

Introducing **SecureNAS T1**

Now FIPS 140-2 Compliant

Pictures shown below is the SecureNAS model T1



Enova Corporate Profile

Founded:	April 2000
Offices:	San Jose, CA; Taipei City; Hsin-Chu Science Park
Patents:	300+ claims over hardware full disk encryption technology world-wide
CEO:	Robert Wann, Founder

- Proven real-time full disk encryption technology ensures no performance degradation
- **FIPS 140-2 Certified Crypto Modules**
- OS Independent
- NIST & CSE certified real-time hardware TDES & AES cryptographic engines (NIST & CSE certified: DES #143, TDES #92, AES ECB #60, AES CBC #250)

What is *X-Wall MX*?

***X-Wall MX* features:**

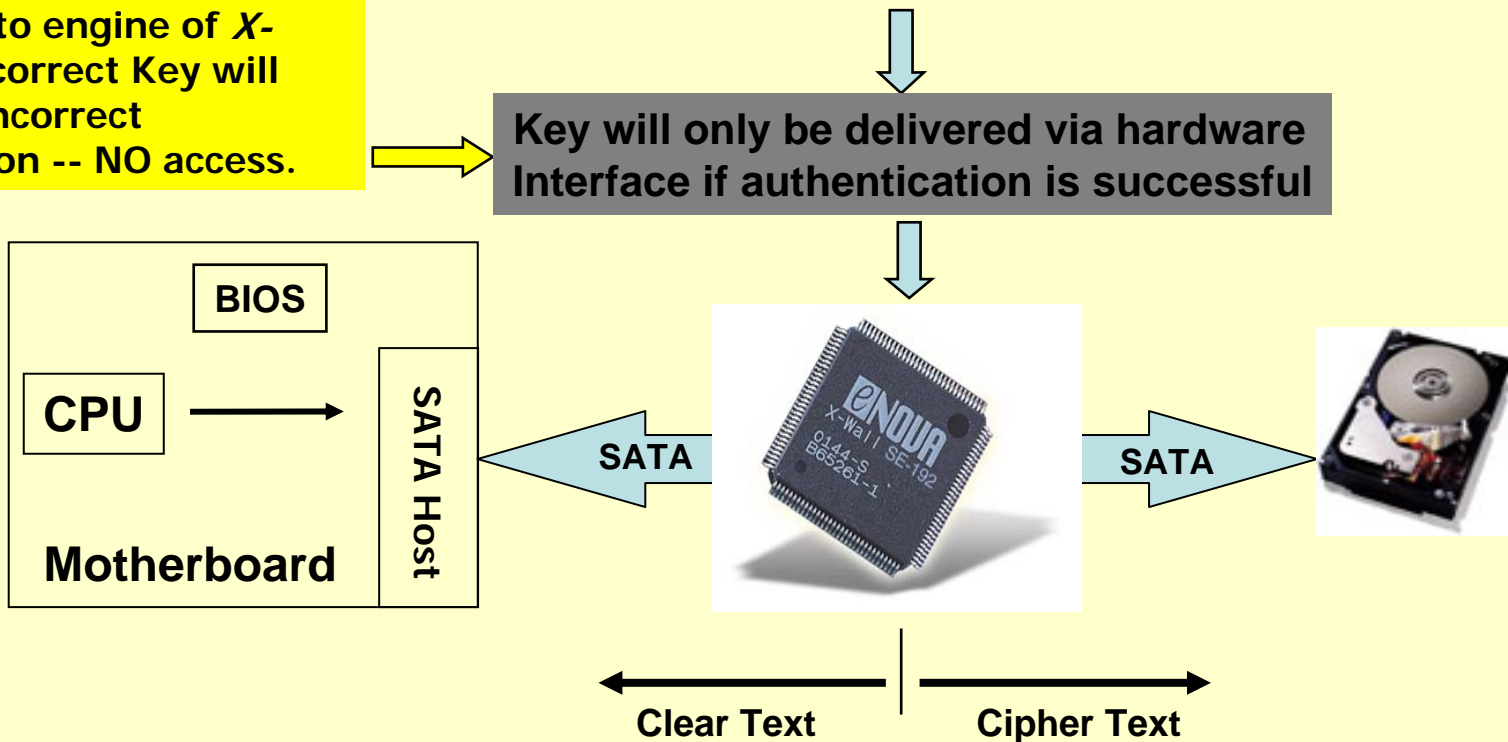
1. Semiconductor 80 pins TQFP RoHS & Lead-free
2. Real-time performance with SATA wire speed
3. OS independent and requires no device drivers
4. Solid security with **FIPS 140-2 certification**
5. **FIPS 140-2 Level 3** for physical security attained
6. Easy to deploy
7. Drive disposal or re-purposing made easy

eNOVA[®] X-Wall MX ensures trusted real-time data-at-rest encryption

Authentication can be versatile:

