

SONY

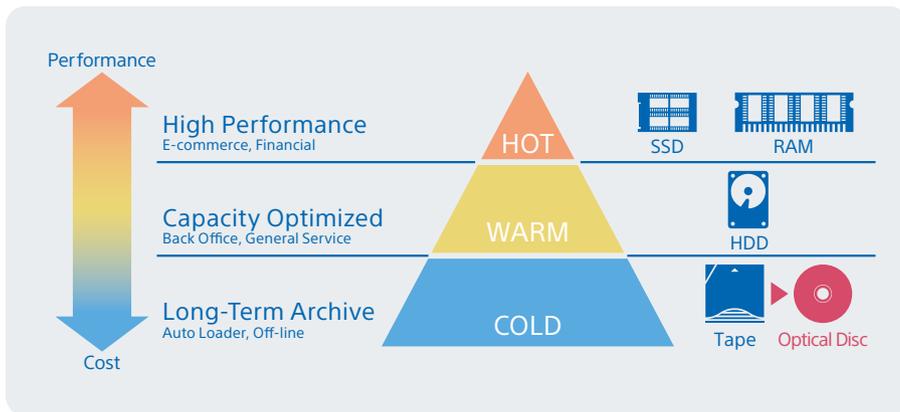
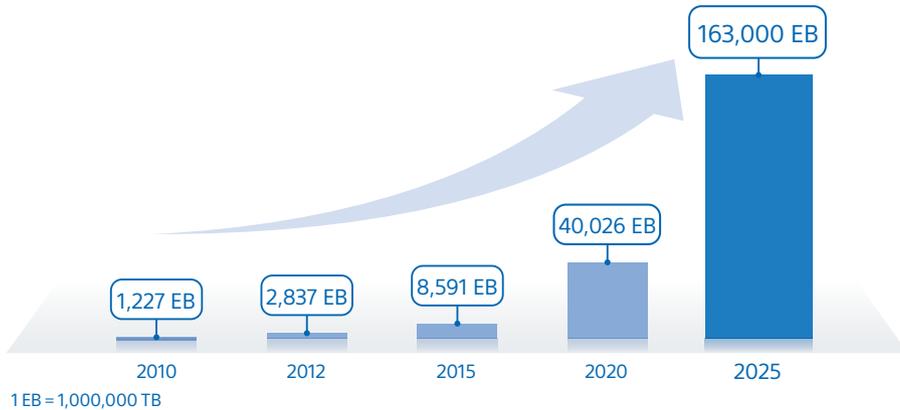


Optical Disc Archive

The new standard for data archiving

1 | Explosively increasing digital data

Ever-increasing volumes of digital data are mounting up every day due to rapidly growing internet technology, widespread use of SNS, data transmission between network-connected devices, and other trends. Within the video production industry, data-heavy video content (for example, 4K, 8K, and 4K/8K high-frame-rate video) is becoming a major source of video broadcasting. Many companies and research institutes are creating high volumes of data (big data) for use in AI systems. Somehow, these newly created assets need to be managed effectively, stored safely, and utilized along with the old assets.

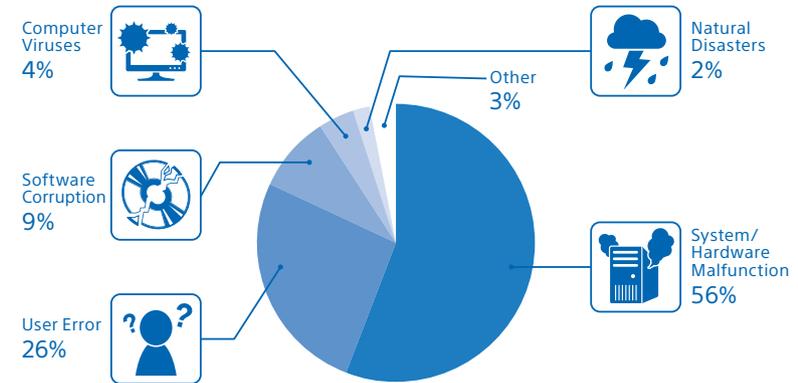


Source: International Data Corporation (IDC)

2 | Why data management is important

Today, files can be lost from computers in any number of ways—you might accidentally delete a file, a virus might wipe one out, or there could be a complete hard drive failure. When a hard drive dies an untimely death, it can feel like a house has burnt down. Important personal items are usually gone forever—photos, significant documents, downloaded music, and more.

There are many options for backing up content without any sophisticated equipment—you can use DVDs, external hard drives, optical discs, or even online storage. It's a good idea to back up data to multiple places.



Source: Ontrack Data Recovery
www.ontrack.co.uk/understandingdataloss



Optical Disc Archive

Sony's Optical Disc Archive storage system offers the solution, with a low total cost of ownership through the use of long-life media, and it includes inter-generational compatibility based on the same optical disc technology used in DVDs and Blu-ray discs.

Optical Disc Archive

An entirely new optical disc-based storage system is the Optical Disc Archive. The system involves the use of multiple bare discs contained within a very robust cartridge and a dedicated disc drive unit with an associated software driver able to manipulate discs individually—providing a seamless read/write capability.

