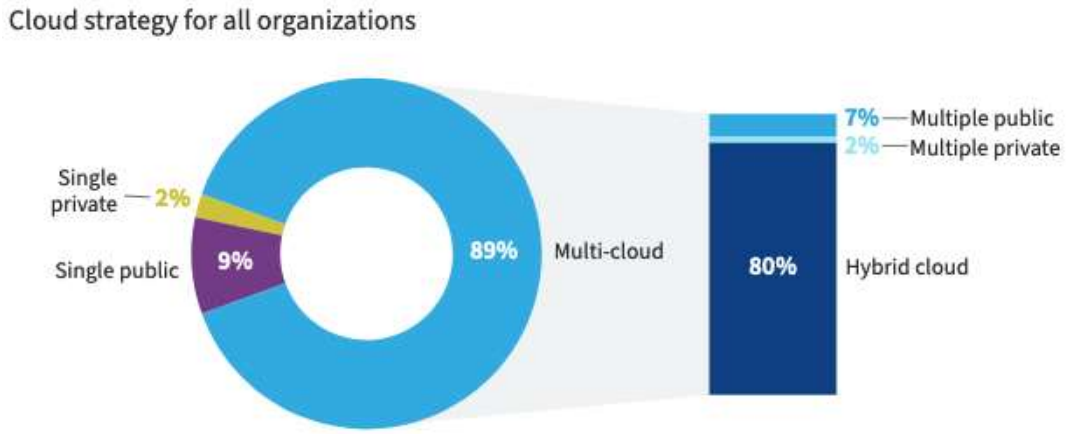
Stats 2022

Single, multi-cloud, hybrid

Cloud Computing Status 2022 (Key Statistics)

89% are hybrid or multi-cloud

- **80% are using a hybrid cloud, on-prem approach**
- **9% of organizations are using two or more cloud providers. Only 9% use a single cloud deployment.**



Flexera 2022 State of the Cloud Report

Cloud operation: drivers

Scalability of IT: Easier scaling with business demand, capex -> opex

Reduction of operational depth

reduction of necessary skills

Quality improvement by software re-use and operational excellence -> SaaS

Agility shorter product cycles

faster adapt to market needs

Opportunity for an over all cost reduction

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More than Hyperscaler: cloud operation paradigm

CI / CD Pipeline

continuous improvement

continuous deployment (in-situ)

Deployment in containers (docker)

Containerisation

Service deployment and scalability with containers

Microservices: One service per instance / user

Service / API orientation

Functionality is consumed as a service (IaS, PaaS, SaaS)

