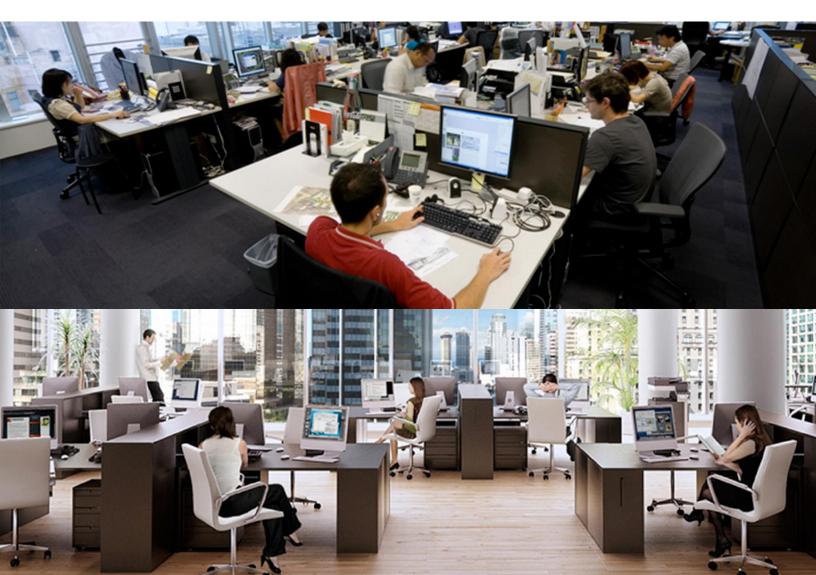
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Deployment Guide

Deployment Guide for Cisco Office-in-a-Box with VMware Horizon View



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About the Author

Tony Banuelos, Technical Marketing Engineer, Services Routing Group, Cisco

Tony Banuelos is a technical marketing engineer for the Services Routing group, and is responsible for the Cisco UCS E-Series and the on-boarding of virtual applications like VDI. He is also responsible for Cisco Unified Communications services that run on Cisco Integrated Services Routers (ISRs).

Introduction

The modern workplace continues to evolve, and improved mobility is essential. New bring-your-own-device (BYOD) and virtual desktop infrastructure (VDI) initiatives try to meet the need for an increasingly agile, productive, and collaborative workforce. Most VDI adopters have found that deploying VDI at the branch or remote office is a challenge. When virtual desktops are centralized so that users access them across the WAN, the user experience is poor, and the business continuity must rely on the WAN. Cisco[®] Office-in-a-Box offers a way to easily collapse enterprise branch office or retail store IT services into a single box. These services include VDI where the virtual desktops are hosted locally on a Cisco Unified Computing System[™] (Cisco UCS[®]) E-Series server. Cisco UCS E-Series servers provides an excellent user experience (LAN-based connectivity) and removes reliance on the WAN for business continuity.

This guide shows how to deploy a VMware Horizon View VDI solution to a Cisco next-generation WAN branch office. This guide explains what the benefits are, how to deploy the solution that combines the Cisco Integrated Services Router Generation 2 (ISR G2) platform with Cisco UCS E-Series servers, and where to find additional information to make the deployment a success.

What Problems Does Cisco Office-in-a-Box Solve?

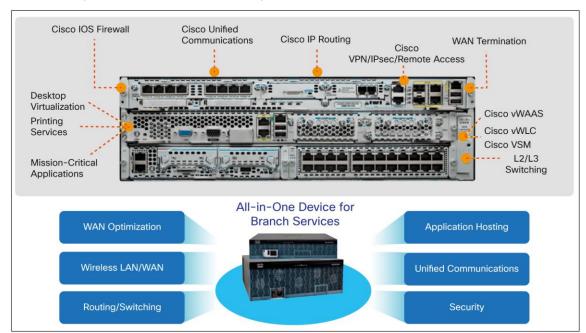
For the mobile branch office or the standard branch office, bandwidth and latency requirements for VDI come at a premium cost. When you host end-user VDI virtual machines and applications on the local Cisco UCS E-Series server, all mission-critical applications run on site. When these applications run on site, you need not depend on the WAN to deliver critical services. Also, the user experience is greatly improved because access to the VDI session remains within the local office. Now with Horizon View Agent Direct-Connection, the branch user can access a virtual desktop directly, without a connection to the VMware Horizon View connection server. In the case of a data-center-to-branch-office deployment model, the administration of the VDI pool for the branch can be managed centrally through the VMware Horizon View Connection server, but users do not require network connectivity to the connection server to access their hosted desktops. The solution can be delivered within a single Cisco ISR G2 box, which greatly reduces the number of devices that must be at the branch office or retail store to deliver the required services. One box means that on-site management is simpler, and the box can be managed remotely. Two deployment models are supported with VMware Horizon View 5.2. One model is fully distributed, where the VDI management infrastructure and VDI sessions are hosted within the Cisco UCS E-Series server. In the second model, The VDI management infrastructure is centralized at the data center, but VDI sessions are distributed across branch offices hosted in Cisco UCS E-Series servers.

Which Organizations Benefit from Cisco Office-in-a-Box?

Cisco Office-in-a-Box can help organizations that are considering VDI to centralize desktop services. These organizations want to take advantage of the many benefits that VDI offers but do not want to upgrade their WAN to support VDI sessions, or they do not want to rely on WAN connectivity for users to access mission-critical applications.

Cost Effectiveness of Cisco Office-in-a-Box

The Cisco Office-in-a-Box solution provides a way to collapse all services that businesses require into a single box, which results in easier management of services, a much smaller device footprint on site, and lower TCO. This product is part of a multiphased approach of the Cisco VDI Cloud connector strategy to address business continuity and end-user experience. The Cisco UCS E-Series servers and the Cisco ISR G2 are built for enterprise-grade performance with a service life expectancy longer than that of commercially available servers and routers. Also, the Cisco ISR G2 and Cisco UCS E-Series solutions are covered under one Cisco SMARTnet[®] services contract, which provides expert technical support, flexible hardware coverage, and smart, proactive device diagnostics. Your IT staff has anytime access to Cisco engineers in the Technical Assistance Center (TAC) and an extensive range of resources, tools, and training.



Cisco Office-in-a-Box: How Does It Work?

The Cisco ISR G2 platform runs Cisco IOS[®] Software, which delivers an array of IT services such as these:

- Network routing
- IP PBX (Cisco Unified Communications Manager Express/Survivable Remote Site Telephony [Cisco Unified SRST])
- · Public switched telephone network (PSTN) connectivity
- WAN acceleration (Cisco Wide Area Application Services [Cisco WAAS])
- Remote access
- Network Address Translation (NAT)
- Cisco IOS firewall
- DHCP

The Cisco UCS E-Series x86 server modules can be inserted into Cisco ISR G2 platforms and can deliver additional services. (See the <u>Cisco UCS E-Series data sheet</u> for a platform compatibility matrix.) The Cisco UCS E-Series supports VMware ESXi 5.0 and 5.1, which allows you to virtualize multiple applications and services. One such service is the VMware Branch Office Desktop. The Cisco UCS E160D server module can support up to 48 GB of memory, and it runs on a 6-core Intel processor with hyperthreading support, which makes it a 12-core server. Depending on the Cisco ISR G2 platform, you can insert more Cisco UCS E-Series modules if more computing power is necessary. Additional modules can expand the virtual desktop solution or add applications such as video surveillance, digital signage, or virtualized Cisco applications like Cisco Virtual WAAS (vWAAS).

The Cisco ISR G2 motherboard and the Cisco UCS E-Series blades interconnect through a backplane 1 Gigabit Ethernet switch, which allows for virtual data traffic to traverse the router services and set policies. The Cisco ISR G2 supports 2 or 3 Gigabit Ethernet ports. One of these ports can be used to connect to an Internet telephony service provider (ITSP) connection to provide Internet connectivity to the virtual desktops, and access to the Internet can be managed through policies set on the router. Also, firewall services can be turned on to prevent incoming attacks from the Internet.

