

QSAN Introduction

QSAN Technology, Inc.



谁是QSAN?

2004 – 2008
OEM Vendor

1st iSCSI
Controller



World 1st
10Gb iSCSI
with offload
engine



Dual controller backplane
architecture with cache
mirroring and full
redundancy.



2009 – 2011
1st Generation SAN



Dual controller Active/Active
SAN produced and more
than 100,000 units sold
worldwide!



2012 – 2015
2nd Generation SAN
1st Generation NAS



World 1st dual controller
Active/Active ZFS NAS
system. Awarded best choice
at Computex 2012



2016 – 2017
3rd Generation SAN
2nd Generation NAS
1st Generation DAS

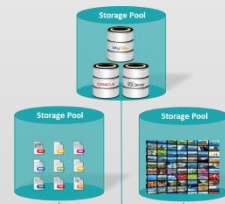


World 1st 26 bay 2U SAN/DAS system.
New features such as SSD read/write
caching, Auto Tiering, Quad host cards (up
to 20x host ports per system)

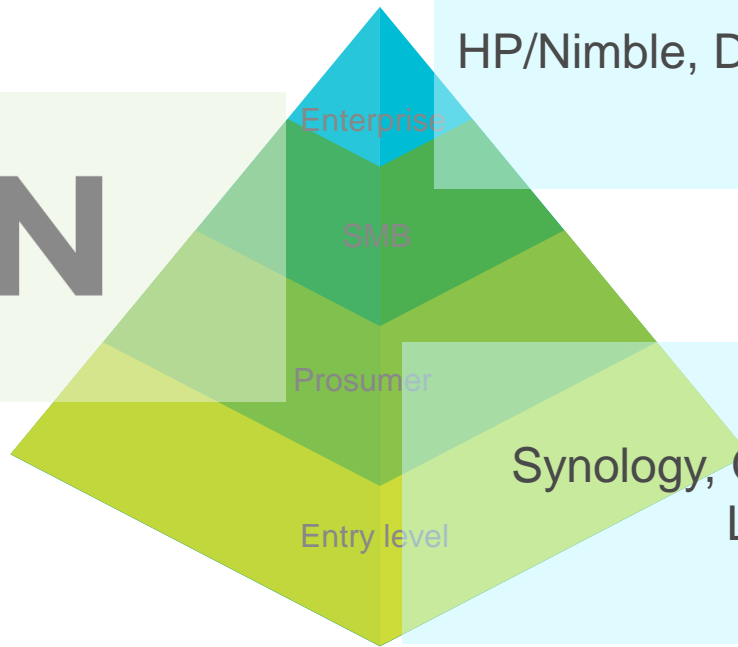


New NAS with Auto tiering to dedicated
PCIe and SATA SSD slots on the rear. Built
in hypervisor. WORM and SED support for
ultimate protection. Thunderbolt 3.0,
10Gb, 40Gb and 16Gb FC ready.

Future
Innovation



市场定位

The logo for QSAN, featuring a green circular icon with a white 'Q' inside, followed by the letters 'SAN' in a bold, grey, sans-serif font.

HP/Nimble, Dell/EMC, NetApp, IBM etc...

Synology, QNAP, Asustor, Netgear,
LenovoEMC...

XCube 平台 — 整合架构



SAN
Head Unit

DAS
Expansion
Unit

NAS
Head Unit

XCubeSAN
XS Series

XCubeDAS
XD Series

XCubeNAS
XN Series

XCubeSAN series

全新架构，旨在最佳的校能和高可用性



XCubeSAN — 商品定位

XCubeSAN XS5200/XS5300

专为关键任务数据应用，即时/
同步IO响应，混合安装和HPC而
设计。

XCubeSAN XS3200/XS3300

为IO关键应用程序，HPC、媒体
和虚拟化环境设计的性能加速的
企业级存储系统。

XCubeSAN XS1200

中小企业，虚拟化，城市监控
和备份的高性能和高可用性。

XCubeSAN — 特点



No Single Point of Failure



Fully Redundant Components



Active-Active Storage Controllers



Hot Swappable Modular Design



Cache Mirroring



Automatic Failover



Automatic Management Service Failover



Non-Disruptive Firmware Upgrade



99.999% Uptime – Five 9s Availability

XCubeSAN — 模块和灵活的 IOs

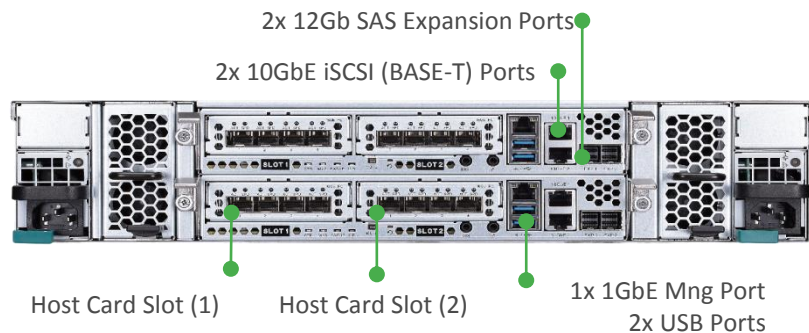


Base unit

- 2x 10GbE iSCSI (BASE-T) Ports
- 2x 12Gb SAS Expansion Ports
- 1x 1GbE Management Port
- 2x USB Ports

Optional Host Cards:

- 4 port 10GbE iSCSI
- 4 port 1GbE iSCSI
- 4 port 16G Fibre Chanel
- 2 port 10GbE iSCSI
- 2 port 16G Fibre Chanel



创新 — 全球第一 2U26 SAN储存器

World's 1ST High Density SFF 2U26 Storage System



Perfect Storage Solution for **Database** **HPC** **Virtualization**

XCubeSAN — 商品规格

XCubeSAN XS5300/XS5200



Intel® Xeon 4 Cores
8GB to 128GB DDR4 Memory
Per Controller

Default Per Controller:
2x 10GbE iSCSI (BASE-T)

Host Card Options: 2 or 4 Ports
10GbE iSCSI | 1GbE iSCSI | 16Gb FC

LFF: 2U12, 3U16, 4U24; SFF: 2U26

Max 286 HDD

2.6PB

1.5 Million IOPS

IO Efficiency

Auto-Tiering | SSD Caching

Security

iSCSI Force Field | SED* | ISE

Data Protections & Efficiency

Snapshot | Clone | Replication | SRM
Thin Provisioning | Fast Rebuild

XCubeSAN XS3300/XS3200



Intel® 4 Cores
4GB to 128GB DDR4 Memory
Per Controller

Default Per Controller:
2x 10GbE iSCSI (BASE-T)

Host Card Options: 2 or 4 Ports
10GbE iSCSI | 1GbE iSCSI | 16Gb FC

LFF: 2U12, 3U16, 4U24; SFF: 2U26

Max 286 HDD

2.6PB

1.1 Million IOPS

IO Efficiency

Auto-Tiering | SSD Caching

Security

iSCSI Force Field | SED* | ISE

Data Protections & Efficiency

Snapshot | Clone | Replication | SRM
Thin Provisioning | Fast Rebuild

XCubeSAN XS1200



Intel® 2 Cores
4GB to 64GB DDR4 Memory
Per Controller

Default Per Controller:
2x 10GbE iSCSI (BASE-T)

Host Card Options: 2 or 4 Ports
10GbE iSCSI | 1GbE iSCSI | 16Gb FC

LFF: 2U12, 3U16, 4U24; SFF: 2U26

Max 286 HDD

2.6PB

900K IOPS

IO Efficiency

Auto-Tiering | SSD Caching

Security

iSCSI Force Field | SED* | ISE

Data Protections & Efficiency

Snapshot | Clone | Replication | SRM
Thin Provisioning | Fast Rebuild

* Available in Q3'17

XCubeSAN — 商品型号

XS5300

XS5200

Series

(Available Now)

XS3300

XS3200

Series

(Available Now)

XS1200 Series

(Available in July, 2017)

