Certified long-term data archiving
with ultra-redundant hard disk storage

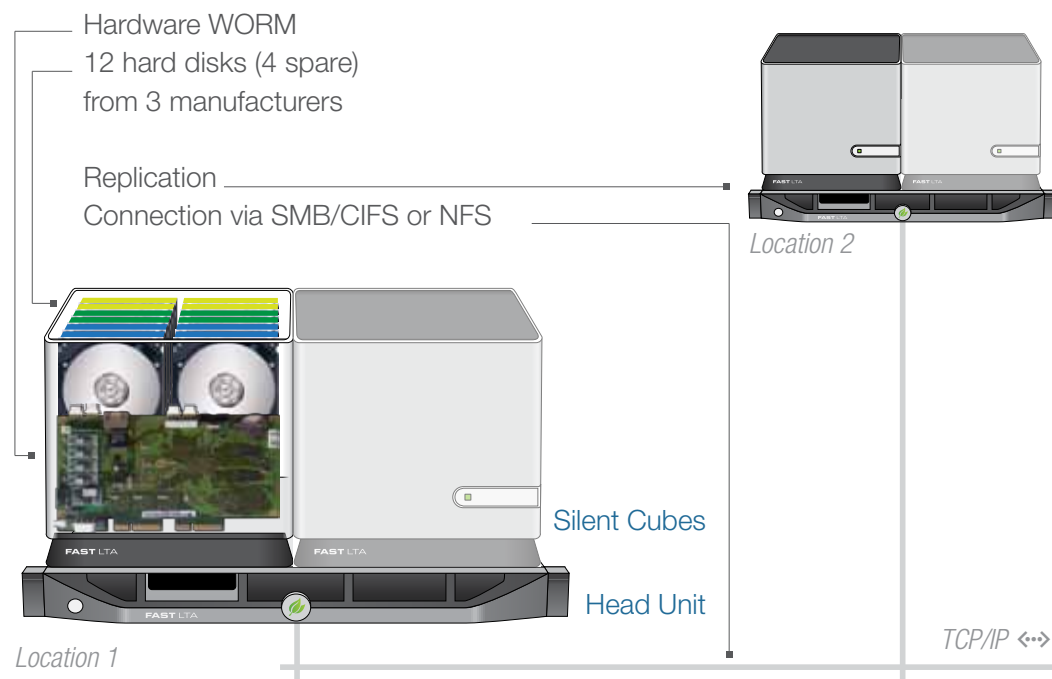# Silent Cubes

silent cubes

FAST LTA
We secure Terabytes.

Safeguarding infinite data, infinitely:

Silent Cubes

The Silent Cubes system is the first storage system to be explicitly and categorically developed for the secure, long-term storage of permanent data.

- Exceptionally secure against data loss, hardware malfunction and misconfiguration

- Particularly low energy and operating costs, ultra-scalable into the petabyte realm

- Full FAST LTA on-site service includes hardware replacement with zero data loss

Hardware WORM
12 hard disks (4 spare)
from 3 manufacturers

Replication
Connection via SMB/CIFS or NFS

Location 2

Silent Cubes

Head Unit

Location 1

TCP/IP ←·→

Perfect
Partnerships

Silent Cubes are in trusted use wherever large volumes of sensitive data need to be saved on a long-term, secure and economical basis.

This makes Silent Cubes the ideal complement to your software.

Through our "Approved Solutions" program of hand-selected solution providers, we ensure that all systems will run at peak, seamless interoperability.

More than 80 such partnerships have been tested and approved to date – and the list just keeps growing.

