



EUROstor ES-8700CLF Metro Cluster



EUROstor's ES-8700CLF is an Open-E JovianDSS-based Storage Cluster for iSCSI and NAS (CIFS, NFS) access that can be set up at Fibre Channel distance. Each side consists of one cluster node and one FC JBOD connected to both cluster nodes. The disks in the JBODs are mirrored across the two locations in order to provide full site redundancy.

As a long-term Open-E Platinum Partner, EUROstor provides experienced and professional support with Open-E JovianDSS Certified Engineers. Customers are supported from the initial installation, to detailed configuration or day-to-day maintenance tasks.

EUROstor offers advanced support options for the ES-8700CLF Metro Cluster:

- Next-business-day on-site service for hardware
- Up to 5 years of warranty
- 24/7 software support

The storage specialist supports leading world-wide enterprises in managing and protecting their storage, and accounts for more than 300 cluster with Open-E storage software installations up till now.

- › Guaranteed data protection
- › Enhanced storage performance
- › Flexible scalability
- › Optimized for Data Centers
- › High Availability
- › Data integrity check
- › Data compression and in-line deduplication
- › Thin provisioning and unlimited number of Snapshots

ES-8700CLF Metro Cluster

Guaranteed data protection

Data is your most important resource. This is why the Open-E JovianDSS-based ES-8700CLF Metro Cluster includes several mechanisms for data protection. Automatic and scheduled multi-layer data integrity checks ensure data consistency, while unlimited snapshots and clones make it is easy to implement a disaster protection strategy and to instantly roll back to a previous point-in-time. At the same time, a scheduled self-healing mechanism fixes malfunctions and automatically restores full data redundancy in the system. Even when a disk fails, the software-based spare function offers one disk to several RAID arrays, saving you money on extra hardware without compromising data safety.

Enhanced storage performance

Nowadays, enterprise storage has to provide big capacity while also being fast, affordable and include reliable support. This is exactly what ES-8700CLF Metro Cluster has to offer. Open-E JovianDSS-based ES-8700CLF Metro Cluster is an innovative hybrid storage system fusing the capacity of HDDs with the performance of SSDs in a single solution that offers high performance while lowering cost. Additionally, by leveraging capacity optimization technologies and advanced tiered SSD and RAM caching, ES-8700CLF Metro Cluster provides an overall efficiency boost and increased cache performance. On top of that, powerful tuning tools allow the system to optimize on I/O heavy databases or high throughput video editing equally well and predefined profiles save annoying testing time.

Flexible scalability

The ES-8700CLF Metro Cluster will let you experience unlimited flexibility and minimize unappreciated downtime. Open-E JovianDSS uses a 128-bit file system that includes unlimited snapshots for easy backup, unlimited clones for easy duplication, unlimited capacity with volume sizes up to one Zetabyte, as well as unlimited amount of disks which can be increased on the fly without effort by using thin provisioning. There are no limitations and you may easily control the total cost of ownership and expand your storage infrastructure as data grows.

Optimized for Data Centers

ES-8700CLF Metro Cluster is optimized for the modern data center and ready for compute-intensive applications that involve big data, intensive virtualization workloads and higher-density server configurations. The server allows administrators an intuitive management of storage infrastructures and maintaining continuous operations during updates or refreshes. By choosing ES-8700CLF Metro Cluster you benefit from flexible CPU power, networks running 1, 10 or 40 Gb Ethernet, as well as knowledge and experience of EUROstor in ES-8700CLF Metro Cluster and developing servers specialized for datacenter.



