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‹Thales eSecurity›

Vormetric Data Security Platform

VORMETRIC DATA SECURITY PLATFORM

As devastating security breaches continue to happen with alarming regularity and compliance mandates get more stringent, your organization needs to extend data protection across more environments, systems, applications, processes and users. With the Vormetric Data Security Platform from Thales eSecurity, you can effectively manage data-at-rest security across your entire organization. Built on an extensible infrastructure, the Vormetric Data Security Platform is composed of an integrated suite of products built on a common infrastructure with efficient, centralized key and policy management. As a result, your security teams can address your data security policies, compliance mandates and best practices, while reducing administration effort and total cost of ownership.

The platform offers capabilities for protecting and controlling access to databases, files and containers—and can secure assets residing in cloud, virtual, big data and physical environments. This scalable, efficient data security platform enables you to address your urgent requirements, and it prepares your organization to nimbly respond when the next security challenge or compliance requirement arises.

STRENGTHEN SECURITY AND COMPLIANCE

By leveraging these flexible and scalable solutions, security teams can address a broad set of use cases and protect sensitive data across the organization. The platform delivers the comprehensive capabilities that enable you to address the demands of a range of security and privacy mandates, including the Payment Card Industry Data Security Standard (PCI DSS), the General Data Protection Regulation (GDPR), the Health Insurance Portability and Accountability Act (HIPAA), the Federal Information Security Management Act (FISMA) and regional data protection and privacy laws. The Vormetric Data Security Platform equips organizations with powerful tools to combat external threats, guard against insider abuse and establish persistent controls, even when data is stored in the cloud or any external provider's infrastructure.

MAXIMIZE STAFF AND RESOURCE EFFICIENCY

The Vormetric Data Security Platform makes administration simple and efficient, offering an intuitive Web-based interface, a command-line interface (CLI) and application programming interfaces (APIs) including support for REST, SOAP, Java, .Net, and C. With this solution, you can apply data-at-rest security quickly and consistently, maximizing staff efficiency and productivity. The platform also supports orchestration and automation using the Vormetric Orchestrator. Plus, this high-performance solution enables efficient use of virtual and physical server resources, reducing the load on the service delivery infrastructure.

CAPABILITIES

- Transparent file encryption
- Application-layer encryption
- Tokenization
- Dynamic and static data masking
- Cloud storage encryption
- FIPS 140-2, Common Criteria certified key management
- Key management as a service
- Privileged user access control
- Access audit logging
- Batch data encryption and tokenization
- Orchestration and automation support

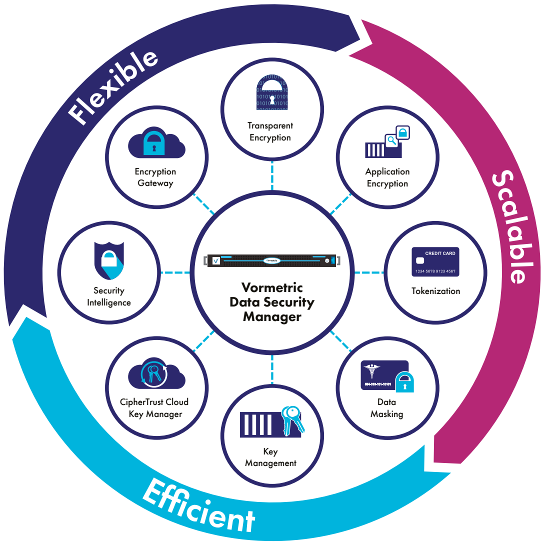
ENVIRONMENT AND TECHNOLOGY SUPPORT

- IaaS, PaaS and SaaS: Amazon Web Services, Google Cloud Platform, Microsoft Azure, Salesforce, Amazon S3 (and compatible API services)
- OSs: Linux, Windows and Unix
- Big data: Hadoop, NoSQL, SAP HANA and Teradata
- Container: Docker, Red Hat OpenShift
- Database: IBM DB2, Microsoft SQL Server, MongoDB, MySQL, NoSQL, Oracle, Sybase and others
- Any storage environment

SC MAGAZINE AWARDS 2016 Honored in the U.S.

computing Security Excellence Awards 2016

Info Security Products Guide 2017 GLOBAL EXCELLENCE GOLD ★★★★★



PLATFORM ADVANTAGES

- Centralized data-at-rest security policies
- Manage keys for Vormetric Data Security Platform and third-party encryption products
- Consistent security and compliance across physical, virtual, cloud and big data environments
- Pre-defined SIEM dashboards deliver granular, actionable file-access intelligence
- Flexibility and extensibility enable fast support of additional use cases

COMPLIANCE

- PCI DSS
- GDPR
- HIPAA/HITECH
- NIST 800-53
- FISMA
- PIPA
- Regional data residency and privacy requirements

REDUCE TOTAL COST OF OWNERSHIP

The Vormetric Data Security Platform makes it simpler and less costly to protect data at rest. The platform enables your IT and security organizations to quickly safeguard data across your organization in a uniform and repeatable way. Instead of having to use a multitude of isolated products scattered across your organization, you can take a consistent and centralized approach with the Vormetric Data Security Platform.

PLATFORM PRODUCTS

The Vormetric Data Security Platform features these products:

- **Vormetric Data Security Manager.** The common centralized management environment for all Vormetric Data Security Platform products. Provides policy control as well as secure management and storage of encryption keys. Includes a Web-based console, CLI, SOAP and REST APIs. Available as FIPS 140-2 and Common Criteria certified virtual and physical appliances.
- **Vormetric Transparent Encryption.** Built around a software agent that runs at the file system or volume level on a server to protect data-at-rest within structured databases or unstructured files on local or cloud-based storage. Features hardware accelerated encryption, least-privilege access controls and data access audit logging across data center, cloud and hybrid deployments. Features these two extensions:
    - **Container Security.** Establishes controls insider of Docker^{TM} and OpenShift^{TM} containers, so you can ensure other containers and processes and even the host OS can't access sensitive data. Provides capabilities you need to apply encryption, access control and data access logging on a per-container basis.
    - **Live Data Transformation.** Enables encryption and periodic key rotation of files and databases—even while in use—without disruption to users, applications and business workflows.
- **Vormetric Tokenization with Dynamic Data Masking.** Easy to implement format-preserving tokenization to protect sensitive fields in databases and policy-based dynamic data masking for display security.
- **Vormetric Application Encryption.** Streamlines the process of adding NIST-standard AES encryption and format-preserving encryption (FPE) into existing applications. Offers standards-based APIs that can be used to perform high-performance cryptographic and key management operations.
- **Vormetric Key Management.** Provides unified key management to centralize management and secure storage of keys for Vormetric Data Security Platform products, TDE, and KMIP-compliant clients as well as securely stores certificates.
- **CipherTrust Cloud Key Manager.** Manages encryption keys for Salesforce Shield Platform Encryption, Mircosoft Azure Key Vault and AWS Key Management Services that addresses enterprise needs to meet compliance and best practices for managing encryption key life cycles outside of their native environments – and without the need for enterprises to become cryptographic experts. Available as a cloud service offering, or for on-premises deployment.
- **Vormetric Cloud Encryption Gateway.** Enables organizations to safeguard files in cloud storage environments such as Amazon Simple Storage Services (S3) and Google Cloud Storage. Offers capabilities for encryption, on-premises key management and detailed logging.
- **Vormetric Protection for Teradata Database.** Makes it fast and efficient to employ robust data-at-rest security capabilities in your Teradata environments. Offers granular protection, enabling encryption of specific fields and columns in Teradata databases.
- **Vormetric Security Intelligence.** Produces granular logs that provide a detailed, auditable record of file access activities, including root user access. Offers integration with security information and event management (SIEM) systems. Delivers pre-packaged dashboards and reports that streamline compliance reporting and speed threat detection.
- **Vormetric Orchestrator.** Automates deployment, configuration, management and monitoring of select Vormetric Data Security Platform products. Offers capabilities that simplify operations, help eliminate errors and speed deployments by automating repetitive tasks.
- **Vormetric Batch Data Transformation.** Makes it fast and easy to mask, tokenize or encrypt sensitive column information in databases. Can be employed before protecting existing sensitive data with Vormetric Tokenization or Vormetric Application Encryption. Delivers static data masking services.

VORMETRIC DATA SECURITY MANAGER

The Vormetric Data Security Manager (DSM) centralizes management and policy for all Vormetric Data Security Platform products. The DSM enables organizations to efficiently address compliance requirements, regulatory mandates and industry best practices, and to adapt as deployments and requirements evolve. Security users and groups can be integrated with LDAP and Active Directory for best practice management of security policies and deployments. Products managed by the DSM integrate with users and groups from LDAP, Active Directory, local systems, Hadoop and container environments. The solution also provides the logs needed to support the strictest compliance requirements.

SECURE, RELIABLE, AND FIPS-CERTIFIED SYSTEM

To maximize uptime and security, the DSM features redundant components and the ability to cluster appliances for fault tolerance and high availability. Strong separation-of-duties policies can be enforced to ensure that one administrator does not have complete control over data security activities, encryption keys or administration. In addition, the DSM supports two-factor authentication for administrative access.

FLEXIBLE IMPLEMENTATION OPTIONS

The DSM can address a range of unique environments and security requirements, and is available in several form factors:

- Virtual appliance, which is FIPS 140-2 Level 1 certified.
- V6000 hardware appliance, which is FIPS 140-2 Level 2 certified.
- V6100 hardware appliance, which is FIPS 140-2 Level 3 certified and is equipped with a Thales nShield Solo hardware security module (HSM) that offers nShield remote access support.