4U 24-bay

XS5324
XS5224

XS3324
XS3224

XS1224D
XS1224S

3U 16-bay

XS5316
XS5216

XS3316
XS3216

XS1216D
XS1216S

2U 12-bay

XS5312
XS5212

XS3312
XS3212

XS1212D
XS1212S

2U 26-bay

XS5326
XS5226

XS3326
XS3226

XS1226D
XS1226S

D: Dual Controller
S: Single Upgradable

LFF

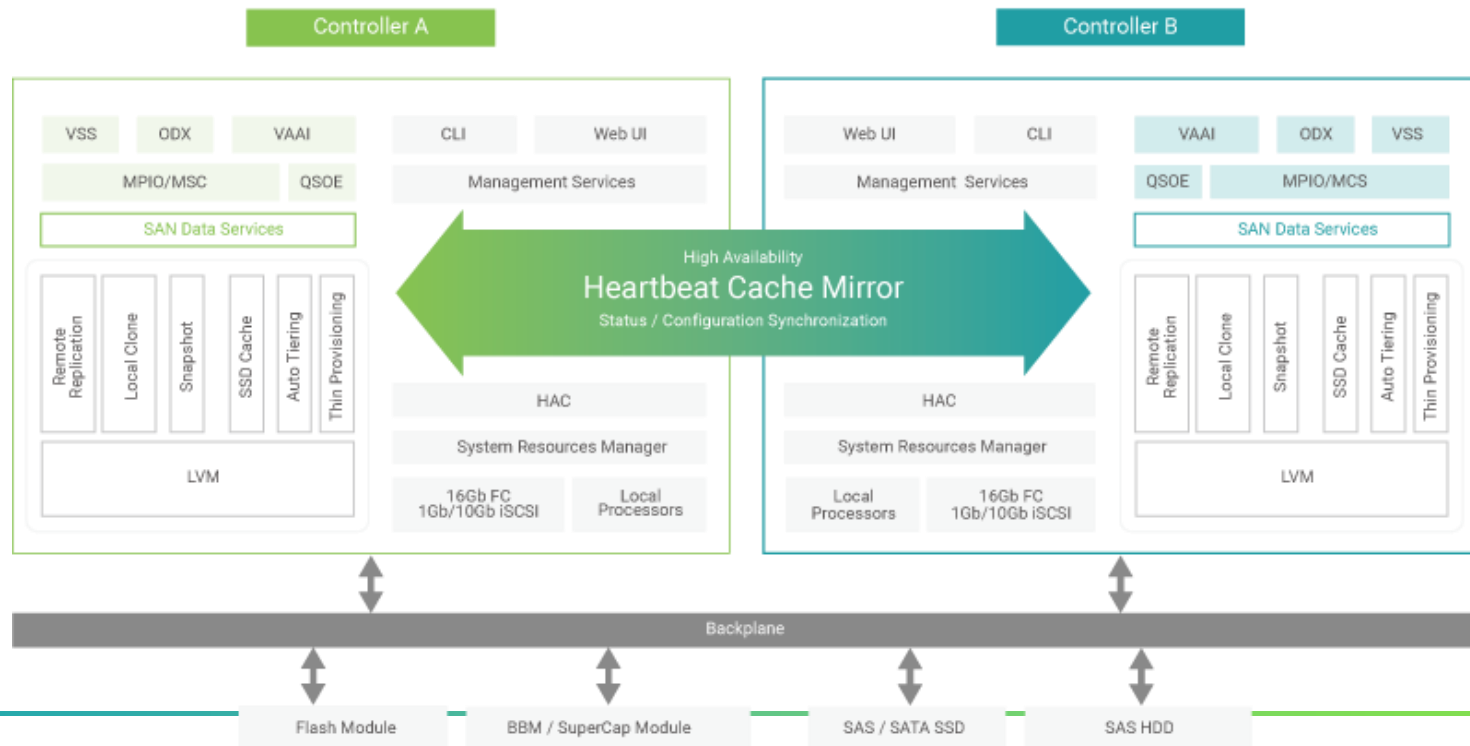
SFF

LFF: Large Form Factor
SFF: Small Form Factor

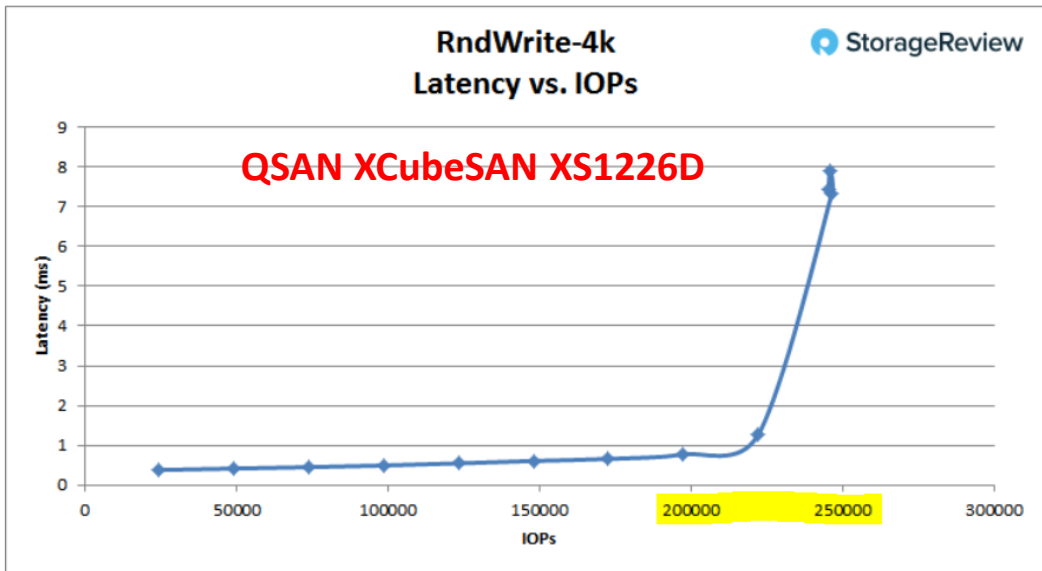


QSAN SANOS V4.0 架构 (SAN Operating System)

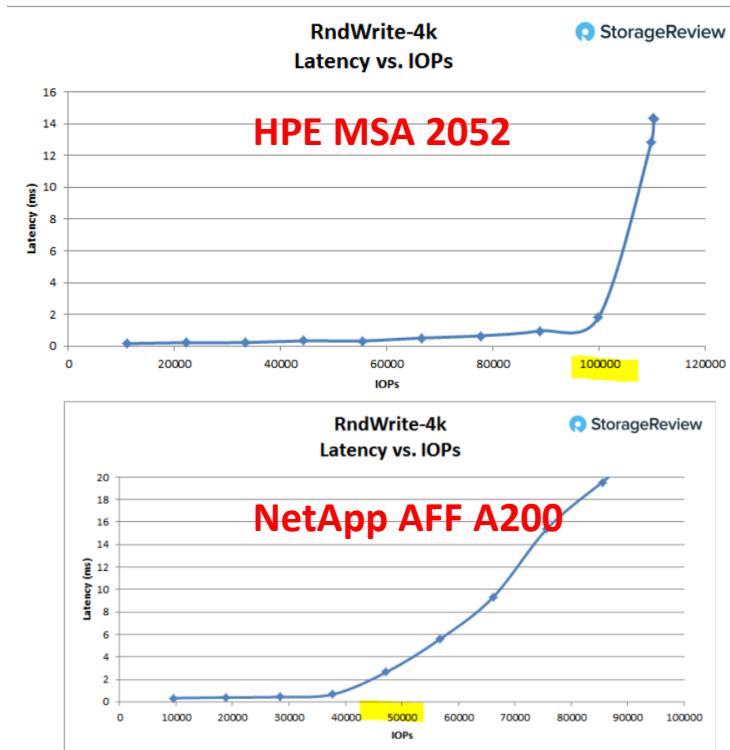
QSAN SANOS for High-Availability



效能领先 — SMB中最快的SQL Server储存数组



http://www.storagereview.com/qsan_xcubesan_xs1200_series_review



QSAN 英国 成功案例 — Woodrush High School

Woodrush High School chose QSAN and Trustco to deliver a efficient storage solution

 Nov 06 , 2017

Woodrush High School chose QSAN and Trustco to deliver a storage solution which hugely improved efficiency, performance and manageability.

Final say

“The QSAN solution has given us an enterprise-class solution but at a fraction of the cost of traditional storage vendors. The performance, features, and hardware of the QSAN SAN will allow the school significant growth and the ability to handle more workloads for the next few years and beyond.” Peter Coates, IT Technician, Woodrush High School

<https://www.qsan.com/en/news.php?act=view&id=146>

QSAN 瑞士 成功案例 — FTS

JetStor®
Storage. Solutions. Support.