Advantages

Long Life

- Using new generation high-capacity optical disc “Archival Disc”
- Lifespan exceeds 100 years; ISO, based on internal acceleration testing*

*Generation 2, 3

Robust (Media)

- Durable and resilient in a wide range of environmental conditions
- Water disaster resistant
- Readable more than one million times

High Speed

- Average read rate of 375MB/s*1
- World’s first 8-channel optical drive unit*2
- “On-the-fly” verification for error-free recording

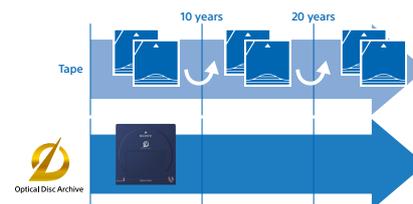
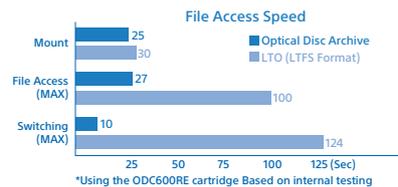
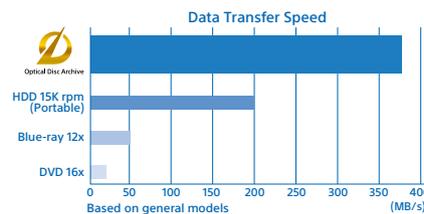
*1 Generation 3 *2 Generation 2, 3

Accessibility

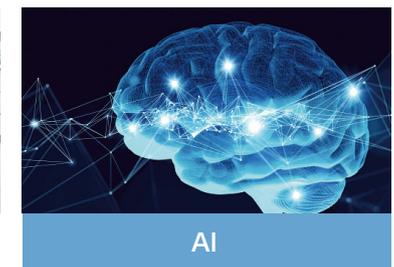
- UDF format for random access
- Non-contact read/write technology
- Minimized number of switching recording media

Low TCO

- Extremely low TCO (Total Cost of Ownership)
- Only 700W needed to manage 2.9PB data
- Generation compatibility minimizes migration cost



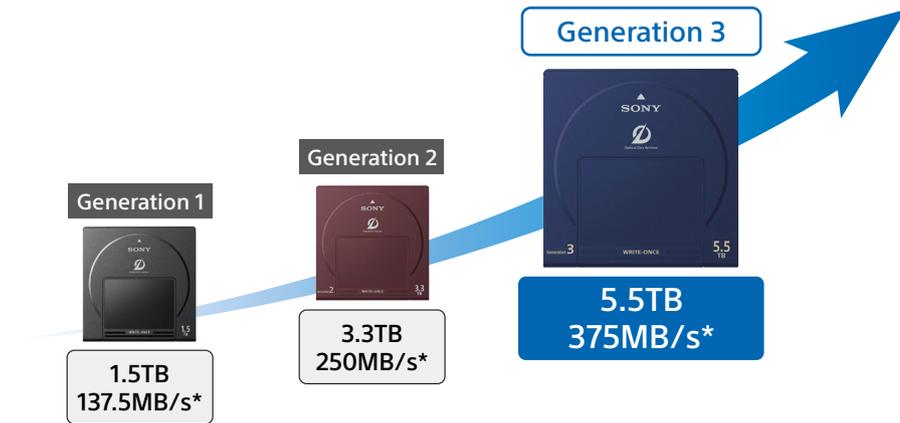
Usage



- Storage of CAD Data
- Security Video Storage
- Storage of Official Documents
- Big Data Storage
- Storage of Uncompressed Image Data
- Storage of Art and Cultural Assets

Optical Disc Archive Cartridge

Higher Capacity, Higher Transfer Rate



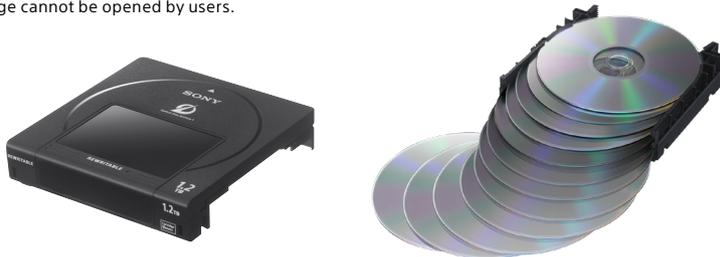
A variety of high-capacity media cartridges are available for the Optical Disc Archive System, up to 5.5TB, write-once and rewritable. You can select the media capacity that best fits your workflow.

* Read Speed

Mass Storage Media with Proven Optical Disc Technology

The cartridge contains multiple discs that appear to the user as one volume of mass storage. The file format is UDF (Universal Disk Format). Each cartridge allows random access to files and high-speed data retrieval.

* The cartridge cannot be opened by users.



High Reliability & Durability, Optimized for Long-Term Archiving

The non-contact read/write technology of optical disc enables high reliability. Optical disc technology is extremely robust with a media archival life estimated at 100 years, substantially longer than other storage media in the market. The cartridge is designed to be highly durable and resilient in a wide range of environmental conditions. This enables you to store the media in the typical office environment and does not require special climate controlled conditions.

