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

2026年3月

讨论提纲

- VMware
- VMware vSphere
  - Introduction to VMware vSphere
  - Examining the Pruducts 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
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  - SmartX

1. VMware

vmware by Broadcom

Discover the Modern Private Cloud

Achieve the scale and agility of public cloud combined with the security and performance of private cloud.

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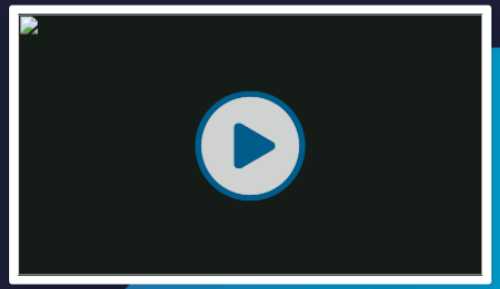
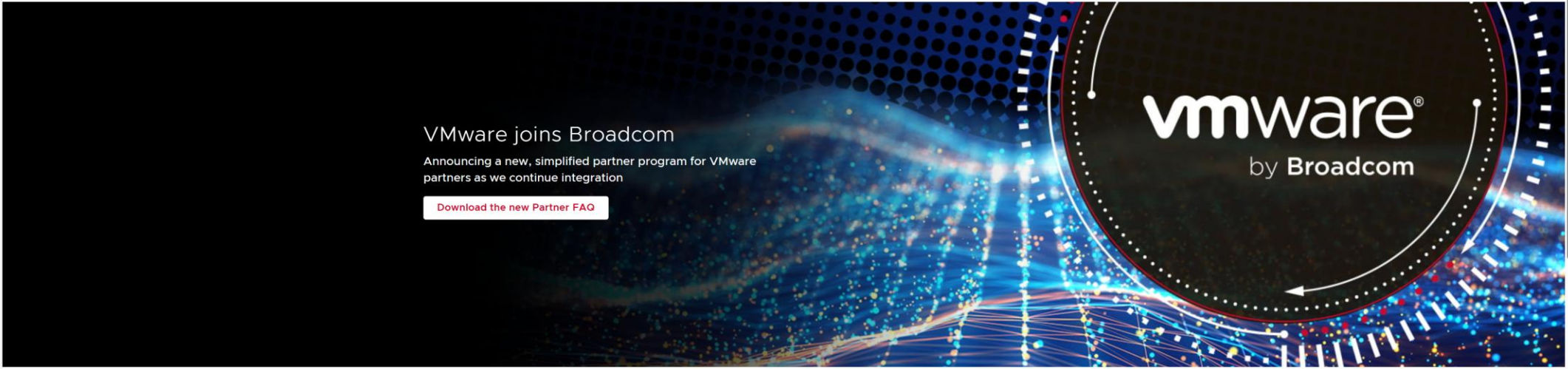


Explore Containerized Workloads on VCF

Building Together with CNCF Community

Announcing vSphere Kubernetes Service 3.5



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

Innovation

2023年11月22日

Broadcom announces successful acquisition of VMware

陈福阳

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 ...

Hock Tan
President and Chief Executive Officer

November 22, 2023 | 6 Minute Read | CEO Insights

Broadcom announces successful acquisition of VMware

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

Innovation Listen

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, [illegible] and the industry at large.

Broadcom B-Connected 博客

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谭福
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十一月22 2023 | 6分钟阅读 | CEO洞察

Broadcom 宣布成功收购 VMware

为我们的客户、合作伙伴和行业提供一流的解决方案

创新

今天，我很高兴地宣布 Broadcom 成功收购了 VMware，并为公司所有人开启了一个激动人心的新时代。VMware 加入了我们以工程为先、以创新为中心的团队，这是在打造世界领先的基础架构技术公司方面迈出的又一重要一步。

虽然这对 Broadcom 来说是一个重要的时刻，但对于我们全球的客户来说，这也是一个激动人心的里程碑。正如我在首次宣布收购时所说，我们现在可以走到一起，通过支持私有云和混合云环境并帮助他们部署"无处不在的应用"战略，帮助全球企业应对复杂的 IT 基础设施挑战。我们的目标是帮助客户优化其私有云、混合云和多云环境，使他们能够在任何地方运行应用程序和服务。

当我们一起开始这段旅程时，以下是您、我们的客户、我们的合作伙伴和我们的社区应该知道的。

我们的承诺

博通致力于创新。这是我们的DNA，也是我们计划每年投入大量资金来推进 VMware 创新和客户价值的原因。一半的投资将集中在研发上，另一半将通过VMware和合作伙伴的专业服务帮助加速解决方案的部署。我们致力于为我们强大的合作伙伴生态系统创造价值并增加收入，随着 VMware 合作伙伴的加入，该生态系统变得更加强大。

我们技术的未来

Broadcom 构建经久耐用的技术。我们计划继续投资于我们行业领先的产品。随着交易的完成，以下是即将到来的一些亮点：

VMware Cloud Foundation

Broadcom 未来的重点是使企业客户能够创建和现代化其私有云和混合云环境。在核心方面，Broadcom将投资VMware Cloud Foundation，这是一个软件堆栈，是私有云和混合云的基础。VMware Cloud Foundation 符合 Broadcom 的愿景，即帮助客户将典型的异构企业 IT 基础架构转换为虚拟化和容器化环境，从而实现私有云和混合云。该平台的目标是将 IT 资源从基础架构集成和管理任务中解放出来。这将使他们能够提供 IT 服务，通过最大限度地降低安全风险、缩短上市时间以及从新业务服务中获得额外收入来帮助实现业务目标。

作为 Broadcom 对 VMware Cloud Foundation 投资的补充，VMware 将在 VMware Cloud Foundation 的基础上提供丰富的服务目录，以实现云环境的现代化和优化，包括以下内容。

1. 应用网络和安全
   保护工作负载免受不断变化的网络威胁是客户的首要任务。这不再是关于保护边界，因为威胁行为者正在横向移动并利用内部系统来获得控制权。客户需要多层防御来防止横向攻击 - 从未经授权的访问到恶意软件和勒索软件。VMware 的分布式安全性与全面可见性相结合，使客户能够执行其纵深防御和零信任安全策略。重点是为VMware虚拟化基础架构提供侧向保护，使其能够以更简单、更敏捷的方式实施。新兴的 AI/GenAI 技术被用来应对不断变化的威胁形势。

   此外，应用程序工作负载使用负载均衡器进行部署。在数字时代，应用程序需要高度可用，并随着负载的增加而自动扩展。敏捷性、自动缩放和内置应用程序可见性是现代负载均衡器解决方案的关键要求。

2. 现代应用
   我们对 VMware 的技术以及我们的客户如何从中受益感到兴奋。现代应用程序就是一个很好的例子。

   现代应用以及私有云和混合云是数字化转型的核心。VMware 研究表明，超过 70% 的首席信息官正在开发全新的现代和云原生应用。此外，为任意云模型设计的现代应用程序现在已经取代了企业中的传统应用程序。企业领导者敏锐地意识到，软件敏捷性和上市速度对于公司成功竞争和增加收入的能力至关重要。因此，企业正在优先考虑基于人工智能、机器学习、Kubernetes、开源解决方案以及私有云和混合云生态系统等技术的应用程序策略，以获得竞争优势。但是，大规模交付应用程序可能是一项艰巨的任务，而且变得越来越复杂。

   借助 VMware Tanzu，我们的目标是通过加速任何云上的应用开发、交付和管理来提高客户的业务敏捷性 - 在 VMware Cloud Foundation 上以及所有主要的超大规模提供商中。Tanzu 专门针对应用开发框架（如领先的企业 Java 应用程序框架 Spring）进行了优化，可显著提高开发人员的工作效率，同时使平台团队能够实施应用程序标准、维护安全性和合规性并跟踪应用性能。VMware Tanzu 以应用为中心，利用通用数据和控制模型，为平台和云运维团队提供软件敏捷性和更简化的体验。Tanzu 是 VMware 软件产品组合的重要组成部分，我们对它的投资将使客户能够通过创建虚拟化和容器化环境来继续运行世界上一些最关键的任务应用程序。无论客户应用程序身在何处，我们都支持它们，以便它们可以在任何地方运行。

   在 Broadcom，我们专注于帮助客户简化其 IT 环境。为了实现这一目标，我们将改进现有的服务套件，同时整合和投资 VMware 的资产，为我们的客户提供更高的价值。

3. 从数据中心到边缘的软件支持创新
   客户一直对软件支持的技术感兴趣。当他们考虑数据中心内对灵活性的需求以及他们希望在不同的云环境中运行哪种类型的工作负载时，这引起了人们的新关注。私有云和混合云的雄心壮志正在加速发展，而基于平台的模块化技术也实现了敏捷性。这在数据中心是正确的，在软件定义的边缘也是如此。以一家政府机构内部的复杂 IT 环境为例，该机构在私有云和混合云基础设施方面投资了 90 亿美元，以加强其数字管理和防御能力并提高其敏捷性。这些趋势表明，软件支持的创新可帮助组织为从数据中心到边缘的所有类型的工作负载提供更好的结果。

展望未来

Broadcom 在投资我们收购的业务以推动可持续增长和客户价值方面有着悠久的记录，现在交易已经完成，我们可以立即开始行动。

我期待着作为一家合并后的公司，我们将共同取得成就，为我们的客户、合作伙伴和整个行业提供一流的解决方案。

您可以在 www.broadcom.com/vmware 了解更多信息。

主题

返回页首

VMware vSphere Foundation

Deploy a workload platform delivering enterprise-class hyperconverged infrastructure for today's modern IT environment.