SWISS FTS

Forensic Technology
Solutions

IT Infrastructure for Speedy
Forensic Investigations



AC&NC JetStor 826iXD RAID Array
Redundant 10Gb/sec iSCSI links



Mellanox MSX1012 40GbE switches
Redundant 10Gb/sec links



Servers
with Mellanox
ConnectX NICs



CUSTOMER TESTIMONIAL

**JetStor® X Solution Accelerates
eDiscovery, IT Forensics, and
Information Governance Services**

THE ORGANIZATION

Swiss FTS is a leading provider of eDiscovery, IT forensics, and information governance services for global enterprises, law firms, and government agencies. Its skilled staff offers case management for legal investigations and litigations into such issues as fraud, regulatory compliance breaches, and data and intellectual property theft, as well as consulting for information governance. Who's Who Legal in 2017 named two Swiss FTS partners as among the 50 leading digital forensics specialists worldwide. Founded in 2010, Swiss FTS is based in Glatbrugg, Switzerland, with an office in Singapore.

THE CHALLENGE

Swiss FTS requires a collect, store, search, quickly. For eDiscovery it must save unstructured variety of other files from the files, which to rapidly search for native documents for

To conduct data-inte files, Swiss FTS relies eDiscovery platform, Nuix, and the EnCas

"The core of our wor our applications, part storage to operate eff computer forensics as cited by Who's Who dependable to ensure

https://www.acnc.com/media/pdf/427_f_Swiss_FTS_profile.pdf

https://www.acnc.com/p/JetStor_826iXD

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Storage. Solutions. Support.

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JBOD Storage

All Flash Storage > JetStor 826iXD

Download Product Brochure

JetStor 826iXD



QSAN



“The JetStor 826iXD All Flash Array delivers the perfect performance at a very good price,” said Aggeler. **“The platform has been rock solid with uptime better than 99.9 percent. Its dependability is important to our business because we simply don’t have the time to deal with lost data or reliability issues.”**

Additionally, the **JetStor AFA 826iXD** solution offers outstanding scalability. With JBODs, the chassis can expand to 2.6 petabytes of capacity, ensuring Swiss FTS of abundant primary storage well into the future.

QSAN 美国 媒体评测 — Storagereview

“透過這些數字，我們可以肯定這是
到目前為止我們看過最快的SQL
Server 儲存器”

“總體來說 QSAN XCubeSAN
XS1200具有很多很棒的功能，可以
幫助它在市場上取得名號。在入門級
中端市場定價，它超過了我們在更高
價格支架上測試的許多系統”

NOVEMBER 3RD, 2017 by StorageReview Enterprise Lab

QSAN XCubeSAN XS1200 Series Review

The QSAN XCubeSAN XS1200 Series is a dual controller SAN designed to meet the needs of SMBs and ROBO. Supporting both Fibre Channel and iSCSI, the XS1200 can handle the requisite workloads. QSAN offers a wide variety of features in the array via SANOS 4.0 highlighted by thin provisioning, SSD read/write cache, tiering, snapshots, local volume clones and remote replication. Internally, the controllers are powered by Intel D1500 two-core CPUs and 4GB of DDR4 memory. For those who need to scale up, QSAN offers the XD5300 expansion unit; the XS1200 can support up to 286 drives in total.

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http://www.storagereview.com/qsan_xcubesan_xs1200_series_review

QSAN 英国 媒体评测 — Storage Magazine

www.btc.co.uk/Articles/pdf/ST1701-p16-qsan-review.pdf

revisedDT.qxd

1 / 1

PRODUCT REVIEW

QSAN XCUBESAN XS3226D

QSAN Technology has a fine reputation in the enterprise storage market as its extensive range of arrays offer extreme value with no compromises on features. The latest XCubeSAN XS3200 series takes this to the next level by delivering high-performance all-Flash storage at a price Tier-1 vendors can't hope to compete with.

On review is the XCubeSAN XS3226D which



the array in the lab as QSAN's QFinder located it for us and provided direct access to its web interface

11,851MB/sec - very close to QSAN's claimed 12,000MB/sec. For write speeds, we saw a cumulative 6,839MB/sec across all four

VERDICT: QSAN's affordable XCubeSAN XS3226D will have Tier-1 storage vendors very worried. It delivers high levels of redundancy along with seamless failover and makes high-performing all-Flash arrays a reality for SMBs.

embedded 10GBase-T iSCSI data ports and has room for two host expansion modules.

QSAN offers a good range of host cards with quad-port 16Gbps FC, 10GbE SFP+ and

Volumes are protected with snapshots which run on-demand or regularly at scheduled intervals. Existing snapshots can be exposed as new read-only or read/write targets and assigned to specific hosts using the handy

Failover is transparent and near-instant as after pulling the secondary controller out to simulate a failure, our Iometer tests continued unabated with uninterrupted access to all volumes. Full redundancy was established less

<http://www.btc.co.uk/Articles/pdf/ST1701-p16-qsan-review.pdf>

XCubeDAS Series

XCube系列直接连接储存搭载最新的12Gb SAS或通过HBA连接的服务器



XCubeDAS — 商品定位

Expansion
XD5300 Series
(Available Now)

24-bay

XD5324D
XD5324S

16-bay

XD5316D
XD5316S

12-bay

XD5312D
XD5312S

26-bay

XD5326D
XD5326S

D: Dual Controller
S: Single Upgradable

SFF

LFF

LFF: Large Form Factor
SFF: Small Form Factor



XCubeDAS — 商品规格

XCubeDAS XD5300



Broadcom (Avago/LSI) 12Gb SAS Processor

Dual Controllers | Single Controller

Default Per Controller: 5x 12Gb SAS Ports

Configurations:

Automatic Configuration

Recommended:

5 IN; 3 IN 2 OUT; 4 IN 1 OUT

Topologies:

Cascade

Reverse

Tree

LFF: 2U12, 3U16, 4U24, 4U60; SFF: 2U26

Max 286 HDD

2.6PB

4 Million IOPS | 24,000MB/s

Compatibility

Windows Server 2008/2012; Storage Spaces; RHEL/SuSE/Linux; Solaris, VMware, Citrix

