снарте 2

Microsoft Private Cloud Implementation

In this section, we explore the implementation of a Microsoft Private Cloud solution through integrating the Microsoft Cloud OS into UCS. UCS is a computing systems comprising computing hardware, compute switching fabric, and virtualization and management software. These resources are integrated into a cohesive system that can be managed as an entity.

This provides unique benefits in the data center, such as:

- Hardware virtualization for streamlined deployment
- Ease of Cabling
- Single point of management for the compute resources (including blades, chassis and compute switching fabric)
- High Availability (including 1:N redundancy if desired)

Compute resources in the System Under Test included:

- 2 Cisco UCS 5108 Chassis
- 2 Cisco UCS 2208XP IOMs per chassis
- 2 Cisco UCS B200 M2 Blade Series Serves per chassis
- 2 Cisco UCS 6248UP Fabric Interconnects

The Cloud OS involves the simultaneous operation of several enterprise technologies including:

- UCS SAN Booting
- Windows Server 2012
- SQL Server 2012
- System Center 2012

Refer to the VMWare vSphere with Operations Management website for additional details on VMWare vSphere.

Refer to the Microsoft Private Cloud-Making it Real white paper to learn more about Microsoft's strategic and technical differentiation.

SAN Implementation

The B200 M2 Series server blades in UCS are configured to boot from SAN. UCS has two Fibre Channel port channels that connect Fabric A and Fabric B to two MDS switches. The MDS switches connect to a NetApp storage device.

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Details on the Service Profile creation for a server Hyper-V on UCS are found Figure 29 of the Deployment Guide.

Boot from SAN Procedures

Before starting, review the Common Errors during Windows SAN Boot Install on NetApp Storage Cisco internal document for lessons learned about the Windows SAN boot install.

Step 1 Shutdown all but one path to the boot logical unit number (LUN)

Microsoft supports only one path to the boot LUN when installing the OS. The Fibre Channel port channel (FC Po10) that connects to the MDS switches was disabled in UCS Manager (UCSM). All but one member of the second Fibre Channel port channel (FC Po20) was disabled.

Step 2 Map to fiber over Ethernet network interface card (fNIC) drivers and ISO image (Optional)

During OS installation, fNIC drivers must be installed in order to scan for the SAN boot LUN. To do this, map to the driver location using the UCS KVM console connection Virtual Media tab before starting the installation, and map to the ISO location of the OS to be installed.

As shown in Figure 2-1, in order to map to more than one image at a time, the FNIC drivers were copied locally (C:tmp in the Drive column). The ISO OS installation image was on a mapped drive to a network share.

Instead of mapping to both images at the same time, you could map and unmap as needed to go between the fNIC drivers and the OS during installation. However, mapping to multiple images supports not having to unmap and remap during installation.

Figure 2-1 shows a display from the KVM Virtual Media tab for what was mapped.

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Virtual Media	1						
lient View							
Mapped	Read Only	Drive					Exit
		🚽 A: - Floppy					Create Image
	×.	🗟 E: - CD/DVD					Add Image
	1	🔊 D: - CD/DVD					
>	1	🚽 C:\tmp\x64.ing					Remove Image
V	V	Y: ISO (VMDC4)	Win2012\en_wir	ndows_server_2	012_x64		Details ±
V		<mark>⊭2</mark> Y:¥SO\WMDC4≬	Win2012\en_wir	ndows_server_2	012_x64		Details ±
		<mark>₽</mark> ₽ <u>¥:≬\$0\\MDC4\</u> }	Win2012\jen_wir	ndows_server_2	012_x64		Details ±
etails	Mapped		Win2012\en_win	ndows_server_2	Duration		Details ±
etails Target Drive	Mapped		Read Bytes				Details ±
etails Target Drive irrtual CD/DVD Removable Disk	Mapped	Το	Read Bytes	Write Bytes	Duration		
etails Farget Drive Tirbual CD/DVD	Mapped	To 50\VMDC4\Win2012 mp\w64.lmg - Flopp	Read Bytes	Write Bytes	Duration 00:00:01		
etails Target Drive irtual CD/DVD iemovable Disk	Mapped Y: \tr C: \tr	To 50\VMDC4\Win2012 mp\w64.lmg - Flopp	Read Bytes	Write Bytes	Duration 00:00:01		
etails Target Drive irtual CD/DVD iemovable Disk	Mapped Y: \tr C: \tr	To 50\VMDC4\Win2012 mp\w64.lmg - Flopp	Read Bytes	Write Bytes	Duration 00:00:01		
etails Target Drive irtual CD/DVD iemovable Disk	Mapped Y: \tr C: \tr	To 50\VMDC4\Win2012 mp\w64.lmg - Flopp	Read Bytes	Write Bytes	Duration 00:00:01		

