

WARP 41001-H "HybridMatrix" Scalable OSS Parallel Storage

Features & Benefits

- Ultra dense; ~7.2PB/rack
- Up to 8 high capacity HDD enclosures per rack
- Up to 3TB RAM and 96TB SSD per OSS pair
- Enterprise reliability, availability, & serviceability
- Hot-pluggable drives, I/O controllers, and power / cooling FRUs

WARPfs:

- Dual WARPfs controllers
- Combined OSS/OST
- Interface options:
 - 10/40GbE ports
 - 56/100Gb IB ports
 - 100Gb Omni-Path
- Snapshots, de-duplication, replication, & more

The **WARP 41001-H** is an ultra-dense scale-out storage appliance for HPC environments that deliver the power, scale, and performance needed to support Big Data for organizations of every size without breaking the bank.

Integrating the advanced WARPfs file system on enterprise class hardware, a WARP 41001-H is ideally suited for mixed performance applications, which combine read- or write-intensive data onto the same system which hosts less active data. Available in several hardware configurations to optimize the appliance for diverse customer workloads, when configured for maximum scalability, it can hold as much as 7.2PB raw in a single rack. That's over 5.4PB usable space, with double parity protection, plus up to 96TB of SSD cache for over 1M IOPS per cabinet.

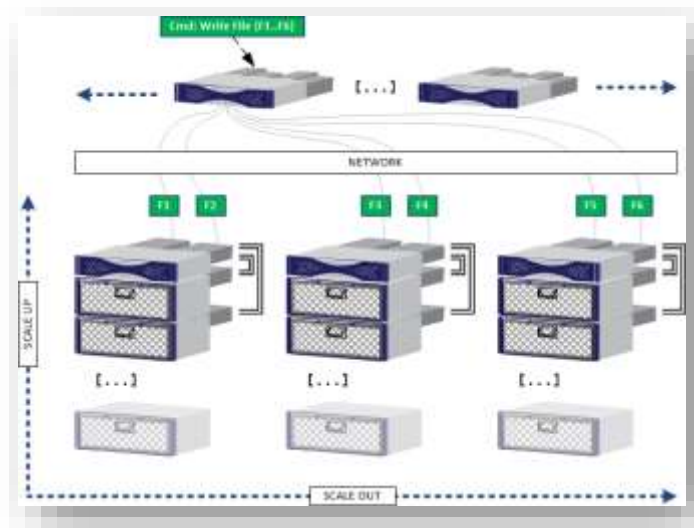
Truly turnkey, all software is pre-loaded and pre-configured at the factory, so only site-specific parameters need to be configured by the customer. Simply rack the appliance, cable it, and go. Customers purchasing large configurations can order the system pre-racked and cabled in a WARP Mechanics-supplied cabinet.

As an ultra-dense space- and power-saving solution, it is optimal for large scale workloads. Both Object Storage Server (OSS) and Object Storage Target (OST) functions are integrated in the same tightly configured scalable storage unit (SSU). Scaling up capacity is as simple as connecting expansion shelves via redundant SAS ports. Scale out both capacity and performance by adding additional SSUs for excellent performance in a small footprint.

WARPfs integrates advanced features such as thin provisioning, de-duplication, block-level checksums, copy-on-write, snapshots, replication, and more traditional Lustre systems lack, finally bringing data integrity and reliability to the Lustre file system.

- Optimized for high-capacity mixed workloads
- Pay as you grow starting from 40TB + 4TB cache
- Maximum 5.4PB+ usable with RAID6 (~7.2PB raw) per rack
- Maximum 96TB high-performance SSD
- Turnkey deployment
- Enterprise support and service
- Simple but powerful GUI and CLI management
- Advanced data integrity protections
- Replication with WAN optimization

Whether you deploy it as a stand-alone storage system, or part of a comprehensive WARP Mechanics data center architecture, the WARP 41001-H provides unmatched density and performance.



