云计算与虚拟化技术

第5讲：vCenter Server

阮晓龙

13938213680 / rxl@hactcm.edu.cn

http://cloud.xg.hactcm.edu.cn
http://www.51xueweb.cn

河南中医药大学信息管理与信息系统教研室
信息技术学院网络与信息系统科研工作室

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讨论提纲

- Introducing vCenter Server
- Installing vCenter Server and Its Components
- Using vCenter Server
  - Exploring vCenter Server
  - Creating and Managing a vCenter Server Inventory
  - Exploring vCenter Server's Management Features
  - Managing vCenter Server Setting
  - vSphere Web Client Administration
- VMware Appliance Management Administration
  - Summary / Monitor / Access / Networking / Time
  - Services / Update / Administration / Syslog / Backup

1.Introducing vCenter Server

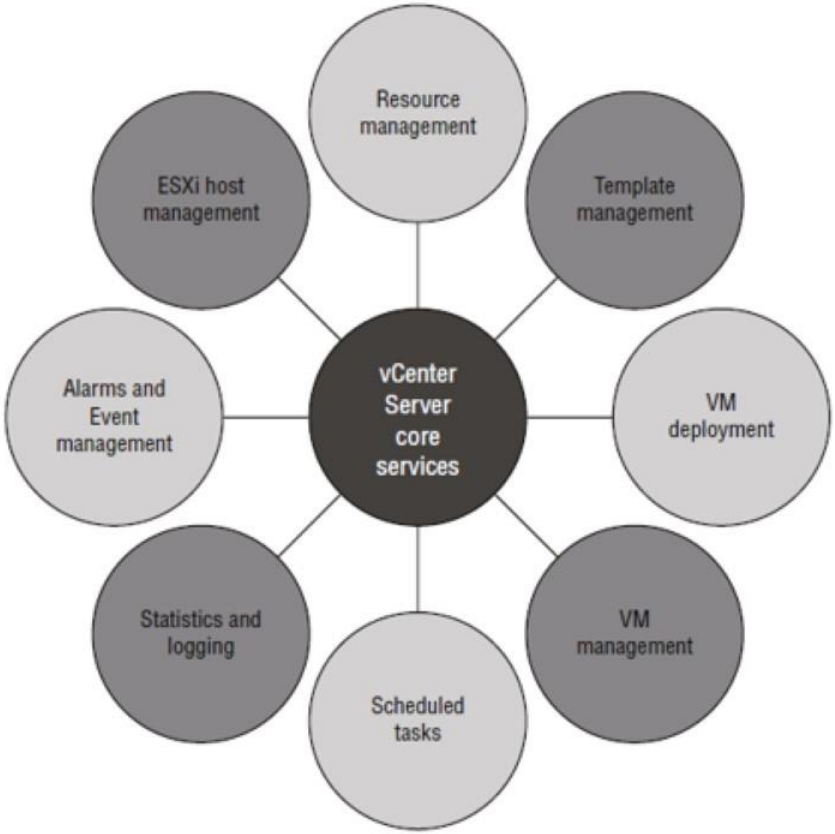
- VMware has a number of other products, but vCenter Server is considered the central integration point tying them all together.
  - Software such as vRealize Automation, Site Recovery Manager, and its often-paired vSphere Replication, as well as vRealize Operations Manager all depend on an instance of vCenter Server to integrate into the VMware environment.
  - Not only this, much of the advanced functionality that vSphere offers comes only when vCenter Server is present.

1.Introducing vCenter Server

- Specifically, vCenter Server offers core services in the following areas:
  - Resource management for ESXi hosts and VMs
  - Template management
  - VM deployment
  - VM management
  - Scheduled tasks
  - Statistics and logging
  - Alarms and event management
  - ESXi host management

1.Introducing vCenter Server

FIGURE 3.1
vCenter Server provides a full spectrum of virtualization management functions.



1.Introducing vCenter Server

- vCenter Server can be installed in two ways.
  - The historic approach is an application installed on a Windows Server, but as of vSphere 6.7, this will be the last release of this deployment type;
  - the other format is as a Linux-based virtual appliance.
  - but for now, the vCenter Server virtual appliance (which you may see referred to as VCVA or VCSA) offers an option to quickly and easily deploy a full installation of vCenter Server and Platform Services on VMware's open source Photon OS.

1.Introducing vCenter Server

- Centralized user authentication is not listed as a core service of vCenter Server, but it is essential to how vCenter Server and many other VMware products operate.
- The Platform Services Controller (PSC) is the medley of components that comprise the service of vCenter Single Sign-On (SSO), including the Secure Token Service (STS) and Identity Management Service (IDM).
  - It is a prerequisite for installing vCenter Server.
  - vCenter Server cannot be installed without SSO being available first.

