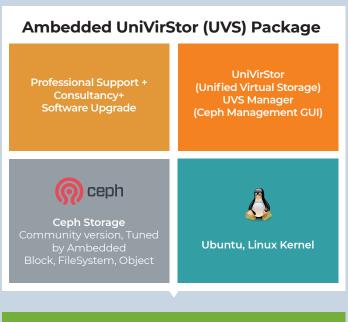


Unified Virtual Storage UniVirStor (UVS)

UVS Manager, a Unified Virtual Storage Manager to support

- Quick Ceph cluster deployment and configuration, enable a Ceph cluster for production service in one day
- Streamline daily cluster operations, making management and maintenance effortless.
- Comprehensive monitoring with Ceph dashboard, UVS dashboard, and Grafana.
- A complete solution for software upgrades, covering kernel, OS, Ceph version, and GUI management.



Customer selected server platform

Features

Full stack software	Includes Linux OS, Ceph storage software, and UniVirStor Manager interface. Only an ISO image installation is needed. Deployment and technical support services are available.
Distributed Storage	Utilizes multiple hosts to form a cluster, providing cross-host data protection to ensure no data loss or service interruption if one or two hosts or hard drives fail.

Hardware Requirements

- Can be installed on any x86 (Intel, AMD) and Arm64 architecture servers. No need for RAID controllers
 or proprietary hardware, no vendor lock-in.
- Clusters multiple servers through TCP/IP network.
- Requires only standard Ethernet switches, reducing network equipment costs.

Data Protection Algorithms	<text></text>										
Scalability	Easily add or reduce hosts and disks on demand, increasing overall system performance as capacity expands.										
Support for Large Capacities	Supports storage from tens of Terabytes to hundreds of Petabytes.										
Versatile Device Usage	Supports deploying mixed all-flash NVMe, SATA/SAS hard drives, and Hybrid Cache Tier . The system automatically distinguishes device classes, facilitating the creation of storage pools with different performance characteristics.										
Disk Mixing	Can mix disks of different sizes and distribute workloads based on disk capacity to balance usage percentages.										
Virtualization Platform	Seamlessly integrate with leading virtualization platforms such as Kubernetes, OpenStack, CloudStack, Proxmox, VMWare, and HyperV through various interfaces. These interfaces include libraries, CSI, API, iSCSI, NVMe-oF, NFS, and SMB.										
Client OS	Linux, Windows, and VMWare.										
Self-Healing	Maintains storage system service during disk or host failures by utilizing healthy hosts and disks in the cluster to reheal degrade data and restore it to a healthy state.										
Encryption Support	Supports hard drive encryption, encryption of data packets between hosts, and server-side encryption, preventing data breaches during transmission or in the event of disk theft.										
Automated Data Scrub	Regular background data scrubs ensure data integrity. The frequency, period, and maximum parallel check threads are adjustable.										
Data Compression	Supports snappy, zlib, and zstd compression algorithms. A minimum compression ratio can be set, only compressing files that exceed this ratio.										
Provisioning	Supports both Thin and Thick Provisioning.										
Diverse Storage Applications	 Block Storage: iSCSI, NVMeoF, Linux Block Shared File Systems: NFS, SMB, Linux POSIX Object Storage: Amazon S3, MinIO, and OpenStack Swift 										

Block (Virtual Disk RBD) Storage

Auto Snapshot

You can set periodic automatic snapshots block images and the maximum number of snapshots retained. If a file is mistakenly deleted or maliciously encrypted, the snapshot rollback function can restore the image content.

+ Crea	te Snapshot	î Delete A	l Snapshots (PURGE)	🗐 Create Snapshot Sche	dule 🔄 🖻 Back to Image List	
inaps	shot Sch	edule :				
		fame	Frequency	Work Weekday	Start/End Hour	Max Number
🗹 🖸		every-10m	10m	1,2,3,4,5	0-0	10
						Search 🛛 🗰 🕶
D	* Snapsh	of Name		Protected	Action	
314		29T13:49:44.898+0	800	Piotecteu	Delete C Rollback 2 G	218
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318	2024-07-	29714:10:44.917+0	800		🖹 Delete 🔿 Roll Back 🖪 Cl	one
320	2024-07	29714:21:14.915+08	100	0	🖹 Delete 🛛 RollBack 💆 Cl	one
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326	2024-07	29T14:52:44.918+0	800		🗐 Delete 📿 RollBack 💆 Cl	one
328	2024-07	29715:03:14.890+0	800		🗐 Delete 📿 HollBack 💆 Cl	one
330	2024-07	29715:13:44.898+0	800		🖺 Delete 📿 RollBack 🛃 Cl	one
332	2024-07-	29715:24:14.902+0	100	0	Delete C RollBack 2 G	one .