WARP 41001-H "HybridMatrix" Scalable OSS Parallel Storage Technical Specifications



**WARP
MECHANICS**

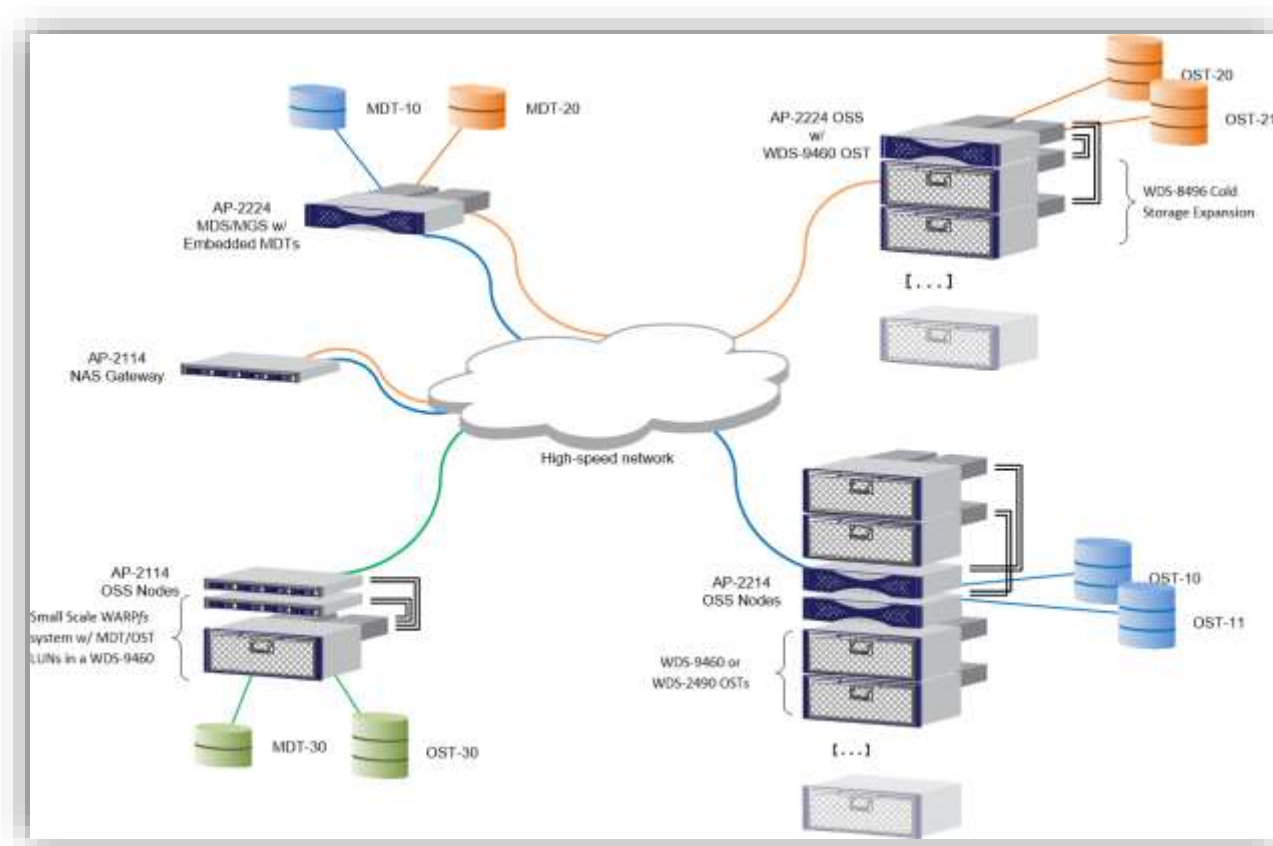
The WARP 41001-H appliance is constructed using WARP Mechanics hardware platforms, a variety of WARP-tuned and certified HDD and SSD modules, WARP software, and fully-embedded partner software.

Intelligent MDS, MGS, and OSS controllers leverage widely deployed, industry-standard hardware with the latest components such as CPU, memory, and IO bus. Each appliance includes up to two controllers. With each expansion enclosure attached, another 600TB of raw HDD storage capacity is added, depending on workload needs. Each 41001-H head is outfitted with available network interfaces for the intended environment, such as 1Gb, 10Gb, or 40Gb Ethernet, or 40/56Gb InfiniBand and even 100Gbps EDR or Omni-Path.

A customer can start with a single 41001-H head as an OSS, using only a portion of its drive slots for just a few TB of main storage. Yet it can grow to multiple petabytes without architectural changes or even downtime. Simply scale vertically by adding more JBODs connected to the OSS head.

It is also possible to scale horizontally outward by adding OSS heads for additional performance *and* capacity. This can produce a scale-out storage solution delivering more than a Terabyte per second (>100Terabits/s).

This system can be combined with the other WARP Mechanics appliances such as the MemoryMatrix and StorageMatrix systems. Using tiering software, data can be migrated between the systems as its business value changes over time.



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