

# VMware vSphere

The Industry-Leading Virtualization Platform

## AT A GLANCE

VMware vSphere®, the industry-leading virtualization platform, empowers users to virtualize scale-up and scale-out applications with confidence, redefines availability and simplifies the virtual data center. The result is a highly available, resilient, on-demand infrastructure that is the ideal foundation of any cloud environment.

## KEY BENEFITS

- **Efficiency through utilization and automation** – Achieve consolidation ratios of 15:1 or more and improve hardware utilization from 5–15 percent to as much as 80 percent or more—without sacrificing performance.
- **Maximize uptime across your cloud infrastructure** – Reduce unplanned downtime and eliminate planned downtime for server and storage maintenance.
- **Dramatically lower IT costs** – Reduce capital expenditures by up to 70 percent and operational expenditures by up to 30 percent to achieve 20–30 percent lower IT infrastructure costs for each application running on vSphere.
- **Agility with control** – Respond quickly to changing business needs without sacrificing security or control, and deliver zero-touch infrastructure with built-in availability, scalability and performance guarantees for all business-critical applications running on vSphere.
- **Freedom of choice** – Use a common, standards based platform to leverage existing IT assets alongside next-generation IT services, and enhance vSphere through open APIs with solutions from a global ecosystem of leading technology providers.

## What is vSphere?

VMware vSphere, the industry-leading virtualization platform, empowers users to virtualize scale-up and scale-out applications with confidence, redefines availability and simplifies the virtual data center. The result is a highly available, resilient, on-demand infrastructure that is the ideal foundation of any cloud environment. This can drive down data center cost, increase system and application uptime, and drastically simplify the way IT runs the data center. vSphere is purpose-built for the next generation of applications and serves as the core foundational building block for the Software-Defined Data Center.

vSphere accelerates the shift to cloud computing for existing data centers and also underpins compatible public cloud offerings, forming the foundation for the industry's only hybrid cloud model. With the support of more than 3,000 applications from more than 2,000 ISV partners, vSphere is the trusted platform for any application.

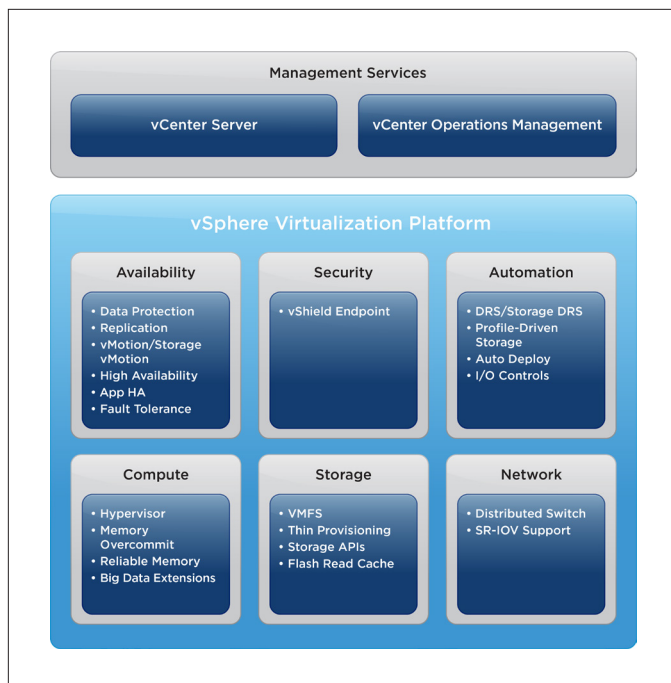
## How Is vSphere Used?