* Estimated average archival life as an archival bare disc, based on ISO16963 internal acceleration testing (ODC5500R, ODC3300R).

More Convenient, Efficient Asset Management

The media has a built-in "Cartridge Memory". This provides seamless integration between the cartridge and drive by storing basic content recording information. With the future release of application software, the cartridge memory feature will allow users to identify the contents of the media with mobile devices for efficient asset management, such as cartridge tracking and digital asset inventory control.



	Optical Disc Archive 3	Optical Disc Archive 2	Optical Disc Archive 1 *1
Model Name	ODC5500R	ODC3300R	ODC1500R
Media type	Write Once	Write Once	Write Once
Capacity *2	5.5TB	3.3TB	1.5TB
Recording Time *3 MPEG HD422 50Mbps	150 Hours	100 Hours	48 Hours
Read Cycles *4	More than 1,000,000 times		
Operation Temperature	5°C to 55°C (41°F to 131°F)		
Storage Temperature/ Humidity	-10°C to +55°C (14°F to 131°F) / 3% to 90% RH (Short-term transportation condition) 10°C to 30°C (50°F to 86°F) / 30% to 70% RH (Long-term recommended)		
Estimated Archival Life *5	100 years		50 years

*1: Optical Disc Archive Generation 1 can use some rewritable media. If you are interested in rewritable media, please contact us.

*2: Recording capacity depends on the usage environment. Actual recordable capacity may be less than indicated on the cartridge.

*3: The recording time is for reference only and based on a fully recorded disc at the specified data rate.

*4: Read cycles = Number of times for reading data in the disc.

*5: Estimated average archival life as an archival bare disc, based on ISO16963 internal acceleration testing.

Optical Disc Archive

ODS-D380U

ODS-D280U

ODS-D77UA



A starter system ideal for the camera owner / operator or a small studio is Sony's single user solution - a choice of stand-alone drives.

These SuperSpeed USB 10 Gbps (USB 3.2) drives plug directly into compatible Macintosh and Windows computers. They provide a desktop solution that is ideal for long-term file protection and management, and are an easy choice because a cartridge loaded with multiple discs functions as a single unified volume.

Main Features

● Fast Transfer Speeds

Provides an average, verified read rate of 375MB/s (3Gbps) and an average write rate of 187.5MB/s (1.5Gbps).

	Optical Disc Archive Generation 3	Optical Disc Archive Generation 2	Optical Disc Archive Generation 1
Product	ODS-D380U ODS-D380F *4	ODS-D280U ODS-D280F *4	ODS-D77UA ODS-D77F *4
Read	375MB/s (3Gbps) *1	250MB/s (2Gbps) *2	137.5MB/s (1.1Gbps) *3
Write (Verify on)	187.5MB/s (1.5Gbps) *1	125MB/s (1Gbps) *2	55MB/s (440Mbps) *3

*Performance varies based on cartridge type. *Performance might be affected by the PC environment.

*1 Using the ODC5500R Cartridge. *2 Using the ODC3300R Cartridge. *3 Using the ODC1500R Cartridge.

*4 The Optical Disc Archive 1 cannot use the ODC5500R or ODC3300R.

The Optical Disc Archive 2 cannot use the ODC5500R.

The ODS-D280U/F can read a data from Optical Disc Archive 1,2 cartridges but can only write data to the ODC3300R.

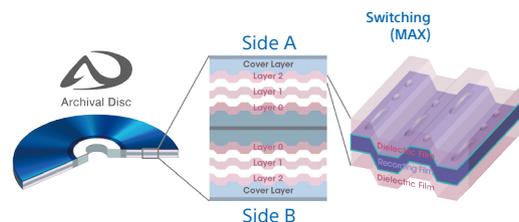
The ODS-D380U/F can read a data from all cartridges and can write a data to the ODC5500R and ODC3300R.

- Long life: write-once (WORM) and rewritable large volume media storage
- Up to 5.5 TB in a single data cartridge Virtually data migration-free system
- Fast random file access to data files
- Easy-to-connect SuperSpeed USB 10 Gbps (USB 3.2) interface (ODS-D380U)
- Open Platform Architecture-Universal Disk Format (UDF)
- Supplied with Content Manager license

Technology (Optical Disc Archive Generation 2, 3)

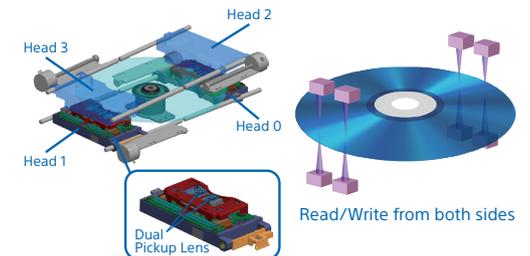
High-Capacity Disc Structure

By implementing six discrete recording layers (three on each side) and recording on both land and groove, the new standard achieves a revolutionary jump in storage capacity, Archival Disc: 500GB or 300G per disc.



8-Channel Optical Drive Unit

Sony's original drive unit holds four laser head assemblies, each containing two heads for a total of eight laser heads. With two assemblies positioned at the top and two at the bottom, the system can read/write both sides of the disc at the same time.