Broadcom(Avago/LSI), Microsemi(Adaptec), & ATTO RAID Cards & HBA

Management

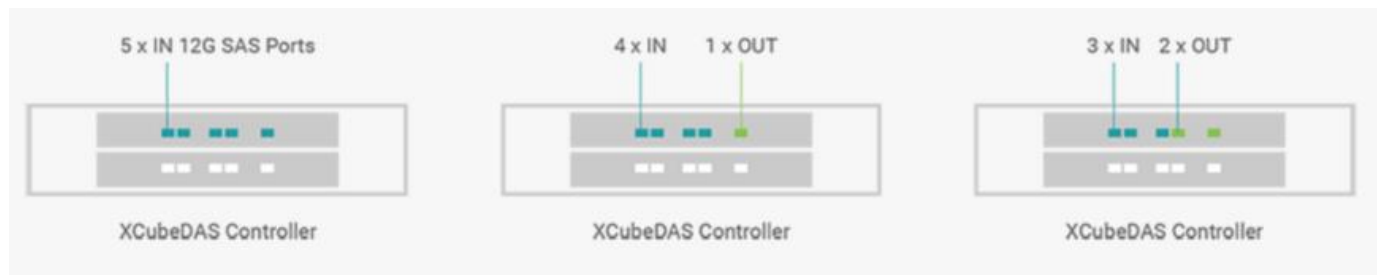
CubeView Central Management Software

S.E.S.; CLI; Console; Zoning

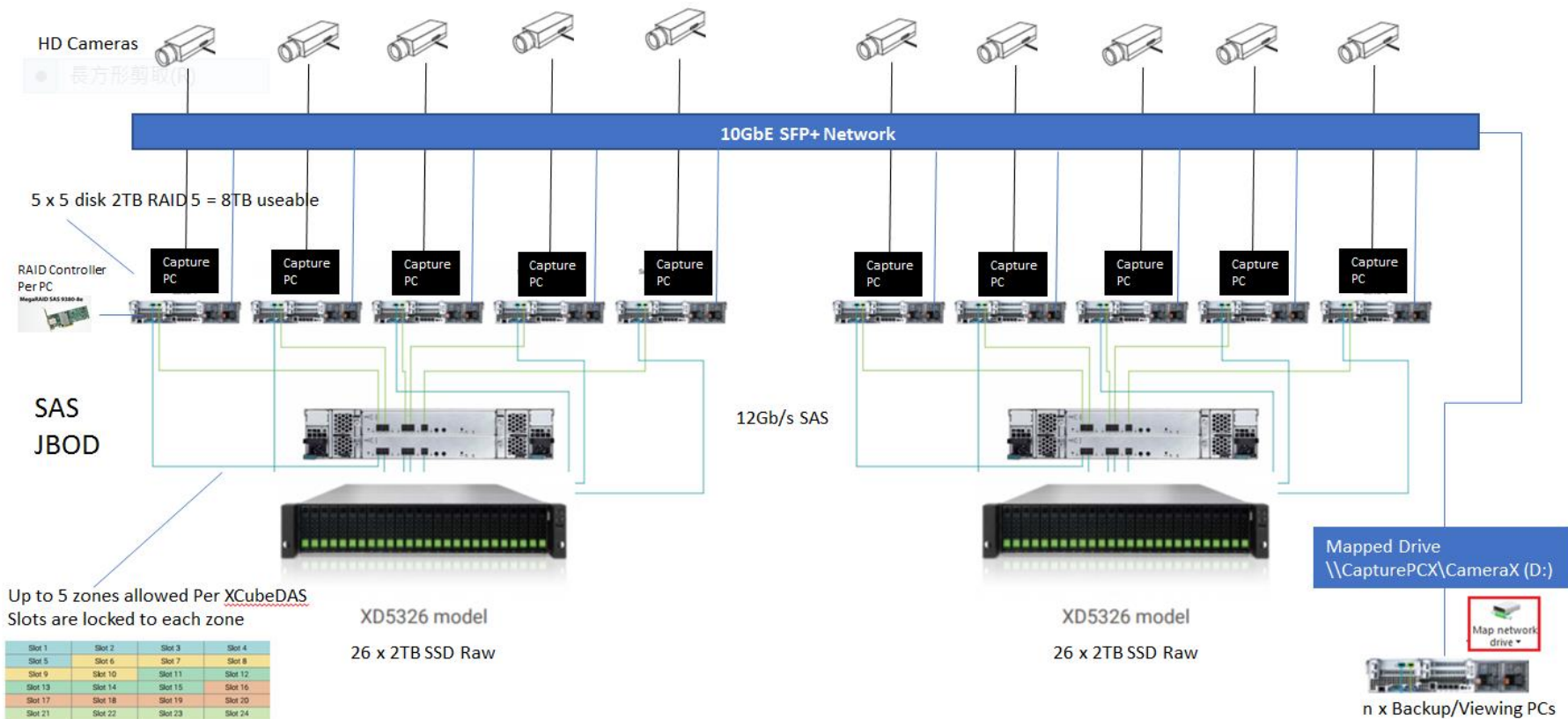
XCubeSAN — 模块和灵活的配置

Each controller contains:

- **Hardware**
 - 5x 12Gb SAS Ports
- **Configuration**
 - Automatic Configuration
 - Customizable options:
 - 5 IN
 - 3 IN 2 OUT
 - 4 IN 1 OUT

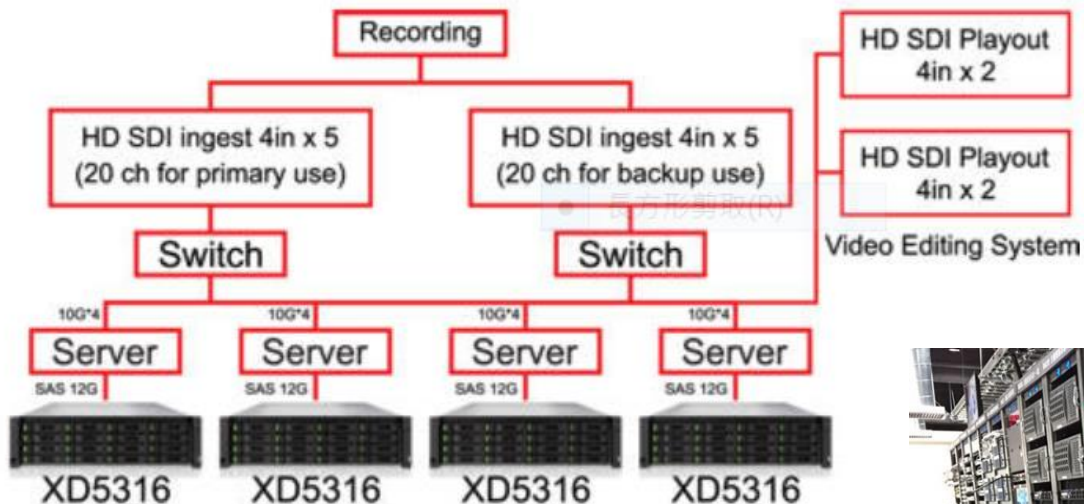


QSAN 英国 成功案例 — POC



QSAN 成功案例 — 2017世大运

Topology of video editing solution



<https://www.storagenewsletter.com/2017/09/13/2017-world-universiada-opts-for-qsan-storage-systems/>



XCubeNAS Series

ZFS的NAS系统，包括全新的桌上型NAS系列



QSAN NAS产品简介

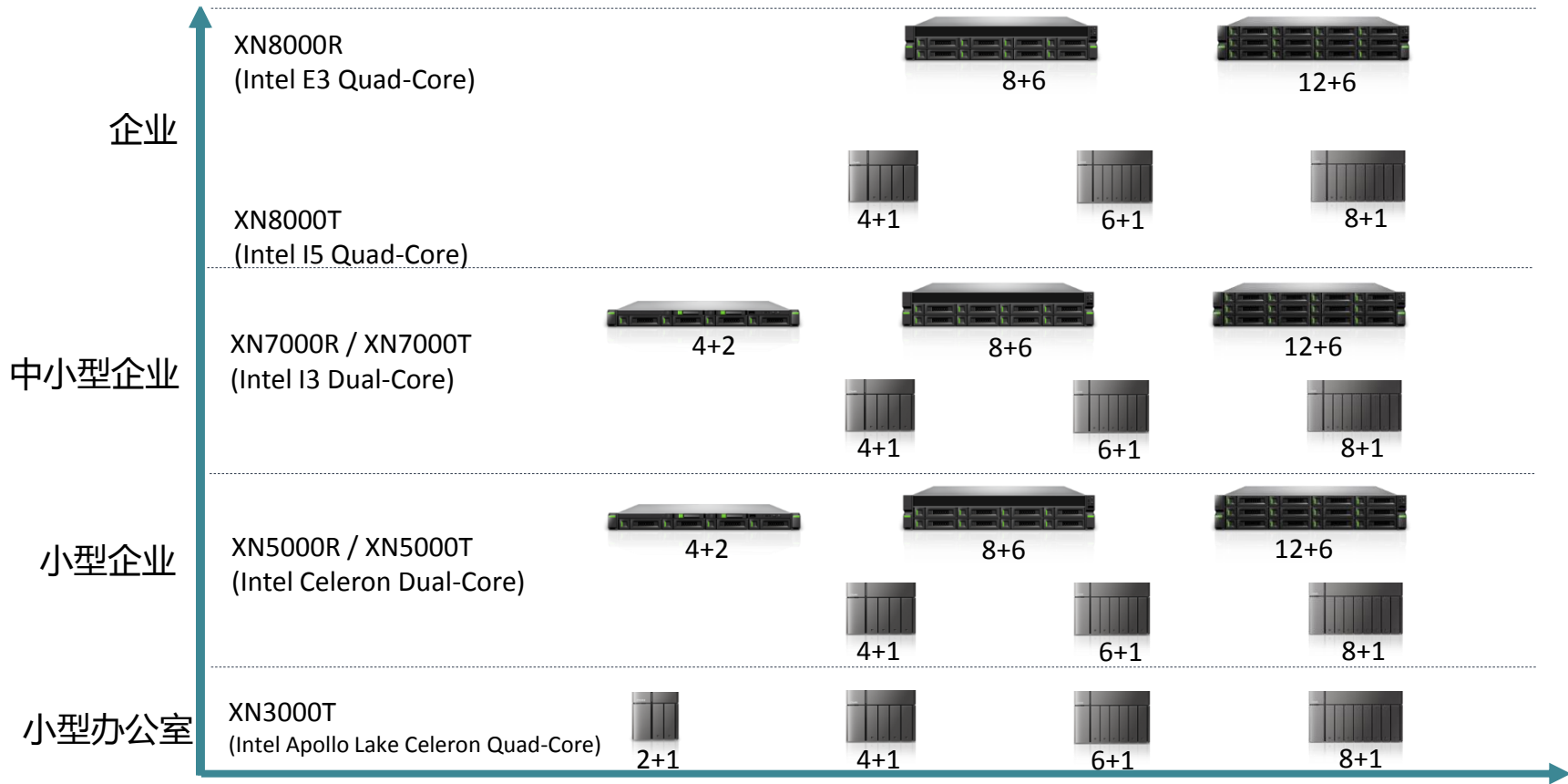
- QSAN有业界最完整的NAS产品系列
 - 从2Bay~12Bay，从桌上型到2U机架式

