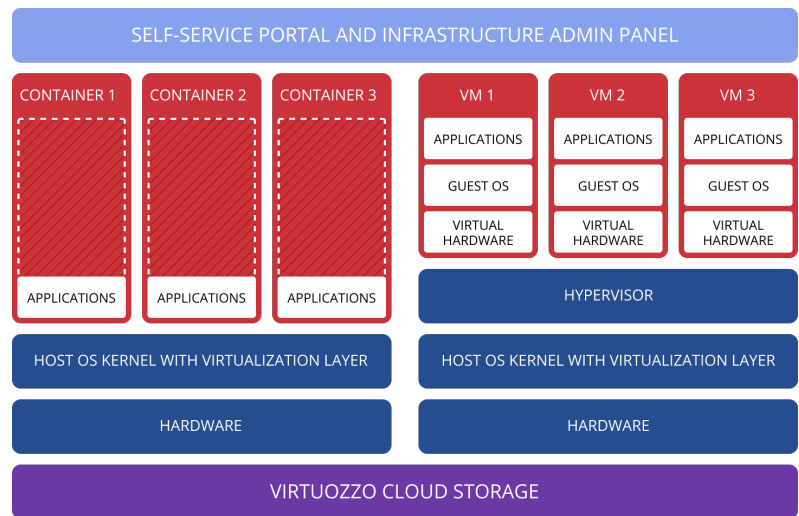# Virtuozzo Hybrid Server

Virtuozzo Hybrid Server is a bare-metal virtualization solution that includes system container virtualization, KVM-based virtual machines, and software-defined storage. It runs on top of VzLinux, a RHEL-based Linux distribution.

- Efficient memory management and truly elastic RAM
- Significant memory deduplication and disk IOPS/IO saving
- Less overhead for disk I/O and network operations
- Integrated software-defined distributed storage
- High Availability for VMs and containers
- Very fast and consistent backups and snapshots on local or remote servers
- Rebootless kernel updates with ReadyKernel technology
- Live QEMU updates without virtual machine restarts
- Self-service portals for infrastructure admins and users
- Smart updates to decrease maintenance efforts for system administrators

SELF-SERVICE PORTAL AND INFRASTRUCTURE ADMIN PANEL

| CONTAINER 1 | CONTAINER 2 | CONTAINER 3 | VM 1 | VM 2 | VM 3 |

APPLICATIONS / GUEST OS / VIRTUAL HARDWARE

APPLICATIONS

HYPERVISOR

HOST OS KERNEL WITH VIRTUALIZATION LAYER — HOST OS KERNEL WITH VIRTUALIZATION LAYER

HARDWARE — HARDWARE

VIRTUOZZO CLOUD STORAGE

Density

Our tuned KVM hypervisor makes efficient use even of modest hardware – and you can achieve up to twice the density using containers.

Performance

Storage that's 3x faster than Ceph, a hypervisor that's 33% faster than stock KVM, and containers that deliver 40% better performance than VMs.
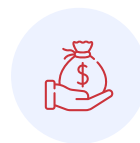
Security and High Availability

HA compute and storage, hardened hypervisor and AES-256 disk encryption: data is stored in LUKS format with extensive KMS support.

Return on Investment

High density plus flexible licensing and 24x7 support: selling hosting with Virtuozzo is more cost-effective and profitable than 'DIY' with OpenVZ or OpenStack.

> "Using Virtuozzo Hybrid Server has delivered better efficiencies for both infrastructure and software dependencies. We've been able to achieve upwards of 50% increase in performance from the same hardware versus other solutions."

**Bryan Muthig,** CEO   **A2 HOSTING** OUR SPEED, YOUR SUCCESS

Container Virtualization in Virtuozzo Hybrid Server

Virtuozzo Hybrid Server provides native system container technology using OS virtualization. OS virtualization is streamlined for high density, performance, management and efficiency.

- The OS virtualization layer ensures isolation and security of resources between different containers. It makes each container appear as a standalone server.

- Containers have no virtualized hardware and use native hardware and software drivers.

- Each container can seamlessly scale up to the resources of an entire physical server and with the help of Virtuozzo Storage it can grow virtual disks beyond physical server limits.

- OS virtualization technology provides the highest density available from a virtualization solution. You can create and run hundreds of containers on a standard production physical server.

- Containers use a single OS, making it extremely simple to maintain and update across containers. Applications may also be deployed as a single instance.

- OS virtualization technology can run nested application containers via Docker or K8s inside system containers, with the added value of consistent backups, live migration and persistent storage.

SYSTEM CONTAINER

APPLICATION CONTAINER ... APPLICATION CONTAINER

CONFIG, LIBS, DAEMONS, USERS, ETC.

