open-e JovianDSS

DATA STORAGE SOLUTION FOR PROXMOX

Open-E JovianDSS NFS Proxmox Plugin

Unique High-Availability and NFS-Optimized Solution for Proxmox VE

The Open-E JovianDSS NFS Proxmox Plugin is a specialized, enterprise-grade data storage solution that allows Proxmox VE clusters to use Open-E JovianDSS High Availability data storage pools as both bare-metal backend and for virtual machines within your Hyper-Converged Infrastructure (HCI), using the NFS protocol.

PROXMOX SOLUTION PROVIDER

- **Optimized HA 2+1 Cluster Architecture**
- **Smart Quorum/Backup**
- **Enhanced ZFS Performance**
- **Unified Multiprotocol Storage**
- **No Additional Costs for Open-E JovianDSS Users**

At no extra charge, the Open-E JovianDSS NFS Proxmox Plugin enables an **optimized 2+1 cluster architecture.** Only two high-end server nodes are required to run production workloads and provide High Availability, automated volume management, and optimized NFS-based storage. **A third, low-cost server serves as the Proxmox VE quorum node and can optionally host Proxmox Backup Server**, eliminating the need to invest in three equally powerful systems.

Built on Open-E's 25+ years of experience in award-winning data storage software, this architecture delivers enterprise-grade availability and performance while significantly **reducing the hardware cost of a Proxmox VE cluster.** Support for both shared and non-shared storage provides additional deployment flexibility for a wide range of virtualization environments.

