QSAN

Data Storage, Security & Performance

XCubeNAS

XN5000R / XN7000R / XN8000R Series

- Native auto-tiering architecture to deliver ongoing optimization of data across SATA HDD, SATA SSD and PCI-E SSD.
- Flexible host interface with 10GB/40GB/Thunderbolt™ 3.0 options.
- Scale up solution to 2 PB storage capacity.
- Brand new enterprise level QSM 3.0 with all new interface and features to empower SMB solutions.
- Unified storage architecture with full virtualization support.

intel Celeron inside   intel inside CORE i3   intel inside XEON   CITRIX READY   vmware READY STORAGE   Windows Server 2012 Certified

XCubeNAS Series Rackmount Product Overview

The XCubeNAS series (XN5000R / XN7000R / XN8000R) is a next generation, highly efficient NAS system which is designed for SMB and enterprise applications. The XCubeNAS is powered by the latest generation of Intel® Kaby Lake processors and up to 64GB of DDR4 ECC RAM. Cutting edge NVMe SSD technology ready, with two additional on-board PCIe slots for blazing performance and capacity expansion.

The XCubeNAS operating system is the brand new, and totally reimagined QSM3.0 brings the enterprise level features into the enterprise and SMB storage. QSM3.0 supports comprehensive enterprise level storage features including SSD caching, thin-provisioning, auto-tiering, data deduplication and data compression that transform the efficiency of every resource to bring you commercial value.

Powerful Hardware Platform

Combined with the latest hardware technology, the XCubeNAS is able to fulfill various application demands efficiently. Extensive network bandwidth is provided, enabling the XCubeNAS to thrive in complex network environments. Additional PCIe option slots are included as standard, making the XCubeNAS a perfect device for SMB all the way up to big data applications or high performance requirements.

Intel 7th Generation Kaby Lake Series Processor

This brand new Processor provides abundant resources to meet computational requirements for of a wide variety of applications.

PCIe Expansion Slot

The PCIe expansion slots give the XCubeNAS the flexibly to respond to various application demands. Thunderbolt™ 3 and 10GbE/40GbE network adapter cards are supported to greatly enhance the data transmission speeds. And dual-port SAS expansion cards are also supported XCubeNAS to scale up to 1PB with our XCubeDAS expansion enclosures.

4 x 1GbE Network Interface

Built-in four 1GbE Ethernet ports which meet iSCSI/NFS/CIFS network data transmission requirements.

Memory

Dual channel DDR4 ECC U-DIMM RAM that can be expanded up to 64GB.
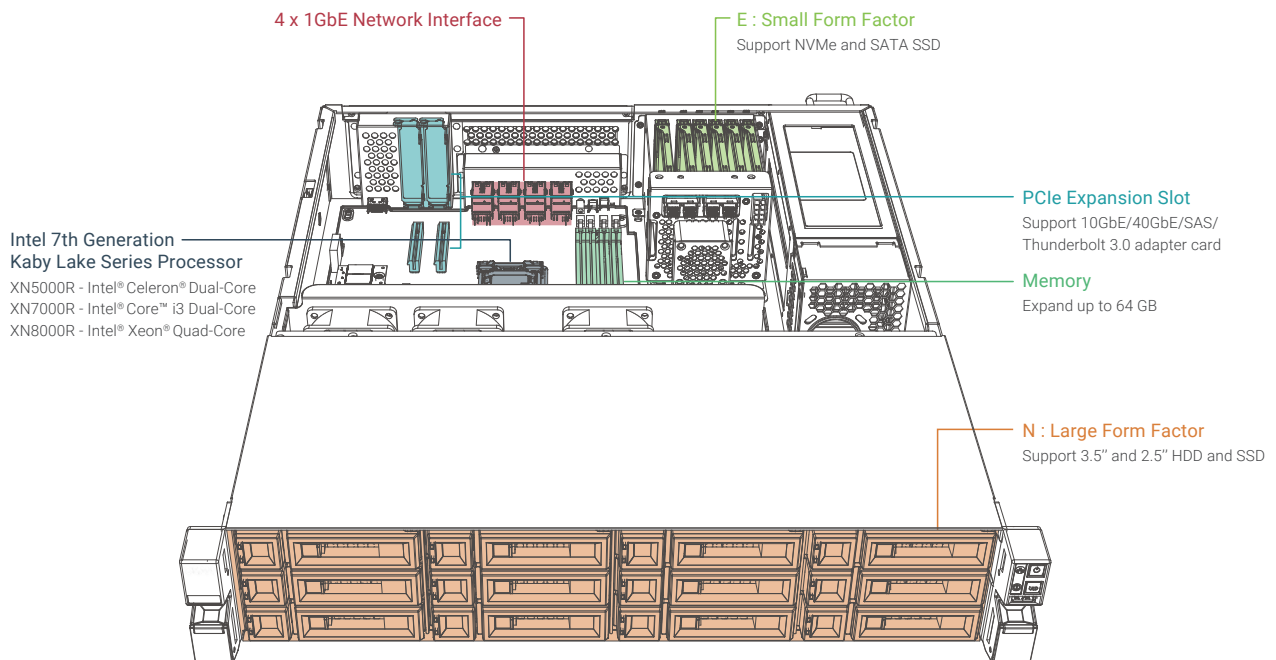
Innovative (N+E)
Hybrid Storage Capacity

The innovative mechanical design makes the XCubeNAS a versatile hybrid storage device. Without affecting existing large form factor slots, the XCubeNAS positions several small form factor bays for SATA and PCIe SSD's at the rear side of the system, this way we can ensure that both the demands for capacity and performance can be satisfied.

N : Large Form Factor

Large form factor slots drive trays feature not only 3.5 inch drive support but also 2.5 inch mounting holes are included as standard on all bays on the XCubeNAS. Fitted with up to 10TB drives in the 3.5 inch HDD bays, the XCubeNAS can fulfill capacity demands, and exceed them after adding our XCubeDAS systems.

E : Small Form Factor

Additional 2.5 inch small form factor are provided in order to enable advanced features without sacrificing storage capacity. As well as SATA SSD, we have additional PCIe SSD slots delivering lightning speeds (32Gb/s). In addition to being used for SSD caching for boosting data access performance, our auto-tiering architecture can be utilized to offer a complete ongoing optimization.

4 x 1GbE Network Interface

E : Small Form Factor
Support NVMe and SATA SSD

PCIe Expansion Slot
Support 10GbE/40GbE/SAS/
Thunderbolt 3.0 adapter card

Intel 7th Generation
Kaby Lake Series Processor
XN5000R - Intel® Celeron® Dual-Core
XN7000R - Intel® Core™ i3 Dual-Core
XN8000R - Intel® Xeon® Quad-Core

Memory
Expand up to 64 GB

N : Large Form Factor
Support 3.5" and 2.5" HDD and SSD

Leading Enterprise-level
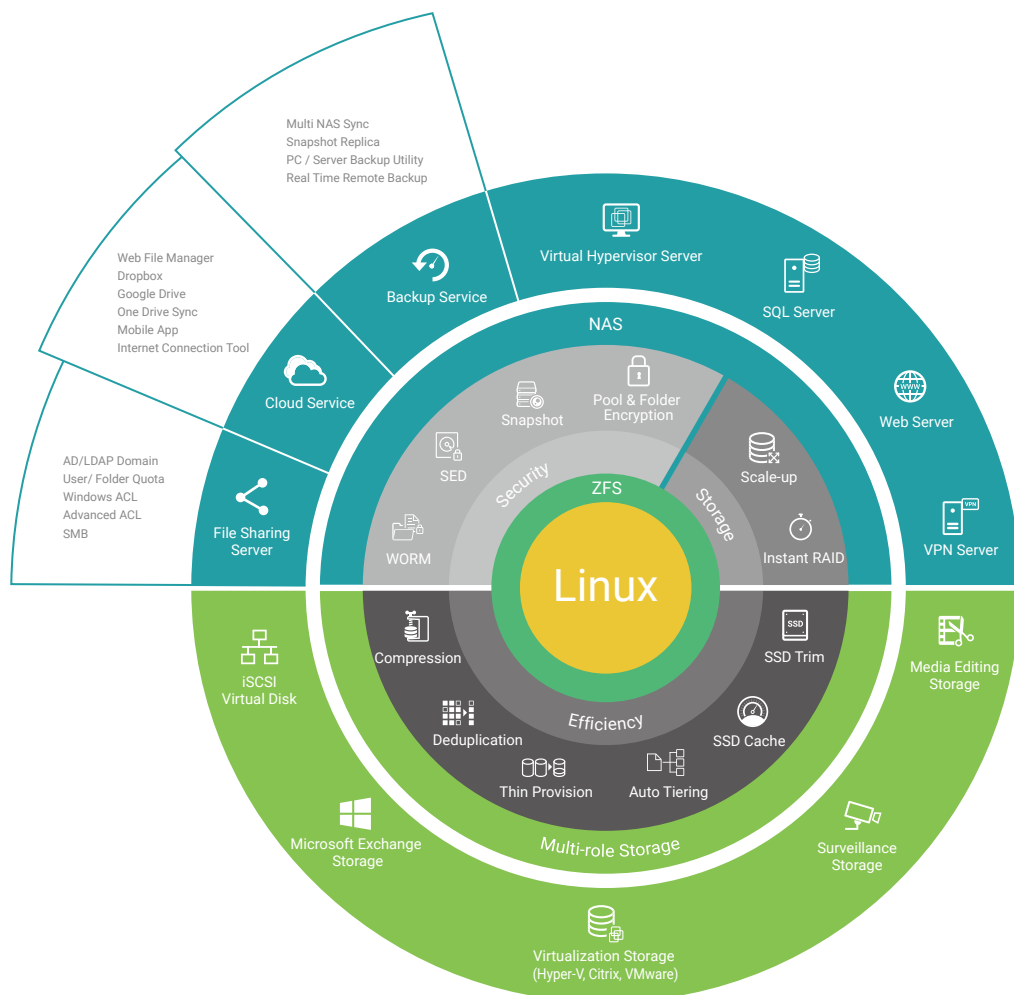# NAS Operating System

QSM 3.0 (QSAN Storage Manager 3.0) is an innovative storage operating system designed for QSAN XCubeNAS products. Based on Linux and 128-bit ZFS (Zeta-byte File System), QSM 3.0 not only inherits the amazing native features of ZFS but is also adjusted with several bespoke optimization enhancements that make the XCubeNAS series a high-performance, efficient and superior network attached storage device.

QSM 3.0 guarantees data integrity, and security. The built in checksum mechanism can automatically correct corrupted data using file snapshots. A wide range of supported RAID types, file and block level snapshots and various backup solution support ensures that data always well-protected. AES-256 pool encryption, WORM and SED drive support prevent confidential data from being either stolen or modified.

QSM 3.0 utilizes every resource to achieve data efficiency. Data deduplication and compression technology reduce storing duplicate data blocks and files to maximize storage capacity, making the XCubeNAS capable of storing beyond its raw storage capacity.

QSM 3.0 effectively addresses the performance demands of various applications. The SSD caching boosts up data access speed. And classifying data by access frequency lets auto-tiering help you fetch frequently used files even faster.

Value-added functionalitys such as virtualization capability, multiple server center, centralized file station etc. are also provided making QSM 3.0 robust and able to carry out dedicated applications.

Multi NAS Sync
Snapshot Replica
PC / Server Backup Utility
Real Time Remote Backup

Web File Manager
Dropbox
Google Drive
One Drive Sync
Mobile App
Internet Connection Tool

AD/LDAP Domain
User/ Folder Quota
Windows ACL
Advanced ACL
SMB

Backup Service
Virtual Hypervisor Server
SQL Server
NAS
Cloud Service
Pool & Folder Encryption
Snapshot
Web Server
SED
Security
ZFS
Scale-up
WORM
Storage
Instant RAID
VPN Server
File Sharing Server
Linux
iSCSI Virtual Disk
Compression
SSD Trim
Media Editing Storage
Deduplication
Efficiency
SSD Cache
Thin Provision
Auto Tiering
Microsoft Exchange Storage
Surveillance Storage
Multi-role Storage
Virtualization Storage
(Hyper-V, Citrix, VMware)

High Expandability
& Scalability

Empowered by the advantages of PCIe expansion slots, the XCubeNAS could instantly and effectively respond to application demands. Storage capacity can be easily scaled up by plugging in SAS add-on cards with one or more JBODs connected, or by connecting to remote iSCSI LUN. Network speed can be greatly enhanced by using Thunderbolt™, 10G and 40G adapter cards.

The Next Generation Thunderbolt™ 3 Solution

QSAN is proud to be providing the latest Thunderbolt™ 3 adapter card as an option for our XCubeNAS series NAS. You can create lightning throughput and reliable connectivity between XCubeNAS storage systems and a work station, MacBook or iMac directly with the QSAN Thunderbolt™ 3 solution.

In addition to the lightning throughput, the Thunderbolt™ 3 ports can be directly attached to the QSAN XCubeNAS series NAS products for expending client's data storage capacity or can hook up as an external device for fast data backup to the XCubeNAS. Thunderbolt™ 3 not only delivers an amazing 40 Gbps data transmission rate but also provides more than a 100% increase in bandwidth than the 2nd generation.