Figure 2-1 Mapped KVM Virtual Media

If you forget to remap to an ISO image, the disk comes online but Windows fails to install and produces the following error:

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1	Vame	Total Size	Free Space	Туре
ا چې	Disk 6 Unallocated Space	20.0 GB	20.0 GB	
ې <i>چ</i>	Disk 8 Unallocated Space	20.0 GB	20.0 GB	Offline
Ins	stall Windows			x
€9 <u>B</u> e @ Le	computer's BIOS menu.			ОК
Vind	14			

Figure 2-2 Forgot to re-map to ISO image



To proceed to the next step, you must remove the driver CD, insert the Windows CD, and refresh.

Step 3 Verify the NetApp LUNs are type **Windows GPT**. There are 2 Windows options for Type in the NetApp used during the testing, Windows and Windows GPT.

Figure 2-3 NetApp LUN configuration for B-Series Servers

INs								
LUN Management Initiator Groups								
🗟 Create 🗟 Clone 📝 Edit 🗙 Delete 🕼 Status 👻 🤤 Refresh								
Name	Container Path	Thin Provisioned	Available Size	Total Size	% Used	Туре	Status	
V2-C1B1-P1_boot	/vol/V2_C1B1_P1_boot_vol	No	200.03 GB	200.03 GB	0.0%	Windows GPT	😔 Online	-
V2-C1B2-P1_boot	/vol/V2_C1B2_P1_boot_vol	No	199.94 GB	200.03 GB	0.04%	Windows GPT	😣 Online	
V2-C1B3-P1_boot	/vol/V2_C1B3_P1_boot_vol	No	192.11 GB	200.03 GB	3.96%	Windows GPT	😔 Online	
V2-C1B4-P1_boot	/vol/V2_C1B4_P1_boot_vol	No	199.94 GB	200.03 GB	0.04%	Windows GPT	😔 Online	

Deployment Guidelines

- **1.** Refer to Windows Boot from Fibre Channel SAN guide for an overview and the detailed instructions the administrator should follow.
- 2. Refer to Support for booting from a Storage Area Network (SAN) for information about booting a Windows server from a SAN.

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3. Shutdown all but one path to Boot LUN.

Refer to Windows Setup in a boot from SAN configuration reports. Setup was unable to create a new system partition or locate an existing system partition.

4. Configure the NetApp Boot LUN as Windows GUID Partition Table (GPT).

Microsoft Windows Server 2012 and Hyper-V Implementation

This section covers Microsoft Windows Server 2012 and Hyper-V implementation. A common misconception of Microsoft Hyper-V is that it is a Type-2 hypervisor because installation of Windows Server 2012 is required. However, Hyper-V is considered a Type-1 hypervisor because VMs can interface directly with the hypervisor layer, bypassing the operating system layer.

There are two versions of Hyper-V. The first is a standalone product called Microsoft Hyper-V Server 2012. This free product is available for download from Microsoft. The second version is the Hyper-V feature bundled with Microsoft Windows Server 2012.

For Microsoft Server 2008 R2, there were three editions: Standard, Enterprise, and Datacenter. For Windows Server 2012, the Enterprise edition was eliminated. The Standard and Datacenter editions support installing Hyper-V.

