

# Easily Encrypt VMware vSphere Environments with ARIA KMS

**While encryption of virtual machines has been happening for many years, it hasn't gained much in popularity because of the impact on performance and operational challenges.** In release 6.5, VMware added the ability to encrypt a VM's I/O. Encryption occurs for all user level files (such as core dumps) prior to being sent to the hypervisor layer beneath the virtual machine. With this approach VMware has addressed many security and policy issues, including implementing encryption as a policy, resulting in simplified administration and operational overhead.

However, in order to take advantage of these new VMware encryption features, organizations using vSphere must use an external Key Management System. This can be done easily through a KMIP standard solution.

## How vSphere encryption works

The VMware vCenter manages the encryption process, acting at the behest of individual hypervisor instances, to request the keys from an external KMS. It is the KMS that generates, as well as stores and passes them to vCenter for distribution to each VM. Each VM receives a unique encryption key. In addition, the vCenter can also request keys from the KMS to encrypt a vSAN data store. In this case only one key is requested and it encrypts the entire data store.

The generation, issue and storing of the keys is critical because they are what control encryption. Key management is just what it sounds like - the ability to serve and update keys as desired. In the case that the KMS becomes non-responsive, data cannot be insured to be properly encrypted or decrypted - making the KMS the linchpin of data encryption.

CSPI has solved this single point of failure possibility by providing a high performance secured hardware approach which can be clustered for transparent high reliability. This assures the KMS is both secure and completely backed up by up to 5 other individual KMS instances in its cluster. HA functionality is built in and available out of the box.

## Simple vSphere key management using ARIA KMS

CSPI's ARIA™ Key Management Server (KMS) is an easy-to-deploy application that takes advantage of the widely accepted key management interoperability protocol (KMIP) for integration with other existing applications - like VMware vSphere.

The KMS solution is deployed on the Myricom Secure Intelligent Adapter (SIA), for not only a trusted execution environment for key handling, but also for added security and performance, as well as plug and play, one step configuration. For organizations that must comply with government encryption requirements, the ARIA KMS deployments can provide a FIPS 140-2 solution.

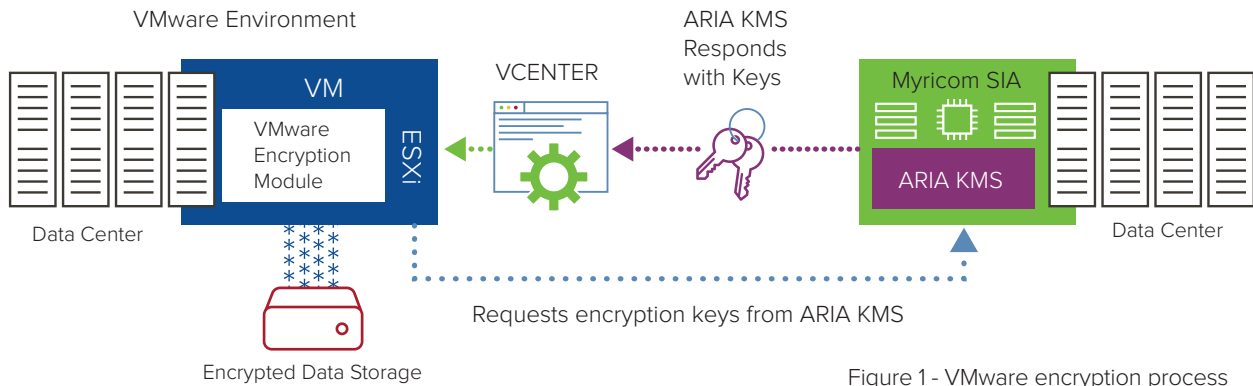


Figure 1 - VMware encryption process

### Myricom SIA provides a zero footprint Key Management Server

CSPI's Myricom SIA is a 10 or 25 GB dual-port network interface card (NIC) and provides a local secure zone-of-trust required to generate and store keys and even execute crypto operations based on those stored keys. When running the ARIA KMS application, utilizing its TrustZone TPM this shields the keys from exposure, even if the host server is breached, unlike Intel's® vulnerable Xeon™ SGX-based TPM environments.

Utilizing the SIA allows organizations to improve server network connectivity while protecting the use of the keys during encryption. The SIA can also be deployed into the devices they are protecting, such as storage arrays, for a zero footprint implementation for a key server solution.

**Secure your Enterprise today. Contact us: [sales@cspi.com](mailto:sales@cspi.com)**

## About CSPI

CSPI (NASDAQ: CSPi) is a global technology innovator driven by a long history of business ingenuity and technical expertise. A market leader since 1968, we are committed to helping our customers meet the demanding performance, availability, and security requirements of their complex network, applications and services that drive success.

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