Theoretically the Thunderbolt™ 3 solution is up to eight times faster than USB 3.0. So a XCubeNAS with a Thunderbolt™ 3 adapter is an ideal solution for throughput demanding applications such as video editing and production, music production, digital photography editing, high speed external device data backup to NAS and more.
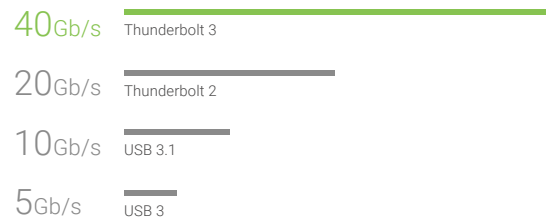
4K / 2K Video Editing

Data Backup

Direct Attach Storage

Capacity Expansion

XCubeNAS Thunderbolt™ 3 Applications

Breaking The I/O Thro

With next generation Thunderbolt™ 3 technology, you can connect Thunderbolt™ devices to an XCubeNAS directly with a 40Gb/s data transmission rate.
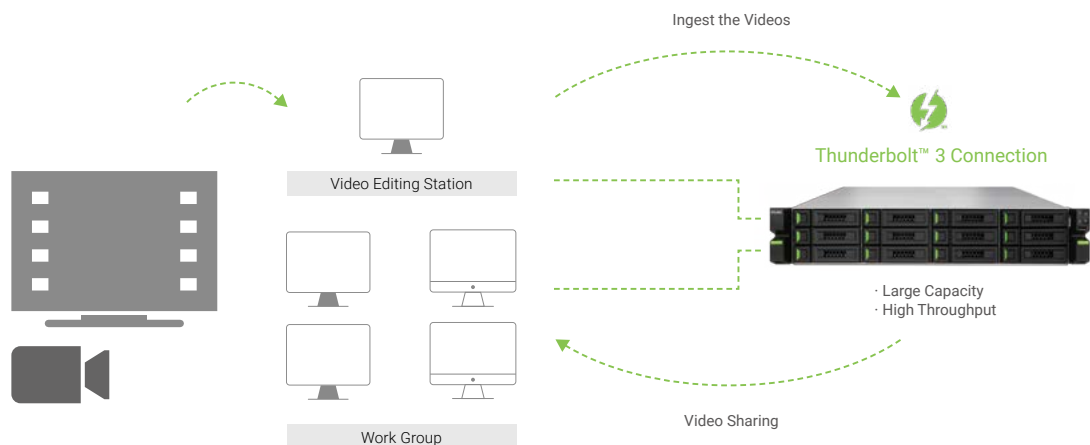
XCubeNAS with Thunderbolt™ 3 is capable of transferring high resolution video smoothly and handling relative workloads with ease: to copy a 4.7GB DVD video will on average take under a minute.

40Gb/s — Thunderbolt 3
20Gb/s — Thunderbolt 2
10Gb/s — USB 3.1
5Gb/s — USB 3

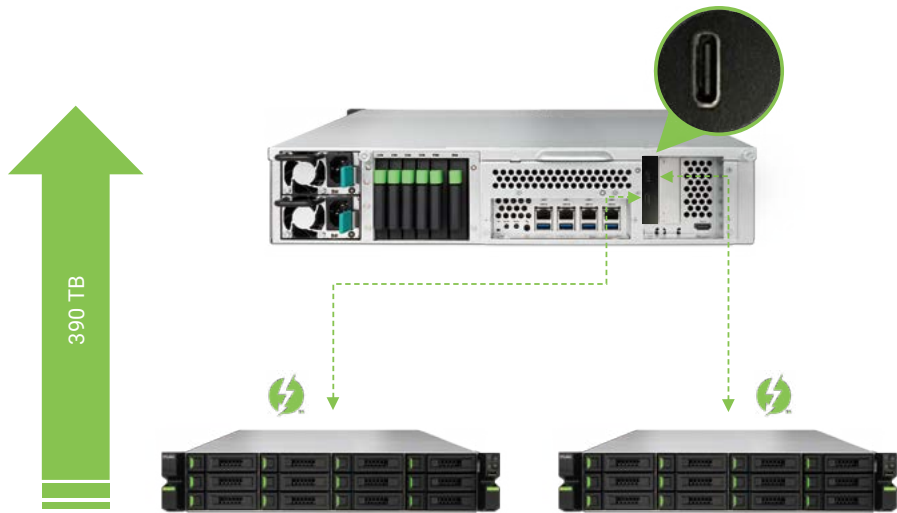| Type	CD 700MB	DVD 4.7GB	Blue-ray 25GB
Thunderbolt™ 3 (40Gb/s)	0.14	0.95	5
Thunderbolt 2 (20Gb/s)	0.28	1.88	10
Thunderbolt (10Gb/s)	0.56	3.76	20
USB 3.1 (10 Gb/s)	0.56	3.76	20
USB 3.0 (5 Gb/s)	1.12	7.52	40
FireWire 800 (800Mb/s)	7	47	250
USB 2.0 (480Mb/s)	11.66	78.33	416.66

4K Video Editing

The XCubeNAS fulfils storage and video editing needs with high-speed Thunderbolt™3. Digital videos can be quickly stored and edited on the XCubeNAS via a stable transmission tunnel without dropping a single frame. So Therefore, you are able to achieve blazingly fast transfer speeds to your workstation at up to 40 Gb/s speed with a single cable. That's more than enough bandwidth to handle the highest resolution video formats including Ultra HD and 4K, or even the highly demanding stereoscopic 3D files.

Ingest the Videos

Video Editing Station

Thunderbolt™ 3 Connection

· Large Capacity
· High Throughput

Work Group

Video Sharing

Scale-Up Solution

The XCubeNAS has the ability to scale up its capacity by connecting to other XCubeNAS devices, via the Thunderbolt™ technology. It can support up to a whopping 54 disk drives or up to 390 TB of raw storage space by using 10TB HDD drives.

Enlarge Your MAC's Capacity

With storage in modern computers at a premium, running out of storage seems like an every day issue. With the XCubeNAS, when you are out of storage space, simply connect it to your Mac via the Thunderbolt™ port. It will then provide extra space in a secure and high performance environment. Using Thunderbolt™ connectivity also allows flexibility: to share work between desktops, simply disconnect the cable from your machine, and attach it to another.
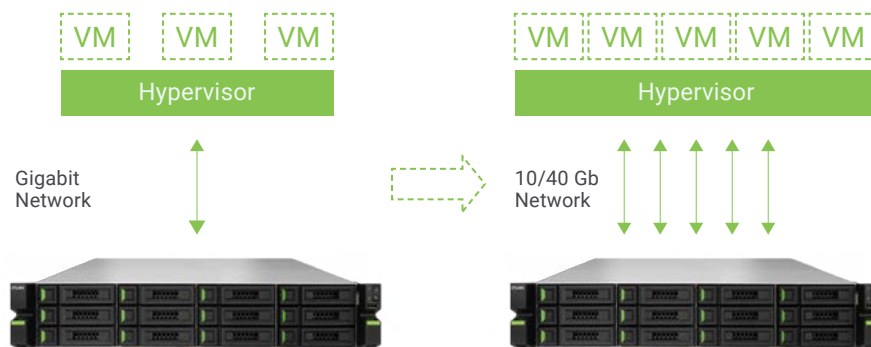
High Speed 10GbE/40GbE
High Speed Adapter Card

A 10GbE/40GbE (10 Gigabit/ 40 Gigabit Ethernet) network is essential for businesses that demand high bandwidth for virtualization, and fast backup and restore for an ever-growing amount of data. The XCubeNAS Rackmount series is an affordable and reliable storage solution for deploying a 10GbE / 40GbE environment.
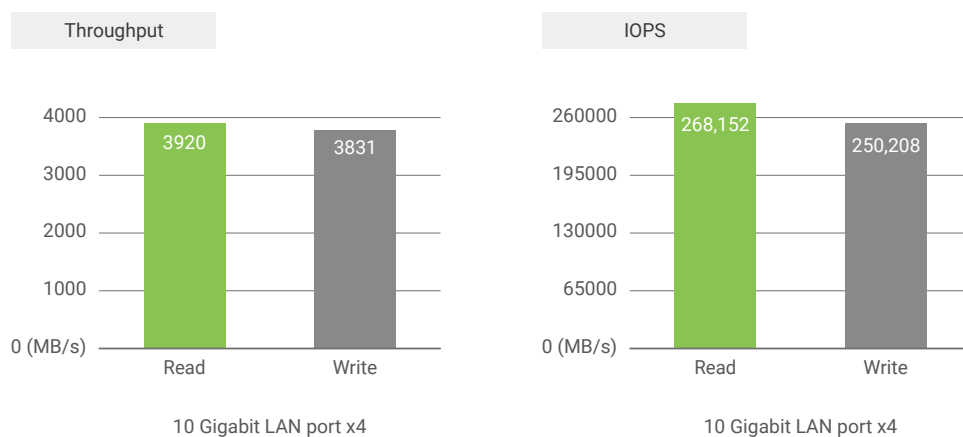
Unleash The Full Potential Of Virtualization

Application and processing requirements constantly evolve, heightening the need for higher performance storage, and with virtualization of IT resources, the need for high performance storage is essential. The XCubeNAS offers class leading hardware matched with unparalleled 10Gbps/40Gbps speed for all virtualization needs. The 10Gbps/40Gbps speed will increase the agility of data transmission in a virtualized environment, therefore intensifying NFS and iSCSI connection performance.
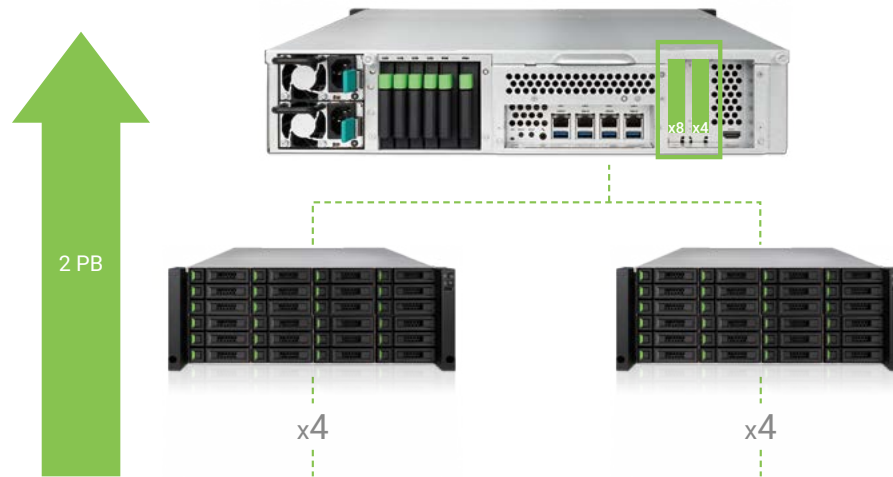

High-Performance I/O Throughput

10/40 GbE high-speed networks are highly beneficial for IOPS-demanding applications such as virtualization, databases, high-resolution video editing, and sharing workflows.

Throughput

	Read	Write
	3920	3831

10 Gigabit LAN port x4

IOPS

	Read	Write
	268,152	250,208

10 Gigabit LAN port x4

Scale-Up Solution

The XCubeNAS Rackmount series provides massive scale-up capability by connecting any of our expansion enclosures. It can support up to a whopping 210 disk drives or up to 2PB of raw storage space when using 10TB HDD drives.

Flexible: Full Range Drives Support

The XCubeNAS and QSAN expansion enclosure offers high flexibility in hard drive selection. IT administrators can choose enterprise level SAS HDDs in the the enclosure unit with high performance and high reliability for mission-critical applications, low-cost but high-capacity SATA HDDs for large data archiving, or high-speed and high stability SSDs for I/O-intensive operations. All within one enclosure.
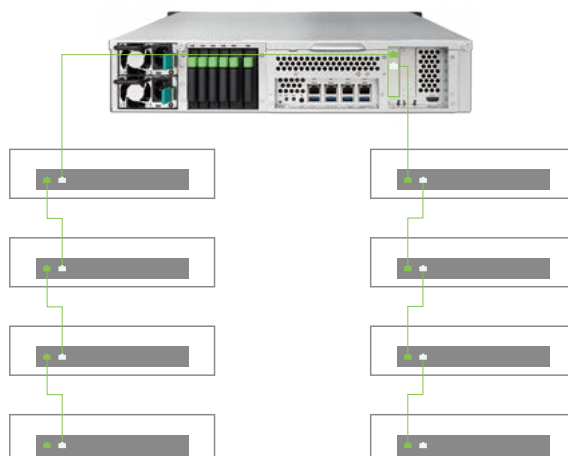

SAS 2.5" / 3.5" SATA 2.5" / 3.5" SATA SSD PCIe SSD

Simple: Plug And Play

Simply connect an expansion enclosure to a XCubeNAS and power it on. The XCubeNAS will detect the hard drives in the XD5300 series as newly installed local drives. The XCubeNAS capacity can then be expanded seamlessly by using the powerful QSM Storage Operating System.

High Density, High Flexibility And High Scalability

QSAN Expansion enclosures are available in 2U LFF 12-bay (XD5312D), 3U 16-bay (XD5316D), 4U 24-bay (XD5324D), and the world's first 2U SFF 26-bay (XD5326D). These can be supported for up to eight DAS units connected to a single NAS head unit. For ultimate flexibility, there is no restriction on mixing different form factors of expansion enclosures together. Users can choose different form factors of expansion enclosures in accordance with their requirement and budget.