A second Gigabit Ethernet port on the router can be used for management. The Cisco UCS E-Series server supports the Cisco Integrated Management Controller (a BMC feature) to allow configuration, administration, and monitoring of server resources via a web-based GUI. The Cisco UCS E-Series blades have been validated by VMware for its Branch Office Desktop through the Rapid Desktop deployment program. The VMware Rapid Desktop deployment solution allows easy deployment and configuration of a VMware Horizon View Branch Office Desktop solution and delivers the benefits and services of Cisco ISR G2 technologies within a single box. (VMware Horizon View was formerly known as VMware View.)

A third Gigabit Ethernet port on the router can be used for voice services. The Cisco ISR G2 supports Cisco Unified Communications Manager Express, which is an IP PBX application and supports Cisco IP phones or analog phones using Cisco analog voice/WAN interface card (VWIC) modules. For PSTN, access to the Cisco ISR G2 supports a variety of PSTN access VWIC modules (T1 PRI, T1 CAS, FXO, and BRI) and supports Session Initiation Protocol (SIP) trunking to SIP service providers.

For more information about Cisco Unified Communications Manager Express, visit: http://www.cisco.com/en/US/products/sw/voicesw/ps4625/index.html.

Also, the Cisco ISR G2 platforms support Ethernet switch service modules that insert into a service module slot to provide network access to VDI clients and other network devices, such as IP phones. For more information about the Cisco ISR G2, visit: <u>http://www.cisco.com/en/US/prod/collateral/routers/ps10536/data_sheet_c78-553980_ps10537_Products_Data_Sheet.html</u>.

Where Cisco Office-in-a-Box Fits in the Deployment

Cisco Office-in-a-Box with VMware Horizon View can be centrally managed or fully distributed depending on how an organization needs to manage its VDI solution and whether the remote offices are connected back to the headquarters' data center.

Figure 1 shows a fully distributed VMware Horizon View solution.

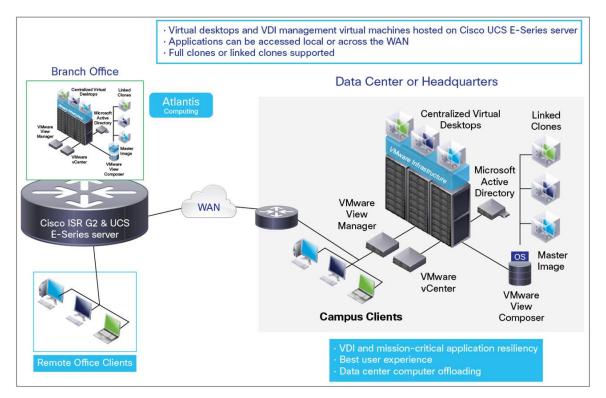


Figure 1. Fully Distributed VDI Deployment

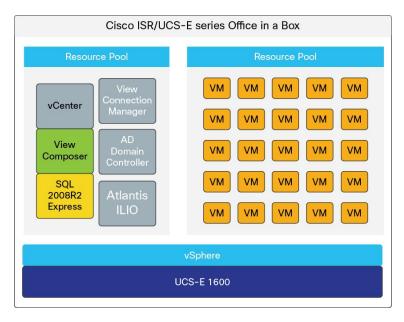
With a fully distributed VDI deployment, each remote office hosts a VMware Horizon View management infrastructure that consists of a VMware Horizon View connection server, Active Directory (AD) server, vCenter/View composer server, and SQL Express server. Table 1 lists virtual machine roles and configurations. Figure 2 shows the logical grouping of the required virtual machines.

 Table 1.
 Virtual Machine Roles and Configurations

Virtual Machine Role	Virtual Machine Specification	Notes
Microsoft Active Directory Domain Controller	1 virtual CPU (vCPU) with 2048 MB of RAM and Microsoft Windows Server 2008 R2 64-Bit Standard Edition	Microsoft Active Directory domain controller 1
VMware vCenter VMware Horizon View Composer Microsoft SQL Server 2008 R2 Express	2 vCPUs with 2048 MB of RAM and Microsoft Windows Server 2008 R2 64-Bit Standard Edition	VMware vCenter and Composer and Microsoft SQL services
View Connection Manager	2 vCPUs with 2048 MB of RAM and Microsoft Windows Server 2008 R2 64-Bit Standard Edition	VMware Horizon View Connection Manager 1
Atlantis ILIO	2 vCPUs (1 reserved) with 12 GB of RAM	Atlantis ILIO storage optimization virtual machine
Virtual Desktop	1 vCPU with 1500 MB of RAM and Microsoft Window 7	Virtual desktop virtual machine

Note: The CPU and RAM allocation for the virtual desktops is based on a medium workload profile. We recommend that performance testing be done based on applications that users will be running during normal peak business hours to identify the virtual desktop resource allocation and the virtual machine density per Cisco UCS E-Series server.

Figure 2. Logical Design



All virtual machines share the direct-attached storage (DAS) of the Cisco UCS E-Series blade.

Figure 3 shows a centralized VMware Horizon View management with distributed hosted virtual desktops.

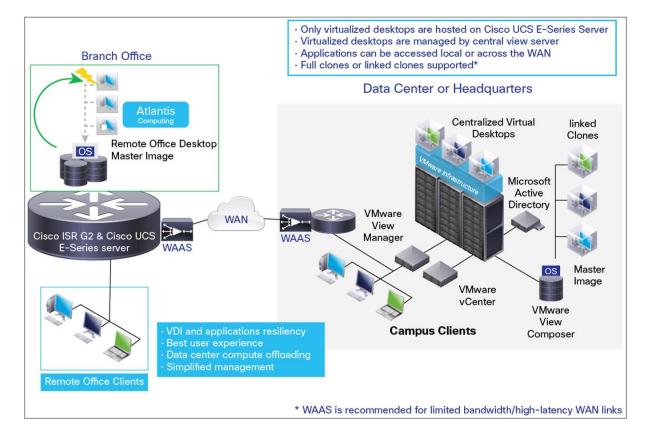


Figure 3. Centralized VDI Management with Distributed VDI Sessions

With central VDI management, only the desktop primary image (template or primary VM/snapshot) must reside on the Cisco UCS E-Series DAS to create desktop pools on the Cisco UCS E-Series server. Create the desktop primary image with Horizon View Agent Direct-Connection for branch users to access their hosted virtual desktops directly so they do not depend on the WAN connection to reach the VMware Horizon View connection server to access the hosted virtual desktops. Persistent pools (full clones) and nonpersistent pools (linked clones) are supported. Use Cisco WAAS to provision nonpersistent (linked clones) pools. During the creation of a nonpersistent pool, VMware provisioning and management traffic that flows on TCP port 902 between the View composer server and the ESXi VDI hosting node (Cisco UCS E-Series server) contains large data blocks and is very chatty across the WAN. Cisco WAAS can optimize this traffic and help ensure a successful pool creation.

A Cisco WAAS solution provides a 99 percent reduction ratio of TCP 902 provisioning traffic and increases the apparent bandwidth available for the branch, which allows users at the branch office to continue using the WAN. After a VMware Horizon View VDI pool is created, Cisco WAAS can continue to optimize the access of centrally based applications across the WAN, like backup and restore tools.

To optimize VMware management and provisioning traffic, use this Cisco WAAS sample configuration: (**Note:** This configuration must be applied at the data center Cisco WAAS and the branch Cisco WAAS appliances.)

