

云计算与虚拟化技术

第02章：VMware vSphere

<https://internet.hactcm.edu.cn>

河南中医药大学信息技术学院（智能医疗行业学院）智能医疗教研室
河南中医药大学医疗健康信息工程技术研究所

2025年2月

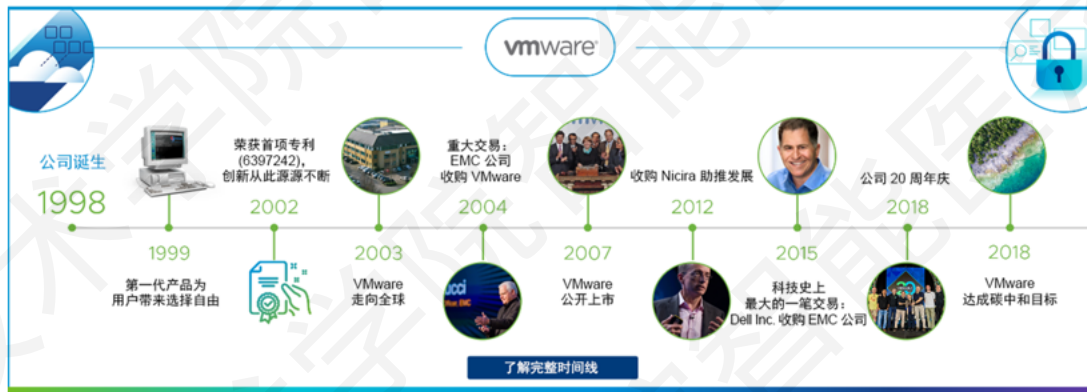
讨论提纲

- ✓ **VMware**
- ✓ **VMware vSphere**
 - Introduction to VMware vSphere
 - Examining the Products in the vSphere Suite
 - Examining the Features in VMware vSphere
 - What is new in VMware vSphere 6.7
 - Start vSphere Trial
- ✓ **国产云数据中心解决方案**
 - 深信服
 - 超聚变
 - 新华三
 - SmartX



1. VMware

vmware®
by Broadcom





VMware joins Broadcom

Together, Broadcom and VMware are well positioned to help global enterprises embrace private and hybrid cloud environments with greater choice and flexibility.

[LEARN MORE](#)



As part of our ongoing integration, we are announcing a new, simplified partner program for VMware partners. [\[Read New Partner FAQ\]](#)



Learn About VMware by Broadcom's Business Transformation



Bridging the Private and Public Cloud User Experience



IDC Report: A New Era of Focus for VMware by Broadcom

Solutions for Your Hybrid Cloud Business

VMware joins Broadcom

Announcing a new, simplified partner program for VMware partners as we continue integration

[Download the new Partner FAQ](#)

vmware[®]
by Broadcom

VMware is now part of Broadcom

Broadcom and VMware together provide enterprise customers an expanded portfolio of business-critical infrastructure solutions to accelerate innovation and enable greater choice and flexibility to build, run, manage, connect and protect applications at scale.

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CEO Insights



2023年11月22日

Broadcom announces successful acquisition of VMware

陈耀阳

Today I am thrilled to announce Broadcom's successful acquisition of VMware, and the start of a new and exciting era for all of us at the company. VMware joins our engineering-first, innovation-centric team, which is another important step forward in building the world's leading ...

Innovation

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Hock Tan
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Broadcom announces successful acquisition of VMware

Providing best-in-class solutions for our customers, partners and the industry

Innovation Likes

Today I am thrilled to announce Broadcom's successful acquisition of VMware, and the start of a new and exciting era for all of us at the company. VMware joins our engineering first, innovation-centric team, which is another important step forward in building the world's leading infrastructure technology company.

While an important moment for Broadcom, it's also an exciting milestone for our customers around the world. And as I said when we first announced the acquisition, we can now come together and have the scale to help global enterprises address their complex IT infrastructure challenges by enabling private and hybrid cloud environments and helping them deploy an "apps anywhere" strategy. Our goal is to help customers optimize their private, hybrid and multi-cloud environments, allowing them to run applications and services anywhere.

As we begin this journey together, here is what you, our customers, our partners, and our community should know.

Our commitments

Broadcom is committed to innovation. That's in our DNA and why we plan to invest significantly each year to advance VMware's innovation and customer value. Half of the investment will be focused on R&D, and the other half will help accelerate the deployment of solutions through VMware and partner professional services. We are committed to creating value and driving revenue for our robust partner ecosystem, which has been made stronger with the addition of VMware's partners.

The future of our technology

Broadcom builds technology that lasts. We plan to continue investing in our industry-leading products. With the close of the transaction, here are some highlights of what's to come:

VMware Cloud Foundation

Broadcom's focus moving forward is to enable enterprise customers to create and modernize their private and hybrid cloud environments. At the core, Broadcom will invest in VMware Cloud Foundation, the software stack that serves as the foundation of private and hybrid clouds. VMware Cloud Foundation fits into Broadcom's vision of helping customers convert the typically heterogeneous enterprise IT infrastructure into a virtualized and containerized environment, enabling private and hybrid clouds. The goal of the platform is to free up IT resources from infrastructure integration and management tasks. This will enable them to deliver IT services that help achieve business goals by minimizing security risks, achieving better time to market, and generating additional revenue from new business services.

Incremental to Broadcom's investment in VMware Cloud Foundation, VMware will offer a rich catalog of services on top of VMware Cloud Foundation to modernize and optimize cloud environments, including the following.

- 1. Application networking and security**
Protecting workloads from evolving cyber-threats is top of mind for customers. It's no longer about protecting the perimeter, as threat actors are moving laterally and exploiting internal systems to gain controls. Customers want multiple layers of defense to protect against lateral attacks – from unauthorized access to malware and ransomware. VMware's distributed security coupled with full visibility enables customers to execute their defense-in-depth and zero-trust security strategies. The focus is to deliver lateral protection that can be implemented in a simpler and more agile manner for VMware virtualized infrastructure. Emerging AI/GenAI techniques are leveraged to counter the evolving threat landscape.

Additionally, application workloads get deployed with a load balancer. In the digital era, applications need to be highly available, and auto scale as the load increases. Agility, auto scale and built-in application visibility are key requirements for a modern load balancer solution.
- 2. Modern applications**
We are excited by VMware's technology and how our customers stand to benefit from it. Modern applications are a great example of this. Modern applications and both private and hybrid clouds are at the heart of digital transformation. VMware research shows that more than 70% of CIOs are developing net-new modern and cloud native apps. In addition, modern apps designed for the any-cloud model have now overtaken traditional apps in the enterprise. Business leaders are keenly aware that software agility and speed to market are critical for a company's ability to compete successfully and grow revenue. As a result, businesses are prioritizing application strategies based on technologies such as AI, machine learning, Kubernetes, open-source solutions, and private and hybrid cloud ecosystems to gain a competitive edge. But delivering apps at scale can be an immense undertaking and it is becoming increasingly complex.

With VMware Tanzu, our goal is to increase our customers' business agility by accelerating application development, delivery and management on any cloud – on VMware Cloud Foundation as well as across all major hyperscalers. Specifically optimized for app-dev frameworks such as Spring, the leading enterprise Java application framework, Tanzu drives significant developer productivity while enabling platform teams to enforce application standards, maintain security and compliance and track app performance. Our application-centric focus leveraging common data and control model allows VMware Tanzu to provide both software agility and a more streamlined experience for platform and cloud operations teams. Tanzu is an important part of VMware's software portfolio, and our investment in it will allow customers to continue running some of the most mission critical applications in the world by creating a virtualized and containerized environment. We are here to support customer apps wherever they are, so that they can run anywhere.