Hybrid operation: On-prem and cloud workload / services work together

Paradigm Shift

Data is most secure if useless to thieves

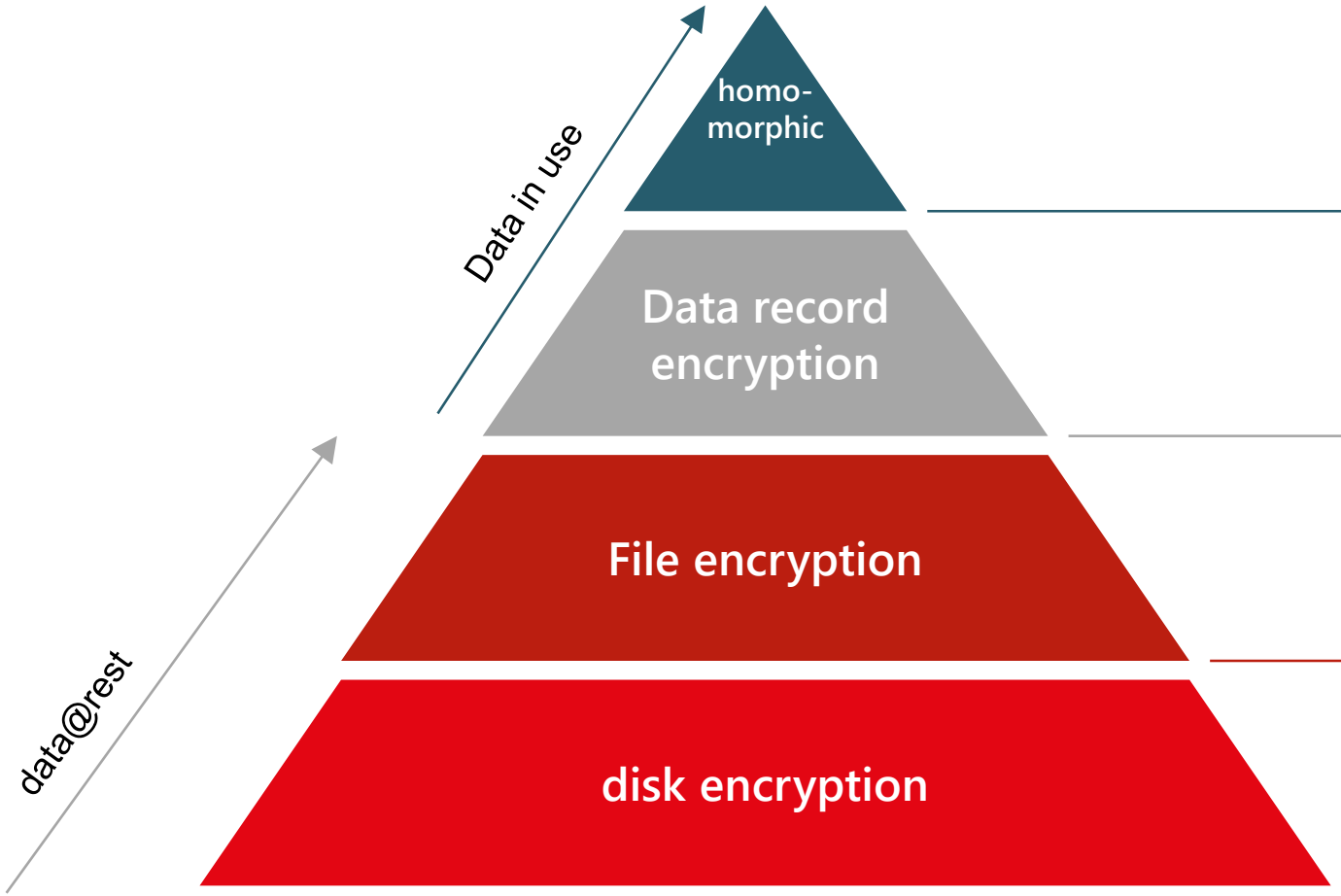
Data protected by access control – authentication and authorization – requires ACLs to be effective. Beyond reach of ACL infrastructure nobody cares for governance or disclaimers.

Encryption adds a basic layer of access control to data.
No matter what access is attempted a key is prerequisite.

The combination is crucial: state-of-the-art ACL infrastructure handling access to keys and data being protected by nature.

You can’t control where your data goes – any longer.
But you know who to trust with a key to see it.

Securing the cloud operation paradigm



Processes data in encrypted from

Data never clear text

Dynamic data decryption for use only

Clear text only while data in memory

Protects data from priviledged roles

Data loss protection (DLP)

Ransomware

Protects disk after removal from device,

e.g. Disposal after failure or EOL.

Adoption of Cloud

Cloud Computing Status 2022 (Key Statistics)

- **About 50% of corporate's data stored in cloud**
- **More than 50% consider moving Sensitive Data to public clouds, but 85% consider security as top challenge**

Flexera 2022 State of the Cloud Report

BUT DO YOU WANT TO HAVE YOUR SECURITY RELEVANT KEYS UNDER THE CONTROL OF THE SAME CLOUD PROVIDERS?