OTHER APPS   DOCKER

SYSTEM CONTAINER ENGINE
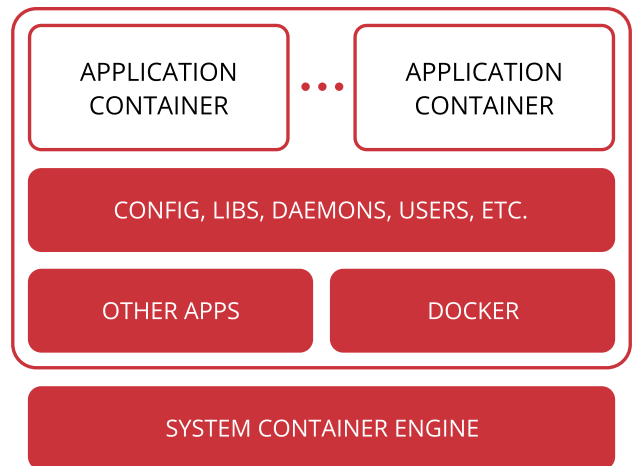
Virtual Machine Virtualization in Virtuozzo Hybrid Server

Virtuozzo Hybrid Server provides hardware virtualization for the creating and managing of virtual machines. The hypervisor layer is loaded directly on the bare server, acting as an intermediary between the server hardware and virtual machine(s).

VIRTUAL MACHINE

APPLICATION CONTAINER ... APPLICATION CONTAINER

CONFIG, LIBS, DAEMONS, USERS, ETC.

OTHER APPS   DOCKER

GUEST OS
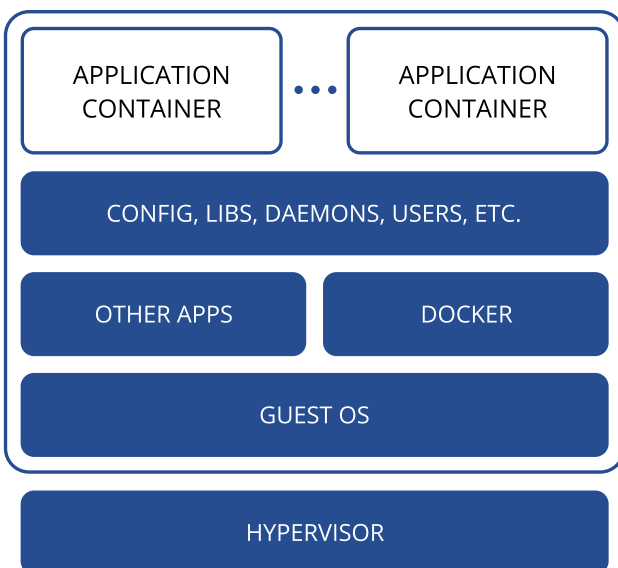
HYPERVISOR

Virtuozzo Hybrid Server uses the KVM/QEMU hypervisor and manages virtual machines via the libvirt API. Hardware virtualization enables you to:

- Create multiple virtual machines with different operating systems on a single physical host.

- Run multiple guest operating systems and their applications simultaneously on a single physical host without rebooting.

- Consolidate and virtualize the computing environment, reduce hardware costs, lower operating expenses, and increase productivity.

- Use open APIs and SDK for integration with in-house and third-party applications.

- Live update of QEMU device emulator without VM reboot.

Turnkey Solution for Service Providers and SMBs

Virtuozzo Hybrid Server provides the best value for cost-conscious organizations, enabling them to:

- Standardize server hardware platforms
- Effectively consolidate server resources
- Consolidation and support legacy operating systems and applications
- Streamline server and application deployment, maintenance, and management
- Simplify software testing and development
- Optimize server and application availability
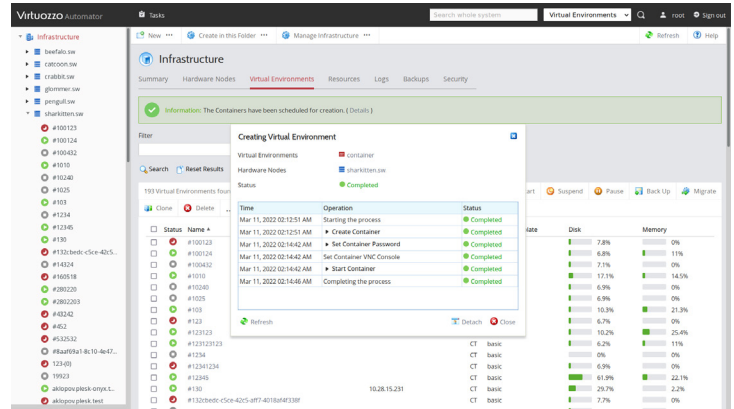
Built-In Software-Defined Storage

Data redundancy in case of any type of hardware failure, with support for block storage (VM volumes, iSCSI), file storage (NFS), and object storage (S3)

High-performance block storage for hot data and virtual machines, natively integrated with compute services, including RDMA support and ability to create multiple chunk servers per NVMe/SSD drive

Easy and smooth scalability for growing clusters via small steps on one server or disk

Cost-effective cold data storage with erasure coding that optimizes disk space for storing petabytes of data

Streamline Integrations

Virtuozzo Hybrid Server integrates smoothly with popular web hosting automation software, including backup, security and billing solutions.

plesk   cPanel   WHMCS   Acronis   R1Soft   HostBill   DirectAdmin web control panel   ispsystem

"It was an easy decision for us to partner with Virtuozzo. Compared to our dedicated hardware business, we now can offer upgrades to more resources, if needed. We were able to provide more value to our customer, not only by more servers but also by higher value per server"

Christian Schneide, Senior VP Product   STRATO