The DSM is also available on the Microsoft Azure marketplace.

KEY FEATURES

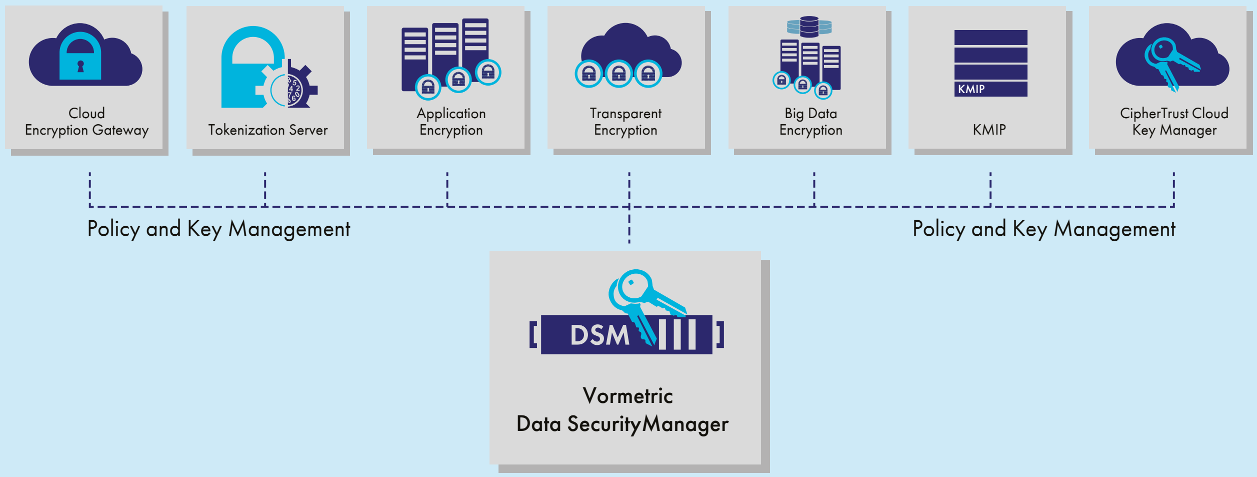
- Single console for all platform policy and key management
- Multi-tenancy support
- Proven scale to 10,000+ agents
- Clustering for high availability
- Toolkit and programmatic interface
- Easy integration with existing authentication infrastructure
- RESTful API support
- Multi-factor authentication and nShield Remote Administration
- Orchestration and automation support

TECHNICAL SPECIFICATIONS

Platform Options

- FIPS 140-2 Level 1 Virtual Appliance
- FIPS 140-2 Level 2 Hardware Appliance
- FIPS 140-2 Level 3 Hardware Appliance
- Shareable AWS AMI and Azure Marketplace

The V6100 DSM offers nShield HSM secure remote administration with multi-factor smart card authentication



UNIFIED MANAGEMENT AND ADMINISTRATION ACROSS THE HYBRID ENTERPRISE

The DSM minimizes costs by providing central management of heterogeneous encryption keys, including keys generated by Vormetric Data Security Platform products, IBM Security Guardium Data Encryption, Microsoft SQL TDE, Oracle TDE and KMIP-compliant encryption products. The DSM features an intuitive Web-based console and APIs for managing encryption keys, policies, and auditing across an enterprise. The product also centralizes log collection.

DSM SPECIFICATIONS

Hardware Specifications

Chassis	1U rack-mountable; 17” wide x 20.5” long x1.75” high (43.18 cm x 52.07cm x 4.5 cm)
Weight	V6000: 21.5 lbs (9.8 kg); V6100: 22 lbs (10 kg)
Memory	16GB
Hard Disk	Dual SAS RAID 1 configured with FIPS tamper-evident seals
Serial Port	1
Ethernet	2x1Gb
IPMI	1x10/100Mb
Power Supplies	2 removable 80+certified (100VAC-240VAC/50-60Hz) 400W
Chassis Intrusion Detection	Yes. Also includes FIPS tamper-evident seal on the top cover.
Maximum BTU	410 BTU max
Operating Temperature	10° to 35° C (50° to 95° F)
Non-Operating Temperature	-40° to 70° C (-40° to 158° F)
Operating Relative Humidity	8% to 90% (non-condensing)
Non-Operating Relative Humidity	5% to 95% (non-condensing)
Safety Agency Approval	FCC, UL, BIS certifications
FIPS 140-2 Level 3 HSM	V6100 model, which is equipped with an nShield Solo HSM
HSM Remote Administration	V6100 only; requires optional nShield Remote Administration kit

Software Specifications

Administrative Interfaces	Secure Web, CLI, SOAP, REST
Number of Management Domains	1,000+
API Support	PKCS #11, Microsoft Extensible Key Management (EKM), SOAP, REST
Security Authentication	Username/Password, RSA multi-factor authentication (optional)
Cluster Support	Yes
Backup	Manual and scheduled secure backups. M of N key restoration.
Network Management	SNMP, NTP, Syslog-TCP
Syslog Formats	CEF, LEEF, RFC 5424
Certifications and Validations	FIPS 140-2 Level 1, FIPS 140-2 Level 2, FIPS 140-2 Level 3 Common Criteria (ESM PP PM V2.1)

Minimum Virtual Machine Specifications—Recommendation for Virtual Appliance

Number of CPUs	2
RAM (GB)	4
Hard Disk (GB)	100GB
Support Thin Provisioning	Yes

VORMETRIC TRANSPARENT ENCRYPTION

Vormetric Transparent Encryption delivers data-at-rest encryption with centralized key management, privileged user access control and detailed data access audit logging that helps organizations meet compliance reporting and best practice requirements for protecting data, wherever it resides.

This solution's transparent approach protects structured databases, unstructured files, and linked cloud storage accessible from systems on-premises, across multiple cloud environments, and even within big data and container implementations. Designed to meet data security requirements with minimal disruption, effort, and cost, implementation is seamless – keeping both business and operational processes working without changes even during deployment and roll out.

MEET COMPLIANCE REQUIREMENTS FOR ENCRYPTION AND ACCESS CONTROL

Encryption, access controls and data access logging are basic requirements or recommended best practices for almost all compliance and data privacy standards and mandates, including PCI DSS, HIPAA/Hitech, GDPR and many others. Vormetric Transparent Encryption delivers the controls required without operational or business process changes.

ENABLING SCALABLE ENCRYPTION ACROSS ALL YOUR ENVIRONMENTS

The Vormetric Transparent Encryption agent runs at the file system or volume level on a server. The agent is available for a broad selection of Windows, Linux and Unix platforms, and can be used in physical, virtual, cloud, container and big data environments—regardless of the underlying storage technology. Administrators perform all policy and key administration through the Vormetric Data Security Manager (DSM).

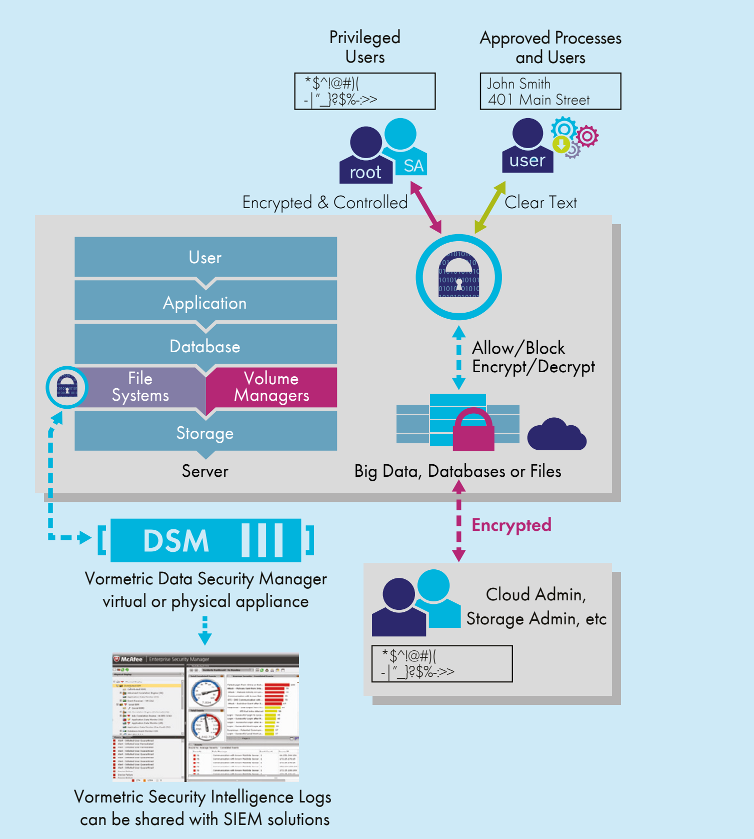
Encryption takes place on the server, eliminating bottlenecks that plague legacy, proxy-based solutions. Performance and scalability are further enhanced by leveraging cryptographic hardware modules that are built into such modern CPUs, such as Intel AES-NI, IBM Power8 in-core and Oracle SPARC.

POWERFUL AND GRANULAR USER ACCESS CONTROLS

Apply granular, least-privileged user access policies that protect data from external attacks and misuse by privileged users. Specific policies can be applied by users and groups from systems, LDAP/Active Directory, Hadoop and containers. Controls also include access by process, file type, time of day, and other parameters.

NON-INTRUSIVE AND EASY TO DEPLOY

Vormetric Transparent Encryption agents are deployed on servers at the file system or volume level and include support for Linux, Unix, Windows file systems as well as cloud storage environments like Amazon S3 and Azure Files. Deployment requires no changes to applications, user workflows, business practices or operational procedures.