READ LAUNCH BLOG READ SOLUTION BRIEF

Features Use Cases Components & Advanced Services Customer Stories Resources & FAQs

Enterprise Workload Platform

Modernize Infrastructure

Deliver a scalable infrastructure - optimized with built-in intelligence and unified management.

Accelerate Innovation

Build, run, and deploy modern applications with self-service Kubernetes and support for hardware accelerators.

Secure and Resilient

Ensure cyber-resilience and data privacy with built-in compliance and confident recovery capabilities.

LOGIN

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New

VMware vSAN - Getting Started and Advanced Topics (HOL-2634-01-VCF-L)

0d 1h 30m Available Now

Discover what's new in vSAN 9—enable file services, encryption, and monitoring with vCenter and VVCF Operations while managing storage, performance, and Day-2 operations through the intuitive HTML5 interface.

Read More

Products: vSphere

Languages: English

ENROLL

New

Simplified Application Networking with NSX VPC (HOL-2640-01-VCF-L)

0d 1h 30m Available Now

Discover how to streamline application networking using a simplified model powered by VMware NSX, allowing you to create and manage Virtual Private Clouds (VPCs) directly from VMware vCenter Server. This lab provides hands-on experience in deploying and configuring VPCs, subnets, and Network Address Translation (NAT), enhancing your ability to manage network and security policies for your applications efficiently.

Read More

Products: NSX

Languages: English

ENROLL

New

Getting Started with VCF Operations (HOL-2601-01-VCF-L)

0d 1h 30m Available Now

Announcements

Thank you to our Explore Cloud Sponsors OVHcloud & IBM!

What is VMware Hands-on Labs

⚠️ Changes to VMware Hands-on Labs Access ⚠️

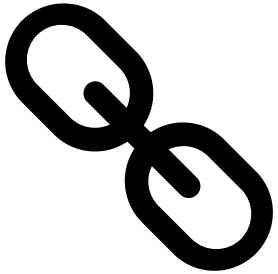
Thank you for using VMware Hands-on Labs (HOL) to build skills, prepare for certifications, and test solutions.

As part of a requirement to simplify and standardize access, the your **organization (corp, non profit, or academic) email is now mandatory to access**

ISP accounts are no longer

Hi! How may I help you?

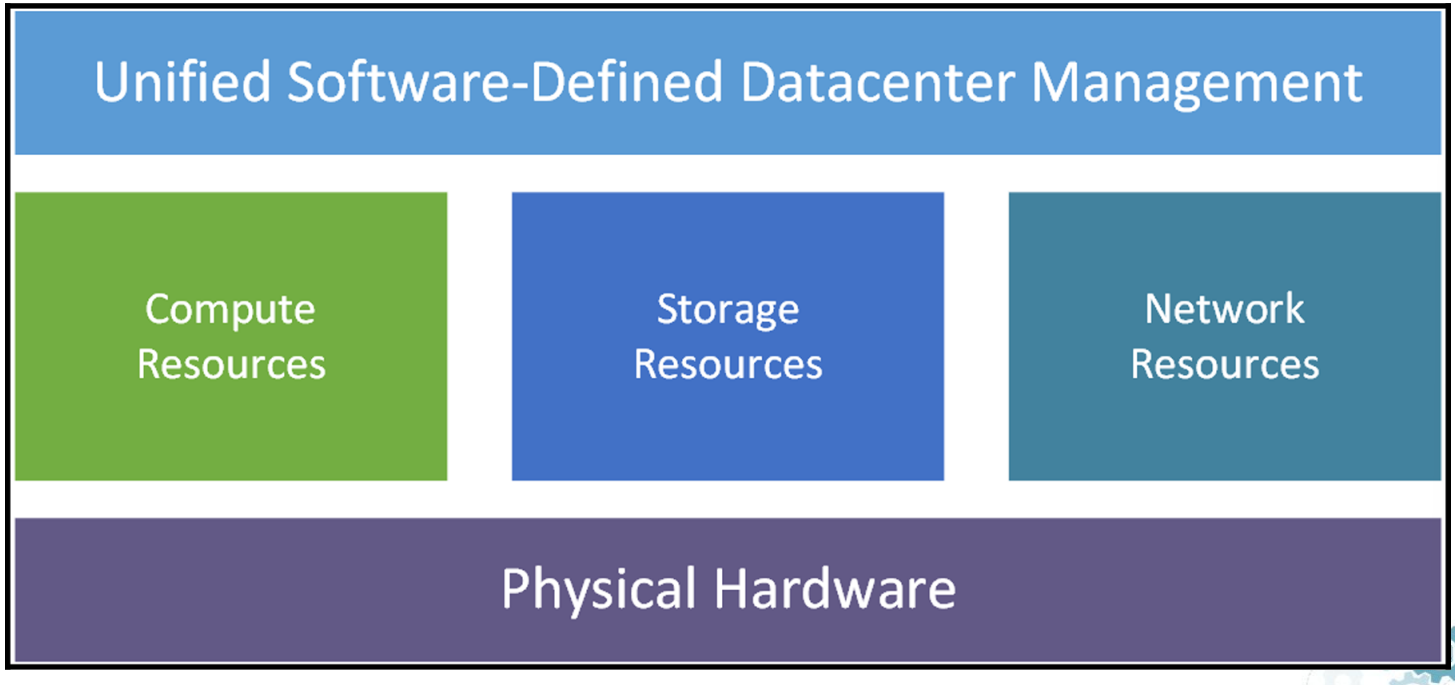
1. VMware



Learn virtualization in three minutes
https://www.vmware.com/solutions/virtualization.html

2. VMware vSphere

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



2. VMware vSphere

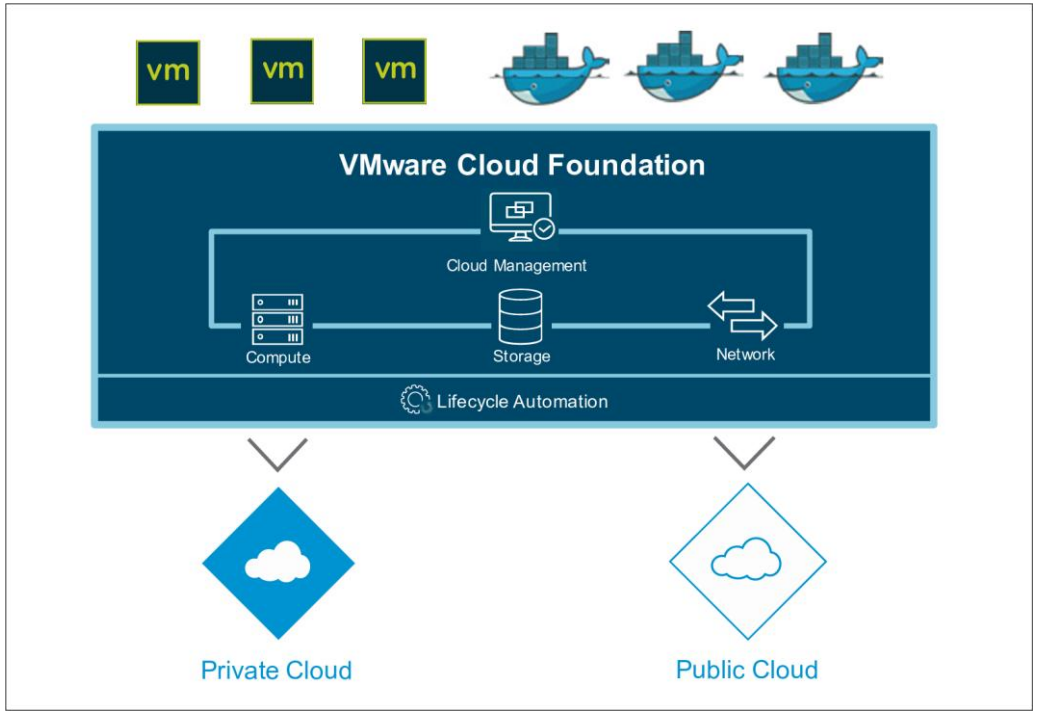
VMware 实现虚拟化的三个基础架构

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

这些产品构建了一个统一平台，能够以无与伦比的性能交付任何服务。

2. VMware vSphere

VMware Cloud Foundation Software Stack



2. 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

  - 不选用 Vmware vSphere 8.0 是因为实验环境支持不好，且本课程所使用功能在这些版本上基本相同。

2. 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

vmware Docs by Broadcom 主页 产品 资源 在此文档中搜索 CN

VMware vSphere

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 Bitfusion
- 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
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- 了解有关 vSphere 的更多信息

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vSphere 6.7 发行说明

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更新时间 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。

在此文章中

- 发行说明内容
- 新增功能
- 国际化
- 兼容性
- 此版本的安装与
- vSphere 6.7 的
- 产品支持注意事
- 已知问题

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2026年：vSphere 9.0
2022年：vSphere 8.0
2020年：vSphere 7.0
2018年：vSphere 6.7
2016年：vSphere 6.5

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 A
Web Client、VMware Host Client）不接受非 ASCII 输入。

