Hochverfügbare Open-Source-Virtualisierung mit

5.2

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stacktrace

VON UNSEREM WISSEN PROFITIEREN

IT-SECURITY CONSULTING

MEHR... →

AUFKLÄRUNG VON CYBERKRIMINALITÄT

DIGITALE FORENSIK

MEHR... →

IST IHR UNTERNEHMEN SICHER?

AUDITS & PENETRATION TESTING

MEHR... →

SCHÜTZEN SIE IHRE DATEN

DATENSCHUTZ

MEHR... →

OPEN-SOURCE-VIRTUALISIERUNG

PROXMOX VE

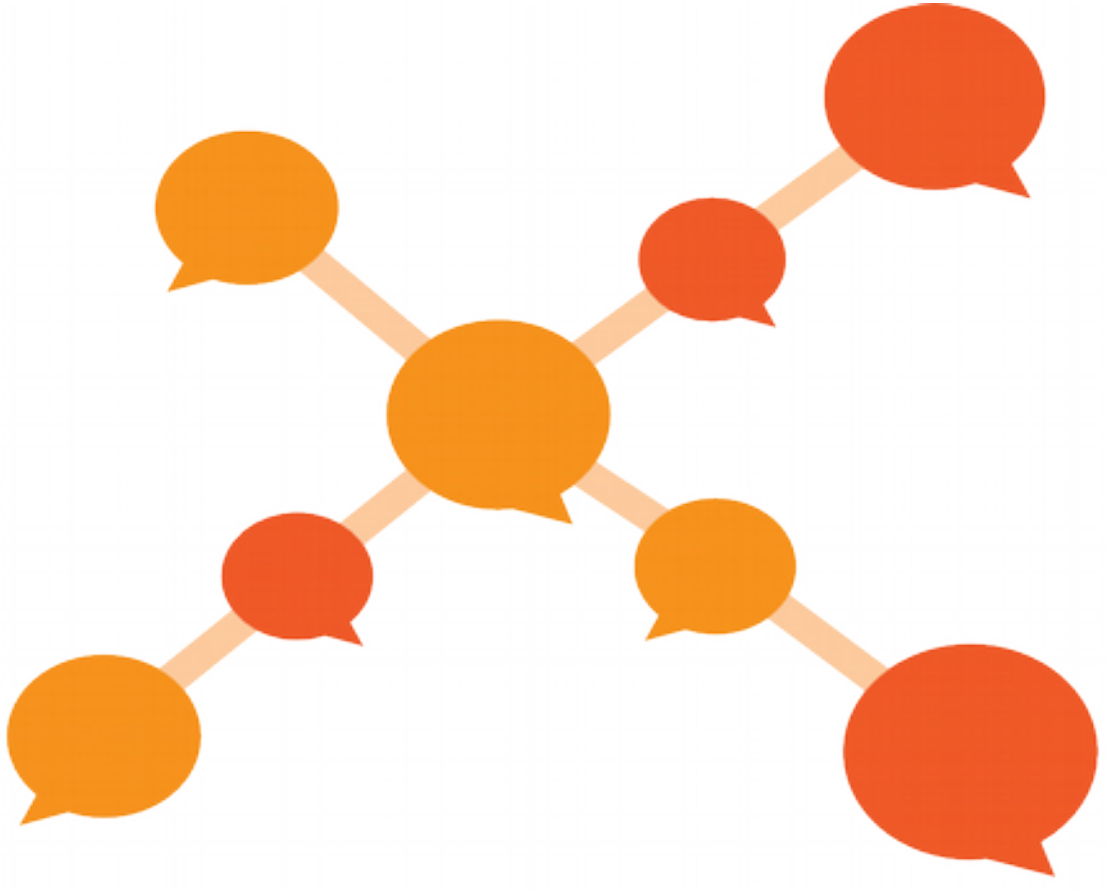
MEHR... →

WISSEN AUFBAUEN

SEMINARE & SCHULUNGEN

MEHR... →


PROXMOX
training partner



proxtalks


PROXMOX

KEY FEATURES

INDUSTRY-LEADING ENTERPRISE VIRTUALIZATION TECHNOLOGY

- Linux and Windows Servers, 32 and 64 bit operation systems
- Support for the latest Intel and AMD server chipsets for great VM performance
- Leading performance relative to bare metal for real-world enterprise workloads
- Management layer contains all the capabilities required to create and manage a virtual infrastructure

OPEN SOURCE SOFTWARE

- Licensed under the free, copyleft GNU Affero General Public License, version 3 (AGPL, V3: http://www.gnu.org/licenses/agpl-3.0.html)
- Designed to ensure cooperation with community
- Public code repository (GIT)
- Bugtracker
- Public community forum
- Free Wiki for documention and HowTo´s

