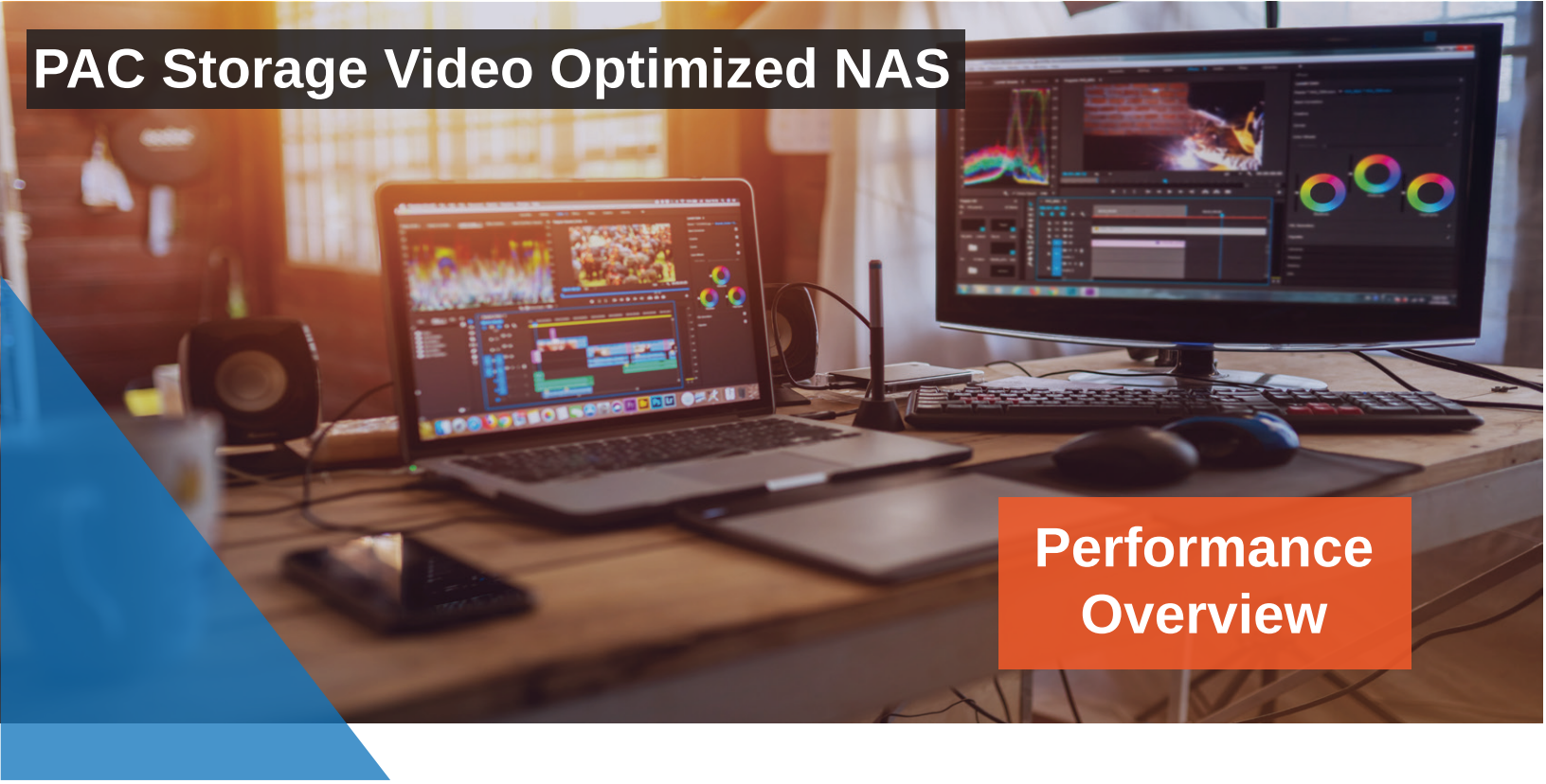
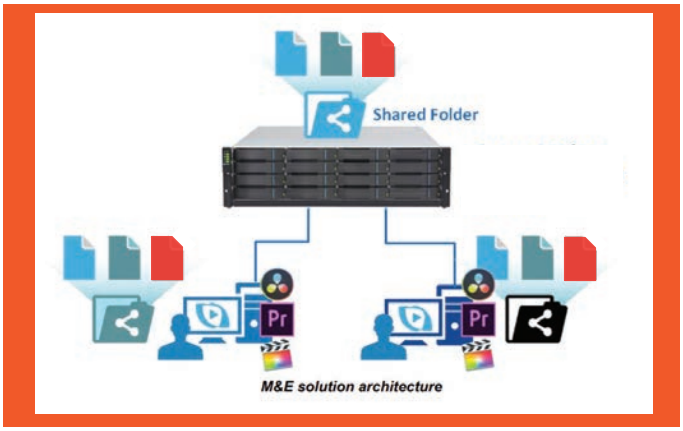
PAC Storage Video Optimized NAS