兼容性

VMware ESXi Release and Build Number History

https://www.virten.net/vmware/esxi-release-build-number-history/

Virten.net About Homelab VMware NSX vSAN K8S Tools

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 9.0
- 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 9.0

Name	Patch	Date	Build
ESX 9.0.2.0	ESXi_9.0.2.0.25148076	2026-01-20	25148076
ESX 9.0.1.0	ESXi_9.0.1-0.24957456	2025-09-29	24957456

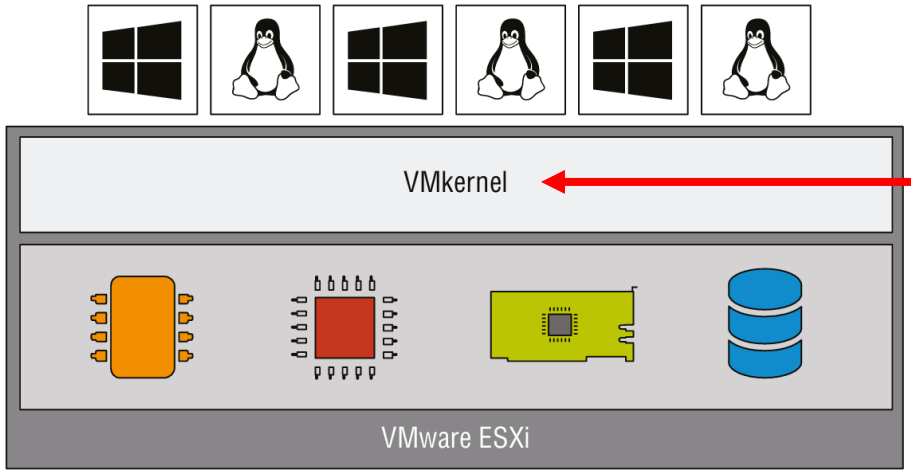
VMware ESXi Release and Build Number History
https://www.virten.net/vmware/esxi-release-build-number-history/