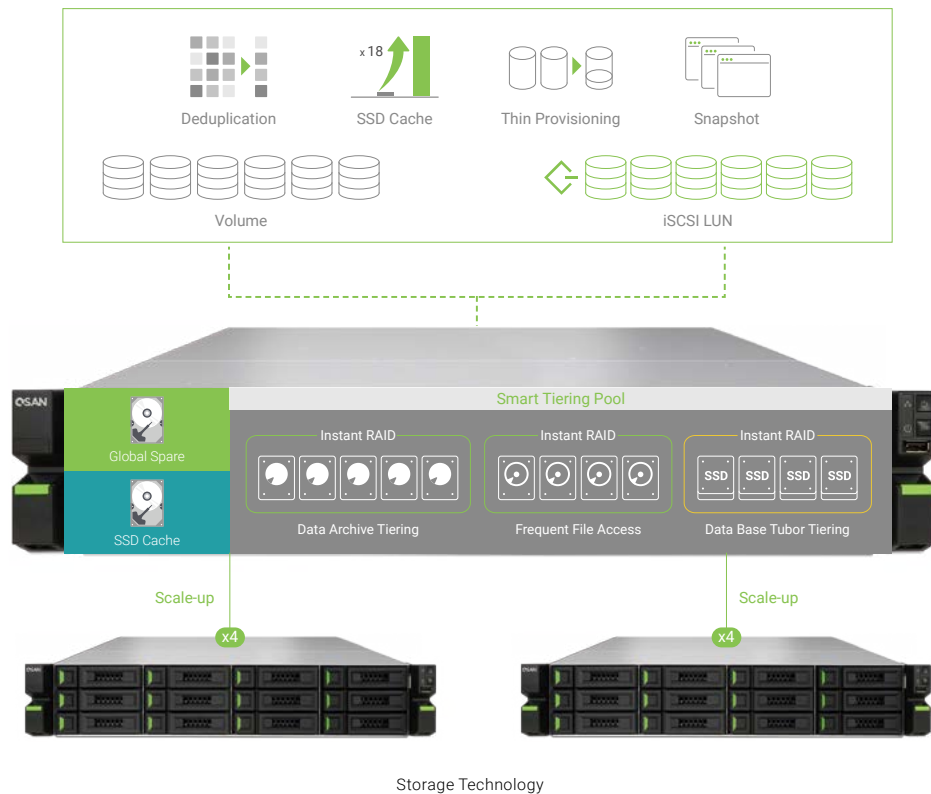XD5312

XD5316

XD5324

XD5326

Maximum Raw Storage Capacity

QSAN Expansion enclosures are available in 2U LFF 12-bay (XD5312D), 3U 16-bay (XD5316D), 4U 24-bay (XD5324D), and the world's first 2U SFF 26-bay (XD5326D). These can support up to eight units. For ultimate flexibility, there is no restriction on mixing different form factors of expansion enclosures together. Users can choose different form factors of expansion enclosures in accordance with their needs and budget.

NAS Models	Enclosure Front Factor	Max. No. of Expansion Units	Max. No. of Hard Drives	Max. Raw Capacity	
				LFF 8TB SATA SFF 2TB PCIe SFF 1TB	LFF 10TB SATA SFF 2TB PCIe SFF 1TB
XN5004R (1U 4+2 bay)	XD5312D (2U 12-bay)	8	6+12x8=102	804TB	1,004TB
	XD5316D (3U 16-bay)	8	6+16x8=134	1.060TB	1,324TB
	XD5324D (4U 24-bay)	8	6+24x8=198	1,572TB	1,964TB
	XD5326D (2U 26-bay)	8	6+26x8=214	452TB	460TB
XN5008R XN7008R XN8008R (2U 8+6 bay)	XD5312D (2U 12-bay)	8	14+12x8=110	842TB	1,050TB
	XD5316D (3U 16-bay)	8	14+16x8=142	1,098TB	1,370TB
	XD5324D (4U 24-bay)	8	14+24x8=206	1,610TB	2,010TB
	XD5326D (2U 26-bay)	8	14+26x8=222	490TB	506TB
XN5012R XN7012R XN8012R (2U 12+6 bay)	XD5312D (2U 12-bay)	8	18+12x8=114	874TB	1,090TB
	XD5316D (3U 16-bay)	8	18+16x8=148	1,130TB	1,410TB
	XD5324D (4U 24-bay)	8	18+24x8=210	1,642TB	2,050TB
	XD5326D (2U 26-bay)	8	18+26x8=226	522TB	546TB

Define Your Own Business
With Advanced Storage Technology

XCubeNAS tailor-made storage pool technology effectively caters to diverse storage demands on data integrity, scalability, high performance and availability. Comprehensive RAID levels are supported to ensure data integrity under every application scenario. Pool capacity could be expanded on the fly, rapidly responding to growing needs of for capacity. The design of the XCubeNAS allows for creating customized storage pools and auto categorization of data based on usage. "Hot" data will be moved to front line storage while "cold" data is stored on slower disks. All this is done automatically with the XCubeNAS.

Storage Technology

Wide RAID Type Support And Instant RAID

XCubeNAS provides comprehensive RAID levels, 0, 1, 5, 6, 10, 50, 60, for various application scenarios. Each RAID type an be instantly deployed with no initialization or synchronization phase, delivering safe, protected and high-performance storage space without any delays.
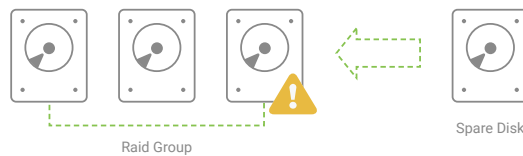
Fast Rebuild Technology

When a drive fails in a RAID set, the XCubeNAS is capable of rebuilding the data blocks that have been used, and not the entire RAID set. This helps reduce the risk of data loss during the rebuilding process.

RAID Levels
0, 1, 5, 6, 10, 50, 60

Global And Dedicated Spare Drives

Using global hot spare drives will allow a rebuild from any pool in the NAS, alternatively, assigning a dedicated spare drive will rebuild a specific RAID set. Both of these options will allow the system to instantly rebuild once encountering disk failure, protecting your critical data and ensuring data integrity.
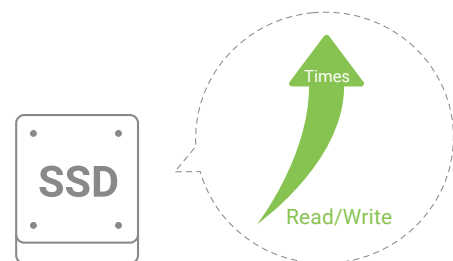
System Roaming

Unfortunate hardware failure is something no one wants, however with the XCubeNAS, recovery is simple. With disk roaming technology, your data and system configuration can be easily migrated to another XCubeNAS without having to worry about disk order or a lengthy reconfiguration.

Raid Group

Spare Disk

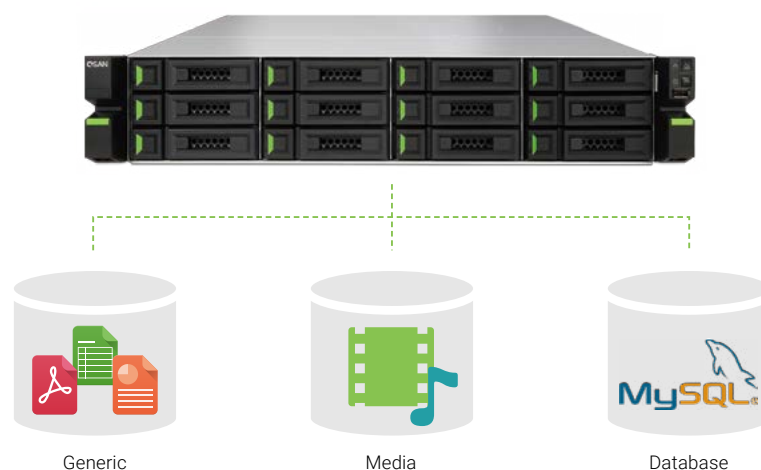Primary

Secondary

Protect SSD With Trim

SSD Trim technology, was developed to avoid frequent write operations on SSD drives. Enabling the trim mechanism with XCubeNAS will ensure that the SSD drives will have the maximum life time.

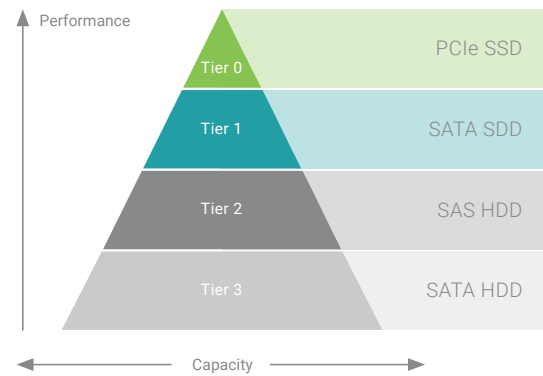SSD

Times

Read/Write

User Defined Pool

Thinking ahead to common usage situations, the XCubeNAS provides three optimized solutions for pools to achieve high performance and availability for dedicated storage applications:

• Generic: Default type for generic file service or backup usage.
• Media: Optimize IOPS for small packets of sequential RW and throughput for large, random packets.
• Database: Data is synchronized between the memory cache and disks in real time for assurance of database Integrity.
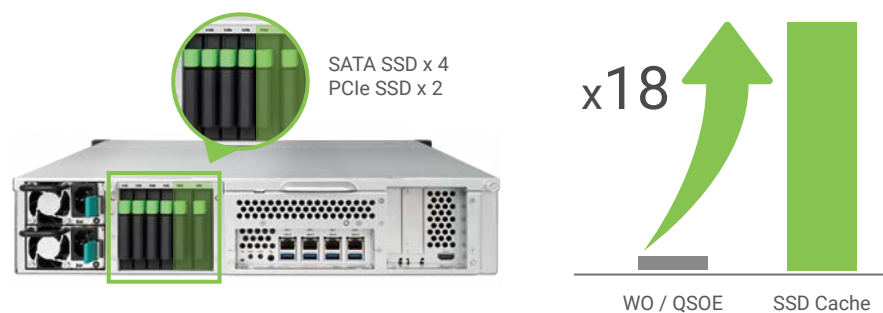
Generic

Media

Database

Smart Auto-tiering

Increase the performance of your business related applications by using auto-tiering; without crippling your budget. The XCubeNAS features auto-tiering technology that continuously analyzes how often data has been accessed. Frequently-used data would will then be automatically moved to drives with higher access speeds, while rarely-used data would be is moved to large capacity, slower drives. Demanding workloads of your business applications could can be dramatically reduced and the performance increased without heavy investment in expensive All Flash storage devices – this is all done by the XCubeNAS's intelligent auto-tiering technology.

Access Data Faster With SSD Cache

Enhance the performance of your demanding applications as well as the overall system workflow with XCubeNAS SSD cache. The XCubeNAS delivers additional PCIe and SATA SSD slots, enabling you to add SSD without occupying existing HDD slots. Read/write operations across local host and JBODs are greatly enhanced, and the I/O latency of workload-intensive applications which need frequent random access will be greatly reduced. Both the system performance and storage capacity are given full consideration by the XCubeNAS design.
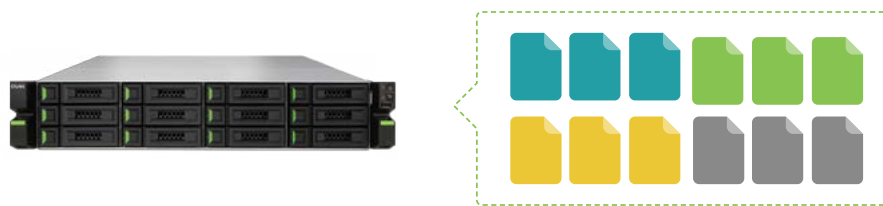

Deep Into SSD Caching

SSD cache is a large secondary cache that boosts data access speed by positioning SSD drives between primary DRAM memory cache and hard disks.
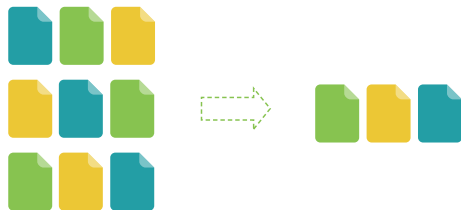
Optimize Storage Utilization With Enterprise Level Technology

Using storage space efficiently has been a big issue in the IT environment for a long time. Having multiple copies of the same files can potentially waste a large amount of space. For example, if you send a 1MB email to 1000 coworkers, the email server will contain 1.001GBs of the same email. How can storage be used more efficiently? The built-in XCubeNAS data optimization technology reduces stored duplicated data blocks leaving room for new data. Through optimizing space utilization, the XCubeNAS provides you with an economical method to storage capacity for your space-demanding applications.

Data Compression

With compression, data will be compressed into fewer bytes on transmission to ensure the faster transfer speed and save storage space.

Data Deduplication

The data deduplication feature of the XCubeNAS is an in-line, block-level function that checks the block similarity of data as it enters the system When duplicate blocks are found, they are not written to disk, therefore saving space.

Thin Provisioning

"Take whatever you need." That's the philosophy of thin provisioning. Thin provisioning lets various services and applications use the same storage space without limiting how much of the quota can be used by each. With thin provisioning, space resources are dynamically distributed to the most demanding, responding to your business applications with higher flexibility and promising potentials.