- 1. Create "class-map type" and label it VMware.
- 2. Enter the global policy map Cisco WAAS configuration.

```
policy-map type waas WAAS-GLOBAL
class MAPT
optimize full accelerate mapi application Email-and-Messaging
exit
class MS-AD-Replication
optimize full application Replication
exit
class MS-Exchange-Directory-NSPI
```

3. Configure the class-map type VMware for full optimization.

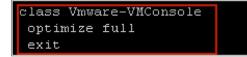


Figure 4 is an example of the optimization that is achieved when a linked-clone pool is created. Figure 5 shows the logical grouping of the virtual machines that are hosted on Cisco UCS E-Series server.

Figure 4. Example of Optimization Achieved with a Linked-Clone Pool

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Historical Flows: 390 D:DRE,L:LZ, T:TCP Optimization RR:Total Reduction Ratio A:AOIM,C:CIFS,E:EPM,G:GENERIC,H:HTTP,I:ICA,M:MAFI,N:NFS,S:SSL,W:WAN SECURE,V:VIE EO X: SMB Signed Connection ConnID Source IP:Port Dest IP:Port PeerID Accel RR 210801 172.19.153.148:60095 172.19.153.131:443 00:50:56:86:00:05 T 00.08 214786 172.19.153.148:6171 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215721 172.19.153.148:63771 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215722 172.19.153.148:63771 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215723 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215731 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215731 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215732 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215734 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 TD 00.08 215734 <td></td> <td></td>		
D:DRE,L:LZ,T:TCP Optimization RR:Total Reduction Ratio A: AOIM,C:CIFS,E:EPM,G:GENERIC,H:HTTP,I:ICA,M:MAPI,N:NFS,S:SSL,W:WAN SECURE,V:VII EO X: SMB Signed Connection ConnID Source IP:Fort Dest IP:Port PeerID Accel RR 210801 172.19.153.148:60095 172.19.153.131:443 00:50:56:86:00:05 T 00.08 214786 172.19.153.148:63071 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215721 172.19.153.148:63771 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215727 172.19.153.148:63773 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215728 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215729 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215729 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215730 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215731 172.19.153.148:6386 172.19.153.131:443 00:50:56:86:00:05 TL 90.68 215735 172.19.153.148:63891 172.19.153.131:443	이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이	
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EO X: SMB Signed Connection ConnID Source IP:Port Dest IP:Port PeerID Accel RR 210801 172.19.153.148:60095 172.19.153.131:443 00:50:56:86:00:05 T 00.08 210803 10.1.1.152:49482 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215721 172.19.153.148:63771 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215721 172.19.153.148:63771 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215722 172.19.153.148:63874 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215728 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215729 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215730 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215731 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215737 172.19.153.148:63876 172.19.153.131:443 00:50:56:86:00:05 T 00.08 215734 172.19.153.148		
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215748 172.19.153.148:63925 172.19.153.131:902 00:50:56:86:00:05 TDL 99.6% 215749 172.19.153.148:63926 172.19.153.131:902 00:50:56:86:00:05 TDL 99.6% 215750 172.19.153.148:63927 172.19.153.131:902 00:50:56:86:00:05 TDL 99.5%		
215749 172.19.153.148:63926 172.19.153.131:902 00:50:56:86:00:05 TDL 99.6% 215750 172.19.153.148:63927 172.19.153.131:902 00:50:56:86:00:05 TDL 99.5%		
215750 172.19.153.148:63927 172.19.153.131:902 00:50:56:86:00:05 TDL 99.5		
213/31 1/2.19.133.140.03920 1/2.19.133.131.902 00.30.30.00:00:03 1DL 99.3		



Figure 5. Cisco UCS E-Series Logical Design

At the branch, the Cisco UCS E-Series server hosts the primary desktop image from where a pool of desktops would be provisioned using the central VMware Horizon View management tools. The VMware Horizon View management infrastructure is the same infrastructure used to provision and manage VDI pools that are based in the campus or data center.

Requirements, Solution, and Benefits

This sample of requirements, solutions, and benefits can help you decide whether to move forward with a Cisco Office-in-a-Box deployment.

Requirement: VDI solution for 10 to 25 users at the branch office or retail office

Solution: Cisco UCS E-Series with Cisco ISR G2 provides the network, computing, and storage platform to locally host and manage VDI sessions without user-experience degradation due to WAN link traffic saturation or WAN outage.

Benefits:

- Mission-critical applications are not reliant on the WAN.
- VDI sessions are local to the users, resulting in an excellent user experience.
- VDI data traffic can be managed so that packets traverse the router interfaces via the backplane to apply security policies and determine how each virtual machine or user accesses applications.
- There is a single device to manage at each remote site, with the ability to manage all onboard applications, unified communications, security, and network access remotely.

Basic VDI Concepts: Understanding the Terminology

The concept of VDI technology is to abstract the operating system of an end-user computing platform and host that operating system on a centralized computing server. The centralized server must have sufficient computational resources to host and run multiple instances of the operating system. (A virtual desktop instance is a single OS instance on the centralized server.) After the centralization of the operating system is achieved, end users are provided with the necessary software client to connect to their assigned virtual desktop instance over the network. When the desktop of an end user is centralized and the user can connect to that desktop across the network, the user can access the desktop from anywhere on any type of device. Also, the data that is running within the desktop is protected. The data is not stored on the local device, but it is stored safely on the central storage system that can be backed up and accessed at any time.

Deploying Cisco Office-in-a-Box

Cisco Office-in-a-Box relies on Cisco ISR and Cisco UCS E-Series service modules to deliver the necessary computing resources to host a VMware Horizon View VDI solution. Table 2 lists the required specifications of a 6-core Cisco UCS E-Series and a 4-core Cisco UCS E-Series service module to support a maximum of 25 VDI sessions and 15 VDI sessions, respectively.

Feature	Cisco UCS E140D, Cisco UCS E140DP (4-core double-wide)	Cisco UCS E160D, Cisco UCS E160DP (6-core double-wide)
CPU	Intel Xeon E5-2418L 2.0-GHz quad-core processor	Intel Xeon E5-2428L 1.8-GHz 6-core processor
DRAM	48 GB RAM	48 GB RAM
Hard-disk drive (HDD)	Up to three (Cisco UCS E140D or E160D) or two (Cisco UCS E140DP or E160DP):	Up to three (Cisco UCS E140D or E160D) or two (Cisco UCS E140DP or E160DP):
	• 10,000-rpm SAS: 900 GB	• 10,000-rpm SAS: 900 GB
	 10,000-rpm SAS SED: 600 GB 	 10,000-rpm SAS SED: 600 GB
	SAS SSD SLC: 200 GB	SAS SSD SLC: 200 GB
	See Note	See Note
Supported Cisco ISRs	Cisco UCS E140D and E140DP: Cisco 2921, 2951, 3925, 3925E, 3945, 3945E, and 4451-X	Cisco UCS E160DP and E160DP: Cisco 3925, 3925E, 3945, 3945E, and 4451-X
PCIe	Cisco UCS E140DP and E160DP: Four 1 Gigabit Ethernet or one 10 Gigabit Ethernet and Fibre Channel over Ethernet (FCoE)	Cisco UCS E140DP and E160DP: Four 1 Gigabit Ethernet or one 10 Gigabit Ethernet and FCoE

Table 2.	Cisco UCS E-Series Configuration for VDI
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The Cisco UCS E-Series storage configuration depends on how many VDI sessions you intend to host on the Cisco UCS E-Series server and the type of workload the branch users will be exercising on each virtual machine. A three-drive SAS (900 GB, 10K-rpm) RAID 5 configuration was tested successfully for a 25-VDI session configuration at a medium-workload profile. The medium-workload profile consists of a basic Microsoft Office suite, printing, PDF reading, web-browsing, Microsoft Exchange email, and creating and saving documents. The medium workload profile does not include video or high graphics applications, which is part of the expert user workload profile.