RESTFUL WEB API

- Easy integration for third party management tools like custom hosting enviroments
- REST like API (JSON as primary data format, and the whole API is formally defined using JSON Schema)
- Easy and human readable data format (native web browser format)
- Automatic parameter verification (verification of return values)
- Automatic generation of API documentation
- Easy way to create command line tools (use the same API)
- Resource Oriented Architecture (ROA)
- Declarative API definition using JSON Schema

HIGH AVAILABILITY CLUSTER

- No single point of failure (no SPOF)
- Mulit-master cluster (no single master)
- GUI for managing KVM and container HA settings
- pmxcfs—Proxmox VE Cluster File System: database-driven file system for storing configuration files replicated in realtime on all nodes using Corosync
- Based on proven Linux HA technologies, providing stable and reliable HA service
- Resource agents for KVM and Linux Containers (LXC)
- Watchdog based Fencing

FENCING

- Proxmox VE HA Manger uses self fencing provided by hardware Watchdog or kernel Softdog
- No simultaneous data access and corruption
- Works „out-of-the-box"
- Proxmox VE HA Simulator included for testing

INTEGRATED WEB-BASED MANAGEMENT GUI

- No need to install a separate management tool or any additional management node
- Fast search-driven interface, capable of handling thousands of VM´s
- Secure HTML5 VNC console, supporting SSL
- Wizard based creation of virtual servers and containers
- Seamless integration and management of Proxmox VE 4.x Cluster
- Subscription management via GUI
- Role based permission management for all objects (VM´s and CT´s, storages, etc.)
- Support for multiple authentication sources (e.g. local, MS ADS, LDAP, ...)
- AJAX technologies for dynamic updates of resources
- Based on Ext JS JavaScript framework.
- Cluster-wide Task and Cluster logs: The GUI shows all running tasks from the whole cluster but also the history and the syslog of each node. This includes running backup or restore jobs, live-migration or HA triggered activities

LIVE MIGRATION

- Moving QEMU virtual servers from one physical host to another without any downtime.

COMMAND LINE INTERFACE

- For advanced users
- Manage all components of your virtual environment
- CLI with intelligent tab completion and full UNIX man page documentation

STORAGE TYPES

- Local storage, ZFS, LVM with ext3/ext4, and XFS
- Shared storage such as FC, iSCSI or NFS
- Distributed storage such as Ceph RBD, Sheepdog, GlusterFS
- Unlimited number of storage definitions (cluster-wide)

BRIDGED NETWORKING

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

BACKUP AND RESTORE

- Full backups of containers and VMs
- Live Snapshot Backups
- Multiple schedules and backup storages
- GUI integrations, but also via CLI
- "Backup Now" and restore via GUI
- All jobs from all nodes can be monitored via the GUI tab "Tasks"

PROXMOX VE FIREWALL

- Linux-based netfilter technology. Stateful firewall. Provides high bandwith.
- Distributed: Main configuration in Proxmox VE cluster file system, iptable rules stored in nodes.
- Supports IPv4 and IPv6
- Cluster-wide settings
- 3 levels of configuration (datacenter, host, VM/CT)
- Completely customizable allowing complex configurations via GUI or CLI
- Quick setup with predefined macros

MULTIPLE AUTHENTICATION SOURCES

- Proxmox VE supports multiple authentication sources
- Linux PAM standard authentication (e.g. 'root' and other local users)
- Proxmox VE authentication server (built-in)
- Microsoft Active Directory (MS ADS)
- LDAP

ROLE-BASED ADMINISTRATION

- User- and permission management for all objects (VM´s, storages, nodes, etc.)
- A role is simply a list of privileges. Proxmox VE comes with a number of predefined roles which satisfies most needs. The whole set of predefined roles can be seen on the GUI.
- Permissions are the way to control access to objects. In technical terms they are simply a triple containing <path,user,role>. This concept is also known as access control lists. Each permission specifies a subject (user or group) and a role (set of privileges) on a specific path.