At Broadcom, we are focused on helping customers simplify their IT environment. To make this happen, we will evolve our existing suite of services while combining and investing in the assets of VMware to deliver increased value for our customers.
- 3. Software-enabled innovations from data center to the edge**
Customers have always been interested in software-enabled technologies. This has gained renewed focus as they consider the need for flexibility within their data centers and what type of workloads they want to run in different cloud environments. Private and hybrid cloud ambitions are gaining velocity just as modular, platform-based technologies enable agility. This is true in the data center and also becoming true at the Software-Defined Edge. Consider the complex IT environments within a government agency, which made a \$9 billion investment in private and hybrid cloud infrastructure to strengthen and bring agility to its digital management and defense capabilities. These trends point to software-enabled innovation to help organizations deliver better outcomes for all types of workloads from the data center to the Edge.

Looking ahead

Broadcom has a long track record of investing in the businesses we acquire to drive sustainable growth and customer value, and now that the transaction is closed, we can hit the ground running.

I look forward to what we will accomplish together, as a combined company, to provide best-in-class solutions for our customers and the industry at large.

breadcom announces successful acquisition of vmware

https://www.broadcom.com/blog/broadcom-announces-successful-acquisition-of-vmware

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App Platform

Cloud & Edge

Cloud and Edge Infrastructure

Get a Hyperconverged Infrastructure

VMware Cloud

Cloud in your own data center, delivered as a service.

Modernize at your own pace with a software stack purpose-built for workload specific needs on-premises, private or public cloud

Cloud in your own data center, delivered as a service.

endpoints: AWS, Google Cloud, Azure, Oracle Cloud, and on-premises resources.

Get a Hyperconverged Infrastructure

Dell EMC VxRail

HCI appliance for hybrid cloud

NSX

Network and security virtualization platform

NSX Advanced Load Balancer

Multi-cloud load balancing platform

vCenter Server

vSphere server management software

vSAN

Flash-optimized, vSphere-native storage

vSphere

Server virtualization software

VMware vSphere Distributed Services Engine

Modernizes virtual infrastructure by offloading functions from CPU to DPU

VMware vCenter Converter Standalone

Quickly convert physical machines to virtual machines with VMware free P2V converter

Transform Telco Cloud

Telco Cloud Automation

Automated management of network functions across any cloud

Telco Cloud Infrastructure

Multi-tenant platform with compute and storage capabilities

Telco Cloud Service Assurance

Automated service operations for virtual network management

Telco Cloud Platform

Network function deployment for 5G networks

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Cloud and Edge Infrastructure

Get a Hyperconverged Infrastructure

Transform Telco Cloud

Secure Cloud Workloads

Enable the Multi-Cloud Edge

Anywhere Workspace

Security & Networking

Emerging Technologies

Support Products

Manage the Cloud

VMware Tanzu CloudHealth

Single solution for multi-cloud management and security

Tanzu Guardrails

Cloud governance with end-to-end policy enforcement at scale

VMware Aria Automation

Infrastructure automation platform

VMware Aria Cloud Management

Enable consistent deployment and operations of your apps, infrastructure and platform services

VMware Aria Universal Suite

Combine SaaS and on-premises capabilities with this SaaS management suite

VMware Aria Suite Lifecycle

Lifecycle and content management

VMware Aria Operations for Logs

Log management and analytics

VMware Aria Operations for Networks

App-centric network visibility

VMware Aria Operations

Self-driving IT operations management

VMware Aria Automation Orchestrator

Data center infrastructure workflow automation

VMware Aria Operations for Integrations

Management packs for VMware Aria Operations

VMware Tanzu Hub

Multi-cloud management platform powered by cloud scale, graph-based data store technology

VMware Aria Operations Management Pack for Horizon

Easy monitoring of the health and performance of your entire stack, from the data center to end users, with proactive alerts to meet SLA.

Tanzu Observability

Enterprise observability for multi-cloud environments

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vmware
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Experience the full technical capabilities of VMware products and solutions in action.

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Azure VMware Solution

动手实验室

HANDS-ON LAB 1 hr 30 mins

Azure VMware Solution - Lightning Lab

Get a quick overview of Azure VMware Solution, which combines VMware compute, networking, and storage running on top of dedicated, bare-metal hosts in Microsoft Azure.

HANDS-ON LAB 45 min

Begin Azure Workload Migration (HCX) Lab

Download, deploy and configure VMware HCX on-premises, including all its components.

Google Cloud VMware Engine

HANDS-ON LAB 30 min

Google Cloud VMware Engine Overview

This is an introductory lab focused on Google Cloud VMware Engine, where you will create a private cloud, migrate workloads, and configure additional services.

IBM Cloud for VMware Solutions

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by Broadcom

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vSphere NSX Horizon VMware Aria Automation 所有产品

Virtualize Network Insight_Video vCenter Server Command Line Installation Assign Roles and Permissions

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- VMware Cloud 信任中心
- 新闻稿和公告

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- VMware Customer Connect
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1. VMware



Learn virtualization in three minutes

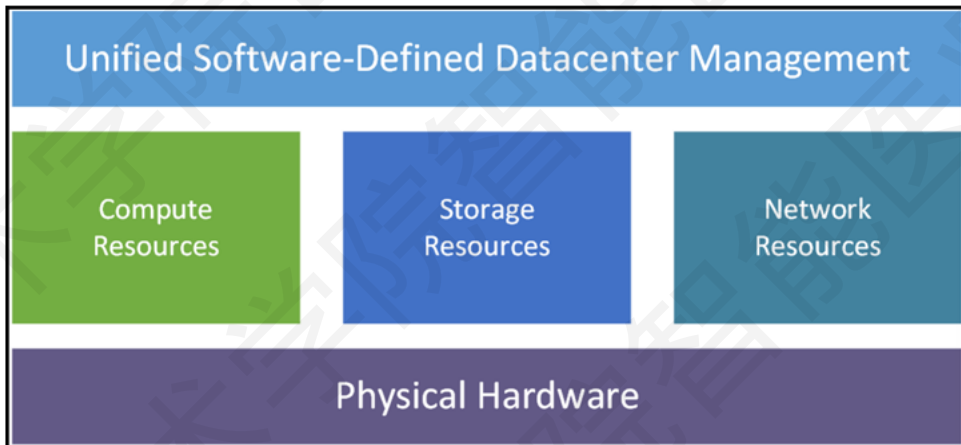
<https://www.vmware.com/solutions/virtualization.html>



2. VMware vSphere

2.1 Introduction to VMware vSphere

VMware vSphere 的愿景 Software-defined data center (SDDC)



2. VMware vSphere

2.1 Introduction to VMware vSphere

VMware 实现虚拟化的三个基础架构



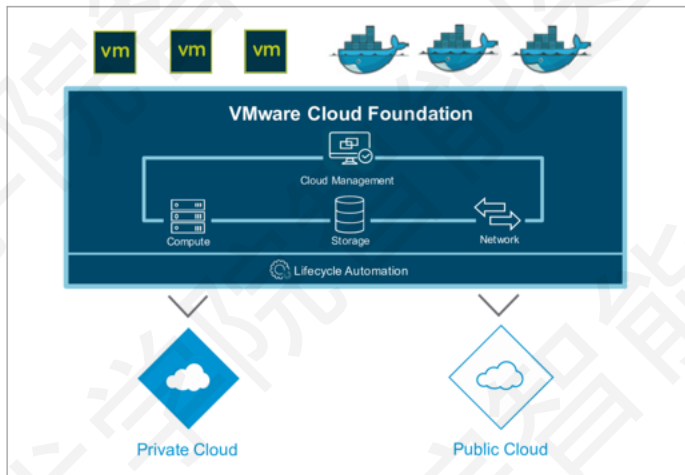
- Compute resources : VMware vSphere
- Storage resources : VMware vSAN
- Network resources : VMware NSX

These products build a **unified platform** for delivering any service with unmatched performance.