Managing Horizon View Agent Direct-Connection on the Branch Hosted Virtual Desktop Primary Image

The Horizon View Agent Direct-Connection software is installed with the VMware Horizon View Agent 5.3 software. Depending on the release date of your VMware Horizon View Agent 5.3 software, the Horizon View Agent Direct-Connection plug-in may be a separate installation file. The VMware Horizon View Agent software is installed to the hosted virtual desktop primary image that will be used to create the VDI pool on the Cisco UCS E-series server. The difference in the Horizon View Agent Direct-Connection software, compared with older VMware Horizon View Agent software, is the ability to allow VMware Horizon View clients to directly connect to the hosted virtual desktop without having to authenticate with the VMware Horizon View connection server first. A VMware Horizon View client device can point directly to the hosted virtual desktop IP address or fully qualified domain name (FQDN) and log in to the hosted virtual desktop using Microsoft Windows local credentials or cached credentials. The ability to fall back or always directly connect to the locally hosted virtual desktop allows VMware VDI users to access their virtual desktops even if the WAN connection is down and the VMware Horizon View connection server is not reachable. The branch users are always able to connect to their desktop no matter the state of the WAN connection. The status and management of the remote hosted virtual desktops resumes at the central VMware Horizon View connection server once the WAN connection is back up.

In order to automate the process of selecting either the VMware Horizon View connection server across the WAN or the user-assigned virtual desktop that is locally running in Cisco UCS E-Series, the VMware Horizon View client software can be modified to present the alternative authentication server addresses. The following screen shots show an example of how to configure VMware Horizon View client software registry in a Windows 7 thick client or Windows embedded thin client in order to list the VMware Horizon View connection server address and the locally assigned VMware Horizon View hosted virtual desktop address.

1. Open "regedit" using the Windows start menu

Programs (1)
💣 regedit
Microsoft Outlook (28)
📄 FW: Routing Strategy Review deck
Cisco UCS E-Series Case Studies.pptx (FW: Routing Strategy Revi
🔄 FW: [UCS E-Series] - use case with Point of Sales solutions
🔮 SIAB ISR & UCS-E Lab Validation Example - Grocery.pptx (FW: [
FW: [UCS E-Series] - use case with Point of Sales solutions
🔮 SIAB ISR & UCS-E Lab Validation Example - Grocery.pptx (FW: [
🔄 RE: Upcoming Ontario Alpha user study
📄 RE: Help on Citrix receiver
📄 RE: 6215 configuration - Need help
📄 Re: 6215 configuration - Need help
📄 Re: 6215 configuration - Need help
🔄 RE: found this
🔄 RE: Update
🔄 RE: Update
📄 Re: Update
📄 Re: Update
See more results
regedit × Shut down →

If in your environment you have VMware soft Horizon View [[CORRECT?]] clients installed either on full-blown Windows or on a thin client with Windows embedded, you may use the registry key BrokerHistory to add multiple existing connection brokers.

 You can create the key under [HKEY_CURRENT_USER\Software\VMware, Inc.\VMware VDM\Client]. However, because this is a USER registry key you will need to merge the registry changes during logon time trough scripts or GPO

le <u>E</u> dit <u>V</u> iew F <u>a</u> vorites <u>H</u> elp			
 McAfee Microsoft Mozilla MozillaPlugins Netscape NVIDIA Corporation ODBC Policies Realtek Redemption • • Softonic Softonic 	Yame ∰(Default) ∰DialogPos ∰BrokerHistory	Type REG_SZ REG_SZ REG_MULTI_SZ	Data (value not set) 718,229 10.30.20.100 192.168.24.10

3. After you creat this key the VMware Horizon View client automatically lists the available servers for login.

Not the West of th	nt		
vmware [.] VMwar	ല∙cേഊ e View™	-	
Enter the host name o	f the View Connection Server.		
Connection Server:	10.30.20.100	-	
10.30,20,100			
Support Information			
Connect	E <u>x</u> it <u>H</u> elp	Options >>	

Atlantis ILIO Deployment Option

For high-density virtual desktop deployments or expert-user workload profiles (with high I/O operations per second [IOPS] workloads), we recommend that you install Atlantis ILIO technology on the Cisco UCS E-Series server to boost IOPS performance using SAS 10K-rpm hard drives. Atlantis ILIO has the following benefits. You can:

- Deploy up to 35 high-performance virtual desktops on a single Cisco E-Series server module.
- Lower the cost per virtual desktop using Atlantis ILIO with SAS disks.
- Deliver a better-than-PC user experience.

For more Atlantis ILIO information, see: http://www.atlantiscomputing.com/products/.

Installing Cisco Office-in-a-Box

First, an administrator must install VMware ESXi on the Cisco UCS E-Series service module. The Cisco UCS E-Series management tool, the Cisco Integrated Management Controller, has multiple options on how to install an operating system on the server. This procedure explains how to mount an ESXi image on the available SD card using the "host image mapping" capability on the Cisco UCS E-Series server and how to start the installation of ESXi off the mounted image. An FTP or HTTP server is required to host the ESXi installation files in bootable ISO format.

1. Log in to the Cisco Integrated Management Controller.



The default username is admin and the password is password.

2. In the Server tab, click Host Image Mapping.

cisco Cisco Integ	grated Management Controller	
Overall Server Status	C 3 🕹 🗮 0 0	
Overall Server Status Server Admin Summary Inventory Sensors System Event Log Remote Presence BIOS Power Policies Pault Summary Host Image Mapping	Server Summary Actions Power On Server Pr Server Prop Pr Server Prop Pr Server Prop Pr Server Stat Duck Tox Canal Power Button Clack TOS Configuration Changes Clace Integr	uct Name: E160D I Number: F0C16161F19 PID: UC5-E1600-M1/K9 UUID: 1255F7F0-9918-0000-6484-484508FFFE2C S Version: 4.6.4.8
	Firmw C Hardw Current Router Infor	e Version: 1.0(1.20120808152414) D Version: 4.4 e Version: 3 me (UTC): Tue Apr 9 20;32:15 2013

The Host Image Mapping screen opens.

cisco Cisco Integ	rated Management Controller
Cisco Integ	Image Mapping Existing Image info Image Name: ESSI : 315633664 MD5 Checksum: 6e9efaa7bfbc32a0e979c021644256e1 Last Modified Time: 6e9efaa7bfbc32a0e979c021644256e1 Install Pane Enter the URL and file information, and then click 'Download' to begin the download. Click 'Map Image to Host' to mount the host image or click 'Map Diagnostics to Host' to mount the diagnostics Image. URL syntax: protocol://username:password@server-ip-address/path, Username and Password are optional URL: Image Name Download Map Image to Host Unmap Image Map Diagnostics to Host Delete Image
	Host Image Update Status: Image mapped successfully,Please set CDROM as the Boot device

3. In the URL field, enter the full image name including the extension. Click **Download**. When the download is complete, click **Map Image to Host**.

Overall Server Status	C 3 4 🗮 0 0
Good	Host Image Mapping
Server Admin	Existing Image info
Summary	Image Name:
Inventory	Image Size:
Sensors	MD5 Checksum:
System Event Log	Last Modified Time :
Remote Presence	
BIOS	Install Pane
Power Policies	Enter the URL and file information, and then click 'Download' to begin the download. Click 'Map Image to Host' to mount
Fault Summary	the host image or click 'Map Diagnostics to Host' to mount the diagnostics Image. URL syntax: protocol://username:password@server-ip-address/path, Username and Password are optional
Host Image Mapping	URL: ftp://anonymous:cisco@15.10.1.3/ Image Name ESXi-5.1.0-799733-custom-Cisco-2.1.0.3.i Download Map Image to Host Unmap Image Map Diagnostics to Host Delete Image
	Host Image Update Status: Image mapped successfully,Please set EFI as the Boot device

4. In the Server tab, click **BIOS** and update the boot order so that CDROM is the highest priority. (Host image map acts as a virtual CDROM when it is mounted.)

cisco Cisco Inte	grated Management Controller		CIMC Hostnan Logged in
Overall Server Status	C C Configure Blos Actions Configure Blos Configure Blos Configure Blos Configure Blos Configure Blos Configure Blos Configure Blos Configure Blos Configure Blos Firmware Actions Listable Blos Firmware from TFIP Server Loss Firmware Install Status: Completed Successfully	BIOS Properties Running Varsion: 4.6.4.8 Boot Order Configured Boot Order 2. HDD HDD Network Device (PXE) Internal EFI Shell	Configure Boot Order Device Types: POD POD POD POD POD CRON UD Down Roply: Cancer

5. Launch the KVM console for the server and reload server. From the Server tab, click **Summary > Launch KVM Console > Power Cycle Server**.