Optical Disc Archive Software (Driver)

This software is available from the Sony Creative software home page.
For the most up-to-date information, please check the latest version of each help page, manual, and release note.

URL: <http://www.sonycreativesoftware.com>

Item	Generation3 ODS-D380U	Generation2 ODS-D280U
CPU	6th Generation Intel Core i5 2.3GHz or Intel Xeon 2.0GHz or more	3rd Generation Intel Core i5 2.5GHz or Intel Xeon 2.27GHz or more
Memory	4GB x (number of drive +1) or more	4GB x (number of drive +1) or more
Free space on Disk *1	64GB + 64GB x (number of drive +1) or more	32GB + 32GB x (number of drive +1) or more
Interface	USB3.2/3.0	USB3.0/2.0
Supporting OS	Microsoft Windows 8.1/10 64-bit Microsoft Windows Server 2012/ 2012 R2 / 2016 / 2019 macOS 10.12.6 / 10.13.6 / 10.14.5 / 10.15.x Red Hat Enterprise Linux 6.9 / 7.2 / 7.3 / 7.4 / 7.5 / 7.6 64bit	

USB3.2 : SuperSpeed USB 10 Gbps, USB3.0 : SuperSpeed USB

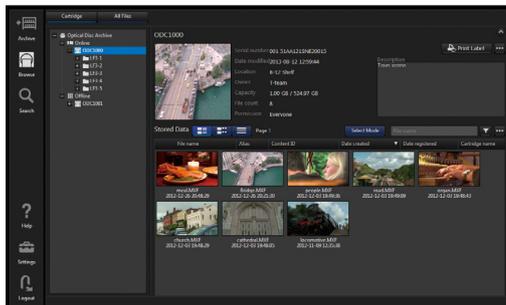
*1 Recommended storage is SSD. Even in optimal conditions, HDD transfer speeds are slow.

Content Manager

A Content Manager software license is supplied with the drive for stand-alone usage.

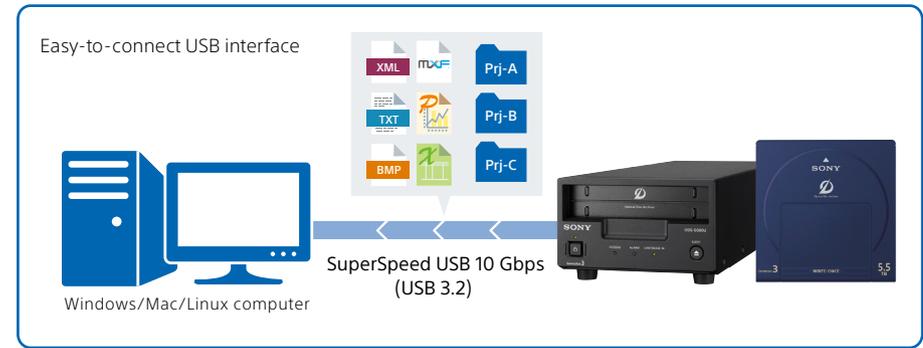
- Simple graphical user interface to manage files easily
- Supports troublesome tasks including creating metadata
- Printing labels to improve efficiency
- Automatically generates proxy and thumbnail generation
- Supports a variety of formats for creating metadata
- MD5 checksum for archive data
- Import/export metadata created in the cartridge unit

Please refer to the information on system requirements on the last page.



User Interface

System Example



Specifications

	Optical Disc Archive Generation3	Optical Disc Archive Generation2
Product	ODS-D380U	ODS-D280U
Power Requirements	19.5V DC (AC adaptor supplied)	
Power Consumption(peak)	105W	80W
Operating Temperature	5°C to 40°C (41°F to 104°F)	
Storage Temperature	-20°C to +60°C (-4°F to +140°F)	
Mass	4.8Kg	
Dimensions(W, H, D) (Excluding protrusion)	146 x 95.5 x 414.4 mm	
Input / Output *2	USB3.2	USB3.0
Supplied Accessories	AC adapter x1 *1 USB3.2 Type C-C cable x1 USB3.2 Type A-C cable x1 Operation guide x1 Operation manual (CD-ROM) x1 Serial number sheet for Content Manager (License key) x1	AC adapter x1 *1 USB3.0 Type A-B cable x1 Operation guide x1 Operation manual (CD-ROM) x1 Serial number sheet for Content Manager (License key) x1

*1 AC power code is not bundled.

*2 USB3.2 : SuperSpeed USB 10 Gbps, USB3.0 : SuperSpeed USB

Optical Disc Archive PetaSite Scalable Library

- ODS-L30M Master Unit
- ODS-L60E Extension Unit (Drive and Cartridge)
- ODS-L100E Extension Unit (Cartridge only)
- ODS-D380F Drive Unit
- ODS-D280F Drive Unit
- ODS-D77F Drive Unit



	ODS-L30M	ODS-L60E	ODS-L100E
Maximum Number of Drives	2	4	0
Maximum Number of Cartridges	30	61	101
Data Capacity ^{*1}	~165TB	~335.5TB	~555.5TB
Host Interface	Fiber Channel 8Gbps		
Maintenance Interface	Gigabit Ethernet		
Power Requirements	100V AC to 240V AC, 50Hz/60Hz		
Power Consumption ^{*2}	179 W	12 W	—
Operating Temperature	5°C to 35°C (41°F to 95°F)		
Operating Humidity	20% to 80% (relative humidity)		
Mass ^{*3}	31 Kg	25 Kg	23 Kg
Dimensions (W x H x D) (excluding protrusions)	445 x 308 x 940 mm (17 5/8 x 12 1/4 x 37 1/8 inches)		

^{*1} Recording capacity depends on the usage environment. Actual recordable capacity may be less than indicated on the cartridge.