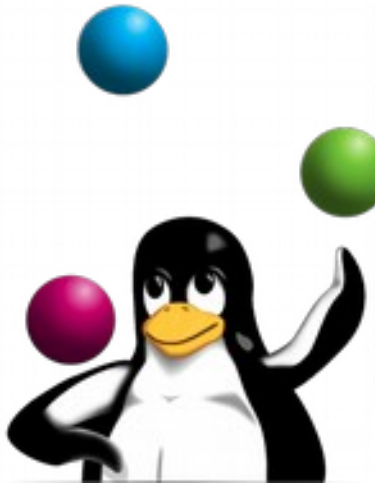
VM TEMPLATES AND CLONES

- Deploying virtual machines from templates is blazing fast, very comfortable and if you use linked clones you can optimize your storage by using base images and thin-provisioning.
- Linked and Full Clones

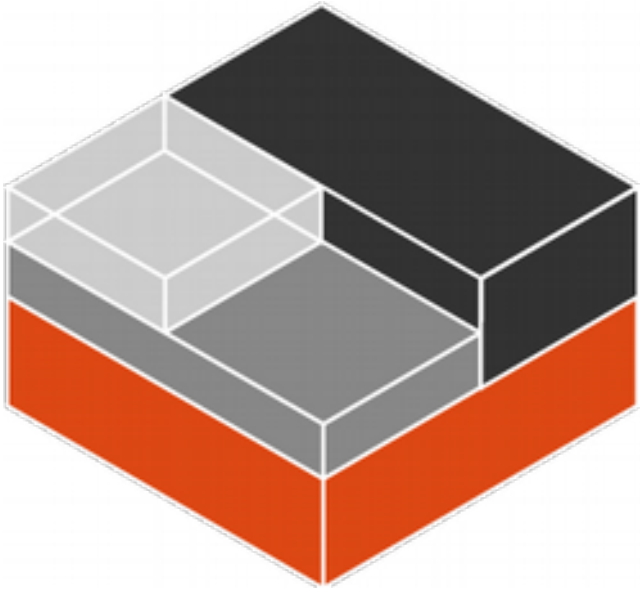
TWO-FACTOR AUTHENTICATION

- For high security
- 2 types: Time-based One Time Passwords and YubiKey

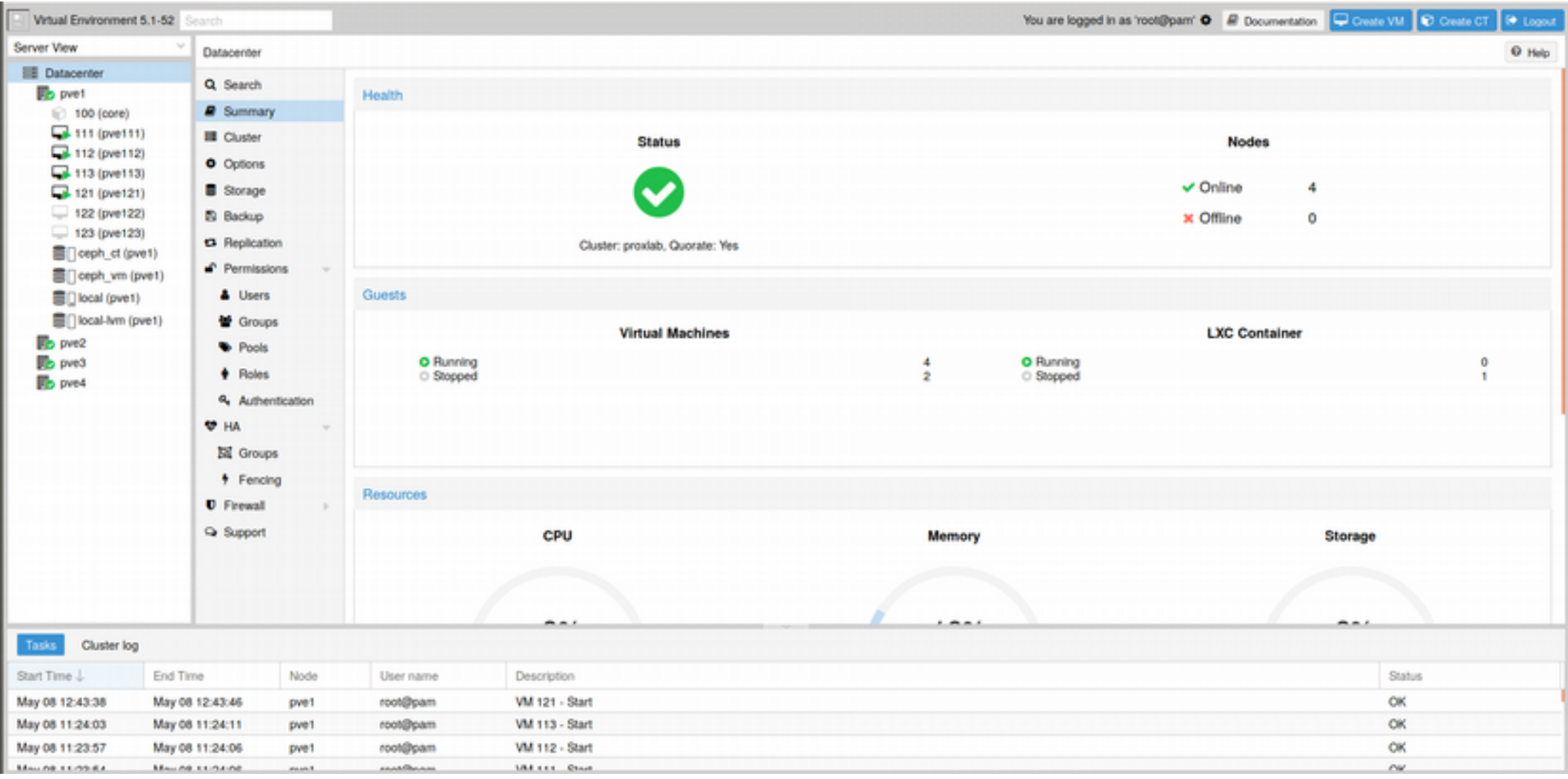
debian



KVM



LXC

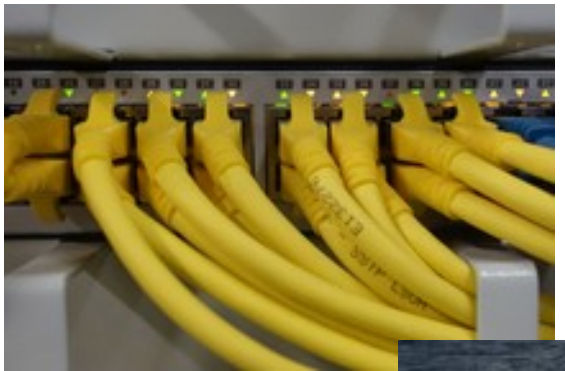

Virtual Environment 5.1-52
Search
You are logged in as 'root@pam'
Documentation
Create VM
Create CT
Logout
Server View
Datacenter
pve1
100 (core)
111 (pve111)
112 (pve112)
113 (pve113)
121 (pve121)
122 (pve122)
123 (pve123)
ceph_ct (pve1)
ceph_vm (pve1)
local (pve1)
local-lvm (pve1)
pve2
pve3
pve4
Datacenter
Help
Search
Summary
Cluster
Options
Storage
Backup
Replication
Permissions
Users
Groups
Pools
Roles
Authentication
HA
Groups
Fencing
Firewall
Support
Health
Status
Cluster: proxlab, Quorate: Yes
Nodes
Online 4
Offline 0
Guests
Virtual Machines
Running 4
Stopped 2
LXC Container
Running 0
Stopped 1
Resources
CPU
Memory
Storage
Tasks
Cluster log
Start Time
End Time
Node
User name
Description
Status
May 08 12:43:38 May 08 12:43:46 pve1 root@pam VM 121 - Start OK
May 08 11:24:03 May 08 11:24:11 pve1 root@pam VM 113 - Start OK
May 08 11:23:57 May 08 11:24:06 pve1 root@pam VM 112 - Start OK