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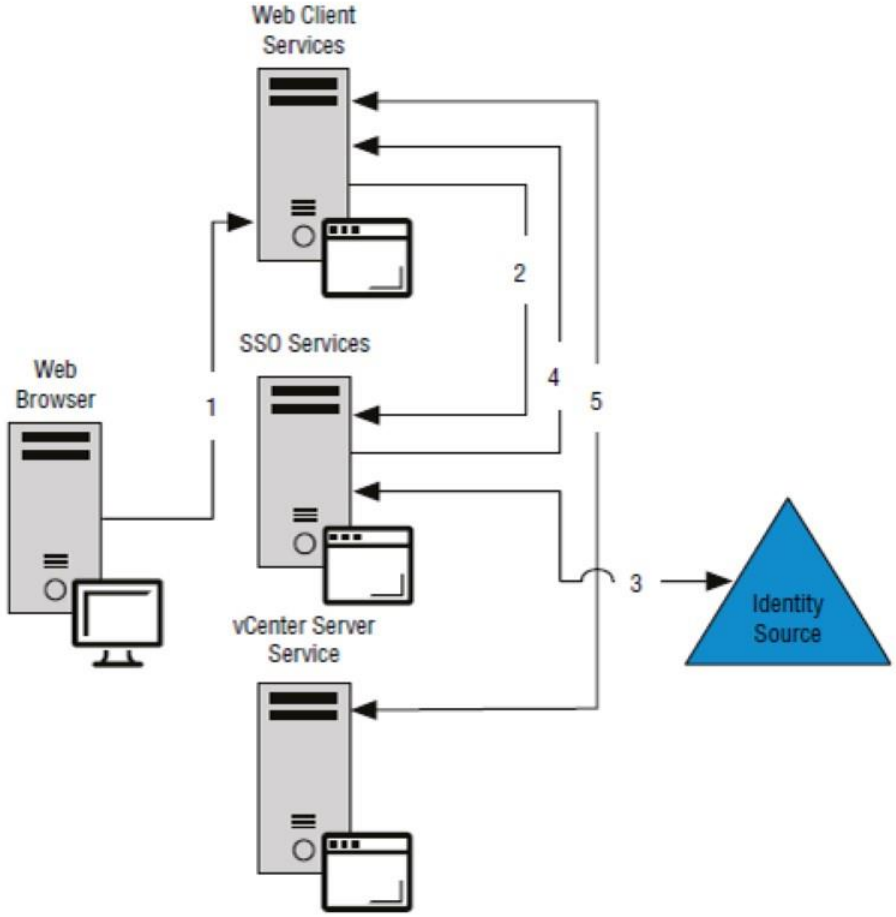
FIGURE 3.2
The steps taken to issue an authenticated session with the SSO component.

