Datasheet

Proxmox Virtual Environment

AT A GLANCE

- Complete open-source platform for enterprise virtualization
- Control via web-based management interface
- 100% software-defined architecture
- Two virtualization technologies supported: KVM hypervisor & Linux Container (LXC)
- Easy management with web-based user interface & CLI
- High-Availability (HA) Cluster Manager
- Live/Online Migration
- Integration of Proxmox Backup Server
- Built-in services: firewall, backup/restore, storage replication, etc.
- Open-source license (GNU AGPL, v3)
- Enterprise support agreements

OVERVIEW

Proxmox Virtual Environment is a complete, open-source solution for enterprise virtualization, that integrates the KVM hypervisor and Linux containers (LXC), software-defined storage and networking functionality, on a single platform. From the central user interface, you can manage VMs and containers, storage resources, network configuration, and high availability for clusters. The interface also provides access to multiple out-of-the-box tools for tasks such as backup/restore, live-migration, storage replication, and firewall configuration.

Proxmox VE is designed to scale to cluster-level and enables you to virtualize even the most demanding of Linux and Windows application workloads. By combining two virtualization technologies on a single platform, Proxmox VE provides maximum flexibility to your data center. It includes strong high-availability (HA) support and—thanks to the unique multi-master design—you don't need any additional management server, thus saving resources and allowing HA without a single point of failure (SPOF).

ENTERPRISE-READY

Enterprises use the powerful Proxmox VE platform to easily install, manage, and monitor their hyper-converged (HCI) data centers. Multiple authentication sources, combined with role-based user and permission management enable flexible control of HA clusters. The REST API enables easy integration of third-party management tools, such as custom hosting environments.

The future-proof and open-source development model of Proxmox VE guarantees full access to the product's source code as well as maximum flexibility and security.

KEY FEATURES

INDUSTRY-LEADING ENTERPRISE VIRTUALIZATION

- Linux and Windows servers, 32 and 64 bit operating systems.
- Support for the latest Intel and AMD server chip sets – for great VM performance.
- Near bare-metal performance for real-world enterprise workloads.
- Management layer containing all the capabilities to manage and monitor an open-source software-defined data center.

OPEN-SOURCE SOFTWARE

- Published under the free and open-source GNU Affero General Public License, version 3 (AGPL,v3: http://www.gnu.org/licenses/agpl-3.0.html).
- Designed for community cooperation.
- Public code repository (Git).
- Bug tracker for issue tracking.
- Community support forum.
- Documentation, wiki, video tutorials, HOW-TOs ,...

ENTERPRISE SUPPORT AGREEMENT

- Subscriptions to ensure business continuity.
- Exclusive access to the stable Enterprise Repository.
- Updates and version upgrades via GUI.
- Professional support from the Proxmox developers.

HIGHLY AVAILABLE (HA) CLUSTER

- No single point of failure (no SPOF).
- Multi-master cluster.
- Manage the HA settings for KVM and LXC via GUI.
- pmxcfs—unique Proxmox VE Cluster File System: database-driven file system for storing configuration files, replicated in real-time across all nodes using Corosync.
- Based on proven Linux HA technologies, providing stable and reliable HA service.
- Resource agents for KVM and containers (LXC).
- Watchdog-based fencing.

COMMAND LINE (CLI)

- Manage all components of your virtual environment.
- CLI with intelligent tab completion.
- Full UNIX man page documentation.

FENCING

- The Proxmox VE HA Manager uses self fencing, provided by hardware Watchdog or kernel Softdog.
- No simultaneous data access or corruption.
- Works „out-of-the-box“.
- Includes Proxmox VE HA Simulator for testing.

WEB-BASED MANAGEMENT INTERFACE

- Integrated - no need to install a separate management tool or any additional management node.
- Fast and easy creation of VMs and containers.
- Seamless integration and easy management of an entire cluster.
- Fast, search-driven interface, able to handle thousands of VMs.
- Based on the Ext JS JavaScript framework.
- Secure HTML5 console, supporting SSL.
- Let's Encrypt TLS certificates via the DNS-based challenge mechanism (or http).
- Subscription management via GUI.
- Simple management of APT repositories via GUI.
- Integrated documentation

FLEXIBLE STORAGE OPTIONS

- Local storage such as ZFS (encryption possible), Btrfs, LVM, and LVMthin.
- Shared storage such as CIFS, iSCSI or NFS.
- Distributed storage such as Ceph RBD and CephFS.
- Encryption support for Ceph OSD and ZFS.
- Unlimited number of storage definitions (cluster-wide).