- Simple authentication such as Password;
- Fingerprint & Password produce two factors authentication;
- Smartcard & Password product two factors authentication;
- A simple key token can also authenticate *X-Wall MX*.

The AES Key may be delivered at power on or after to authenticate and activate the crypto engine of *X-Wall*. Incorrect Key will render incorrect decryption -- NO access.

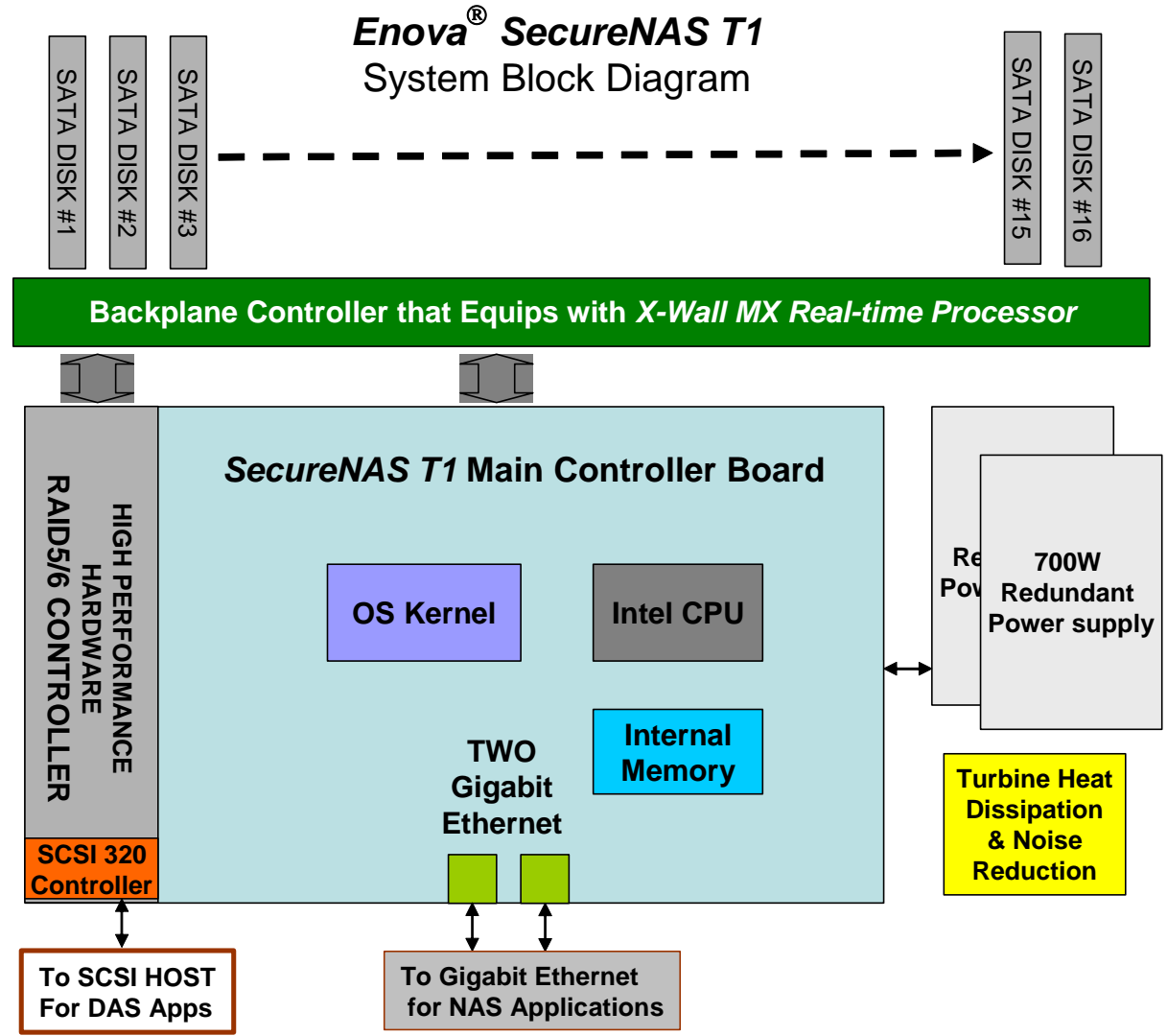


MULTIPLE SATA DEVICES

What is the *SecureNAS T1*?