2. VMware vSphere

2.1 Introduction to VMware vSphere

VMware Cloud Foundation Software Stack



VMware Cloud Foundation:

<https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/datasheet/products/vmware-cloud-foundation-datasheet.pdf>

2. VMware vSphere

2.1 Introduction to VMware vSphere

- ❑ VMware vSphere 6.7 是 VMware 自2001年以来一直引领行业的前几代企业级虚拟化产品的新版本，于2018年4月发布。
- ❑ VMware vSphere 6.7 提供了更好可管理性、更高的性能、更灵活的可扩展性，重点是实现了工作负载安全性和移动性，可支持不同规模的企业级环境（从几台到上千台服务器）。
 - 推荐阅读 VMware vSphere 6.7 GA 发行说明。

<https://docs.vmware.com/cn/VMware-vSphere/6.7/rn/vsphere-esxi-vcenter-server-67-release-notes.html>



2. VMware vSphere

2.1 Introduction to VMware vSphere

- VMware vSphere 是一个全面的产品和功能集合。
- 包括以下产品和主要功能：
 - VMware ESXi
 - VMware vCenter Server
 - vSphere Update Manager (VUM)
 - vSphere Virtual Symmetric Multi-Processing
 - vSphere vMotion and Storage vMotion
 - vSphere Distributed Resource Scheduler (DRS)
 - vSphere Storage DRS (SDRS)
 - Storage I/O Control (SIOC) and Network I/O Control (NIOC)
 - Storage-Based Policy Management (SBPM)
 - vSphere High Availability (HA)
 - vSphere Fault Tolerance (FT)
 - vSphere Storage APIs
 - VMware Virtual SAN (vSAN)
 - vSphere Replication
 - vSphere Content Library



- 全部展开
- vSphere 8.0
 - ESXi and vCenter
 - vSphere with Tanzu
 - VMware vSAN
- vSphere 7.0
 - ESXi and vCenter Server
 - vSphere with Tanzu
 - VMware vSAN
 - vSphere Bifusion
- vSphere 6.7
 - ESXi and vCenter Server
 - vSphere Update Manager
 - VMware vSAN
- vSphere 6.5
 - ESXi and vCenter Server
 - vSphere Update Manager
 - VMware Virtual SAN
 - vSphere Data Protection
- 旧版发行档
- 了解有关 vSphere 的更多信息

Docs / VMware vSphere

vSphere 6.7 发行说明

添加到库 反馈

更新说明 2021年10月28日

更新时间: 2018 年 4 月 17 日

ESXi 6.7 | 2018 年 4 月 17 日 | ISO 内部版本: 8169922

vCenter Server 6.7 | 2018 年 4 月 17 日 | ISO 内部版本: 8217866

vCenter Server Appliance 6.7 | 2018 年 4 月 17 日 | 内部版本: 8217866

请查看发行说明以了解新增内容及更新。

功能: 了解有关此版本中的新功能 and 增强功能的信息。

国际化

VMware vSphere 6.7 提供以下语言的版本:

- 英语
- 法语
- 德语
- 西班牙语
- 日语
- 韩语
- 简体中文
- 繁体中文

vSphere 6.7 的组件 (包括 vCenter Server, vCenter Server Web Client, VMware Host Client) 不接受非 ASCII 输入。

兼容性

2022年: vSphere 8.0
 2020年: vSphere 7.0
 2018年: vSphere 6.7
 2016年: vSphere 6.5

VMware ESXi Release and Build Number History

The following listings are a comprehensive collection of the flagship hypervisor product by VMware. All bold versions are downloadable releases. All patches have been named by their release names. Please note that the ESXi hypervisor is available since version 3.5.

If you encounter any issues with this site or Builds are missing, please [contact me](#).

- [vSphere ESXi 8.0](#)
- [vSphere ESXi 7.0](#)
- [vSphere ESXi 7.0 for ARM](#)
- [vSphere ESXi 6.7](#)
- [vSphere ESXi 6.5](#)
- [vSphere ESXi 6.0](#)
- [vSphere ESXi 5.5](#)
- [vSphere ESXi 5.1](#)
- [vSphere ESXi 5.0](#)
- [vSphere ESXi 4.1](#)
- [vSphere ESXi 4.0](#)
- [ESXi 3.5](#)
- [VMware ESX History Diagram](#)
- [Download PDF Version](#)
- [JSON Format](#)

vSphere ESXi 8.0

Name	Patch	Date	Build
ESXi 8.0 Update 2b	ESXi_8.0.2-0.30.23305546	2024-02-29	23305546
ESXi 8.0 Update 2b (Security Only)	ESXi_8.0.2-0.25.23305545	2024-02-29	23305545
ESXi 8.0 Update 1d	ESXi_8.0.1-0.35.23299997	2024-03-05	23299997
ESXi 8.0 Update 2	ESXi_8.0.2-0.0.22380479	2023-09-21	22380479

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2. VMware vSphere

2.2 Examining the Products in vSphere

□ VMware ESXi

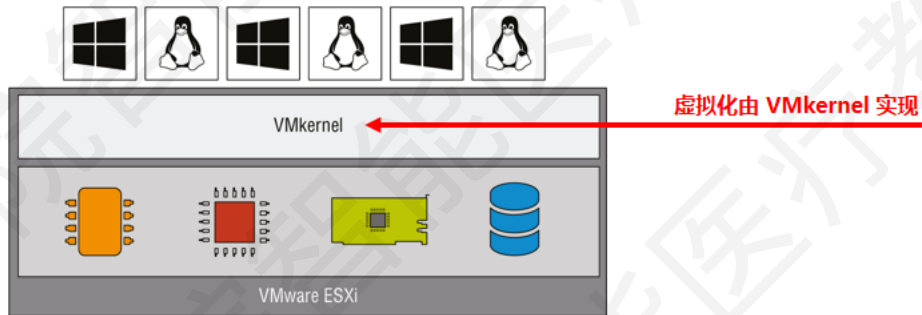
- vSphere 产品套件的核心产品是**虚拟机管理程序**，作为一个虚拟化层次，它是产品套件中其他产品所以来的基础。
- 在vSphere 5 及后续版本，虚拟机管理程序是 VMware ESXi。
 - VMware ESXi 是最新的VMware虚拟化平台，在6.5及后续版本 VMware 虚拟机管理程序的唯一选择。
 - VMware ESXi 安装和运行不需要基于 Linux Shell，安装和管理都非常容易。
 - VMware ESXi 非常小，6.7版本的 ISO 文件为 360MB。



2. VMware vSphere

2.2 Examining the Products in vSphere

VMware ESXi



VMware ESXi Maximums

Feature	ESXi 6.7	ESXi 6.5	ESXi 6.0
Logical CPUs per host	768	576	480
Virtual CPUs per host	4,096	4,096	4,096
Virtual CPUs per core	32	32	32
RAM per host	16 TB	12 TB	12 TB
Virtual machines per host	1,024	1,024	1,024
LUNS per host	1,024	512	256
Non-volatile memory per host	1 TB	N/A	N/A