Ulully Cisco Integ	rated Management Co	ntrollor		CIMC Hostname:	
cisco cisco miceg	rated Management Co	neroner		C 15.10.1.10 - KVM Console	ſ
Overall Server Status — 👩 🧃 🛃 🐻 🔞 🚯				File View Macros Tools Help	
Good	and the second			KVM Virtual Media	
	Server Summary			PXE-E51: No DHCP or proxyDHCP offers were received.	
Server Admin	Actions	Server Properties		PXE-MOF: Exiting Broadcom PXE ROM.	
Summary	Power On Server	Product Name:	E140D		
Inventory	Power Off Server	Serial Number:		Broadcom UNDI PXE-2.1 v15.0.11	
Sensors	Power Off Server	PID:	UCS-E140D-M1/	Copyright (C) 2000-2011 Broadcom Corporation	
System Event Log	Shut Down Server	UUID:	C7D967D8-EEA2	Copyright (C) 1997-2000 Intel Corporation	
Remote Presence	Power Cycle Server	BIOS Version:	4.6.4.8	All rights reserved.	
BIOS	Hard Reset Server	Description:		CLIENT MAC ADDR: D8 67 D9 C7 A2 EB GUID: D867D9C7 A2EE 0000 DE8C 634EDEBADD4F PXE-E51: No DHCP or proxuDHCP offers were received.	
Power Policies	Launch KVM Console	Server Status			
Fault Summary		Power State:	O On	PXE-M0F: Exiting Broadcom PXE ROM.	
Host Image Mapping	O Lock Front Panel Power Button	Overall Server Status:	Good		
	O Lock IOS Configuration Changes	Processors:	Good	Broadcom UNDI PXE-2.1 v15.0.11 Copyright (C) 2000-2011 Broadcom Corporation	
		Memory:	Good	Copyright (C) 1997-2000 Intel Corporation	
		Cisco Integrated Manager	ment Controller	All rights reserved. PXE-E61: Media test failure, check cable	
		Hostname:	Unknown	PXE-MOF: Exiting Broadcom PXE ROM.	
		IP Address:	15.10.1.10	Reboot and Select proper Boot device	
		MAC Address:	D8:67:D9:C7:A2:	or Insert Boot Media in selected Boot device and press a key_	
		Firmware Version:		Receivery .	
		CPLD Version:			
		Hardware Version:	3		
		Current Time (UTC):	Wed Apr 3 18:3	1:21 2013	

The server boots from the VMware ESXi bootable image.

6. Follow the VMware ESXi installation wizard.

			KVM Virtual Media
Cisco Integ	grated Management Co	ntroller	VMware ESXi 5.1.0 Installer
CISCO			
Overall Server Status	C J J 📕 0 0		
Good			
Cooo Cooo	Server Summary		
Server Admin	Actions	Server Prope	
Summary	Power On Server	Pro	
Inventory	Power Off Server	Seri	
Sensors			
System Event Log	Shut Down Server		
Remote Presence	O Power Cycle Server	BIC	
BIOS	Hard Reset Server	4	
Power Policies	the second s	Server Status	
Fault Summary	Launch KVM Console	server status	Helcone to the VMware ESXi 5.1.8 Installation
Host Image Mapping	O Lock Front Panel Power Button	Overall Ser	VMware ESXi 5.1.0 installs on most systems but only
	Cock IOS Configuration Changes	Overall Ser	systems on VMware's Compatibility Guide are supported.
		1	Consult the VMware Compatibility Guide at:
			http://www.vnware.com/resources/compatibility
		Cisco Integra	Select the operation to perform.
			(Esc.) Cancel (Enter) Continue
		MA	
		Firmwa	
		CPL	
		Hardwa	
		Current T	
		Router Inform	
		Ro	
		Seri	
		SI	
	J	-	el la

7. After the ESXi installation is complete, unmap the ESXi boot image from the server to prevent a new fresh installation. Click **Unmap Image**. (Deleting the image is optional.)

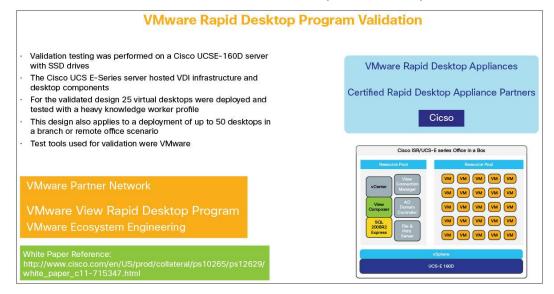
cisco Cisco Integ	rated Management Controller
Cisco Integ	C C C C C C C C C C C C C C C C C C C
	Image Name Download Map Image to Host Unmap Image Map Diagnostics to Host Delete Image Host Image Update Status: No Image

The VMware ESXi installation is complete.

8. Reload the router and configure VMware ESXi for network access.

File View Macros Tools Help KVM Virtual Media	
VMware ESXi 5.1.0 (VMKernel Release Build 799733)	
Cisco Systems, Inc. UCS-E140D-M1/K9	
VMware ESXi 5.1.0 (VMKernel Release Build 799733) Cisco Systems, Inc. UCS-E1400-M1/K9 Intel(R) Xeon(R) CPU E5-2418L 0 @ 2.00GHz 32 GiB Мемогу	
Download tools to manage this host from: http://15.10.1.15/ (STATIC) http://Ife88::da67:d9ff:fec7:a2eal/ (STATIC)	
GF2> Custonize System/View Logs	<f12> Shut Down/Restart</f12>

To install VMware Horizon View using the fully distributed model, VMware offers the VMware Rapid Desktop Appliance solution that enables quick and easy provisioning of the entire VDI solution on a partner-certified solution. The Cisco UCS E-Series server has been validated by VMware and is available using VMware Horizon View 5.1 or 5.2. The Cisco UCS E-Series node requires VMware vSphere/ESXi 5.0 or later.



For information on the VMware Rapid Desktop Appliance solution, see: http://www.vmware.com/solutions/desktop/rapid-desktop.html.

To install a VMware Horizon View solution with central management and distributed VDI sessions, VMware Horizon View 5.2 must be installed at the headquarters or data center site. For installation guide and system requirements, see: <u>http://pubs.vmware.com/view-52/topic/com.vmware.ICbase/PDF/horizon-view-52-installation.pdf</u>.

The Cisco UCS E-Series server requires VMware vSphere/ESXi 5.1, and the server must be added as a host to the data center VMware vCenter. We recommend that each Cisco UCS E-Series server be staged at headquarters with the appropriate VMware ESXi installation and desktop primary image (virtual machine template) that will be used for VDI pool creation. Staging the Cisco UCS E-Series server prevents the need for transferring large files across the WAN. After the Cisco UCS E-Series server is installed and running at the remote office with connectivity back to the data center, the administrator adds the Cisco UCS E-Series VMware ESXi host to vCenter so that the Cisco UCS E-Series server can participate as a resource platform for desktop pool creation. Using the VMware Horizon View management application, an administrator creates a desktop pool by selecting the desktop primary image hosted on the Cisco UCS E-Series server as the template for the pool. Then the administrator selects the Cisco UCS E-Series computing resource as the hosting node for the pool. The pool can be created as full clones of the primary image or as linked clones. In VMware Horizon View, full clone pools deliver persistent desktop pools where each individual desktop virtual machine is dedicated to an entitled user. Linked-clone pools deliver nonpersistent desktop pools where a group of users are entitled to the pool of linked-clones desktops and are connected to any desktop that is available in the pool. With linked clones, no user data or personalization of the desktop is saved after a user logs out of the VDI session.