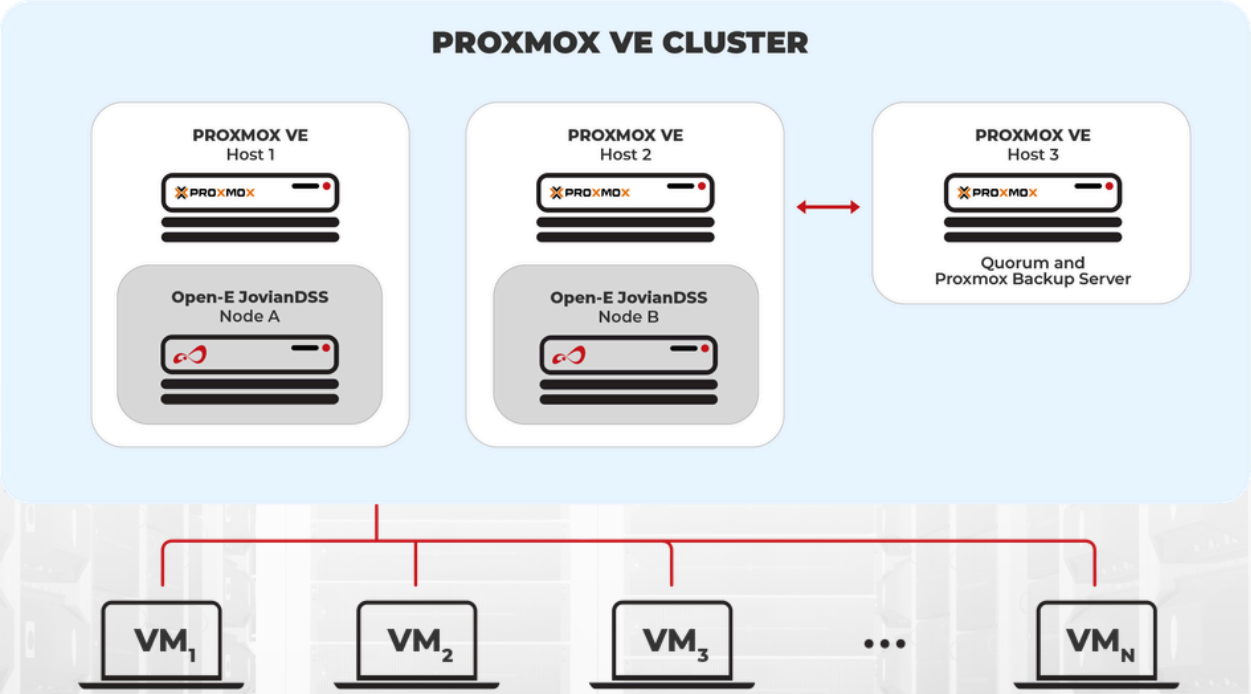
CORE KEY ADVANTAGES OF USING OPEN-E JOVIANDSS WITH PROXMOX VE

- **Unique High Availability (HA) Architecture:** Full support for Open-E JovianDSS failover HA cluster, ensuring that data storage pools, NFS targets, and active connections migrate automatically to a second node in the event of a hardware failure. Both shared and non-shared (metro cluster) nodes are supported. The Open-E JovianDSS HA cluster can run on a bare-metal system and as a Virtual Machine on Proxmox VE hosts.
- **Boosted Performance & Faster Disaster Recovery:** By removing the performance-draining QCOW2 layer, the plugin handles snapshots, clones, and rollbacks directly within ZFS, boosting overall VM performance while making disaster recovery faster, simpler, and more reliable.
- **Unified Shared File Storage:** Dynamically provisions and manages thin-provisioned virtual disks, container rootdirs, and snapshots within a central NFS-exported ZFS dataset, supporting all Proxmox content types.
- **Budget-friendly Hardware Utilization:** While Proxmox typically requires three identical nodes for quorum and proper data redundancy, the Open-E JovianDSS NFS Proxmox Plugin allows you to set up a fully operational High Availability Cluster using only two nodes. This means you can use more affordable, budget-friendly hardware for the third "quorum" node to help keep costs down.
- **Smart Quorum/Backup Node:** The third cluster node can serve as a quorum node for the Proxmox VE cluster and host the Proxmox Backup Server virtual machine. Using the Proxmox native backup feature and Proxmox Backup Server, data protection and recovery are fully supported.
- **Hybrid Data Storage Pools:** Storage pools can be configured as hybrid pools, using HDDs for large data groups and NVMe SSDs for data acceleration (cache and special allocation classes). This enables data-type tiering and delivers high performance even when HDDs are used for primary data storage.
- **Up to 20%* Cost Savings On The Proxmox System**: Save on hardware by using 2 high-performance nodes and 1 low-cost node for both backup and quorum, instead of requiring 3 expensive machines.

*the total cost will be dependent on the choosen hardware, region of purchase and individual hardware provider/producer prices.

OPTIMIZED 2+1 SETUP:

2 High-End Production Nodes and 1 Node for Quorum and Backup



Feature	Status	Details
Disk Images	✓	A single ZFS dataset is used to store all Proxmox VE resources, including VM images, container volumes, and ISO files.
Snapshots	✓	Open-E JovianDSS dataset contains snapshots for all resources associated with it
Cloning	✓	Supports cloning of VM/CT
Migration	✓	Online and offline VM/CT migration to other hosts
Disk Move	✓	Online and offline disk migration between storage pools
Volume Resizing	✓	Dynamic volume resizing as storage requirements grow
Rollback	✓	Rollback to any user-selected virtual machine snapshot
Backup	✓	Full support for Proxmox Backup Server with snapshot-based backups

OPEN-E JOVIANDSS: DATA STORAGE FOR PROXMOX VE-BASED VIRTUALIZATION

The Open-E JovianDSS NFS Proxmox Plugin is a specialized, enterprise-grade data storage solution that allows Proxmox VE clusters to use Open-E JovianDSS High Availability data storage pools as both **bare-metal backend data storage** and for **virtual machines within your Hyper-Converged Infrastructure (HCI)**, using the NFS protocol.

FULL HIGH AVAILABILITY & NETWORKING FOR BUSINESS CONTINUITY

The plugin relies on Virtual IP (VIP) addresses assigned to Open-E JovianDSS pools to ensure continuous operations.

- **Control Traffic:** Management operations are performed via the Open-E JovianDSS REST API using a dedicated control VIP. If a control VIP is not configured, data traffic VIPs are used automatically.
- **Data Traffic:** All NFS data transfers are routed exclusively through dedicated data VIPs.
- **Automatic Failover:** If an Open-E JovianDSS node or a Proxmox VE host (in HCI deployments) fails, active storage pools and associated control and data VIPs automatically migrate to the secondary node, allowing virtual machines to continue running without interruption.
- **Automatic Cluster Start:** In the event of a complete power outage or full cluster shutdown, the storage cluster and all VM/CT workloads can start automatically once power is restored. This requires proper configuration of Proxmox VE HA.

THE BENEFITS OF QCOW2 LAYER REMOVAL

Removing the high-overhead QCOW2 format enables virtualization management directly within ZFS via the plugin, drastically improving storage performance and reliability.