■ 企业入门：XN5000 / XN7000 / XN8000 系列

■ 中小企业：XN3000 系列



XCubeNAS 产品线





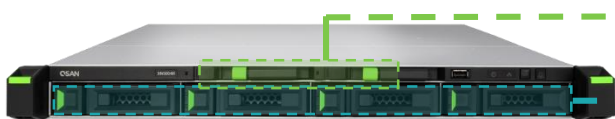
N : Large Form Factor (LFF)

3.5吋 LFF磁碟托盤除可安裝3.5" 磁碟，也可安裝2.5" 磁碟或固態硬碟。XCubeNAS能滿足企業追求資料安全，同時還能兼顧安全與性能要求。

1 : Small Form Factor (SFF)

業界獨家2.5"固態硬碟插槽設計，讓企業不用犧牲原先的硬碟插槽就能享有效能提升，完美整合SSD固態硬碟效能，提供SSD讀寫快取及自動分層儲存功能。

独家N+E磁盘设计



N : Large Form Factor (LFF)

3.5吋 LFF磁盘托盘除可安装3.5" 磁盘，也可安装2.5" 磁盘或固态硬盘。XCubeNAS能满足企业追求数据安全，同时还能兼顾安全与性能要求。

E : Small Form Factor (SFF)

独有的2.5"磁盘插槽设计，除支持SATA SSD固态硬盘，更支持最先进的PCI-Express NVMe SSD固态硬盘，完美整合SSD固态硬盘效能提供SSD读写快取及自动分层储存功能。

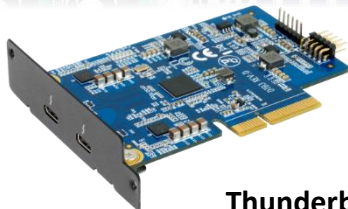
高速PCI-Express扩展槽

XCubeNAS提供高速PCI-Express扩展槽，可依实际所需做弹性扩充。

- 对于需要高带宽效能的商业应用，可透过10Gb及40Gb网卡突破带宽瓶颈
- 透过SAS扩充卡可最多串接8台扩充柜(JBOD)至2PB
- 透过Thunderbolt 3.0 实现稳定高速直接的多媒体编辑解决方案

XCubeNAS
1U-4 bay

PCIe Gen3x8



Thunderbolt 3.0



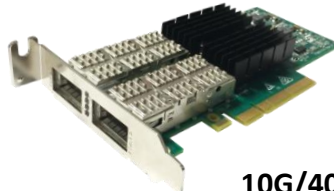
XCubeNAS 2U-
8/12 bay

PCIe Gen3x8

PCIe Gen3x4

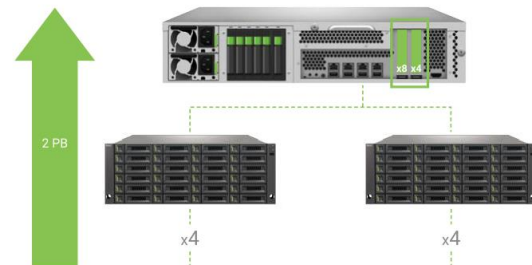


SAS card



10G/40G NIC

XCubeNAS 扩充柜解决方案



NAS Models	Expansion Enclosures	Max. No. of Expansion Units	Max. No. of Hard Drives	Max. Raw Capacity	
				LFF : 8TB SATA : 2TB PCIe : 1TB	LFF : 10TB SATA : 2TB PCIe : 1TB
XN5004R (1U 4+2 bay)	XD5312D (2U 12Bay)	8	4+2+12x8= 102	804 TB	1,004 TB
	XD5316D (3U 16Bay)	8	4+2+16x8= 134	1,060 TB	1,324 TB
	XD5324D (4U 24bay)	8	4+2+24x8= 198	1,572 TB	1,964 TB
	XD5326D (2U 26bay)	8	4+2+26x8= 214	452 TB	460 TB
XN5008R, XN7008R, XN8008R (2U 8+6 bay)	XD5312D (2U 12Bay)	8	8+4+2+12x8=110	842 TB	1,050 TB
	XD5316D (3U 16Bay)	8	8+4+2+16x8=142	1,098 TB	1,370 TB
	XD5324D (4U 24bay)	8	8+4+2+24x8=206	1,610 TB	2,010 TB
	XD5326D (2U 26bay)	8	8+4+2+26x8=222	490 TB	506 TB
XN5012R, XN7012R, XN8012R (2U 12+6 bay)	XD5312D (2U 12Bay)	8	12+4+2+12x8=114	874 TB	1,090 TB
	XD5316D (3U 16Bay)	8	12+4+2+ 16x8=146	1,130 TB	1,410 TB
	XD5324d (4U 24bay)	8	12+4+2+ 24x8=210	1,642 TB	2,050 TB
	XD5326D (2U 26bay)	8	12+4+2+26x8=226	522 TB	546 TB

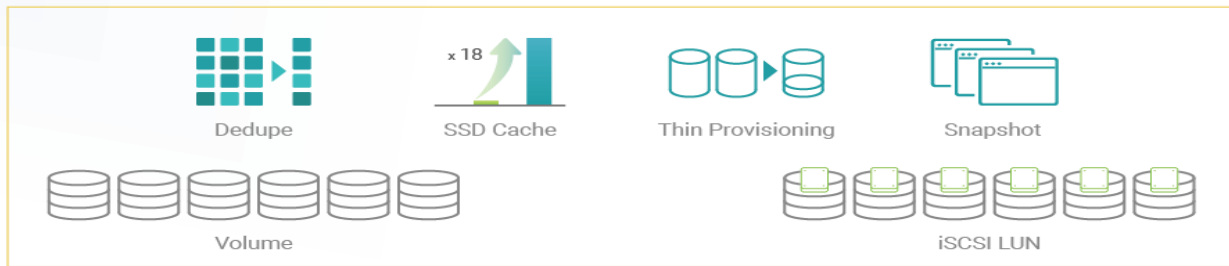
提升企业价值 — 独特的卖点

- 具有完整数据性的ZFS文件系统
- 一次性数据写入功能 WORM (Write Once Read Many)
- XReplicator - 客户端最多可免费备份100个设备(Powered by Acronis)
- Thunderbolt™ 3 扩充卡支援
- M (3.5")+ N(2.5") 硬盘支持, and service door for memory upgrade
- 数据去重复和数据压缩
- SSD 快取与资料分层
- 储存池加密、支持硬盘自我加密功能

ZFS 优势 – 特色

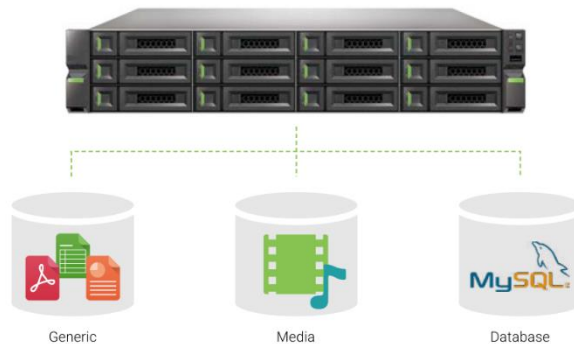
- 不仅是档案系统：文件系统 + 逻辑卷管理员 + RAID 控制器
- 强大的扩充性：128 位超大寻址空间
- 保证数据点到点一致性
 - 写入时复制 (copy-on-write)
 - 交易式 (transactional)
 - 校验码 (checksum)
 - 加强数据保护：快照(snapshot)、远程快照(replication)、储存池清洗(pool scrubed)
- 储存效率
 - 精简配置、资料去重复、资料压缩
- 简易管理

先进的企业化存储技术



储存池应用优化技术

- **Generic** : 通用文件服务以及备份使用。
- **Media streaming** : 针对大型随机封包存取优化IOPS，提升媒体串流应用效能。
- **Database** : 专为数据库服务器设计使用，使每笔数据精确同步，确保数据的正确性。