Vormetric Transparent Encryption encrypts, enforces access policies, and logs all file, volume and linked cloud storage access

KEY BENEFITS

- Meet compliance and best practice requirements with encryption that scales easily across platforms and environments
- Easy to deploy: no application customization required
- Establish strong safeguards against abuse by privileged insiders

KEY FEATURES

- Broadest platform support in industry: Windows, Linux and Unix operating systems
- High performance encryption: Uses the hardware encryption capabilities built into host CPUs - Intel and AMD AES-NI, PowerPC 8 AES, and SPARC encryption
- Suite B protocol support
- Log all permitted, denied and restricted access attempts from users, applications and processes
- Role-based access policies control who, what, where, when and how data can be accessed
- Enable privileged users to perform their work without access to clear-text data
- Extensions offer added capabilities, including more granular container support and zero-downtime data encryption capabilities

TECHNICAL SPECIFICATIONS

Extension Licenses

- Container Security
- Live Data Transformation

Platform Support

- Microsoft: Windows Server 2008 and 2012

  Linux: Red Hat Enterprise Linux (RHEL), SuSE Linux Enterprise Server, Ubuntu
- UNIX: IBM AIX, HP-UX*, Solaris*

Database Support

- IBM DB2, Microsoft SQL Server, MySQL, NoSQL, Oracle, Sybase and others

Application Support

- Transparent to all applications, including Documentum, SAP, SharePoint, custom applications and more

Big Data Support

- Hadoop: Cloudera, Hortonworks, IBM
- NoSQL: Couchbase, DataStax, MongoDB
- SAP HANA
- Teradata

Encryption Hardware Acceleration

- AMD and Intel AES-NI
- IBM P8 cryptographic coprocessor
- SPARC encryption

Agent Certification

- FIPS 140-2 Level 1

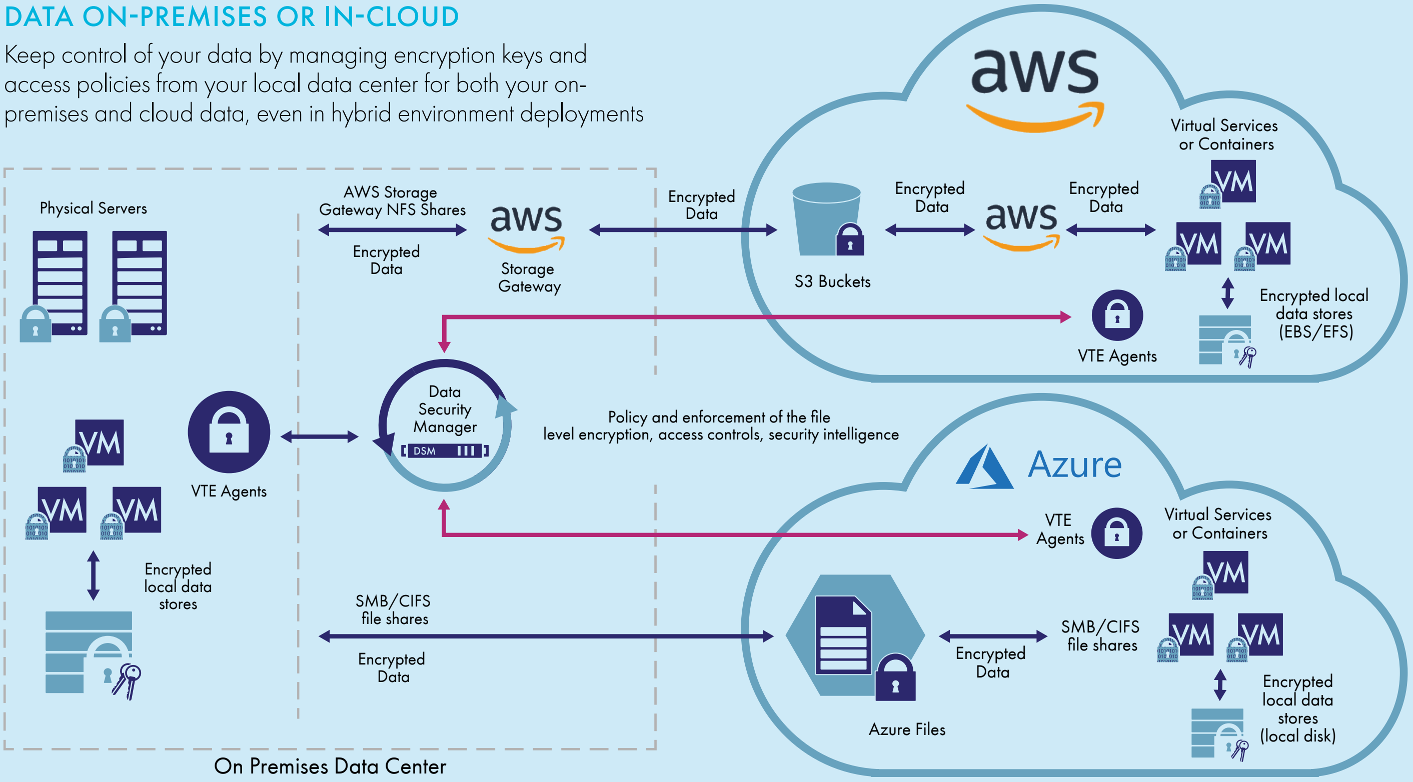
Container Support

- Docker, Red Hat OpenShift

*HP-UX and Solaris only supported by Vormetric Transparent Encryption, release 5.x agents

ENCRYPT AND CONTROL ACCESS TO ALL YOUR DATA ON-PREMISES OR IN-CLOUD

Keep control of your data by managing encryption keys and access policies from your local data center for both your on-premises and cloud data, even in hybrid environment deployments


Physical Servers
AWS Storage Gateway NFS Shares
Encrypted Data
aws
Storage Gateway
Encrypted Data
aws
S3 Buckets
Encrypted Data
aws
Encrypted Data
Virtual Services or Containers
VM
VM
VM
Encrypted local data stores (EBS/EFS)
VTE Agents
VM
VM
VM
VTE Agents
Data Security Manager
DSM
Policy and enforcement of the file level encryption, access controls, security intelligence
Encrypted local data stores
Azure
VTE Agents
Virtual Services or Containers
VM
VM
VM
SMB/CIFS file shares
Encrypted Data
Encrypted Data
SMB/CIFS file shares
Azure Files
Encrypted local data stores (local disk)
On Premises Data Center

CONTAINER SECURITY

Containers are bringing unprecedented benefits to organizations, but this technology also comes with new risks. Vormetric Container Security delivers critical capabilities for encryption, access controls and data access logging, so organizations can establish strong safeguards around data in dynamic container environments.

This solution is a software license for Vormetric Transparent Encryption that enables security teams to establish controls inside of containers. With this extension, encryption, access controls, and data access audit logging can be applied on a per-container basis, both to data inside of containers, and to external storage accessible from containers.

MEET COMPLIANCE REQUIREMENTS

Today, many security teams have limited controls available for managing and tracking access to data that's held within containers and images. As a result, these teams are finding it difficult to comply with all their relevant internal security policies and regulatory mandates. This extension of Vormetric Transparent Encryption delivers the encryption, data access control and auditing capabilities you need to address compliance requirements and regulatory mandates. You can leverage the solution to protect sensitive data—whether you manage payment cards, healthcare records or other sensitive assets.

ESTABLISH GRANULAR, COMPREHENSIVE SECURITY IN CONTAINER ENVIRONMENTS

Vormetric Container Security leverages open APIs and interfaces to enable policy-based encryption, access controls and data access audit logging for information stored within containers or accessed from containers. With this solution, you get rock solid operation, easy deployment and the strong protections you need to safely deploy production applications that use even the most sensitive information.

EMPLOY STRONG SAFEGUARDS WITH OPTIMAL EFFICIENCY

Vormetric Container Security offers the following advantages:

- **Comprehensive safeguards.** Secure container volumes and protect data from being inappropriately accessed or exported.
- **Granular controls and visibility.** Establish granular access policies based on specific users, processes and resource sets. Create isolation between containers, so only authorized containers can access sensitive information.
- **Flexible, efficient deployment.** Employ controls in containers environments without having to make any changes to applications, containers or infrastructures.

KEY BENEFITS

- Protect against root/privileged/unauthorized user access within containers
- Protect data against privilege escalation attacks from other containers
- Easily isolate data access between containers
- Meet compliance mandates for data access controls and container level auditing

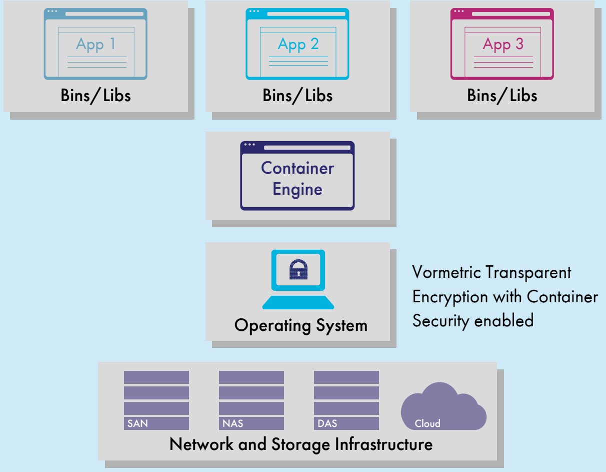
KEY FEATURES

- Provides encryption, access controls, and data access audit logging, both for Docker and OpenShift hosts and images
- Offers controls that address data stored within containers, as well as data accessible from containers
- Enables granular controls for specific users, processes and resource sets
- Doesn't require any changes to applications, containers or infrastructure
- Uses the same agents and infrastructure set as Vormetric Transparent Encryption

TECHNICAL SPECIFICATIONS

Platform/Environment Support

- Docker and Red Hat OpenShift
- Red Hat Enterprise Linux, 7.x
- Can run on physical systems, VMs and AWS EC2 instances


App 1
Bins/Libs
App 2
Bins/Libs
App 3
Bins/Libs
Container Engine
Operating System
Vormetric Transparent Encryption with Container Security enabled
SAN
NAS
DAS
Cloud
Network and Storage Infrastructure

LIVE DATA TRANSFORMATION

Deployment and management of data-at-rest encryption can present challenges when transforming clear-text to cipher-text, or when rekeying data that has already been encrypted. Traditionally, these efforts either required planned downtime or labor-intensive data cloning and synchronization efforts. Vormetric Transparent Encryption Live Data Transformation Extension eliminates these hurdles, enabling encryption and rekeying with unprecedented uptime and administrative efficiency.

