714i22s HA Metro Cluster

Scalability and reliability are the hallmarks of Nfina's 714i22s HA Metro Cluster powered by Open-E. Data security is provided by engineering total redundancy into our SAN, including power supplies and backplanes. Combine that with a powerful software solution like Open-E JovianDSS and the result is a rock-solid scale-out storage solution with no single point of failure.

An easy to use GUI allows flexible storage provisioning for mission-critical storage and High-Availability clusters. Features like unlimited snapshots, tiered SSD caching, off-site data protection, compression and in-line de-duplication, make the 714i22s with Open-E JovianDSS, a high-value HA storage solution. Adding to the value is the ease of setup, which takes minutes rather than hours, eliminating the costly time and fees associated with installation.

The 714i22s is the ideal solution for redundant cloud, on-premise storage, backup, or disaster recovery applications.

- › Guaranteed data protection
- › Enhanced storage performance
- › Flexible scalability
- › Simplified management
- › High Availability
- › Tiered RAM and SSD Cache
- › Unlimited number of snapshots and clones
- › Data compression and in-line deduplication

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Guaranteed data protection

Data is your most important resource. This is why the Open-E JovianDSS-based 714i22s HA 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 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.

Flexible scalability

The 714i22s HA 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 Zettabyte, 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.

Enhanced storage performance

Nowadays, enterprise storage has to provide big capacity while also being fast, affordable and include reliable support. This is exactly what the 714i22s HA Metro Cluster has to offer. It 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, the 714i22s HA 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.

Simplified management

Managing Open-E JovianDSS and its extensive features is easy and intuitive compared to many competing solutions on the market. The WebGUI provides a quick overview and management of all storage resources and features. After extensive analyses of storage usage and user interaction the clicks per step in each functionality have been reduced to a minimum, i.e. in creating iSCSI targets or when expanding the size of your storage. This way, you are able to quickly and easily manage the 714i22s HA Metro Cluster with Open-E JovianDSS, barely involving actions of a storage administrator.

Active-active failover resource switching time test results

Total number of targets	Switching time [seconds]	Performance test results [passed/failed]
2	18	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 power-off	Passed
Automatic Failover triggering after I/O test	Passed

High Availability

The 714i22s HA Metro Cluster is a perfect option if you are looking to deploy a High Availability cluster setup with SMB, NFS or iSCSI for storing business-critical data. 714i22s HA 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 eas e 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 clients noticing a timeout.

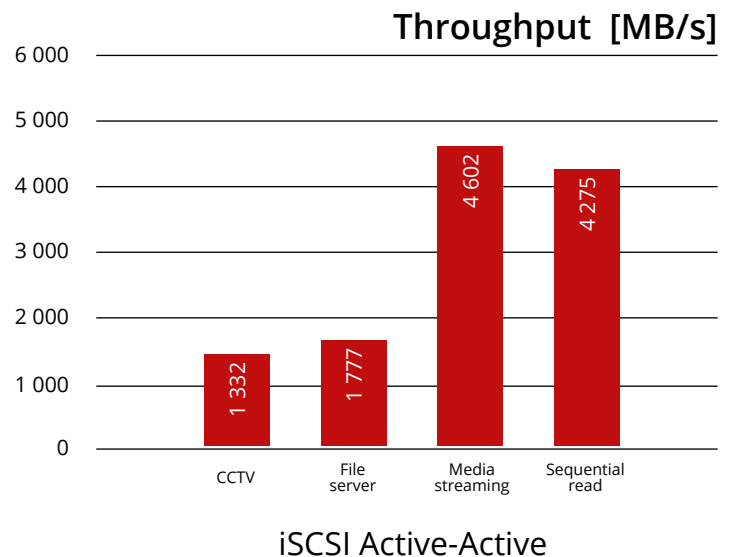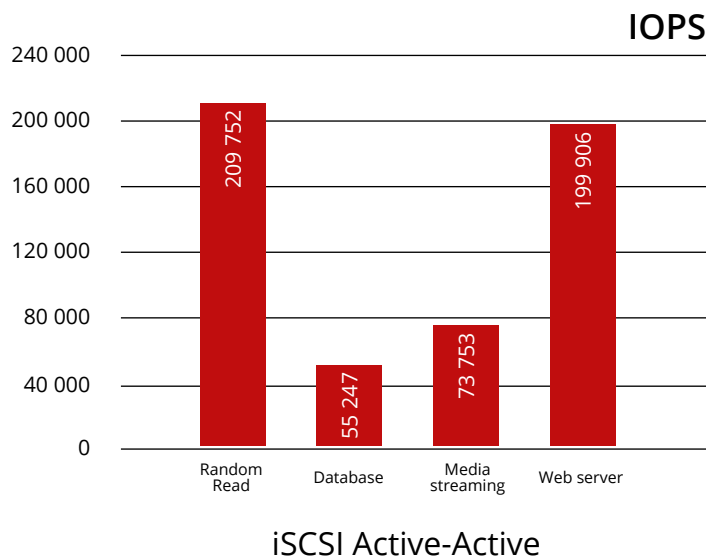## Unlimited number of snapshots and clones