^{*2} The wattage values for the OSD-L30M/L60E are measured without the drive unit.

^{*3} Excluding cartridge, rack and more (body mass only).

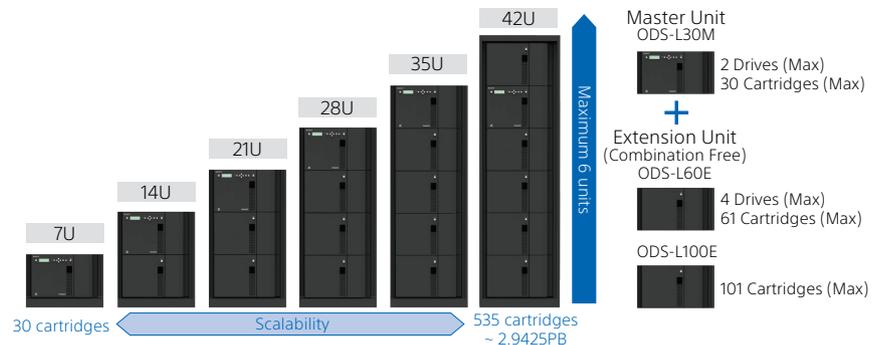
Expandable with up to 5 Extension Units

The ODS-L30M forms the basis of the PetaSite scalable library that is easily scalable with ODS-L60E (Drive and Cartridge) and ODS-L100E (Cartridge only) extension units.

The ODS-L60E extends the PetaSite, scalable library operating alongside the ODS-L30M and ODS-L100E (Cartridge only) expansion units, while the ODS-L100E extends the PetaSite, scalable library operating alongside the ODS-L30M and ODS-L60E (Drive and Cartridge) expansion units.

Up to a maximum of five expansion units can attach to the ODS-L30M to make a single 42U library offering a maximum of 535 cartridges (2.9425 PB), depending on the extension units used.

Flexible System Expansion



System Expansion Image

ODS-L30M Master Unit	ODS-L60E Drive/Cartridge Extension Unit	ODS-L100E Cartridge Extension Unit	Maximum Number of Cartridges	Maximum Capacity (ODC5500R / 5.5TB)
1	0	5	535	2,942.5TB
	1	4	495	2,722.5TB
	2	3	455	2,502.5TB
	3	2	415	2,282.5TB
	4	1	375	2,062.5TB

Mounting Optical Disc Archive Drive Unit : ODS-D380F / ODS-D280F / ODS-D77F
The usable capacity may be less than the maximum capacity.

File Manager2

After File Manager software has been installed on a host computer, all operations can be controlled with a web-based GUI from each client computer.

- Simple graphical user interface (GUI) to manage files easily
- Automated failover of library control path
- Co-existence of automated library operation and offline shelf management
- High performance of end-to-end operation
- Interoperability between library and standalone drive
- MD5 checksum for archive data
- Import/export of metadata created in the cartridges unit
- Partial retrieve
- Modes for user application:
 - Web Service API mode (RESTful API)
 - File Server mode I/F (SMB)
 - Virtual Tape mode I/F (tape drive emulation)

Please refer to the information on system requirements on the last page.

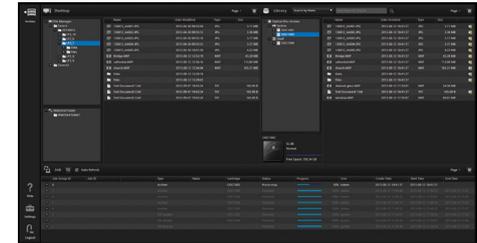
Ideal for Deep Data Archives

Sony's Optical Disc Archive system is ideal for deep data archives such as video archives, where a data tape may not provide sufficient security, for very long-term archiving. It can serve as second-copy (final) archives at remote sites and is ideal for business continuity/disaster recovery solutions.

Supported interface for user application

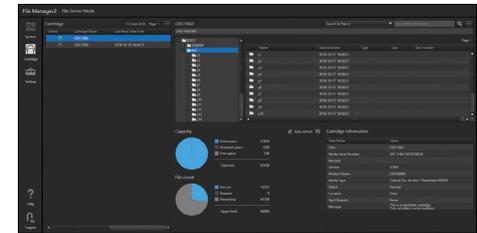
Web Service API mode: ODSZ-FM2

Realize data archiving, retrieving data easily with the simple graphical user interface. Ensure easy development of user applications with the Web Service API for Optical Disc Archive systems.