PHILIPS   VISUS   **AGFA** HealthCare

SIEMENS   CERNER All Together   FUJIFILM

SECTRA   Carestream   medavis

INFINITT Healthcare   Perennity   MERGE Healthcare   CHILI

d.velop   SAP   SAPERION   OS OPTIMAL SYSTEMS

ELO Digital Office   Docuware   H&S   EASY SOFTWARE AG

xFlow POWERED BY WMQ   OPENTEXT THE CONTENT EXPERTS   COMARCH ECM   Symantec
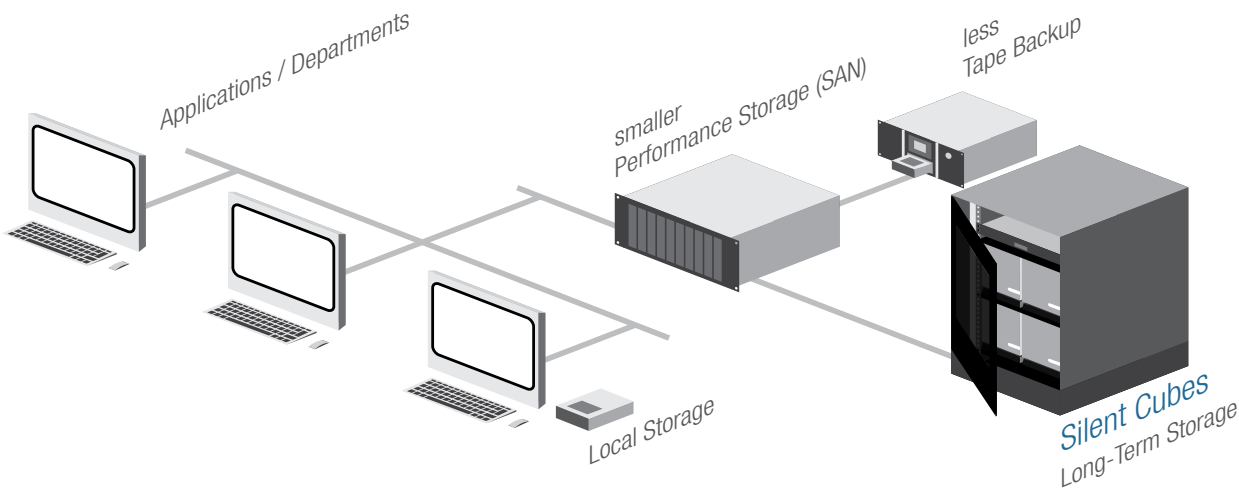
ALLGEIER IT SOLUTIONS   n-scale Vecto   HELD Suchen · Finden · Wissen

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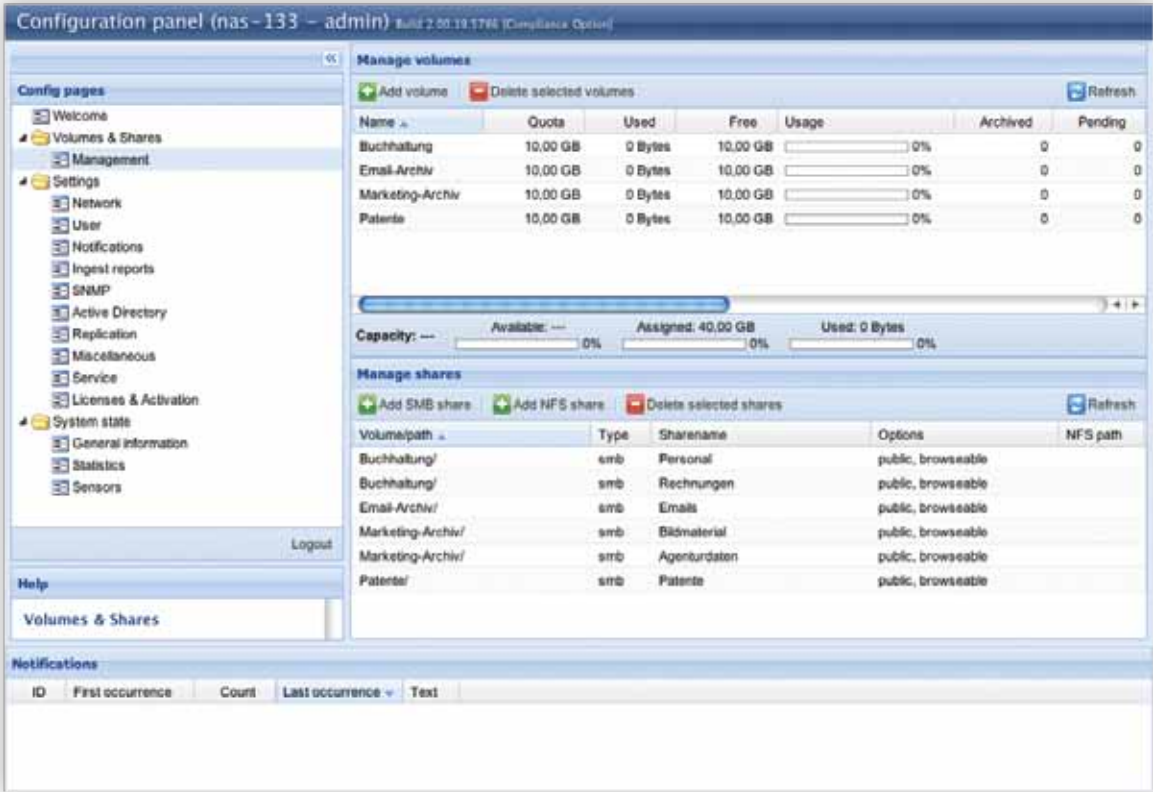
Silent Cubes at work

