

Executive Summary

Overview

Virtualization is a process that allows for more efficient utilization of physical computer hardware and is the foundation of cloud computing. Virtualization uses software to create an abstraction layer over computer hardware that allows the hardware elements of a single computer—processors, memory, storage and more—to be divided into multiple virtual computers, commonly called virtual machines (VMs). Each VM runs its own operating system (OS) and behaves like an independent computer, even though it is running on just a portion of the actual underlying computer hardware. It follows that virtualization enables more efficient utilization of physical computer hardware and allows a greater return on an organization's hardware investment.

Problem

Server virtualization is a cost-effective way to provide web hosting services and effectively utilize existing resources in IT infrastructure. Without server virtualization, servers only use a small part of their processing power. This results in servers sitting idle because the workload is distributed to only a portion of the network's servers. Data centers become overcrowded with underutilized servers, causing a waste of resources and power. By having each physical server divided into multiple virtual servers, server virtualization allows each virtual server to act as a unique physical device. Each virtual server can run its own applications and operating system. This process increases the utilization of resources by making each virtual server act as a physical server and increases the capacity of each physical machine.

Solution

To ensure that we are fully utilizing all of our on-premise infrastructure, I highly recommend that we implement a fully virtualized environment. Here are just a few of the many key benefits of server virtualization:

Key Advantages:

- Higher server ability
- Cheaper operating costs
- Eliminate server complexity
- Increased application performance
- Deploy workload quicker

Potential Disadvantages:

- Magnified physical failures
 - o If we run 10 important servers on one physical machine, and that physical machine crashes, it will have a much larger negative effect than just one server crashing.
- New Skills Required by IT Staff
 - o Virtualization can be tricky to work with, and has many caveats that are different from traditional physical servers. Managing virtualized servers requires a specialized skillset and understanding of many different IT disciplines.

Sources

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