QoS	Sets read/write IOPS and throughput for each virtual disk to prevent any client application from occupying excessive performance and affecting other clients.										
Asynchronous Mirroring	Deploys clusters at two or more locations, periodically backing up each other using scheduled snapshots, serving as disaster recovery. If one data center experiences an outage or disaster, simply promote the secondary site via the Web UI with one click to immediately restore service without needing a backup data restore.	RBD Mirroring (Taipei) Add Mirror Schuduls Dastroy Miraning Site Data Mirror Datamon(C) (142/02) 172.BL2.207 (sm:500-107) Mirror Status : Role Source Tajeit Totom Note mage I					Image #	Search Status Action			
									_		
Block Device Encryption	Users can format virtual disks with encryption formats like LUKS-1 and LUKS-2. Once encrypted, all upper-layer file system or iSCSI written data is encrypted.										
Persistent Cache	Uses NVMe or SATA SSDs on client servers as o	cache f	or th	he vii	rtual c	disk, p	provid	ling sec	cure	and reliabl	e

NAS File System

Multiple NAS Creation	Can create multiple independent NAS.
Asynchronous Mirroring	Deploy clusters at multiple locations, mirroring directory changes to the remote cluster for backup. Each directory can independently set periodic automatic snapshots and the maximum number of snapshots retained. The snapshot restore function can recover any directory content if a file is mistakenly deleted or maliciously encrypted.

cache acceleration. Supports read-only and write-back modes.

Object Storage

Amazon S3 and Swift Compatible API

Supports HTTPS and Object Encryption

Machine Learning	Supports S3 select, accelerating machine learning data analysis.
Object Locking (Write Once Read Many)	Prevents malicious data encryption and tampering.
Object Versioning	Retains multiple versions of each object in an enabled versioning bucket. Users can store, retrieve, and restore each version of objects stored in the bucket. This helps recover from accidental deletions or overwrites.

Backup Software Compatible

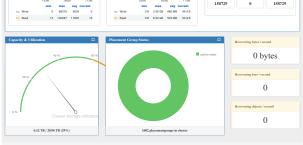
Compatible with Veeam, Commvault, Nakivo, Bareos, and other backup software for backup storage.

Management Interface

- Web UI and CLI Management:
 Provides quick deployment, automated processes, monitoring, and email alerts.
- Built-in Grafana Dashboard

Web UI Function List

Category	Feature List							
Dashboard	Cluster health status, error messages, traffic, IOPS, disk status, service status, used capacity, object count, data repair status	C Uni VirStore Manager Dashboard Cinter ID: 2200700 5:71-1145	Ceph Dashboard 🛛	H - Ceph FS Object Storage Grafins Dobboard	9 • Storage • OpenStac	k Settings +		🗆 ədmin
		Ceph Information Status	MON	MGR	OSD	Objects Stat	tus Servic	ces
		D HEALTH_OK	Total 30 Health 3 Unhealthy 0 Out of 0 quorum	Total 3 Keire Hall ambeddel-mars500-101 17218.2.101 Standby 2	Total 24 Unhealthy 0 IN 24 UP 24	Total 3 Healthy 500 Misplaced 60 Degraded 50	12.3K rgw K(100.005) R005) R005)	
		Ceph IO Status Status						
		150000		Throug 10 GB 8 GB 4 GB 2 GB	ghput	READ 620.04 MB	0 bytes 620	OTAL 20.04 MB
		0	16:00 17:00 max avg current 0 68:375 58:34 0	0 B 15:00 min 	16:00 17:00 max avg current 2:95 GB 480 MB 44:4 B	READ 158729		97AL 8729



Cluster & Host	Cluster creation, host management, disk panel	٤. ٤-													
Management	editor, disk status, adding/removing hosts,		Host List											0 11. 0	
generation		0 1	Host Name	* Model	Chassis ID	Node ID	Cores	RAM Size	Network	# HDD	I # 550	I NVME	Roles	0 Status 0	
	adding/removing working disks (OSD), cluster storage pool and disk usage	•	mars500-218 🕞	Mars500			64	93.68 GiB	192.168.3.218/24 • 192.168.4.218/24 • 192.168.5.218/24 •	N/A	N/A	10		PASS	
		0	mars500-219 🕞	Mars500			64	93.68 GiB	192.168.3.219/24 • 192.168.4.219/24 • 192.168.5.219/24 •	N/A	N/A	10		PMSS	
		1 2	mars500-228 🕞	Mars500			64	93.68 GiB	192.168.3.228/24 • 192.168.4.228/24 • 192.168.5.228/24 •	1	N/A	10		PASS	
		Showing to J of 3 mus													
		Initial Cluster & Add MONs + Add Hose													
Service Manageme	ent Adding Monitor, OSD status, adding/removing														
Storage Pool Management	Creating storage pools, storage list, editing storage pools, deleting storage pools, creating	10	UniVirStor Mana	ager Dashb	roard Host	серн - Рію	s System +	Object Storage	• Block Storage •	Settings -				± admin +	