📥 / V2-C2B3-P1 (Chassis - 2 Server - 🤉	3) - KVM Console	X
File View Macros Tools Help		
📣 Boot Server 🛛 🔩 Shutdown Server 🔮	Reset	
KVM Console Properties		
KVM Virtual Media		
KVM Virtual Media	Select the operating system you want to install Operating system Architecture Date modified Windows Server 2012 Datacenter (Server Core Installation) x64 7/26/2012 Windows Server 2012 Datacenter (Server with a GU) x64 7/26/2012 Description: Description is useful when a GUI is required—for example, to provide backward compatibility for an application that cannot be run on a Server Core installation. All server roles and features are supported. You can switch to a different installation option later. See "Windows Server Installation Options."	*
•	•	-

Figure 2-4 Data Center Edition

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The choice between Standard and Datacenter Edition depends upon the number of active VMs required in the datacenter. Standard Edition supports a maximum of two VMs, but the Datacenter Edition does not limit active VMs.

Microsoft Windows Server 2012 Installation

The Windows Server 2012 edition (Standard or Datacenter) to be installed depends upon the product key entered. To simplify installation, use the GUI to install Windows Server 2012 using the GUI. This is also the reason why it is better to install the full Windows Server 2012 instead of the standalone Hyper-V server.

Step 1 Install Windows Server 2012.

Refer to the Installing Windows Server 2012 site for detailed guidance.

Step 2 After the installation completes, install the Cisco eNIC drivers to enable the network interface cards (NICs). The drivers are available on the Cisco software download site.

Figure 2-5 NIC Driver Installation



Step 3 After the NICs are enabled, verify that the server joins an Active Directory (AD) domain. This also satisfies the Network Time Protocol (NTP) requirement.

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	ssis - 2 Server - 3) - KVM Console	
	Tools Help	
	utdown Server 🧕 Reset	
KVM Console Properties KVM Virtual Media		
	System	_ @ ×
	Control Panel All Control Panel Items System	V C Search Control Panel P
	Condorranei P An condorranei tenis P System	
Control Panel	System Properties	X II
🚱 Device Manag		
🚱 Remote setting	Computer Name/Domain Changes	
🚱 Advanced syst	You can change the name and the membership of this computer. Changes might affect access to network resources.	Windows Server ² 012
	Computer name: V2-C2B3-P1	X5690 @ 3.47GHz 3.46 GHz (2 processors)
	Full computer name:	
	V2-C2B3-P1	x64-based processor
	More	available for this Display
	Member of	
	Domain: vmdc.net	😵 Change settings
	O Workgroup:	
	WORKGROUP	
See also	OK Cancel	
Action Center	54	ctivation
Windows Upd	OK Cancel Apply	
<u></u>		≁ 🕩 😳 🕼 7:14 PM 6/19/2013
B Logged in ascompute	eToken_@10.0.64.100 Not registered with UCS Central	System Time: 2013-06-19T15:

Figure 2-6 Joining an AD Domain

- **Step 4** On the AD server, verify that the **Administrator** account has Domain Administrator access. Add the **scvmmadmin** account and grant it the Domain Administrator access.
- **Step 5** On the Windows Server 2012 server, verify that the AD **Administrator** and **scvmmadmin** accounts are available and add them if they are not available. After AD **Administrator** and **scvmmadmin** accounts are available, log off and log on as the Domain Administrator.