Key risks

Cyber crime

Data leakage
Insider / Admin threat
Ransomware
Phishing
Hacking

Regulatory compliance

Data governance (GDPR)
IP protection
Data authenticity
Data sovereignty
Auditability

Reliability

Infrastructure complexity (network dependency)
Organisational complexity (3rd party dependency with SaaS)
Denial of service

Cloud grade scalable

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A trust anchor for your cloud applications

CloudsHSM

https://www.securosys.com/en/product/cloudshsm

Regional & Global CloudsHSM Presence

Regional

- ECO, PLATINUM
- ECO-CC, SBX
- DR

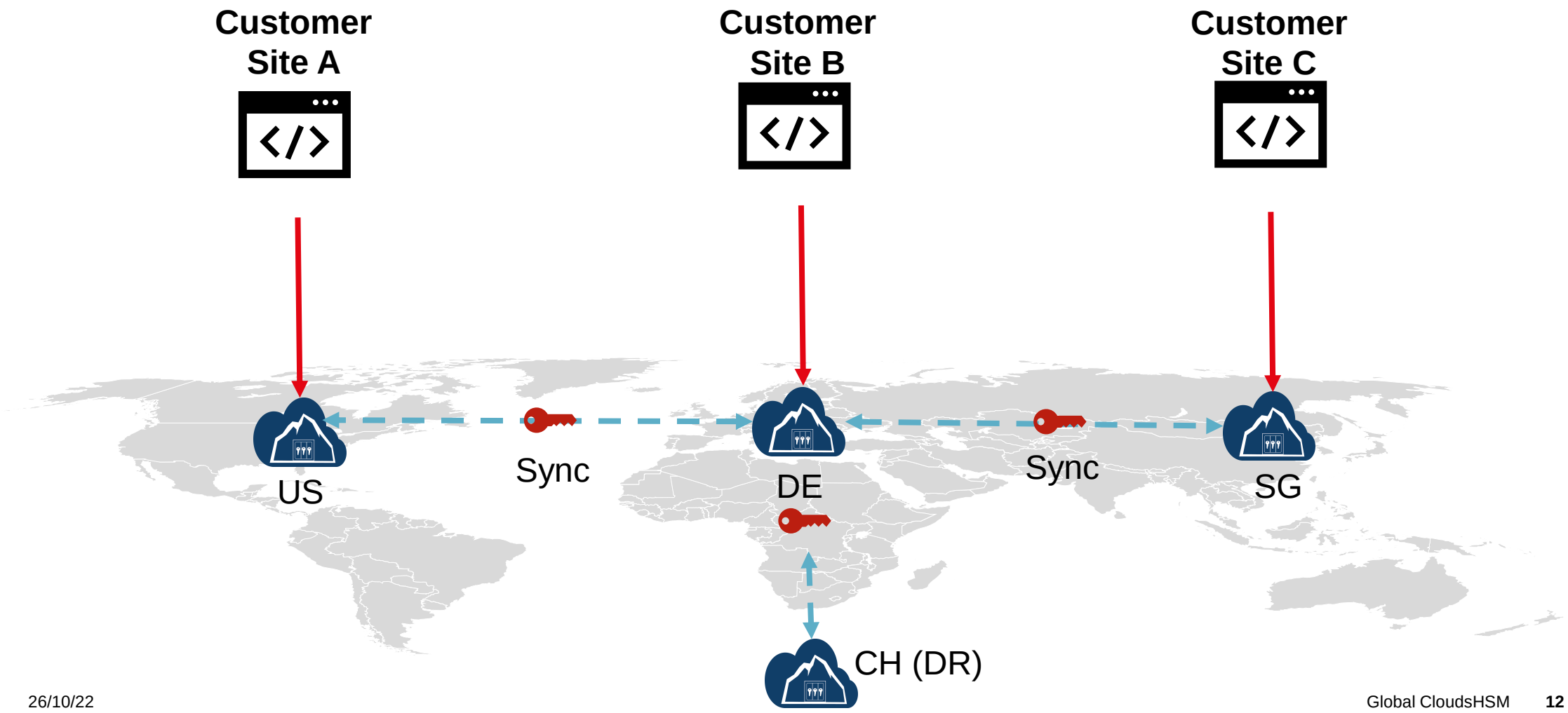
Global

- ECO (US-DE-SG)
- PLATINUM

Planned

US west, coming 2023

Global HSM cluster



Cloud grade scalable

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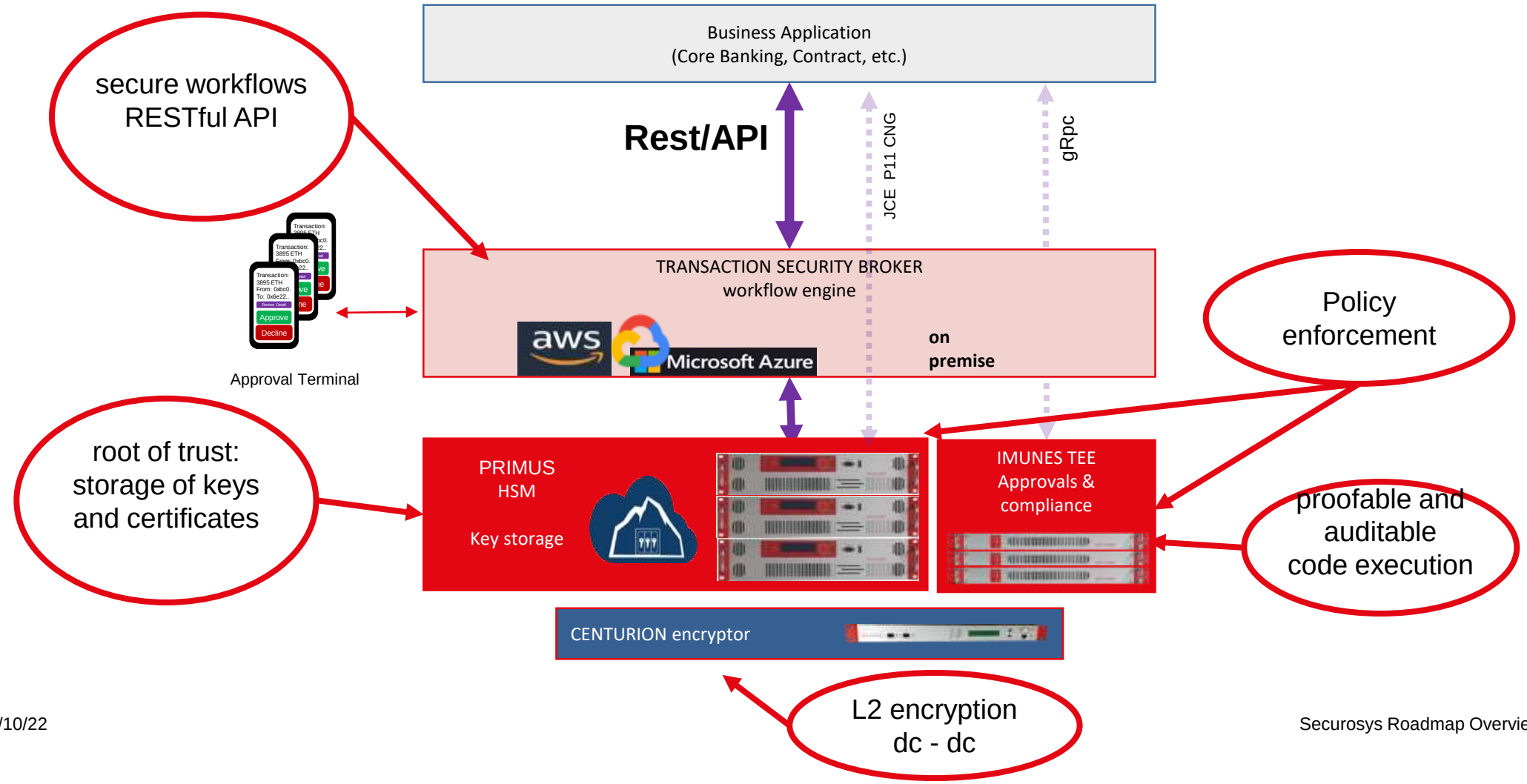
Integrating with the cloud

Technology Stack



Examples

Backup and archive in cloud (data@rest encryption)