2. VMware vSphere

2.2 Examining the Products in vSphere

□ VMware vCenter Server

- vCenter Server 集中管理 ESXi 主机和 VM。
 - 集中管理 ESXi 主机和 VM，允许管理人员能够集中部署、管理和监控虚拟化基础架构。
 - 提供配置和管理功能，包括虚拟机模板、虚拟机自定义、虚拟机的快速配置和部署、基于角色的访问控制和细粒度资源分配控制等功能。
- vSphere 高级功能都需要 vCenter Server 支持才能够实现。
 - 例如 sign-on server (SSO)、centralized authentication、vMotion。
 - 提供 分布式资源调度 (DRS)、高可用性 (HA) 和容错 (FT)。
- vCenter Server 负责与其他VMware产品集成。
 - 例如 vRealize Operations、Automation、Site Recovery Manager
 - 例如 vSphere Update Manager



2. VMware vSphere

2.2 Examining the Products in vSphere

□ VMware vCenter Server

■ 使用 vCenter Server 管理 ESXi 后可实现更多高级功能

□ Enhanced vMotion Compatibility (EVC)

- 利用英特尔和 AMD 的硬件功能在 vSphere DRS 集群中各个服务组上实现更大的 CPU 兼容性。

□ Host profiles

- 允许管理员在更大型环境中实现更加统一的主机配置，以及发现缺少或不正确的配置。

□ Storage I/O Control

- 提供了整个集群范围的服务质量 (QoS) 控制，能够保证关键应用程序在拥塞期间仍然能够接收到足够的 I/O 资源。

□ vSphere Distributed Switches

- 分布式交换机是网络设置和跨多个主机和多个集群的第三方虚拟交换机的基础。

□ Network I/O Control

- 允许管理员灵活地为不同种类的流量划分物理NIC带宽并提供QoS。

□ vSphere Storage DRS

- 使 VMware vSphere 能够根据需要动态缩减存储资源。



2. VMware vSphere

2.2 Examining the Products in vSphere

□ VMware vCenter Server

■ vCenter Server 提供三个软件版本：

□ vCenter Server Essentials：

- 集成到 vSphere Essentials 套件中，用于小型办公室部署。

□ vCenter Server Foundation：

- 提供了 vCenter Server 的所有功能，但适用于数量有限的 ESXi 主机。

□ vCenter Server Standard：

- 提供了 vCenter Server 的所有功能，包括配置，管理，监视和自动化。



2. VMware vSphere

2.2 Examining the Products in vSphere

VMware vCenter Server

VMware vCenter Server maximums

vCenter Server maximums	vCenter Server 6.7	vCenter Server 6.0	vCenter Server 6.0
vMotion operations per datastore	128	128	128
Storage vMotion operations per host	2	2	2
Storage vMotion operations per datastore	8	8	8
Non-vMotion provisioning operations per host	8	8	8
Hosts per vCenter server	2,000	2,000	2,000
Total number of libraries per VC	1,000	1,000	20
Powered-on virtual machines per vCenter server	25,000	25,000	10,000
Total items per library	1,000	1,000	20
Registered virtual machines per vCenter server	35,000	35,000	15,000
Linked vCenter servers	15	15	10
Total content library items per VC (across all libraries)	2,000	2,000	200
Hosts in linked vCenter servers	5,000	5,000	4 000
Powered-on virtual machines in linked vCenter servers	50,000	50,000	30,000
Registered virtual machines in linked vCenter servers	70,000	70,000	50,000

2. VMware vSphere

2.2 Examining the Products in vSphere

VMware vSphere Client and vSphere Host Client

vSphere
Host Client
(ESXi内置)

管理对象
VMware ESXi

vSphere
Client
(vCSA部署)

管理对象
vCenter Server
VMware ESXi
Cloud
VM
...

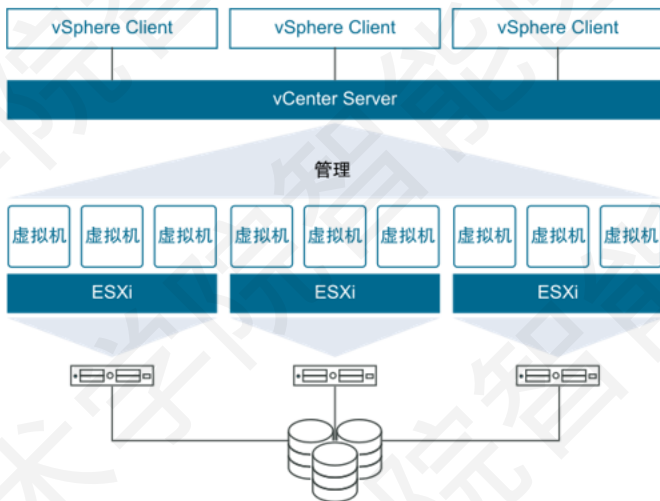
vCenter Server
Appliance
Management
(vCSA部署)

管理对象
vCenter Server

2. VMware vSphere

2.2 Examining the Products in vSphere

VMware vSphere Client and vSphere Host Client



2. VMware vSphere

2.2 Examining the Products in vSphere

VMware vSphere Client and vSphere Host Client

Administering hosts without vCenter has also changed.

- The vSphere Web Client, based on Flash, has been deprecated.
- The Windows-installable vSphere Desktop Client has been deprecated.
- To administer vCenter, and hosts attached to a vCenter Server, use the new HTML5-based vSphere Client or the Flash-based vSphere Web Client.
- To administer ESXi hosts directly, use the HTML5-based vSphere Host Client.



VMware vSphere 6.7
及以后版本，请使用H5版本管理工具
后续版本不提供其他方式管理

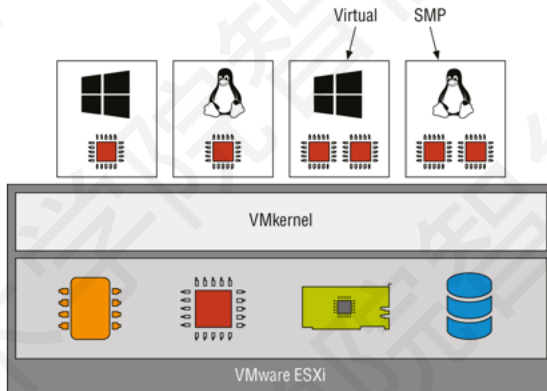


2. VMware vSphere

2.3 Examining the Features in vSphere

□ vSphere Virtual Symmetric Multi-Processing

- vSphere Virtual Symmetric Multi-Processing (vSMP or Virtual SMP) 允许为 VM 设置多个 CPU 和多个 CPU Core。
- 为基于 VM 实现并行计算、多线性、多套接字需求业务提供支持。



2. VMware vSphere

2.3 Examining the Features in vSphere

□ vSphere vMotion and vSphere Storage vMotion

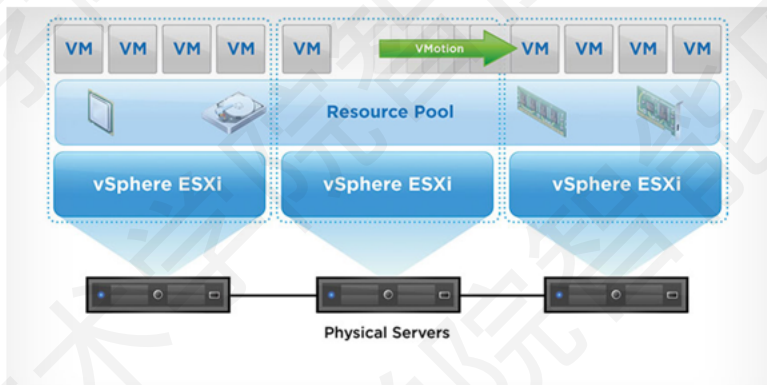
- 实时迁移和存储实时迁移
- 实时迁移是 ESXi 和 vCenter 的一个特性，允许将正在运行的虚拟机从一个物理主机移动到另一个物理主机，而无需关闭虚拟机。
- 虚拟机在两个物理主机之间迁移不会停机，也不会丢失虚拟机的网络连接。