ZERO-DOWNTIME ENCRYPTION AND KEY ROTATION

Live Data Transformation delivers these key capabilities:

- **Zero-downtime encryption deployments.** The solution enables administrators to encrypt data without downtime or disruption to users, applications or workflows. While encryption is underway, users and processes continue to interact with databases or file systems as usual.
- **Seamless, non-disruptive key rotation.** Both security best practices and many regulatory mandates require periodic key rotation. Live Data Transformation makes it fast and efficient to address these requirements. With the solution, you can perform key rotation without having to duplicate data or take associated applications off line.
- **Intelligent resource management.** Encrypting large data sets can require significant CPU resources for an extended time. Live Data Transformation provides sophisticated CPU use and I/O rate management capabilities so administrators can balance between the resource demands of encryption and other business operations. For example, an administrator can define a resource management rule specifying that, during business hours, encryption can only consume 10% of system CPU, while on nights and weekends, encryption can consume 70% of CPU.
- **Versioned backups and archives.** With key versioning management, Live Data Transformation offers efficient backup and archive recovery that enable more immediate access. In a data recovery operation, archived encryption keys recovered from the Vormetric Data Security Manager are automatically applied to an older data set. Restored data is encrypted with the current cryptographic keys.

KEY BENEFITS

- Expand encryption implementations, while minimizing downtime and storage requirements
- Reduce costs associated with encryption implementation and maintenance
- Minimize encryption's impact on the user experience
- Leverage non-disruptive key rotation to enhance security and regulatory compliance
- Accelerate recovery of data encrypted with older keys

TECHNICAL SPECIFICATIONS

Operating System Support

- Microsoft: Windows Server 2008 and 2012
- Linux: Red Hat Enterprise Linux (RHEL) 6 and 7, SuSE Linux Enterprise Server 11 and 12

Cluster Support

- Veritas Cluster Server Active/Passive
- Microsoft Cluster: File Cluster, SQL Server Cluster

Database Support

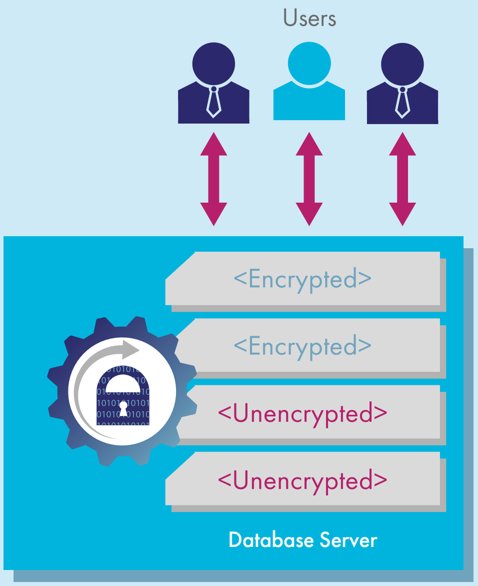
- IBM DB2, IBM Informix, Microsoft SQL Server, Oracle, Sybase and others

Big Data Support

- Cassandra, CouchBase, Hadoop, MongoDB, SAP HANA

Backup/Replication Support

- DB2 backup, NetBackup, NetWorker, NTBackup, Oracle Recovery Manager (RMAN), Windows Server Volume Shadow Copy Service (VSS)



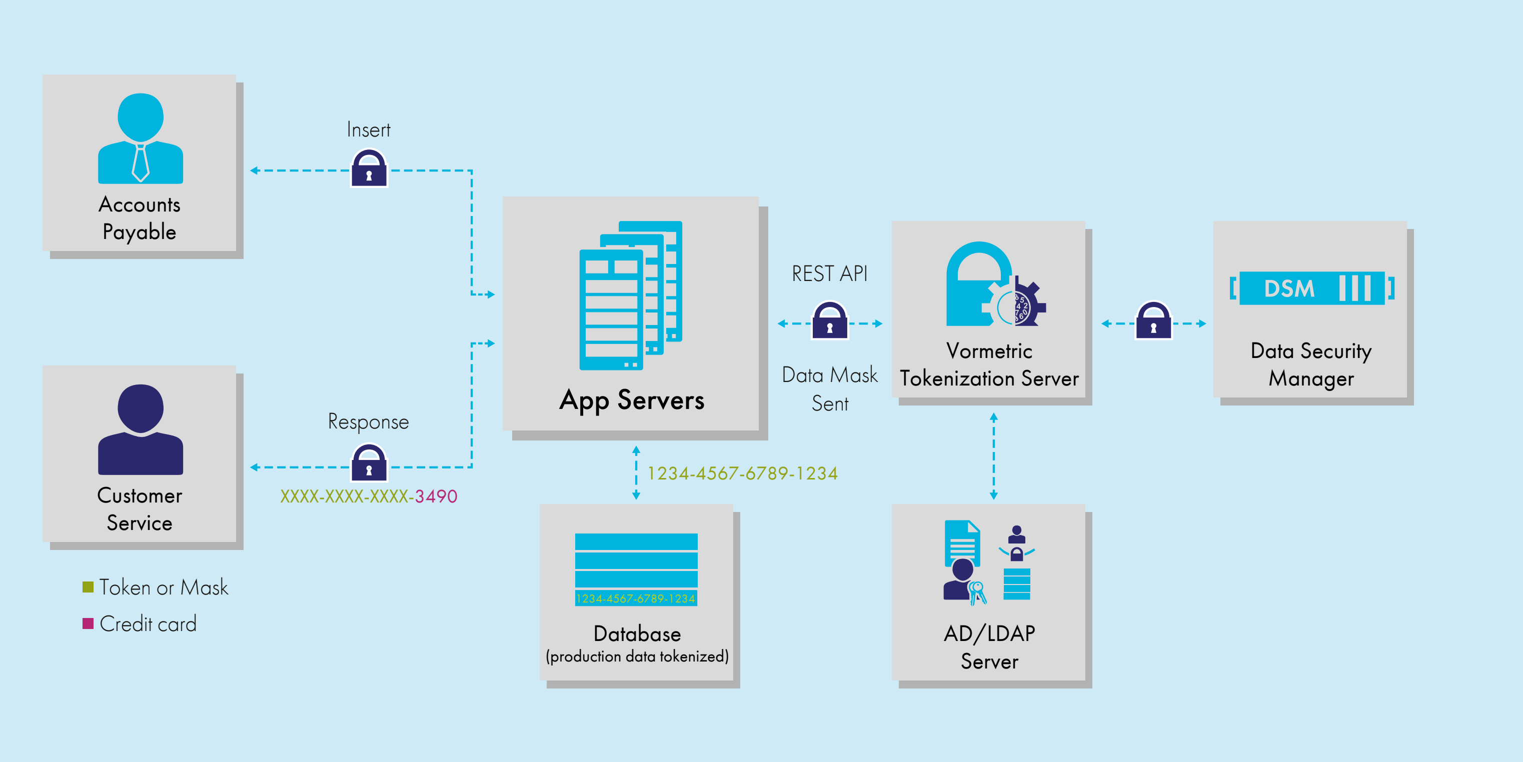
VORMETRIC TOKENIZATION WITH DYNAMIC DATA MASKING

Vormetric Tokenization with Dynamic Data Masking dramatically reduces the cost and effort required to comply with security policies and regulatory mandates like the Payment Card Industry Data Security Standard (PCI DSS). The solution provides database tokenization and dynamic display security. Now, your organization can efficiently address its objectives for securing and anonymizing sensitive assets—whether they reside in the data center, big data environments or the cloud.

STREAMLINED TOKENIZATION AND DYNAMIC DATA MASKING

Vormetric Tokenization makes it easy to use format-preserving tokenization to protect sensitive fields in databases and to add policy-based dynamic data masking to applications. The solution delivers the following advantages:

- **Dynamic data masking.** Administrators can establish policies to return an entire field tokenized or dynamically mask parts of a field. For example, a security team could establish policies so that a user with customer service representative credentials would only receive a credit card number with the last four digits visible, while a customer service supervisor could access the full credit card number in the clear.
- **Non-disruptive implementation.** With the solution's format-preserving tokenization capabilities, you can restrict access to sensitive assets without changing the existing database schema. The solution's RESTful API implementation makes it fast, simple and efficient for application developers to institute sophisticated tokenization capabilities.
- **Batch data transformation.** With this optional utility, you can tokenize high volumes of sensitive records without lengthy maintenance windows and downtime. You can mask sensitive columns in production databases and in copies of databases before they are sent to third-party developers and big data environments.