🇼 / ¥2-C2	283-P1 (Chassis - 2 Server	- 3) - KVM Console			
File View	Macros Tools Help				
👍 Boot Ser	rver 🜙 Shutdown Server	🥝 Reset			
KVM Console	e Properties				
KVM Virtua	al Media				
-	1 . The second	o co co	o o oo o		
		User Accounts	X		
Rec		osci Accounts			
Us	sers Advanced				
	🚛 Use the list below t	o grant or deny users	access to your computer,		
	and to change pas	swords and other sett	ings.	anager	
	Users for this computer:			stem32\cmd.exe	X
	User Name	Domain	Group	erved.	<u>^</u>
	Administrator	VMDC	Administrators		=
	Numerator Administrator	V2-C2B3-P1	Administrators		
	🗟 scvmmadmin	VMDC	Administrators		
	a constant a	Add	Remove Properties		
	6				
	Password for Administrate	r			
		password, press Ctrl-,	Alt-Del and select Change		
	Password.	r			
		l	Reset Password		×
_					
		ОК	Cancel Apply	\$	н
		UK			
		Cin	<u>\$2</u>	▲ P> @	1:04 PM
					0/15/2013
🔒 Logged in	ascomputeToken@10.0	.64.100 Not register	ed with UCS Central	55	stem Time: 2013-06-19T15:56/

Figure 2-7 Administrator and scvmmadmin Accounts

Step 6 After logging in, turn off the Windows Firewall in the Windows Firewall control panel.

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Figure 2-8 Disabling Windows Firewall

Step 7 Verify that Windows Server 2012 can access the internet and activate Windows.

P	Windows Activation		- 🗆 X
🍥 💿 🔹 🛧 🏲 🕨 Control Panel 🕨	System and Security + Action Center + Windows Activation	✓ C Search Control Pane	ρ,
ð	Windows isn't activated		
ſ		×	
	💿 훢 Windows Activation		
	Activating Windows		
	Activating Windows		
	This might take a few minutes		
		· · · · ·	
		\odot	
		Ŭ	
			Cancel

Figure 2-9 Windows Activation

Microsoft Hyper-V Installation

Although Microsoft Hyper-V is included in Windows Server 2012, Hyper-V is not installed by default. After the initial Windows Server 2012 install finishes, the System Administrator must add the Hyper-V role manually. This section outlines the steps to install and configure Hyper-V.

Step 1 In Server Manager, bring up Add Roles and Features Wizard.

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Re.				Server Manager	r					-	D X
	L	Add Roles and Features Wi	zard		x		<u>a</u>	IF			
	Select server role	Select one or more roles to install on the selecte Roles		DESTINATION SERV V2-C283-P1.vmdc			- (2)	Mana <u>o</u>	ge Tools	View	Help
	Instaliation Type Server Selection Server Roles Peatures Application Server Role Services Hyper-V Virtual Switches Migration Default Stores Confirmation Results	Active Directory Rights Management Se Application Server DHCP Server DNS Server Fac Server Fac Server Bitle And Storage Services (Installed) Bitle And Storage Services (Installed) Destrop Access Services Print and Document Services Remote Access Remote Desktop Services Volume Activation Services	vices you ca virtual Each vi isolate allows	ption -V provides the services that in use to create and manag machines and their resour titual machine is a virtualiza tete system that operates is desecution environment. T you to run multiple operat is simultaneously.	ge rces. red n an This					Hid	e =
		Web Server (IIS) Windows Deployment Services Windows Server Update Services <pre></pre>	us Next >	Install Cance	-1	Servers 1 ageability					
		Performance	Services			rices					
		BPA results	Performance		Perf	formance					
			BPA results		BPA	results					~

Figure 2-10 Add Roles and Features Wizard

Step 2 In the Wizard, click **Next** until the "Server Roles" window appears. Verify that the **Hyper-V** role is selected and click **Next**. In the **Features** window, verify that **Failover Clustering** and **Multipath I/O** are selected.

b	Add Roles and Features Wizard	_ D X
Select features		DESTINATION SERVER WIN-0JFUJ49ER67
Before You Begin	Select one or more features to install on the selected server.	
Installation Type	Features D	escription
Server Selection Server Roles Features Confirmation Results	□ Data Center Bridging (C □ Enhanced Storage pr ☑ Failover Clustering data	ultipath I/O, along with the licrosoft Device Specific Module ISM) or a third-party DSM, rovides support for using multiple ata paths to a storage device on findows.
	< Previous Next >	Install

Figure 2-11 Features Wizard

Step 3 With the Hyper-V role selected, the Wizard prompts for the creation of virtual switches. Depending on the number of available NICs, it is a good practice to create at least one switch for management. At the same time, reserve at least one NIC for the Nexus 1000V Switch for Microsoft Hyper-V.