Volume 1   Volume 2   Volume 1

Allocated & Unused
Allocated & Unused
Data
Data

Allocated & Unused
Allocated & Unused
Allocated & Unused
Data

Allocated & Unused
Allocated & Unused
Data
Data

Data
Data
Available Storage
Data
Data

Without Thin Provisioning

With Thin Provisioning

13

Centralized Data Storage & File Sharing

A centralized data storage system, the XCubeNAS eliminates either physical gaps or virtual boundaries to provide a secure flattened platform that enables your data to be easily accessed from anywhere at anytime via the internet, with maximum security.
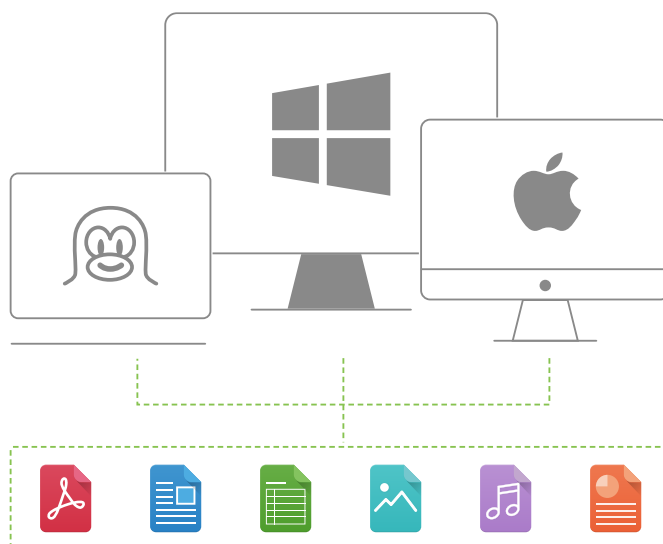
The XCubeNAS provides lightning fast and secure ways to share files with anyone, anywhere. You can explore, organize, and move files between your computer and the XCubeNAS, all the while, being able to customize access rights to enhance security. A seamless integrated system allows for file sharing across different computing environments, including Windows, Mac, Linux, Android and iOS.

Designed For Office File Sharing

Server Message Block (SMB) 3.0 protocol is a network file sharing protocol that allows applications on a computer to read or write files and to request services from server programs in a computer network, you can share files through TCP/IP or other network protocols and unify all windows local/domain users with a few simple steps. It can perfectly replace your traditional windows server and save you money on licensing.
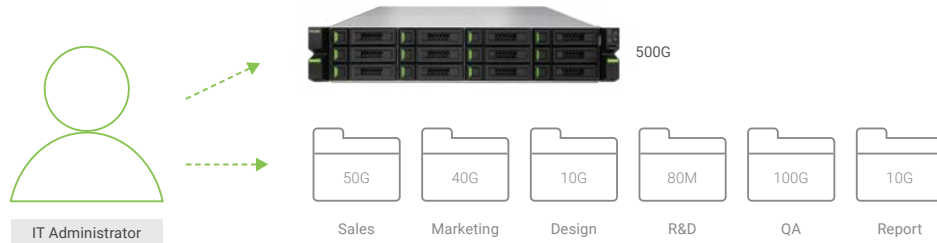
Cross Platform Access

The XCubeNAS provides seamless file sharing across Windows®, Mac®, Linux®, iOS and Android platforms by supporting multiple file access protocols including FTP, SAMBA, CIFS, AFP, NFS and WebDAV.
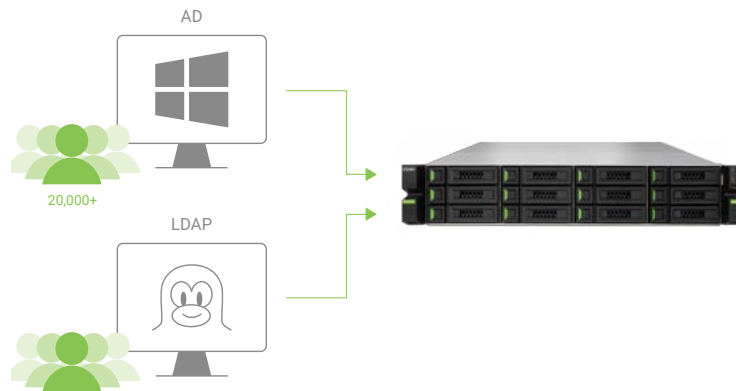
Quota Control On Accounts And Share Folders

Take control of your storage space, by adding quotas (limits) to the amount of data a user can store. Users can be limited on how much data a folder can store or the quota can apply to the entire system, thus empowering the admin with complete control of what is stored on the XCubeNAS.

IT Administrator

500G

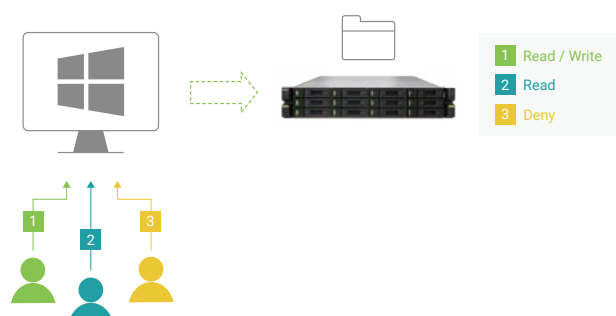| 50G | 40G | 10G | 80M | 100G | 10G |
| Sales | Marketing | Design | R&D | QA | Report |

Windows AD and LDAP Directory Services Support

By supporting Windows AD and LDAP, the XCubeNAS enables seamless account integration. Up to 200,000 domain accounts can be joined onto the XCubeNAS and their Home folder is automatically created, helping IT administrators reduce duplicated sets of credentials and minimizing their workload in giving default account settings and new user setup.
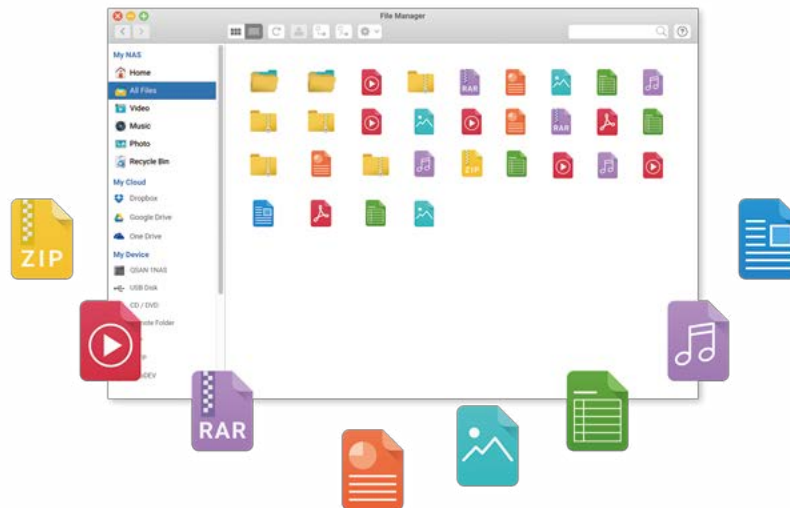

AD

20,000+

LDAP

Windows ACLs And Advanced ACLs

Access Control List (ACL) is a permission list specifying what actions specific accounts take on folders and files. Advanced ACL lets you set permissions on subfolders, whereas Windows ACL enables you to apply Windows file permission mechanisms on files and folders. With both kinds of ACL supported, IT administrators can flexibly regulate file access rules no matter what operating system they use, protecting your data from unauthorized access or theft.

1 Read / Write
2 Read
3 Deny

Powerful
Web File Explorer

Connect / share files via the web from anywhere in the world. The XCubeNAS has a web-based File Manager that allows users to access their data and easily share it with anyone. They can also set links to be valid in a specified time period or forever.

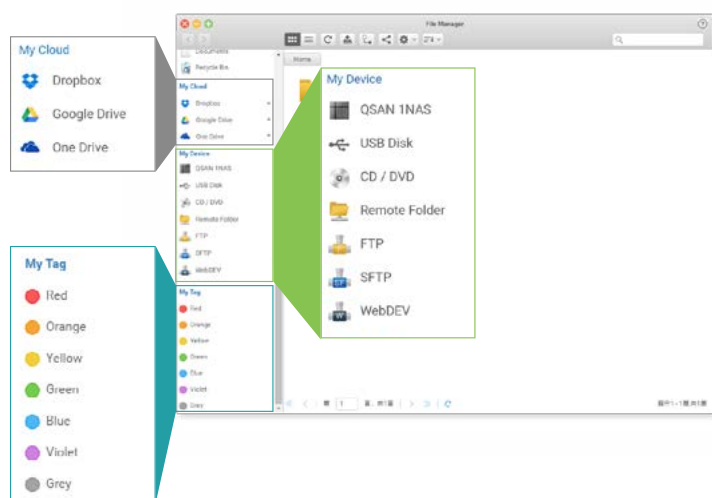**Connect to your private cloud anytime & anywhere**

The file manager can also be used as a cloud client to browse and download remote data on third party cloud services such as Google Drive, Dropbox and OneDrive.

File Tag

With File Manager Tag function, you can organize files by project or purpose, without having to move them into a specific folder. Your tags automatically show in the File Manager menu bar, so it's easy to manage tagged files no matter where they're located.
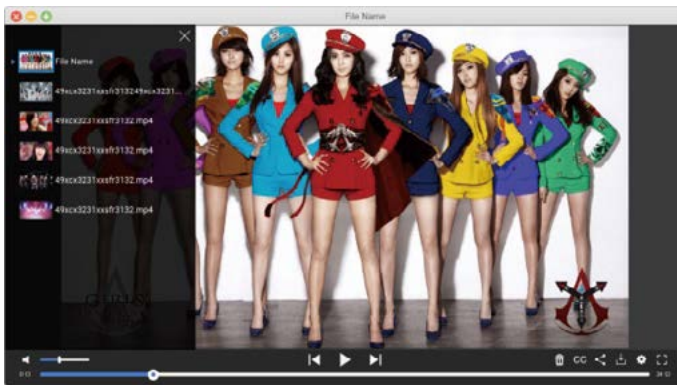
Mount Remote Devices

Being able to share files across computers and multiple platforms is vital, so file manager allows users to mount CD/DVD ISO files, folders, remote server's on the XCubeNAS with support for CIFS/SMB, FTP, SFTP and WebDAV protocols to quickly transfer and share files on different operating systems without constraints.

Team Folder Sharing

With the "User Home Folder" feature, a personal folder will be created automatically when a user logs in to the XCubeNAS for the first time. It effectively saves time for individual users, enabling them to get set-up quicker and thus share files with each other as soon as possible.
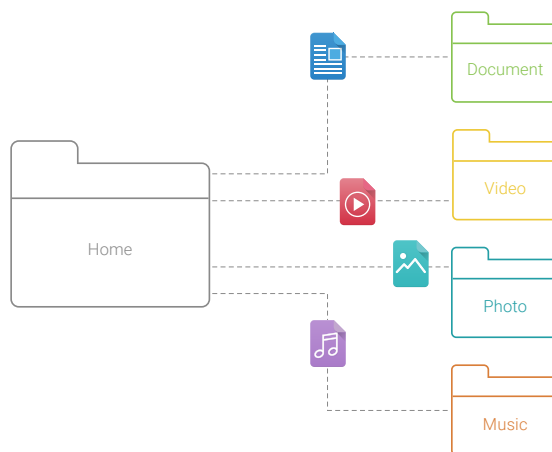
Online Photo And Office File Preview

It is possible to preview Microsoft Office files in the browser with File Manager. The XCubeNAS supports file types such like: .doc, .docx, .xls, .xlsx, .ppt, and .pptx, and it also supports your photo preview. With speeds of up to 40GbE using any Mac or PC with a Thunderbolt™ port, fast read and write speed on data editing can be ensured without any data loss.

Media library

File Manager can serve as your centralized photo station, allowing you to create albums to manage all the photo by categories and display them with your friends and clients. Free yourself from the limits of traditional photo storage services. Music in shared folders can be displayed succinctly on Media Library. The system will index all the multimedia files in database and manage them by categories automatically so that you can search and organize huge amount of multimedia files more quickly without too many efforts.
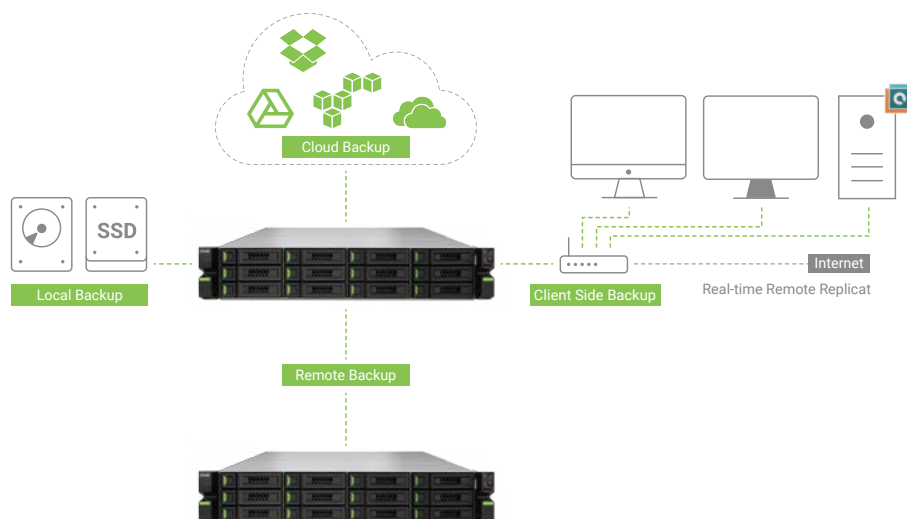
Universal and Efficient Data Backup

Modern businesses' data faces many potential threats such as unexpected hardware failure, natural disasters, or unintended deletion, which might cause loss of your critical digital assets. The mainstream adoption of cloud, remote and external storage devices for storing documents makes data fragmented.