KEY BENEFITS

- Reduce PCI DSS compliance effort and scope by minimizing servers requiring audit and control
- More fully leverage cloud, big data and outsourced models—without increased risk
- Establish strong safeguards that protect sensitive assets from cyber attacks and insider abuse

KEY FEATURES

- Virtual appliance enables fast increase and decrease in capacity
- Deploys in AWS, Microsoft Azure, virtualized and physical environments
- Optional batch data transformation utility streamlines large-scale tokenization
- Granular, policy-based dynamic data masking

TECHNICAL SPECIFICATIONS

Tokenization capabilities:

- Format Preserving FF1
- Cryptographic tokens (alpha/numeric)
- Random tokens (numbers only)
- Single and multi-use tokens
- Date tokenization

Dynamic data masking capabilities:

- Policy based
- Alpha/numeric support
- Customize mask character

Validation support:

- Luhn check

Virtual appliance:

- Open Virtualization Format (.ovf)
- International Organization for Standardization (.iso)
- Amazon Machine Image (.ami)
- Microsoft Azure Marketplace

System requirements:

- Minimum hardware: 4 CPU cores, 16 - 24 GB RAM
- Minimum disk: 80GB

Application integration:

- RESTful APIs

Authentication integration:

- Lightweight Directory Access Protocol (LDAP)
- Active Directory (AD)

Performance:

- More than 1 million credit card size tokenization transactions per second, per token server (using multiple threads and batch (or vector) mode) on a 32-core server (dual-socket Xeon E5-2630v3) with 16 GB RAM

VORMETRIC APPLICATION ENCRYPTION

Vormetric Application Encryption delivers key management, signing, and encryption services enabling comprehensive protection of files, database fields, big data selections, or data in platform-as-a-service (PaaS) environments. The solution is FIPS 140-2 Level-1 certified, based on the PKCS#11 standard and fully documented with a range of practical, use-case based extensions to the standard. Vormetric Application Encryption accelerates development of customized data security solutions.

STREAMLINE ENCRYPTION IMPLEMENTATIONS

Vormetric Application Encryption solution simplifies the process of adding key management and encryption to applications. Developers use RESTful API's, or C- or Java-based applications linked with a local PKCS#11 library, to add standards-based secure key management to customized data security solutions.

SECURE CLOUD, DATABASE AND BIG DATA

Address policies and compliance mandates that require you to encrypt specific fields at the application layer, securing sensitive data before it is stored in database, big data, or cloud environments.

KEY BENEFITS

- Accelerate customized data security solution development
- Centralize key management for application-layer encryption
- Secure sensitive data across a broad range of platforms and on-premises, IaaS and PaaS environments

TECHNICAL SPECIFICATIONS

Supported environments:

- RESTful API on any server supporting web services; requires Vormetric Tokenization Server

OS and Language and/or Binding Support:

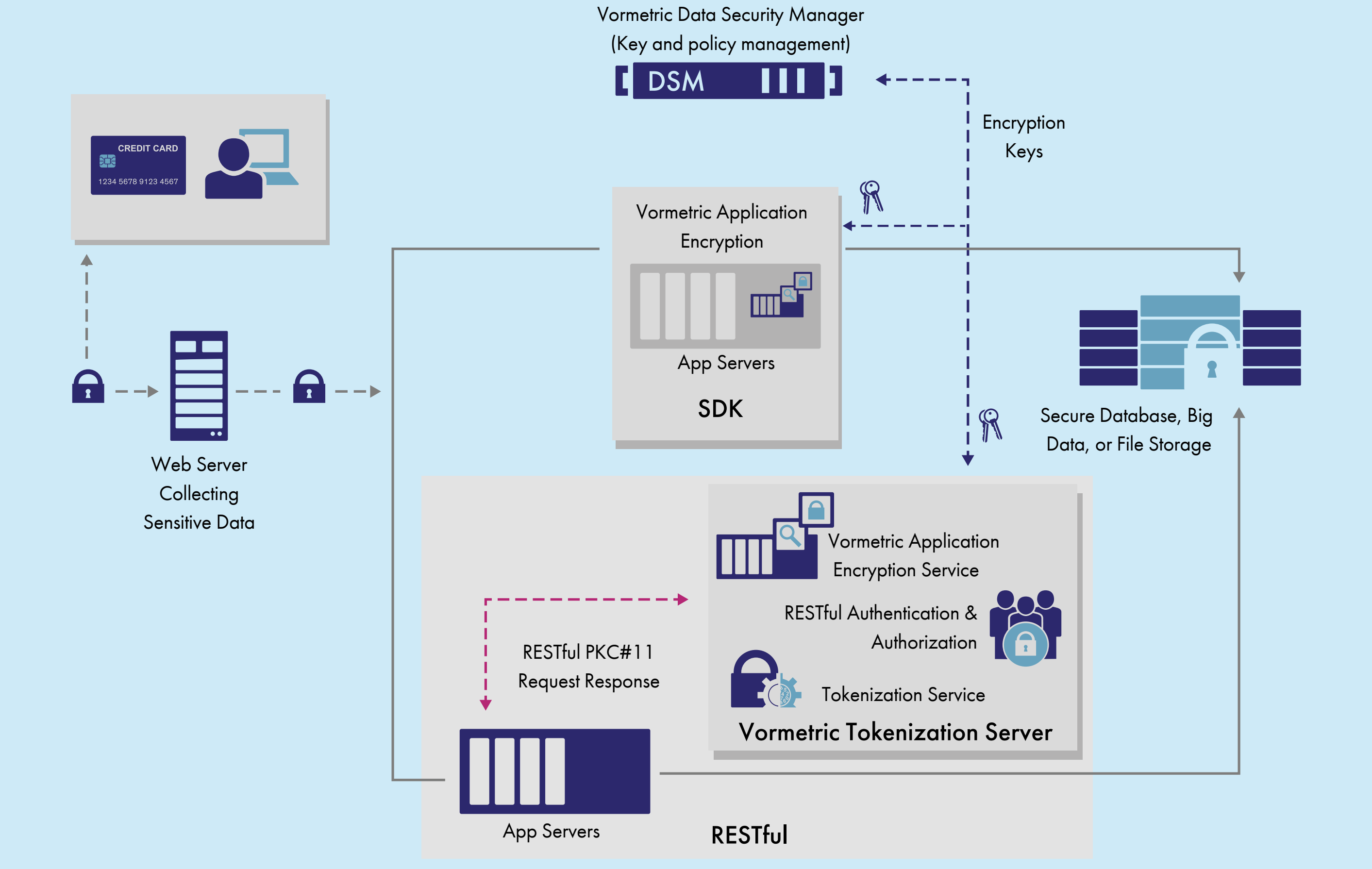
- WIndows Server 2008/2012/2016: C, .NET, Oracle/Sun JDK
- Linux: C, Oracle/Sun JDK

Integration standard:

- OASIS PKCS#11

Certification:

- FIPS 140-2 Level 1


Vormetric Data Security Manager
(Key and policy management)
DSM
Encryption Keys
CREDIT CARD
1234 5678 9123 4567
Vormetric Application Encryption
App Servers
SDK
Secure Database, Big Data, or File Storage
Web Server Collecting Sensitive Data
Vormetric Application Encryption Service
RESTful Authentication & Authorization
Tokenization Service
Vormetric Tokenization Server
RESTful PKC#11 Request Response
App Servers
RESTful

Vormetric Application Encryption Customer Choice: SDK or RESTful

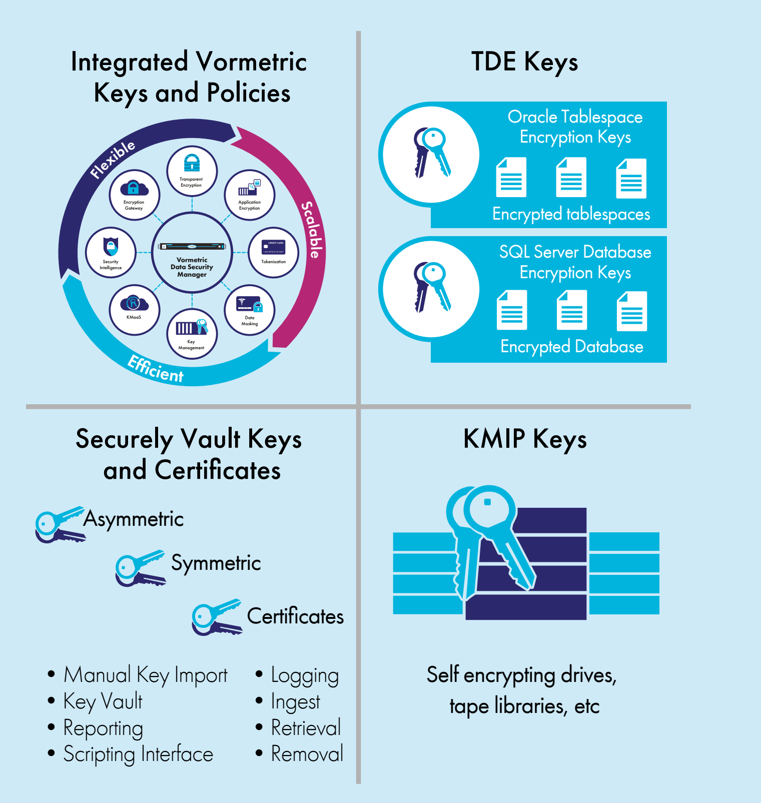
VORMETRIC KEY MANAGEMENT

With Vormetric Key Management, you can centrally manage keys from all Vormetric Data Security Platform products, and securely store and inventory keys and certificates for third-party devices—including IBM Security Guardium Data Encryption, Microsoft SQL TDE, Oracle TDE and KMIP-compliant encryption products. By consolidating key management, this product fosters consistent policy implementation across multiple systems and reduces training and maintenance costs.

