open-e JovianDSS

DATA STORAGE SOLUTION FOR PROXMOX

Open-E JovianDSS iSCSI Proxmox Plugin

Unique High-Availability and iSCSI Multipath Solution for Proxmox VE

The Open-E JovianDSS iSCSI Proxmox VE 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 iSCSI multipathing protocol.

- **Optimized HA 2+1 Cluster Architecture**
- **Smart Quorum/Backup**
- **Full iSCSI Auto-Multipathing**
- **Unified Multiprotocol Storage**
- **No Additional Costs for Open-E JovianDSS Users**

At no extra charge, the Open-E JovianDSS iSCSI 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 full iSCSI multipathing. **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.

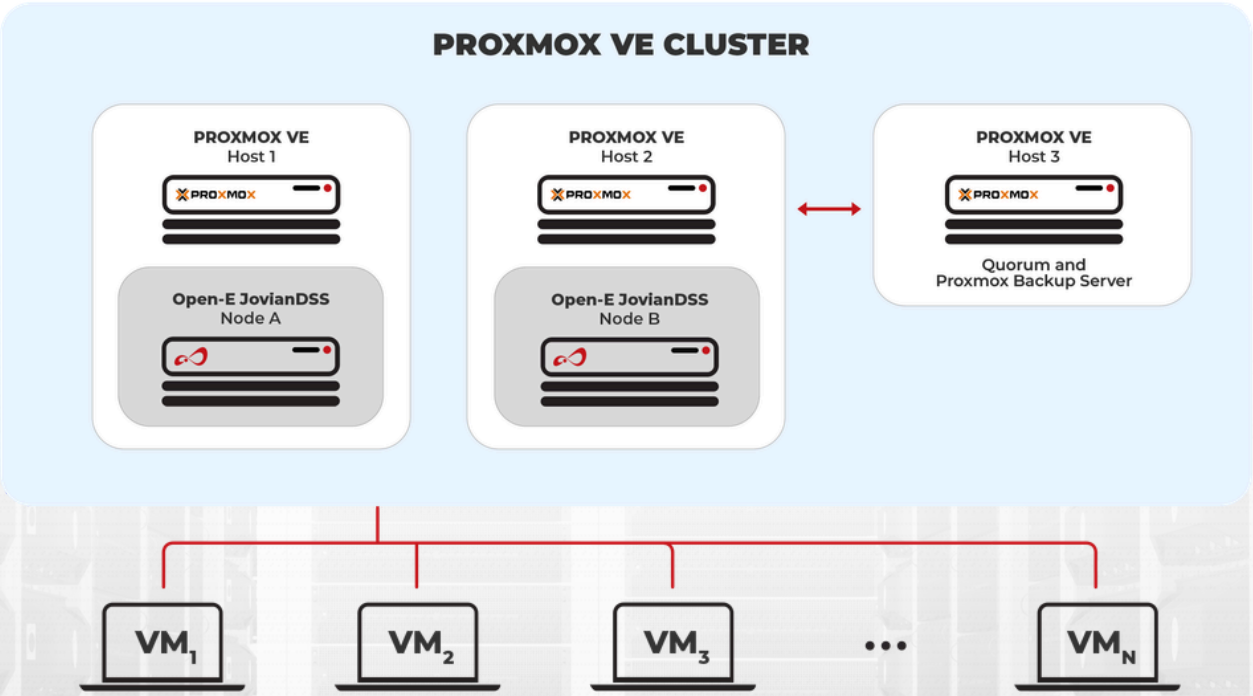
Built on Open-E's 25+ years of experience in award-winning data storage software, this architecture delivers enterprise-grade availability and performance while significantly **reducing the hardware cost of a Proxmox VE cluster.** Support for both shared and non-shared storage provides additional deployment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

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

- **Unique High Availability (HA) Architecture:** Full support for Open-E JovianDSS failover HA cluster, ensuring that data storage pools, iSCSI targets, and active connections migrate automatically to a second node in the event of a hardware or network failure. Both shared and non-shared (metro cluster) modes are supported. The Open-E JovianDSS HA cluster can run on a bare-metal system and as a Virtual Machine on Proxmox VE hosts.
- **Full iSCSI Multipathing:** Aggregates multiple physical I/O paths (iSCSI sessions) into a single logical device mapper entry, increasing redundancy and load balancing. This protects against individual network interface failures and improves overall performance.
- **Automated Volume Management:** Dynamically creates iSCSI volumes, attaches and detaches iSCSI targets, and manages multipath devices without manual intervention.
- **Budget-friendly Hardware Utilization:** While Proxmox typically requires three identical nodes for quorum and proper data redundancy, the Open-E JovianDSS iSCSI 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.
- **Unified Data Storage Platform:** When combining Open-E JovianDSS with Proxmox VE, additional storage services and protocols such as NFS and SMB remain available alongside iSCSI-based virtualization storage.

OPTIMIZED 2+1 SETUP:

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



Feature	Status	Details
Disk Images	✓	Stores VM/CT raw disk images on dedicated, plugin-managed Open-E JovianDSS volumes with a single iSCSI target per VM/CT
Snapshots	✓	Each volume maintains its own snapshot set
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 iSCSI Proxmox VE 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 iSCSI multipathing 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 iSCSI 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.

FULL ISCSI MULTIPATHING SOLUTION FOR PROXMOX

The plugin leverages the Proxmox VE host's multipath daemon to provide robust path redundancy and stability.

- **Redundancy Paths:** Each redundancy path is based on IP addresses configured in separate network subnets.
- **Plugin Automation:** The plugin automatically retrieves unique SCSI identifiers and registers them with the Linux kernel multipath subsystem, creating stable multipath devices for Proxmox VE.
- **Stability:** By aggregating multiple iSCSI sessions into a single logical device, the solution protects against individual network failures and ensures consistent data storage availability.

FAQ

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

For administrators looking to integrate their Open-E JovianDSS environment with Proxmox VE, the Open-E JovianDSS iSCSI 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 iSCSI 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 VE. When used with the Open-E JovianDSS iSCSI Proxmox Plugin, it provides a unique hyper-converged infrastructure (HCI) solution that supports full iSCSI multipathing and automated volume management without the need for additional external storage hardware.

4. HOW DO I PROTECT MY SNAPSHOTS FROM RANSOMWARE?

While the Open-E JovianDSS iSCSI 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 PROXMOX ISCSI PLUGIN?

When utilizing the Open-E JovianDSS iSCSI 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 iSCSI 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 iSCSI target 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