2. VMware vSphere

2.3 Examining the Features in vSphere

- vSphere Distributed Resource Scheduler, DRS
 - 分布式资源调度
 - DRS 持续不断的通过 vMonitor 监控集群中主机资源的利用率，动态分配和平衡计算资源。



2. VMware vSphere

2.3 Examining the Features in vSphere

□ vSphere Storage DRS

- 将 DRS 的理念应用于存储。
- vSphere DRS 旨在平衡 ESXi 主机集群的 CPU 和 Memory 利用率；vSphere Storage DRS 使用相同的机制，平衡数据存储集群的存储容量和存储性能。



2. VMware vSphere

2.3 Examining the Features in vSphere

□ Storage I/O Control and Network I/O Control

■ Storage I/O Control (SIOC)

- 允许为存储 I/O 分配相对优先级，为 VM 分配存储 I/O 限制。
- 当 ESXi 主机检测到存储拥塞时，延迟增加超过用户配置的阈值，将根据配置限制 VM 的 I/O 性能。
- 支持 VMFS、NFS 数据存储。

■ Network I/O Control (NIOC)

- 可以更精细地控制 VM 如何使用物理网卡提供的网络带宽。
- NIOC 提供了一种更可靠的根据优先级和限制进行网络带宽分配机制。

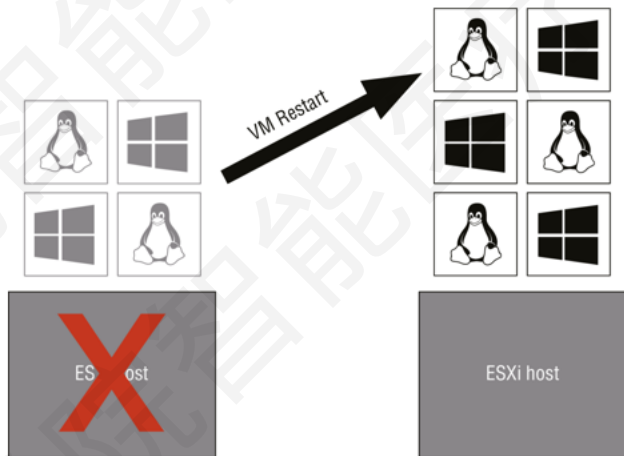


2. VMware vSphere

2.3 Examining the Features in vSphere

□ vSphere High Availability , HA, 高可用

- 旨在尽量减少由于物理 ESXi 主机或其他基础设施组件的故障而导致的计划外停机时间。
- vSphere HA 不支持 VM 操作系统故障时的自动故障转移。
- vSphere HA 可以监控 VM, 当发现不可访问或停止时, 可自动重启 VM。



2. VMware vSphere

2.3 Examining the Features in vSphere

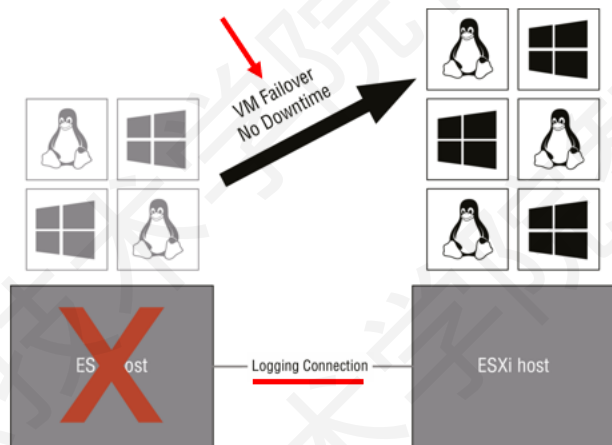
- vSphere Fault Tolerance, FT, 故障转移
 - vSphere HA 提供了一种在物理主机发生故障时自动重新启动虚拟机的方法，从而防止计划外的物理服务器故障。
 - vSphere FT 消除了物理主机发生故障时的任何停机时间。
 - vSphere FT 在与主虚拟机保持同步的单独物理主机上维护镜像辅助虚拟机。主（受保护）VM 上的所有操作也会在辅助（镜像）VM 上重做。
 - 如果主 VM 的物理主机发生故障，辅助 VM 可立即接管。
 - 如果辅助虚拟机的物理主机发生故障，vSphere FT 将自动在另一台主机上重新创建辅助（镜像）虚拟机。
 - 如果发生多个主机故障（例如，运行主虚拟机和辅助虚拟机的主机出现故障），vSphere HA 将在另一台可用服务器上重新引导主虚拟机，vSphere FT 将自动创建新的辅助虚拟机。



