实验七 VMware vCenter Converter

一、实验目的

- 1、理解 VMware vCenter Converter;
- 2、掌握 VMware vCenter Converter 的部署与设置方法;
- 3、掌握使用 VMware vCenter Converter 进行虚拟机转换的方法。

二、实验学时

2 学时

三、实验类型

设计研究

四、实验需求

1、硬件

每小组配备计算机3台,不低于双核CPU、8G内存、500GB硬盘。

2、软件

Windows 10 64 位专业版操作系统; 安装 VMware Workstation Pro 15, 安装 SSH 远程管理终端软件。

3、网络

计算机使用固定 IP 地址接入局域网,并支持对互联网的访问; 提供可用于接入互联网的 IP 地址 16 个。

4、工具

无。

五、实验任务

1、本实验任务在实验五的基础上开展,需按照实验五的内容完成实验操作的基础平台 建设。本实验所有内容在 VCSA 中进行操作;

- 2、在 VMware Workstation 中创建虚拟主机并安装 Windows XP Pro 操作系统;
- 3、在 Windows XP 中完成 VMware vCenter Converter 的安装;
- 4、使用 VMware vCenter Converter 完成 Windows XP 向 VCSA 的转换配置;
- 5、在 VCSA 的 Windows XP 中访问互联网。

六、实验内容及步骤

1、安装 Windows XP Pro 操作系统

(1)本次实验需要准备 Windows XP Pro 操作系统作为实验环境,并使用实验五部署 好的 VCSA 作为迁移环境。通过 VMware Workstation 安装 Windows XP 操作系统,并配置 好网络,使其能够与 VCSA 通信,安装好的系统如图 7-1 所示。



2、在 Windows XP 中安装 VMware vCenter Converter

(1) 获取 VMware vCenter Converter,可通过本课程网站(http://cloud.xg.hactcm.edu.cn)或 VMware 官方网站获取 VMware vCenter Converter 软件。

VMware vCenter Converter 的官网访问地址为: *https://www.vmware.com/cn/products/con verter.html*,可自行注册 VMware 账号下载免费版本。

(2)双击安装包执行安装操作,安装界面如图 7-2 所示,点击【Next >】进行下一步操作。

(3) 查看终端用户专利协议,如图 7-3 所示,并点击【Next >】继续进行安装。

🕞 VEware vCenter Co	onverter Standalone	📴 VIlware vCenter Converter Standalone
VMware vCenter Converter Standalone	Welcome to the Installation Wizard for VMware vCenter Converter Standalone The installation wizard will allow you to install WMware vCenter Converter Standalone on this machine so that you may import a physical or virtual machine into a VMware virtual machine.	End-User Patent Agreement Please read the following patent agreement carefully. Copyright © 1998-2018 VMware, Inc. All rights reserved. This product is producted by copyright and intellectual property laws in the United States and other countries as well as by international treaties. VMware products are covered by one or more patents listed at https://www.vmware.com/go/patents. Installshield
	Next > Cancel	< Back Next > Cancel
图	日7-2 安装欢迎界面	图 7-3 查看详细信息

(3) 接受许可协议,并点击【Next >】,如图 7-4 所示。

(4) 选择安装路径,并点击【Next >】,如图 7-5 所示。

🖗 VIIvare vCenter Converter Standalone	1 [™] V≣ware vCenter Converter Standalone
End-User License Agreement Please read the following license agreement carefully.	Destination Folder Click Next to install to this folder, or click Change to install to a different folder.
	Install VMware vCenter Converter Standalone to: C:\Program Files\VMware\VMware vCenter Converter Standalone\
PLEASE NOTE THAT THE TERMS OF THIS END USER LICENSE AGREEMENT SHALL GOVERN YOUR USE OF THE SOFTWARE, REGARDLESS OF ANY TERMS THAT MAY APPEAR DURING THE INSTALLATION OF THE SOFTWARE.	
 I agree to the terms in the License Agreement I go not agree to the terms in the License Agreement 	
Installshield < <u>Back Next > Cancel</u>	InstallShield < Back Cancel
图 7-4 安装欢迎界面	图 7-5 查看详细信息