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à	Add Roles and Features Wizard
Create Virtual S	witches DESTINATION SERVER V2-C283-P1.wmdc.net
Before You Begin Installation Type Server Selection Server Roles Features	Virtual machines require virtual switches to communicate with other computers. After you install this role, you can create virtual machines and attach them to a virtual switch. One virtual switch will be created for each network adapter you select. We recommend that you create at least one virtual switch now to provide virtual machines with connectivity to a physical network. You can add, remove, and modify your virtual switches later by using the Virtual Switch Manager. Network adapters:
Hyper-V	Name Description A
Virtual Switches	Ethernet Cisco VIC Ethernet Interface
Migration	Ethernet 2 Cisco VIC Ethernet Interface
Default Stores	۲ ۲
Confirmation Results	We recommend that you reserve one network adapter for remote access to this server. To reserve a network adapter, do not select it for use with a virtual switch.
	< Previous Next > Install Cancel

Figure 2-12 Creating Virtual Switches

Step 4 Verify that Live Migrations are selected. This is a key advantages of Hyper-V.

Figure 2-13 Live Migration Option

L	Add Roles and Features Wizard	_ D X
E Virtual Machine N Before You Begin Installation Type Server Selection Server Roles Features Hyper-V Virtual Switches	Migration Hyper-V can be configured to send and receive live migrations of virtual machi Configuring Hyper-V now enables any available network on this server to be us you want to dedicate specific networks for live migration, use Myper-V settings Image: Allow this server to send and receive live migrations of virtual machines Authentication protocol Select the protocol you want to use to authenticate live migrations. Image: Use Credential Security Support Provider (CredSSP) This protocol is less secure than Kerberos, but does not require you to set	DESTINATION SERVER V2-C283-P1.vmdc.net ines on this server. sed for live migrations. If s after you install the role.
Virtual Switches Migration Default Stores Confirmation Results	This protocol is less secure than Kerberos, but does not require you to se delegation. To perform a live migration, you must be logged on to the so Use Kerberos This protocol is more secure but requires you to set up constrained deleg environment to perform tasks such as live migration when managing this If this server will be part of a cluster, do not enable migration now. Instead server for live migration, including specifying networks, when you create the	purce server. gation in your s server remotely. d, you will configure the
	< Previous Next >	Install Cancel

Step 5 Use the Defaults for the rest of the Wizard. Once the installation completes, reboot the server. The Windows Server 2012 server might reboot several times to install the added Roles and Features. This is normal. Simply wait until all the installation completes.

<u>Note</u>

Run Windows Update to ensure that all installed components are running the latest versions.

Figure 2-14 Windows Update

Image: Section 2 Image: Control Panel → All Control Panel terms → Windows Update v c Section Control Panel Home <	_ □ >
Kindows Update Chack for updates We update histor Restore hidden updates	Panel ,0
Change settings View update history Restore hidden updates	
View update history Restore hidden updates	
Restore hidden updates	
Most recent check for update: Never Update: weve 'or receive update: For Windows and other products from Microsoft Update	
Updates were installed: Never You receive updates: For Windows and other products from Microsoft Update	
Updates were installed: Never You receive updates: For Windows and other products from Microsoft Update	
Updates were installed: Never You receive updates: For Windows and other products from Microsoft Update	
See also	
Installed Undated	
instance optimes	

SQL Server 2012 Installation

Before setting up Microsoft System Center 2012, we highly recommend that the System Administrator sets up a dedicated Microsoft SQL Server 2012 instance. Although System Center can install SQL Express, it is prudent to use the full version of SQL Server because it enables users to back up the database or set up MSCS clustering, which supports easy database recovery if a disaster occurs.