To create a VDI pool using VMware Horizon View, follow these steps:

Notes: This example shows linked clones. If you plan to test with Atlantis ILIO, first install Atlantis ILIO on your Cisco UCS E-Series server. See "Atlantis ILIO Installation and Configuration."

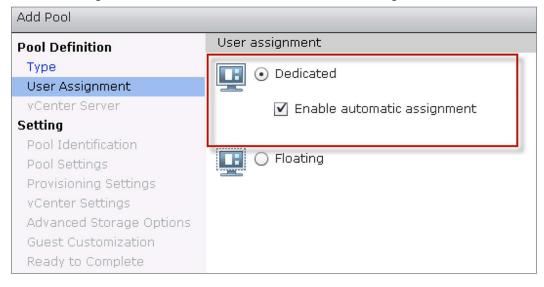
1. Log in to the VMware Horizon View management console, and click **Pools** and **Add**.

Updated 4/16/2013 11:45 AM 没	Pools					
Remote Sessions 0 Local Sessions 0 Problem Desktops 0 Events 0 System Health 0 8 1 1	Add Ed	it Delete (Folder • M	Nore Commands
	ID	Display Name	Туре	Source	User Assi	vCenter Serve
Inventory	💷 full-clone-pool	full-clone-pool	Automated Pool	vCenter	Dedicated	172.19.153.148
Cashboard Cashb	٥					

2. Click **Type**, select **Automated Pool**, and click **Next**.

Add Pool		(?
Pool Definition	Туре	
Туре	Automated Pool	Automated Pool
User Assignment		An automated pool uses a
vCenter Server Setting		vCenter Server template or virtua machine snapshot to generate
Pool Identification	🕎 🔾 Manual Pool	new desktops. The desktops can
Pool Settings	_	be created when the pool is created or generated on demand
Provisioning Settings	C Terminal Services Pool	based on pool usage.
vCenter Settings		
Advanced Storage Options		
Guest Customization Ready to Complete		
Ready to complete		
		Supported Features
		 vCenter virtual machines
		Physical computers, blade PCs
		Microsoft Terminal Server
		✓ View Composer
		🖌 Local Mode
		✓ PCoIP
		 Persona management
		Next > Cancel

3. Click User Assignment, select Dedicated and Enable automatic assignment, and click Next.



4. Click vCenter Server and select View Composer linked clones.

Pool Definition	vCenter Serv	er					
Туре	🔘 Full virtual	machines		View Con	nposer		
User Assignment vCenter Server	• View Composer linked clones			View Composer linked clones share the same base image and			
Setting Pool Identification Pool Settings Provisioning Settings View Composer Disks Storage Optimization vCenter Settings Advanced Storage Options Guest Customization Ready to Complete	vCent	er Server	View Composer 172.19.153.148		supporte Local Local Local Local Council Recon Syspn (vSph	torage spac chines. profile for lin directed to p : will be unal es and refre d Features Mode	e than full ked clones persistent ffected by shes. shes. efresh stomization gher)
				[< Back	Next >	Cancel

Pool Definition	Pool Identification				
Type User Assignment	ID:	linkclone-pool		ID	
vCenter Server	Display name:	linkclone-pool		The pool ID is the unique name used to identify this pool.	
Setting	View folder:	1		Display Name	
Pool Identification Pool Settings	Description:			The display name is the name	
Provisioning Settings				that users will see when they connect to View Client. If the	
View Composer Disks Storage Optimization				display name is left blank, the IC will be used.	
vCenter Settings				View Folder	
Advanced Storage Options Guest Customization Ready to Complete				View folders can organize the pools in your organization. They can also be used for delegated administration.	
				Description	
				This description is only shown or the Settings tab for a pool within View Administrator.	

5. Click Pool Identification. Name your VDI pool, and click Next.

6. Click **Pool Settings**. Keep the pool settings defaults and click **Next**. For information about pool settings and how to manage them, see the <u>VMware Horizon View Administration Guide</u>

Add Pool - linkclone-pool		(
Pool Definition	Pool Settings	
Type User Assignment vCenter Server Setting Pool Identification	General State: Connection Server restrictions:	Enabled V None Browse
Pool Settings	Remote Settings	
Provisioning Settings View Composer Disks Storage Optimization vCenter Settings Advanced Storage Options Guest Customization Ready to Complete	Remote Desktop Power Policy: Automatically logoff after disconnect: Allow users to reset their desktops: Refresh OS disk after logoff:	Take no power action Never No Never
	Remote Display Protocol	
	Default display protocol: Allow users to choose protocol:	PCoIP Ves V
	3D Renderer:	Disabled Configure 3
	Max number of monitors:	2 🔻 3
	Max resolution of any one monitor:	May require power-cycle of related virtual machines (2) 1920x1200 (2) May require power-cycle of related virtual machines (2) Coabled (2)

7. Click **Provisioning Settings**. Enter a naming pattern for the new VDI virtual machines and the number of virtual machines to create.

Add Pool - linkclone-pool						
Pool Definition	Provisioning Settings					
Type User Assignment vCenter Server Setting	Ser Assignment Image: Center Server Image: Center Server Image: Center Server Image: Center Server Image: Stop provisioning on error					
Pool Identification	Virtual Machine Naming					
Pool Settings	 Specify names manually 					
Provisioning Settings View Composer Disks	0 names entered	Enter names)				
Storage Optimization	Start desktops in mainte	enance mode				
vCenter Settings	t powered on:	1				
Advanced Storage Options Guest Customization	 Use a naming pattern 					
Ready to Complete	Naming Pattern:	linkdone-vm-{n}				
	Pool Sizing					
	Max number of desktops:		20			
	Number of spare (powered on)	desktops:	20			
	Minimum number of ready (pro- desktops during View Compose operations:		0 3			
	Provisioning Timing					
	Provision desktops on dema	and				
	Min number of desktops:		1			
	 Provision all desktops up-from 	ont				

8. Click View Composer Disks. Keep the default values, and click Next.

Add Pool - linkclone-pool				
Pool Definition	View Composer Disks			
Type User Assignment vCenter Server Setting Pool Identification Pool Settings Provisioning Settings	 Persistent Disk Redirect Windows profile to a persistent disk Disk size: 2048 MB (minimum 128 MB) Drive letter: D Do not redirect Windows profile 			
View Composer Disks Storage Optimization	Disposable File ③ Redirection			
vCenter Settings Advanced Storage Options Guest Customization Ready to Complete	 Redirect disposable files to a non-persistent disk Disk size: 4096 MB (minimum 512 MB) Drive letter: Auto			
	 Do not redirect disposable files 			

- 9. Click **Next** through Storage Optimization.
- Click vCenter Settings. Select the parent virtual machine (the virtual machine template) and snapshot. For the resource pool, select the Cisco UCS E-Series server. For storage, select the Cisco UCS E-Series DAS.
 Add Pool - Inkdone-pool

Pool Definition	vCenter Settings					
Type User Assignment	Default Image					
vCenter Server Setting	1 Parent VM:	/SRGTME-Lab/vm/win7-msoffice-lvsi	Browse			
Pool Identification Pool Settings	2 Snapshot: Virtual Machine Location	/SNAP-1/win7-ms-snapshot	Browse			
Provisioning Settings View Composer Disks Storage Optimization	3 VM folder location:	/SRGTME-Lab/vm	Browse			
vCenter Settings	Resource Settings					
Advanced Storage Options Guest Customization	4 Host or cluster:	/SRGTME-Lab/host/172.19.153.131	Browse			
Ready to Complete	5 Resource pool:	/SRGTME-Lab/host/172.19.153.131/Re	Browse			
	6 Datastores:	1 selected	Browse			
	Note: 172.19	.153.131 is the UCSE IP address				