The perfect connection

Silent Cubes integrate seamlessly into your network architecture

Silent Cubes help to free up your valuable online storage (SAN). Using archiving or HSM software, you then store less frequently accessed data on your specialized Silent Cubes long-term storage unit. This allows you to cut your costs by up to 80%.

- Frees your online storage of rarely-accessed data, ensures ample storage capacity

- Substantially reduced acquisition, administration and energy costs

- Reduced data volume shortens your online storage backup and restore times

- Silent Cubes archival storage is ultra-secure, easily replicated, and needs no additional backup

The user interface allows you to create as many volumes and shares as needed (with access rights) for connecting to different solutions and departments.

Migrating rarely-accessed data frees the online storage and significantly shortens backup and restore times due to reduced data volume.

Silent Cube storage systems are scalable into the petabyte realm. You can add storage units at any time - even after years - and thus keep up with your needs as they grow.

Simple network share connection

Regardless of which archiving, DMS or HSM solution you use, and whether your archiving needs encompass medical PACS data, emails or other documents, Silent Cubes integrate seamlessly into your infrastructure.

Individually configurable volumes (reserved storage areas) and network shares (with variable access rights) ensure problem-free interoperability with software solutions.

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Silent Cubes advantages

Highest security

While conventional hard disk drives are unable to fully exclude user errors, the FAST LTA WORM Controller protects all data against deletion or overwriting at the very lowest hardware level. To protect against epidemic disk failure, each Cube features 4 hard disks from 3 different manufacturers.

Silent Cubes' quadruple redundancy coding makes it more secure than a mirrored RAID 6 configuration – at a far better gross/net ratio. The Digital Audit regularly and automatically checks all data within each storage unit – bit-by-bit – enabling the early detection and rectification of errors.
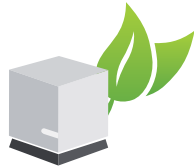
Overview

- *WORM hardware reliably seals data*

- *12 hard disks: 4 each from 3 different vendors*

- *Compensates for up to 4 hard disk failures*

- *Regular self-check (Digital Audit)*

Saves energy & costs

Silent Cubes are certified as CAS (Content Addressed Storage) for revision-safe storage and thus meet various relevant legal stipulations (including the GDPdU, GoBS, RöV in Germany, Austria and Switzerland) – at a truly hard-to-beat price. Their low operating and energy costs are the ultimate icing on the cake.

In standby mode, Silent Cubes use less than 2 watts per storage unit – making its power and cooling needs lower than any other long-term storage solution on the market today. Personnel expenditures on Silent Cubes installation, maintenance and expansion are extraordinarily low, yet another plus for your IT budget.
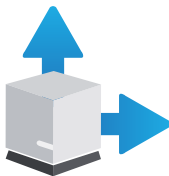
Overview

- *Certified for revision-safe storage*

- *Less than 2 watts of energy per storage unit in standby*

- *Low investment and operating costs (TCO)*

- *Minimal installation and maintenance costs*

Scalable & modular

Silent Cube storage systems are scalable to 4000+ terabytes. You can add storage units at any time and thus keep up with your needs as they grow. Silent Cubes feature a compact, award-winning design and have been devised for 19-inch rack mounts.