- Backup data
- Configuration files
- Archive data

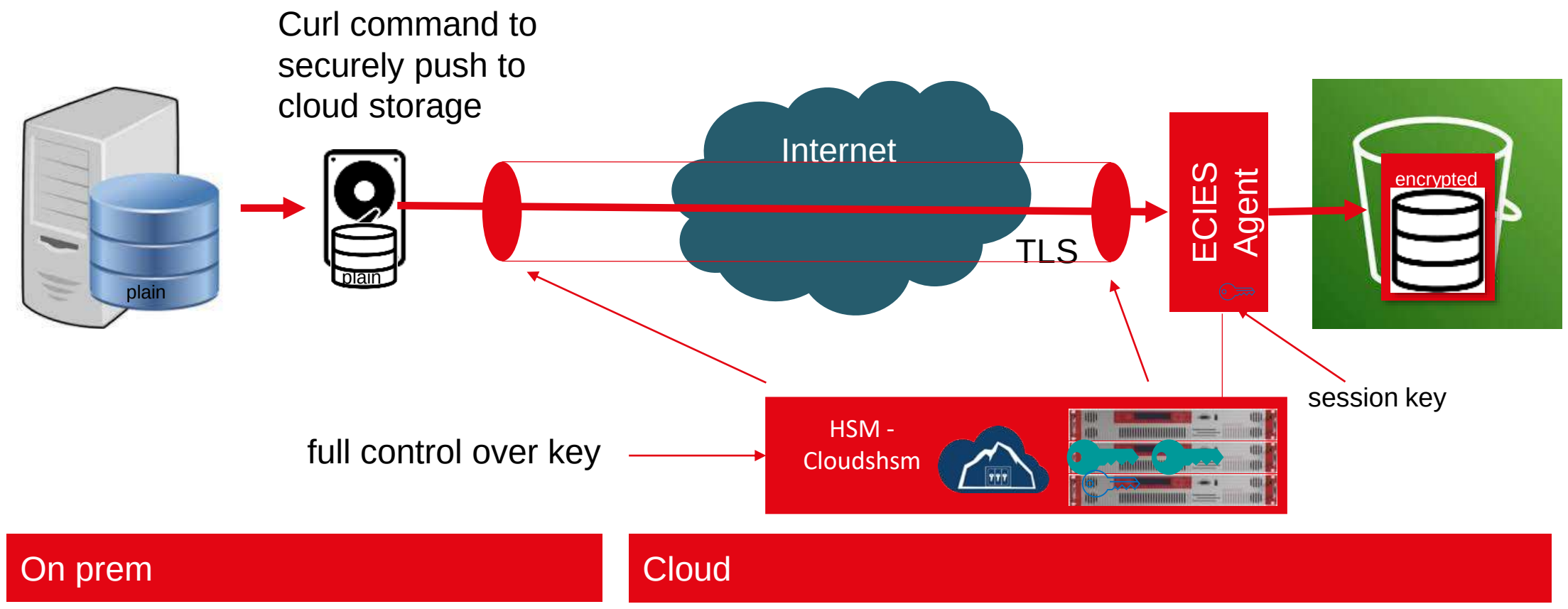
Azure and Microsoft 365 data (cloud & on-prem)

- GDPR compliance
- Financial market authority compliance
- IP Protection
- ...

?

Scalable cloud backup

Backup and archive encryption



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Microsoft 365 encryption

Double Key Encryption

- Encryption *is* core of *Microsoft Office 365* services
- Keys providing protection beyond the service ***must*** *not* be accessible to Microsoft
- *Double Key Encryption* is about these keys, about creating, using and storing them
- And *DKE* is about *interfacing* these keys and *Microsoft Office 365* encryption