2. VMware vSphere

2.3 Examining the Features in vSphere

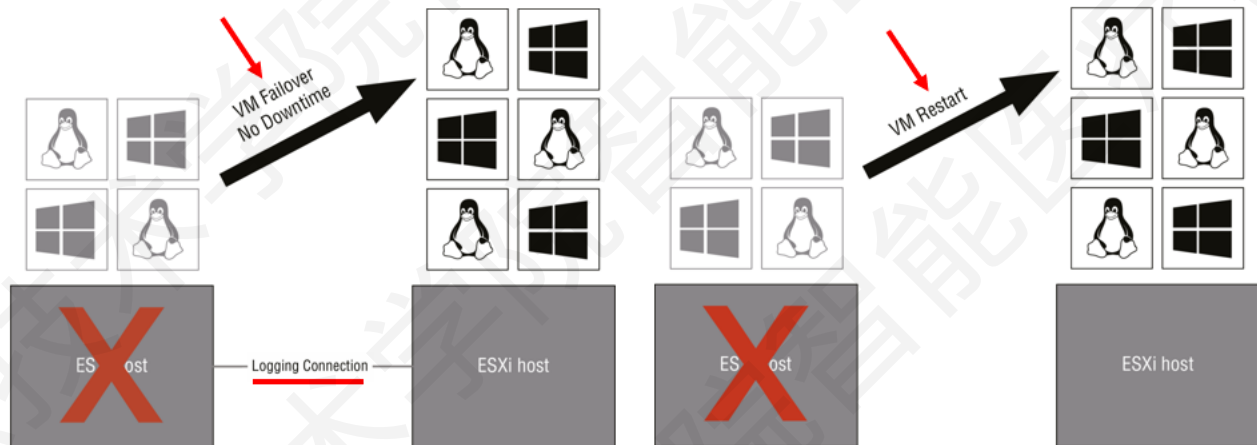
- ❑ vSphere Fault Tolerance, FT, 故障转移



2. VMware vSphere

2.3 Examining the Features in vSphere

□ vSphere Fault Tolerance, FT, 故障转移



2. VMware vSphere

2.3 Examining the Features in vSphere

□ vSphere Replication

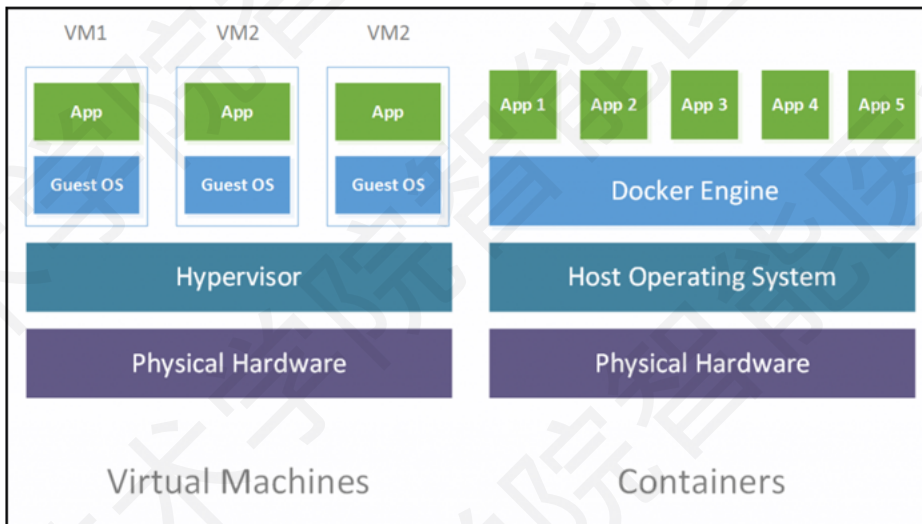
- vSphere Replication 能够将虚拟机从一个 vSphere 环境复制到另一个 vSphere 环境，意味着从一个数据中心（通常称为主数据中心或生产数据中心）到另一个数据中心（通常是辅助、备份或灾难恢复 [DR] 站点）。
- 与基于硬件的解决方案不同，vSphere Replication 基于每个虚拟机运行，因此能够非常精细地控制备份和恢复。



2. VMware vSphere

2.3 Examining the Features in vSphere

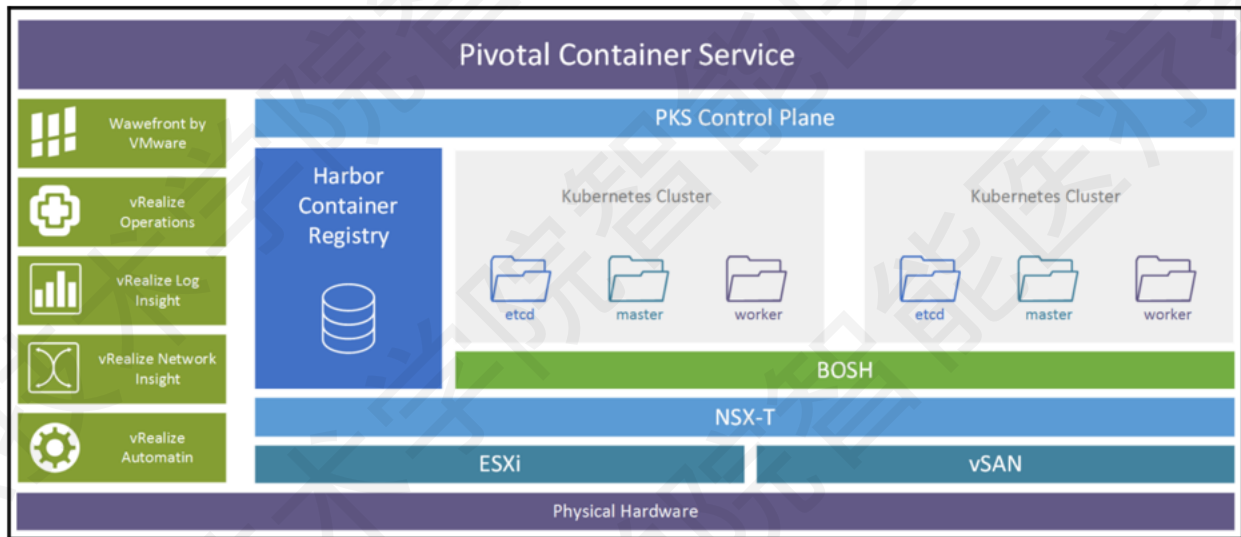
- Virtualization versus containers, 虚拟化与容器



2. VMware vSphere

2.3 Examining the Features in vSphere

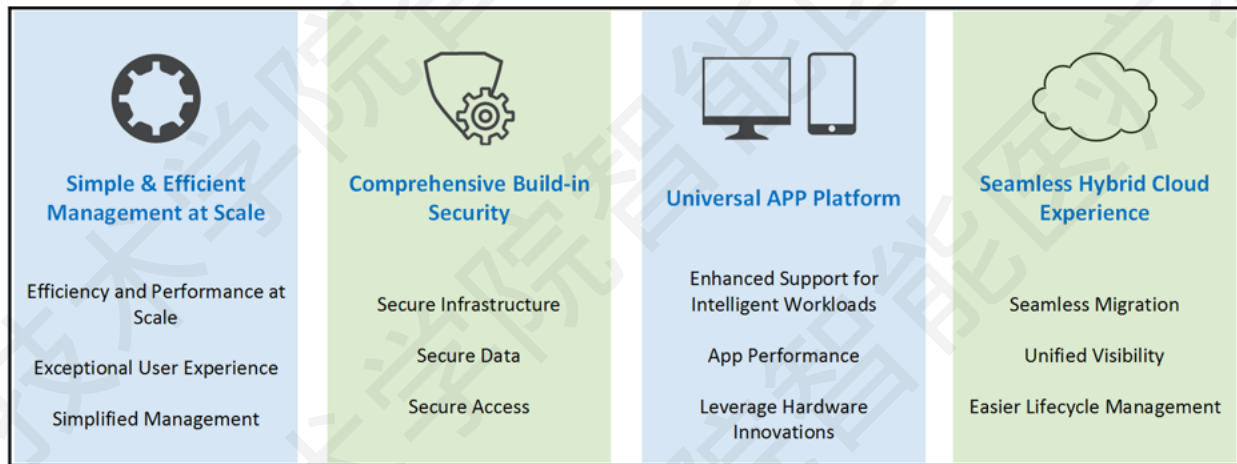
- Virtualization versus containers, 虚拟化与容器