KEY FEATURES

REST API

- Easy integration for third-party management tools.
- REST like API (JSON as primary data format).
- Easy and human readable data format (native web browser format).
- Full support for API tokens
- Automatic parameter verification (verification of return values).
- Automatic generation of the API documentation.
- Easy means of creating command line tools (use the same API).
- Resource Oriented Architecture (ROA).
- Declarative API definition using JSON Schema.

LIVE/ONLINE MIGRATION

- Moving QEMU virtual servers from one physical host to another with zero downtime.

STORAGE REPLICATION STACK (ZFS)

- Built-in, open-source storage replication framework.
- Redundancy for guests using local storage.
- Data availability without using shared storage.
- Asynchronous replication.
- Minimize data loss in the case of a failure.
- Improve reliability, fault-tolerance, and accessibility of your data.
- Supports live migration.

SOFTWARE-DEFINED STORAGE (SDS) WITH CEPH

- Integrated Ceph, a distributed object store and file system.
- Management via GUI or CLI.
- Run Ceph RBD and CephFS directly on the Proxmox VE cluster nodes.
- Easy-to-use installation wizard.
- Proxmox delivers its own Ceph packages.
- Ceph support is included in the support agreement.

VIRTUALIZED NETWORKING

- Bridged networking model.
- Each host with up to 4094 bridges.
- TCP/IP configuration.
- IPv4 and IPv6 support.
- Support for VLANs.
- Integrates Open vSwitch.

BACKUP AND RESTORE

- Full backups of VMs and containers.
- Live snapshot backups.
- Define multiple schedules and backup storages.
- GUI and CLI integration.
- Backup and restore via GUI.
- Run scheduled backup jobs manually in the GUI.
- Monitor backup jobs via the GUI's "Tasks" tab.
- Back up VMs with IOThreads enabled.

INTEGRATION OF PROXMOX BACKUP SERVER

- Full support for the open-source, enterprise backup solution from Proxmox.
- Incremental, fully deduplicated backups of VMs, containers, and physical hosts.
- QEMU dirty-bitmaps for VM backup.
- Strong encryption on the client-side, with easy encryption key management.
- Single-file and directory restore.
- With live-restore, guests start as soon as the restore does.

TWO-FACTOR AUTHENTICATION

- Providing high security.
- 2 types: Time-based One Time Passwords (TOTP) and YubiKey.
- Able to use a hardware-based TOTP key.

KEY FEATURES

MULTIPLE AUTHENTICATION SOURCES

- Proxmox VE supports multiple authentication sources.
- Linux PAM standard authentication (e.g., 'root' and other local users).
- Built-in Proxmox VE authentication server.
- Microsoft Active Directory (MS ADS).
- LDAP
- Single Sign-On (SSO) with OpenID Connect

ROLE-BASED ADMINISTRATION

- User and permission management for all objects (VMs, storage systems, nodes, etc.)
- Proxmox VE comes with a number of predefined roles (groups of privileges) which cover common use cases. The contained privileges can be seen in the GUI.
- Permissions to control access to objects (access control lists). Each permission specifies a subject (user or group) and a role (set of privileges) on a specific path.

VM TEMPLATES AND CLONES

- Deploying VMs from templates is blazing fast, very convenient, and if you use linked clones, highly storage efficient.
- Linked and full clones.

PROXMOX VE FIREWALL

- Supporting IPv4 and IPv6.
- Linux-based netfilter technology. Stateful firewall provides high bandwidth.
- Distributed: main configuration in Proxmox VE cluster file system, with iptable rules stored in nodes.
- Cluster-wide settings.
- 3 levels of configuration (data center, host, VM/CT).
- Support for 'raw' tables; enable SYN flood attack protection.

LEARN MORE

Wiki: https://pve.proxmox.com

Community Forums: https://forum.proxmox.com

Bugtracker: https://bugzilla.proxmox.com

Code repository: https://git.proxmox.com

HOW TO BUY

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Support Forum: https://forum.proxmox.com

TRAINING PROXMOX VE

Learn Proxmox VE easily – Visit a training: https://www.proxmox.com/training

ABOUT PROXMOX

Proxmox Server Solutions GmbH is a software provider, dedicated to develop powerful and efficient open-source server solutions. The privately held company is based in Vienna (Europe).

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