Parallels® Cloud Server

The Next-Generation Cloud Server Is Here

Parallels Cloud Server transforms how you deliver the cloud. Parallels Cloud Server combines Parallels Cloud Storage with Parallels Containers and Parallels Hypervisor to dramatically improve server reliability, performance and profitability, delivering:

- Fault-tolerant distributed storage – no single point of failure
- High-performance, high-density containers virtualization
- The lowest-cost cloud storage solution available

Storage And Virtualization Combined

Parallels Cloud Server is the only solution available today that delivers container and hypervisor virtualization combined with a distributed, shared storage solution. Combining storage and virtualization decouples computation from storage and enables virtual machines and containers to be instantly migrated to an operational physical server if the original physical server becomes unavailable. Server availability and performance is dramatically improved and storage is scalable since it is no longer limited to locally attached disks.

Revolutionary Cloud Storage

Parallels Cloud Storage dramatically improves server availability and performance with elastic, scalable storage. Parallels Cloud Storage turns existing server disk space into a resilient cloud storage pool that is used to:

- Store and run Parallels virtual machines and containers
- Eliminate server downtime due to hardware failures
- Enable zero-downtime server migration and non-disruptive replication
- Deliver high-availability cloud servers

High-density, high performance container virtualization

Parallels Containers sets the hosting industry standard for profitable, secure and flexible Virtual Private Server (VPS) and cloud server offerings. Parallels Containers is uniquely suited to cloud server virtualization, enabling near instant provisioning and on-the-fly modification of hosting and cloud server plans while delivering maximum density, cost efficiency and application performance.

- Quickly provide secure, fully isolated, fully configured Linux servers
- Maximize hardware investments by increasing virtual server ratios, thus reducing costs and improving profitability
- Enable near-instant provisioning and on-the-fly modification of Linux VPS and Cloud server plans

High Density

Parallels Cloud Server containers deliver up to three times higher server density than leading hypervisors

High Performance

Parallels Cloud Server delivers 160-640% faster performance than leading hypervisors on traditional web LAMP stacks

New Features

Distributed Cloud storage

Resilient, fault tolerant, distributed storage scales up to petabytes. Provides high performance and highly available data access for running containers and virtual machines.

New container layout

Stores all files in a single image, improving server performance and enabling faster migration and backup. Allows instant creation of container snapshots.

Memory and IOPS deduplication

Efficiently caches identical files found in multiple containers to reduce I/O and memory bottlenecks and increase the number of running containers per server.

Rebootless updates

Eliminates service outages for end users during system updates.

Console access to containers

Improved monitoring and maintenance.

Containers with pre-installed application templates

Pre-install application templates to OS template caches to speed up containers creation.

Increased virtual machines limits

Create virtual machines with up to 32 CPU cores, 128 GB of RAM, and 5 TB of virtual disk space.

Support for Open vSwitch

Support for Open vSwitch, multi-layer software network switches that function as virtual switches, providing virtual machines and containers with network connectivity.

Hypervisor virtualization optimized for cloud services

Parallels Hypervisor gives you the flexibility to create virtual machines for customers who prefer to deploy and maintain a variety of operating systems. Delivering both virtualization technologies in a single solution provides you the freedom to choose the most efficient technology needed for each virtual server
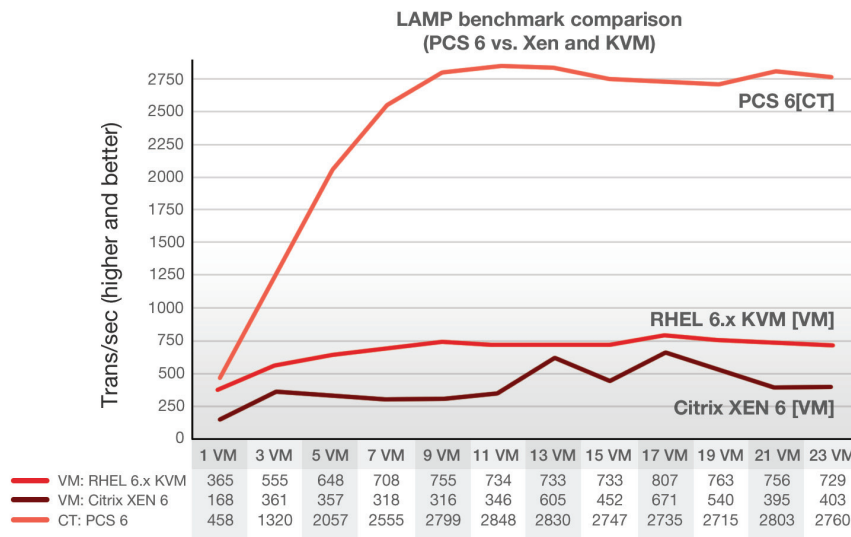
- Highly scalable hypervisor architecture for intensive applications
- Utilizes Intel VT-x, FlexPriority, EPT and VPID technologies for optimal performance
- Rebootless updates for improved availability

Performance Test Results

LAMP Stack Comparison

This test compares the performance and scaling of Parallels Cloud Server 6 to Xen 6 and Linux KVM when running the industry-standard LAMP web application stack. The benchmark metric used to compare virtualization platforms is the total number of serviced requests per sec depending on number of virtual machine instances running simultaneously.

The figure below shows the consolidated throughput of multiple virtualized Web apps in the guests, created with Parallels Containers, Xen VMs and KVM VMs. The performance score of each virtualization solution is compared for a given number of simultaneously running guests. Parallels Cloud Server 6 outperforms the Xen by 160 to 580% and KVM by 380 to 640% in in middle to heavy workloads.

**LAMP benchmark comparison
(PCS 6 vs. Xen and KVM)**

Trans/sec (higher and better)

PCS 6[CT]

RHEL 6.x KVM [VM]

Citrix XEN 6 [VM]

	1 VM	3 VM	5 VM	7 VM	9 VM	11 VM	13 VM	15 VM	17 VM	19 VM	21 VM	23 VM
VM: RHEL 6.x KVM	365	555	648	708	755	734	733	733	807	763	756	729
VM: Citrix XEN 6	168	361	357	318	316	346	605	452	671	540	395	403
CT: PCS 6	458	1320	2057	2555	2799	2848	2830	2747	2735	2715	2803	2760

CPU identification masks for VMs

Control the CPU features available to virtual machines, allowing live migration between servers with different CPU feature sets.

Unified Command Line Interface (CLI) for managing containers and VMs

Manage containers and virtual machines using a single CLI utility to create, start, stop, destroy or change the configuration.

Lamp Test Setup

Virtualization Software

- Latest hypervisor release, guest OS CentOS 5.8 x86_64
- Parallels Cloud Server 6.0, OS template CentOS 5.8 x86_64
- KVM (RHEL 6.3 2.6.32-279), guest OS CentOS 5.8 x86_64
- XEN Server 6.0.2 Advanced edition (Dynamic Memory Control enabled), guest OS CentOS 5.8 x86_64
- Each VM/CT was configured with 4 vCPUs (SMP), 2 GB RAM

Hardware

- Server: 2xHexCore 2.67GHz X5650 (+ HT, 24 threads), 48 GB RAM, Adaptec 5405 RAID-0 from 4 7200 RPMs SATA Drives, 1 Gbit Ethernet
- Client: 4xHexCore Intel Xeon (2.136 GHz), 32 GB RAM, 1 Gbit Ethernet
- Network: 1 Gbit direct server to client connection

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