Step 1 Installing the SQL Server is straightforward. Unless MSCS clustering is required, no Windows Server 2012 customization is needed. Simply install Windows Server 2012 (either Standard or Enterprise) and then install SQL Server 2012 onto Windows Server 2012. After installation finishes, run Windows Update to obtain the latest patches and updates.

Refer to Install SQL Server 2012 from the Installation Wizard guide for information on installing SQL server.

Step 2 Verify that all SQL Server services are running and bring up the SQL Server Configuration Manager.

Sql Server Configuration Manager											
File Action View Help Image: Second Sec											
\$QL Server Configuration Manager (Local) ■ SQL Server Services ■ SQL Server Network Configuration (32bit) ■ SQL Native Client 11.0 Configuration (32bit) ■ SQL Native Client 11.0 Configuration ■ SQL Native Client 11.0 Configuration ■ SQL Native Client 11.0 Configuration	Name SQL Server Integr SQL Full-text filte SQL Server (MSS SQL Server Analy SQL Server Repor SQL Server Browser SQL Server Agent	Running Running Running Running Stopped	Start Mode Automatic Manual Automatic Automatic Manual Automatic	Log On As NT Service\MsDtsS NT Service\MSSQL NT Service\MSSQL NT Service\MSSQL VMDC\Administrator NT AUTHORITV\LO NT Service\SQLSER	Process ID 1260 2716 1320 1360 1396 0 2088	Service Type SQL Server Analysis Server Report Server SQL Agent					

Figure 2-15 SQL Server Configuration Manager

Step 3 Add, view, delete, or perform maintenance on any databases using SQL Server Management Studio.

Microsoft SQL Server Management Studio (Administrator) _ 0 × File Edit View Debug Tools Window Help 🎦 🕶 🖅 😅 🛃 🤰 🔔 New Query 📑 🔧 📸 🤧 🖓 🖓 🖉 // - 🗠 - 💭 - 🖏 🖓 🙀 🕨 - 🛛 🖄 🚆 Object Explorer Connect 🕶 📑 📑 👕 🐼 🗉 🐻 VMI-HYPERV-SQL (SQL Server 11.0.3128 🖃 🚞 Databases 🗉 🚞 System Databases 🗉 🧰 Database Snapshots 표 🧻 OperationsManager 🗄 🧻 ReportServer ReportServerTempDB 🕀 间 SC01 🖃 🧻 VirtualManagerDB2 Database Diagrams 🗉 🚞 Views ⊞ 🚞 Synonyms ⊞ 🚞 Programmability 🗉 🚞 Service Broker 🗉 🚞 Storage 🗉 🧻 VirtualManagerDB3 🗉 🚞 Security 🗉 🚞 Server Objects E
 Replication 🗉 🚞 AlwaysOn High Availability 🗉 📸 SQL Server Agent

Figure 2-16 SQL Server Management Studio



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The necessary databases are automatically created when any System Center 2012 components are installed. No user intervention is necessary.

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Deployment Guidelines

- **1.** If a System Center 2012 component cannot communicate with SQL Server 2012, the problem might be caused by Windows Firewall. Disable Windows Firewall on all servers.
- 2. We highly recommend making periodic database backups to ensure effective disaster recovery. For more information about database backups, refer to Create a Full Database Backup (SQL Server).
- **3.** Before installing System Center 2012, the System Administrator should create a test database and verify that all servers can connect to that test database.

Microsoft System Center 2012

This section describes Microsoft System Center 2012 (MSC) and System Center Virtual Machine Manager 2012 (SCVMM).

Refer to Installing System Center 2010 – Virtual Machine Manager for installation guidance.

SCVMM is part of MSC. Evaluation copies of MSC can be downloaded from the Microsoft System Center 2012 website.

SCVMM can reside on a VM or a physical server. The Administrator can base the decision on preference and the availability of resources.

SCVMM requires a MS-SQL database server and an Active Directory server with the existing setup.

- **Step 1** Connect the Windows Server 2012 server to the AD domain where the Hyper-V servers resides on.
- Step 2 The installation prompts for database information and automatically create a database instance on the server. If no database server is available, MS-SQL Express is automatically installed. After the installation finishes, the Virtual Machine Management (VMM) Console icon should appear on the Windows Server 2012 desktop.