protecting information is teamwork

Securosys 365 DKE

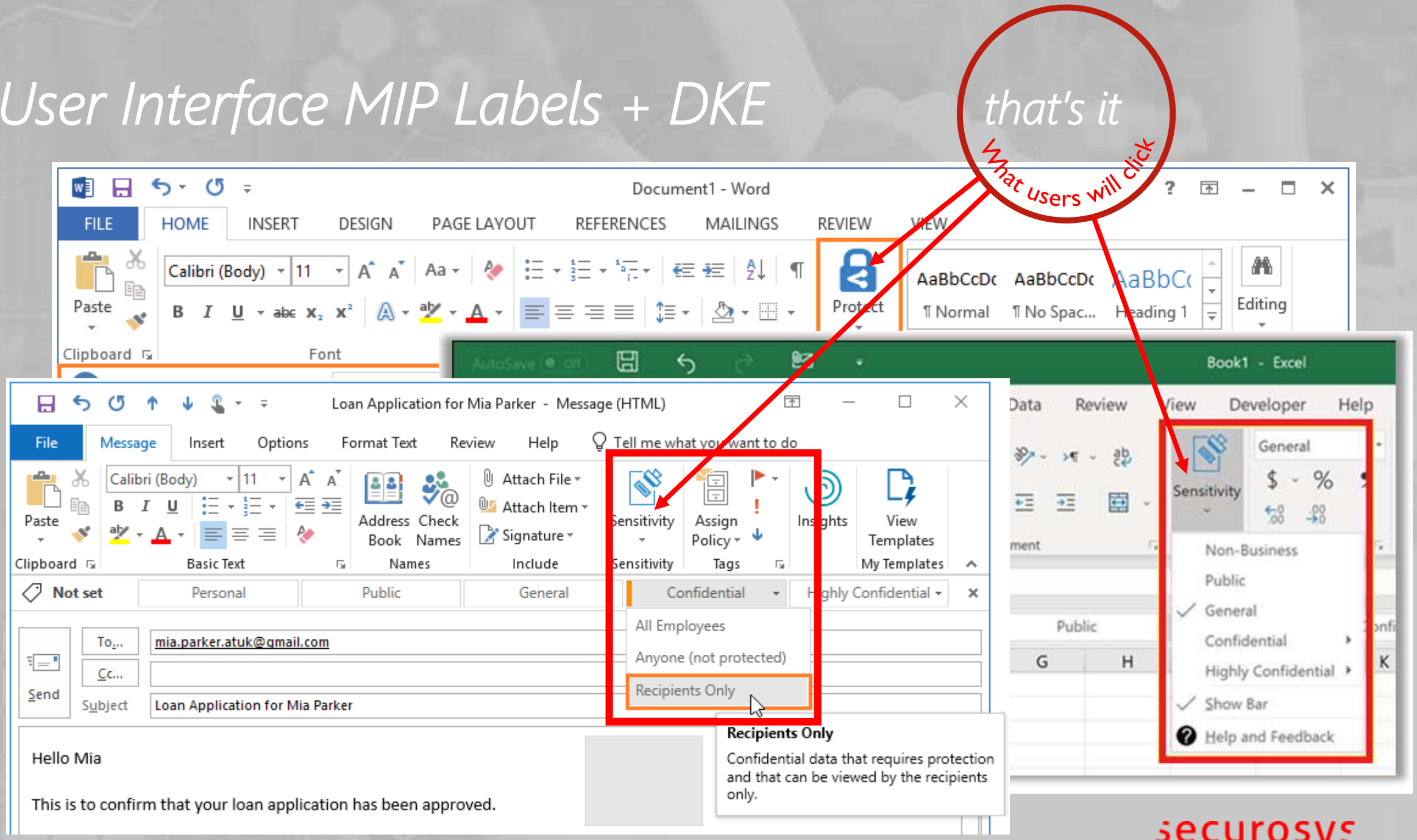
Encryption transactions – at global scale

- Authenticated and authorized *MS Office* users operate sensitivity labels
- Automated encryption and decryption is applied when using DKE enabled sensitivity labels
- Take care of the right people using the right labels to classify content appropriately – that's it