- *Real-time encrypted networked storage server*
 - ◆ Transparent AES 256-bit Encryption Over Data-At-Rest (DAR)
 - ◆ No Performance Loss Over All Disk Drives
 - ◆ Secure Files Backup to Remote Location
 - ◆ Offers CIFS, NFS, iSCSI
- *Automated Key Management*
 - ◆ Remote Key Server Operated Over Windows Server
 - ◆ Public Key Infrastructure Deployed
 - ◆ Keys & Certificates Backup and Recovery
- *Keys & Credentials Are Not Stored Inside*
 - ◆ Stolen of Entire System Proven Useless

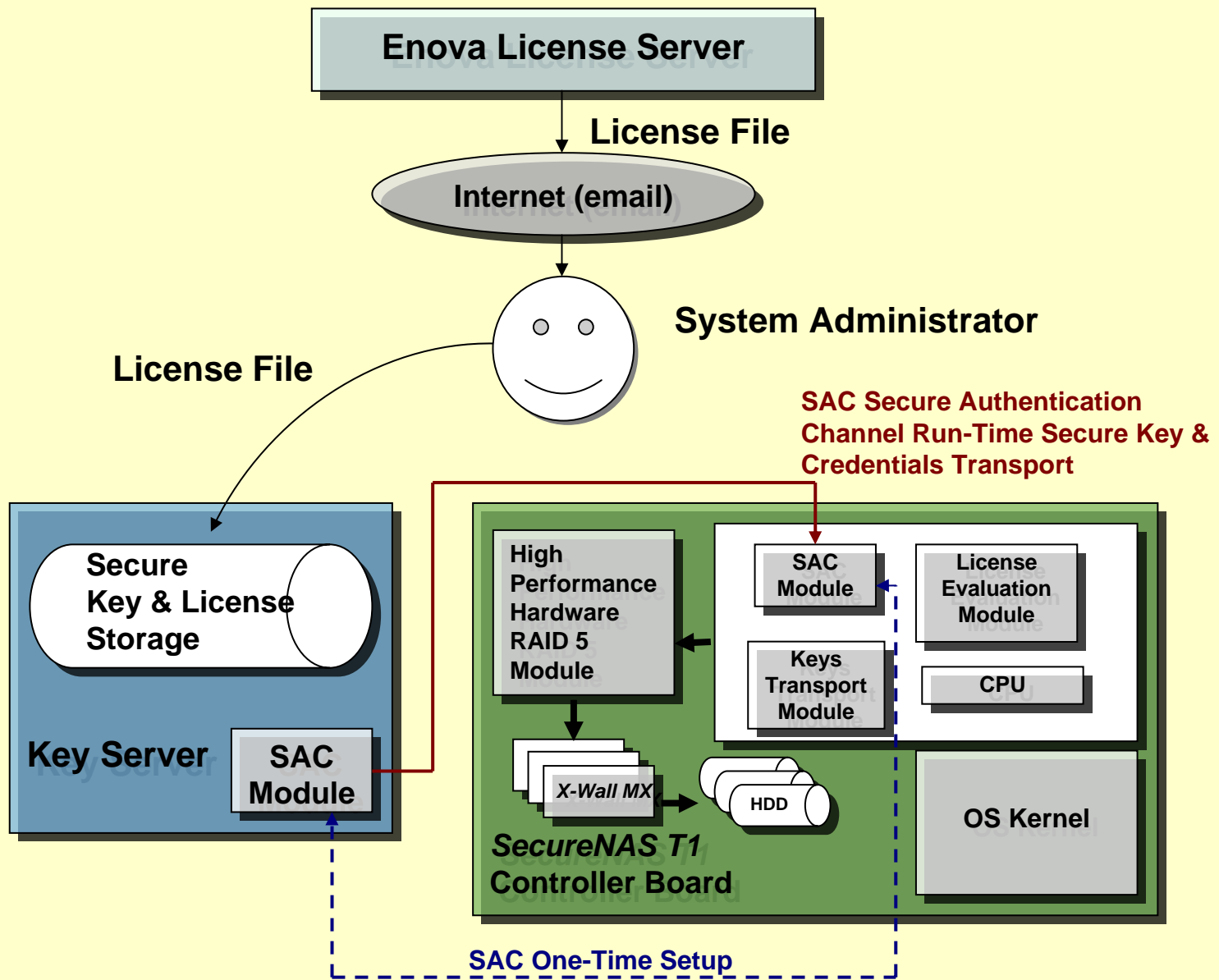
SecureNAS T1 Building Blocks #1



SecureNAS T1 Consists of

- **FIPS 140-2 Certified** X-Wall MX Crypto Modules
- **SecureNAS T1** 16-bay rack mount hardware
- Key Server software
- 32TB (2TB per drive) RAID 5/6 configuration
- System Administrator Software
- Two Full Duplex Gigabit Ethernet Ports
- Backup Key Server (Optional)