11. Click Advanced Storage Options. Keep the default values, and click Next.

Pool Definition	Advanced Storage Options		
Type User Assignment vCenter Server Setting Pool Identification		tion, the following features are are not supported by the selected stor	View Storage Accelerator vSphere 5.x hosts can be configured to improve performance by caching certain pool
Pool Settings Provisioning Settings View Composer Disks Storage Optimization vCenter Settings	Disk Types: Regenerate storage accelerator after:	OS disks 7 Days	data. Enable this option to use View Storage Accelerator for this pool. View Storage Accelerator is most useful for shared disks
Advanced Storage Options Guest Customization Ready to Complete	 Use native NFS snapsh Reclaim VM disk space Initiate reclamation when 		that are read frequently, such as View Composer OS disks.
	unused space on VM exce		Native NFS Snapshots (VAAI) VAAI (vStorage API for
	not occur during blackout tim both operations. Add Edit R	ition and VM disk space reclamation es. The same blackout policy applie emove	Array Integration) is a hardware feature of certain storage arrays It uses native snapshotting technology to provide linked clone functionality. Choose
	Day	Time	this option only if you have appropriate hardware devices. Disk Space Reclamation

12. The AD domain should be automatically selected, so leave AD container set to the default.

You can use VMware QuickPrep or Microsoft Sysprep to tailor each created virtual machine for use (computer name, domain registration). This example uses Sysprep using a prepared vCenter Windows customization template. See the <u>vSphere Virtual Machine Administration guide</u> to learn more about customization templates.

Pool Definition Guest Customization Type User Assignment Domain:: SRTGTME.COM(administrator) Image: Comparison of the component of the com	Add Pool - linkcione-pool					U
Type User Assignment vCenter Server Setting Pool Identification Pool Settings Provisioning Settings View Composer Disks Storage Optimization vCenter Settings Advanced Storage Options Guest Customization Ready to Complete Post-synchronization script name: Post-synchronization script parameters: Example: p1 p2 p3 Outse a customization specification (Sysprep) Show all customization specifications @	Pool Definition	Guest Customization				-
vCenter Server SRTGTME.COM(administrator) • Setting AD container: CN=Computers Browse Pool Identification AD container: CN=Computers Browse Pool Settings Allow reuse of pre-existing computer accounts ③ Image: Storage Optimization Use QuickPrep View Composer Disks Storage Optimization Power-off script name: Image: Optimization Image: Optimization vCenter Settings Advanced Storage Options Power-off script parameters: Example: p1 p2 p3 Guest Customization Post-synchronization script name: Image: Optimization script parameters: Image: Optimization script parameters: Image: P1 p2 p3 Post-synchronization script parameters: Image: P1 p2 p3 Image: P1 p2 p3 Image: P1 p2 p3 Image: Optimization script parameters: Image: P1 p2 p3 Image: P1 p2 p3 Image: P1 p2 p3 Image: Optimization specification (Sysprep) Image: P1 p2 p3 Image: P1 p2 p3 Image: P1 p2 p3 Image: Optimization specification specification specifications @ Image: P1 p2 p3 Image: P1 p2 p3 Image: P1 p2 p3 Image: Optimization specification specification specification specification specification specifications @ Image: P1 p2 p3 Image: P1 p2 p3	Туре					2
vCenter Server AD container: CN=Computers Browse Pool Identification AD container: CN=Computers Browse Pool Settings Allow reuse of pre-existing computer accounts ③ Image: Setion of the set of th	User Assignment	Domain:	SRTGTME COM(administra	ator) -		
Pool Identification Allow reuse of pre-existing computer accounts ③ Provisioning Settings Use QuickPrep View Composer Disks Storage Optimization vCenter Settings Power-off script name: Advanced Storage Options @ Guest Customization Post-synchronization script name: Post-synchronization script parameters: @ Post-synchronization script parameters: Example: p1 p2 p3 O Use a customization specification (Sysprep)	vCenter Server	bolinain.	SICIO INE.CON(duminiscie			
Pool Settings Allow reuse of pre-existing computer accounts ③ Use QuickPrep Use QuickPrep Power-off script name: Power-off script parameters: Example: p1 p2 p3 Post-synchronization script name: Post-synchronization script parameters: Example: p1 p2 p3 Use a customization (Sysprep) Show all customization specifications ④ Name Guest OS Description <l< th=""><th>Setting</th><th>AD container:</th><th>CN=Computers</th><th>Browse</th><th></th><th></th></l<>	Setting	AD container:	CN=Computers	Browse		
Provisioning Settings View Composer Disks Storage Optimization vCenter Settings Advanced Storage Options Guest Customization Ready to Complete Post-synchronization script name: Post-synchronization script parameters: Example: p1 p2 p3 OUse a customization script parameters: Example: p1 p2 p3 OUse a customization script parameters: Example: p1 p2 p3 OUse a customization script parameters: Example: p1 p2 p3 OUse a customization specification (Sysprep) Show all customization specifications Ouse Output Name Guest OS						
View Composer Disks Storage Optimization vCenter Settings Advanced Storage Options Guest Customization Ready to Complete Post-synchronization script name: Post-synchronization script parameters: Example: p1 p2 p3 OUse a customization script parameters: Example: p1 p2 p3 OUse a customization script parameters: Example: p1 p2 p3 OUse a customization specification (Sysprep) Show all customization specifications @ Name Guest OS		Allow reuse of pre-existing) computer accounts 🛛 🕑			
Storage Optimization Power-off script name: ③ vCenter Settings Advanced Storage Options Power-off script parameters: Example: p1 p2 p3 Guest Customization Post-synchronization script name: ③ Post-synchronization script parameters: Example: p1 p2 p3 Output ● Use a customization specification (Sysprep) Show all customization specifications ④ Name Guest OS Description		O Use QuickPrep				
vCenter Settings Advanced Storage Options Guest Customization Power-off script parameters: Example: p1 p2 p3 Ready to Complete Post-synchronization script name: 0 Post-synchronization script parameters: Example: p1 p2 p3 OUSe a customization specification (Sysprep) Show all customization specifications 0 Name Guest OS Description	contraction of the second second second second second					
Advanced Storage Options Power-off script parameters: Example: p1 p2 p3 Guest Customization Post-synchronization script name: Image: Customization script parameters: Image: Customization script paramet		Power-off script name:				
Guest Customization Post-synchronization script name: ③ Ready to Complete Post-synchronization script parameters: Example: p1 p2 p3 • Use a customization specification (Sysprep) Show all customization specifications ③ Name Guest OS Description		Power-off script parameter	rs:		Example: p1 p2 p3	
Ready to Complete Post-synchronization script parameters: Example: p1 p2 p3 Use a customization specification (Sysprep) Show all customization specifications () Name Guest OS Description 						
 Use a customization specification (Sysprep) Show all customization specifications (2) Name Guest OS Description 	Ready to Complete	Post-synchronization scrip	t name:			
 Use a customization specification (Sysprep) Show all customization specifications (2) Name Guest OS Description 		Post-synchronization scrip	t parameters:		Example: p1 p2 p3	
Show all customization specifications ③ Name Guest OS Description						
Name Guest OS Description		 Use a customization specification 	fication (Sysprep)			
Name Guest OS Description		Show all customization	specifications			
			specificacions (j)			
vmware-win7-template Windows		Name	Guest OS	1	Description	
		vmware-win7-template	Windows			
< Back Next > Cancel				< Back	Next > Cancel	

13. Click Next.

14. Verify settings, and click Finish. The virtual machine pool is now created.

Atlantis ILIO Installation and Configuration

A preconfigured Atlantis ILIO installation for deployment on the Cisco UCS E-Series server is being developed and will be available soon.