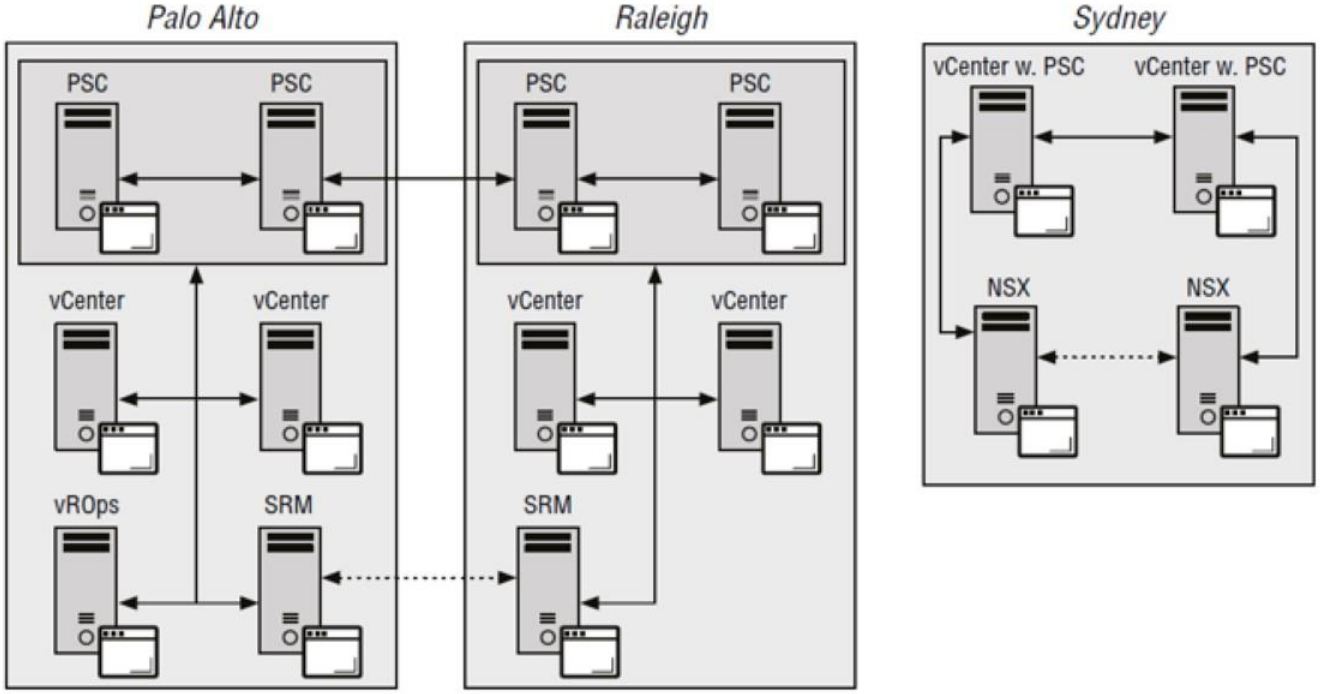


1.Introducing vCenter Server

- vSphere 6.0 introduced a new component called the Platform Services Controller (PSC). This component has remained in the vSphere architecture up through vSphere 6.5, and now vSphere 6.7.
- It is used to run common components for VMware products in a central or in distributed location(s).
- The PSC offers multiple services:
  - Single Sign-On (SSO)
  - Licensing
  - Certificate Authority
  - Certificate Store
  - Service Registry

1.Introducing vCenter Server

FIGURE 3.3
The Platform Services Controller can be installed as an embedded or external component of vCenter Server, just like a database.

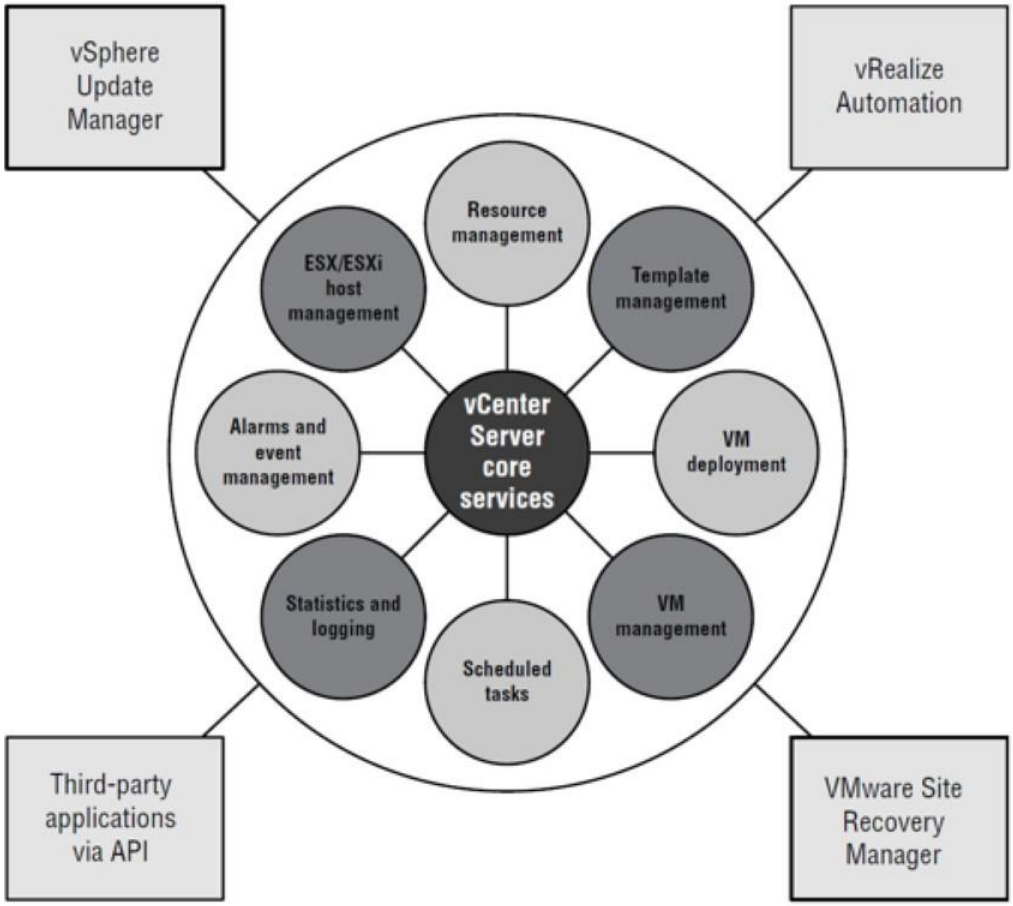


1.Introducing vCenter Server

- In the months that preceded and followed the release of vSphere 6.5, VMware made deprecation announcements to both their Flash-based vSphere Web Client and vSphere Client, the latter often referred to as C# Client or Thick Client, ushering in a new HTML5-based vSphere Client. The new HTML5 Client, like its Flash-based predecessor, is a server-side service for administering vSphere from a web browser.
- The following browsers are certified and supported with the vSphere Web Client and the HTML5 Client:
  - Microsoft Internet Explorer—versions 10 and later (Windows only)
  - Microsoft Edge—versions 39 and later (Windows only)
  - Mozilla Firefox—versions 39 and later
  - Google Chrome—versions 34 and later

1. Introducing vCenter Server

FIGURE 3.4
Other applications can extend vCenter Server's core services to provide additional management functionality.