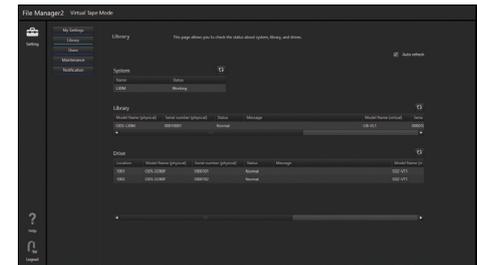
File Server mode: ODSZ-FM2 & ODSZ-FSL1

File Server mode is used for archiving/retrieving data to/from the Optical Disc Archive system through disk caches on the server, as in a NAS system (Windows standard I/F, SMB)*1.



Virtual Tape mode: ODSZ-FM2 & ODSZ-VTL1

Virtual Tape mode emulates tape drive commands on Optical Disc Archive drives. It can be used for any backup/archive application which supports tape libraries*1.



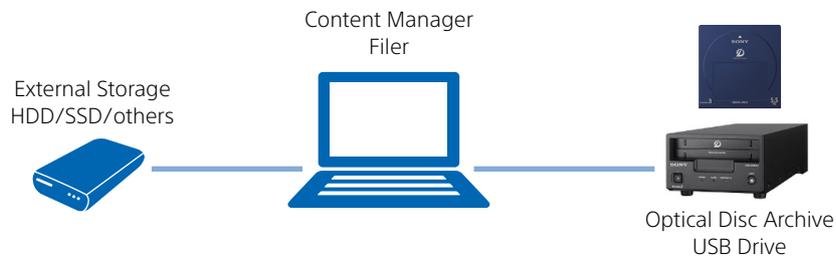
*1 For operability-confirmed application, please refer to the latest version release note of File Manager2.

Use Case

ODA can be utilized in different scales and for various applications across a wide range of industries, based on its longevity and accessibility. For example, from a laptop-based compact archive to a huge data center solution.

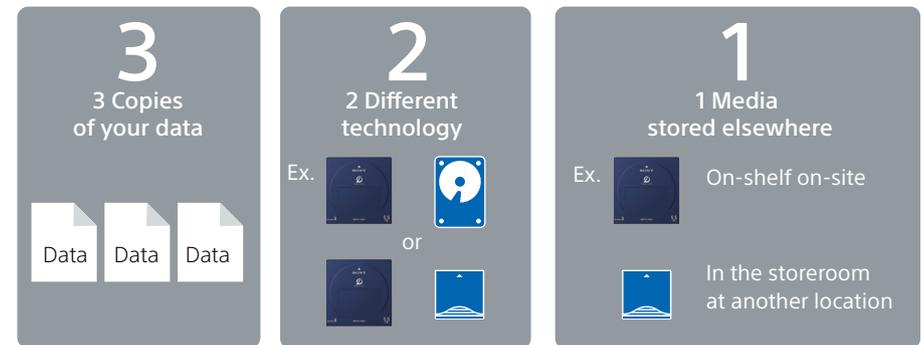
Archive/Backup with a stand-alone drive

Laptop-based compact archive



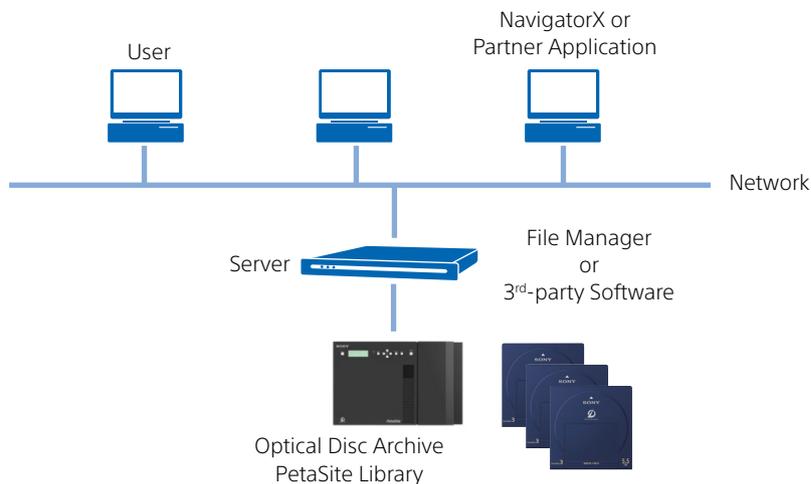
"3-2-1 Best Practice" as an archive industry standard

Follow the "3-2-1 rule" for safe, long-term data storage
ODA is a perfect fit as one of media in this rule.