Active-active failover resource switching time test results

Total number of targets	Switching time [seconds]	Performance test results [passed/failed]
2	17	passed
10	25	passed
20	25	passed

High Availability solution functionality test results

Functionality test name	Functionality test results [passed/failed]
Manual Failover	passed
Automatic Failover triggering after network failure	passed
Automatic Failover triggering after shutdown test	passed
Automatic Failover triggering after reboot test	passed
Automatic Failover triggering after poweroff	passed
Automatic Failover triggering after I/O test	passed

High Availability over Fibre Channel distance

High Availability

The ES-8700CLF Metro Cluster is a perfect option if you are looking to deploy a High Availability cluster setup with NFS or iSCSI for storing business-critical data. With the Open-E JovianDSS High Availability Cluster Feature Pack the ES-8700CLF Metro Cluster ensures reliability and redundancy through failover in case of a failure. By using the cluster management software, all features related to the cluster setup can be quickly accessed and maintained - everything is in one place and guarantees ease of use for the storage administrator. Moreover, Open-E JovianDSS includes an independent Virtual IP (VIP) addresses feature. With this, VIPs can be used by multiple servers and flexibly switched at all times. When a hardware failure is detected, VIPs are automatically moved from the primary to the secondary node without the client servers noticing a timeout.

Data integrity check

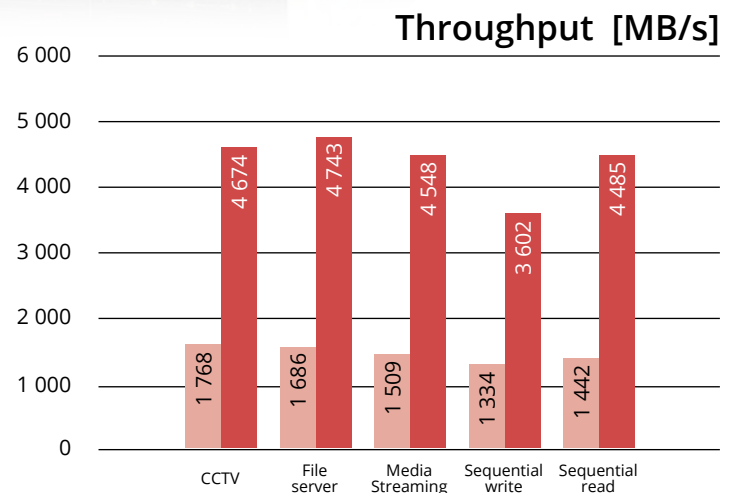
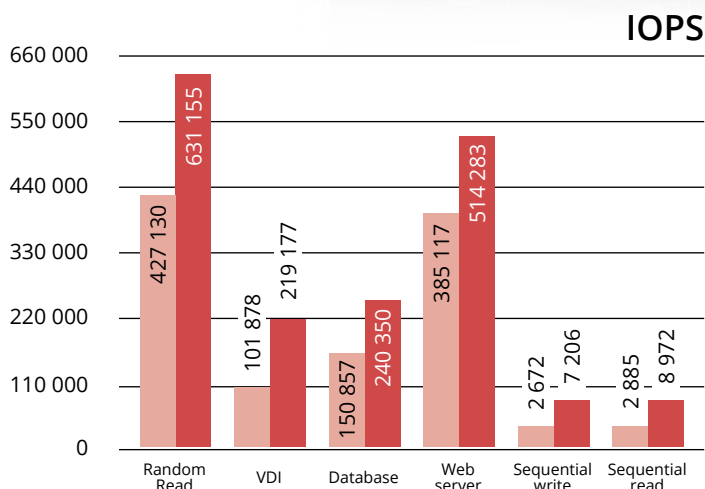
The ES-8700CLF Metro Cluster storage system effectively detects data corruption, as even minor integrity violations could cause loss of data. ES-8700CLF Metro Cluster ensures reliability by check-summing individual blocks of data and once faulty blocks have been detected they are automatically rewritten. If the same error is found several times the data blocks are moved to different parts of the HDD. Each read/write is checked automatically plus you can schedule to perform checks on not accessed blocks. All actions are done in atomic writes to ensure consistency of your data and to reduce data loss, even during power cuts.