2.Installing vCenter Server

2.1Choosing the Version of vCenter Server

- There are advantages and disadvantages to each approach:
  - If your experience is primarily with Windows Server, you may not be familiar with the Linux underpinnings of the vCenter virtual appliance.
  - If you need support for Microsoft SQL Server or Oracle RDBMS, the Linux-based vCenter Server virtual appliance won't work; you'll have to deploy the Windows Server–based version of vCenter Server.
  - If your experience is primarily with Linux or you manage a "Linux only by policy" datacenter, then deploying a Windows Server–based application will require some learning and acclimation for you and/or your staff.
  - Because the vCenter Server virtual appliance naturally runs only as a VM, you are constrained to that particular design decision. If you want or are required to run vCenter Server on a physical system, you cannot use the vCenter Server virtual appliance.

2.Installing vCenter Server

2.1Choosing the Version of vCenter Server

- vSphere 6.7 marks the last release in which vCenter Server comes available as an installable Windows-based application, and all future releases will be the Photon OS Linux–based virtual appliance. As a result, while appearing straightforward on the surface, a critical decision you must make as you prepare to deploy vCenter Server is which version you will use.
- As you can see, a number of considerations will affect your decision to deploy vCenter Server as a Windows Server–based installation or as a Linux-based virtual appliance.

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2.Installing vCenter Server

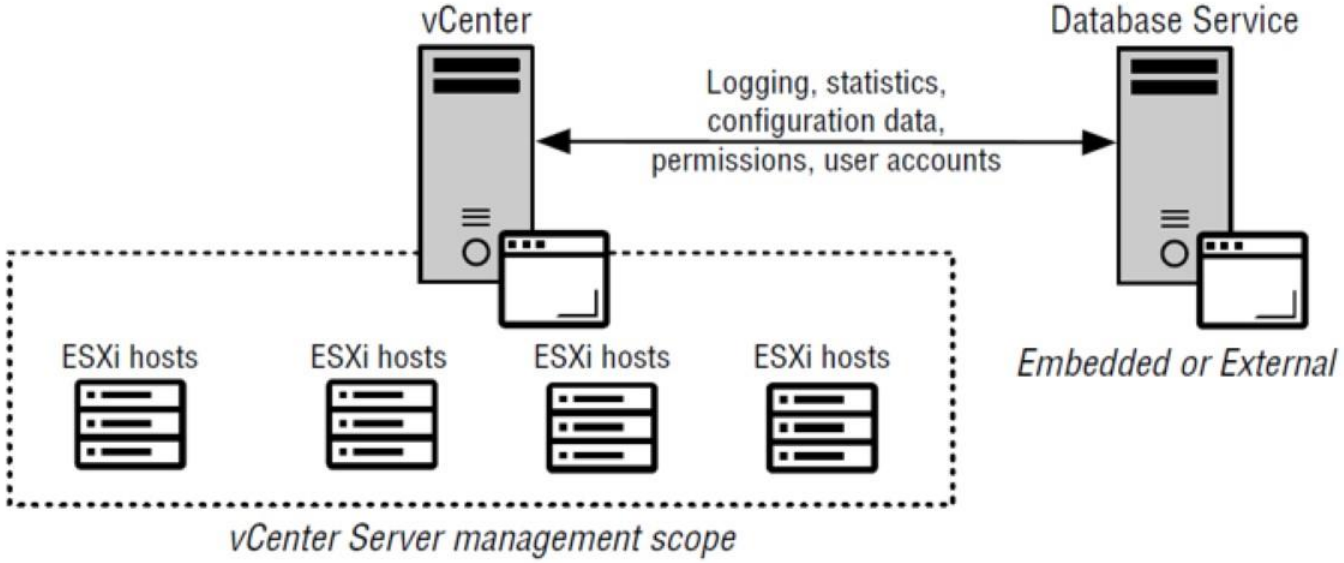
- vCenter Server is a critical application for managing your virtual infrastructure. Its implementation should be carefully designed and executed to ensure availability and data protection.
- When discussing the deployment of vCenter Server and its components, the following questions are among the most common questions to ask:
  - How much hardware do I need to power vCenter Server?
  - How do I provide high availability for vCenter Server?
  - How do I prepare vCenter Server for disaster recovery?
  - If I run vCenter Server in a VM, do I need a separate management cluster?
  - Should I use a vCenter Server with an embedded Platform Services Controller or with an external Platform Services Controller?