2. VMware vSphere

2.4 What is new in VMware vSphere 6.7

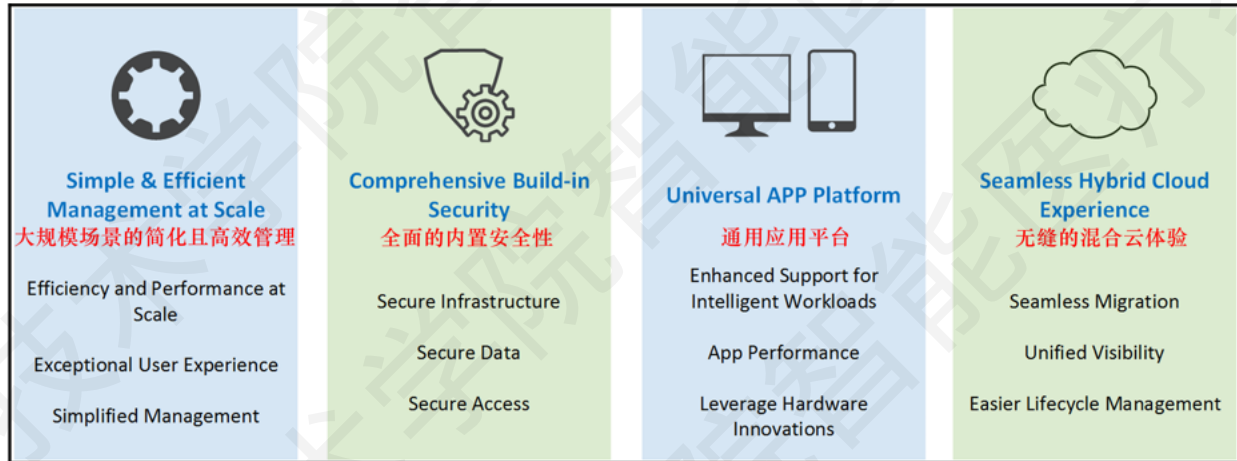
VMware vSphere 6.7 高阶功能的增强



2. VMware vSphere

2.4 What is new in VMware vSphere 6.7

VMware vSphere 6.7 高阶功能的增强



2. VMware vSphere

2.4 What is new in VMware vSphere 6.7

VMware vSphere 6.7 在技术层面的新功能



Simple & Efficient Management at Scale

Enhanced VCSA Performance

vSphere Quick Boot

Single Reboot Upgrade

Support for 4K Native Storage



Comprehensive Build-in Security

vTPM

TPM 2.0

VPS

Encrypted x VC vMotion



Universal APP Platform

Enhancements for GRID vGPUs

vSphere Persistent Memory

vSphere Integrated Containers

Instant Clone



Seamless Hybrid Cloud Experience





Per-VM EVC

Hybrid Linked Mode

2. VMware vSphere

2.4 What is new in VMware vSphere 6.7

VMware vSphere 6.7 在技术层面的新功能

 <p>Simple & Efficient Management at Scale</p> <p>Enhanced VCSA Performance</p> <p>vSphere Quick Boot</p> <p>Single Reboot Upgrade</p> <p>Support for 4K Native Storage 对 4Kn 硬盘支持</p>	 <p>Comprehensive Build-in Security</p> <p>vTPM 受信任的平台模块</p> <p>TPM 2.0</p> <p>VPS 虚拟私有服务器</p> <p>Encrypted x VC vMotion</p>	 <p>Universal APP Platform</p> <p>Enhancements for GRID vGPUs NVIDIA GRID vGPU</p> <p>vSphere Persistent Memory 持久内存</p> <p>vSphere Integrated Containers 集成容器</p> <p>Instant Clone</p>	 <p>Seamless Hybrid Cloud Experience</p> <p>Per-VM EVC 对不同代CPU的支持</p> <p>Hybrid Linked Mode 混合链接模式</p>
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<https://blogs.vmware.com/china/2018/04/20/vsphere-6-7-新功能/>

2. VMware vSphere

2.4 What is new in VMware vSphere 6.7

□ ESXi 的升级更加简便

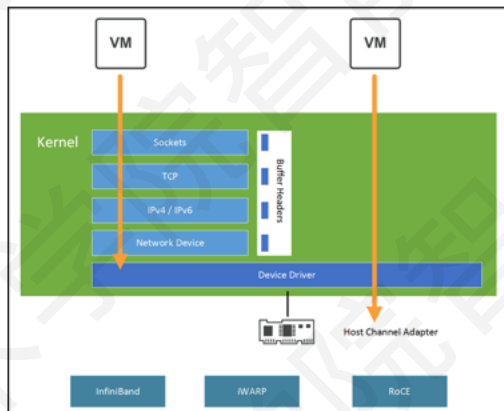
- vSphere 6.7 通过两个功能使升级更加简便。
- ESXi single-reboot upgrades: ESXi 单次重新引导升级
 - 自 vSphere 6.7, 升级期间只需要重新启动一次, 对于大规模环境下, 将使得系统升级变得更加容易。
- ESXi Quick Boot: ESXi 快速启动
 - vSphere 6.7 首次实现不需要重启硬件, 即可完成 ESXi 的快速启动。
 - 常规重新引导涉及一次完整重新启动, 这需要初始化固件和设备。快速引导可优化重启路径, 使升级过程节省相当多的时间。
 - 该功能需要硬件支持, 目前主要是 Dell、HP 等服务器支持。



2. VMware vSphere

2.4 What is new in VMware vSphere 6.7

- 支持远程直接内存访问 (Remote Direct Memory Access, RDMA)
 - vSphere 6.7 支持 RDMA over Converged Ethernet (RoCE) v2、Fiber Channel over Ethernet (FCoE)、iSCSI Extension for RDMA (iSER)，对于需要极低延迟和极高带宽的应用提供基础支持。

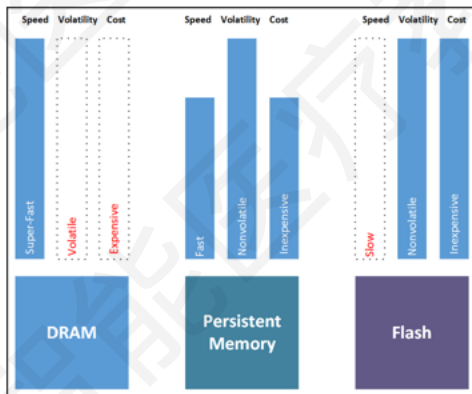


2. VMware vSphere

2.4 What is new in VMware vSphere 6.7

支持持久内存 (persistent memory)

- 持久内存 (PMem) 是非易失性存储器 (Non-Volatile Memory, NVM)。
- 持久内存也称为非易失性双列直插式内存模块 (non-volatile dual in-line memory module, NVDIMM)。
- 持久内存比 SSD 性能更高, 比 DRAM 成本却低得多, 但其延时极低, 约为1微秒。
- 持久内存可用于对停机时间敏感且需要高性能的应用程序。



<https://www.kingston.com.cn/cn/ssd/what-is-nvme-ssd-technology>

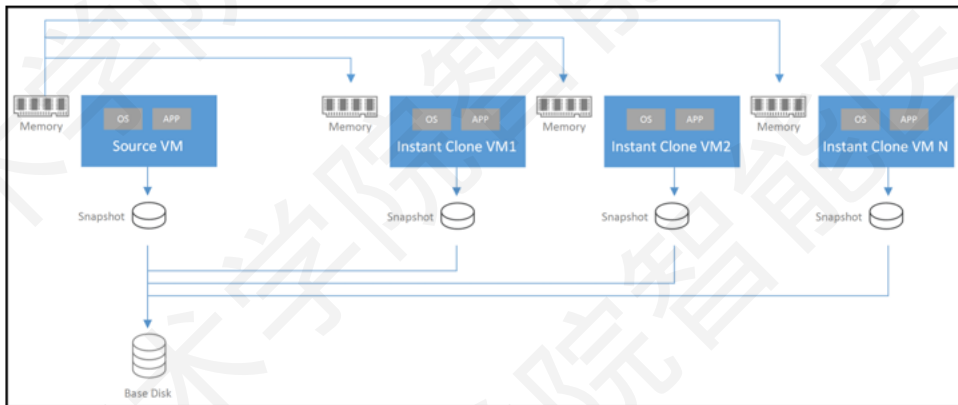


2. VMware vSphere

2.4 What is new in VMware vSphere 6.7

支持即时克隆 (Instant Clone)

- 工作方式类似于快照技术。
- 新更改将写入增量磁盘，所有 VM 在其生命周期都具有类似的基础磁盘。



2. VMware vSphere

2.5 Start vSphere Trial

HOL

Hands-on
Labs

**Product
Trials**



Sort By ▾

- VMware Integrated OpenStack (1)
- VMware NSX (2)
- VMware NSX-T (2)
- VMware SD-WAN (1)
- VMware Site Recovery Manager (2)
- VMware Skyline (1)
- VMware Telco Cloud Automation (1)
- VMware ThinApp (1)
- VMware User Environment Manager (1)
- VMware Virtual Network (1)
- VMware Virtualization (1)
- VMware vRealize Automation (1)
- VMware vRealize Log Insight (1)
- VMware vRealize Network Insight (1)
- VMware vRealize Operations (2)
- VMware vRealize Operations for IBM Power System (1)
- VMware vRealize Operations Manager for Horizon (1)
- VMware vSAN (8)
- VMware vSphere (10)
- VMware Workspace ONE (1)
- VMware Workstation (1)
- VMware Workstation Pro (1)

Filter By Solution >

Filter By Type >

VMware vSphere

HANDS-ON LAB 1 hr 30 min

vSphere Performance Testing of Workloads

This lab, HOL-2409-22-SDC, vSphere Performance Testing of Workloads, has 3 modules. The first module discusses performance analysis of vCenter Server. Modules 2 & 3 cover two benchmarks, DVD Store and WeatherVale, that can be used to measure the performance of database and application workloads respectively.

