

E-Guide

Understanding the VMware vSphere basics

Tips for utilizing ESXi host cluster, vCenter and shared storage

Whether you're just getting started evaluating

a vSphere deployment or trying to familiarize yourself with the platform's many features, a little expert guidance can go a long way in getting you up to speed – and help you quickly catch up to your peers. Read on to discover the basics when building an effective, efficient VMware virtual environment.

VMware vSphere basics: ESXi host cluster, vCenter and shared storage

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The foundation for good VMware vSphere virtualization doesn't change no matter how large you scale the infrastructure. Get these basics right to create a building block that can scale up.

VMware vSphere beginners shouldn't be intimidated by "cloud-scale" and enterprise infrastructures that utilize thousands of servers. A small- or medium-size business (SMB) with a dozen servers can virtualize on the same basic vSphere architecture principles as those huge data centers.

The three vSphere basics are multiple identical ESXi hosts, shared storage for your virtual machines (VMs) and vCenter Server to manage the whole environment.

Multiple identical ESXi servers

Each physical server used to be unique, with different applications installed, creating different requirements. Virtualization pushes that specialization into the VMs that run applications. Physical servers grouped into a cluster provide the pool of hardware resources for these virtual machines. Within the cluster, the hosts must be as close to identical as possible. Don't think about which physical server hosts a VM; track whether the pool has enough resources for the demands of the VMs currently operating on the host cluster.

Contents

VMware vSphere basics: Understanding the major components

Contents

VMware vSphere basics: Understanding the major components Identical servers are the same model, using the same model CPUs, same amount of RAM and the same network adapters and storage adapters. The identical servers should run the same VMware ESXi hypervisor version and be configured identically for domain name system, time synchronization and other basic settings. If anything changes on one host in an identical cluster, change it on the rest of the servers. Certain elements of each server will be unique, such as host name, IP address and storage identifier.

VSphere shared storage

A vSphere VM is a collection of files -- usually about a dozen -- living on a piece of storage. All hosts in the cluster should have access to this storage, so that any one could run the VM. If the storage is local, meaning inside one host, then the VM could be unrecoverable in the event of a host failure. If the VM is on storage that other hosts share, vSphere High Availability (HA), a cluster feature, can restart VMs on other hosts when that host fails. Implementing VMware HA on a cluster makes running several VMs on one ESXi host a lot less risky.

Shared storage is also critical for moving VMs from one host to another. VMware's vMotion feature keeps the VM running while it changes hosts; users won't ever know that the VM is on a new ESXi host. You can therefore shut down a host -- to replace a failed part or upgrade the RAM, for example -- without adversely affecting operations.

VMware vCenter

VMware vCenter Server is a centralized management tool for multiple ESXi servers. The vCenter management server lets you bring those multiple ESXi servers together and make them into an HA cluster or use vMotion between them. SMBs may use vCenter to balance the VMs across their ESXi hosts to prevent host overloads, vMotioning VMs until the load is balanced. With more expensive vSphere licenses, vCenter will do the load balancing for you in a Distributed Recourse Scheduler (DRS) cluster.

Even quite small businesses can get a lot of value from the monitoring and patching features included in vCenter to keep the hosts identical at ESXi version and patch levels.



Contents

VMware vSphere basics: Understanding the major components

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