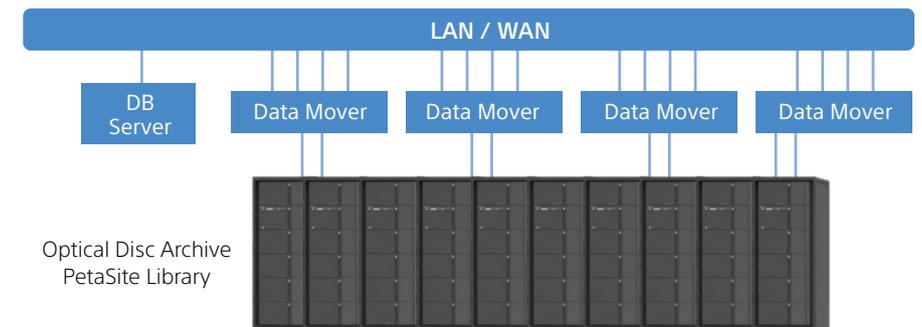
Archive/Backup with a library system

Scalable archive solution with ODA library

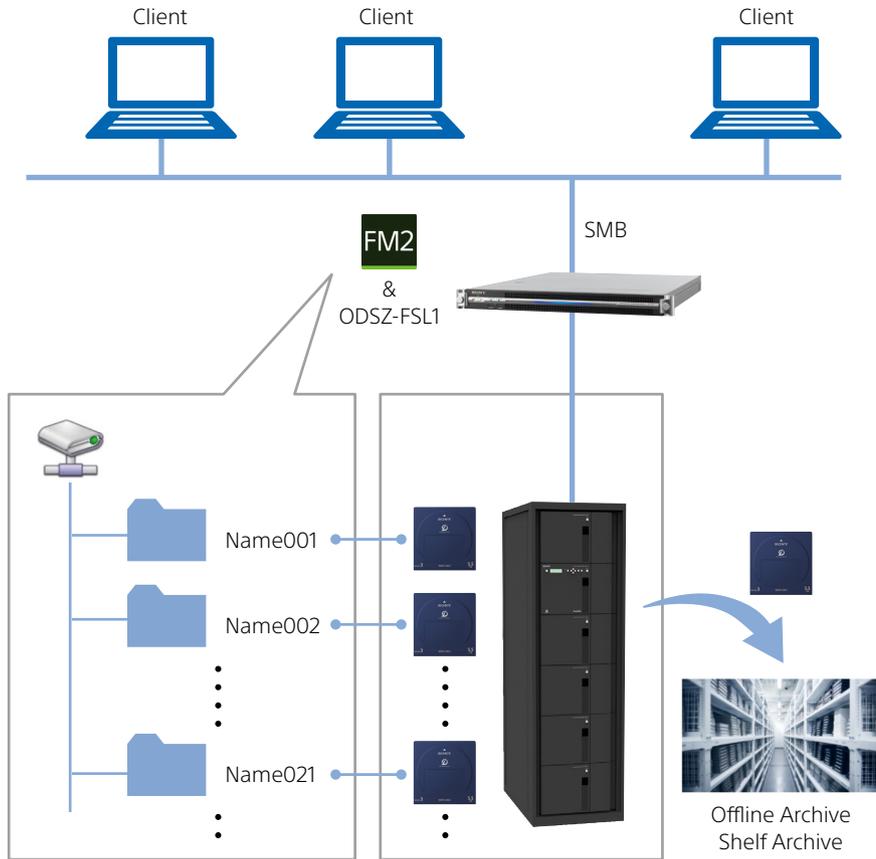


Data center solution

Large data center-type solution with multiple libraries.



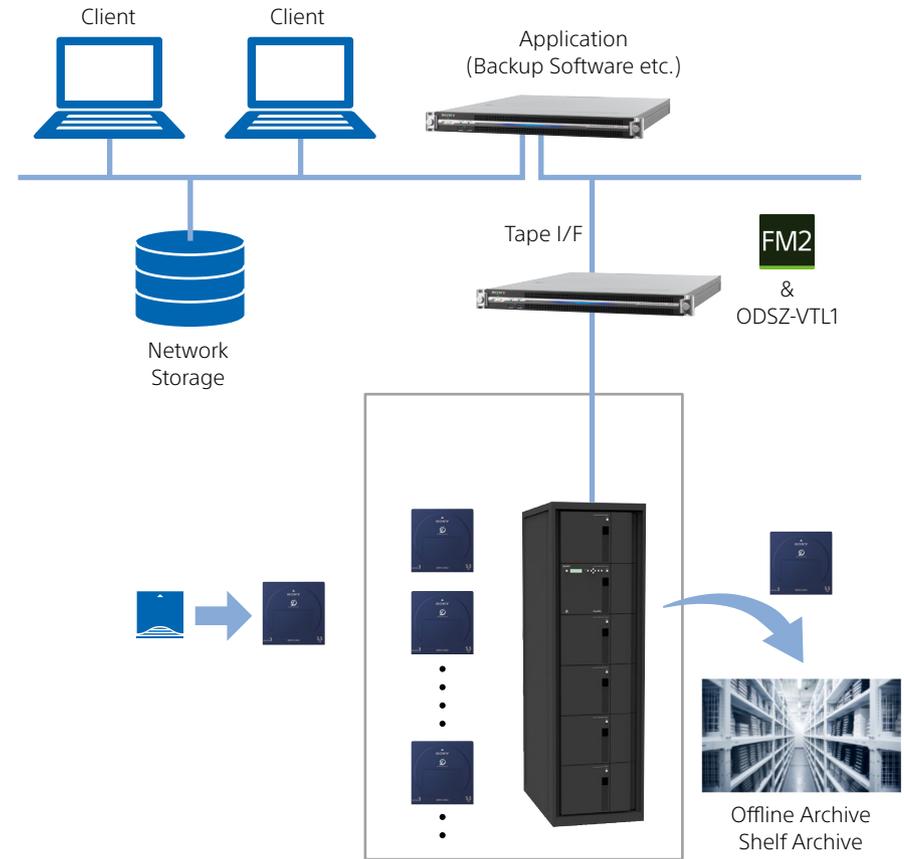
File Server mode I/F



File Server mode is used for archiving/retrieving data to/from the Optical Disc Archive system through disk caches on the server, as in a NAS system (Windows standard I/F, SMB)*¹.