The explosion in data volume sizes and their demands for efficient data retention methods mean that the XCubeSAN is the perfect solution to fit modern data requirements.

Backup Your Business

The XCubeNAS effectively addresses the above challenges by providing comprehensive and effective backup solutions that assist you design a complete and efficient backup solution to minimize the risk of data loss. Various storage devices, remote servers, public clouds even other XCubeNAS can be seamlessly integrated into your XCubeNAS, achieving an all-encompassing backup solution allowing data to be freely, safely and efficiently preserved.

• Client side backup
• Remote backup
• Cloud backup
• Local backup

Cloud Backup

Local Backup

Internet

Client Side Backup

Real-time Remote Replicat

Remote Backup

Client Backup To Your XCubeNAS

The most common cause of data loss is HDD failure, OS crashes or most commonly, accidental deletion. Comprehensive data backup is the solution to all your data loss woes. Backup all your data on your computer to your XCubeNAS with QSAN's free untility, Xreplicator.
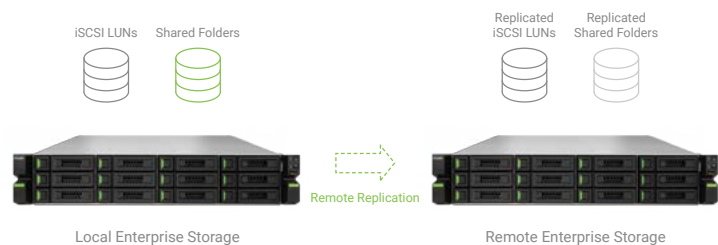
XReplicator

XReplicator

XReplicator is a free utility that's is provided to help you easily backup an image of a disk, partition, folder or file. XReplicator is also able to backup an entire PC to the XCubeNAS as a bare metal backup. There is a way to quickly and simply recover your entire system, disk or file when using the XReplicator utility and the XCubeNAS solution.

• Supported Windows XP or higher & Win Server 2008 or higher.
• Expert backup solution.
  • Backup image only stored on XCubeNAS.
  • Opened file backup support.
  • Scheduling backup support (Monthly, weekly, daily, automatically).
  • Backup configuration for fast upload speeds (Single version, incremental and differential).
  • Personal key encryption.
  • Version control and clean up.
  • Backup filter.
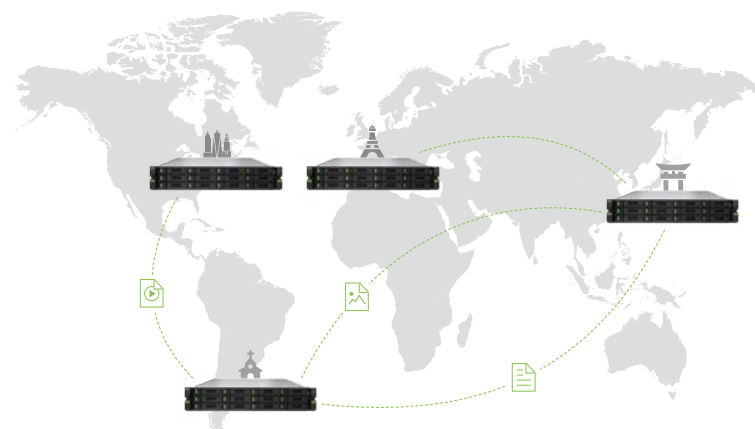
Real-time Remote Replication

Data copies can be distributed to your trusted storage locations through real-time remote backup. By periodically copying data to different branches, your data can be recovered in the unfortunate event that a disaster happens. Data availability is ensured, offering businesses more options for a contingency and recovery plan.

iSCSI LUNs   Shared Folders

Replicated iSCSI LUNs   Replicated Shared Folders

Remote Replication

Local Enterprise Storage

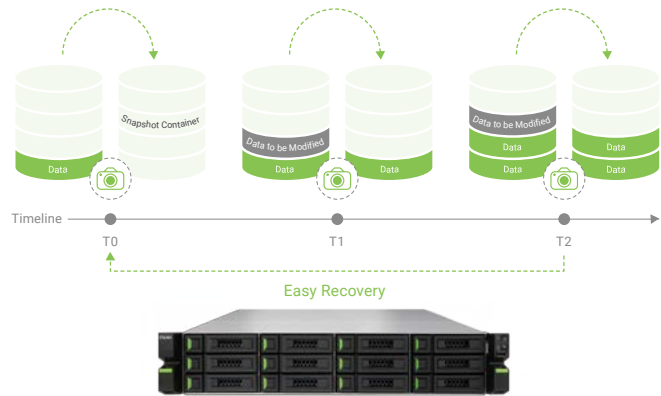Remote Enterprise Storage

XMirror

XMirror regularly synchronizes a volume or the contents of a folder between multiple XCubeNAS devices, any modification to documents will be replicated to other XCubeNAS. By using XMirror, data on different XCubeNAS systems, data consistency and availability is ensured ability.

• Support Volume and Folder mirror.
• 1-way (unidirectional): data modification of the local NAS will be synchronized to the remote,
  but any data modification of remote NAS will not be reflected.
• 2-way (bi-directional): any data modification of a NAS will be synchronized to the others.
• Version control (64 versions).

Snapshot & Replica

Snapshots record the status of shared folders and iSCSI LUNs as changes happen on write. By periodically taking snapshots, administrators can better control data versions and execute point-in-time recovery on folders and LUNs, these can be flexibly restored to previously known good states. QReplica can transport the version information to the target XCubeNAS, enabling administrators to utilize storage space based on their retention policies and space requirements.

Amazon S3 Backup

The XCubeNAS comes integrated with Amazon's award-winning enterprise cloud service, Amazon® S3 enables users to backup the whole array to a remote site instead of another NAS or devices.

Build Your Own Cloud

Using Google Drive, OneDrive, and Dropbox, you can build a hybrid cloud which allows you to access and backup the files on mobile devices, PCs, or thin clients anytime and anywhere. The XCubeNAS can be a cloud gateway to bridge your public cloud and private content and act as a central access point.

USB Backup

Connecting an external USB storage device to your XCubeNAS means, you can backup all the files to either from the USB device to the XCubeNAS or the XCubeNAS to the USB device. This 2-way data transfer enables quick and easy-to-use copy methods to and from your XCubeNAS.

Security &
Data Protection

The growing tide of data breaches, leaks, and malicious software means your data security systems and procedures are vital. Our QSM for XCubeNAS was built on a security-first ideology, it can offer you full protection of the data within your XCubeNAS. Tools are provided to prevent protect the system from hacking, and interception of data, theft, and accidental deletion.

Furthermore, using the inbuilt Anti-Virus, you can add tasks, scanning the entire NAS or selected folder with specific schedule.

Comprehensive
Security Solution

Developing a comprehensive enterprise security strategy can facilitate greater control over your threat management activities and help improve the protection of your critical data assets. QSAN helps you to minimize the risk of data breaches with comprehensive protection solutions on both your data and the entire system.
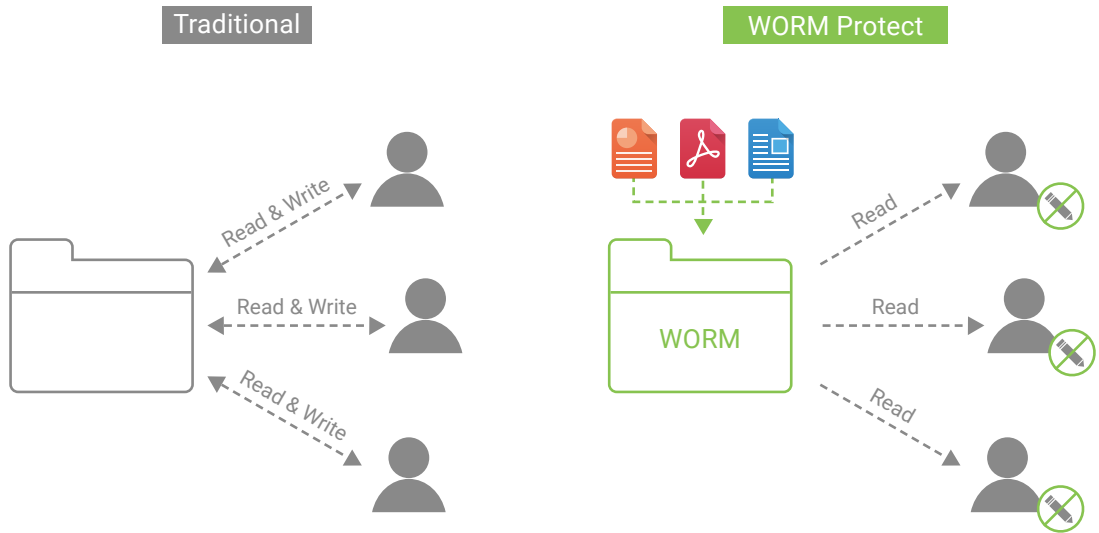
QSAN supports AES 256-bit encryption that gives you the highest level of security and privacy for your important data. All data stored in encrypted folders will be automatically encrypted and secured to the highest of standards. The Self-Encrypting Drive (SED) and WORM provides full data protection even under worst case scenarios like, losing your NAS or hard disks to theft, your important data is still protected and wont fall into the wrong hands.

With the rise in the threat to digital assets, QSM provides unified authentication for user management combined with private SSH, the one time password authentication mechanism forces two part authentication and protects the system from intrusion.

Also enables you to install and run endpoint protection, eliminating the cost and complexity of connecting an external endpoint protection server. Features including service binding, IP-blocking, firewall, internal SSL and antivirus, providing all users with a highly available solution that keeps their data fully accessible.

Write Once Read Many (WORM)

WORM technology is design to prevent intentional or accidental modification of data in a certain period. Files and folders under WORM's protection can only be read in a user defined period, it's unable to modify any files or folders until the period has expired. WORM it can protect your data from encryption-based ransomware that installs covertly on a victim's system and encrypt their files, making them inaccessible. WORM will protect your confidential data from unauthorized modification and threat, ensuring the correctness and integrity of your data.
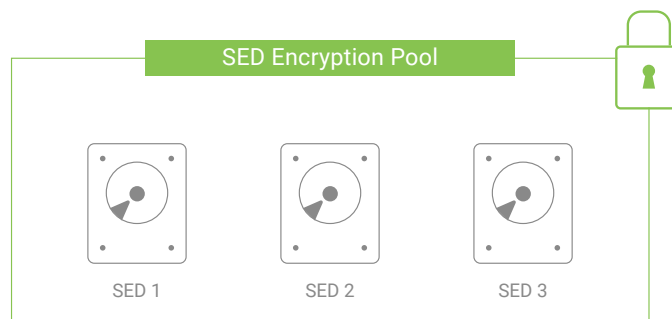
Pool Encryption with AES-256

XCubeNAS pool encryption mechanism ensures secured storage environment any user who wants to modify data must first pass authentication. The XCubeNAS supports up to AES 256-bit encryption for internal drives and external USB/eSATA drives, and adopts a military level FIPS 140-2 validated encryption, which is considered to be the highest security certification for compliance.

Self-Encrypting Drive (SED)

XCubeNAS can be much safer more than you can image with the disk self-encrypting technology called SED (Self-Encrypting Drive). With the technology, even if the physical drive is stolen or misplaced, the data on it remains protected against data breach by generating the authentication key (AK) to prevent the unauthorized access. However, the SED offered by QSAN provides the secured pools migration between different XCubeNASs and easy to manage the key by exporting AK for more efficient.
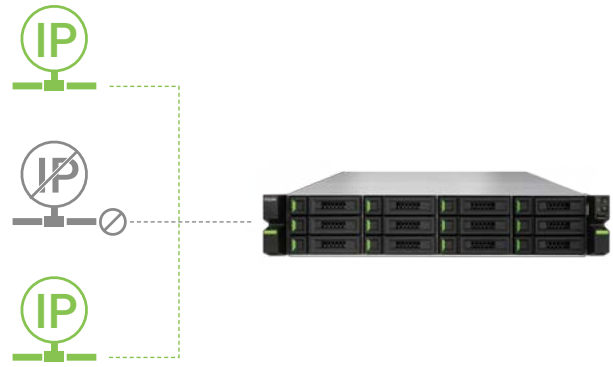
SED Encryption Pool

SED 1   SED 2   SED 3

Service Binding

Service binding enhances system security by letting administrators determine which services can be connected through which network interfaces. The security of sensitive applications as well as bandwidths of critical services are firmly protected.
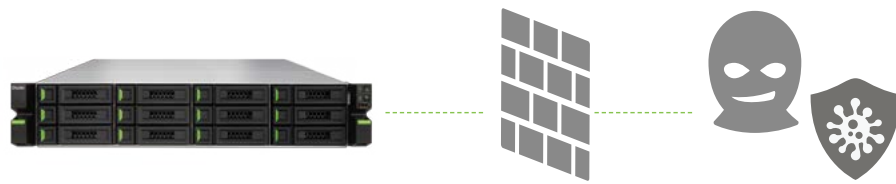
FTP

Rsync

IP-blocking (Ban-list)

Network ban list denies connections from specific IP addresses or subnets to your NAS. You can block an IP for a certain period of time or forever if the IP fails to login from a particular connection method. This feature helps administrator block suspicious connections in order to enhance system security.