SIMPLIFY KEY MANAGEMENT AND CERTIFICATE VAULTING

Historically, as the number of applications and devices using encryption proliferated, there was a commensurate increase in the number of key management devices employed. This growing number of key management systems made it more complex and costly to maintain highly available encrypted environments. Further, these disparate key management devices often left valuable certificates unprotected, making them easy prey for hackers. Also, if these certificates were left unmanaged, they could unexpectedly expire, which would result in the unplanned downtime of vital services.

Vormetric Key Management enables you to expand your capabilities so you can more effectively manage keys for Vormetric Data Security Platform solutions as well as keys and certificates from third-party products. In addition, Vormetric Key Management as a Service for cloud enables you to leverage the bring-your-own-key services of cloud providers, while establishing full control over keys throughout their lifecycle.



ESTABLISH STRONG, AUDITABLE CONTROLS

Vormetric Key Management offers all the reliability and availability capabilities of the Vormetric Data Security Manager (DSM). The DSM is offered as a virtual appliance and via two hardware appliances: The V6000 and the V6100. The V6100 is a FIPS 140-2 Level 3-certified appliance that is equipped with a Thales nShield Solo hardware security module (HSM). The platform is also available on Amazon Web Services and Microsoft Azure marketplaces.

KEY BENEFITS

- Operational efficiency
- Continuously available, secure storage and inventory of certificates and encryption keys
- Alerts offer proactive notifications of expiring certificates and keys
- Reports provide status and characteristic information, audit support

TECHNICAL SPECIFICATIONS

Manage Security Objects

- X.509 certificates
- Symmetric and asymmetric encryption keys

Administration

- Secure-web, CLI, API
- Bulk import of digital certificates and encryption keys
- Validates on import
- Extracts basic attributes from uploaded certificates and keys for reporting
- Command line scripts
- Retrieval and removal

Key and Certificate Formats for Search, Alerts, and Reports

- Symmetric encryption key algorithms: 3DES, AES128, AES256, ARIA128, ARIA256
- Asymmetric encryption key algorithms: RSA1024, RSA2048, RSA4096
- Digital certificates (X.509): DER, PEM, PKCS#7, PKCS#8, PKCS#12

Third-Party Encryption

- Microsoft SQL TDE, Oracle TDE, IBM Security Guardium Data Encryption, KMIP-clients
- Example partners: Nutanix, Linoma, NetApp, Cisco, MongoDB, DataStax, Huawei

API Support

- PKCS#11, Microsoft Extensible Key Management (EKM), OASIS KMIP

Key Availability and Redundancy

- Secure replication of keys across multiple appliances with automated backups

CIPHERTRUST CLOUD KEY MANAGER

Data-at-rest encryption capabilities offered by public cloud providers fall short of the needs of security- and compliance-conscious organizations concerned with providers' controlling the infrastructure and encryption that host their data, with little control and visibility on by whom and how their data is being accessed. To help alleviate these concerns, many leading providers offer "Bring Your Own Key" (BYOK) capabilities to enable customer control of the keys used for encrypting their data.

Leveraging cloud provider key control API's, the CipherTrust Cloud Key Manager gives customers lifecycle control of encryption keys with centralized management and visibility.

COMPREHENSIVE KEY MANAGEMENT

Already created thousands of keys at your cloud provider? CipherTrust Cloud Key Manager will synchronize its database with keys created at the cloud provider. Key attributes, such as creation and expiration rules as well as key usage options are all maintained securely.

CipherTrust Cloud Key Manager offers multiple capabilities in support of enhanced IT efficiency:

- Federated login to each cloud provider provides the simplest mechanism for granting user access to key data. Cloud service login is authenticated and authorized by the service provider.
- Centralized Key Management gives you access to each supported cloud provider from a single web tab, with cloud provider-specific key terminology and semantics instantly presented.

ON-PREMISES OR IN THE CLOUD: YOU DECIDE

CipherTrust Cloud Key Manager offers deployment models that fit your needs:

- **CipherTrust Cloud Key Manager** as a service eliminates the need to architect, deploy and maintain a high-availability cloud key management solution on premises, with key storage in a FIPS 140-2 Level-1 certified virtual appliance.
- **CipherTrust Cloud Key Manager** on-premises or in your chosen private cloud environment allows highly regulated organizations to store encryption keys in a single-tenant environment, with key storage in Vormetric Data Security Manager (DSM) appliances offering up to FIPS 140-2 Level 3 certification.

KEY BENEFITS

- Leverage the value of "Bring Your Own Key" services with full-lifecycle cloud encryption key management
- Comply with the most stringent data protection mandates with up to FIPS 140-2 Level 3 validated key creation and storage
- Gain higher IT efficiency with centralized key management across multiple cloud environments

KEY FEATURES

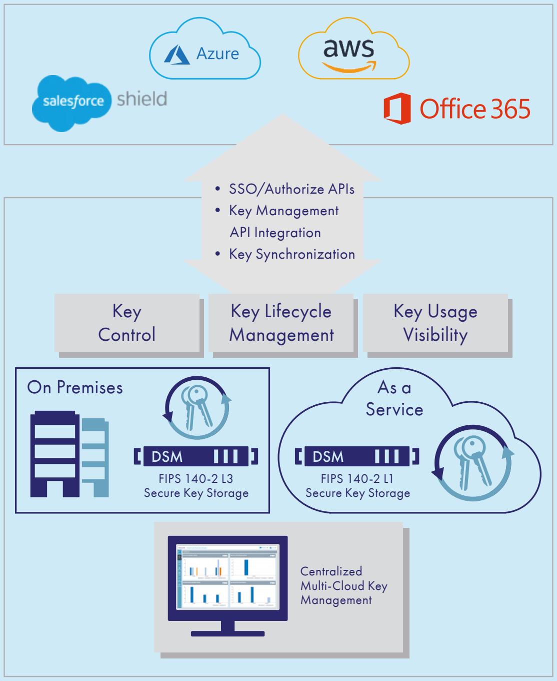
- Separate key storage from data repositories
- Comprehensive, granular logs of encryption key and certificate management activities
- Push-button creation and modification of keys and policies
- Easy-to-use portal for key lifecycle management

SUPPORTED ENVIRONMENTS

- Salesforce: Salesforce Platform Encryption
- Microsoft Azure: Azure Key Vault
- Amazon: AWS Key Management Service

KEY MANAGEMENT SECURITY LEVELS

- FIPS 140-2 Level 3 on-premises service
- FIPS 140-2 Level 1 cloud service



VORMETRIC CLOUD ENCRYPTION GATEWAY

The Vormetric Cloud Encryption Gateway enables you to safeguard files in cloud storage environments such as Amazon Simple Storage Service (Amazon S3) and other S3-compatible object storage services. The Cloud Encryption Gateway encrypts sensitive data before it is saved to the cloud storage environment and gives you control over encryption keys. The solution delivers the visibility and control you need to protect sensitive assets from a range of threats. The Cloud Encryption Gateway relies on the Vormetric Data Security Manager for key and policy management.

ESTABLISH STRONG CONTROLS OVER DATA STORED IN THE CLOUD

The Vormetric Cloud Encryption Gateway is delivered as a virtual appliance that can be deployed in the cloud or in your data center. Either way, your security team always has complete control over encryption keys. The Cloud Encryption Gateway offers the following advantages:

- **Transparent, easy implementation.** Offers transparent encryption and decryption of files by intercepting traffic as it moves between your users and the cloud.
- **Strong key management.** Enables you to maintain granular, auditable control over policies and keys at all times.
- **Detailed visibility and auditability.** Delivers audit logs that provide granular visibility into file access, offering invaluable support for compliance reporting and forensics efforts.
- **Intelligent risk detection.** Monitors Amazon S3 and other cloud storage environments compatible with the S3 APIs. Discovers unencrypted files that violate security policies and automatically encrypts them.

KEY FEATURES

- Transparent deployment
- Robust key management and encryption
- Stateless architecture enables horizontal, cost-efficient scalability
- Strong cloud storage security and compliance controls

TECHNICAL SPECIFICATIONS

Open Virtualization Format Virtual Machine

- Min. hardware 4 CPU cores, 4GB RAM
- Min. disk 100GB

Amazon Machine Image (AMI)