2.Installing vCenter Server

- The amount of hardware that vCenter Server requires is directly related to the number of hosts and VMs it will be managing.
  - This planning and design consideration applies not only to the appliance–based version of vCenter Server but also the Windows Server–based version. Because it is a prepackaged virtual appliance, the virtual hardware of the vCenter Server virtual appliance is predefined and established before it is deployed.
- As a starting point, the minimum hardware requirements for the Linux–based version of vCenter Server are as follows:
  - Two vCPUs
  - 10 GB of RAM
  - 300 GB of disk space
  - A network adapter (Gigabit Ethernet is strongly recommended)

2.Installing vCenter Server

FIGURE 3.5
vCenter Server acts as a proxy for managing ESXi hosts, but all of the data for vCenter Server is stored in a database.



2.Installing vCenter Server

TABLE 3.1: vCenter sizing

ESXi HOSTS	POWERED-ON VMs	CPU CORES	RAM GB	STORAGE GB
10	100	2	10	300
100	1,000	4	16	340
400	4,000	8	24	525
1,000	10,000	16	32	740
2,000	35,000	24	48	1180

2.Installing vCenter Server

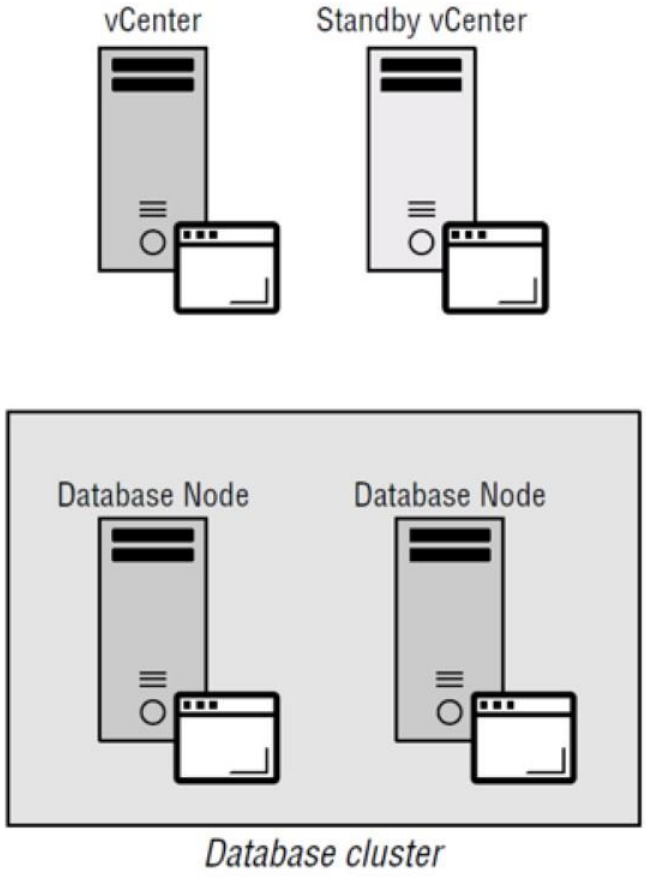
- there are reasons why you might want vCenter Server to be highly available.
  - Planning for a vCenter Server deployment is more than just accounting for CPU and memory resources. You must also create a plan for business continuity and disaster recovery. Remember, features such as vSphere vMotion, vSphere Storage vMotion, vSphere DRS, and, to a certain extent, vSphere HA stop functioning or are significantly impacted when vCenter Server is unavailable.
  - While vCenter Server or any component it depends on is down,
    - you won't be able to clone VMs or deploy new VMs from templates.
    - You also lose centralized authentication and role-based administration of the ESXi hosts.

2.Installing vCenter Server

- There are a few different ways to approach this concern.
  - Protecting the Platform Services Controller
  - Protecting vCenter Servers
  - Protecting the vCenter Database
  - Running vCenter Server and Its Components as VMs
    - Skipping a physical server entirely and running vCenter Server and its components as a VM or even multiple VMs.
    - This is actually the VMware recommendation.
    - Running vCenter on a VM gives you several advantages, including snapshots, clones, vMotion, vSphere HA, Fault Tolerance, and vSphere DRS.

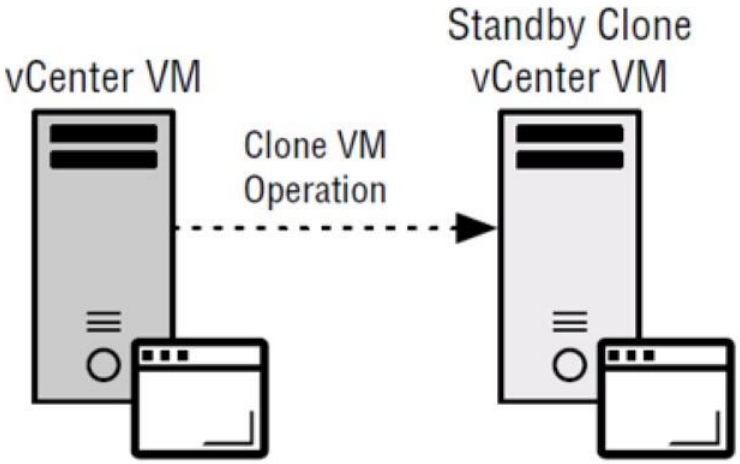
2.Installing vCenter Server

FIGURE 3.6
A good disaster-recovery plan for vCenter Server should include a quick means of regaining the user interface as well as ensuring that the data is highly available and protected against damage.