QSAN NAS企业应用与解决方案

■ 储存备份

- 集中式档案储存与分享
- 企业数据备份
- 灾难复原

■ 统一化存储

- 视频编辑
- 安防监控
- NAS 应用服务

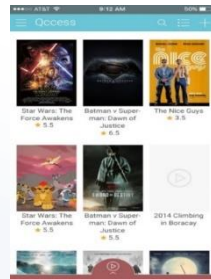
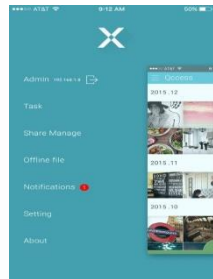
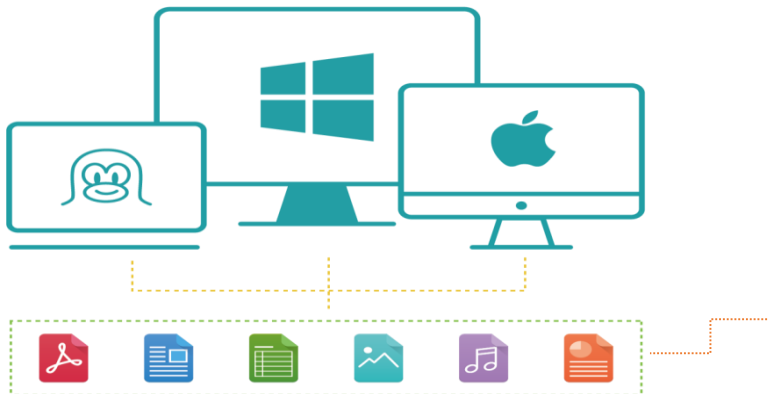
■ 信息安全

- 先进磁盘加密技术
- 数据写入保护
- 完整防火墙保护




文件服务：集中式档案储存与分享

- 跨平台共享：Windows、Mac与Linux跨平台档案储存与分享，支持FTP、WebDAV、网页浏览器、手机、平板远程访问档案
- 整合企业环境：支援Windows AD与LDAP目录服务，支持Windows ACL及进阶权限控管，文件夹上的用户Quota 管理
- 多元应用：家目录、回收站、病毒防护、ISO光盘库



数据备份：企业数据备份服务

免费的企业化整机备份软件  Acronis Replicator

Powered by
Acronis



支持苹果计算机时光机器备份

支持第三方备份软件：赛门铁克Backup Exec、CA ArcServe、Acronis True Image...

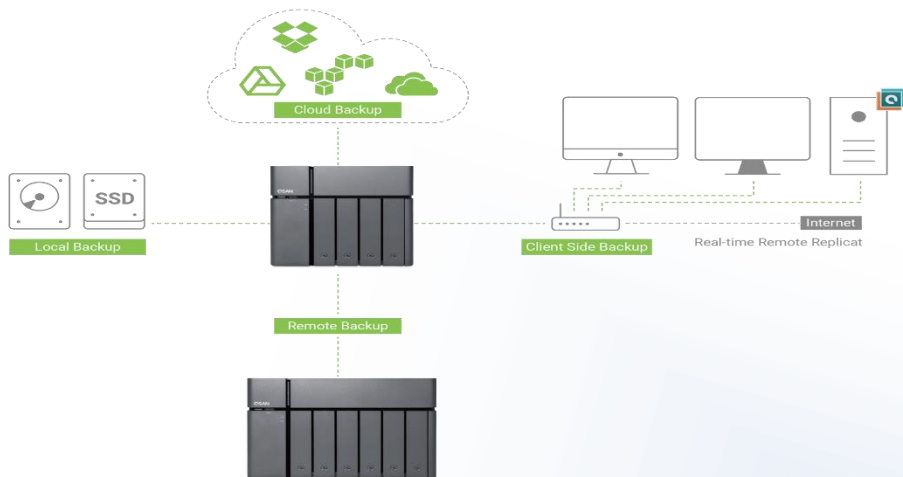
云端同步备份

Amazon S3

Dropbox

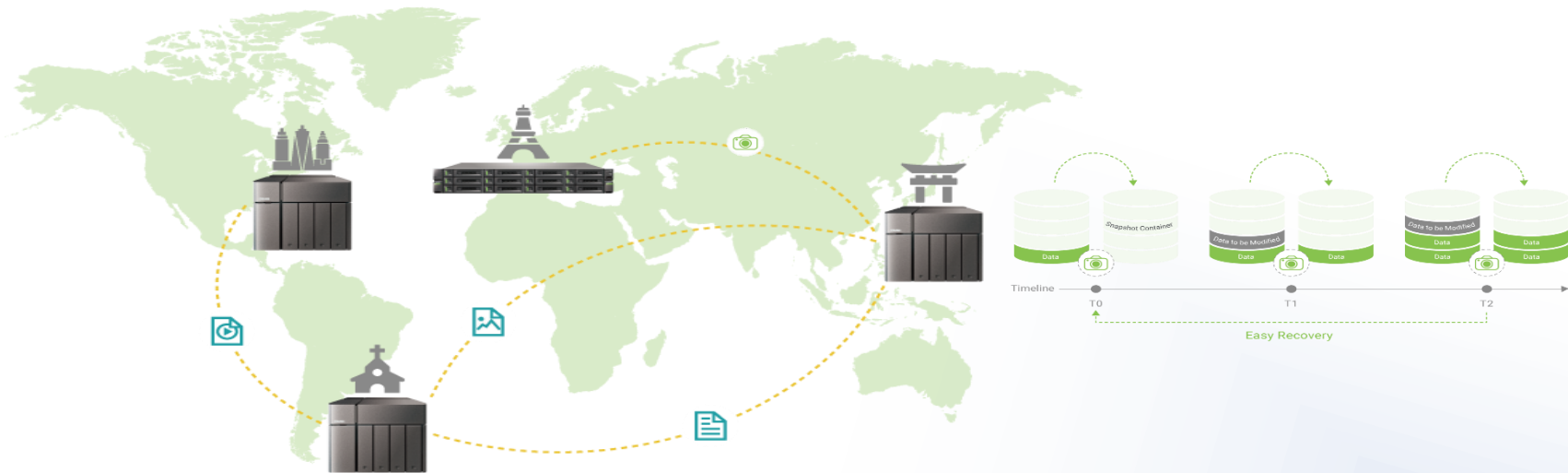
OneDrive

Google Drive



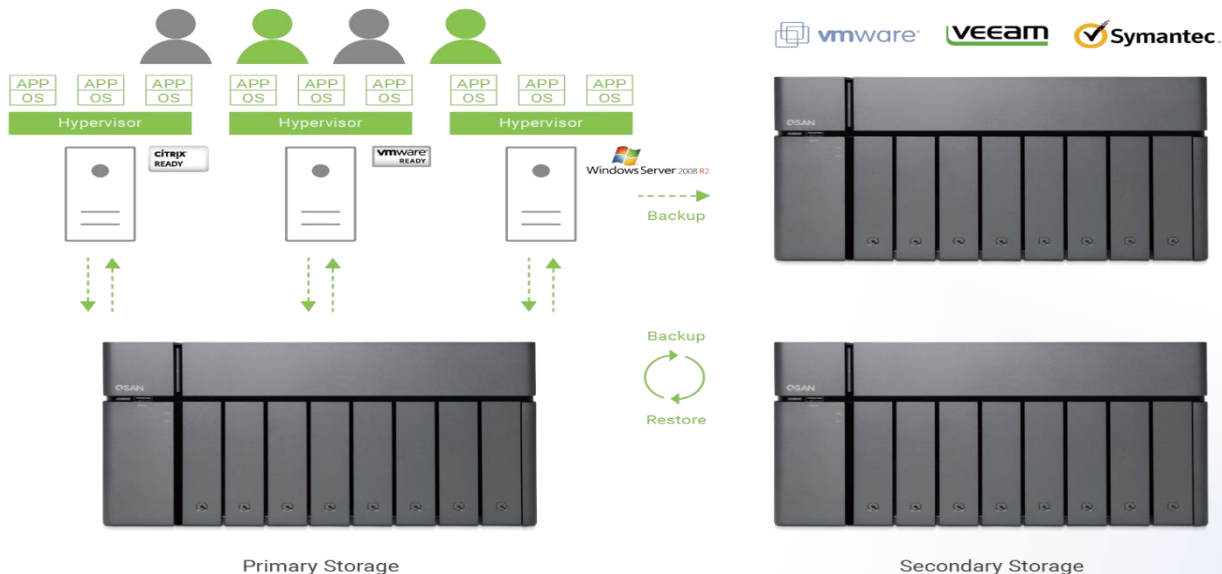
灾难复原解决方案

- 实时异地备援：从QSAN NAS到远程的QSAN NAS，进行实时或排程的数据备援
- 支持快照的iSCSI LUN及文件夹备份及回复
- Xmirror 多台 NAS 异地同步