(5)选择安装类型,此处安装类型包括两种方式:服务器与客户端方式、本地安装方式,此处选择本地安装方式,并点击【Next >】,如图 7-6 所示。

(6)加入用户体验计划,点击【Next >】,如图 7-7 所示,之后【Install】执行安装, 安装过程如图 7-8 所示,安装完成界面如图 7-9 所示。



2、使用 VMware vCenter Converter 进行虚拟机转换

(1) 打开软件,如图 7-10 所示,点击【Convert machine】开始进行虚拟机转换。

rt time End time mverter Standalone take one of a variety of machines and convert you may convert include:
rt time End time nverter Standalone take one of a variety of machines and convert you may convert include:
rt time End time enverter Standalone take one of a variety of machines and convert you may convert include:
nverter Standalone take one of a variety of machines and convert you may convert include:
onverter Standalone take one of a variety of machines and convert you may convert include:
nverter Standalone take one of a variety of machines and convert you may convert include:
nverter Standalone take one of a variety of machines and convert you may convert include:
onverter Standalone take one of a variety of machines and convert you may convert include:
nverter Standalone take one of a variety of machines and convert you may convert include:
nverter Standalone take one of a variety of machines and convert you may convert include:
onverter Standalone take one of a variety of machines and convert you may convert include:
nverter Standalone take one of a variety of machines and convert you may convert include:
nverter Standalone take one of a variety of machines and convert you may convert include:
take one of a variety of machines and convert you may convert include:
you may convert include:

(2) 虚拟机转换时支持热克隆和冷克隆两种类型,热克隆用于在源计算机运行操作系统的过程中转换该源虚拟机,冷克隆用于在源计算机没有运行操作系统时克隆源计算机。本实验选择"Power on"进行热克隆,如图 7-11 所示。热克隆时支持"Remote Linux machine"、"Remote Windows machine"与"This local machine"。"Remote Linux machine"支持对 Linux 操作系统的源机器进行转换,"Remote Windows machine"支持对 Windows 操作系统的源机器进行转换,"This local machine"可将本地计算机转换为虚拟机并部署至虚拟平台上。本实验选择"This local machine"对 Windows XP Pro 进行转换。点击【View sourc e details...】查看源操作系统的详细信息,如图 7-12 所示

Conversion Source System Select the source :	rystem you want to conver	t		Conversion Source System Select the source	e system you want to convert		- 02
Searche System Berlow System Optione Sunaary	Source: note Select source gype: Specify the powered View reserve details	Destination: none Provered off This local machine Covert this local while. Covert this local while. Covert this local while.		Source Syrta Portation Syrta Optional Summary	Source: name	Destination: nos show: 605ced m-52ce6 d aachine 27 Professional (32 bit) Service Pack] cohete + 1 cores) wort: (35.96 (26 total (DIFS)) Close	
Help Export diag	nostic logs	< Back Bext >	Cancel	Help Export d	iagnostic logs	< Back Next >	Cancel
	图 7-11	设置源操作系统		8	7-12 查看》	原操作系统详细信息	

(2) 配置 VCSA 信息,填写 VCSA 地址,输入用户名、密码,点击【Next >】连接至 VCSA,如同 7-13 所示。

(3)选择转换虚拟机的欲存放的数据中心,可查看数据中心中的虚拟机情况,可在名

称输入框中填写转换虚拟机的名称,如图 7-14 所示,选择后点击【Next >】。

n Conversion		R Conversion		
Destination System	the new wirtual machine	Destination Virtual	Machine	
Jerect a nost for t	THE HAR CALCULA RECEILE	Joiner the destinat	Tell va hane and torder	
Source System	Source: 🛒 This local machine [… Destination: 🚱 fengshum-8d2ce8 on 192.168.1.10…	Source System	Source: 📹 This local machine [Dest	ination: 🙊 teacherw-d24d4a on 10.10.100.10…
Destination System Destination Virtual Ma	Select destination type: VMware Infrastructure virtual machine	Destination System Destination Virtual	Ngme: teacherw-d24d4a	
Destination Location Options	Creates a new virtual machine for use on a WWware Infrastructure product.	Destination Location Options	Inventory for: 10.10.100.109	arch for name with:
Summary		Summary	2 10. 10. 100. 109	VE name 🔶 Pover state
	Wavare Infrastructure server details			
	User name: administrator@cloud.local			
	Password:			
< >		< >	Refresh	
Help Export diagr	nortic logs (Back Next) Cancel	Help Export diag	mostic logs	(Back Next) Cancel
	图 7-13 配置 VCSA 信息		图 7-14 选择数	7据中心