- **Virtualize Applications with Confidence** – Deliver enhanced scale, performance and availability that enables users to virtualize applications with confidence.
- **Simplify Management of the Virtual Data Center** – Manage the creation, sharing, deployment, and migration of virtual machines with powerful yet simple and intuitive tools.
- **Data Center Migration and Maintenance** – Perform live workload migrations and data center maintenance with zero application downtime.
- **Transform Storage for Virtual Machines** – Enable your external storage arrays to operate in a more VM-centric manner that increases performance and efficiency for your virtual machine operations.
- **Enable Choice in How to Build and Operate Cloud Environments** – Build and operate cloud environments that fit your needs using vSphere and the VMware stack or open-source frameworks such as OpenStack and the VMware Integrated OpenStack add-on.

## Key Features and Components of vSphere

### Virtualization Platform

- **VMware vSphere Hypervisor Architecture** provides a robust, production-proven, high-performance virtualization layer. It enables multiple virtual machines to share hardware resources with performance that can match (and in some cases exceed) native throughput.
- **VMware vSphere Virtual Symmetric Multiprocessing** enables the use of ultra-powerful virtual machines that possess up to 128 virtual CPUs.
- **VMware vSphere Virtual Machine File System (VMFS)** allows virtual machines to access shared storage devices (Fibre Channel, iSCSI, etc.) and is a key enabling technology for other vSphere components such as VMware vSphere Storage vMotion®.
- **VMware vSphere Storage APIs** provide integration with supported third-party data protection, multipathing and disk array solutions.



VMware vSphere provides a complete virtualization platform with a comprehensive set of application and infrastructure services.

- **VMware vSphere Storage vMotion** enables live migration of virtual-machine disks with no disruption to users, eliminating the need to schedule application downtime for planned storage maintenance or storage migrations.
  - **VMware vSphere High Availability (HA)** provides cost-effective, automated restart within minutes for all applications if a hardware or operating system failure occurs.
  - **VMware vSphere Fault Tolerance (FT)** provides continuous availability of any application in the event of a hardware failure – with no data loss or downtime. For workloads up to 2-vCPU.
  - **VMware vSphere Data Protection™** is VMware's backup and replication solution, powered by EMC Avamar. It delivers storage-efficient backups through patented variable-length deduplication, rapid recovery and WAN-optimized replication for DR. Its vSphere-integration and simple user interface makes it an easy and effective backup tool for vSphere. It provides agent-less, image-level VM backups to disk and application-aware protection for business-critical applications (e.g., Exchange, SQL Server) along with WAN-efficient, encrypted backup replication across sites.
  - **VMware vShield Endpoint™** secures virtual machines with offloaded antivirus and antimalware solutions without the need for agents inside the virtual machine.
  - **VMware vSphere Virtual Volumes** enables abstraction for external storage (SAN and NAS) devices making them VM-aware.
  - **VMware vSphere Storage Policy-Based Management** allows common management across storage tiers and dynamic storage class of service automation via a policy-driven control plane.
- ### Additional Components Available in Enterprise Edition
- **VMware vSphere Distributed Resource Scheduler™** provides dynamic, hardware-independent load balancing and resource allocation for virtual machines in a cluster, using policy-driven automation to reduce management complexity while meeting SLAs.
  - **VMware vSphere Distributed Power Management™** automates energy efficiency in vSphere Distributed Resource Scheduler clusters by continuously optimizing server power consumption within each cluster.
  - **VMware vSphere Reliable Memory** places critical vSphere components (such as the hypervisor) into memory regions identified as "reliable" on supported hardware. This further protects components from an uncorrectable memory error.
  - **VMware vSphere Big Data Extensions** run Hadoop on vSphere to achieve higher utilization, reliability and agility. vSphere Big Data Extensions support multiple Hadoop distributions and make it seamless for IT to deploy, run and manage Hadoop workloads on one common platform.