storage pools, deleting storage pools, creating Cache Tier

÷	Create Pool + X De	lete Pool(s)							Search	0
	Pool Name	Туре	e Size	Application	EC Profile	e Placement Groups	6 Quota	Compression	Mirror Status	Action
	mgr	Replica	3	mgr	replicated_rule	1	UnSmited	Status : Disable	Not Support	G + Cache Tier
	block	Replica	3	rbd	replicated_rule	125	1 TiB	Status : Disable	Disabled	G + Cache Tier
	cephfs.data	Replica	3	cephfs	replicated_rule	64	UnSmited	Status : Disable	Not Support	G + Cache Tier
	cephfs.meta	Replica	3	cephfs	replicated_rule	16	UnSmited	Status : Disable	Not Support	G + Cache Tier
	volumes	Replica	3	rbd	replicated_rule	32	UnSmited	Status : Disable	Disabled	G + Cache Tier
	volumes.data	Erasure	6	rbd	eci2_osd	125	UnSmited	Status : Disable	Disabled	🖒 🕇 Cache Tier

Erasure Code Profile	Creating and managing erasure code rules
Cluster Map Management	Creating cluster architecture diagrams, creating data distribution rules, editing architecture hierarchy names, moving host locations

File System Creating file systems, metadata server management

Object Storage		orage gateways (Fig.1), creatin er and key management	g multi-site synchronization(Fig.2), storage pool						
	Create Master/Standalone Ra	dos Gateway	X Def Contraction and Annual Annual Contraction Contra						
	Select Node*:) Internal C mars412-poc/172.18.2.6 v) External	C tabletter Allanger Balander Hent CERN. Richgebene Object Starger Mach Starger Statings - Allano - BADDOS Garleway + Noto Stargers - And Allangerene Allano Anagerene Ottoe Naj Object Starger Statings Hanakoen 1 @ Stating - O II-						
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	Global Crush Rule*:	replicated_rule [Default]	with 12 Gauget by setty source						
	Data Bucket Pool Option*:		Fig.2 : Create RGW multi-sites sync						
	SelectPool PG*:	16							
	Pool Type*:	Same as Global							
	SSL Encrytion Option*:								
	 No SSL Encryption Self Signed Certification Upload CA & SSL Key 	۰.							
		Create	se						
	Fig.1 : Create RGW (Ra	ados gateway) for object storage							
Block Storage			mapshots, snapshot scheduling, creating and managing vals, iSCSI gateway management, LUN management						
System Settings	management, Pro		d synchronization, log viewing, user account abnormal event notification settings(Fig.5)						
	Upload Firmware OPush Update	D Push Package	Prometheus Configuration						
	Node Name A IP Address	Search UVS Version Version	III* Node Exporter: ON Prometheus: III						
	mars500-105 17238.2105	osd x 8 mon x 1 rgw x 1 mg x 1 mg x 1 x 5 KERNEL: 5A.0-166-generic md x 1	MON: Recention Size Betention Time Recess Select Node(s) - Anno S GB 60 S Days di Crass Promiticos						
	mars500-106 17218.2.106	mds x 1 osd x 8 mgr x 1 3.17.5 CEPH: 17.2.6 mds x 1 3.17.5 KERNEL: 5.4.0-166-generic	Deploy On Notes Strive UK Statistic TimetDay Action nard504 H5 501 http://1238/550500/ 32 5 40 60 - 2 Days Brance nard504 H5 501 http://1238/550500/ 30 2 60 5 Days Brance						
	mars500-107 172.18.2.107	mon x 1 osd x 8 mgr x 1 3.75 mgr x 1 3.75 KERNEL: SA-0-96-generic							
	Showing 1 to 3 of 3 rows	* mon x 1							
	Fig.3 : Software upgra	ade with UVS manager	Fig4 : Prometheus deployment on UVS manager						
		≙ 192.162.106 %ap.⊘							
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	Fig.5 : Notification set	tting							

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