- m4.xlarge with 4vCPUs 16GB
- 100GB EBS
- High Network Performance

Supported Services

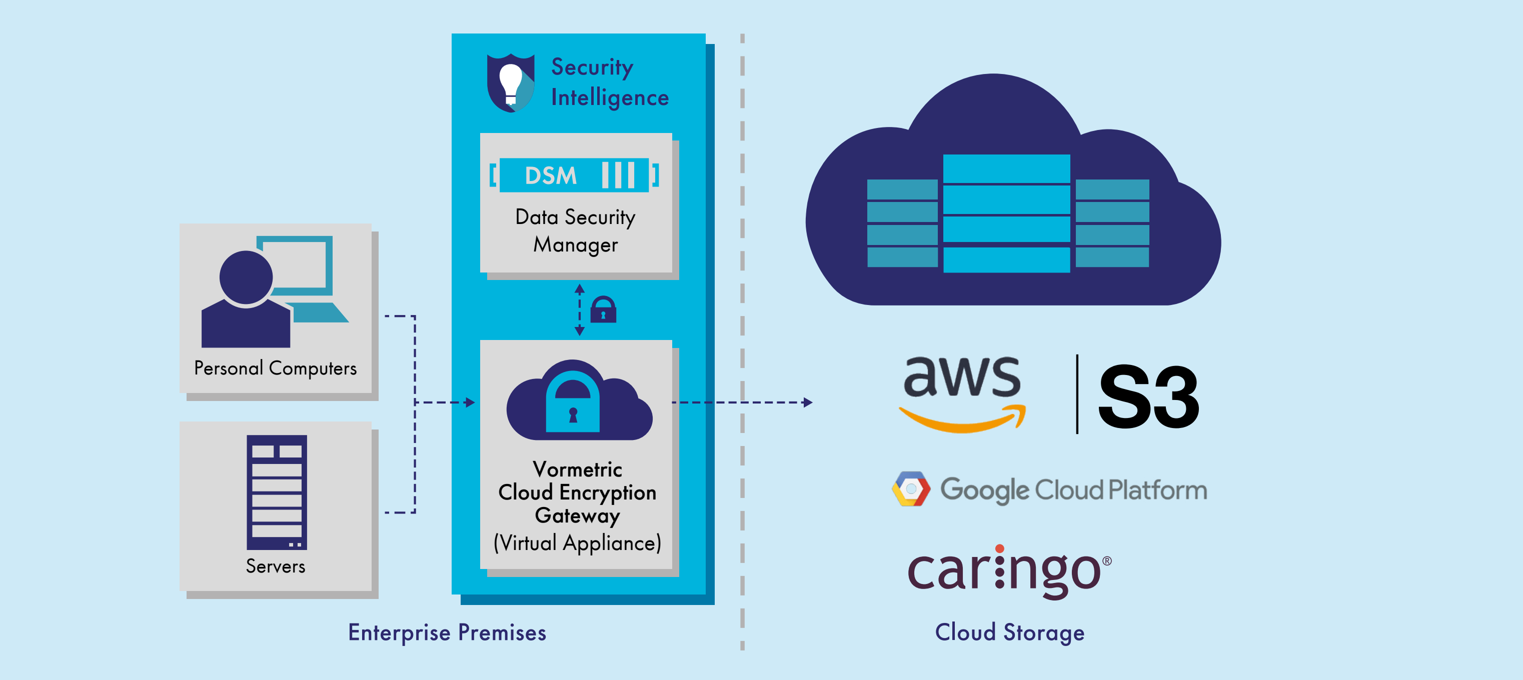
- Amazon S3
- Google Cloud Storage
- Caringo Object Storage

Authentication Integration

- Lightweight Directory Access Protocol (LDAP)
- Active Directory (AD)—Amazon S3 only

Policies

- Encrypt by file type
- Auto key rotation



VORMETRIC PROTECTION FOR TERADATA DATABASE

By aggregating massive volumes of enterprise data in Teradata environments, businesses can gain unprecedented insights and strategic value. Unfortunately, this very aggregation of data can also present unprecedented risks. Without proper protections, the sensitive assets compiled in these environments can inadvertently be exposed by privileged administrators, or be the target of theft by malicious insiders and external attackers. Now, Vormetric enables your organization to guard against these risks. Vormetric Protection for Teradata Database makes it fast and efficient to employ robust data-at-rest security capabilities in your Teradata environments.

STRENGTHEN SECURITY WHILE MINIMIZING DISRUPTION AND COSTS

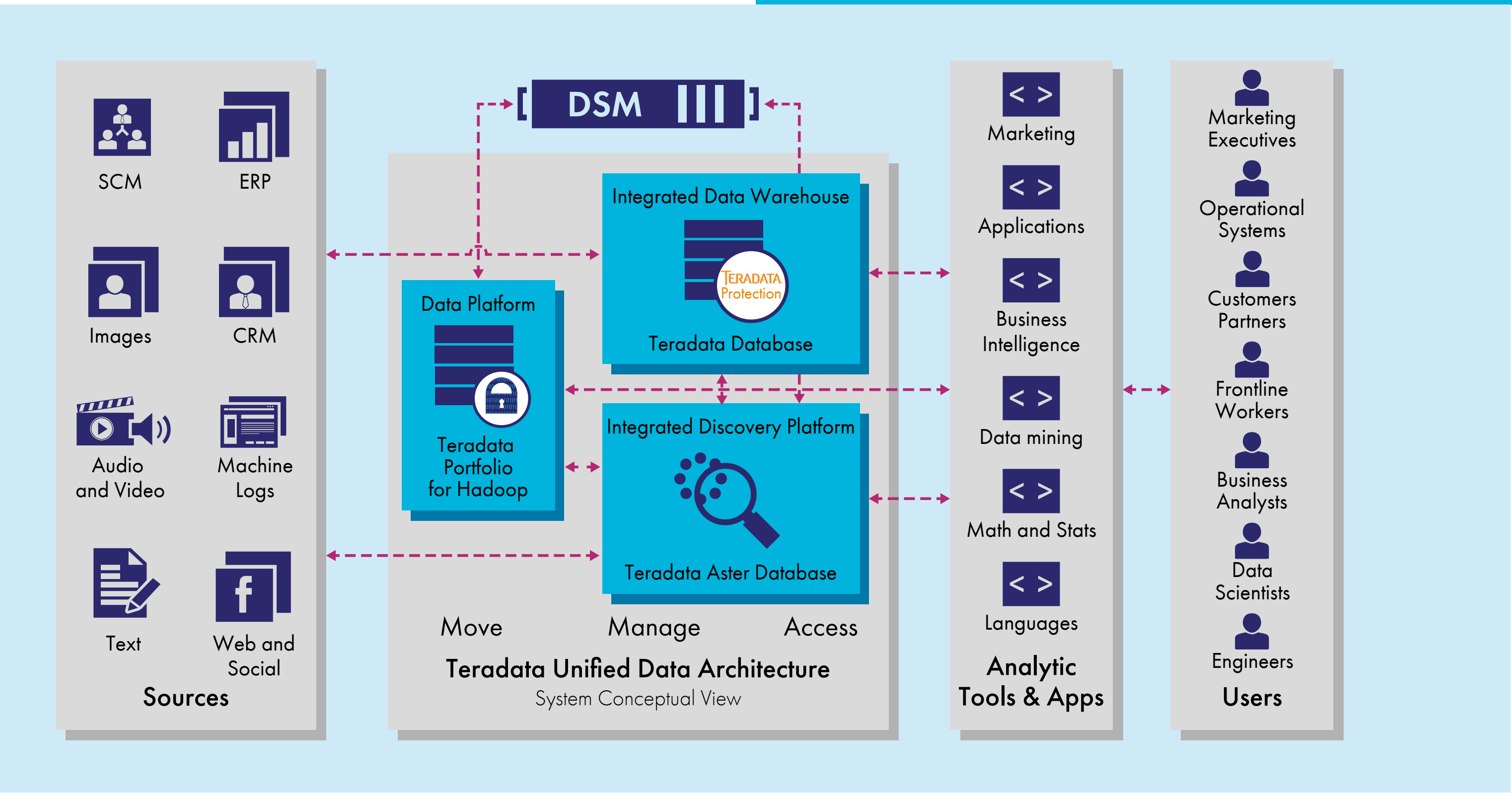
Vormetric Protection for Teradata Database simplifies the process of securing sensitive records, enabling encryption of specific fields and columns in Teradata databases. The solution also offers NIST-approved format-preserving encryption (FPE) capabilities, so you can encrypt sensitive records without altering their format or field schemas. Not only does this minimize the potential impact of encryption on associated applications and workflows, but it helps you avoid the increased storage requirements associated with conventional encryption approaches.

KEY BENEFITS

- Centralize and streamline your data-at-rest encryption and key management
- Boost security without compromising the value of big data analytics
- Establish protections against cyber attacks and abuse by privileged users
- Deploy rapidly

KEY FEATURES

- Enforce granular controls so administrators can perform operational tasks, without accessing sensitive data in the clear
- Realize high performance, scaling with the number of Teradata nodes
- Leverage FPE that minimizes storage increase and disruption of encryption
- User-defined functions (UDFs) for encryption and decryption easily integrate into existing SQL code
- Enables customers to use different keys for different columns
- Supports ASCII text and Unicode, enabling flexible language and technology support
- Certified Teradata encryption solution



STREAMLINE ENCRYPTION DEPLOYMENT AND USAGE

The solution reduces complexity for developers by offering documented, standards-based application programming interfaces (APIs) and user-defined functions (UDFs) that can be employed to perform cryptographic and key management operations. With the solution, Teradata users can set up their own easily configurable profiles for submitting encryption and decryption requests, including choosing from standard AES encryption and FPE.

ENABLING CENTRALIZED KEY AND POLICY MANAGEMENT

Vormetric Protection for Teradata Database works seamlessly with the Vormetric Data Security Manager (DSM), a hardened, FIPS-certified appliance for administration and key storage. With the DSM, you can centrally manage keys and access policies for Vormetric Protection for Teradata Database, other Vormetric Data Security Platform solutions and third-party encryption products. With the DSM, you can manage keys and policies for Vormetric Transparent Encryption, which can be used to protect your Teradata Appliance for Hadoop.

TECHNICAL SPECIFICATIONS

Supported platforms:

- Teradata database, versions 14.0, 14.10, 15.0 and 15.10

Operating systems:

- SUSE Linux Enterprise Server (SLES), versions 10 or 11

Maximum column widths:

- ASCII: 16KB
- Unicode UDFs: 8KB

VORMETRIC SECURITY INTELLIGENCE

Vormetric Security Intelligence delivers detailed, actionable security event logs that provide unprecedented insight into file access activities. With the solution, your organization can leverage immediate alerts that fuel automated escalation and response. These logs are easy to integrate with SIEM systems, so you can efficiently track and investigate suspicious activities and produce compliance and security reports.