2.Installing vCenter Server

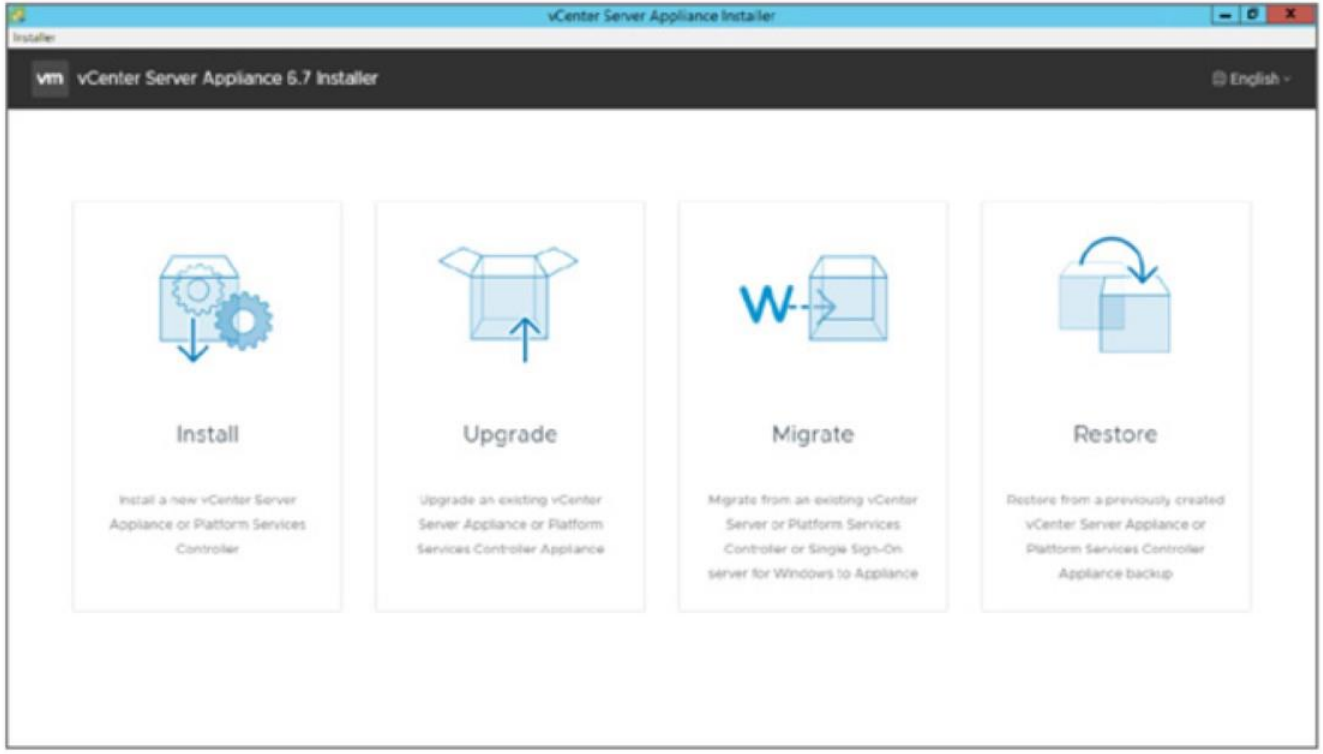
FIGURE 3.7
If vCenter Server is a VM, its virtual disk file can be copied regularly and used as the hard drive for a new VM, effectively providing a point-in-time restore in the event of complete server failure or loss.



2.Installing vCenter Server

2.5Installing the vCenter Server Components

FIGURE 3.8
The VMware vCenter Server Appliance Installer has become one of the central places for install, upgrade, migration, and restore operations within your environment.