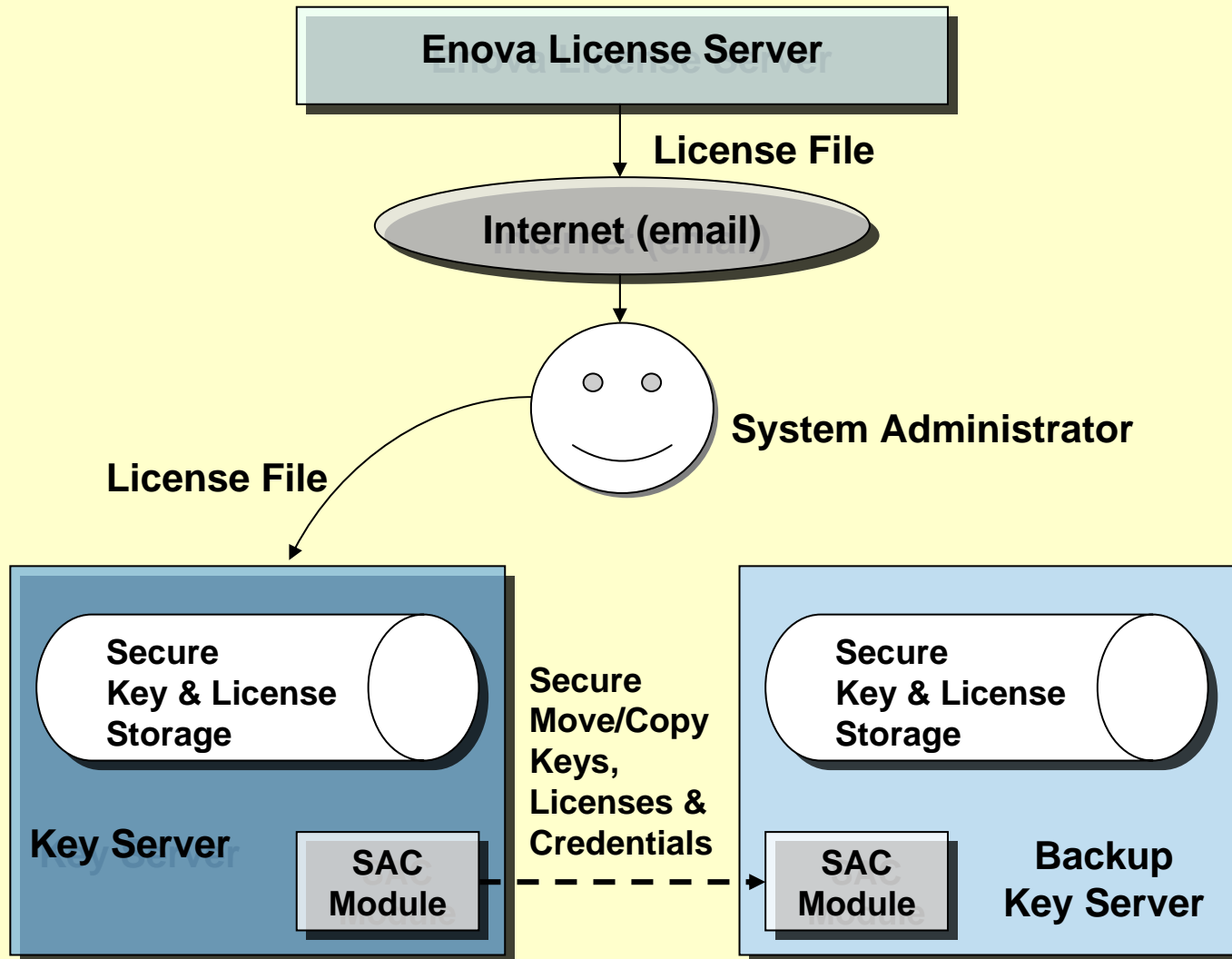
SecureNAS T1 System Building Blocks #2



SecureNAS T1 Operation Procedures

- At the power-on-reset process, the AES secret keys & CERTIFICATE are delivered from Key Server to the **SecureNAS T1 system** via Secure Authentication Channel (SAC);
- The Key Server authenticates all connected **SecureNAS T1 systems**;
- The *SecureNAS T1* decrypts the AES secret keys & the CERTIFICATE and delivers to the RAID 5/6 controller to initiate the disk array;
- The process is facilitated by a one-time setup operation initiated by the system administrator.

SecureNAS T1 System Building Blocks #3



SecureNAS T1 Security Features

- FIPS 140-2 certified crypto modules
- License Server (optional)
 - creates licenses files for each connected **SecureNAS T1 system** and Key Server
- System Administrator
 - On an administrator's PC/Laptop that manages the Key Server, Backup Key Server, and **SecureNAS T1 system**
- Key server (included) & Backup Key Server (optional)
 - Manages the Keys, License, & Certificates of the **SecureNAS T1**
 - Manage the secure files transport to a remote storage location
- **SecureNAS T1 System**
 - Secure Authentication Channel (SAC) responsible for the AES secret keys and relevant CERTIFICATES delivery
 - License evaluation module responsible for evaluation available license rights
 - Real-time AES ECB/CBC 256-bit encrypted hardware RAID 5/6 disk array