Firewall

Firewall guarantees system security by blocking suspicious connections, either malicious attacks or unwanted intrusion.

Internet SSL

SSL certificates deliver secured tunnels for data transmission ensuring that critical data and information cannot be intercepted or modified during the transfer process.

Antivirus

The built-in antivirus function periodically scans files automatically quarantining suspicious files to protect the system from potential threats.
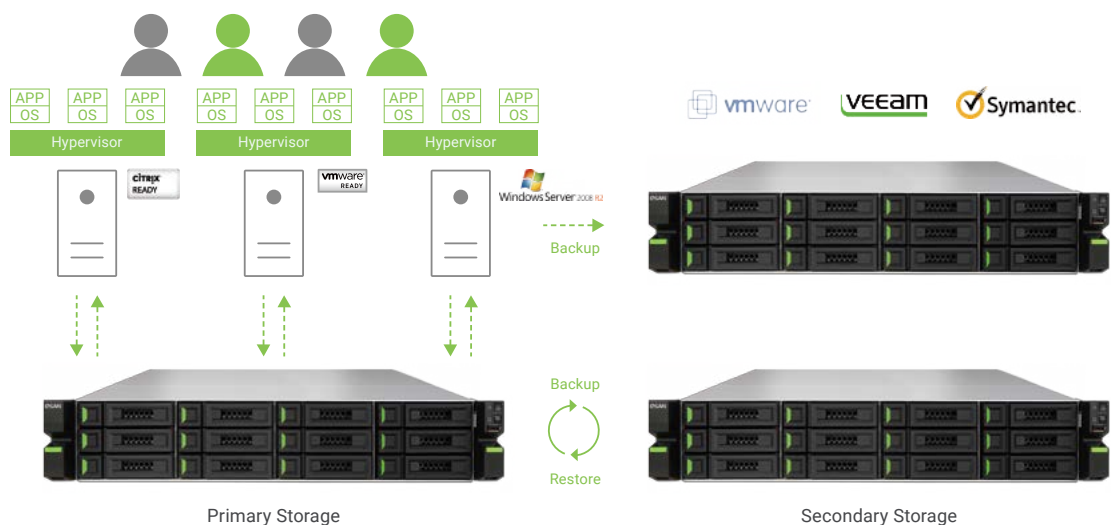
Virtualization

XCubeNAS is an ideal and economical storage solution that can be used as a shared network storage or IP-SAN storage for virtualization environments. Officially certified with VMware® Ready™, Citrix® Ready™, and Microsoft® Hyper-V™, the XCubeNAS it is a stable and efficient data storage system. Virtualized data centers can perform faster and more efficiently with XCubeNAS's assistance on provisioning, migration and management of virtual machines.

The XCubeNAS provides virtualization solutions allowing you to maximize resource utilization to flexibly deliver application services. The built in hypervisor manager provides a simple and quick way to deploy virtual resources into your infrastructure. This ability means that you can save on listening costs, by moving virtual resources onto the XcubeNAS and free up valuable resouces on your hypervisor.
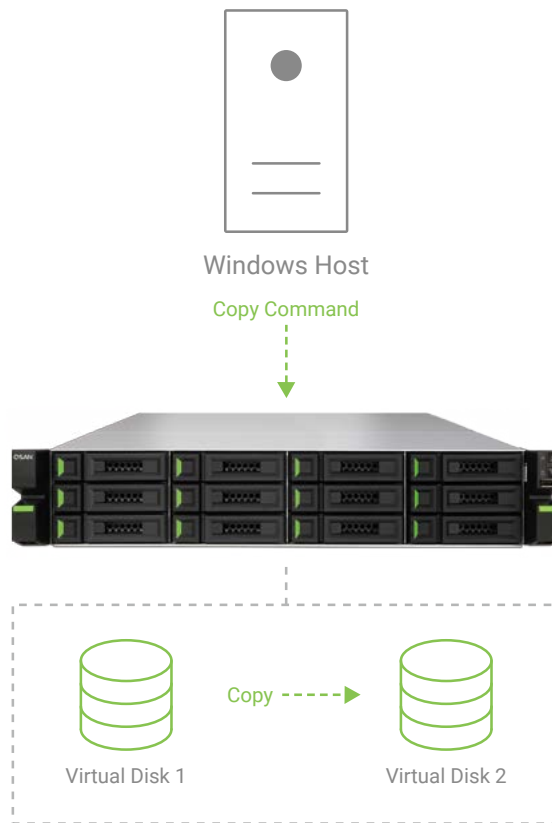
Virtualization Ready Storage

XCubeNAS is verified with VMware® Ready™, Citrix® Ready™, and Microsoft® Hyper-V™ certified. No matter which virtualization environment you've adopted, the XCubeNAS is a practical and efficient storage system for you to deploy in any virtualization platform. QSAN's XCubeNAS can be used for primary storage repositories and as a backup to existing primary storage. As a backup storage device, the XCubeNAS supports a comprehensive list of 3rd-party virtual machine backup software to ensures that your VMs and data are never at risk of loss.

Primary Storage   Secondary Storage

Windows Offloaded Data Transfer (ODX)

With ODX support, users using Windows Server 2012 R2 are able to conduct data operations, such as moving large files and virtual machines, directly between iSCSI LUNs. Handled by XCubeNAS, the progress need not involve host servers, therefore can be finished rapidly and with fewer resources. This enables the Windows servers to perform faster and handle more tasks while benefiting from reduced resource consumption.

Windows Host

Copy Command

Copy

Virtual Disk 1   Virtual Disk 2

Full VMware Support

As a qualified VMware® TAP Elite partner, QSAN put innovative technologies into the XCubeNAS aiming to facilitate VMware®'s feature-rich virtualization environments. By supporting VMware® storage packages, XCubeNAS integrates with vSphere hosts solutions such as disaster recovery, offload capabilities and storage.
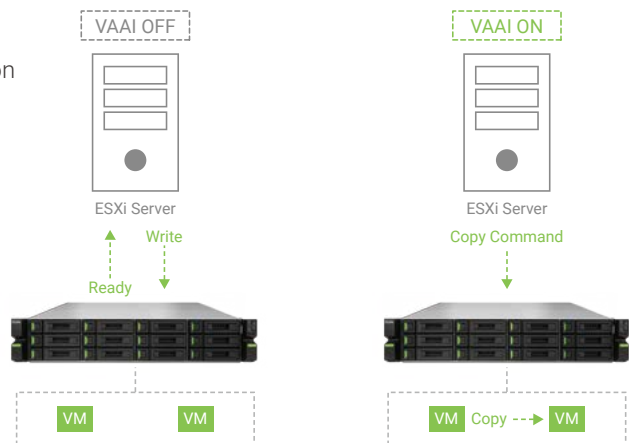
• VMware 6.5 Certified
• Site Recovery Manager (SRM) certified
• vStorage APIs for Array Integration (VAAI) certified
• Support SPC-3
• Support MPIO, MC/S

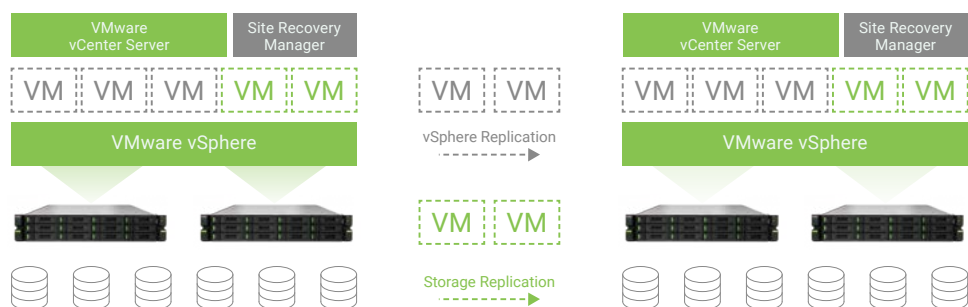### VMware® vSphere Storage Array Integration (VAAI)

The XCubeNAS supports VAAI (iSCSI and NFS) which enables VMware® ESXi servers to offload specific storage operations onto the XCubeNAS. Commands such as data copy are delegated to the XCubeNAS without passing through the host every time, thus greatly reducing CPU, memory and bandwidth expenditure. The conserved resources can be further distributed to virtual machines, dramatically enhancing their performance.

• VAAI Block (iSCSI) supports Full Copy,
  Block Zeroing, Hardware-assisted Locking
  and Thin Provisioning with Space Reclamation
• VAAI NAS (NFS) supports Full File Clone,
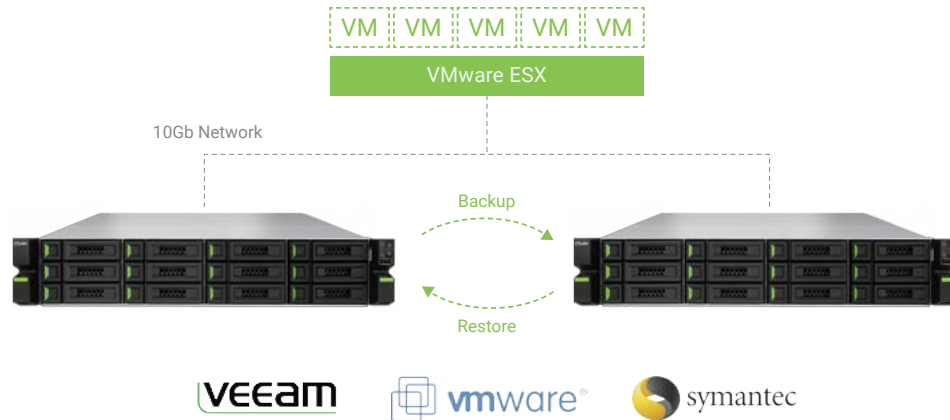 Extended Statistics and Reserve Space

Site Recovery Manager (SRM)

Site Recovery Manager (SRM) is a disaster recovery mechanism designed to guarantee virtual machine configurations can be properly recovered whenever accidents happen. Dedicated data centers and storage arrays are assigned to store states of virtual machines and data. If the original data center fails, critical services on virtual machines can still be recovered to their original condition. The XCubeNAS ensures the recovery progress can be correctly and rapidly executed.
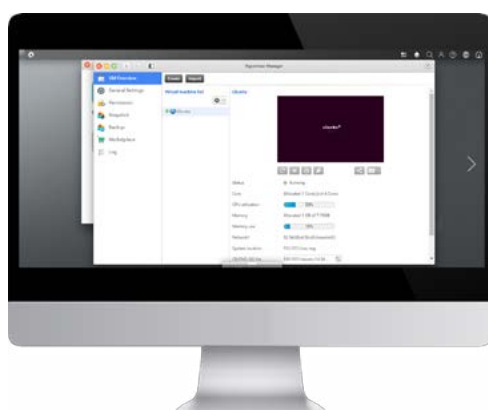
Professional Virtual Machine Backup Software

Professional virtual machine backup software such as symantec, Veeam and official VMware Data Recovery (VDR) can all be used with the XCubeNAS for storing and managing virtual machine images.

Hypervisor Manager

The built-in Hypervisor Manager is an easy-to-use application enabling you to create and manage virtual machines that run directly on the XCubeNAS. Being capable of hosting multiple virtualized environments ensures various customized services and applications being presented at the same time without additional hardware investment. In addition, those virtual machines are isolated reducing the risk of potential data leaks or operation interference. These features make the XCubeNAS an ideal multi-tenant environment for deploying business applications.
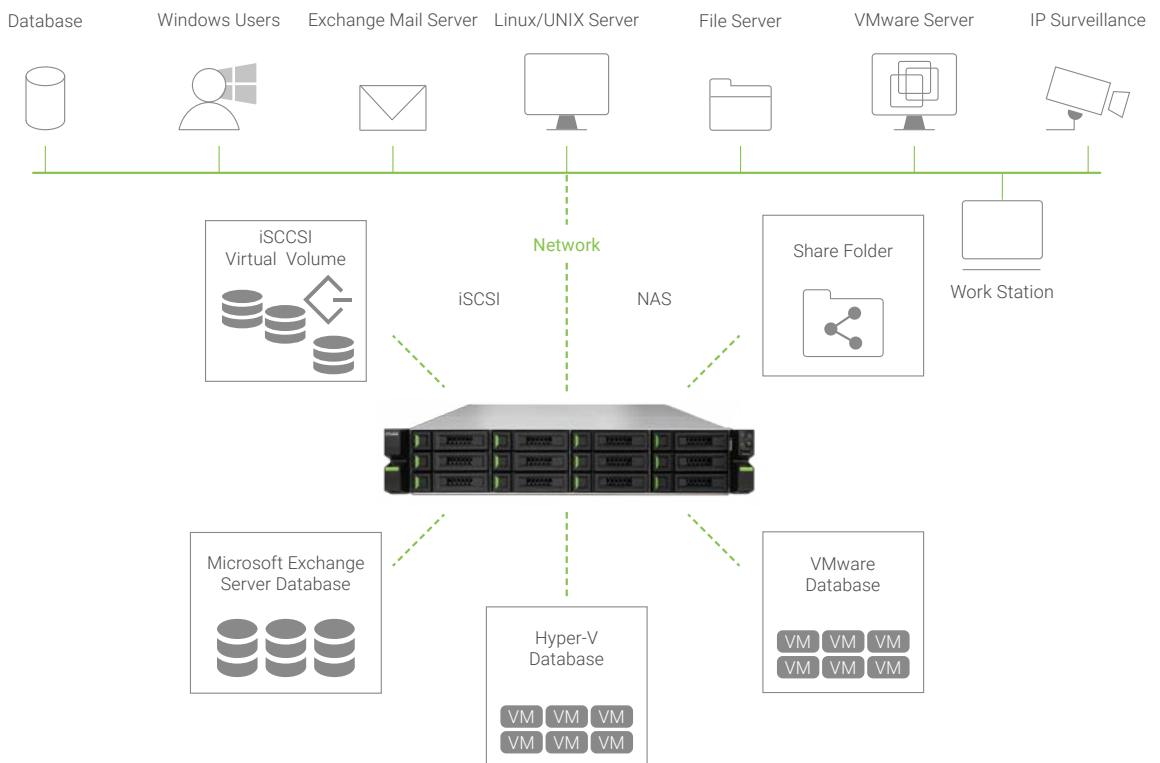
IP SAN / NAS
Unified Storage

The XCubeNAS is a multi-role storage device that can play a major role in many different applications. In the simplest scenario, the XCube can be a file sharing server, a simple storage device for centralized office data sharing. Its high bandwidth network ports ensure that data is quickly read from and written to the NAS. Another scenario in which to use the XCube is as a media editing platform.