Replicating a Silent Cubes installation at a second location protects against total loss of a system, for instance due to fire or water damage. The system includes the necessary software at no extra charge.
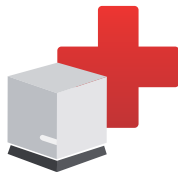
Overview

- *Scalable from 2 TB into the petabyte realm*

- *Expandable at any time in the future*

- *Conceived for 19-inch rack mounts*

- *Includes software for second site replication*

Worry-free full service

FAST LTA offers comprehensive service within the scope of its Silent Cubes service contract. Should any problems arise, FAST LTA or certified partners will replace any affected components on-site with absolutely no loss of any long-term data stored on your storage units. Software updates and hardware costs, such

as hard disks, are also fully covered. The system's integrated monitoring (email, SNMP) provides instant web browser access to system status at all times and keeps FAST LTA informed by email, allowing us to proactively ensure the smooth and secure operation of your system.

Overview

- *On-site service by FAST LTA or partners*

- *Includes all software updates*

- *Includes all hardware replacements*

- *Flexible terms, fixed service costs*

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All-in-one from 2, 4 or 8 TB net capacity:

Silent Cube Compact

Complete, compact, revision-safe

The Silent Cube Compact solution integrates all components for revision-safe long-term storage into a thermally-optimized and compact cube (half 19-inch width, 6 HU) – an extremely space-saving and energy efficient solution.

Its four redundancies, two power units for redundant power supply, and two Gigabit Ethernet interfaces to enable expansion with additional long-term storage units makes it not only ultra-secure but also highly flexible. The Compliance Module and the software for replication is included.

Highlights

- *3-in-1 certified, revision-safe archive storage*

- *Net capacity: 2, 4 or 8 TB*

- *Simple and fast connection via network share*

- *Including software for second site replication*

- *Certified to work with all Approved Solutions*

- *Incl. Compliance Module, certification according to GDPdU, GoBS, RöV (D, A, CH)*

- *Modular and scalable at any time, just add storage units (4, 8, 16 or 24 TB net capacity)*

- *Including 3 or 5 years service level agreement*

- *Best suited for smaller and medium amounts of data, e.g. DMS/ECM, HIS/RIS file archiving, modality archiving, email archiving*

Scalable up to >4000 TB net capacity:

Silent Cubes System

Modular, flexible, energy-saving

The heart of this ultra-secure storage solution is the Silent Cube long-term storage unit. Its high degree of specialization and quadruple redundancy effectively protects all your data against loss at minimum cost of ownership.
Silent Cube storage systems are scalable into the petabyte realm. You can add storage units at any time - even after years - and thus keep up with your needs as they grow.

The Head Unit connects the ultra-secure Silent Cubes long-term storage units with the customer's infrastructure. It manages the long-term storage through a browser based user interface and acts as cache for incoming and outgoing data.

Highlights

- *Modular long-term storage system*

- *Connects to the network via Head Unit (HU) server C4 or HU for VMware*

- *Compliance Module optional, certification according to GDPdU, GoBS, RöV (D, A, CH)*

- *Modular and scalable at any time, just add storage units (4, 8, 16 or 24 TB net capacity)*

- *Less than 2 watts of energy per storage unit in standby mode*

- *Including 3 or 5 years service level agreement*

- *Applicable for archiving needs requiring maximum flexibility, e.g. archiving data from multiple departments, email archiving, HSM architectures, PACS archives*

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Facts & Figures

Silent Cube Compact

Product
Hard disk-based, revision-safe WORM archival storage

Capacity
Number of hard disks: 12 (any 8 will fully restore all data)

Storage capacity
gross/net:	*3/2 terabytes* (256GB hard disks)*
	6/4 terabytes* (500GB hard disks)
	12/8 terabytes* (1TB hard disks)
Hard disks:	*2,5'' SATA; 4 hard disks from*
	3 different vendors per Cube,
	circumvents epidemic failure