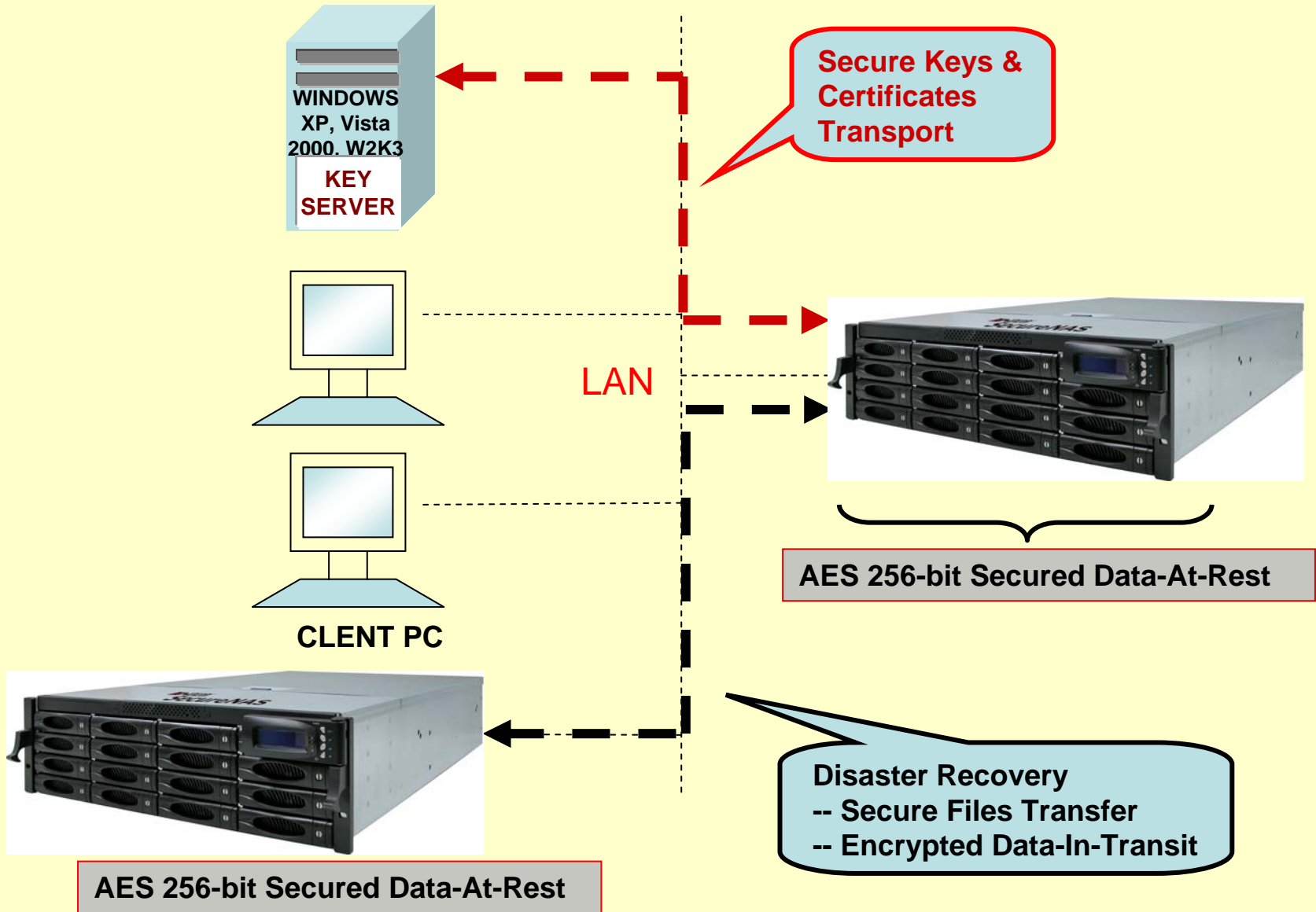
Key Server

- Secure Keys, Credentials, & Certificates storage
- Authenticates & controls each connected **SecureNAS T1**
- Backup Key server assumes the functions of the Key Server in the event of Key Server failure
- Secure Files Transfer Protocols
- Attempts to discern stored data out of a stolen **SecureNAS T1** will be proven futile as the Keys and Credentials are never stored inside which guarantees absolutely harmless situation

Deployment Made Easy with **SecureNAS T1**

- Simple Connection to TCP/IP
 - Offer two full duplex Gigabit Ethernet that allows standard Network Attached Storage (NAS) Application
- No System Complications
 - Support native SATA drives
 - Support Active Directory Service
 - Real-time DAR AES 256-bit encryption over the backplane
 - Ignore TCP/IP payload
- Easy to Expand in Storage Capacity
 - Up to 16TB of first release
 - Upcoming release allows more drives installation for expansion
- *Durable & Reliable*
 - **FIPS 140-2 certified X-Wall MX Crypto Modules securing all Data-at-Rest**
 - Hot plug, hot spare, and dual power supply units
 - Advanced heat dissipation design
 - Redundancy to disk array

SecureNAS T1 Deployment



Quality & Reliability

