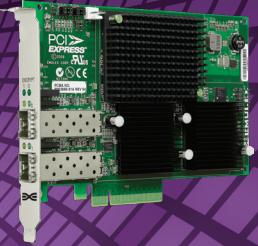




Emulex OneSecure™ 8Gb/s Fibre Channel HBA Architecture

Encrypt Once, Protect Everywhere



Strong, high-performance, transparent, host-based encryption provides continuous protection throughout the SAN

Data Security Challenge

Data security is a growing concern with 261 million data record breaches occurring since 2005. The risk is real and can affect organizations of any size, location or industry. Organizations need to comply with a variety of regulatory and disclosure requirements for data security. The best solution to accomplish security and compliance objectives is one that provides 100% end-to-end protection. Host-based encryption is the best method because it minimizes the window of vulnerability providing the compliance strategy that security conscious companies need. Data is protected from the time it leaves the server, no matter where it goes, to the time it is used again.

OneSecure: The easy-to-implement security and compliance solution that companies have been asking for

Emulex designed the OneSecure Fibre Channel Host Bus Adapter (HBA) architecture to provide host-based, hardware-assisted encryption that protects data throughout the enterprise. The entire storage network is encryption-enabled with OneSecure. It's as simple as installing OneSecure HBAs into your existing storage infrastructure, loading the Key Manager application and choosing the redundancy needed for your organization.

Maximum Protection, Minimal Costs

The OneSecure 8Gb/s HBA encrypts data inside the server with a high-performance architecture that offloads processing from the host, allowing administrators to encrypt once, protect everywhere. A single solution protects data in-flight on the network and when it is stored. Based on AES 256-bit encryption, the OneSecure HBA architecture minimizes the impact on server performance and maximizes consolidation for server virtualization. And it provides this exceptional protection at a fraction of the cost of alternatives available today.

Features and Benefits

Highest level of protection, lowest cost

- Protects data in-flight and at rest—the entire SAN is encryption-enabled
- Advanced Encryptions Standard (AES) 256-bit encryption
- Reduced capital costs:
 - 55-70% less than array or switch-based encryption
 - 50-90% less than software-based encryption for high I/O workloads
 - 30% less than disk shredding

Optimized scalability and performance for virtualization

- Compatible with enterprise-class server virtualization solutions
- Hardware-based encryption offloads CPU resources to maximize server consolidation
- Enterprise-wide key management enables virtual machine (VM) migration with encrypted storage ready for use

Transparent, non-disruptive encryption

- Transparent to the software stack above OneSecure HBA drivers
- Encryption enabled throughout the Storage Area Network (SAN) fabric, storage and archives

Open enterprise key management

- Support for the OASIS KMIP specification (Key Management Interface Protocol) for interoperability
- Partnership with RSA—the leader in enterprise security
- Partnership with IBM Tivoli Key Lifecycle Manager (TKLM)—enterprise key management solution

FIPS 140-2 certified and compliance-ready

- Provides defensible proof of encryption for FIPS 140-2, HIPAA, HiTECH, PCI-DSS, Security Breach Disclosure, Sarbanes-Oxley, Department of Defense directives, as well as compliance encompassing an estimated further 10,000 regulations

Emulex OneCommand—simple integration and deployment

- Easy to install and manage using Emulex OneCommand™ Management Framework



OneCommand™

OneSecure™ 8Gb/s Fibre Channel Encryption HBA Solution

Cost-effective and Flexible

With enterprise-class encryption integrated into the OneSecure HBA, there is no need to:

- Purchase expensive appliances that do not scale and add unneeded complexity to the storage environment
- Replace storage systems
- Install CPU-intensive host-based encryption software
- Perform expensive and time consuming disk shredding

Host-based Encryption Security Protects Investments

OneSecure data encryption is transparent to both applications and storage systems. There is no requirement for expensive encryption appliances or large-scale upgrades—an entire SAN infrastructure can be secured without updating applications, switches, servers or storage systems.

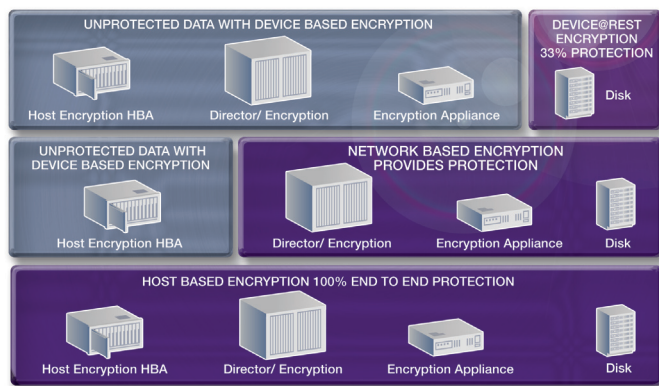


Figure 1 OneSecure 8Gb/s encryption HBAs protect data in-flight and at rest, starting at the server where the data is created. Compared to other encryption solutions, OneSecure minimizes windows of vulnerability.

Enterprise-class Key Management

Emulex has partnered with leading key management solutions such as RSA Key Manager and IBM Tivoli Key Lifecycle Manager (TKLM) to deliver enterprise-class key management features for OneSecure HBAs. Other Key Management partnerships will be announced in the future.

Standards-based for Interoperability

Emulex also supports the new Key Management Interface Protocol (KMIP) that has been endorsed by RSA, IBM, and HP. OneSecure HBAs are compatible with all KMIP-compliant key management systems.

Hardware Acceleration for Virtualization

Since host-based encryption protects data in-flight and at rest, a software solution could be considered. However, encryption is CPU-intensive and a software-based solution will significantly reduce server consolidation ratios. OneSecure hardware-assisted encryption off-loads CPU cycles so there is no tradeoff between compliance and server consolidation. OneSecure optimizes virtualization and security at the same time.

Secure Virtual Machine Mobility

The OneSecure architecture uses an enterprise-wide key exchange solution that enables migration of VMs to any host that has an Emulex OneSecure HBA and is authorized to access keys for the VM's storage. Keys are automatically loaded before the VM is moved, ensuring no disruption in server availability and storage access.

OneCommand—Security Management

OneSecure HBAs are managed by the OneCommand™ Management Framework, providing enterprise key lifecycle management, policy management and audit with the resilience and availability that enterprise IT managers expect. With the OneCommand Management Framework, IT organizations will be able to:

- Apply and track encryption policies across the infrastructure
- Provide audit information into the corporate logging system
- Manage the lifecycle of an encrypted LUN

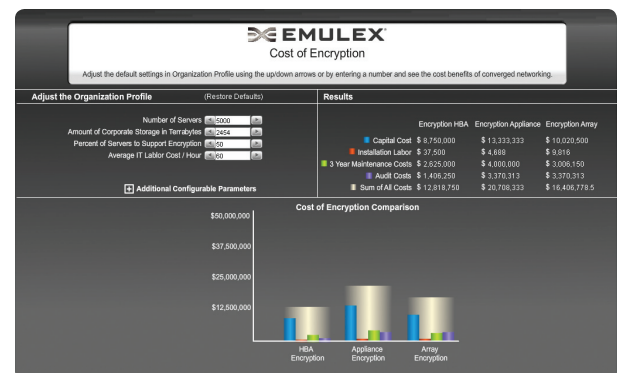


Figure 2 OneSecure delivers affordable encryption compared to other methods available. The Emulex Cost of Encryption Calculator provides a comparison of HBA, Appliance, and Storage solutions from a total cost of ownership perspective. For access to the calculator visit: www.emulex.com/products/strategic-directions.html



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