The XCube has the performance and the stability for intensive media editing by a single user or by a group of users. A third example for the power of the XCube is as a IP surveillance storage. In the surveillance world, recording every frame is of utmost importance. The XCube has the power and stability to record every frame sent to it without any problems.

As you can see, this is just a sample of the many roles that an XCube can play. The roles that an XCube can take is limited to the users' imagination.

Multi Role Storage

With the support of various tools that can improve the effectiveness on NAS storage, the XCube can play multiple roles for different business purposes. Performing not only as a traditional storage device but also other applications on many aspects.

High Resolution Surveillance Storage

With its high reliability and ultra-fast network ports, you will never lose an image on surveillance. The XCubeNAS can provide a flexible and powerful storage for high resolution images with real time monitoring without problems.
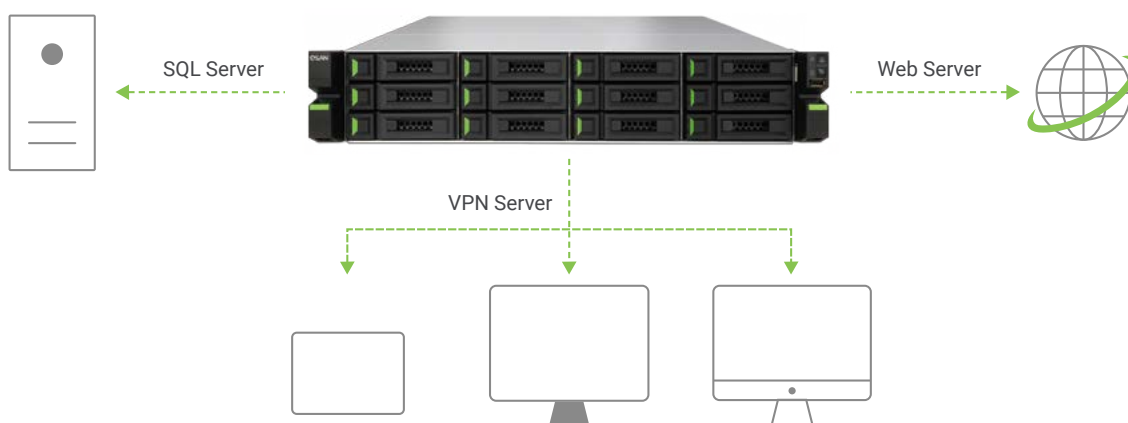
Storage For Server or PC

With its expandable data storage as well as high bandwidth network ports, data can be quickly read and written to the system, the XCubeNAS can be a simple and powerful storage device for any server or PC's application.

Superior Media Editing Performance

When editing media, there may be many near-line or post-production users editing at the same time, this can cause the performance of shared storage to drop dramatically. By Thunderbolt™ 3.0, it will enhance the performance by providing a large bandwidth up to 40Gb/s, never slowed down by hardware or network bottlenecks.

All-in-One Business Solution

Since having a dedicated machine for each specific task rapidly becomes an expensive and inefficient solution, XCubeNAS allows you to enable comprehensive applications and services on your NAS, whenever you need them. Everything from file sharing to data storage, even hosting a website, the XCubeNAS can do it all.

SQL Server

Web Server

VPN Server

SQL Server

Instead of outsourcing your web hosting to another company, the XCubeNAS built-in SQL service allows the user to build their own website, for personal use or for business is easier than you can have imagined.

VPN Server

With VPN service, you can access and share your NAS files with your family and friends via the secured private network. Stay safe when connected to public wifi in hotels or restaurants.
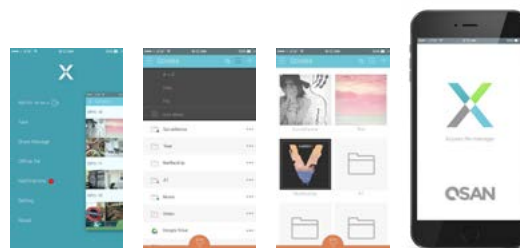
Web Server

QSAN supports the web server service with PHP support, allowing users to enter their NAS or their personal web page. With the virtual host service on we b server, users can host multiple websites on the same XCubeNAS.

Access Your Data Anywhere

XCubeNAS provides free DDNS services so you can pick your own domain name and easily connect from anywhere. This is rather useful when the your broadband has a floating IP address that changes frequently. Furthermore you can use your DDNS domain name to access your XCubeNAS via the Xccess Mobile app for Android and iOS. If your NAS is located behind a NAT router, you can enable UPnP port forwarding to easily access your NAS.

Mobile
On The Go

Liberate your work from the confines of the office. No matter where you are, open Xccess and you can start your work immediately. Files can even be directly uploaded to your XCubeNAS from the public cloud. With Xccess, any changes made to a file is automatically synced between your mobile devices.

Access Your XCubeNAS Via Xccess

You can use your QSAN Cloud hostname to access NAS without any setting. It's very easy to start your work and entertainment anywhere.

Auto Upload

When you enable auto upload, all photos on your phone and each photo you take will be uploaded to your XCubeNAS automatically.

Organize Your Multimedia Content

Xccess will index all the multimedia files such as photos, music and videos in a database then, manage them by categories automatically so that you can search and organize huge amount of multimedia files more quickly without too many efforts.

Play Multimedia On Demand

Xccess features real-time streaming, its easy to connect to the XCubeNAS and play your music, photos and video collection with simple operations. Immediately turning your Xccess app into your media player anytime and anywhere.

Home Entertainment

Xccess supports Airplay and Chromecast. It allows you to easily stream the movies or other videos stored on the XCubeNAS to your TV, while using your mobile devices as a remote control to manage playback. Before going out or traveling, you can also pre-download videos and watch them under offline mode.

Industrial Applications

Culture and Education

With the tide of digitalizing cultural assets and the popularity of e-education, organizations such as museums, libraries, schools and academic institutions need safe, reliable and large capacity storage devices for storing those digital properties. In addition, demands of sharing data easily are required so that different units can access common academic repositories conveniently. A centralized storage system is also needed for administrating organizational events and operations.

The XCubeNAS is here to provide:
• Digital collection and digital archive storage device.
• Storage device for building academic repository.
• Centralized administration storage system.
• Virtualization ready for hosting institutional services.
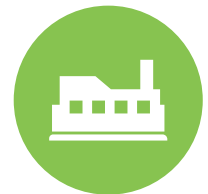• Campus digital surveillance system.

Manufacturing

Data generated in the links of each production flow need to be recorded in case of the need for recoveryin the event that accidents happen, as well as for further analysis to improve defect rate and efficiency. A factory storage system is also needed to better administrate departmental resources.

The XCubeNAS is here to provide:
• Petabyte level storage system.
• Production process recording and backup storage system.
• Centralized department and factory file platform.
• Disaster recovery solutions.
• Host virtualization applications.

IT Industry

In the IT industry, a great amount of data is generated in the process of developing services and products. A high capacity and reliable storage system is vital. QSAN XCubeNAS features large storage capacity, high-speed file transfer across platforms, and advanced RAID data protection. It is also an all-in-one server that supports VPN server, web server, SQL server, print server and more, making the XCubeNAS an ideal and affordable solution which enhances collaboration with colleagues, partners and increases productivity.

The XCubeNAS is here to provide:
• Primary backup storage device.
• Disaster recovery solutions.
• Centralized file storage system.
• Company internal service server.
• Host virtualization applications.

Media Industry

In the media and entertainment industry, film studios and advertising companies have tens to hundreds of Gigabytes of high-definition video and image files that need to be accessed and stored. The XCubeNAS provides high capacity on data storage and is capable of committing high speed data transfer through 10G/40G network or Thunderbolt™ 3 interfaces, the waiting time of file access can be shortened and further increase the work efficiency of users. QSAN cross-platform storage management supports multiple network protocols such as CIFS/SMB, FTP, SFTP, WebDAV that can help data accessing and data sharing easier and more efficient.

The XCubeNAS is here to provide:
• Audio and video post-production editing system.
• 4K ultra high definition video transcoding support.
• High speed on-line editing via Thunderbolt™ 3 or 10G/40G network.
• Multimedia database storage system.

Health Care Professional

Nowadays patients are given with medical advise based on the data doctors have to hand, they can effectively diagnose disease and give treatments based off of this data. Medical histories and clinical cases need to be built as databases to help doctors clarify illness quickly. The medical treatment process of patients should be controlled and recorded on an transparent platform across agencies. And an administration storage system is needed to better manage across different hospital units.

The XCubeNAS is here to provide:
• Diagnosis and treatment record storage system.
• Clinical database system.
• Internal hospital shared platform.
• Centralized administration storage system.
• Hospital surveillance system.

Finance & Insurance

Every day, billions of financial transactions are made which should be well preserved in case of an unforeseen issue. The rise of digital banking services transfers several traditional offline services to online. Each operation needs to be recorded to avoid monetary loss. For insurance companies, insurance policies and legislative documents, which relate to customer rights and company interests and need to be accessible last for decades, they also must be safely stored without being modified. A secured storage system is needed for protecting those commercial histories and testimonies.

The XCubeNAS is here to provide:
• Financial operation recording system.
• Decades business and legislative document archive storage.
• Disaster recovery solutions.
• Centralized branch storage system.
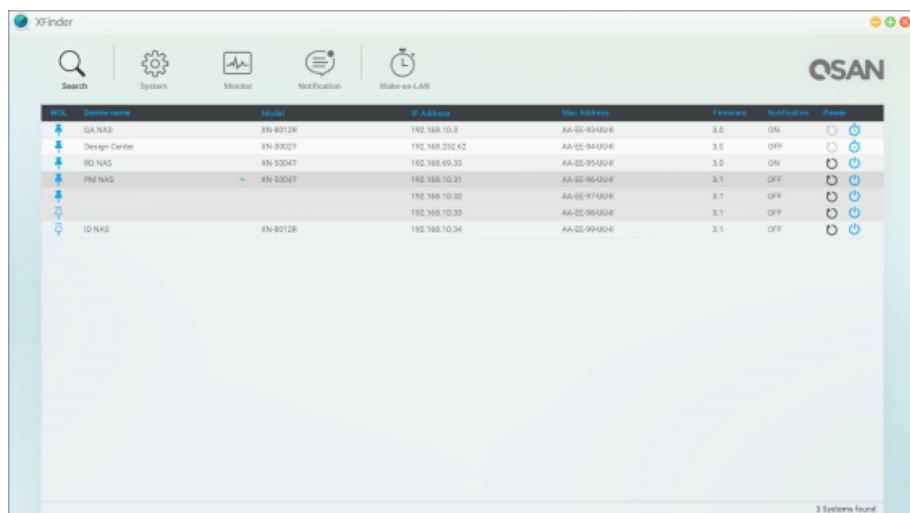• Host virtualization applications.

Utility

Find
NAS Tools

Local Access – XFinder

XFinder is a desktop utility that searches for QSAN XCubeNAS devices in the local area network. It helps you to set up and install QSM on your XCubeNAS, connect to network or setup Wake on LAN (WOL), Notification (SNMP) or view monitored resources (Network, CPU, RAM...) of your XCubeNAS.

Internet Access - Web Finder

Web Finder is a browser based utility that searches for QSAN XCubeNAS devices in the local LAN, you don't need install any software, just open the browser then you can find your NAS. It also helps you to set up and install QSM on your XCubeNAS.