2.Installing vCenter Server

2.5Installing the vCenter Server Components

- The vCenter Server Appliance Installer is the central point for freshly deploying, upgrading, migrating, and even restoring your vSphere environment.
- Once the Install tile is clicked, this option enables you to deploy the following:
  - vCenter Server with an embedded Platform Services Controller
  - vCenter Server that uses an External Platform Services Controller
  - External Platform Services Controller

2.Installing vCenter Server

2.5Installing the vCenter Server Components

- vSphere 6.0 and later, nearly all of the auxiliary components shipped with vCenter Server are now bundled together, and you will have full access to them once the system has been setup.
- These auxiliary components include the following:
  - vCenter Authentication Proxy
  - vSphere Web Clients (Flash-based and HTML5-based)
  - vSphere Update Manager
  - vSphere Auto Deploy
  - vSphere Syslog Collector
  - vSphere ESXi Dump Collector

2.Installing vCenter Server

2.6Installing a Platform Services Controller

- 基于VMware WorkStation Pro安装
  - 安装PSC
  - 安装流程参阅
    - PDF：Use the following steps to install a PSC running SSO

2.Installing vCenter Server

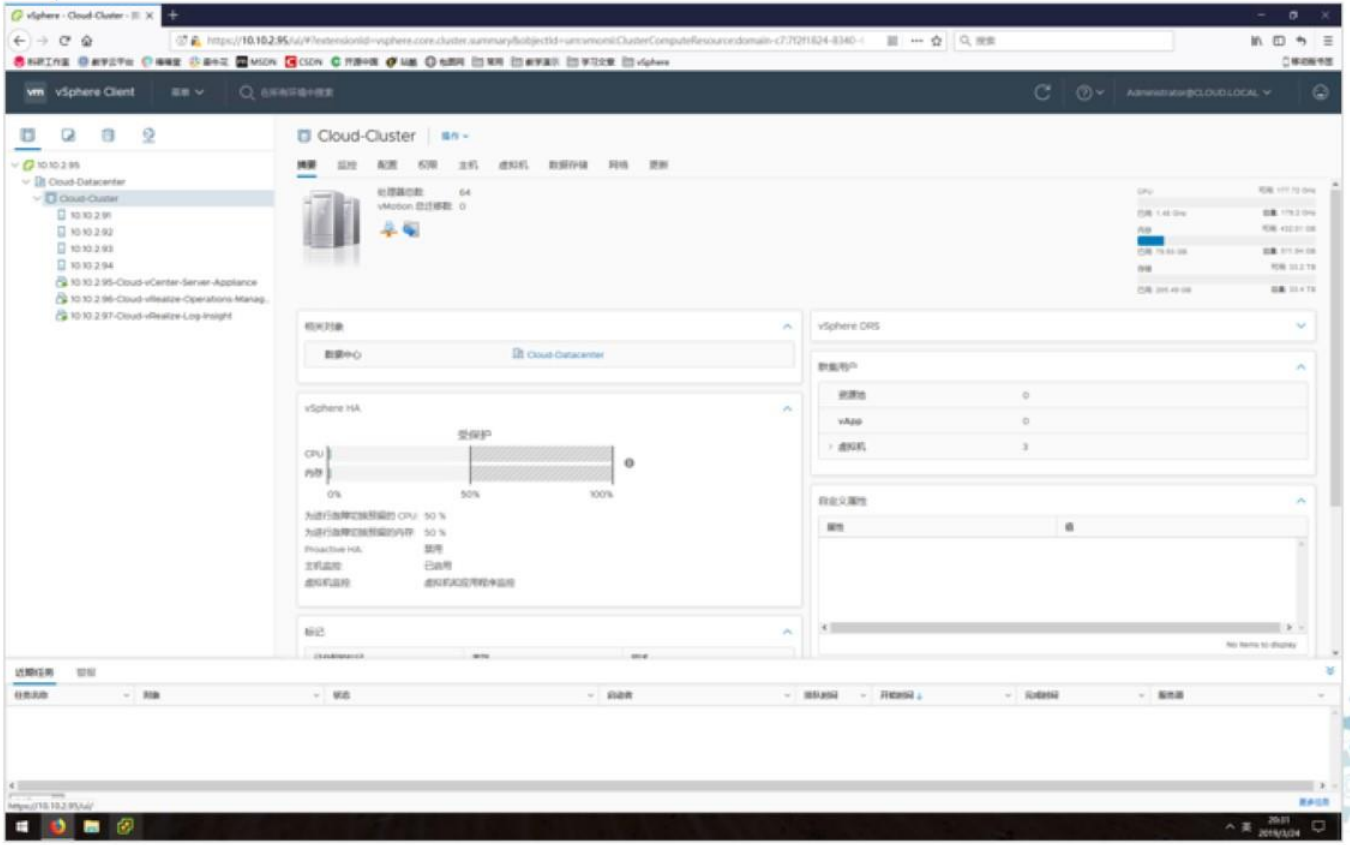
- 基于VMware WorkStation Pro安装
  - 安装Installing vCenter Server
  - 安装流程参阅
    - PDF：Installing vCenter Server

2.Installing vCenter Server

- 基于VMware ESXi安装
  - 安装Installing vCenter Server
  - 安装流程参阅
    - PDF：Installing vCenter Server

3.Using vCenter Server

- The vSphere Web Client Home Screen



3.Using vCenter Server

3.2Creating and Managing a vCenter Server Inventory

- Understanding Inventory Views and Objects
- Creating and Adding Inventory Objects
  - Creating a Datacenter Object
  - Adding ESXi Hosts
  - Creating a Cluster