To install and configure Atlantis ILIO, follow these steps:

- 1. Import the Atlantis ILIO Persistent VDI v3.2 Open Virtualization Format (OVF).
- 2. Configure the Atlantis ILIO virtual machine with these configuration settings:

Storage utilized for Atlantis ILIO appliance (first virtual disk)	5 GB
Storage allocated by Atlantis ILIO for the desktops (second virtual disk)	All available storage from local disks (3 x 900-GB SAS disk in RAID 5) (See the Cisco UCS E-Series data sheet for available SAS drive configurations.)
Memory allocated for the appliance	10 GB
vCPUs allocated	2 vCPUs, with reservation of 1 vCPU

- Power on the Atlantis ILIO virtual machine and log in on the console (username: poweruser, password: poweruser).
- 4. Use the in-console setup wizard to set up networking, host name, time zone, etc.
 - a. Use DHCP or static for the first interface.
 - b. Enter the host name for this virtual machine.
 - c. Enter the correct time zone.
 - d. Configure keymap. (Select Don't touch keymap unless you know what you are doing.)
 - e. Before you click Next, press **CtrI-C**. The advanced configuration file for Atlantis ILIO opens. Use the editor to change **VMDATA_CACHE_ON**: **True** to **VMDATA_CACHE_ON**: **False**. Press **CtrI-X** to save the file to /etc/ilio/config.yml. Select **yes** to overwrite.
 - f. Continue with the configuration wizard. Select **Persistent** as the deployment option, **Local Disk** as the Storage Type, and **/dev/sdb** as the data disk.

You might get a message that says that the resources might not be sufficient. Ignore the message and continue the setup.

- 5. Select **NFS** as the data store type to mount to ESXi.
- 6. Create a data store in vSphere on the Cisco UCS E-Series server using the IP address information from step 4a. The mount path is /exports/ILIO_VirtualDesktops.
- 7. Use your standard virtual desktop provisioning tools to provision virtual desktops in the Atlantis ILIO data store.

Atlantis ILIO Test Results

lometer

lometer is an I/O subsystem measurement and characterization tool for single and clustered systems. Iometer was developed by the Intel Corporation and announced at the Intel Developers Forum (IDF) on February 17, 1998. Since then it has been widely adopted within the industry.

Meanwhile, Intel has discontinued work on lometer, and it was given to the Open Source Development Lab (OSDL). In November 2001, a project was registered at SourceForge.net, and an initial drop was provided. In February 2003, the project was relaunched and is driven by an international group of individuals who are continuously improving, porting, and extending the product. Table 3 lists lometer test specifications, and Figure 6 shows an lometer test on Atlantis ILIO.

Iometer VDI Workload	
Transfer size	4 K
Write-read ratio	80:20
Random-sequential ratio	80:20
Size of the test disk	10 GB
Number of outstanding IOs	64

Figure 6. Iometer Test on Atlantis ILIO

lo Iometer				
			?	
Topology All Managers I I SRIDMET1	Disk Targets Network Targets According to the progress bar of your choice.		s Display Test Setup) odate Frequency (seconds) 2 3 4 5 10 15	 30 45 60 oo
	Total I/Os per Second	All Managers	20618.30	60000
	Total MBs per Second	All Managers	80.54	100
	Average I/O Response Time (ms)	All Managers	2.7722	10
	Maximum I/O Response Time (ms)	All Managers	15.8425	100
	% CPU Utilization (total)	All Managers	68.29 %	100 %
	Total Error Count	All Managers	0	10 >

Login VSI

Overall desktop performance was determined by using Login VSI 3.6 with the medium no-flash workload to measure response times. The Login VSI medium workload includes Word, Outlook, Excel, PowerPoint, Internet Explorer, BullZip PDF Printer, and 7-Zip. When you use the Login VSI Pro product, you can choose to test VDI deployments with a various preconfigured workloads or a custom workload.

Atlantis Computing considers Login VSI medium to be a lighter workload with fewer IOPS per desktop than a typical production VDI environment. Therefore, Atlantis Computing recommends that you create a custom workload that closely emulates the production VDI environment with the actual image that will be used in the VDI deployment.

Summary of the Login VSI medium workload:

- Use Outlook to browse 10 messages.
- Use Internet Explorer and leave one instance open (BBC.co.uk), and browse to one instance.
- Browse to Wired.com and Lonelyplanet.com.
- Use one instance of Word to measure response time and one instance to review and edit a document.
- Use BullZip PDF Printer and Acrobat Reader to print the Word document to PDF.
- Use Excel to open a very large randomized sheet.
- Use PowerPoint to review and edit a presentation.
- Use the command-line version of 7-Zip to compress the output of the session.

For more information, visit: http://www.LoginVSI.com/workloads.

Login VSI Test Configuration

In this test, Login VSI 3.6 Dynamic with a 30-second logon interval was used to establish the maximum density. Login VSI Dynamic works by taking a baseline of the first 15 Login VSI sessions (1858 milliseconds in our test). Then it uses a calculation to determine when the dynamic response time threshold is reached, which represents the maximum density that the server can support with acceptable user experience. (In this test, VSImax was not reached, which indicates that the system was not yet CPU or storage starved.)

At the point where the response time hits 4000 ms, Login VSI determines that you have reached the Login VSImax, or the maximum number of desktops that can be supported by on that particular server.

Test Parameter Configuration

The Microsoft Windows Base Template that is used for the testing has these characteristics:

os	Windows 7
Format of the virtual machine	VMware ESX-based virtual machine
Virtual hard disk size	70 GB thick provisioned, used space 33.59 GB
RAM used	1024 MB
CPUs	1 vCPU

The Atlantis ILIO Virtual Appliance uses these host resources:

Storage utilized for Atlantis ILIO appliance	5 GB	
Storage allocated by Atlantis ILIO for the desktops	60 GB (accommodates 35 Windows 7 VMs)	
Memory allocated for the appliance	10 GB	
CPU allocated	2 vCPU (1.999 GHz)	

Test Results

The blue line in Figure 7 shows the average response time across all of the virtual desktops. The tested configuration supported 35 virtual desktops without reaching the VSImax score. The response time performance was well under the threshold of 4000 ms, with an average of less than 2000 ms for the entire test run. Therefore, the maximum density for the tested architecture is more than 35 desktops when more memory is available.

The user experience stayed very consistent, even when the session density increased.

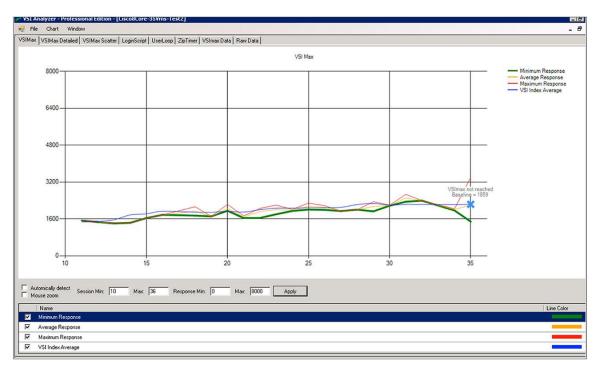


Figure 7. Application Response Times of Virtual Desktops

Additionally, boot-time testing of a single virtual desktop showed a consistent boot time from shutdown to login prompt between 15 and 20 seconds, which is faster than that of most physical PCs.

Conclusion

The Cisco Office-in-a-Box solution with VMware Horizon View delivers a branch-office desktop solution that saves OpEx, TCO, and space and delivers an excellent user experience. By converging all IT services in a single box, the small office or retail store also saves on energy consumption and becomes simpler to manage.

For More Information

Read more about Cisco Office-in-a-Box and the Cisco UCS E-Series server at <u>http://www.cisco.com/go/ucse</u>, or contact your local representative.



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