虚拟化解决方案

QSAN NAS为服务器虚拟化兼容产品，获得 VMware、Citrix 认证支持，并兼容于 Microsoft Hyper-V



完整 VMWare 支援

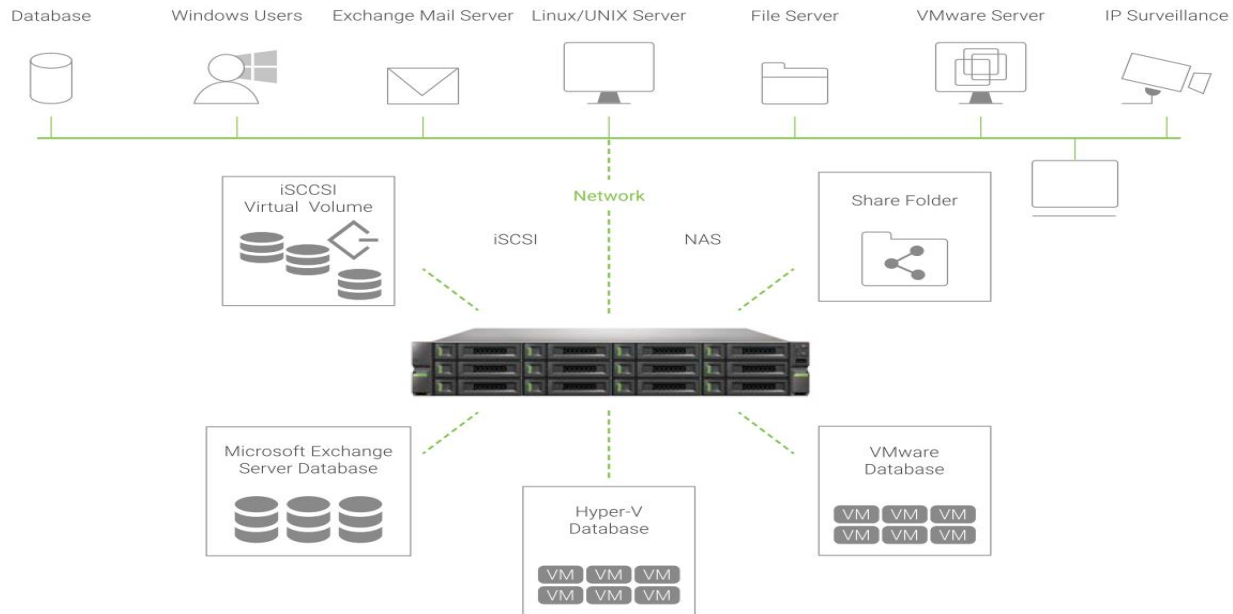
- VMware 6.5 认证
- Site Recovery Manager (SRM)认证
- vStorage APIs for Array Integration (VAAI) 认证
- 支援 SPC-3
- 支援 MPIO,MC/S



统一化储存解决方案

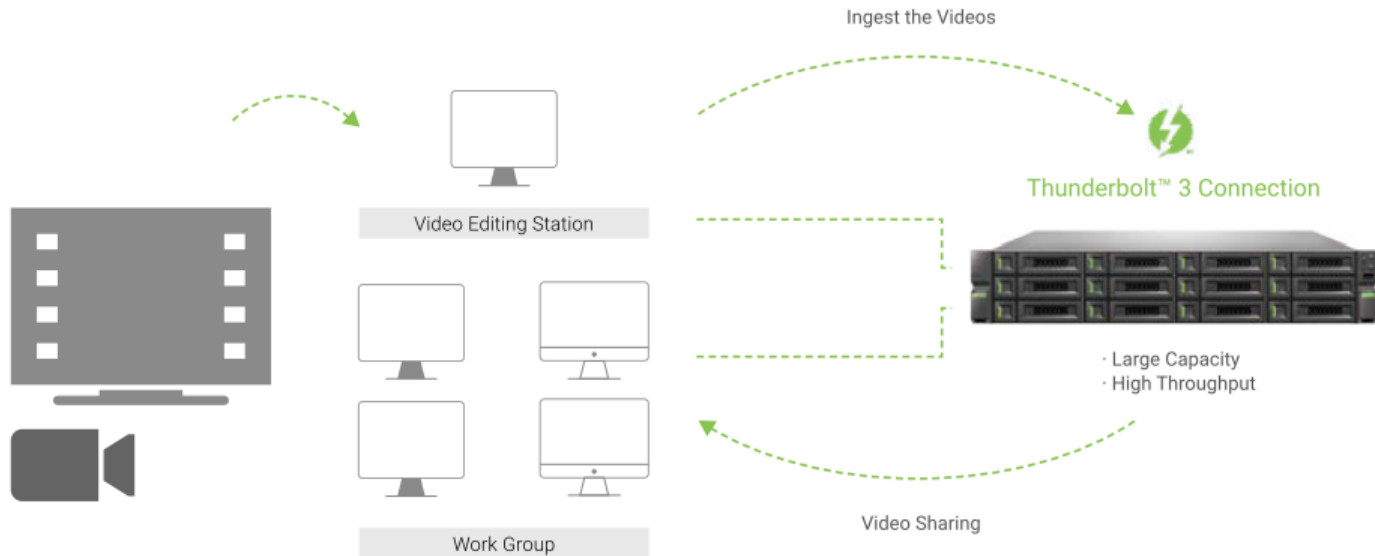
■ QSAN iSCSI为企业提供低成本
的IP-SAN高速存储装置

■ 完整的NAS 应用服务器解决
方案



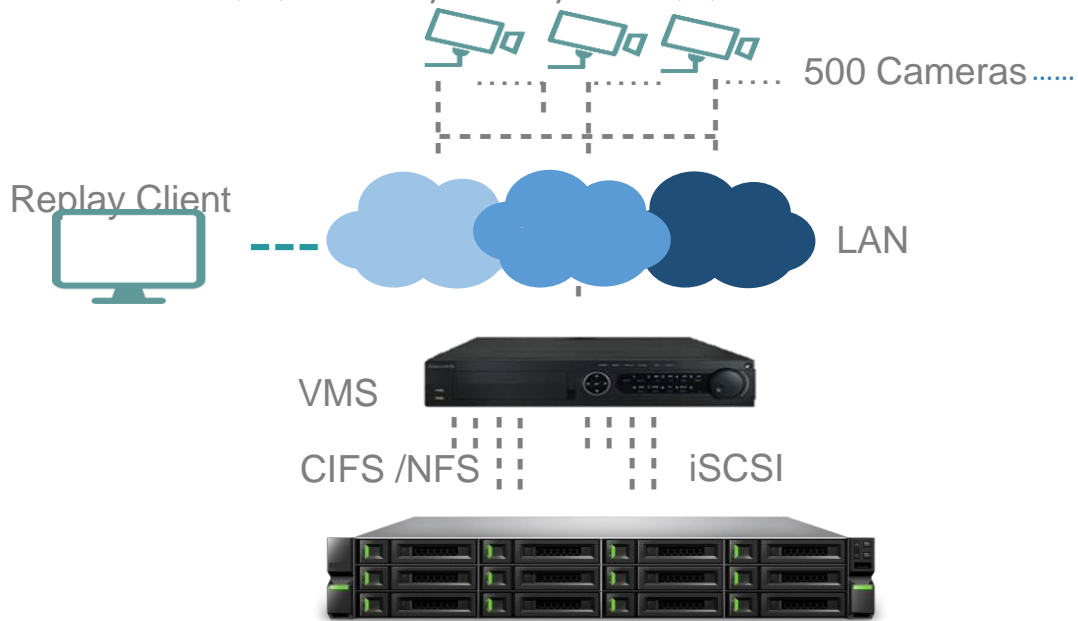
多媒体视频编辑存储装置

- 快速存储：高速 40GB Thunderbolt 3 支持直接视频档案编辑
- 简单共享：支持Windows与Mac跨平台分享与共享
- 弹性扩展：透过iSCSI虚拟磁盘可灵活扩展储存空间