2. VMware 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

- VMware ESXi



虚拟化由 VMkernel 实现

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

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

- 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

- 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

- 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

- VMware vSphere Client and vSphere Host Client

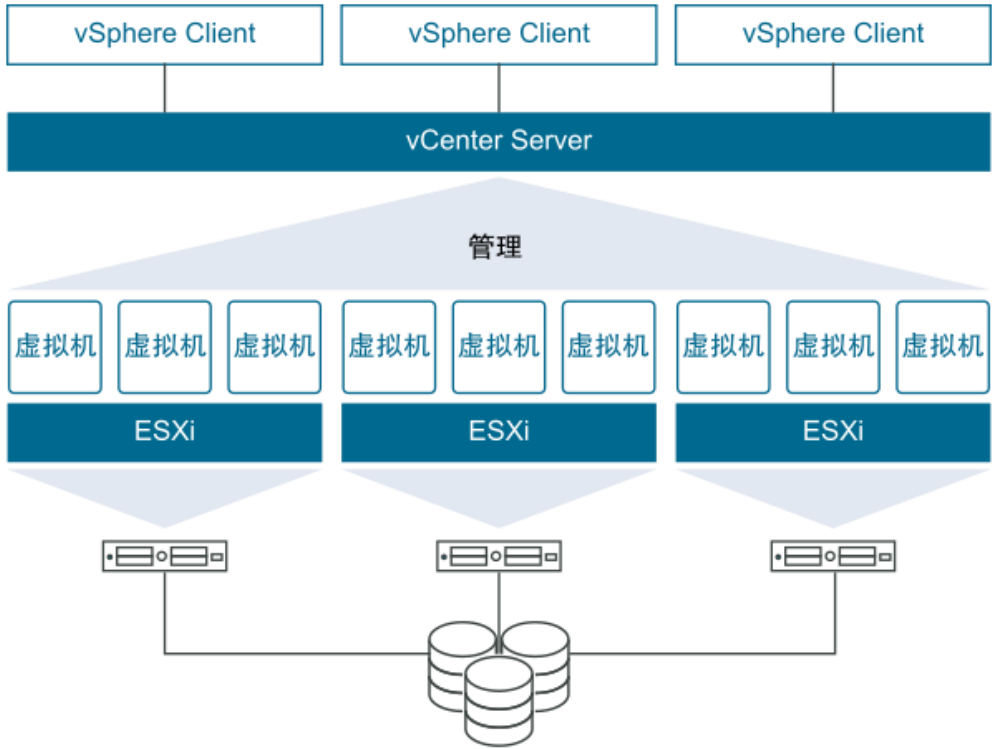
管理对象
VMware ESXi

管理对象
vCenter Server
VMware ESXi
Cloud
VM
…

管理对象
vCenter Server

2. VMware vSphere

- VMware vSphere Client and vSphere Host Client



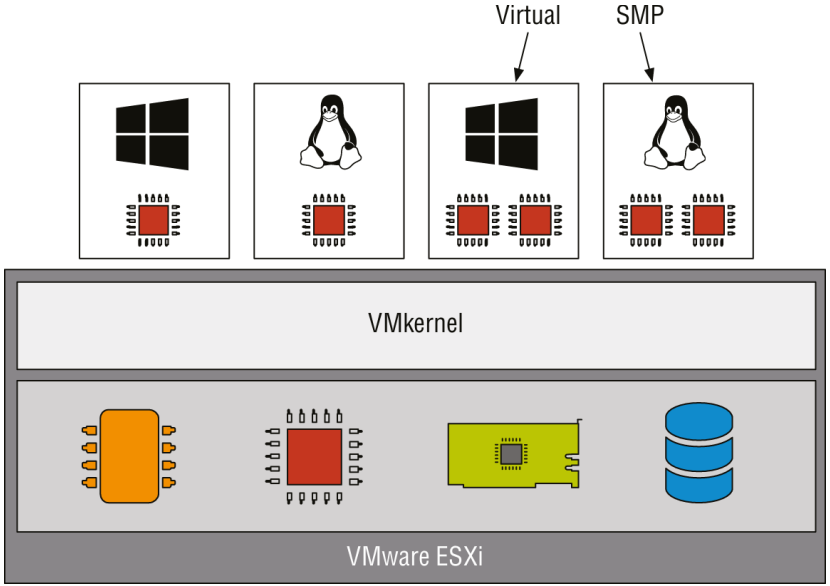
2. VMware vSphere

- 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

- 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。

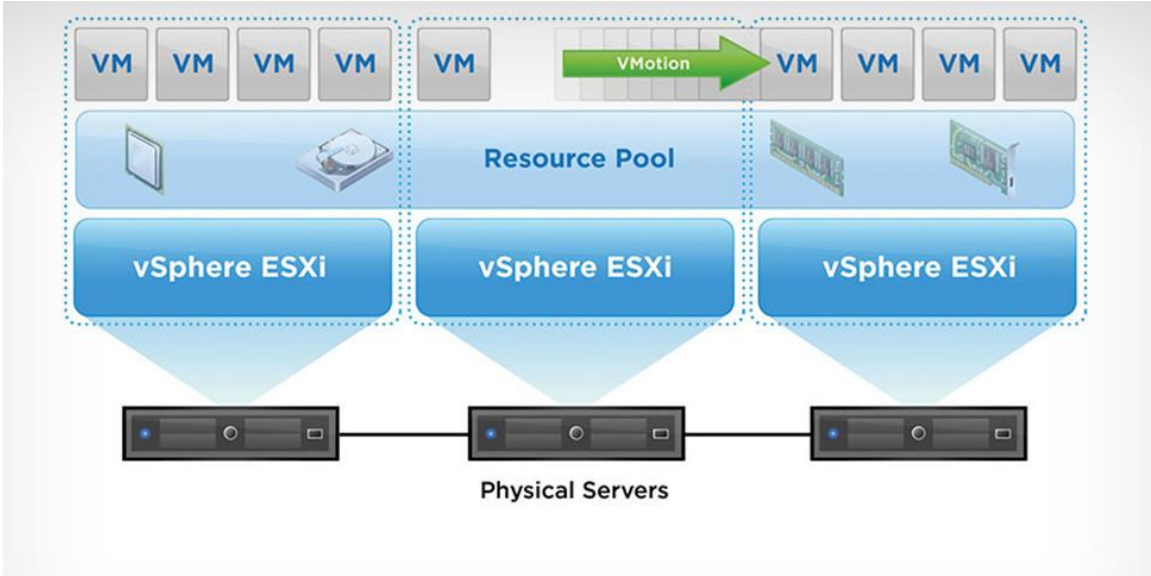


2. VMware vSphere

- 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

- 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

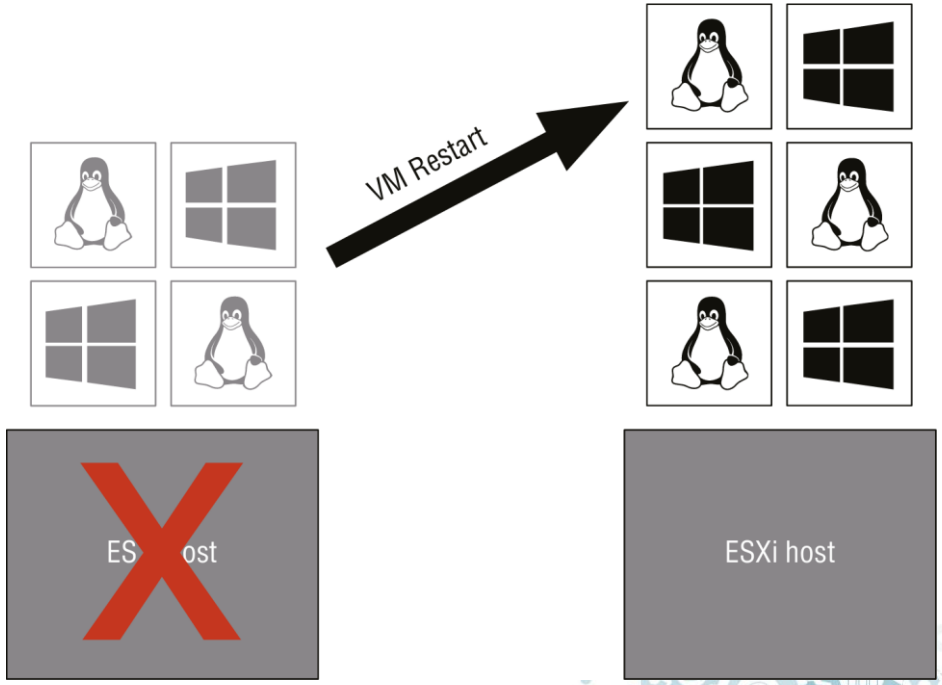
- vSphere Storage DRS
  - 将 DRS 的理念应用于存储。
  - vSphere DRS 旨在平衡 ESXi 主机集群的 CPU 和 Memory 利用率；vSphere Storage DRS 使用相同的机制，平衡数据存储集群的存储容量和存储性能。

2. VMware vSphere

- 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

- 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。

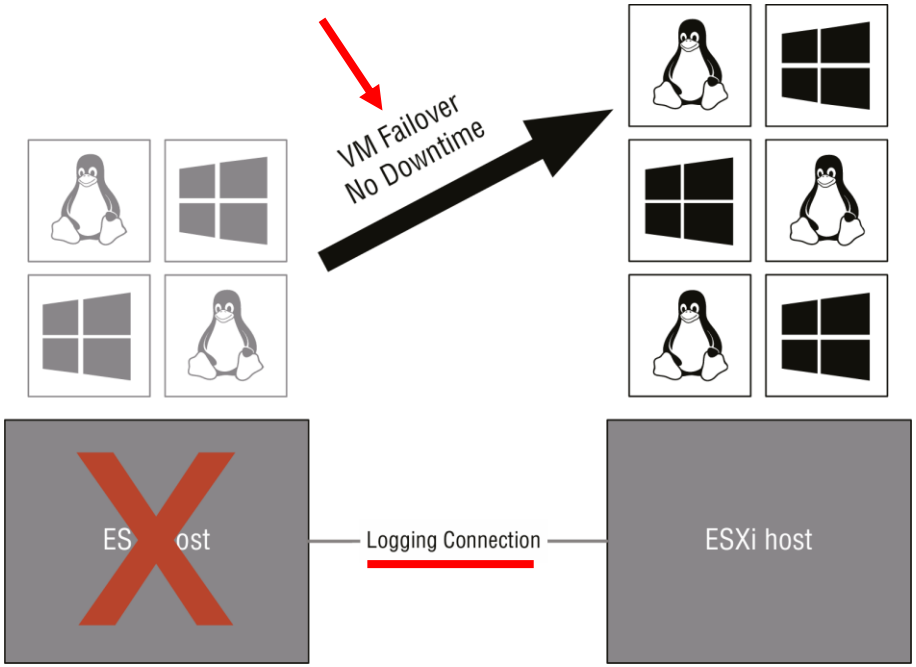


2. VMware vSphere

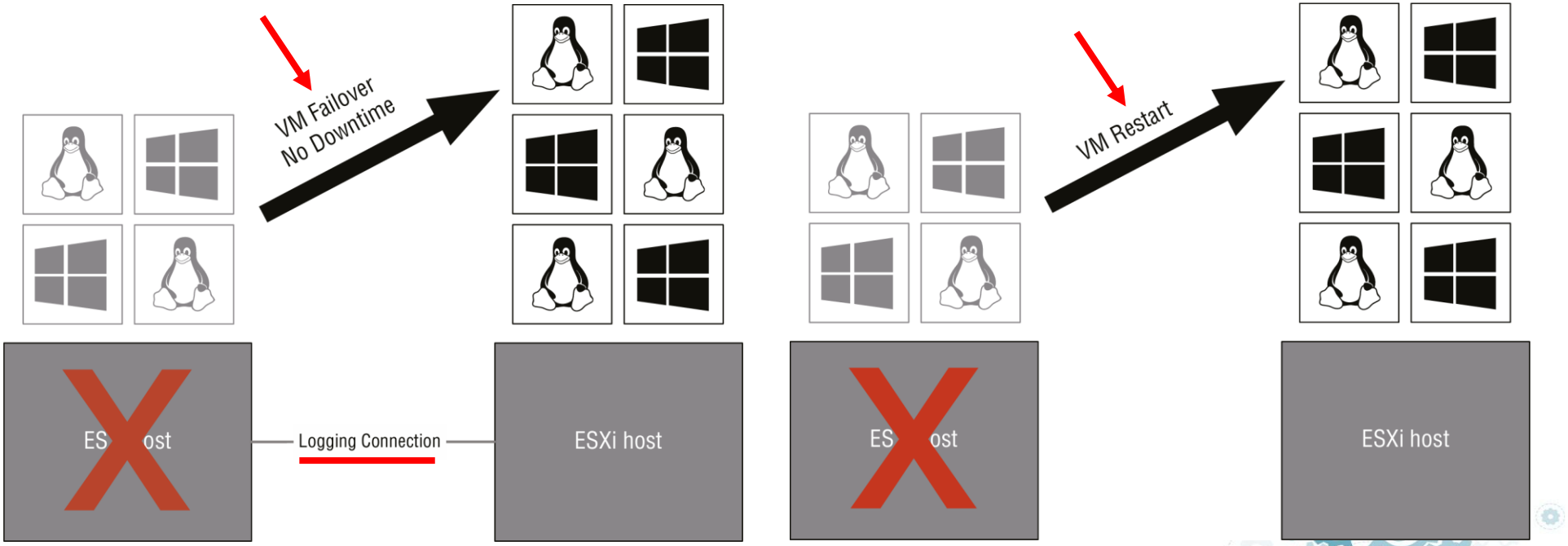
- vSphere Fault Tolerance，FT，故障转移
  - vSphere HA 提供了一种在物理主机发生故障时自动重新启动虚拟机的方法，从而防止计划外的物理服务器故障。
  - vSphere FT 消除了物理主机发生故障时的任何停机时间。
    - vSphere FT 在与主虚拟机保持同步的单独物理主机上维护镜像辅助虚拟机。主（受保护）VM 上的所有操作也会在辅助（镜像）VM 上重做。
    - 如果主 VM 的物理主机发生故障，辅助 VM 可立即接管。
    - 如果辅助虚拟机的物理主机发生故障，vSphere FT 将自动在另一台主机上重新创建辅助（镜像）虚拟机。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