(4)选择转换虚拟机的集群与主机,并确定部署的存储位置,如图 7-15 所示,点击【N ext >】。

(5)软件会检测源操作系统与目的数据中心之间信息,显示各项配置项,如有问题会 出现红色的错误提示,如图 7-16 所示。

Destination Location Select the location	a for the new virtual aachine		Options Set up the paramet	ters for the conversion task		
Source System Particular System Destination Location Optione Summary	Source: In the local andhow Pestina Downtory for: 10.10.10.00 In the source -Cluster In the source -Cluster Into 10.00.100 Into 10.00.100 Into 10.00.100 Into 10.00.100 Into 10.00.100	tion: © Cloud-Teacher-Fork on Datacenter-Cl Total source disks rise: 40 G8 Patalow Copacity: 47.5 G9 Pres: 46.00 G9 Type: VDE66 Block rise: 180 Virtual machine strain Version 16 V	Scarce.System Restination.System Restination Testual Jo Potiana Sonary	Source: "I This local machi- De 1 (lick on an aption below to edit i Current arttinge: + "Data to cogne-hand Control (1998) 00 + Detice wPerice wPerice wPerice wPerice # Etworks Hill: W Metwork * Strucks Hill: W Metwork * Strucks Hill: W Metwork * Strucks Hill: Status Spokenministion Disable Spokenministion Disable Spokenministion Disable Spokenministion Disable Annew Betro Chebiguist: Yer Honey	tinaion: ŵ Cloud-Teicher-Hork on L	Edit Edit Edit Edit Edit Edit
Help Export diagn	ostic logs	< Back Next > Cancel	Help Export dia	gnostic logs	< Back Mext >	Cancel
E	图 7-15 设置主机	与存储位置		图 7-16 虚拟机	各项配置信息	

(5)点击每项配置右侧的【Edit】对各个配置内容进行修订,点击【Data to copy】,此 处显示源操作系统包含1个数据卷,可采用厚置备与精简置备两种,此处选择精简置备,如 图 7-17 所示。

(6) 配置可分配的内存信息、CPU 信息与网络,保持默认即可,如图 7-18、7-19、7-20 所示。





(7) 配置 Windows 服务,查看当前 Windows 服务的状态并设置转化虚拟机的 Windo ws 服务的状态,如图 7-21、7-22 所示。



(8)配置高级选项,同步设置与转换完成后设置,如图 7-23、7-24 所示,其中,同步 设置用户将虚拟机转换过程中的源操作系统的数据变化与转换虚拟机的变化进行同步,保证 数据统一。转换完成之后的设置可以包括为自动开启转换后虚拟机、为转换后虚拟机安装 V MTools、创建一个来访用户、删除转换后虚拟机的系统还原点、重新配置转换后虚拟机。



- (8)节流设置,对 CPU、网络进行节流设置,如图 7-25 所示。
- (9) 查看配置详情,并点击【Finish】提交虚拟机转化任务,如图 7-26 所示。

E Convergion Options Set up the paramet	nu for the succession task			C 6 8	Environmentation Burnary Burnary the converse	Sin parameterz				
Second and a second sec	Here a provide the second seco	Professor 	Reflection the Cond-Books Hale a Union the sense of the Second Value International Conductions of the Second Value International Conductional Conductional Condu	er Gater ann 11.8	Assess Arms Assessment Assessment Assessment Research Assessment Research Assessment Research Assessment Research Resear	Here a the last hand and the field of the last hand and the last of the last hand and the last of the	anend tiel de la constant anend tiel de la constant anende la constant de l	 Padden kan un 	eter Wener Konzel Jere	< 63.0
jely Report dag	portir lap	图 7-25 源	系统服务	(and for) (week)	jeje boor dag	with line 图 7-26	开始进行原	虚拟机转换	(pair (pairie)	Cancel

(10)任务提交成功后界面如图所示,其中显示的有源系统信息、目的 VCSA 信息、当前运行状态或进度、任务开始时间、预计结束时间,如图 7-27 所示。将【View By】选择为 Task 查看任务的执行情况,如图 7-28 所示。点击【View By】选择为 Job 查看此项工作的配置信息,如图 7-29 所示。

