

Parallels® Virtuozzo Containers

Customer Success Story

Host Europe Goes Green with Parallels Virtuozzo Containers

Hosting provider saves up to 63% of power consumption and increases EDITDA by going green with Parallels Virtuozzo Containers.

Business Challenge

Power consumption within hosting datacenters has become a major concern due to the impact on the environment as well as the impact to the bottom line. To overcome environmental and economic concerns, Host Europe devised a three part strategy, including virtualization using Parallels Virtuozzo Containers, to overcome power issues in their datacenters.

About This Study

This case study discusses both quantitative and qualitative issues regarding the deployment of an energy efficient datacenter. Several of the facts and figures presented were measured directly by Host Europe, while others were taken from forecasts.

Host Europe Selects Virtualization as Key Part of Green Initiative

The Three Part Initiative

In early 2005 Host Europe began its green hosting initiative. Today, the company has delivered on its three part strategy: (1) virtualizing using Parallels Virtuozzo Containers, (2) constructing an energy efficient datacenter in Köln, and (3) planning to purchase “carbon neutral” energy from green energy suppliers.

“Virtualization is the only green hosting initiative which has been deployed across all of Host Europe’s datacenters and has improved our profitability.”

— Patrick Pulvermueller, Operations Director, Host Europe

More Reasons to Virtualize

Host Europe noticed that 80% of its dedicated servers were underutilized. These computers were sitting mostly idle, but drawing a lot of power to provide uptime and maintain system processes. By virtualizing and consolidating these servers, Host Europe could offer customers a virtualized server with:

- **Equal Performance** – from sharing idle CPU and memory cycles
- **Higher Reliability** – due to better VPS management tools
- **Lower Prices** – up to 70% savings over dedicated servers

And, most importantly, overall power consumption was reduced – thereby providing a more environmentally friendly hosting experience.



Overview

Location: Köln, Germany

Type: Hosting Provider

Stock: Subsidiary of PIPEX Communications Plc, New Market of England (AIM)

Customer Profile

Since 1997, Host Europe has been a leading provider of reliable and innovative Internet services for clients in Germany, Austria, and Switzerland. Host Europe provides enterprise hosting, dedicated servers, VPS servers, managed services, co-location, and a range of e-services.

Business Situation

Host Europe wanted to “go green” to reduce power consumption in its data-centers. The green initiative had to be good for the environment while having a minimal impact on revenue and profitability.

Parallels Solution

Parallels Virtuozzo Containers provided a highly efficient solution for reducing power output through the consolidation of poorly utilized servers.

The OS virtualization technology in Parallels Virtuozzo Containers provides the lowest possible overhead and lowest possible power consumption of virtualization solutions in the market today. In addition, the management tools that accompany Parallels Virtuozzo Containers reduce waste associated with management tasks such as server migration and backup.

Quantitative Proof and Measurements

Power Savings From Virtualization

To quantify the power savings, Host Europe took some key measurements from servers in their datacenter. They measured the power that a typical server draws without virtualization, the power that a typical server draws with virtualization, and the amount of power required to cool servers. The results of these measurements are provided in the table below.

	Units	Example 1
Servers		
Total Servers	servers	2400
Total Servers after Virtualization	servers	600
Power		
Server wattage (under-utilized server)	kWh per annum	1,752.00
Server wattage (fully utilized server)	kWh per annum	2,628.00
Electricity (under-utilized server)	kWh / month per server	146.00
Electricity (fully utilized server)	kWh / month per server	219.00
Cooling cost per server ratio		1.50
Total Electricity (under-utilized server)	kWh / month per server	219.00
Total Electricity (fully utilized server)	kWh / month per server	328.50
Cost of Power	\$ / kWh	0.1
Total monthly power and cost		
Energy (without Virtualization)	kWh / month	525,600
Energy (with Virtualization)	kWh / month	197,100
Savings		
	percent	63%
	\$ / month	\$ 32,850.00

Notes and Assumptions:

- Total Servers** are provided as an example only.
- Total Servers After Virtualization** is the total physical servers needed after virtualization. This estimate is based upon the high quality of service provided by Host Europe. Parallels Virtuozzo Containers can provide much higher consolidation ratios.
- Electricity measurement (server wattage)** are averages. Each individual server will draw different amounts of power based on the model, the utilization, and configuration.
- Cooling cost ratio** measures the amount of power consumed to dissipate heat. This number is much lower than the industry average (2.0) due to the modern HVAC, water cooling system, and building construction used within Host Europe's modern data center.
- Cost of power** is an industry average and not necessarily reflective of Host Europe's costs

More Potential Savings

By changing assumptions about the virtualization ratio, even more power savings are possible.

- 4:1 = 63% savings (as shown)
- 6:1 = 75% savings
- 10:1 = 85% savings
- 20:1 = 93% savings

By providing the lowest possible overhead, Parallels Virtuozzo Containers allows providers to maximize power savings and minimize power consumption.

“Implementing virtualization improved our net margins. Revenue per customer was lower, but the reduced price point allowed us to enroll more customers in order to grow our business. We are enrolling over 1,000 VPS per month.”

— Uwe Braun, Managing Director, Host Europe

Implementation of Green Virtualization

There are other concerns when designing a green datacenter with virtualization. For example, the density of power will be greater. Host Europe designed its new datacenter to supply 4 kilowatts per rack while older datacenters were designed for 2 kilowatts per rack. Companies planning to convert an existing datacenter to a virtualized datacenter need to be aware of the extra power consumed per square foot of floor space.

Virtualization helps offset the extra power density with higher customer density. Host Europe noticed that although a rack consumed twice as much power, they could get 10 times the number of customers in a rack.



Host Europe's green datacenter saves power using virtualization and advanced cooling technology

Other Green Initiatives

Host Europe is a member of the Green Grid, a global consortium dedicated to developing and promoting energy efficiency for data centers and information service delivery.

Also, Host Europe is going to purchase "carbon neutral" energy – that is, energy that offsets the release of CO2 by reduction of CO2 elsewhere. Carbon neutral energy can be a few cents per kilowatt hour more expensive than standard energy.

Learn more at www.parallels.com/virtuozzo

For More Information

Parallels Virtuozzo Containers Documentation

To view the online documentation for Parallels Virtuozzo Containers, visit the Parallels web site:

<http://www.parallels.com/virtuozzo>

Contact Parallels

For more information about Parallels products and services, call Parallels sales at +1 703-995-4102. Outside the United States and Canada, please contact your local Parallels sales office.

Contact Host Europe

For more information about Host Europe, call (08 00) 4 67 83 87 or +49 (2203) 10451040 from outside Germany.



660 SW 39th Street
Suite 205
Renton, WA 98057
USA
Main +1 425 282 6400
Fax +1 425 282 6444

13755 Sunrise Valley Drive
Suite 600
Herndon, VA 20171
USA
Main +1 703 815 5670
Fax +1 703 815 5675

www.parallels.com