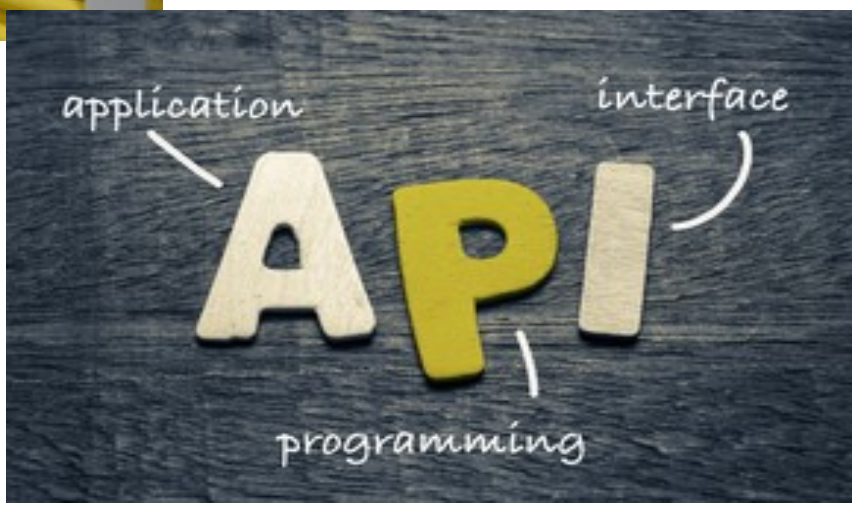

ceph

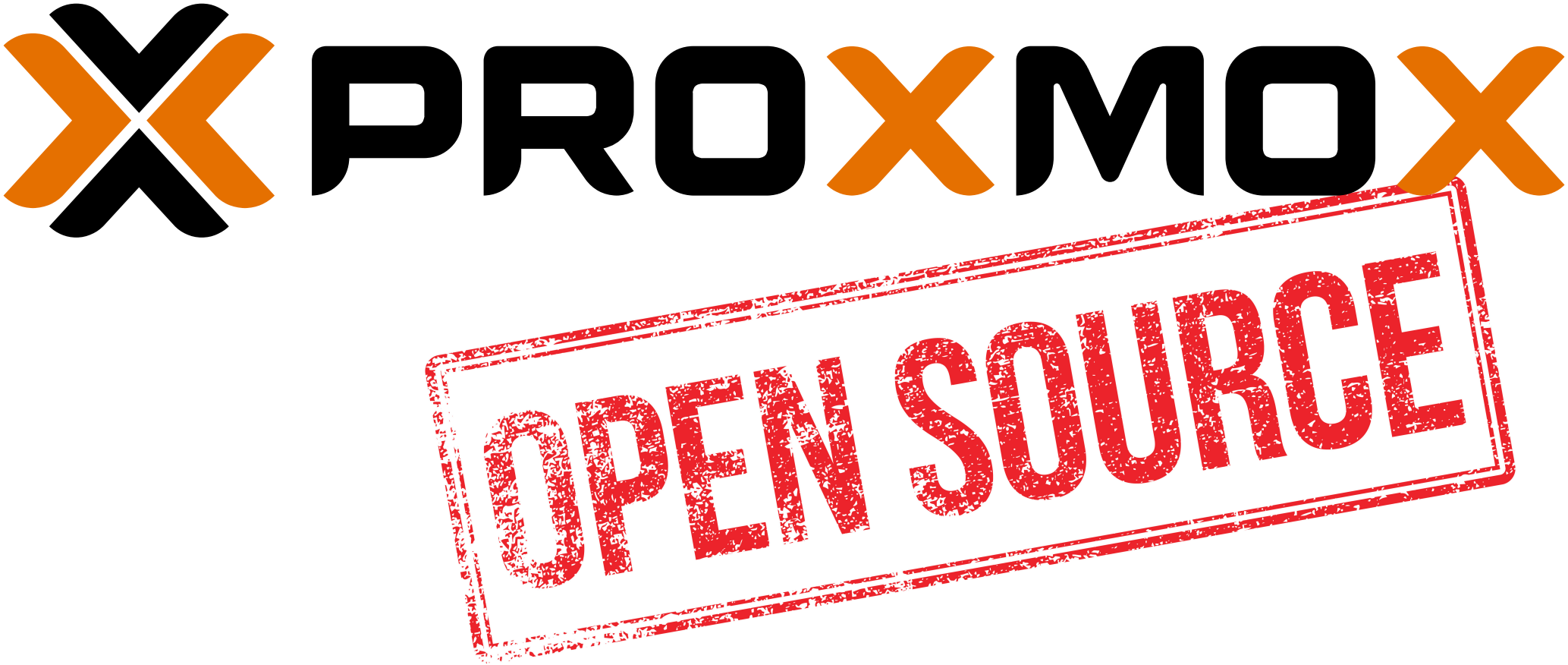

32
31
30


SERVICE LEVEL
LOW
MEDIUM