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Figure 2-17 Virtual Machine Management Console Icon

Step 3 Bring up the VMM Console. You can now add Hyper-V hosts and the Nexus 1000V Switch for Microsoft Hyper-V.

Administrator - VMI-SCVMM.vmdc.	net - Virtu	al Machir	ne Manag	ger								_ 0	x
Home Folder													^ 🕜
Create Create Virtual Create Create Host Cloud Group Create Create Virtual Cloud Create Host Cloud Create	Create VM Network	Assign Cloud Cloud	Overview		Services how	VM Networks	PowerShell Jobs PRO Window						
VMs and Services < N	VMs (0)												
🐯 Tenants													٩
a Clouds	Name	St *	Vir 👻	Availa	Host	Cloud	Job Status	Ŧ	0	" Us	· CPU A	Service	Opera
🚢 VM Networks						There are no	o items to show in th	is view					
📴 Storage													
🗎 All Hosts													
													*
w VMs and Services													
J Fabric													
📕 Library													
🗄 Jobs													
Settings													
•													

Figure 2-18 VMM Console

Deployment Guidelines

SCVMM requires .NET Framework 3.5 and .NET Framework 4.0 to be installed on the Windows Server 2012 server that SCVMM resides on. While .NET 4.0 can easily be added through the Roles and Features Wizard, installing .NET 3.5 through the same wizard will only result in an error. This is a known Microsoft issue. The only workaround to this issue is to use the following method.

- 1. Verify that the Windows Server 2012 server can connect to the internet.
- 2. Bring up the KVM console using UCSM.
- 3. Mount the Windows Server 2012 installation media onto the CD/DVD drive (D:).
- 4. Enter the following command on a DOS prompt:

```
dism /online /enable-feature /featurename:NetFX3 /all /Source:d:\sources\sxs
/LimitAccess
```

Figure 2-19 dism Output



5. Repeat the same command and procedure for "asp.net".

dism /online /enable-feature /featurename:iis-aspnet /all /Source:d:\sources\sxs
/LimitAccess

This should satisfy all the prerequisites for SCVMM.

Virtual Switch Module Installation on Nexus 1110

The Cisco Nexus 1000V Switch for Microsoft Hyper-V Distributed Virtual Switch requires a Virtual Supervisor Module (VSM) for control and management. The VSM controls multiple Virtual Ethernet Modules (VEMs) as one logical modular switch. However, while a physical switch uses linecards for Ethernet connectivity, VEMs are logical entities running in software inside physical servers.

In this test setup, VSMs were deployed in a Nexus 1110 Virtual Service Appliance (VSA), instead of in a Windows Server 2012 blade with Hyper-V enabled. From an architectural perspective, the idea is that the VSA resides in the management pod (called "VMI"), colocated with other management servers, rather than with production resources.

The deployment procedure for the Nexus 1000V Switch for Microsoft Hyper-V VSMs (VSBs) for Hyper-V is the same as for VMware deployments.

Refer to Installing VSM on Cisco Cloud Service Platform for additional guidance.

Refer to Cisco Nexus Virtual Services Appliance Release Notes, Release 4.2(1)SP1(5.1a) for more information about new features and caveats.

Deployment Guidelines

1. Use the correct ISO image for Hyper-V.

When creating the VSB, use the correct ISO for Hyper-V, as described in Step 4 of *Configuring Virtual Service Blades* in the Configuration guide.

2. Use a unique Domain ID in the VSM.

The Domain ID configured in the VSBs must be different than the domain ID used for the Nexus 1110 VSA. If domain IDs are not unique, the secondary VSA continuously reboots and message similar to this is seen:

```
2013 Jun 1 10:07:53 vsm-1 %KERN-1-SYSTEM_MSG: Dropping received frames from duplicate VSM saddr (0x1010000) - kernel
```



See CSCtq75997 more information.

1