## Mainframe Tape and Security

For many mainframe data centers, physical tape encryption and key management have become a requirement to secure the vital business and customer information that resides on physical tape media. In August of 2005, Luminex enabled the first tape-based encryption solution for mainframe environments using its Channel Gateway control units.

With the industry's current trend toward disk-based virtual tape solutions, tape data is replicated from the production site to a remote disaster recovery site over a network and physical tape encryption is not used.

For enterprises that require the security of encryption and key management for their disk-based virtual tape, Luminex has once again demonstrated its leadership and innovation by offering extraordinary options for securing tape data. CGSafe encryption and key management solutions offer unprecedented security and key management options for customers that require tapeless mainframe solutions.

## Security and Efficiency at Every Step

- Better than simple self encrypting drives, data remains encrypted for all local or wide area network traffic, including replication
- Integrates into existing key management infrastructure for a single-point-of-management
- Compression, authentication, CRC and encryption in a single operation
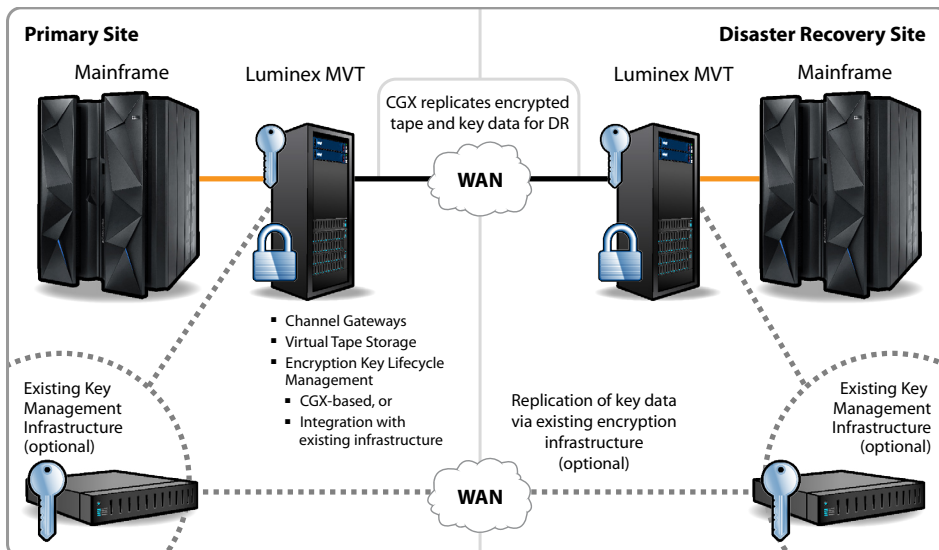
## Secure – Not Just Encrypted

### For Data At Rest and Data In Transit Over the Network

CGSafe is available for Luminex Mainframe Virtual Tape (MVT™) and Channel Gateway X (CGX) solutions. It enables mainframe customers to maximize data security by encrypting all tape data before storing it on the virtual tape storage target. When data is sent via the mainframe's FICON or ESCON channel, it is encrypted using 256-bit AES-GCM and optionally compressed, providing encryption, authentication, CRC and compression in a single operation. The solution is configurable for auto-hardware-to-software encryption failover and will provide alerts to the IT operations staff.

Data at the disaster recovery site is also secure, because virtual tape data is encrypted before being replicated over the network to the remote disaster recovery site.

## MORE SECURITY... LESS COMPLEXITY

### Encryption

- Encrypt Data At Rest and Data In Transit
- AES-GCM or AES-ECB modes
- CGSafe solutions use AES-256 , AES-192 or AES-128
- Encryption, compression, authentication and CRC are included
- Configurable for auto-hardware-to-software encryption failover

### Key Management

- Full Key Lifecycle Management
- CGSafe supports leading key serving appliances
- Supports KMIP standard
- Dynamic creation of keys
- Master keys (KEKs) based on storage pools



**Primary Site** — **Disaster Recovery Site**

Mainframe — Luminex MVT — CGX replicates encrypted tape and key data for DR — WAN — Luminex MVT — Mainframe

- Channel Gateways
- Virtual Tape Storage
- Encryption Key Lifecycle Management
  - CGX-based, or
  - Integration with existing infrastructure

Existing Key Management Infrastructure (optional)

Replication of key data via existing encryption infrastructure (optional)

Existing Key Management Infrastructure (optional)

WAN

## Key Management – A Complete Key Lifecycle Management Solution

To further increase security and reduce the complexity associated with key management, Luminex provides key management solutions within CGSafe or via the industry's leading key serving appliances to provide data or key encryption keys. The key servers comply with the OASIS Key Management Interoperability Protocol (KMIP). These solutions enable customers to manage symmetric and asymmetric keys, key policies, key servers and data access. The CGSafe keystore is protected with additional layers of encryption.

With CGSafe, keys are protected and tape data is always available to authorized users only. It enables authorized users to scale the management of keys and key generation and import, export, delete or expire keys based on set policies and best practices

For key management at the remote disaster recovery site, keys are automatically replicated to the remote CGSafe keystore or key appliances that are accessible from the disaster recovery site. High Availability (HA) configurations with redundancy and no single point of failure are also available.

## Luminex Mainframe Virtual Tape (MVT) at a Glance

Luminex MVT solutions are based on Channel Gateway X (CGX) control units, which enable mainframe customers to leverage industry leading and proven enterprise storage solutions. CGX supports both FICON and ESCON channel connectivity and existing mainframe backup software simply sees the Channel Gateway as a recognized mainframe tape device.  No software changes are required.