HIGH

Windows Server
Active Directory





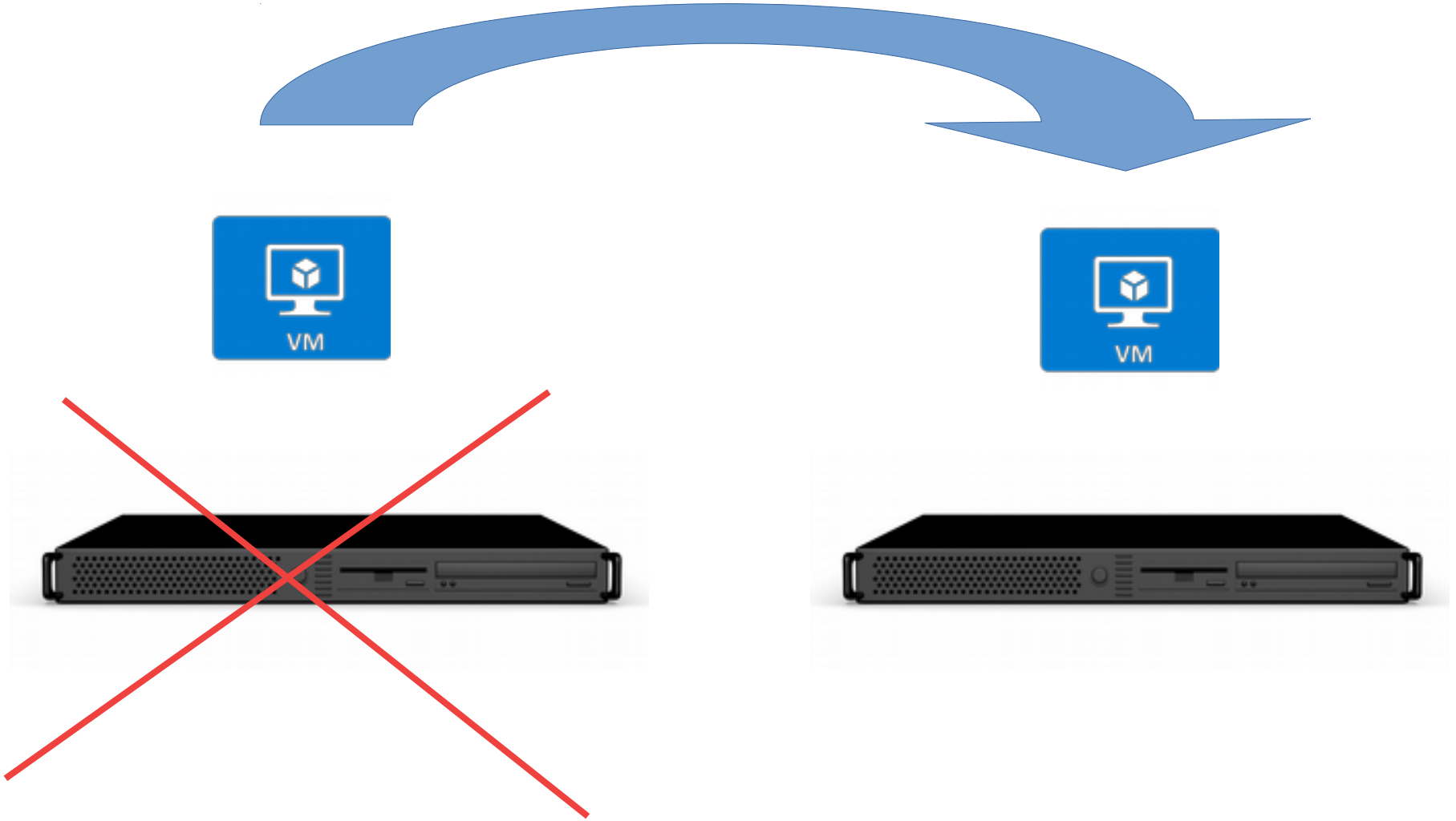

PROXMOX
OPEN SOURCE