DELIVERING GRANULAR, ACTIONABLE SECURITY INTELLIGENCE

Traditionally, SIEMs relied on logs from firewalls, IPS, and NetFlow devices. Because this intelligence is captured at the network layer, these systems can generate massive volumes of data, making it challenging for administrators to identify the events that really matter. Further, these systems also leave a commonly exploited blind spot: They don't provide any visibility into data access attempts and events occurring on servers. Vormetric Security Intelligence eliminates this blind spot, delivering targeted, critical insights into file access activities. As a result, the solution helps eliminate the threat of an unauthorized or compromised user account gaining stealthy access to sensitive data.

Vormetric Security Intelligence logs produce an auditable trail of permitted and denied access attempts from users and processes. The solution's detailed logs can be reviewed to specify when users and processes accessed data, under which policies, and if access requests were allowed or denied. These logs can be efficiently shared with your SIEM platform, helping uncover anomalous process and user access patterns, which can prompt further investigation. For example, an administrator or process may suddenly access much larger volumes of data than normal, or attempt to do an unauthorized download of files. Such inconsistent usage patterns could point to an APT attack or malicious insider activities.

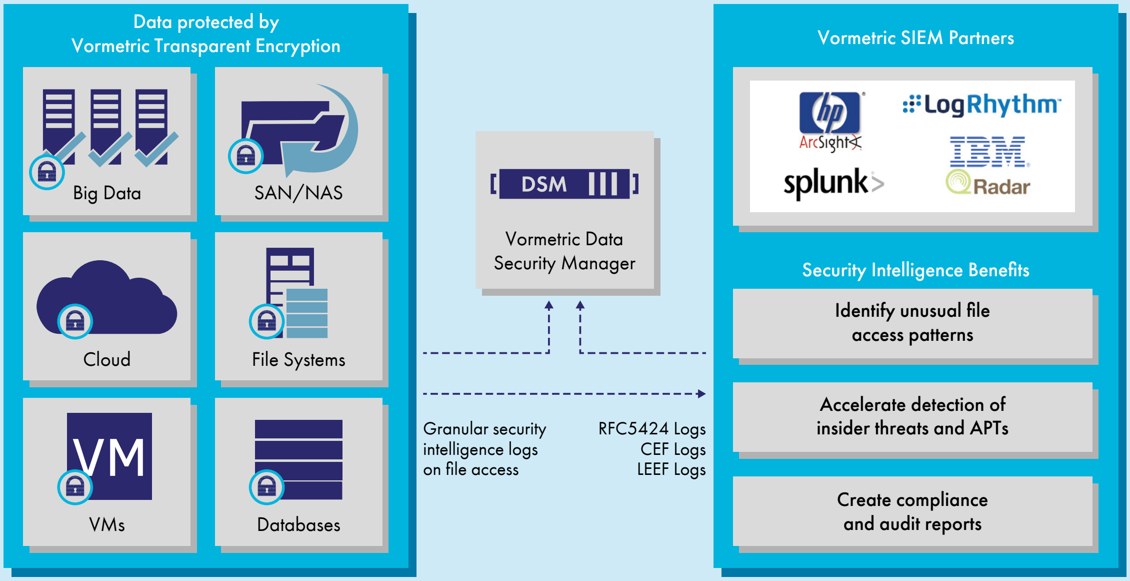
ACTIONABLE LOGS THAT FUEL FAST RESPONSE

Vormetric Security Intelligence logs provide instantaneous insights that can be fed into your organization's security operations center, including any existing workflows and automated scripts you may have in place. As a result, Vormetric Security Intelligence enables you to ensure risks are identified, communicated, and acted upon in the fastest and most efficient manner.

STREAMLINING AUDITING AND COMPLIANCE

In order to adhere to many compliance mandates and regulations, organizations must prove that data protection is in place and operational. Vormetric Security Intelligence can be used to prove to an auditor that encryption, key management, and access policies are working effectively. With its detailed visibility and integration capabilities, Vormetric Security Intelligence helps streamline the effort associated with audits and ongoing compliance reporting.

VORMETRIC SECURITY INTELLIGENCE



KEY FEATURES

- Enhanced visibility into sensitive data access
- Instant alerts can trigger fast, automated response
- Accelerated APT and insider threat detection
- Export logs in all major log formats: Syslog RFC5424, CEF and LEEF
- Fast integration with Vormetric SIEM partners
- Consolidated and consistent compliance and audit reporting

TECHNICAL SPECIFICATIONS

SIEM Partner Integration

- FireEye Threat Prevention Platform
- HP ArcSight
- IBM Security QRadar SIEM
- Informatica Secure@Source
- McAfee ESM
- LogRhythm Security Intelligence Platform
- SolarWinds
- Splunk

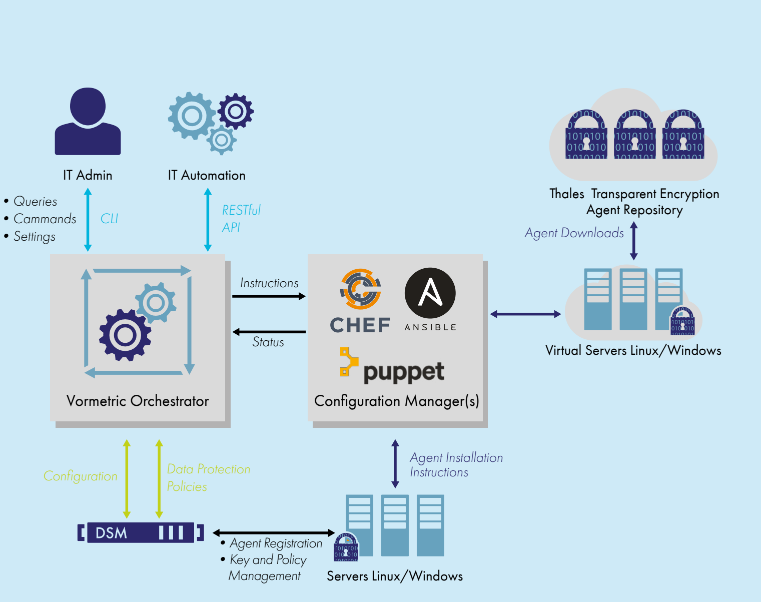
VORMETRIC ORCHESTRATOR

Vormetric Orchestrator automates deployment, configuration, management and monitoring of Vormetric Data Security Platform products. With these capabilities, organizations can scale their implementations across large enterprise data centers and hybrid cloud environments—while dramatically reducing administrative effort and total cost of ownership.

AUTOMATION FUELS SCALABLE, EFFICIENT OPERATIONS

For large organizations and cloud service providers, the only certainty is change: changes to operating systems, workloads, databases and network configurations. Vormetric Orchestrator delivers the automation you need to keep pace with such changes. By automating repetitive tasks, the Orchestrator simplifies operations, helps eliminate errors and speeds deployments. The solution reduces the staff resources required to maintain and expand encryption deployments, so your teams can spend more time focusing on more urgent and strategic priorities. Vormetric Orchestrator offers these advantages:

- **Increased operational efficiency through automation.** The solution delivers automatic deployment and maintenance of Vormetric Data Security Platform products. For example, in the event of a critical operating system patch, it's simple to set up a job that instructs the Orchestrator to automatically update hundreds of servers with a new version of a Vormetric Transparent Encryption agent.
- **Efficient integration in your environment.** Vormetric Orchestrator features a plug-in architecture enabling fast integration with IT configuration management solutions such as Chef and Ansible.
- **Flexible deployment options.** Vormetric Orchestrator is delivered as a virtual appliance for mainstream virtualization and public cloud platforms. When installed in your data center, the solution can manage Vormetric Data Security Platform products in remote data centers, private cloud environments and in public clouds.



KEY BENEFITS

- Leverage automation to accelerate deployments and boost operational efficiency
- Scale encryption while reducing total cost of ownership
- Harness broad environment support to expand encryption

TECHNICAL SPECIFICATIONS

Open Virtualization Format Virtual Appliance Requirements

- 4 virtual CPUs
- Minimum memory: 4GB

Amazon Machine Image (AMI) requirements

- 4 Virtual CPUs
- Minimum Memory 4GB

Configuration Manager Support

- Chef (multiple Chef Servers supported)
- Ansible
- Puppet

Automation Support

- Vormetric Data Security Managment
  - Installation
  - Configuration
- Vormetric Transparent Encryption
  - Agent installation/upgrade and registration
  - Encryption Policy
- Vormetric Application Encryption
  - Installation and host registration
- Vormetric Tokenization Server
  - Host registration and policy configuration

THALES

www.thalesesecurity.com

About Thales eSecurity

Thales eSecurity is the leader in advanced data security solutions and services that deliver trust wherever information is created, shared or stored. We ensure that the data belonging to companies and government entities is both secure and trusted in any environment – on-premises, in the cloud, in data centers or big data environments – without sacrificing business agility. Security doesn't just reduce risk, it's an enabler of the digital initiatives that now permeate our daily lives – digital money, e-identities, healthcare, connected cars and with the internet of things (IoT) even household devices. Thales provides everything an organization needs to protect and manage its data, identities and intellectual property and meet regulatory compliance – through encryption, advanced key management, tokenization, privileged user control and high assurance solutions. Security professionals around the globe rely on Thales to confidently accelerate their organization's digital transformation. Thales eSecurity is part of Thales Group.

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