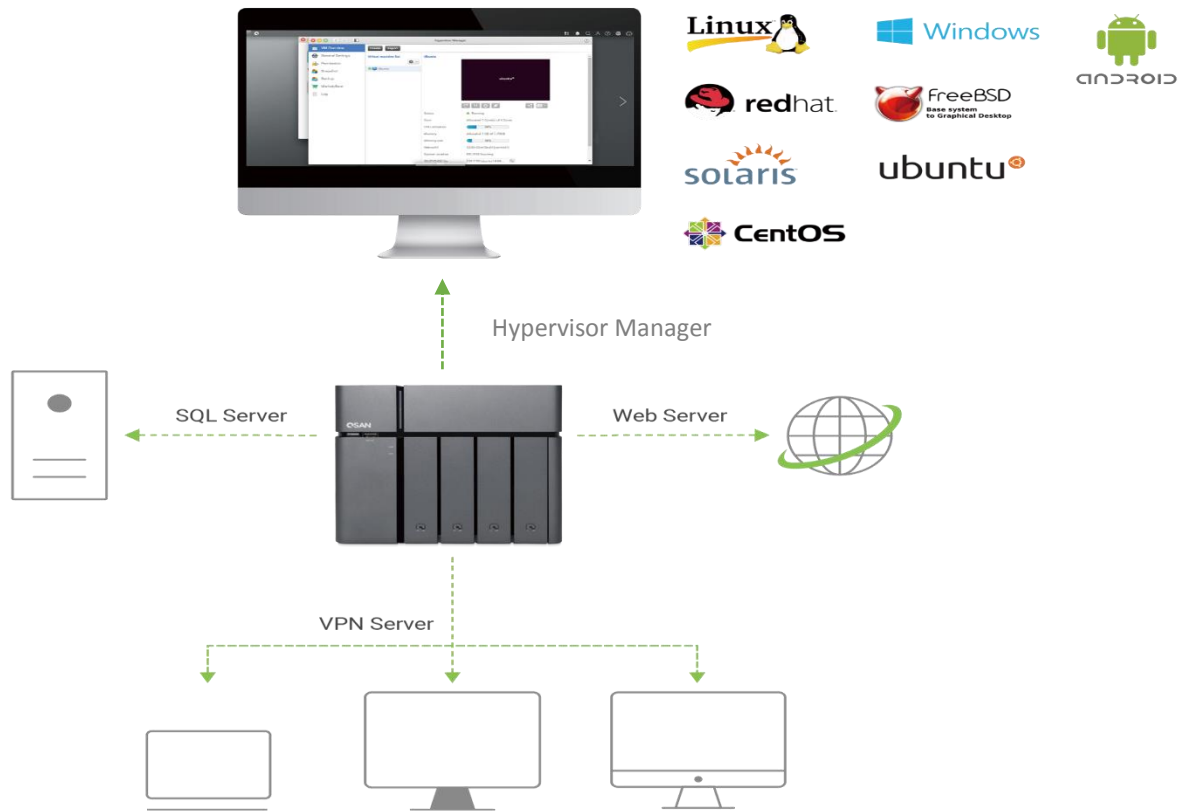


高分辨率监控存储装置

- 高速监控存储方案：10GB 高速网络接口 支持大量摄影机同步摄录
- 弹性扩展：透过QSAN 扩充柜扩充技术,可以达到 2 PB 以上容量
- 快速布置VMS 监控存储方案：透过iSCSI / CIFS /NFS 快速部署



NAS 应用解决方案

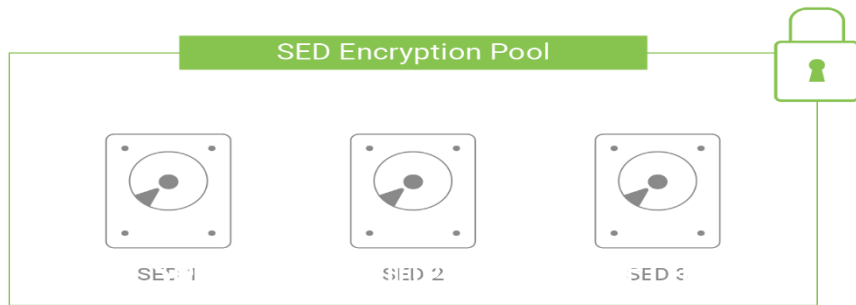


全方面数据安全保护

- AES-256 储存池加密技术
- 支援 Self Encrypted Drive (SED) 硬盘自我加密
- WORM 一次性写入数据保护技术
- 完整的信息安全保护

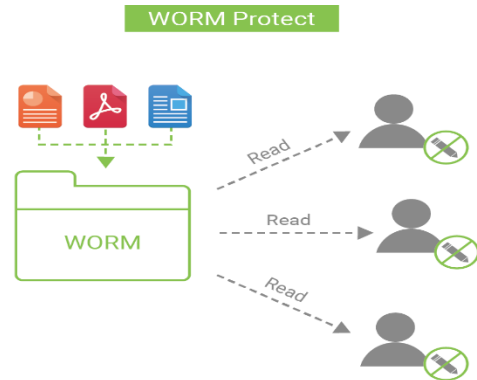
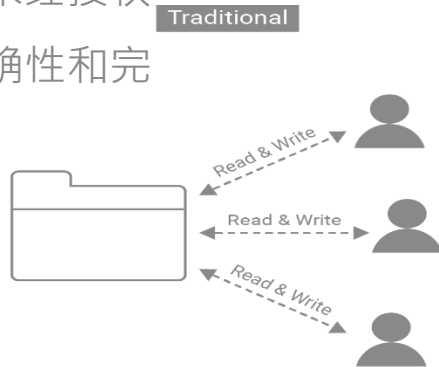
Self-Encrypting Drive (SED)

透过支持SED技术，XCubeNAS可以比您想象的更安全。利用该技术，纵使磁盘本身遭到偷窃、或错置在其他机器，磁盘中的数据仍得透过专用的认证密钥才可进行存取，以防止数据泄漏或未经授权的存取。安全的技术下，QSM仍然提供了便捷、有效的方式来管理认证密钥，让受保护的数据迁移，得到更好的效率。



WORM (Write Once Read Many)

WORM 技术旨在防止数据在一定时间内的有意或意外地修改。在WORM保护下的数据，仅供用户检视，直至防护期限到期后，才能进行修改。此技术可避免用户的数据暴露在勒索病毒或恶意软件风险下，避免数据遭到未经授权的修改或恶意加密，以确保数据的正确性和完整性。



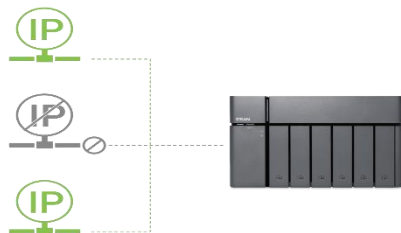
完善的信息安全保护

XCubeNAS内建网络安全技术防止系统遭到黑客入侵、数据拦截、盗窃，和意外防护。此外，透过内建的防病毒软件，可以提供定期、客制的防护措施。

防病毒程式



IP 過濾限制存取



防火牆



产业应用方案

科技产业

- 文件档案储存服务
- 近线备份系统
- 二级备份储存装置
- 灾难复原方案
- 主机与储存设备的虚拟化

政府单位

- 无硬盘工作站系统
- 城市安全监控系统
- 议事记录录像及播放系统
- 档案数字化储存 (数位典藏)
- 异地备援数据中心
- 虚拟化应用之储存设备

教育产业

- 校务行政系统储存装置
- 主机与储存设备的虚拟化
- 校园网络储存服务
- 校园数字安全监控系统
- 校园数字化教学系统
- 计算机教室无硬盘工作站

多媒体产业

- 非线性剪辑系统
- 影音后制编辑系统
- 媒体数据库储存管理
- 多媒体影片点播系统
- 内容随选递送服务系统
- 婚纱影楼媒体库系统

金融产业

- 电话营销在线录音系统
- 保单影像系统储存设备
- 数据仓储系统应用
- 近线(Near-Line)备份系统
- 主机虚拟化应用
- 开发系统之储存设备

电信产业

- 在线音乐播放服务系统
- 数字安全监控系统
- 客服中心录音系统
- 网络储存服务
- 近线(Near-Line)备份系统
- 主机与储存设备的虚拟化

QSAN原廠服務

保固 服務

1. 全直立式 NAS機種提供二年保固, 機架式 NAS 提供三年保固
2. 提供產品延長保固服務(依延長年限收費服務), 總保固年限可延長至5年

售後 服務

1. 提供電話、郵件等免費客戶服務
2. 提供軟體更新服務
3. 提供免費產品教學課程服務