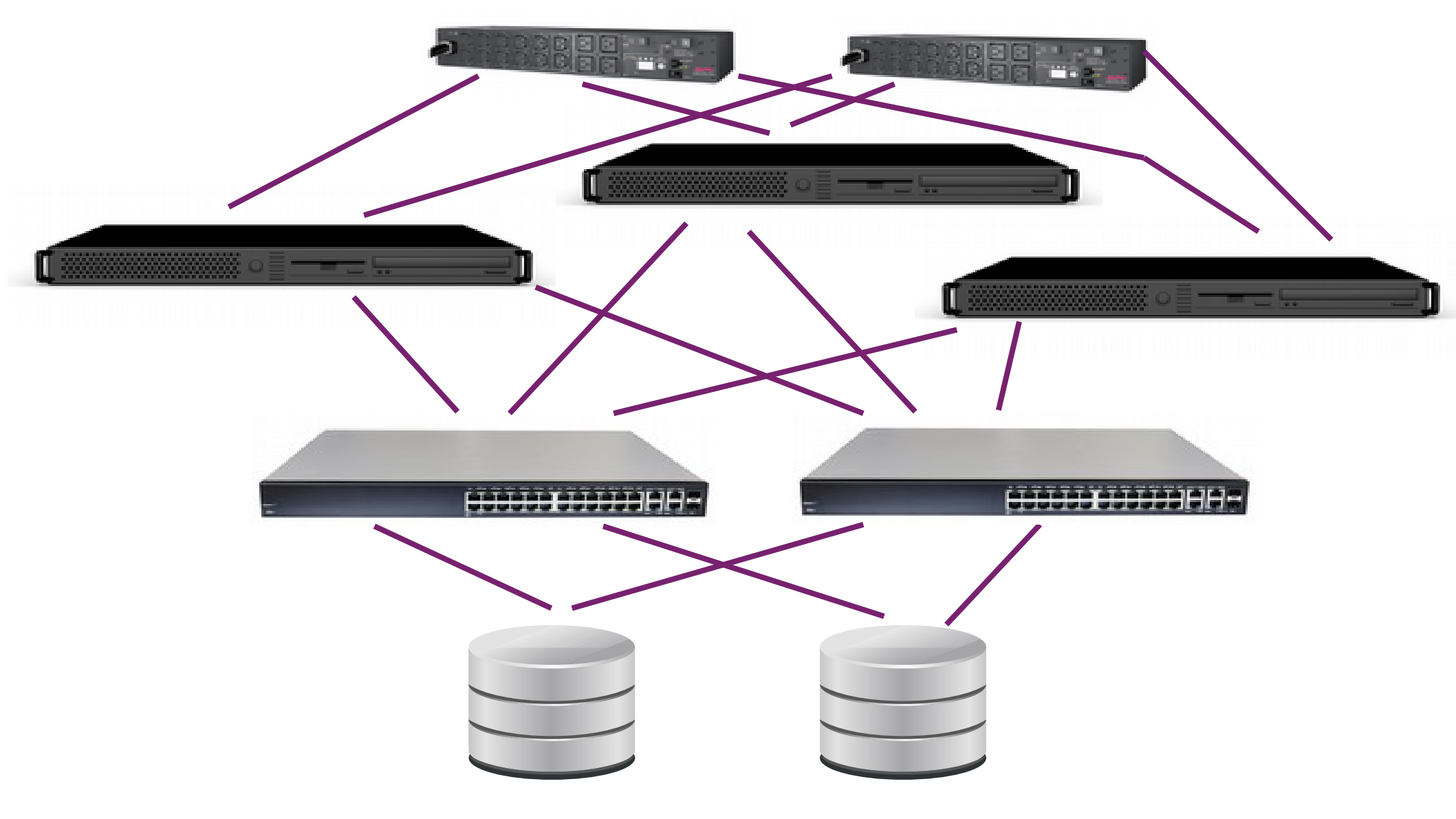
Hochverfügbarkeit

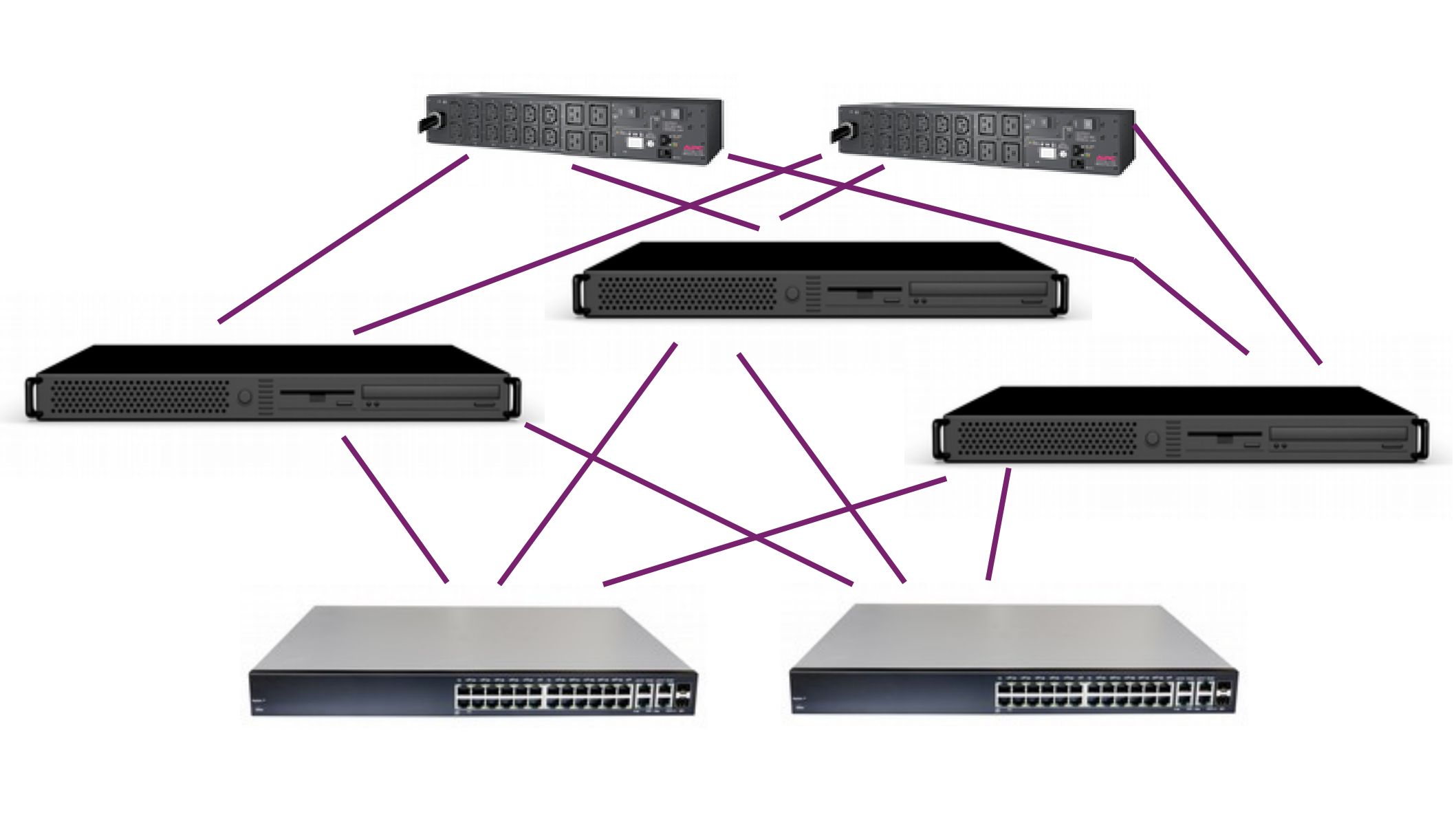
Table 1. Availability - Downtime per Year