Performance Overview

Purpose-built for video

PAC Storage Video Optimized NAS (PSV) brings an easy cost-effective video storage solution built to process ultra-high-resolution media footages (4K and above) with industry-leading media editing software—DaVinci Resolve, Adobe Premiere, and Final Cut Pro. The PSV is ideal for collaborative needs of small workgroups and post-production studios that have 10 or fewer workstation computers. With stable and high performance, the PSV models can prevent any frame drop during the post-production or playback.



M&E solution architecture

Hardware

The PAC Scale Out NAS can be configured with 3U-16 Bay and 4U-24 Bay, 4U-60 Bay.

The PSVs come with impressive storage capacity: these models can support up to 896 hard drives, providing raw capacity up to 14PB. Their superior storage capacity makes it easier to store ultra-resolution multimedia files that grow in quantity, a pivotal concern faced by this industry at all times.


16 Bays


24 Bays


60 Bays

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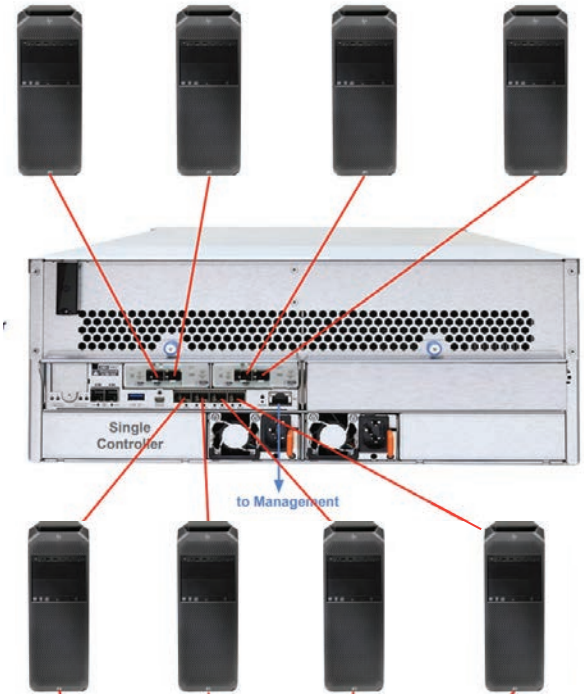
Hardware, Software & Data Protection

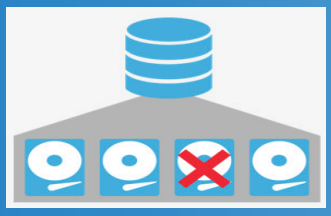


Rear View of PSV 4000 60-Bay with Single Controller

ships with 4x10GbE Host Ports

Dual HBAs with optional connectivity

Additional port connectivity including 25GbE and 40GbE



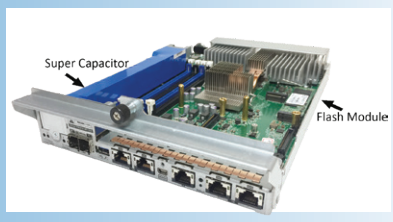
RAID Protection prevents data loss from a disk failure. No performance impact when rebuilding and no data loss if drives at multiple nodes fail.
Disk protection: RAID5, RAID6

WORM (Write Once Read Many) For following the regulation, protect transaction record/ confidential files be deleted/modified by accent for several years.

Web-based Centralized Management. Easy GUI to simplify installation and maintenance. Users can manage the entire cluster with a single pain of glass.