Every Open-E JovianDSS-based 714i22s HA Metro Cluster allows an unlimited number of snapshots and clones – greatly simplifying back-ups, replications and data recreation in case of accidental deletes or viruses. Snapshots are read-only points-in-time and allow for easy roll-back. They are a must-have option for effective disaster recovery scenarios and in the 714i22s HA Metro Cluster you may schedule snapshots for months, weeks, hours or even minutes. Whereas, a clone is a writable copy of a snapshot and allows to easily duplicate virtual machines and scale out for virtual networks instantly and without duplicating data.

Tiered RAM and SSD Cache

The Open-E JovianDSS-based 714i22s HA Metro Cluster works as a tiered storage environment - dramatically speeding up access to frequently accessed files. It uses a caching algorithm to cache "often used" and "recently used" data separately, and provides the best performance for your storage by tiering hot data between RAM and SDD Cache. In the 714i22s HA Metro Cluster data is always saved on HDDs and only Hot Data is stored in RAM and SSD to ensure data safety and increase performance.

Data compression and in-line deduplication

The 714i22s HA Metro Cluster offers data compression to 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, and also protocols that are able to achieve very high rates for archiving or backup (as gzip-9). The in-line deduplication feature in the 714i22s HA 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.

IOPS

Category	IOPS
Random Read	209 752
Database	55 247
Media streaming	73 753
Web server	199 906

iSCSI Active-Active

Throughput [MB/s]

Category	Throughput
CCTV	1 332
File server	1 777
Media streaming	4 602
Sequential read	4 275

iSCSI Active-Active

Hardware details

For each of the 2 servers

	Test hardware configuration	Options
Motherboard	Intel® Server Board S2600WTTR	-
CPU	Intel® Xeon® Processor E5-2620 v3 2.40GHz	2 x Intel® Xeon® Processor E5-2667 v4 3.2GHz 2 x Intel® Xeon® Processor E5-2640 v4 2.4GHz
RAM	8 x 16GB Kingston KVR21R15D4/16l DDR4 ECC REG	24 x 32GB Kingston 2400 MHz DDR4 ECC Reg
Storage raw capacity	24TB	54TB, 72TB
HDDs	6 x 4TB Seagate ST4000NM0023	9 x 6TB Seagate ST6000NM0095 9 x 8TB Seagate ST8000NM0075
Read cache	1 x 800GB Micron S630DC-800	1 x 400GB Intel® SSD
Write log	2 x 400GB Micron S650DC-400	2 x 200GB Intel® SSD
Drive controller	LSI SAS 3008-8I Host Bus Adapter	-
Network interface	1 x Intel® Ethernet Controller X540-AT2 1 x Intel® Ethernet Converged Network Adapter X710-DA4 FH	-
Form factor	2U	-

Nfina Technologies

Nfina Technologies, Inc.™ develops, manufactures, and markets highly reliable storage, servers, and disaster recovery systems: designed to provide the highest value proposition in mission-critical IT environments. Our customers are IT professionals who require fully redundant, fault tolerant, storage networks. Our products are backed by a five-year warranty and include 24/7 tech support with optional 4-hour or next day on-site assistance.

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About Open-E

Open-E, founded in 1998, is a well-established developer of IP-based storage management software. Its flagship product Open-E JovianDSS is a robust, award-winning storage application which offers excellent compatibility with industry standards, and is the easiest to use and manage. Additionally, it is of the most stable solutions on the market and undisputed price performance leader.

Thanks to its reputation, experience and business reliability, Open-E has become the technology partner of choice for industry-leading IT companies. Open-E accounts for over 30,000 installations world-wide and has received numerous industry awards and recognition, also with its product Open-E DSS V7.

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

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.