Web Finder: http://find.qsan.com/

| Accessory

Category	Model Name	Product Name	P/N	Description	Selected Models
System Cache Memory	DIM-D44GB	RAM - DDR4 4G ECC U-DIMM	92-DIMD404G-00	4GB DDR4 RAM, ECC U-DIMM	XN8000R
	IM-D48GB	RAM - DDR4 8G ECC U-DIMM	92-DIMD408G-00	8GB DDR4 RAM, ECC U-DIMM	XN8000R
	DIM-ND44GB	RAM - DDR4 4G U-DIMM	92-DIMD404G-02	4GB DDR4 RAM, U-DIMM	XN5000R, XN7000R
	DIM-ND48GB	RAM - DDR4 8G U-DIMM	92-DIMD408G-02	8GB DDR4 RAM, U-DIMM	XN5000R, XN7000R
Slide Rail Kit	XN-RKIT01	XCubeNAS Rail Kit	92-SLRKS598-00	Rail kit for XCubeNAS	XN5000R, XN7000R, XN8000R
Host Card	XN-TB302	Thunderbolt 3.0 Adapter Card	92-HCQTB3TC-21	Thunderbolt 3.0 adapter card	XN5000R, XN7000R, XN8000R
	XN-E1002	10GbE Ethernet Adapter Card	92-HCQ10GS2-21	Dual-port SFP+ 10 GbE network adapter card	XN5000R, XN7000R, XN8000R
	XN-E4002	40GbE Ethernet Adapter Card	92-HCQ40GQP-21	Dual-port QSFP 40 GbE network adapter card	XN5000R, XN7000R, XN8000R
	XN-S1202	SAS 12G Adapter Card	92-HCQ12GSF-20	Dual-port storage expansion card, SAS 12Gbps	XN5000R, XN7000R, XN8000R
Cable	CBL-12SH150	SAS Cable	92-CBL12SH1-50	SAS 12G cable (SFF-8644 to SFF-8644), for HBA only, 150 cm	XN5000R, XN7000R, XN8000R
	CBL-TB3	Thunderbolt Cable	92-CBLTPCH0-50	Thunderbolt cable (type C), 50cm	XN5000R, XN7000R, XN8000R
	CBL-10SFP200	10GbE Ethernet Cable	92-CBLCSPH2-00	Passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m	XN5000R, XN7000R, XN8000R
	CBL-40QSFP200	40GbE Ethernet Cable	92-CBLCQPH2-00	Passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2m	XN5000R, XN7000R, XN8000R
	GBC-SFP+10Gb	10GbE SFP+ GBIC	92-GBC10GS2-00	Optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 850nm, SR up to 300m	XN5000R, XN7000R, XN8000R
	GBC-QSFP+40Gb	40GbE QSFP GBIC	92-GBC40GQP-00	Optical module, 40Gb/s, QSFP, MPO, 850nm, up to 30m	XN5000R, XN7000R, XN8000R

| Hardware Specifications

NAS Technology	XN5000R Series			XN7000R Series			XN8000R Series	
	XN5004R	XN5008R	XN5012R	XN7004R	XN7008R	XN7012R	XN8008R	XN8012R
Form Factor	Rackmount 1U 4-bay	Rackmount 2U 8-bay	Rackmount 2U 12-bay	Rackmount 1U 4-bay	Rackmount 2U 8-bay	Rackmount 2U 12-bay	Rackmount 2U 8-bay	Rackmount 2U 12-bay
CPU	Intel® Celeron® 2.9GHz Dual-Core Processor			Intel® Core™ i3 3.9GHz Dual-Core Processor			Intel® Xeon® 3.3GHz Quad-Core Processor	
RAM	8GB DDR4 U-DIMM (Max 64GB)							
USB	USB 3.0: 4 (Rear) USB 2.0: 1 (Front)							
Flash	8GB USB DOM							
HDMI	1							
Tray Type	3.5" HDD x4 2.5" SSD x2 (Front)	3.5" HDD x8 2.5" SSD x4 (Rear) 2.5" PCIe SSD x2 (Rear)	3.5" HDD x12 2.5" SSD x4 (Rear) 2.5" PCIe SSD x2 (Rear)	3.5" HDD x4 2.5" SSD x2 (Front)	3.5" HDD x8 2.5" SSD x4 (Rear) 2.5" PCIe SSD x2 (Rear)	3.5" HDD x12 2.5" SSD x4 (Rear) 2.5" PCIe SSD x2 (Rear)	3.5" HDD x8 2.5" SSD x4 (Rear) 2.5" PCIe SSD x2 (Rear)	3.5" HDD x12 2.5" SSD x4 (Rear) 2.5" PCIe SSD x2 (Rear)
No. of Internal Hard Disks	4 + 2	8 + 4 + 2	12 + 4 + 2	4 + 2	8 + 4 + 2	12 + 4 + 2	8 + 4 + 2	12 + 4 + 2
Max. Raw Capacity	44TB	90TB	130TB	44TB	90TB	130TB	90TB	130TB
Hard Drive Interface	SATA 6Gb/s (backward compatible with SATA 3Gb/s)	SATA 6Gb/s (backward compatible with SATA 3Gb/s), PCIe NVMe 3.0 x4		SATA 6Gb/s (backward compatible with SATA 3Gb/s)	SATA 6Gb/s (backward compatible with SATA 3Gb/s), PCIe NVMe 3.0 x4		SATA 6Gb/s (backward compatible with SATA 3Gb/s), PCIe NVMe 3.0 x4	
Ethernet Ports	GbE LAN x4							
Expansion Slot	PCIe Gen3x8 for 10GbE/40GbE/ Thunderbolt 3.0/ SAS adapter cards.	PCIe Gen3x8 for 40GbE/SAS adapter cards. PCIe Gen3x4 for 10GbE/ Thunderbolt 3.0 adapter cards.		PCIe Gen3x8 for 10GbE/40GbE/ Thunderbolt 3.0/ SAS adapter cards.	PCIe Gen3x8 for 40GbE/SAS adapter cards. PCIe Gen3x4 for 10GbE/ Thunderbolt 3.0 adapter cards.		PCIe Gen3x8 for 40GbE/SAS adapter cards. PCIe Gen3x4 for 10GbE/ Thunderbolt 3.0 adapter cards.	
PSU	250W 1-1 redundant	250W 1-1 redundant	250W 1-1 redundant	250W 1-1 redundant	250W 1-1 redundant	250W 1-1 redundant	250W 1-1 redundant	250W 1-1 redundant

| Expansion Enclosures

XCubeDAS	XD5324D (Dual) XD5324S (Single)	XD5316D (Dual) XD5316S (Single)	XD5312D (Dual) XD5312S (Single)	XD5326D (Dual) XD5326S (Single)
Form Factor	4U 24-bay, LFF	3U 16-bay, LFF	2U 12-bay, LFF	2U 26-bay, SFF
I/O Controller	Dual-active or Single-upgradable controller			
Host & Expansion Connectivity (per Controller)	5 x 12Gb/s SAS wide ports (SFF-8644)			
Drive Type	Mix & match 3.5" & 2.5" SAS, NL-SAS HDD 2.5" SAS, SATA SSD			2.5" SAS, NL-SAS HDD 2.5" SAS, SATA SSD
HBAs & RAID Cards Support	Broadcom (LSI) 12Gb/s & 6Gb/s SAS HBA Broadcom (LSI) 12Gb/s & 6Gb/s SAS RAID Controller Cards ATTO 12Gb/s & 6Gb/s SAS HBA ATTO 6Gb/s SAS RAID Controller Cards			
Expansion Capabilities	Up to 10 expansion units behind QSAN SAN / NAS storage			
SAN/NAS Models Support	QSAN XCubeSAN XS5200 & XS3200 series QSAN XCubeNAS XN5000, XN7000, & XN8000 series			
Dimension (H x W x D)	19" Rackmount 170.3 x 438 x 515 mm	19" Rackmount 130.4 x 438 x 515 mm	19" Rackmount 88 x 438 x 515 mm	19" Rackmount 88 x 438 x 491 mm
Power Supply	80 PLUS Platinum, two redundant 770W (1+1) AC Input 100 - 127V 10A, 50-60Hz DC Output +12V 63.4A 200 - 240V 5A, 50-60Hz +5VSB 2.0A			
Fan Module	2 x hot pluggable / redundant fan modules			
Warranty	System : 3 years			
Regulatory	CE, FCC, BSMI, VCCI, KCC			
Temperature	Operating temperature : 0 to 40°C Shipping temperature : -10°C to 50°C			
Relative Humidity	Operating relative humidity : 20% to 80% non-condensing Non-operating relative humidity : 10% to 90%			

| Software Specifications

Unified Storage Server

• NAS application server
  (Gigabit/10GbE/40GbE NIC)
• iSCSI storage (Gigabit/10GbE/40GbE NIC)
• Direct attached storage with Thunderbolt 3.0
  (40GbE/s)

File Server

• File sharing across Windows/ Mac/ Linux/
  UNIX and centralized management

FTP Server

• Supports data access from remote location
  via FTP
• FTP with SSL/ TLS (explicit) mode
• FXP supported
• FTP bandwidth control and connection
  control
• Passive FTP port range control

Backup Server

• 3rd party backup software support: Acronis
  True Image, CA Brightstor ARCserve Backup,
  EMC Retrospect, Symantec Backup Exec,
  LaCie Silverkeeper
• Snapshot replica
• Time machine backup server
• External storage device backup
• Block-level real time remote replication
  supports instant, schedule backup
  management
• XMirror (Multi-side data synchronization)
• Cloud backup: Amazon S3
• Cloud synchronization: Google Drive,
  Windows OneDrive, Dropbox

Web Server

• Built-in phpMyAdmin

SQL Server

• MariaDB database server

VPN Server

• Supports OpenVPN, PPTP and IPsec+L2TP

Virtualization Server

• Virtual machine import/export
• Virtual machine backup
• Virtual machine Snapshot
• User-based permissions settings
• Support virtual switch
• Supports access from IE, Safari, Firefox,
  Chrome
• Windows, Linux, UNIX and Android

Operating System

• Linux-embedded system

NAS Discovery

• Utility
• Cloud web page

Connection

• IPv4, IPv6 and DDNS domain name
  registration (QSAN Cloud)
• Auto port forwarding

Networking

• VLAN
• Link aggregation (support 7 bonding modes)
• Multi-IP settings
• Gigabit Jumbo Frame

File System

• ZFS file system
• EXT2 (Virtual Volume)
• EXT3 (Virtual Volume)
• EXT4 (Virtual Volume)
• FAT (Virtual Volume)
• NTFS (Virtual Volume)

Supported Operating Systems

• Windows
• Mac OS X
• Linux (2.6 or later) and UNIX

Disk Management

• Single disk, RAID 0 (Disk Striping), RAID 1
  (Disk Mirroring), RAID 5, RAID 5 + hot spare,
  RAID 6, RAID 10, RAID 50, RAID 60 and JBOD
  (Linear Disk Volume)
• Multiple volume and storage pool
• Pool type : Generic, Media streaming,
  Database
• Online pool/ volume Capacity Expansion
• Pool/ volume usage threshold notification
• Self-encrypting drives (SED) pool level
  protection
• Pool write cache
• Scrub pool
• Convert cloned volume
• Virtual volume
  (mount disk from remote iSCSI target)
• Set free and replace disk
• HDD S.M.A.R.T.
• Built-in iSCSI target and initiator service
• External device management
• Global and dedicate hot spare disk
• Zero time RAID creation and quick rebuilding
• Auto Tiering
• SSD read / write cache
• Deduplication (volume and LUN)
• Snapshot (folder and LUN)
• Compression (volume and LUN)
• Thin Provision for LUN

User Management

• Local / domain user and group management
• Local / domain application privilege
• User quota for local and domain user
• Home folder
• Windows AD and LDAP
• Trust domain and support up to 200,000
  domain users

Folder Management

• Advanced ACL
• Windows ACL
• Hide shared folder on Windows network
• Unicode support
• WORM (Write Once Read Many protection)
• Folder usage threshold notification
• Folder quota

System Tools

• NTP time settings
• Notification: Email alert (SMTP
  authentication), syslog, and SNMP
• System firmware update
• Back up, restore, reset system settings
• Import system configuration
• Antivirus
• Smart fan
• IP access control
• Policy-based unauthorized IP blocking
• Secure remote login by SSH connection
• Connection list management
• USB, SNMP UPS support
• Network recycle bin
• Import SSL certificate
• Real-time Resource (CPU, Memory, Storage,
  Pool, Process) / Hardware/ Service/ Network
  resource monitor

Power Management

• HDD hibernation
• Power schedule
• Wake on LAN
• UPS settings
• Recover from power outage

System Optimization Settings

• Service binding
• User application mode
• SSD Trim

Log

• System log
• System connection and data transfer log

Multilingual Support

• Chinese (Traditional & Simplified), English,
  French, German, Italian, Japanese, Korean,
  Russian, Polish

File Manager

• File preview
• Embedded file player
• Filter
• Mount Cloud (Google Drive, OneDrive,
  Dropbox)
• ISO image mount
• CIFS, FTP, SFTP and WebDAV client
• Share link
• Team folder sharing
• Publish to facebook, twitter, weibo
• Media library
• Media streaming
• Online doc preview and editing
• Transcoding (online/offline), compression

Service

• Data service: CIFS, AFP, NFS, FTP, WebDAV
• Backup service: Rsync
• Discover service: Bonjour

Virtualization

• Windows: Hyper-V, storage space
• VMware: VMware 6.0 ready, VAAI, SRM
• Citrix: Citrix 7.0 ready

Multi Browser Support

• Internet Explorer
• Safari
• Firefox
• Google Chrome

Utility

• XFinder
• XReplicator (Windows backup utility)

Mobile App

• Xccess (iOS, iPad and Android)