- **Native ZFS Execution:** Handles snapshots, clones, and rollbacks directly in ZFS without intermediate layer overhead.
- **Enhanced Performance:** Eliminates the QCOW2 bottleneck to unlock native storage speed.
- **Streamlined Disaster Recovery:** Simplifies recovery routines to make system restores faster and more reliable.

FAQ

1. WHAT IS THE PRICE OF THE OPEN-E JOVIANDSS NFS PROXMOX PLUGIN?

For administrators looking to integrate their Open-E JovianDSS environment with Proxmox VE, the Open-E JovianDSS NFS Proxmox Plugin is available at no extra charge. It is included as part of the standard ecosystem to facilitate the deployment of high-availability clusters and hyper-converged infrastructure (HCI).

While the plugin itself is free, it requires an active Open-E JovianDSS license. The underlying software follows a perpetual licensing model, which is structured as follows:

- Base System License: A one-time fee for the 0TB base system.
- Capacity Extensions: Licensing scales with your usable capacity, with extensions available in tiers (e.g., 4TB, 16TB, 128TB, etc.).
- HA Feature Packs: If you are deploying a High-Availability cluster, specific feature packs (Standard HA or Advanced Metro HA) are required.
- Support: Annual or multi-year support plans (Standard, Premium, or 24/7) are available based on the total licensed capacity.

2. WHAT IS THE "QUORUM TAX," AND HOW DOES OPEN-E JOVIANDSS ELIMINATE IT IN PROXMOX ENVIRONMENTS?

In standard Proxmox Ceph configurations, you typically need three high-performance nodes to maintain quorum and data redundancy. The "quorum tax" refers to the high cost of that third production-grade node. The Open-E JovianDSS NFS Proxmox Plugin allows for a 2+1 HA architecture. You utilize two high-end nodes for production storage and a third, budget-friendly node (even commodity hardware) solely for quorum and as a dedicated backup repository. This optimizes TCO while maintaining full High Availability.

3. CAN OPEN-E JOVIANDSS BE DEPLOYED AS A VIRTUAL MACHINE?

Yes. Open-E JovianDSS is designed for flexibility and can run as a "Storage-Virtual-Machine" on major hypervisors, including Proxmox. When used with the Open-E JovianDSS NFS Proxmox Plugin, it provides a unique hyper-converged infrastructure (HCI) solution with the usage of NFS protocol.

4. HOW DO I PROTECT MY SNAPSHOTS FROM RANSOMWARE?

While the Open-E JovianDSS NFS plugin handles High Availability for your primary nodes, ransomware protection is managed through Proxmox Backup Server (PBS). For a cost-effective setup, you can host a PBS virtual machine on a budget-friendly third "Smart Quorum" node. Since direct rollbacks via Open-E JovianDSS (OODP) aren't currently recommended, you should rely on the native Proxmox backup feature and PBS for all data recovery and ransomware protection.

FAQ

5. HOW DOES OPEN-E JOVIANDSS HANDLE SCALING AND REPLICATION WHEN MANAGING A LARGE NUMBER OF VMS VIA THE NFS PROXMOX PLUGIN?

When utilizing the Open-E JovianDSS NFS Proxmox Plugin, the system adopts a VVOL-like approach where every virtual disk is an independent ZFS zvol. This allows for incredible granularity, but it also increases the number of NFS targets and replication streams. For optimal balance, we recommend:

- Up to 100 VMs per pool: This keeps the metadata overhead for snapshots and the complexity of the NFStarget list within a range that ensures high responsiveness.
- Scale with Caution: Remember that a single Windows VM may require three separate zvols (User Data, EFI, and TPM). At 100 VMs, you are effectively managing 300 zvols per pool.

Cluster Pool Limitations

In a High-Availability environment, the storage controller must manage the heartbeat, replication, and failover logic for every pool. To prevent CPU contention and ensure rapid failover times, we recommend a maximum of two data storage pools per Open-E JovianDSS cluster.



About Open-E

Founded in 1998, Open-E is a developer of IP-based storage management software. Their flagship product, Open-E JovianDSS, is an award-winning software-defined system known for its exceptional stability, ease of use, and outstanding price-performance ratio. The company's product portfolio also includes Open-E JovianVHR, a high-performance backup repository solution designed to deliver superior data security. With a reputation for reliability and compatibility, Open-E has become a trusted technology partner for leading IT companies, with over 41,000 installations worldwide. For more information about Open-E, its products, and partners, visit www.open-e.com