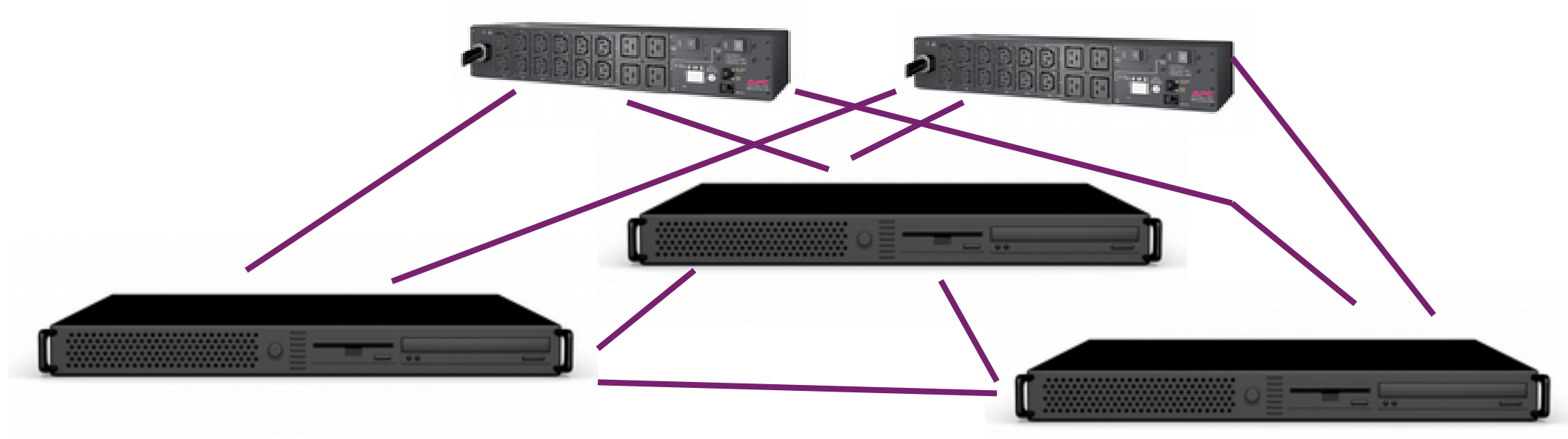
Availability %	Downtime per year
99	3.65 days
99.9	8.76 hours
99.99	52.56 minutes
99.999	5.26 minutes
99.9999	31.5 seconds
99.99999	3.15 seconds

HOCHVERFÜGBAR

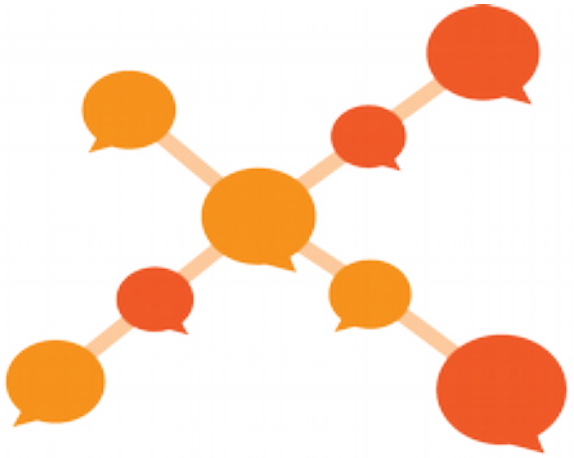

VM
VM







High Availability From Hell



Proxtalks 2018

die Konferenz rund um Proxmox VE

24. Oktober 2018

Frankfurt am Main – The Squaire – Direkt am Flughafen

https://proxtalks.de