

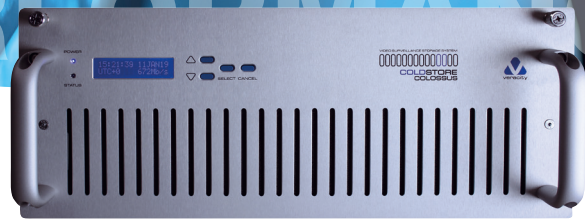
OPEN SURVEILLANCE STORAGE SYSTEM  
**COLDSTORE OPUS®**  
**4U**



COLDSTORE Opus 4U is used in very large systems with high camera counts

## An open VMS storage system with petabyte capacity and very low TCO

COLDSTORE's mirrored recording and sequential writing pattern across the array offers extreme hard disk reliability and very low power consumption.



- | Network attached sequential storage system designed for video
- | Incorporates LAID™ for low power and high disk reliability
- | Massive 1080TB maximum capacity using 24TB drives
- | Immediate compatibility with future larger disks
- | Only 80 watts power consumption
- | Uses any make/model of standard SATA drive
- | Supports all Video Management System brands
- | Reliable and proven COLDSTORE technology





# The COLDSTORE Opus series works with any Video Management System which supports external storage

COLDSTORE Opus 4U is ideal for projects requiring extremely high storage capacity, extended disk lifetimes, long file-retention and very low power consumption.

## Reliability Assured

Our Linear Array of Idle Disks (LAID™) technology produces a powerfully simple and reliable system which provides generous video storage capacity at low cost. Whilst simple in concept, it has far-reaching beneficial effects and delivers a highly reliable storage system which dramatically extends disk lifetime, even when using the lowest-cost disks available.

## Low Power, Low Cost

COLDSTORE Opus 4U is designed for larger installations, with longer retention times, providing extreme capacity in a 4U format, with a power consumption as low as 0.1W per TB. It's aimed at projects with typical camera counts of up to 100 channels with high bit-rates. Dual Gigabit Ethernet ports handle all video traffic from the chosen VMS or NVR system.

## Extended Disk Lifetimes

Disks are used sequentially, with all of the disks not in use being switched off, saving power and thus greatly reducing temperature, vibration and wear – the three primary disk killers.

The system uses a unique mirrored overlapping-pair writing pattern to provide full data redundancy during the critical writing process. This delivers the redundancy of RAID1 on write, but unlike RAID1, does not require double the number of disks.

Within the array, the use of sequential overlapping mirrored writing pairs requires only two active disks at any one time with the others switched off. This greatly reduces wear and further reduces array vibration and operating temperature. Thus every disk is off, on average, for 95% of the time in the

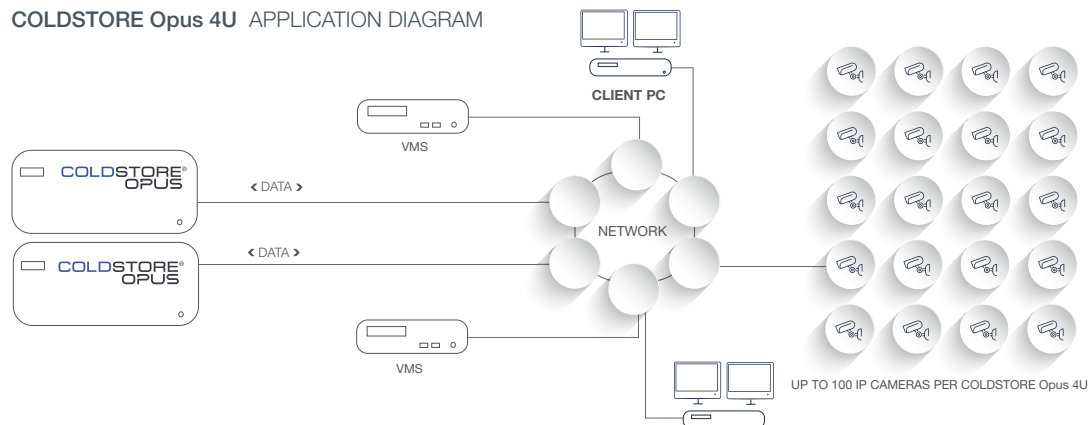
45-Bay system. Disks automatically switch on for playback, but typically playback from non-writing disks is infrequent and hardly affects the average duty cycle. Hard disk lifetimes of 10 years are achievable.

## Purpose-Designed System

COLDSTORE Opus 4U is built around an industry standard main-board system with a power-efficient CPU and custom disk backplanes.

Even a fully populated 1080TB array will only use around 80 watts. This low power consumption extends the electronic component lifetime, which, combined with extended disk lifetimes, reduced cooling costs and lower UPS purchase cost, results in a very low overall total cost of ownership.