- vSphere Fault Tolerance，FT，故障转移



- vSphere Fault Tolerance，FT，故障转移

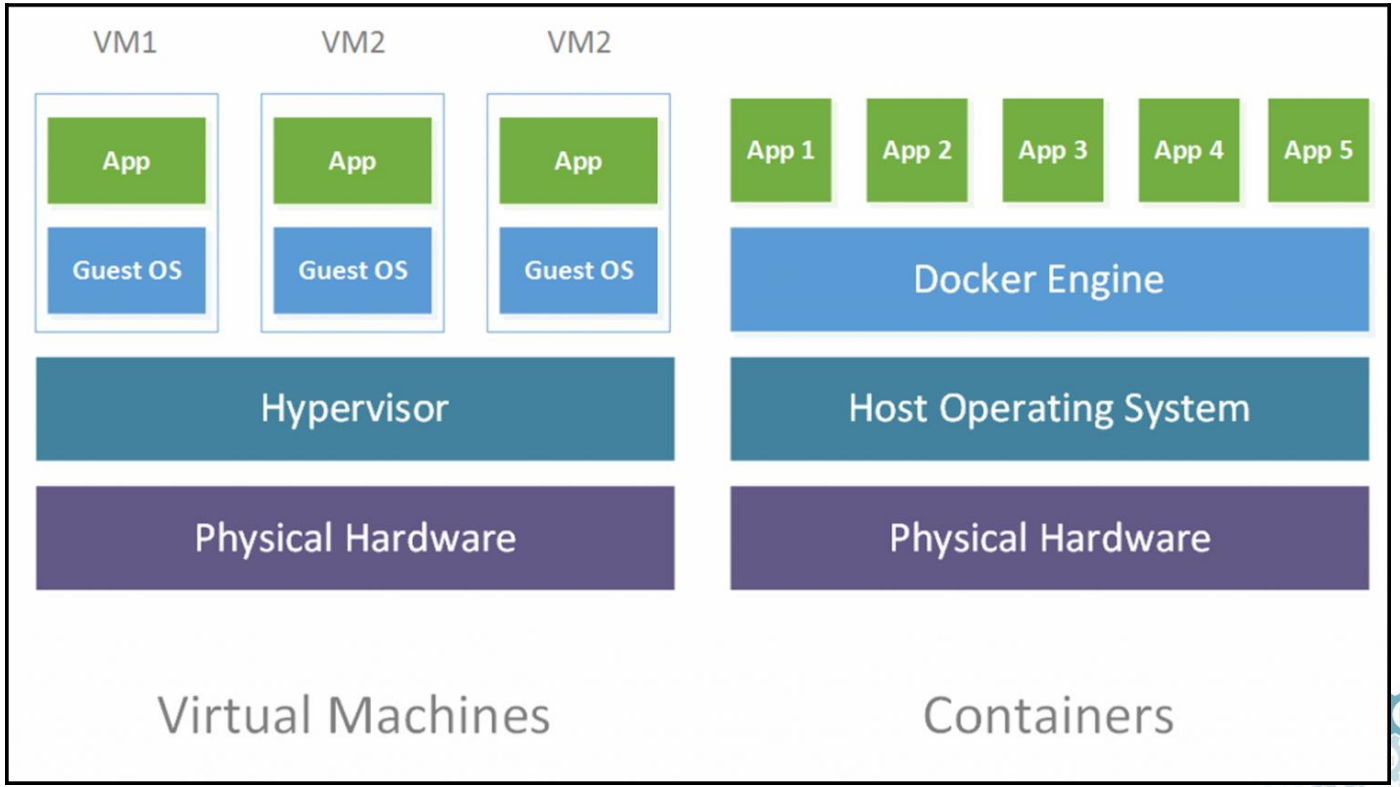


2. VMware vSphere

- 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。

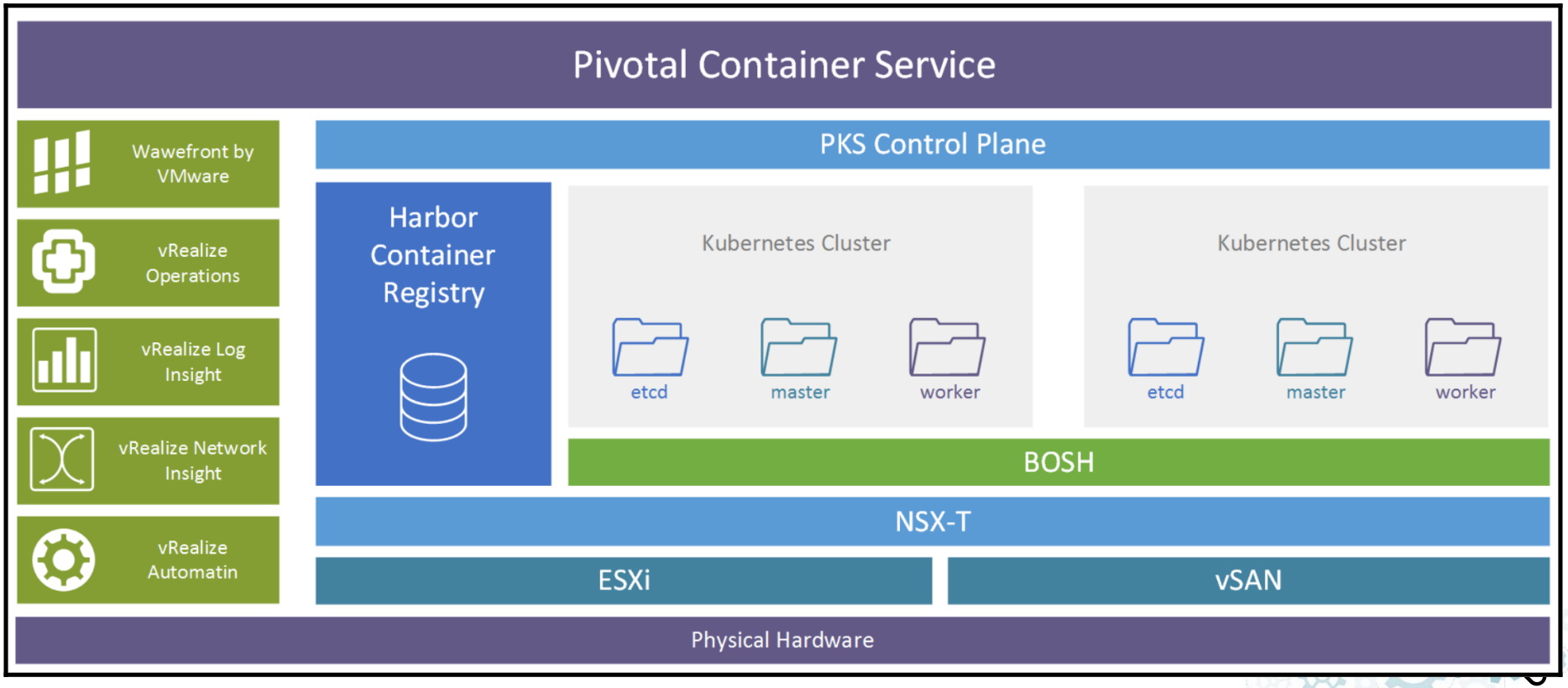
2. VMware vSphere

- Virtualization versus containers，虚拟化与容器



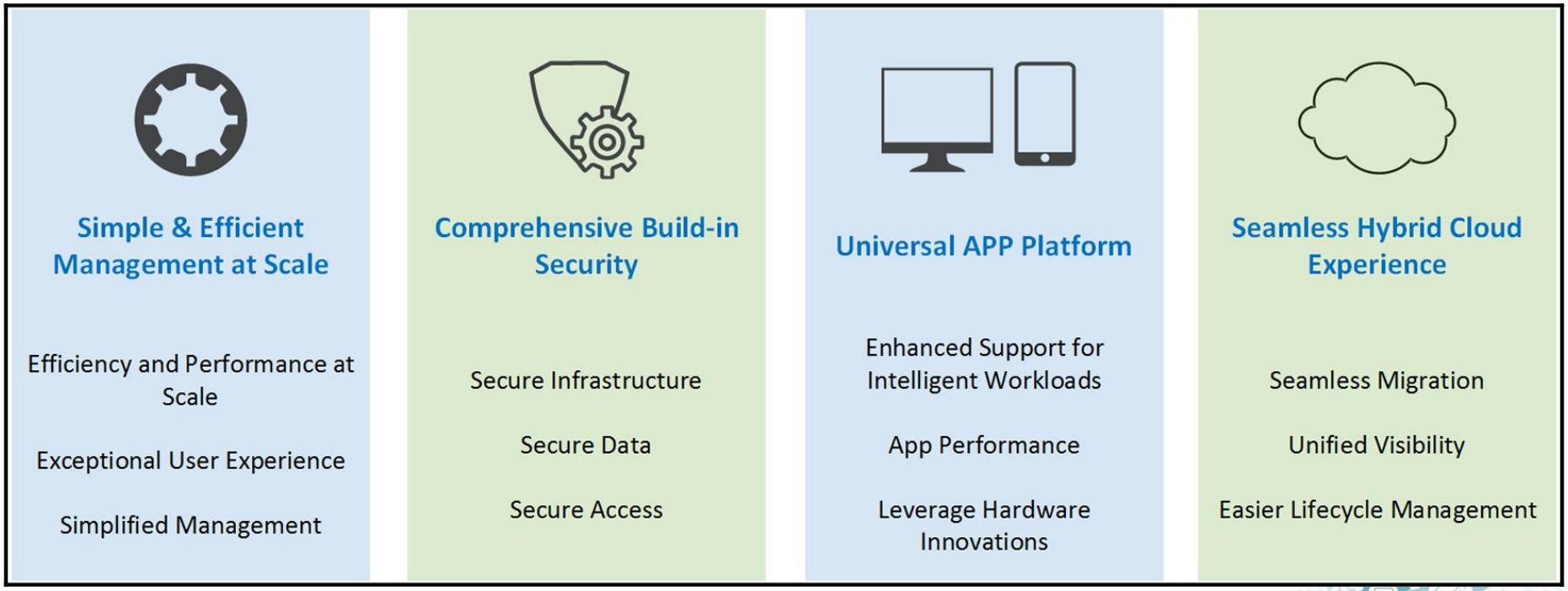
2. VMware vSphere

- Virtualization versus containers，虚拟化与容器