Keys as a Service

https://www.securosys.com/securosys-365-double-key-encryption

User Interface MIP Labels + DKE



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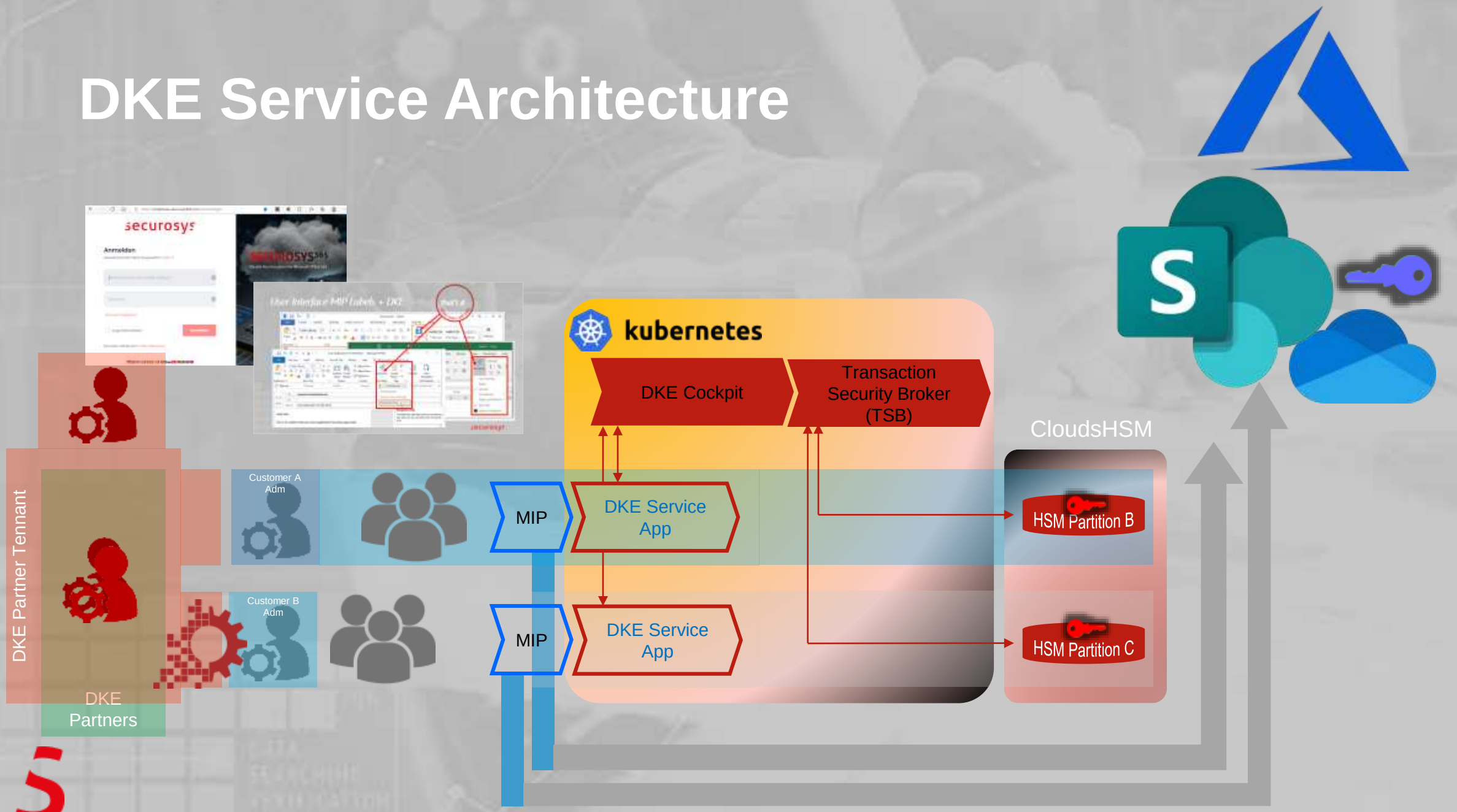
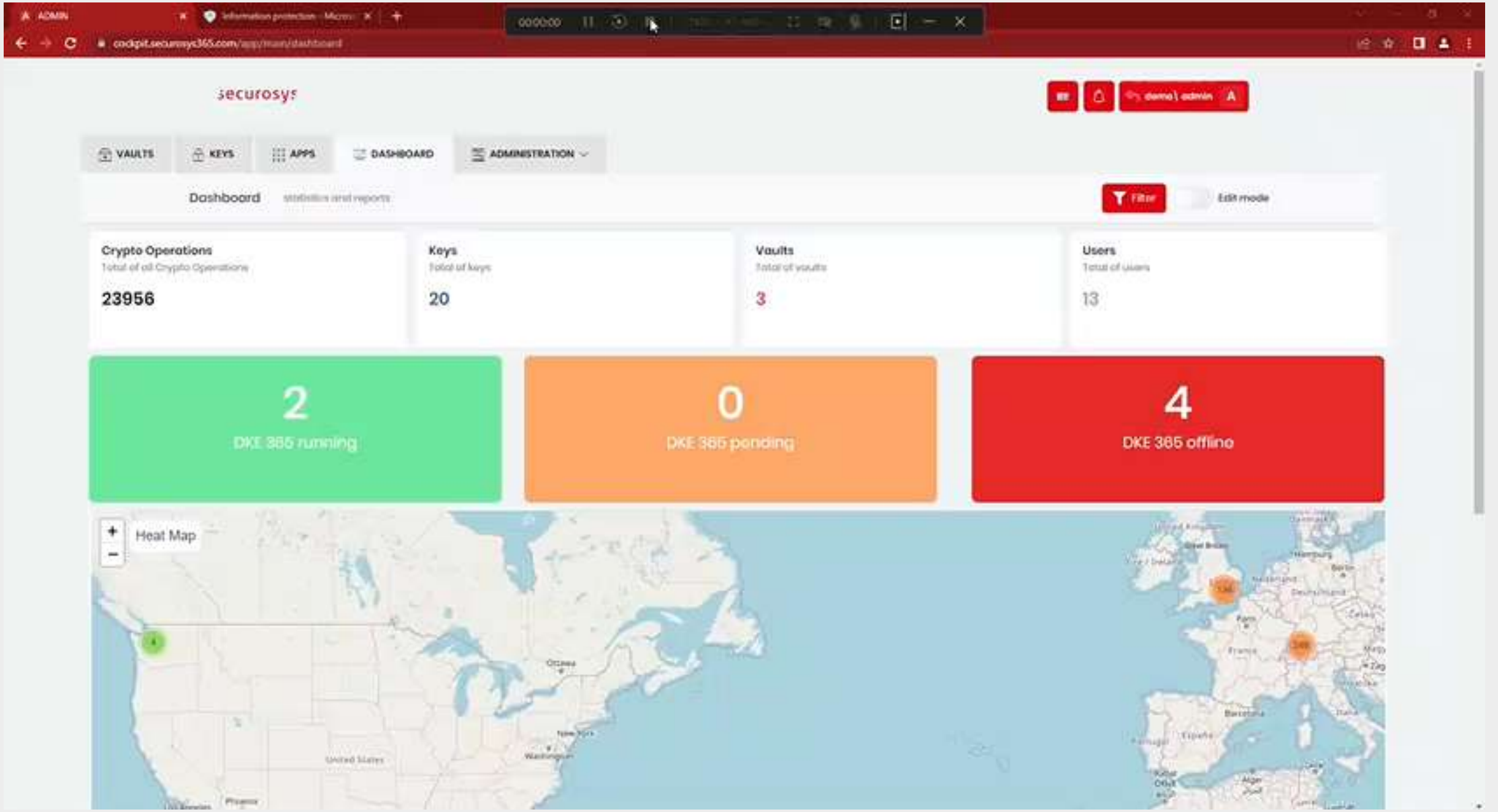
DKE Service Architecture




ADMIN
cockpit.securosys365.com/app/main/dashboard
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demo\ admin
VAULTS
KEYS
APPS
DASHBOARD
ADMINISTRATION
Dashboard
Filter
Edit mode
Crypto Operations
Total of all Crypto Operations
23956
Keys
Total of keys
20
Vaults
Total of vaults
3
Users
Total of users
13
2
DKE 365 running
0
DKE 365 pending
4
DKE 365 offline
Heat Map
Ottawa
New York
Washington
United States
Phoenix
Paris
France
Barcelona
España
Portugal
Algiers

Summary

CloudsHSM: Why HSM as service

Fully Managed

No need to train staff or implement processes

Redundant

Your key objects are autoamtically replicated, and failover is handled

Cloud standard Cryptographic APIs

REST API

JCE/JCA, PKCS#11, MS CNG

Regional, Global, Multi-Cloud

Low latency, select your jurisdiction, provider agnostic

No Hardware

No HSM deployment or integration. No Datacenter neeeded.

Compliance

ISO27001, FIPS 140-2 Level 3, CC EN 419221-5

Low TCO

A subscription, only OPEX, lower Total Cost of Ownership

More Resources

To focus on your core business & application

Thank you

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