Ambedded

Transform Your Infrastructure with Software-Defined Storage

Ambedded Ceph Storage Solution

Scalable | Performant | High Available | Capacity | Energy Efficiency | Cloud Native | Simplicity makes the TCO Down

Ambedded UniVirStor Ceph Storage Appliance

Ceph, is an open-source, distributed storage system

Ambedded UniVirStor (UVS), the Ceph storage appliances are turnkey solutions for scalable software-defined storage powered by Ceph and Arm server. Because of the tightly integrated software and hardware plus Ceph management GUI and Ambedded professional support, customers can deploy and operate Ceph software-defined storage efficiently.

arm + **ceph** + **UVS Manager**

Ambedded UniVirStor (UVS) is a whole software pack that includes Linux, Ceph, and Ceph management GUI (UVS Manager). UniVirStor simplifies the deployment, management, operation, and maintenance of Ceph cluster applications. Ambedded Technology continuously invests in engineering to tune and validate the configurations over computing, memory, network, Linux, and ceph and ensure the storage system serves in optimized reliability and performance.

In addition, Ambedded provides customers with consultancy and technical support during the product life cycle. The products include three years of professional service from planning to deployment and operation.

Ambedded's Ceph appliance solutions, Mars 400 and Mars 500/524 cover the applications of large capacity and high-performance needs. They can serve in separated Ceph clusters or in the same cluster. When they are serving in one cluster, you can add the NVMe SSD pool as the cache tier of the hard drive pool.

Benefits of Ambedded Ceph Appliances

- Management GUI, Professional service, Easy to manage
- Simple to deploy and manage
- Tuned Ceph, Linux, and drivers for the hardware
- High available, Scalable, Resilient
- Block, S3, NAS unified storage
- Cloud-Native storage supports OpenStack and Kubernetes
- Low power consumption and reducing TCO
- Software upgrade without disruption

Ambedded Ceph Total Solution

Professional Support + Consultancy + **Software Upgrade** + H/W Warranty
UniVirStor (Unified Virtual Storage) UVS Manager (Ceph Management GUI)
ceph **Ceph Storage** Community version, Tuned by Ambedded Block, FileSystem, Object
Ubuntu, Linux Kernel
Arm based Server Platform

Now is the time to discover the Ceph storage with NVMe

Ceph storage could have different OSD disk types for different use scenarios. For IO intensive applications, such as big data analytics, HPC storage, private clouds, edge computing requires real-time sensors, self-monitoring & reporting devices, NVMe ceph cluster provides a high performance, scalable data storage for real-time data capturing, managing, extracting and re-generating.

Mars 500 & Mars 524 NVMe Ceph Appliance tightly integrates Ampere Altra Arm Server and UniVirStor. UniVirStor (UVS) is a software package that includes Linux, Ceph, and Ceph management GUI (UVS Manager).

With the Ampere Altra platform, the 2 NVMe Ceph appliances could meet a low carbon footprint without sacrificing its high IO performance.

Scalable   Reliable   Performant   Simple and Green

Product Matrix

Model Name	Mars 400	Mars 412	Mars 500	Mars 524
Ceph appliance OSD type	Ceph storage with STAT III OSD (HDD/SSD)	2U 12x HDD OSD Ceph storage	1U 8x All flash Ceph storage with NVME OSD	2U 24x All flash Ceph storage with NVME OSD
UVS Manager Web UI	UVS 2 full version	UVS 3 full version	UVS 3 full version	UVS 3 full version
Software upgrade / Support Service	3 Years	3 Years	3 Years	3 Years
Service Hours	9 am - 6 pm (5*8)	9 am - 6 pm (5*8)	9 am - 6 pm (5*8)	9 am - 6 pm (5*8)
Response Time	in one day	in one day	in one day	in one day
Ticket Included per year	20	20	20	20
Helpdesk Portal & Knowledge Base Access	Yes	Yes	Yes	Yes
Software upgrade package	Yes	Yes	Yes	Yes
Support Channel	Remote & Email	Remote & Email	Remote & Email	Remote & Email
Cluster initial Deployment and Scale-out Service	Free of charge if order with drives	Free of charge if order with drives	Free of charge if order with drives	Free of charge if order with drives
H/W Warranty / Extended Warranty	3 Years	3 Years	3 Years	3 Years
Optional Extended HW/SW support Years Availability	Yes, up to 5 years	Yes, up to 5 years	Yes, up to 5 years	Yes, up to 5 years
Storage server spec				
Server platform	Mars 400 Arm based micro server	Mars 412 AMD EPYC Server	Mars 500 Ampere Altra Arm server	Mars 524 Dual sockets Ampere Altra Arm server
Nodes number per unit	8 nodes per unit (Micro-server architecture)	1 node per unit	1 node per unit	1 node per unit
CPU	Total 32 Cores / appliance, 4 cores 1.2GHz Arm v7 / node	AMD EPYC 7313P 16C/32T Processor @ 3.0GHz	32 cores 1.7 GHz Arm V8 (Optional 64 cores 3.0 GHz)	Dual 64 Core 3.0GHz Arm V8
RAM	Total 32 GB, 4GB/node	96GB	96 GB	256 GB
Network	4x 10Gb	4x10Gb (Dual 2x 10Gb)	2x 25Gb (Optional 2x 100Gb)	4 x 25 Gb (dual cards) (optional 4x 100Gb - dual cards)
Storage Interface	SATA 6Gb	SATA 6Gb	NVMe Gen 4	NVMe Gen 4
Max. Num. of OSD / appliance	8	12	8	24
PSU	Redundant Power supply 300Watts/each	Redundant Power supply 800Watts/each	Redundant Power supply 650Watts/each	Redundant Power supply 1600Watts/each
Power consumption on maximum workload	180 Watts (with full HDD)		210 Watts (with full NVME)	