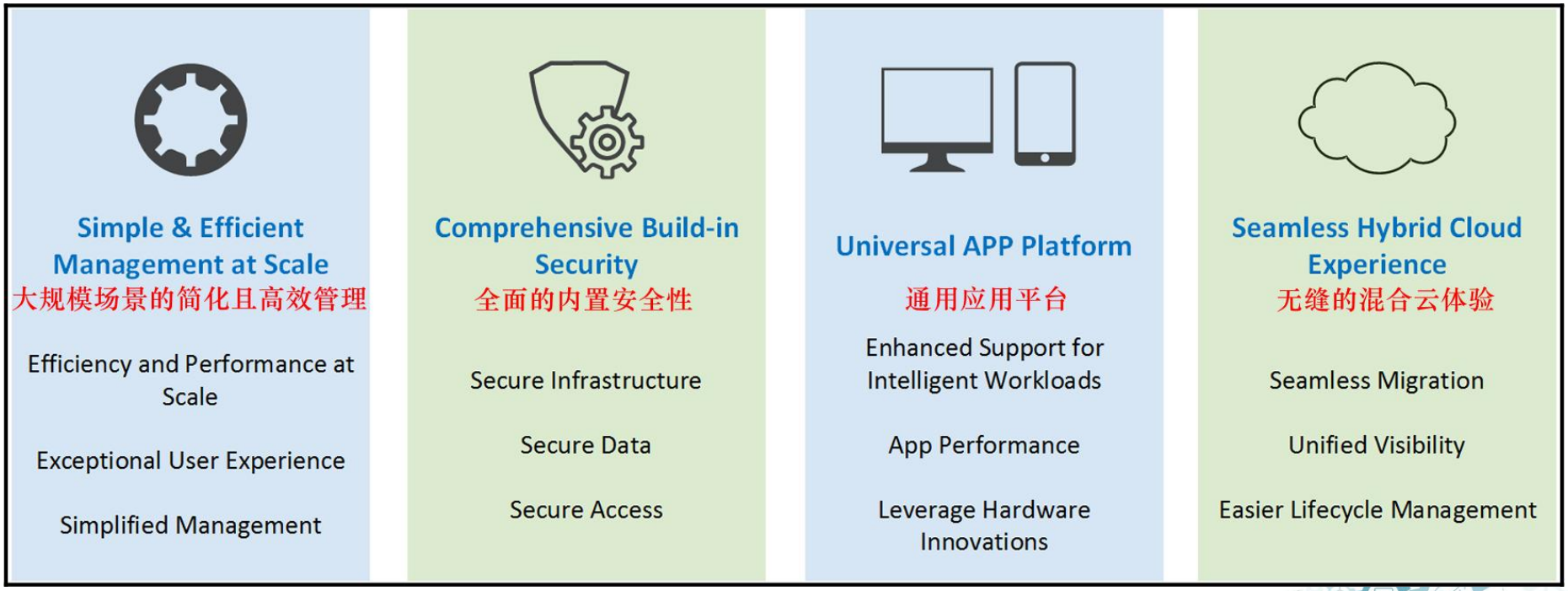
2. VMware vSphere

VMware vSphere 6.7 高阶功能的增强



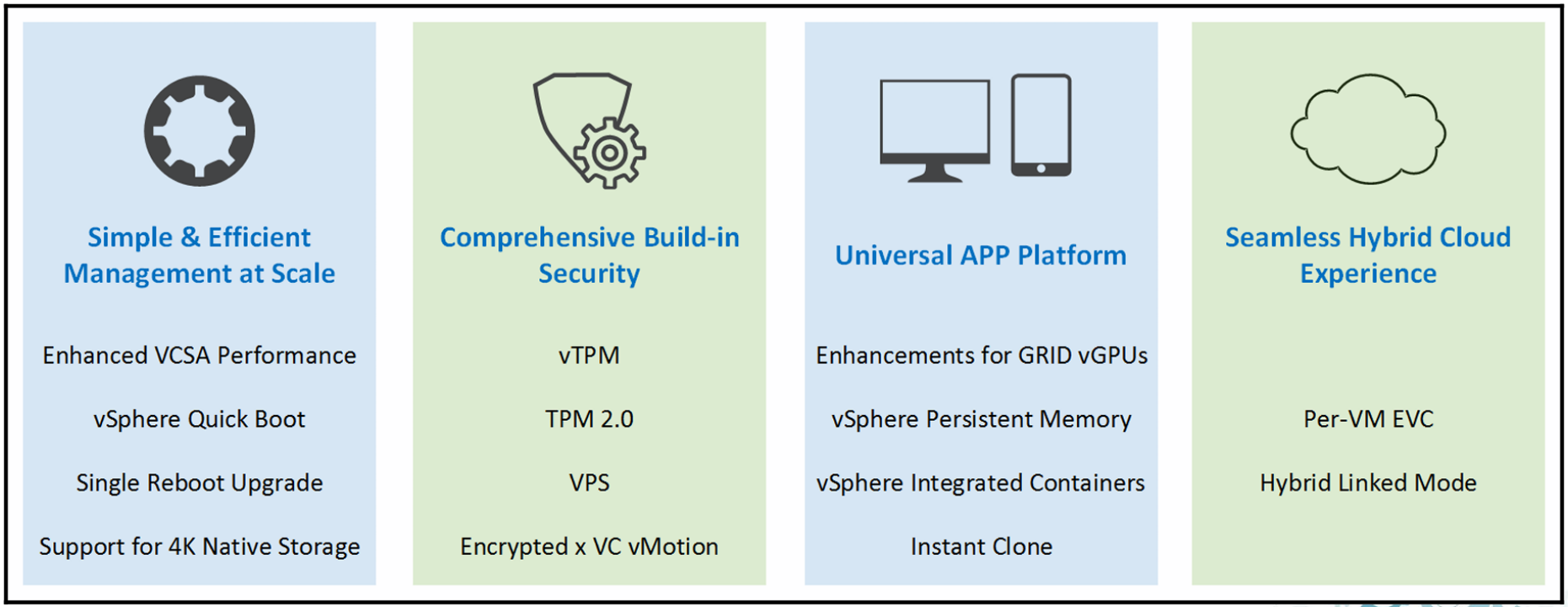
2. VMware vSphere

VMware vSphere 6.7 高阶功能的增强



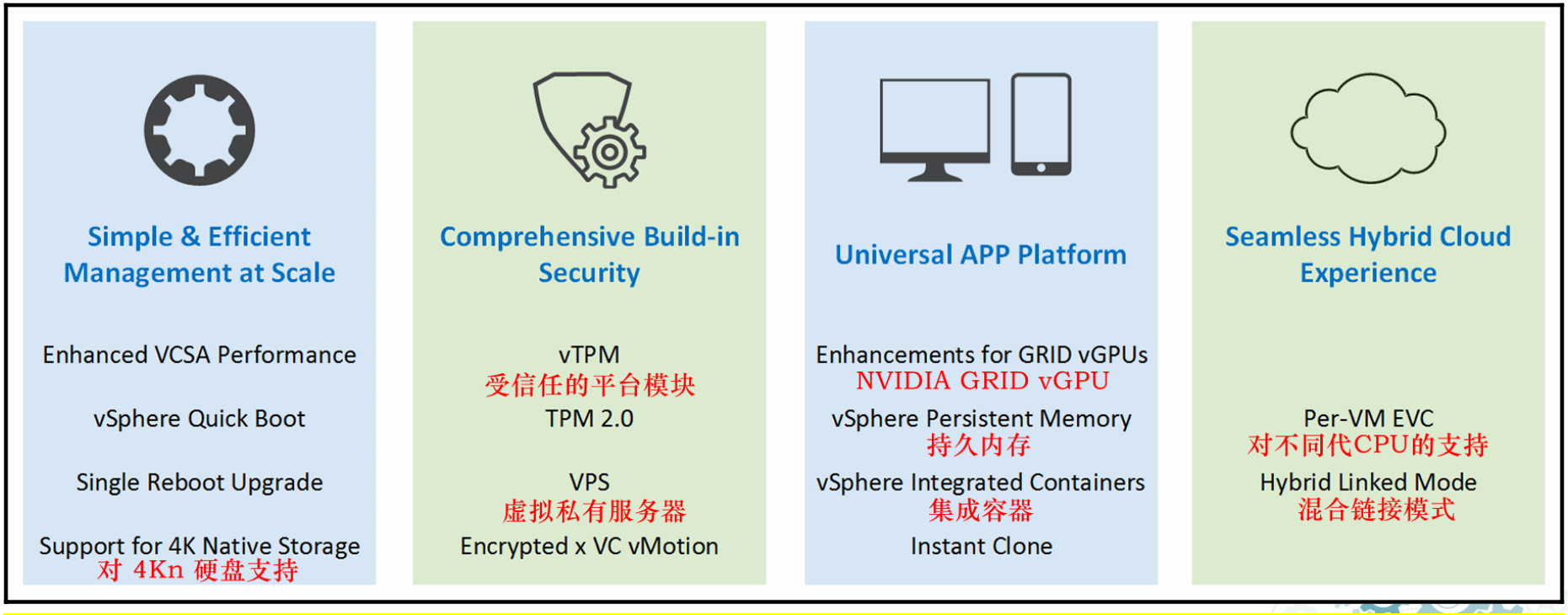
2. VMware vSphere

VMware vSphere 6.7 在技术层面的新功能



2. VMware vSphere

VMware vSphere 6.7 在技术层面的新功能



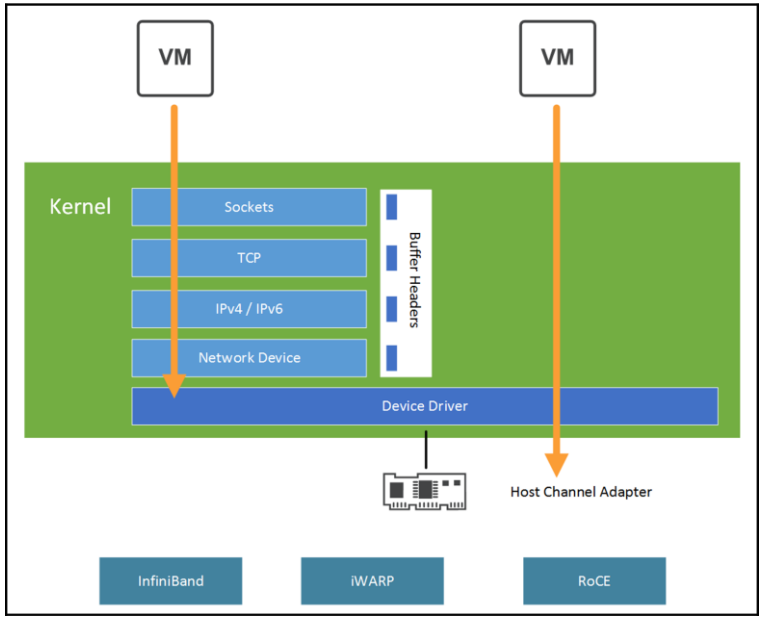
https://blogs.vmware.com/china/2018/04/20/vsphere-6-7-新功能/