*¹ For operability-confirmed application, please refer to the latest version release note of File Manager2.

Virtual Tape mode I/F



Virtual Tape mode emulates tape drive commands on Optical Disc Archive drives. It can be used for any backup/archive application which supports tape libraries*¹.

- Easily cooperate with backup software*¹
- Replacement of storage (Tape -> Optical Disc Archive)

Optical Disc Archive Supporters

Total number of WW partner who made license agreement is over 130 (as of Sep/2019)



Optical Disc Archive Product

Stand-Alone Drive Unit



Optical Disc Archive 3 Drive Unit
ODS-D380U
Optical Disc Archive 2/1 Drive Unit
ODS-D280U/ODS-D77UA

Archive Software

Content Manager License Key
ODSZ-CTM1
File Manager2 License Key (FM2)
ODSZ-FM2
File Server mode License of FM2
ODSZ-FSL1
Virtual Tape mode License of FM2
ODSZ-VTL1

PetaSite Scalable Library



Master Unit
ODS-L30M



Extension Unit (Drive and Cartridge)
ODS-L60E



Extension Unit (Cartridge Only)
ODS-L100E



Optical Disc Archive 3 Drive Unit
ODS-D380F
Optical Disc Archive 2/1 Drive Unit
ODS-D280F/ODS-D77F



Extension Kit for ODS-L30M
ODBK-103



Power Supply for ODS-L30M / ODS-L60E
ODBK-201



Power Supply Base Unit for ODS-L30M
ODBK-202



Power Supply Base Unit for ODS-L60E
ODBK-203

* To use File Server mode, purchase ODSZ-FS2 & ODSZ-FSL1.
* To use Virtual Tape mode, purchase ODSZ-FS2 & ODSZ-VTL1.
* Software is available in Sony Creative Software homepage.
URL: <http://www.sonycreativesoftware.com>

System Requirement

This software is available from the Sony Creative software home page.
For the most up-to-date information, please check the latest version of each help page, manual, and release note.

URL: <http://www.sonycreativesoftware.com>

Content Manager

	System Requirement
CPU	Intel Core i5 3GHz or higher
Memory	8GB or more
Storage available capacity	<ul style="list-style-type: none"> 500 MB or more storage free space is required for installation. About 300 GB of storage free space is required to archive 1,000 hours of data (there required free space depends on the number and format of files to manage). When extracting metadata from files on a cartridge, a hard disk drive with free space greater than the total size of the files from which metadata is being extracted
OS	Windows Microsoft Windows 8.1 Pro or later, 64-bit version Microsoft Windows 10, 64-bit version Mac OS macOS 10.12/10.13/10.14/10.15
Web browser	Windows Internet Explorer 11, Microsoft Edge, or Google Chrome Mac OS Safari 10/11/12 or Google Chrome
Other	Driver : Please download "Optical Disc Archive Software" from the following site and use the latest version. Also, update the drive firmware to the latest version. URL: http://www.sonycreativesoftware.com

File Manager2

Control PC	File Manage mode	File Server mode	Virtual Tape mode
CPU	Intel Core i5 3GHz or higher	Intel Core i5 3GHz or higher	Intel Core i5 3GHz or higher
Memory	8GB or more	File Manager mode + 8GB	File Manager mode + 4GB
HDD available capacity	200 GB + 4TB/drives *1	File Manager mode + 200GB	File Manager mode
OS	ODS-L10/ODS-D280U/77UA : Windows 10 64-bit ODS-L30M : Windows Server 2012/2012 R2/2016/201	Windows Server 2012 Windows Server 2012 R2 Windows Server 2016 Windows Server 2019	Windows Server 2012 R2 Windows Server 2016 Windows Server 2019
Interface	ODS-L10 connection : Ethernet x 2 ports (for PC client connection and ODS-L10 connection) USB 3.0 ports (one for each drive) *Virtual Tape mode does not support ODS-L10. ODS-L30M connection : Ethernet x 1 port (for PC client connection and ODS-L30M connection) Fibre Channel HBA (Host Bus Adapter) USB type Drive unit direct connection : Ethernet x 1 port (for PC client connection) USB 3.0 ports (one for each drive)		

*1 Additional capacity of 4 TB/drive is required if archiving files from the local Storage or retrieving files to the local Storage.

Client PC	
Hardware	Hardware supporting the following OS and web browser without problem.
OS	Windows 8.1, Windows 10 macOS 10.12/10.13/10.14/10.15
Web browser	Microsoft Internet Explorer 11, Microsoft Edge, Google Chrome, Safari 10/11/12

Net work Precautions

This application could be accessed by any unintended third party on the network, depending on a usage environment.

Please connect to a secure network.

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