

CipherTrust Live Data Transformation Zero-Downtime Encryption and Key Rotation

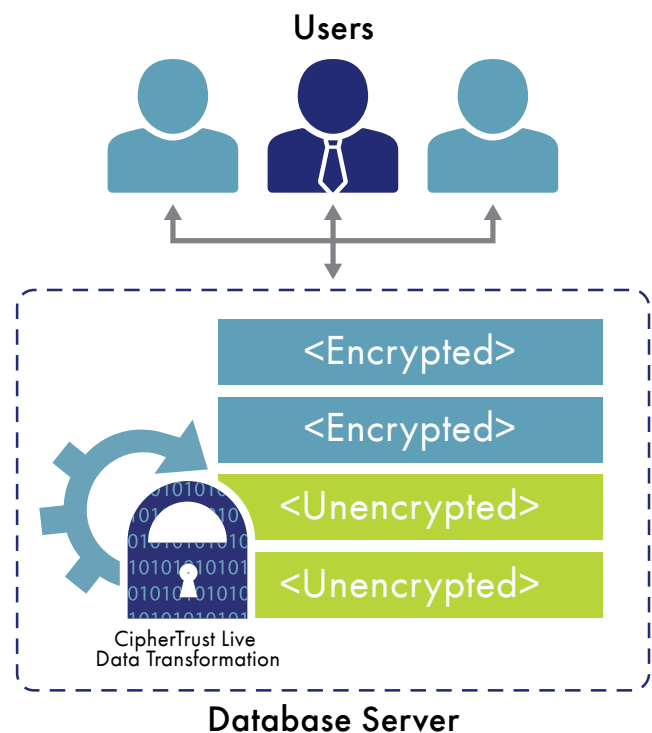


Apply encryption and access controls to files, volumes and Hadoop environments without taking applications offline

- Meet compliance requirements for encryption and access control without taking applications offline
- Expand encryption implementations with minimal impact on application operations and users
- Reduce the impact and cost of implementing encryption by eliminating encryption and rekeying downtime
- Accelerate recovery of data encrypted with older keys

The challenge: implementing and maintaining encryption with minimal application impact

In the face of escalating threats and compliance mandates, data encryption has become a best practice component integral to layered IT security strategies. For many, two critical barriers to the adoption of encryption with existing databases, files, and big data implementations have been:



A database protected with CipherTrust Transparent Encryption and Live Data Transformation enables non-disruptive initial encryption and simplified, more-compliant encryption key rotations. Users continue to work as usual while encryption is in process.

- **Initial encryption time.** With a large dataset, the process of initially converting from clear-data text to ciphertext has typically meant that applications using the data must be taken off-line during the initial conversion process. Even when state-of-the-art cloning and synchronization techniques are used, there is substantial downtime. For mission critical applications required to run with “five nines” of uptime, this can result in failure to meet SLAs, operational disruptions, and loss of revenue.
- **Downtime caused by re-keying of data sets.** Best practices and compliance regimes frequently require encrypted data be re-keyed with a new encryption key at specified intervals. This operation typically requires a large maintenance window, and results in the same disruption level as initially encrypting the data. The result is IT, compliance, and security teams face tough decisions about the balance between security, availability, uptime, and levels of compliance.

The solution: CipherTrust Live Data Transformation extension for CipherTrust Transparent Encryption

Customers have relied on CipherTrust Transparent Encryption for over a decade. It eliminates many of the challenges associated with implementing encryption in an enterprise. CipherTrust Transparent Encryption breaks down data security silos, encrypts both structured databases and unstructured files, centralizes key management across the enterprise, and provides privileged user access controls and detailed data access audit logs that integrate with major Security Information and Event Management (SIEM) systems.

CipherTrust Transparent Encryption operates with minimal disruption, effort, and cost. Its transparent architecture enables security organizations to implement encryption without changing application, networking, or storage architectures.

CipherTrust Live Data Transformation builds on these advantages, offering patented capabilities that deliver breakthroughs in availability, resilience, and efficiency.

Delivering patented capabilities for deploying and maintaining encryption without downtime

- **Zero-downtime encryption deployments.** CipherTrust Live Data Transformation enables administrators to encrypt data without downtime or any disruption to users, applications, or workflows. A database or file system can be used normally, including powerful access controls and logging capabilities, while it is undergoing encryption.
- **Seamless, non-disruptive key rotation.** To address compliance requirements and best practices, Live Data Transformation enables organizations to perform key rotation without having to duplicate data or take associated applications offline.

Key features

CipherTrust Transparent Encryption agents operate on Windows and Linux servers that store or access any data that needs to be secured and controlled. CipherTrust Live Data Transformation is enabled in the CipherTrust Manager by applying a license for each agent on which it will operate. CipherTrust Live Data Transformation licenses can be enabled at any time, at which point users can secure their mission-critical data without any disruption or maintenance windows.

Live Data Transformation includes features to assure that its operation is transparent to users and applications independent of the size and scale of the deployment:

- **CPU resource management.** Encrypting large data sets can require significant CPU resources for an extended time. Live Data Transformation provides sophisticated CPU management rules to enable administrators to balance resources between encryption and other CPU operations upon which users depend. For example, a resource management rule can define that, during business hours, encryption can consume up to 10% of system CPU, reserving the balance of 90% for users. Then, the rule can define that on nights and weekends, encryption can consume 70%, when there are lower user demands on CPU resources. And encryption and re-keying processes can be manually paused and resumed as desired.
- **Versioned backups and archives.** With key versioning management, CipherTrust Live Data Transformation ensures efficient backup and archive recovery to enable more immediate access. In a data recovery operation, archived encryption keys, recovered from the CipherTrust Manager, are automatically applied to an older data set. Restored data is encrypted with the current cryptographic keys.
- **Resiliency.** By storing encryption metadata with the target files or database volumes, CipherTrust Live Data Transformation is resilient in the face of storage failures, system issues, or network downtime. Any interrupted encryption process will seamlessly recover without having to have the entire process restarted. This architecture ensures that data is never corrupted, no matter how, when, or where a failure occurs, and, scales with the size of the file system, rather than being limited by design.

About Thales

The people you rely on to protect your privacy rely on Thales to protect their data. When it comes to data security, organizations are faced with an increasing number of decisive moments. Whether the moment is building an encryption strategy, moving to the cloud, or meeting compliance mandates, you can rely on Thales to secure your digital transformation.

Decisive technology for decisive moments.