Data compression and in-line deduplication

ES-8700CLF Metro Cluster offers data compression for minimizing storage capacity usage and ultimately boosting performance and taking less space on your storage. Find resource-friendly compression protocols (lz4) with low system resource utilization at medium compression rates, but also protocols that are able to achieve very high rates for archiving or backup (as gzip-9). The in-line deduplication feature in ES-8700CLF Metro Cluster removes redundant data and minimizes storage capacity usage. The software checks each block for redundancy in the system and if it finds a match the new block isn't written; instead, a shortcut leading to the original block is created. Such a system can reach a deduplication ratio of 3:1 or more, which means that if you place 3TB of data it will only use 1TB of physical disc space. This feature is especially interesting for highly repetitive data, i.e. in VDI, server virtualization or backup, where much higher deduplication ratios can be reached.

Thin provisioning and unlimited number of snapshots

ES-8700CLF Metro Cluster uses thin provisioning to improve your storage utilization by allocating an exact amount of server space at the required time. You'll eliminate the cost of unused storage space and never again have to pre-allocate storage up front and buy too much hardware. There is no need for evaluating storage requirements and taking the risk of rebuilding the entire system when it runs out of space. Also, every ES-8700CLF Metro Cluster allows an unlimited number of snapshots - greatly simplifying backups, replications and data recreation in case of accidental deletes or viruses. Snapshots are a must-have option for effective disaster recovery scenarios. Schedule snapshots for months, weeks, hours or even minutes. With ES-8700CLF Metro Cluster it is easy to manage storage capacity and set notifications when physical space shrinks.



ES-8708XSS JDSS with ES-6624EXF FC JBOD

Hardware information

	Default configuration	Options
CPU	Intel® Xeon® Processor E5-1650 v4 3.60GHz	Each Intel® Xeon® E5-16xx or E5-26xx
RAM	8x 16GB Samsung M393A2K40BB1-CRC DDR4 ECC REG	Up to 256GB
RAW capacity	80TB	Up to several Petabytes
HDDs	4000GB	Up to 10TB per disk
Read cache	400GB	Nearly every SAS SSD – up to 4TB
Write log	100GB mirrored	Nearly every SAS SSD – up to 4TB
Hard drive interface	QLogic Corp. QLE2672-CK	More / other FC HBAs
Network interface	Intel® Ethernet Controller I210-AT QLogic Corp. QLE3442-RJ-CK Broadcom Corporation NetXtreme II BCM57840	More / other 1/10/25/40/100Gbit NICs
Form factor	2U 19" Head 4U 19" JBOD	-
Weight	Head: 22KG JBOD: 51KG	-
Power	Head: 720W Redundant High-efficiency 80+Gold JBOD: 573W Redundant	-
Fan	Head: 3 PWM Fans JBOD: 4 PWM Fans	-
Power consumption	Idle State 784 CPU Load 829 CPU Burn + Disks 891	-

EUROstor

EUROstor has been a manufacturer of storage systems for more than 12 years. Originally manufacturing RAID systems, today the main part of the product portfolio are server based systems, acting as flexible storage servers, tailor-made for the customers' needs.

Solutions range from small file servers and CCTV storage to high available storage clusters, scale-out clusters and cloud solutions.

EUROstor is located in Filderstadt near Stuttgart (Germany) sells to professional end users all over Europe, SMBs, universities and research institutes and data centers.

About Open-E

Open-E is a well-established developer of IP-based storage management software. Open-E JovianDSS and Open-E DSS V7 are robust, award-winning enterprise storage applications which offer excellent compatibility with industry standards, and are the easiest to use and manage. Additionally, they are some of the most stable solutions on the market and undisputed price/performance leaders. Open-E accounts for over 27,000 installations world-wide and has received numerous industry awards and recognition. Thanks to our reputation, experience and business reliability, Open-E has become the technology partner of choice for industry-leading IT companies.

For further information about Open-E, its products and partners, visit <http://www.open-e.com/>

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About the Open-E JovianDSS Server Certification

Open-E JovianDSS delivers software-defined storage which results in a wide variety of different hardware requirements such as performance range, capacity capability, and connectivity. To ensure compatibility and robust storage environments, all selected partners offer storage systems which are tested, benchmarked and certified by Open-E. This way, customers are able to use solutions that require exceptional security and redundancy, without compromising performance.