2. VMware vSphere

- 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。

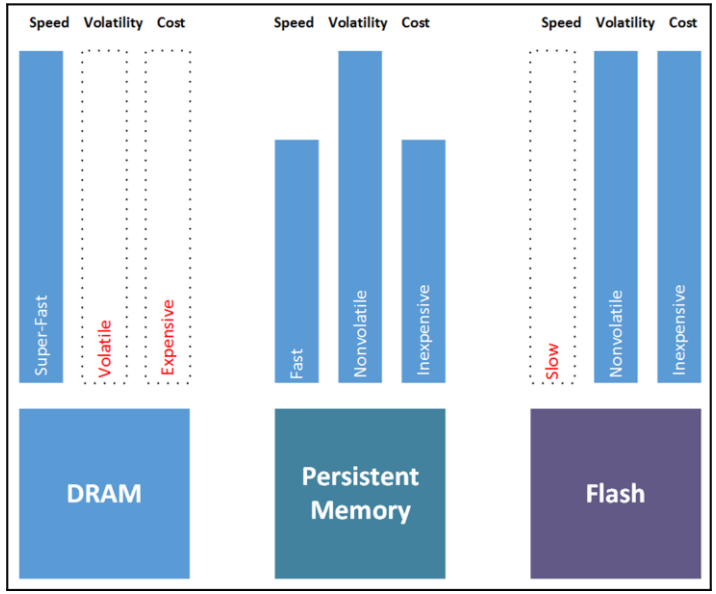
2. VMware vSphere

- 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

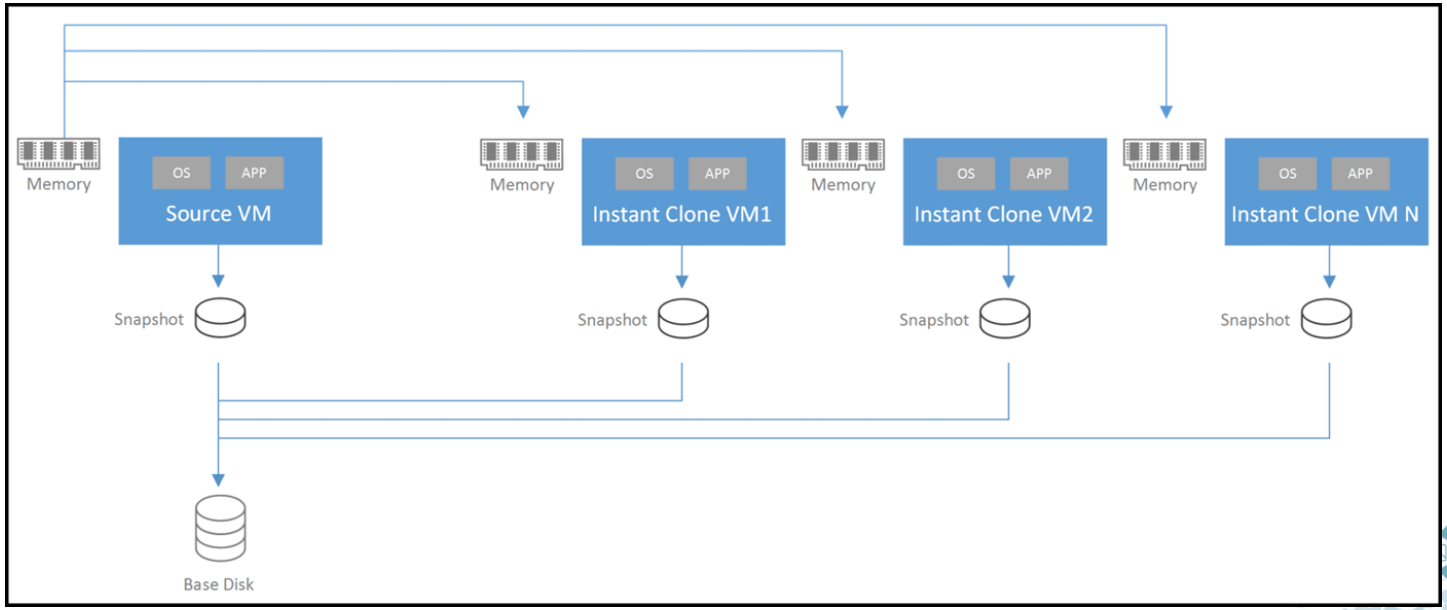
- 支持持久内存（persistent memory）
  - 持久内存（PMem）是非易失性存储器（Non-Volatile Memory，NVM）。
  - 持久内存也称为非易失性双列直插式内存模块（non-volatile dual in-line memory module，NVDIMM)。
  - 持久内存比 SSD 性能更高，比 DRAM 成本却低得多，但其延时极低，约为1微秒。
  - 持久内存可用于对停机时间敏感且需要高性能的应用程序。



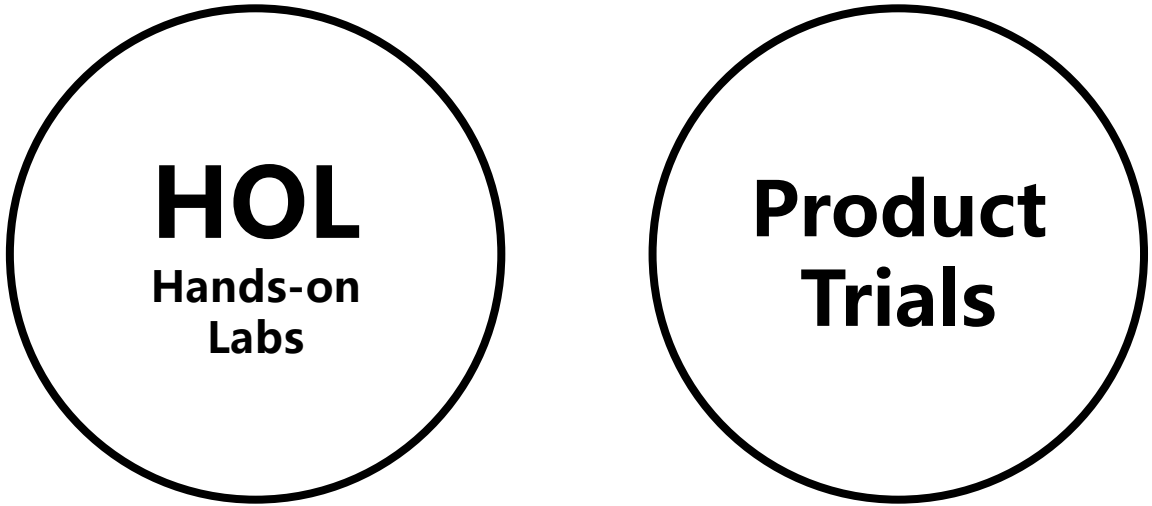
https://www.kingston.com.cn/cn/ssd/what-is-nvme-ssd-technology

2. VMware vSphere

- 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



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Accelerate Machine Learning in vSphere Using GPUs (HOL-2549-03-VCF-S)

0d 1h 30m Available Now

In this lab, you will learn how you can accelerate Machine Learning Workloads on vSphere using GPUs. VMware vSphere combines the power GPUs with the management benefits of vSphere..

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Languages: English

ENROLL

Enhanced vSphere Replication (HOL-2634-02-VCF-S)

New

0d 1h 30m Available Now

This demo shows VMware Live Recovery (VLR) steps for changing from regular vSphere Replication to the new Enhanced vSphere Replication through the VLR user interface. Enhanced Replication, first introduced in vSphere Replication 9.0, now supports automated load balancing which distributes the replication of VMs across on all available hosts in the target cluster resources for optimal performance.

Read More

Products: vSphere

ENROLL

Unifying VM and Kubernetes Management with vSphere Supervisor (HOL-2636-01-VCF-L)

New

0d 1h 30m Available Now

Deploy and operate vSphere Supervisor with VMware Cloud Foundation—run Kubernetes workloads natively, manage compute, networking, and storage, and use

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What is VMware Hands-on Labs

⚠️ Changes to VMware Hands-on Labs Access ⚠️

Thank you for using VMware Hands-on Labs (HOL) to build skills, prepare for certifications, and test solutions.