COLDSTORE Opus 4U APPLICATION DIAGRAM



The VMS server writes to COLDSTORE Opus across the network. Multiple servers can write to a single COLDSTORE Opus,

or one server can write to multiple COLDSTOREs depending on VMS type. In principle, individual video streams can be

routed to any COLDSTORE on the network under the control of specific types of third-party video management systems.



Low power and high capacity make COLDSTORE Opus 4U an ideal system for long retention of 90 to 180 days or more

Removable drives containing specific time spans enables rapid extraction of critical evidential data for law enforcement purposes.

### Configuration + Management

COLDSTORE Opus 4U is simple to configure, manage and monitor through Veracity's configuration tool, SITESCAPE or via a web browser. These allow automatic device discovery, configuration of settings, analysis of disks and a basic level of diagnostics.

### Simple Disk Management

COLDSTORE Opus 4U can use almost any make, model and capacity of 3.5" SATA disk drives including any mix of drives. Disks may be added "on the fly" and will automatically be incorporated into the array.

The physical location of specific time spans can be identified through SITESCAPE and disks may be extracted for archive or bulk evidential transport if the VMS supports the feature.

Despite being only 4U high, this COLDSTORE Opus can provide up to 1080TB of disk capacity (1056TB effective) at very low power consumption. For example, 1056TB is sufficient for 100 cameras at 5Mbps per camera for over 180 days.

Veracity's configuration tool SITESCAPE, combined with the COLDSTORE Opus storage system is user friendly and the hard disks are easy to manage by system integrators and end-users alike.

### Open Storage System

COLDSTORE Opus is a new system design which supports all brands of Video Management System, allowing customers to use their favoured or existing VMS while taking advantage of all the COLDSTORE benefits for video storage.

### Other COLDSTORE Models

Veracity provides COLDSTOREs in 2U, 3U and 4U formats with a wide range of disk capacities and capabilities.

The 2U models have 8 bays with up to 192TB and the 3U models can have up to 384TB of disk capacity.

Veracity also offers embedded NVR options for all types of COLDSTORE, combining the NVR recording process with the video storage system in a single unit, scalable to handle large numbers of cameras.

Veracity also offers the LINKLOCK range of very highly cyber-secure embedded-recording systems designed for critical national infrastructure applications, including single-camera and mobile devices. See our website for further information.



Top view (above) showing rails and removable lid. This robust unit holds 45 disks.



## TECHNICAL SPECIFICATION

COLDSTORE OPUS<sup>®</sup>  
4U**GENERAL**

Storage Array Type	Networked attached sequential array running LAID™ writing pattern
Drive Bays	45 x 3.5" (lockable drive bays included)
Interface	Dual Gigabit Ethernet
Data Throughput	Third-party VMS dependent (unlimited scalability with multiple COLDSTOREs)

**SYSTEM**

O.S.	Linux OS on mirrored solid state disks
Time Synchronisation	Via NTP (recommended)
System Integration	Direct from third-party client application
Configuration	Over LAN via Veracity's SITESCAPE application or web browser
Management	Over LAN via Veracity's SITESCAPE application or web browser
Compatibility	Compatible with all third-party VMS systems supporting external storage

**CAPACITY**

Disk Capacity	SATA disks of any capacity and almost all makes and models are supported COLDSTORE supports 24TB disks and has forward compatibility for future larger disks. (Check <a href="http://www.veracityglobal.com">www.veracityglobal.com</a> for up-to-date disk capacities)
Array Capacity	Maximum array capacity is currently -1080TB (with current max available 24TB disks) Effective capacity in normal operation - Mirrored Overlapping-Pair - 1056TB

**POWER**

Power Supply Type	Dual redundant hot-swappable PSU
Power Supply Rating	110-240V AC Input (Auto sensing)
Power Consumption	80 watts typical maximum (PSU rated at dual 320W)

**PHYSICAL/ENVIRONMENTAL**

Dimensions	19" rack width, 4U high, 800mm deep (W 440mm x D 800mm x H 175mm)
Weight	30kg (66lbs) excluding disks
Operating Temperature	5°C to 50°C (41°F to 122°F)
Relative Humidity	Up to 85%, non-condensing
Compliance	CE, FCC, UKCA, RoHS, BIS.

**PRODUCT CODES**

CSTORE45-4U-OP-UK	COLDSTORE Opus 4U, storage array with mounting rails and UK power cables
CSTORE45-4U-OP-EU	COLDSTORE Opus 4U, storage array with mounting rails and EU power cables
CSTORE45-4U-OP-US	COLDSTORE Opus 4U, storage array with mounting rails and US power cables

Disk Size	TB	4	6	8	10	12	14	16	18	20	22	24
Raw Capacity	TB	180	270	360	450	540	630	720	810	900	990	1080
Effective Capacity	TB	176	264	352	440	528	616	704	792	880	968	1056



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