Flexible Pools with SSDs and HDDs to give you tailored speed & capacity options

Cloud-integrated solution for data caching, tiering, and backup



Proprietary Non-Volatile Cache Protection-Provides reliable super capacitor backup with flash module to ensure data safety

Warranty & Support

High Level US Engineer Support
Comes with 3 Year Warranty with advanced replacement & unlimited phone support
Support available up to 10 Years

Performance

The total throughput equals bitrate times stream count
PSV 3000 with 24 HDDs can support 130 HD playback streams on Premiere Pro, and its total throughput can be calculated by 130 times 15 MB/s equals 1,950 MB/s.
It can be used as a reference for playback in different video formats. For example, if your video format is ProRes 422 Uncompressed @24fps with bitrate at 100MB/s, then you can get around 17 streams (1,950 / 100 ≈ 19, 19 * 90% ≈ 17, which we conservatively reserve 10% for the performance deviation).

Maximum Stream Count

Material		Stream count				
Codec	FPS	PS 2000 16 HDDs	PSV 3000 32 HDDs	PSV 4000 48 HDDs	PSV 3000 16 SSDs	PSV 4000 32 SSDs
Read throughput		1.6GB/s	3.7GB/s	5GB/s	4.1GB/s	6.8GB/s
HD ProRes 422 1920 x 1080	30	58	87	120	135	145
4K 4096 x 2160 ProRes 4444 (without Alpha)	24	13	18	26	25	27
4K ProRes 422HQ 4096 x 3112	30	9	18	24	23	25
4K UHD 3840 x 2160 ProRes 4444XQ	30	6	14	16	17	18
2K 10-bit (Uncompressed)	30	3	13	15	21	21
4K 12-bit (Uncompressed)	30	2	8	8	6	8

Maximum CIFS Throughput

Model	PSV 4000		PSV 3000	
Vdbench 1MB Sequential	Read (MB/s)	Write (MB/s)	Read (MB/s)	Write (MB/s)
32 SSDs (RAID6)	6,826	2,951	-	-
16 SSDs (RAID6)	4,147	3,052	4,151	2,323
16 HDDs (RAID6)	2,311	1,762	2,120	1,665
32 HDDs (RAID6)	3,683	2,536	**3,748**	**2,319**
48 HDDs (RAID6)	**4,973**	**3,037**	-	-
64 HDDs (RAID6)	5,373	3,010	-	-

Performance Tests

Rendering and Video Playback for Single Workgroup

PSV 3000 can deliver 170 HD streams playback with rendering on Premiere Pro. If you have 6 workstations, 5 workstations perform 100 HD streams of playback, and 1 workstation performs rendering ingestion process at 300MB/s, then you may consider PSV with 48 HDDs. The more the rendering ingestion processes, the fewer playback streams supported.

Models	Number of NL-SAS HDDs	Streams		Playback Throughput (MB/s)		Rendering Throughput (MB/s)	Max. Number of Workstations
		Premiere Pro	Final Cut Pro	Premiere Pro	Final Cut Pro		
PSV 3000 16 Bay	16	80	70	1,200	1,050	300	4
PSV 3000 24 Bay (with 2 x 12-Bay JBOD)	24	100	90	1,500	1,350	300	5
	48 (with JBOD)	150	130	2,250	1,950	300	6
PSV 3000 60 Bay	48 (with JBOD)	170	150	2,550	2,250	300	8

Video Playback for Two Workgroups

Model	Number of NL-SAS HDDs	Streams		Total Throughput (MB/s)		Max. Number of Workstations
		Premiere Pro	Final Cut Pro	Premiere Pro	Final Cut Pro	
PSV 3000 Gen2	48 (with JBOD)	240	220	3,600	3,300	10
	96 (with JBOD)	320	290	4,800	4,350	14
PSV 4000 Gen2	96 (with JBOD)	350	320	5,250	4,800	16

PSV 4000 can deliver 320 HD streams playback on Final Cut Pro. If you have 2 workgroups and 16 workstations, and each workstation requires 20 streams playback, you can assign 8 workstations to each controller to balance the total workload.

Rendering and Video Playback for Two Workgroups

PSV 4000 can deliver 250 HD streams playback with rendering at 600MB/s on Final Cut Pro. If you have 2 workgroups and 14 workstations, you can assign 6 workstations for playback and 1 workstation for rendering at 300MB/s to each controller.

Models	Number of NL-SAS HDDs	Streams		Playback Throughput (MB/s)		Rendering Throughput (MB/s)	Max. Number of Workstations
		Premiere Pro	Final Cut Pro	Premiere Pro	Final Cut Pro		
PSV 3000 Gen2	48 (with JBOD)	190	170	2,850	2,550	600	10
	96 (with JBOD)	260	220	3,900	3,300	600	12
PSV 4000 Gen2	96 (with JBOD)	280	250	4,200	3,750	600	14

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