As part of a requirement to simplify and standardize access, the your **organization (corp, non profit, or academic) email is now mandatory to access**

ISP accounts are no longer

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New

Enhanced vSphere Replication (HOL-2634-02-VCF-S)

0d 1h 30m

0%

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1-1 of 1 labs

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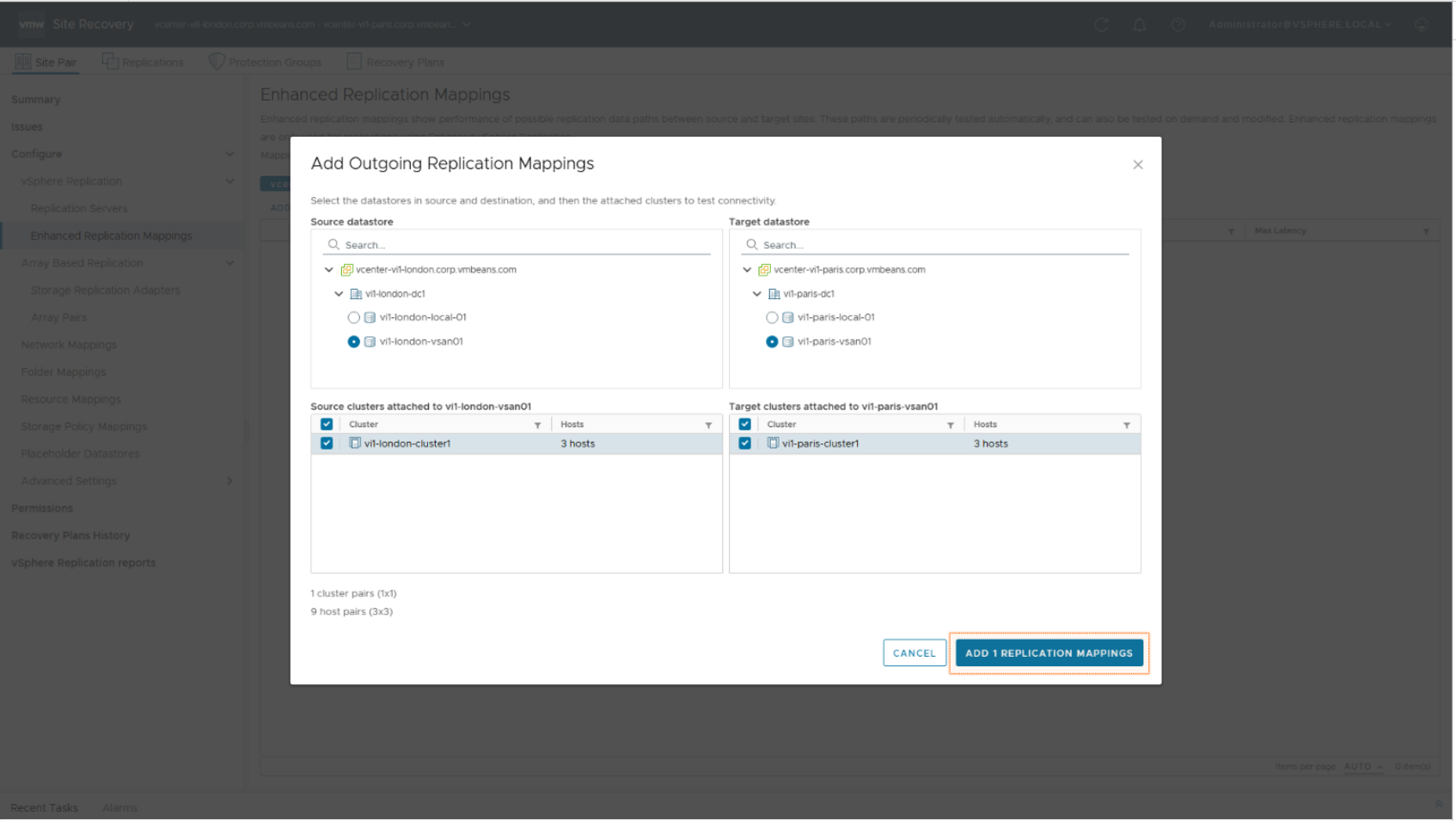

1. click ***ADD 1 REPLICATION MAPPINGS*** to use this mapping pair
2. select ***vi1-london-cluster1*** from the list to see more details
3. click ***Test details*** to open details and review the results of replication mapping setup and connection testing

Everything looks good for adding the new Enhanced vSphere Replication mapping.

CONFIGURE VM REPLICATIONS

In the next two steps, we will show reconfiguration for a single VM and for a group of VMs.

1. click ***Replications*** on menu bar
2. select ***Incoming*** from left hand selection view to see VMs inbound to this site - NOTE that there are currently no outgoing VM replications that need reconfigured

SINGLE VM

For the first part of this demo, we will reconfigure just one VM.
This is a good approach when the configuration and replication criteria (e.g., RPO) are specific to a single VM scenario.

1. select "***app1-db***" from the VM list
2. click ***RECONFIGURE*** from the menu choices

You can see that this VM is currently configured for "Legacy replication" - this is what we will update.

1. select ***Enhanced replication*** mode
2. click ***NEXT*** - we will not change other VM configuration details
3. click ***NEXT*** - we can see that the connectivity test have already been tested and passed
4. select ***Enable network encryption for VR data*** for this item - the setup requires this
5. select ***Enabl*** ***data*** for this
6. click ***NEXT***

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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 Weathervane, that can be used to measure the performance of database and application workloads respectively.

HANDS-ON LAB · 1hr 30min

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 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.

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.

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Challenge your skills and showcase your vSphere expertise.

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VMware vSphere 8 Overview - Lightning Lab

This lab is an overview of vSphere 8

HANDS-ON LAB · 1 hr 30 min

VMware vSphere 8 - What is New

vSphere 8 brings

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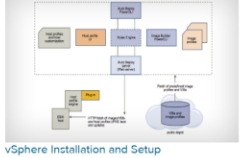
Installation and Configuration

vSphere 8 brings the benefits of cloud to on-premises workloads, supercharges performance through DPUs 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 evaluation with the following steps:



vSphere Installation and Setup

vSphere Resources

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ESXi Component - core ESXi VIBs	ESXi_8.0.2-0.48.24789317	Security	Critical
ESXi Install/Upgrade Component	esx-update_8.0.2-0.48.24789317	Security	Critical
ESXi Install/Upgrade Component	esxio-update_8.0.2-0.48.24789317	Security	Critical

Rollup Bulletin ID	Category	Severity	Detail
ESXi80U2e-24789317	Security	Critical	Security fixes only

Solution Downloads

File Name	File Size	File Description	Download	MD5 Checksum	SHA256 Checksum
VMware-ESXi-8.0U2e-24789317-depot.zip	582.2 MB	View Description		625b9846ea4e39c56e54fdbbbdf88010	c4080c8b63191f409ec13af5deafcbd6676032667835e2a1dc8487b628af42ec

Security Advisories

Notification Id	Title	Product/Component	Severity	Published	Updated
VCDSA35877	VMSA-2025-0013: VMware ESXi, Workstation, Fusion, and Tools updates address multiple vulnerabilities (CVE-2025-41236, CVE-2025-41237, CVE-2025-41238, CVE-2025-41239)	VMware Cloud Foundation, ...	CRITICAL	15 July 2025	7 months 30 days ago

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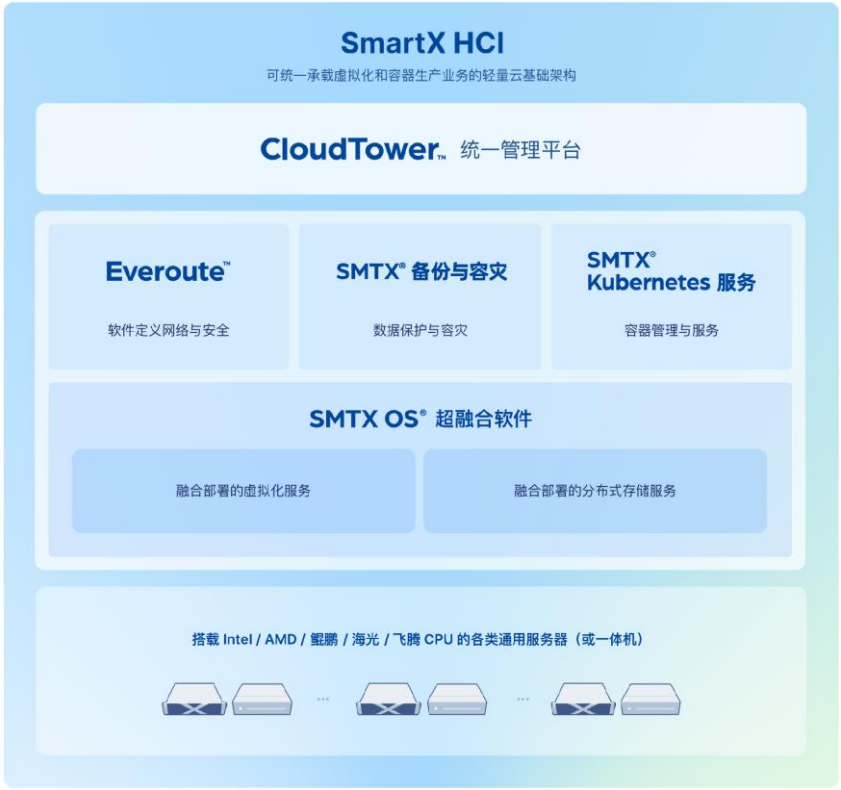

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