HANDS-ON LAB 1 hr 30 min

VMware vSphere Automation - PowerCLI

Get hands-on with VMware PowerCLI. Gain familiarity with the tool, and then dive deeper into the functionality available with real-world examples. Both new and experienced users are sure to learn something new about automating their environments.

TRIAL 60 days

Start vSphere Trial

Explore the efficient and secure hybrid cloud platform that gets you the best performance and availability out of your infrastructure and applications.

HANDS-ON LAB 1 hr 30 min

VMware vSphere 8 Overview - Lightning Lab

This lab is an overview of vSphere 8

HANDS-ON LAB 1 hr 30 min

VMware vSphere Performance Testing of ESXi Host Subsystems Hands-on Lab

Learn about esxtop, a command-line tool you can on an individual ESXi host to monitor subsystems like CPU, memory, disk, and networking to ensure the performance of your vSphere environments is optimal.

HANDS-ON LAB 1 hr 30 min

VMware vSphere - Advanced Topics

In VMware vSphere 8 Advanced Topics, you will embark on a journey experiencing day-2 operations, best practices, and efficient operations. This lab will walk you through step-by-step, so basic vSphere experience is not necessary, but helpful.

HANDS-ON LAB 30 min

Begin vSphere Odyssey Lab

Challenge your skills and showcase your vSphere expertise.

HANDS-ON LAB 1 hr 30 min

VMware vSphere 8 - What is New

vSphere 8 brings

vmware by Broadcom

Multi-Cloud Services Products Solutions Partners Resources GET STARTED

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Product Evaluation Center for VMware vSphere 8

Explore vSphere for free for 60 Days.

Don't have an account yet? Register to start your free 60-day trial.

Already have an account? Log in to start your free 60-day trial.


Installation & Use Cases License & Download Troubleshooting & Support How to Buy

Installation and Configuration

vSphere 8 brings the benefits of cloud to on-premises workloads, supercharges performance through CPUs and GPUs, and accelerates innovation with an enterprise-ready integrated Kubernetes runtime. You will be able to download the following software:

- A base hypervisor, VMware ESXi, that is installed on every physical server for hosting virtual machines.
- One instance of a management server, VMware vCenter, enables centralized management of multiple vSphere hosts.

Start your vSphere evolution with the following steps:



vSphere Installation and Setup

vSphere Resources

- Technical Documentation
- Product Information
- vSphere Blogs
- Technical Blogs

Support

VMware Customer Connect Support Policies

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VMware vSphere	View Download Components Drivers & Tools Try Get Training
VMware vCenter Cloud Gateway for vSphere+	View Download Components Drivers & Tools
VMware vSphere Bitfusion	View Download Components Drivers & Tools Try
VMware vSAN	View Download Components Drivers & Tools Try Get Training
VMware vSphere Hypervisor (ESXi)	View Download Components Drivers & Tools Get Training
VMware Cloud Director	View Download Components Drivers & Tools Get Training
VMware Telco Cloud Platform RAN	View Download Components Drivers & Tools
VMware Bare Metal Automation for VMware Telco Cloud Platform	View Download Components Drivers & Tools
VMware Telco Cloud Platform - 5G Edition	View Download Components Drivers & Tools
VMware Telco Cloud Infrastructure - Cloud Director Edition	View Download Components Drivers & Tools
VMware Telco Cloud Infrastructure - OpenStack Edition	View Download Components Drivers & Tools
VMware vCloud NFV	View Download Components Drivers & Tools
VMware Validated Design for Software-Defined Data Center	View Download Components Drivers & Tools
VMware Cloud Foundation	View Download Components Drivers & Tools Get Training
VMware vCloud Usage Meter	View Download Components Drivers & Tools
VMware vCloud NFV OpenStack Edition	View Download Components Drivers & Tools
VMware Cloud Director Availability	View Download Components Drivers & Tools
VMware Skyline Collector	View Download Components Drivers & Tools
VMware Cloud Director Object Storage Extension	View Download Components Drivers & Tools
VMware HX	View Download Components Drivers & Tools Get Training
VMware Cloud Director App Launchpad	View Download Components Drivers & Tools
VMware vCloud Suite Subscription	View Download Components Drivers & Tools
VMware Tools	View Download Components Drivers & Tools

VMware vSphere
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Optimize your capacity planning.

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VMware Cloud
Consistent Infrastructure and Operations on Any Cloud

[LEARN MORE](#)

Home / VMware vSphere

Download VMware vSphere

Select Version:

6.7

VMware Software Manager makes it easy to find, select, and download the content needed to install or upgrade a VMware product or suite with the push of a button.

Customers who have purchased VMware vSphere 6.7 can download their relevant installation package from the product download tab below. Looking to upgrade from vSphere 5.x or vSphere

[Read More](#)

Product Downloads

Product	Release Date	
Essentials		
VMware vSphere Hypervisor (ESXi) 6.7U3b	2019-12-05	GO TO DOWNLOADS
VMware vCenter Server 6.7U3I	2023-10-24	GO TO DOWNLOADS
VMware Tools 12.3.5	2023-10-26	GO TO DOWNLOADS
Essentials Plus		
VMware vSphere Hypervisor (ESXi) 6.7U3b	2019-12-05	GO TO DOWNLOADS
VMware vCenter Server 6.7U3I	2023-10-24	GO TO DOWNLOADS
VMware NSX for vSphere 6.4.14	2022-10-20	GO TO DOWNLOADS
VMware vSphere Replication 8.5.0.8	2023-10-05	GO TO DOWNLOADS
VMware Tools 12.3.5	2023-10-26	GO TO DOWNLOADS
Standard		
VMware vSphere Hypervisor (ESXi) 6.7U3b	2019-12-05	GO TO DOWNLOADS
VMware vCenter Server 6.7U3I	2023-10-24	GO TO DOWNLOADS
VMware NSX for vSphere 6.4.14	2022-10-20	GO TO DOWNLOADS
VMware vSphere Replication 8.5.0.8	2023-10-05	GO TO DOWNLOADS
VMware Aria Automation Orchestrator 8.16.1	2024-02-29	GO TO DOWNLOADS
VMware Tools 12.3.5	2023-10-26	GO TO DOWNLOADS
Enterprise		
VMware vSphere Hypervisor (ESXi) 6.7U3b	2019-12-05	GO TO DOWNLOADS
VMware vCenter Server 6.7U3I	2023-10-24	GO TO DOWNLOADS
VMware NSX for vSphere 6.4.14	2022-10-20	GO TO DOWNLOADS

Product Resources

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- [Documentation](#)
- [vSphere Community Support Resources](#)
- [Download Free Trial](#)

3. 国产云数据中心解决方案



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FUSION

H3C

数字化解决方案领导者



smartx
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兼容国内外OS



SUSE



UOS



红旗
Linux

极致融合
统一管理

超融合基础
设施软件



服务器
虚拟化



存储
虚拟化



网络
虚拟化



安全
虚拟化



云统一
管理平台

兼容超500款
主流服务器

服务器



Intel

X86



鲲鹏

ARM



飞腾



海光

C86



兆芯

深信服
一体机



3. 国产云数据中心解决方案



H3C

数字化解决方案领导者



混合云



私有云/行业云



边缘云

3. 国产云数据中心解决方案



3. 国产云数据中心解决方案





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