Numerical Control Statistics Control All for the planework Control Statistics Control Control	Mate affects denotes the set of
图 7-27 任务提交成功	图 7-28 虚拟机转换详细信息
Bile Xiew Tob gdministration Help File Xiew Tob gdministration Help © Convert machine Bcoffigure machine Xieg by: ▼ Jobs Show: ▼ All jobs ig ▼ Last 20 jobs Job ID ▼ Source Destination Status Runnin 20 1 This local machine 10.100.109/Cloud-Teacher-Work ▶ Running Conves	v Task Next Rum Time Last error tt (Task ID: 1)
Job ID 1: * Kunning Source: This local machine	Destination: 10.10.100.109/Cloud-Teacher-Work
Summary Source system information Source type: Powered on machine Name/IP address: The machine where the WWware vCenter Converter Standalone server r OS family: Windows No thottling information Destination customization Install WWware Tools: No Customize (uset OS: No Remove restore checkpoints: Yes Reconfigure virtual machine: Yes	Destination system information Virtual machine name: Cloud-Teacher-Voit Hardware version: Version 14 Host/Server: 10.10.100 Connected as: Administrator@Loud.local VW folder: Vm Cluster: Dataenter=Cluster Host system: 10.100.102 Resource bool: Default Synchronization information Synchronize than eccur during cloning: No
图 7-29 虚拟标	

(11) 此时访问 VCSA 平台,虚拟机已经创建成功,如图 7-30 所示。

《云计算与虚拟化技术》实验指导书 / 实验七: VMware vCenter Converter

	Datacenter-Clus	ster 📽 🖌 🖌							
10.10.100.109	摘要 监控 配置 权利	8 主机 虚拟机 数据存	储 网络 更新						
Datacenter-Cluster 10 10 100 101	主机 资源地								
10.10.100.102								т	等选器
Cloud-Teacher-W	Vork 名母 ↑	~ 秋況	~ 805	→ 已消耗的 CPU 百分比	> 已消耗的内存百分比	✓ HA 秋恣	~	正常运行时间	~
	10.10.100.101	已连续	0 醫示	25	29%	? 不可用		70 分钟	
	10.10.100.102	已连接	9 警示	2%	29%	? 不可用		70 分钟	
									 월 19월 2 ≋er
王将 1010									<mark>3- 문</mark> 법 2 ken
19 10日 19	✓ 398	- 105	✓ Ear	→ INDASH	 → 746869 ↓ 	v Solansi		(1)	<mark>3-8</mark> 년 2 ker
王约 昭服 称 ESS系	✓ 398 []][Detacorter-Coad	 ₩8 ✓ Ebbit 	 INN C.OUDICCA.VA 	v HRANG monotor 1 189	 HEBH 4 2016/02/02 (-1478-659) 	✓ Ruestia 2019/02/20	È4₩4619	○ 脳外部 1010100109	3. 목표 2 mer
2월 101回 18 18月 18月 18月	 ✓ FBR EB Concerner-Could ② TOXINO NO 	 ₩6 > Dest < Dest 	BitM CLOUDIOCALMe VMuse vSphere U	✓ 第83,893 motorer 8 長好 galast Manager - 2747 最多	✓ 7160054 ↓ 201982220 _FR14559 201980220 _FR14539	 Zotietisi 2019-02.20 2019-02.20 	上华市46-19 上华市48-13	 副約額 1010300309 	<u>등</u> 용표 2 km

(12)任务执行完成后,虚拟机转化成功,如图 7-31 所示。



(13) 在 VCSA 中开启虚拟机 Windows XP Pro 的电源,使用 VMware Remote Conso le 访问 Window XP Pro 操作系统并访问互联网进行验证操作,如图 7-32 所示。



七、实验扩展

1、VMware vCenter Converter

(1) VMware vCenter Converter 有什么样的应用场景? 适合做什么样的工作?

(2) VMware vCenter Converter 转换 Linux 操作系统的虚拟机与转换 Windows 操作系统的虚拟机有什么不同?

2、虚拟机迁移

(1) 什么场景下需要使用虚拟机迁移?

(2) 除了 Vmware vCenter Converter 工具,还有哪些工具可以进行虚拟机迁移?