3.Using vCenter Server

3.3Exploring vCenter Server's Management Features

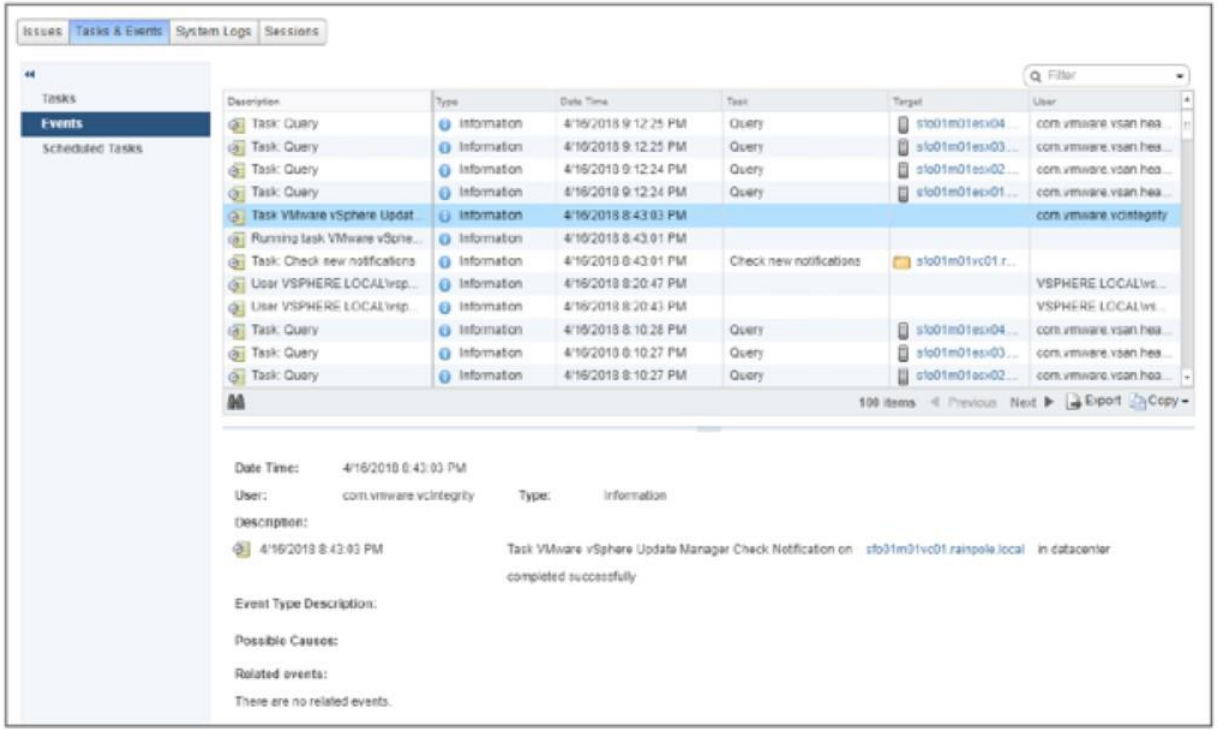
- Understanding Basic Host Management
- Examining Basic Host Configuration
  - Configure Tab
  - Storage Subsection
  - Networking Subsection
  - Virtual Machines Subsection
  - System Subsection
  - Hardware and Virtual Flash Subsections

3.Using vCenter Server

- Following list of tasks:
  - Change the power state of a VM.
  - Clone a VM.
  - Deploy a VM from a template.
  - Move a VM with vMotion.
  - Move a VM's virtual disks with Storage vMotion.
  - Create a VM.
  - Make a snapshot of a VM.
  - Add a host.
  - Change the power settings for a cluster.
  - Change resource settings for a resource pool or VM.
  - Check compliance for a profile.

3.Using vCenter Server

FIGURE 3.27
The Events console lets you view event details, search events, and export events (highlighted).



3.Using vCenter Server

3.5Using the Events and Events Consoles in vCenter Server

- Tasks and Events
  - Working with Host Profiles
  - Tags and Custom Attributes

3.Using vCenter Server

- General vCenter Server Settings
  - Statistics
  - Database
  - Runtime Settings
  - User Directory
  - Mail
  - SNMP Receivers
  - Ports
  - Timeout Settings
  - Logging Settings
  - SSL Settings

3.Using vCenter Server

- vSphere Web Client Administration
  - Roles
  - Licensing
  - vCenter Solutions Manager
  - System Configuration

4.VMware Appliance Management Administration

- These underpinnings and administrative features are broken down into the following 10 areas within the VAMI
  - Summary
  - Monitor
  - Access
  - Networking
  - Time
  - Services
  - Update
  - Administration
  - Syslog
  - Backup

对VMware vCenter Server自身的管理