Network
Interface:	*2x 1000/100/10Base-T for*
	expanding with add. storage units
	1x 1000/100/10Base-T for
	connecting to company network
	10Base-T link in standby mode

Features
*WORM, redundancy, data integrity, file system is identical
to that of the Silent Cube storage unit*
Compliance Module: included

Head Unit (integrated)
Internal memory:	*80/120/200 GB SSD*
	for software and cache
Display:	*Color touch screen*

Power consumption
Standby mode:	*< 2 W, redundant power supply*
Continuous operation:	*< 100 W*

Physical data
Dimensions (WxHxD):	*approx. 22 cm x 22 cm x 23 cm*
Weight:	*approx. 8 kg*
19" rack mount:	*4 or 6 per rack base,*
	6 HU in height (with mount)

Silent Cube Storage Unit

Product
Hard disk-based storage unit with WORM hardware

Capacity
Number of hard disks: 12 (any 8 will fully restore all data)

Storage capacity
gross/net:	*6/4 terabytes* (500GB hard disks)*
	12/8 terabytes* (1TB hard disks)
	24/16 terabytes* (2TB hard disks)
	36/24 terabytes* (3TB hard disks)
Hard disks:	*3,5'' SATA; 4 hard disks from*
	3 different vendors per Cube,
	circumvents epidemic failure

Network
Interface:	*1000/100/10Base-T,*
	10Base-T link in standby mode

Features
WORM:	*Patent-pending WORM technology*
Redundancy:	*Quadruple redundancy with*
	Erasure Resilient Coding
Data integrity:	*Automatic, regular self-checks*
	(Digital Audit) with SHA-512 hash
	codes, detects hard disk errors
	at the bit level and initiates
	automatic repair
File system:	*FAST LTFS virtual file system,*
	optimized for WORM storage,
	revision security, faster access
	to millions of files

Power consumption
Standby mode:	*< 2 W, redundant power supply*
Continuous operation:	*< 100 W*

Physical data
Dimensions (WxHxD):	*approx. 22 cm x 22 cm x 23 cm*
Weight:	*approx. 13 kg*
19" rack mount:	*4 or 6 per rack base,*
	6 HU in height (with mount)

* 1 terabyte = 10^{12} bytes = 1.000.000.000.000 bytes

Head Unit (Server)   Head Unit C4

CPU	*Intel Quad Core*
Cache HDD	*2x 1 terabytes* (RAID-1, hot-swappable)*
NIC	*4x Gigabit Ethernet*
	(1x administration, 1x to Silent Cubes, 2x to customer's network)
Power supplies	*2x (hot-swappable)*
Main memory	*4 GB (16 GB optional)*
Physical data	*19 inch, 1HU, full size*
Product contents	*Head Unit C4, rack mount kit*

Cube Manager Software

Product
*Administrative and monitoring software
pre-installed on head unit*

User interface
AJAX-based, called up in active web browser

Volumes and Shares
*Individually configurable WORM volumes
SMB/CIFS and NFS shares with configurable access rights*

Users & Groups
Admin, Monitor and Support users, Active Directory Support

Network connectivity
dynamic (DHCP) or static

Replication
*Integrated functions for asynchronous replication
to a second location*

Notifications
Email reports

Migration
*Integrated functions for migrating a head unit
and Silent Cube to new hardware*

Monitoring
Automatic, configurable status reports via email and/or SNMP

Compliance Module
*Supports revision-safe storage
(pursuant various guidelines including GDPdU, GoBS
and RöV in Germany, Austria and Switzerland)
Authentication via electronic receipt
(512-Bit SHA-2 hash coding)
Configurable retention periods
(can be extended at any future point)
Volume types with retention periods,
versioning and RW/RO triggers
Post-retention date deleting of data paths
Archiving reports with digitally-signed timestamp
Revision-safe migration to new Silent Cubes*

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FAST LTA specialises in long-term data storage. Our certified storage solutions have been expressly and categorically developed for the secure, cost-effective, long-term safeguarding of digital data.

Our core technology is a pat.pend. WORM hard disk controller which uses a special coding algorithm and audits all data on a regular basis.

FAST LTA has been certified according to ISO9001 and meets highest quality standards.

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