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Virtualization

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Virtualization 101

What is virtualization? Simply put, it's the process of creating a virtual, rather than physical, version of something. Virtualization can apply to computers, operating systems, storage devices, applications, or networks. However, server virtualization is at the heart of it.

IT organizations are challenged by the limitations of today's x86 servers, which are designed to run just one operating system and application at a time. As a result, even small data centers have to deploy many

servers, each operating at just 5 to 15 percent of capacity—highly inefficient by any standard.

Virtualization uses software to simulate the existence of hardware and create a virtual computer system. Doing this allows businesses to run more than one virtual system – and multiple operating systems and applications -- on a single server. This can provide economies of scale and greater efficiency.

Additional Resources

Virtualization for Dummies

Virtualization Essentials

The Virtual Machine

A virtual computer systems is known as “virtual machine” (VM): a tightly isolated software container with an operating system and application inside. Each self-contained VM is completely independent. Putting multiple VMs on a single computer enables several operating systems and applications to run on just one physical server, or “host”.

A thin layer of software called a hypervisor decouples the virtual machines from the host and dynamically allocates computing resources to each virtual machine as needed.

Key Properties of Virtual Machines

VMs have the following characteristics, which offer several benefits.

Partitioning

- Run multiple operating systems on one physical machine
- Divide system resources between virtual machines

Isolation

- Provide fault and security isolation at the hardware level
- Preserve performance with advanced resource controls

Encapsulation

- Save the entire state of a virtual machine to files
- Move and copy virtual machines as easily as moving and copying files

Hardware Independence

Provision or migrate any virtual machine to any physical server

Server Consolidation

Using server virtualization, a company can maximize the use of its server resources and reduce the number of servers required. The result is server consolidation, which improves efficiency and cuts costs.

Learn More

It's Not Cloud Computing

Cloud computing is not the same thing as virtualization; rather, it's something you can do using virtualization. Cloud computing describes the delivery of shared computing resources (software and/or data) on demand through the Internet. Whether or not you are in the cloud, you can start by virtualizing your servers and then move to cloud computing for even more agility and increased self-service.

Read More

Get Started

Ready for the next steps? Learn about the various types of virtualization, see how virtualization can create benefits in different industries, and find resources to help you begin your virtualization journey.

Get Started Now

The Top 5 Reasons

Explore the top 5 reasons why you can't afford not to virtualize.

View Infographic

Plan For Growth

Learn about the top 10 considerations for getting started with virtualization.

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Speeding up Software Development

vRealize Suite allows Choice Hotels to provision new infrastructure within 30 minutes.

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Desktop Virtualization

Virtualizing Business Critical Applications

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Hybrid Cloud

Private Cloud Computing

Software-Defined Data Center

Business Mobility

Company Information

Leadership

Careers at VMware

Acquisitions

Office Locations

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