To ensure our product quality and reliability, Enova contracts with world-class semiconductor manufacturers, packaging, and quality assurance final testing manufacturers

- Enova's Sub-Contractors
 - Wafer/Semiconductor: TSMC (World's #1 Foundry)
 - Packaging & Final Testing: SPIL (World's #2)
- Enova exceeds Reliability Requirements
 - ✓ High Temperature Operating Life @125C for 1,000 hours: *passed*
 - ✓ ESD HBM, CDM, & MM: *passed*
 - ✓ Latch-up @250mA @70C: *passed*
 - ✓ *Can meet -40 to +90C*

U.S.A. and World-wide Patents

- **US 7,136,995**
 - Title: Cryptographic Device
 - Date filing: Nov. 3, 2000
 - Date of Patent: November 14, 2006
- **US 7.386,734**
 - Title: Real time data encryption/decryption system and method for IDE/ATA data transfer
 - CIP of 7,136,995
 - Date filing: August 6, 2003
 - Date of Patent: June 10, 2008
- **US Application 2006/0117189**
 - Title: Cryptographic Serial ATA Apparatus and Method
 - CIP of US7,136,995 & US7,386,734
 - Date filing: November 18, 2005

Summary

The SecureNAS T1 combines secure authentication, real-time data-at-rest (DAR) encryption, and data-in-transit encryption to provide unprecedented protection for all sensitive & proprietary data.

Contacts

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