**Extended software support and hardware warranty are bundled and the maximum is five years
** Spare parts are available in modules for Mars 400 series

Our Solutions
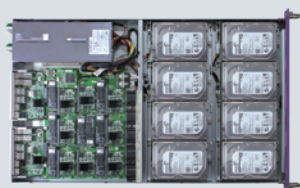
Mars 400 Ceph Appliance

Ceph cluster with SATA3 HDD/SSD OSD, cost efficient ceph storage for large capacity application.

Mars 412 Ceph Appliance

Ceph cluster with 12x HDD OSD in 2U chassis, easy to reach 240TB per unit, cost efficient for backup & archive applications.

Mars 500 Ceph Appliance

Ceph cluster with NVMe OSD, for the high performance application, easy to start with 4 units with scalable NVMe SSD.

Mars 524 Ceph Appliance

Ceph cluster with NVMe OSD, for the extreme performance and large capacity applications. Able to provide 750TB per unit.

Software

Ceph Version	Ambedded tuned Ceph community versions
Management Interface	▪ Ambedded Web-based user interface: UniVirStor(UVS) Manager ▪ Command Line Interface
Automation	The UniVirStor Ceph management GUI (UVS Manager) automates management functions for day-1 and day-two operations, including cluster deployment, storage service provisioning, monitoring, and software updates.
Access Authentication Control	▪ Policy control to limit users to access the pool & block device ▪ Ability to Integrate with Microsoft Active Directory, lightweight directory access protocol (LDAP), AWS Auth, and KeyStone
Multi-protocol support	▪ Block : RBD, ISCSI ▪ Shared File System : CephFS, SMB, NFS ▪ Object Storage : S3 ▪ Cloud-Native and Virtualization - K8S CSI, OpenStack, CloudStack, Proxmox, VMware, Windows Ceph client driver
Monitoring & Notification	▪ UVS, Ceph, and Grafana dashboard ▪ Alert sent through email ▪ SNMP

Ceph Storage Pool Base

Scale-out cluster	▪ Grow the cluster to thousands of storage drives ▪ No single point of failure ▪ Cluster performance is linearly scalable with the number of drives (OSD).
Self-healing and auto rebalancing	▪ Balances data distribution throughout the cluster nodes ▪ Handles failures without interruption, automatically recovering to the predefined data resilience
Highly available	Withstand the loss of multiple nodes/racks without disrupting service availability or data safety
Data protection	▪ Striping, erasure coding, or replication across nodes with predefined rule ▪ Configurable number of replica and erasure coding profile ▪ CLAY erasure coding to reduce the data recovery time ▪ Renamable bucket type: root, region, zone, data center, room, PDU, raw, rack, chassis
Disk encryption	OSD disk drives can be encrypted to protect data when drives are removed
Data Compression	Inline object compression with target compression ratio
Cache Tiering	Use faster storage pool as cache tier

Ceph Deployment and Management

Software update	▪ Automated rolling update without downtime. Data services are available during the update. ▪ Updates include Linux, Ceph, and UVS manager
General management	▪ Host management: Scan and manage server nodes in the Ceph cluster ▪ Deploy the NTP server or use an external NTP server ▪ Push NTP client to ceph hosts ▪ Log management ▪ Notification ▪ User management
Ceph daemon services	▪ Cluster initialization ▪ Deploy and manage MON, OSD, MDS, RGW ▪ OSD encryption

Ambedded

Ceph, the future of Storage