**Additional Components Available in Enterprise Plus Edition** (also inclusive of Enterprise Edition Components listed earlier)

- **VMware vSphere Distributed Switch** simplifies and enhances virtual-machine networking in vSphere environments and enables those environments to use third-party distributed virtual switches.
- **VMware vSphere Storage I/O Control and VMware vSphere Network I/O Control** set storage and network quality-of-service priorities for guaranteed access to resources.
- **VMware vSphere Auto Deploy™** performs quick, as-needed deployment of additional vSphere hosts. When vSphere Auto Deploy is running, it pushes out update images, eliminating patching and the need to schedule patch windows.
- **VMware vSphere Host Profiles** help IT administrators simplify host deployment and compliance.
- **VMware vSphere Storage DRS™** automates load balancing by using storage characteristics to determine the best place for a virtual machine's data to reside, both when it is created and when it is used over time.
- **VMware vSphere Flash Read Cache** virtualizes server-side flash providing a high performance read cache layer that dramatically lowers application latency.
- **VMware vSphere Fault Tolerance** provides continuous availability of any application in the event of a hardware failure – with no data loss or downtime. For workloads up to 4-vCPU.
- **VMware vSphere vMotion** enables live migration of virtual machines between servers, across vCenter Servers, and over long distances (up to 100 milliseconds round trip time) with no disruption to users or loss of service, eliminating the need to schedule application downtime for planned server maintenance.
- **VMware vSphere Content Library** provides simple and effective centralized management for VM templates, virtual appliances, ISO images, and scripts.
- **NVIDIA GRID™ vGPU™** delivers the full benefits of NVIDIA hardware-accelerated graphics to virtualized solutions.

## Customer Success Stories

**Marshall University**, the oldest public institution of higher learning in West Virginia, has leveraged vSphere to extend the life of an overcrowded data center while reducing IT expenditures and accelerating server provisioning time.

Read the Marshall University success story: [http://www.vmware.com/go/customer\\_success/marshall\\_u](http://www.vmware.com/go/customer_success/marshall_u).

**EGIS Nyrt.**, one of the leading pharmaceutical manufacturers in the Central Eastern European region, has used vSphere to consolidate the number of servers managed and has virtualized its business-critical applications to help improve performance and uptime.

Read the EGIS success story: [http://www.vmware.com/go/customer\\_success/EGIS\\_Nyrt](http://www.vmware.com/go/customer_success/EGIS_Nyrt).



**QIC**, one of Australia's largest institutional investment managers, has used vSphere to virtualize 80 percent of its Microsoft Windows Server production servers. The company not only has streamlined its infrastructure; it also has leveraged the backup and recovery capabilities of vSphere to further its disaster recovery and business-continuity planning.

Read the QIC success story: [http://www.vmware.com/go/customer\\_success/QIC](http://www.vmware.com/go/customer_success/QIC).

## Additional vSphere Products and Add-Ons

VMware vCenter Server™ provides unified management for the entire virtual infrastructure and enables many key vSphere capabilities, such as live migration. vCenter Server can manage thousands of virtual machines across multiple locations and streamlines administration with features such as rapid provisioning and automated policy enforcement.

Note: vCenter Server is a required element of a complete vSphere implementation and is licensed separately on a per instance basis.

## Support and Professional Services

VMware offers global support and subscription (SnS) services to all vSphere customers. For customers requiring additional services, VMware also offers professional services engagements on best practices and getting started with your vSphere deployment, both directly and through an extensive network of certified professionals: <http://www.vmware.com/services/>.

## How to Buy

VMware vSphere is available standalone and as part of VMware vSphere® with Operations Management™ or VMware vCloud Suite. Use the online VMware Partner Locator to find an authorized reseller in your area: <http://partnerlocator.vmware.com/>.

You can also visit the online VMware store to determine which kit or edition of vSphere is right for your organization: <http://www.vmware.com/vmwarestore/datacenter-products/>.

If you are an existing vSphere or VMware Infrastructure™ customer, visit the vSphere Upgrade Center to determine the appropriate upgrade path for your organization: <http://www.vmware.com/products/vsphere/upgrade-center/>.

## Find Out More

For information or to purchase VMware products, call 877-4-VMWARE (outside North America, +1-650-427-5000), visit <http://www.vmware.com/products> or search online for an authorized reseller. For detailed product specifications and system requirements, refer to the vSphere documentation.