



HBI1812TE

What's New in vSphere, and How to Upgrade to the Latest Version

David Stamen & Kev Johnson

#vmworld #HBI1812TE

Make
your
mark

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Speaker Introductions

Who are we?



David Stamen is a Technical Marketing Architect and VCIX6.5-DCV working for VMware in the Cloud Platform Business Unit. In his role, he previously covered vSphere Lifecycle and is now focused on Project Pacific

David can be found blogging at
<http://blogs.vmware.com/vsphere>
<http://davidstamen.com>
Twitter: @davidstamen



Kev is a Technical Marketing Architect at VMware, holding VCP-DCV, NV & CMA. He is also VCIX 6.5 DCV, and a 4 time vExpert.

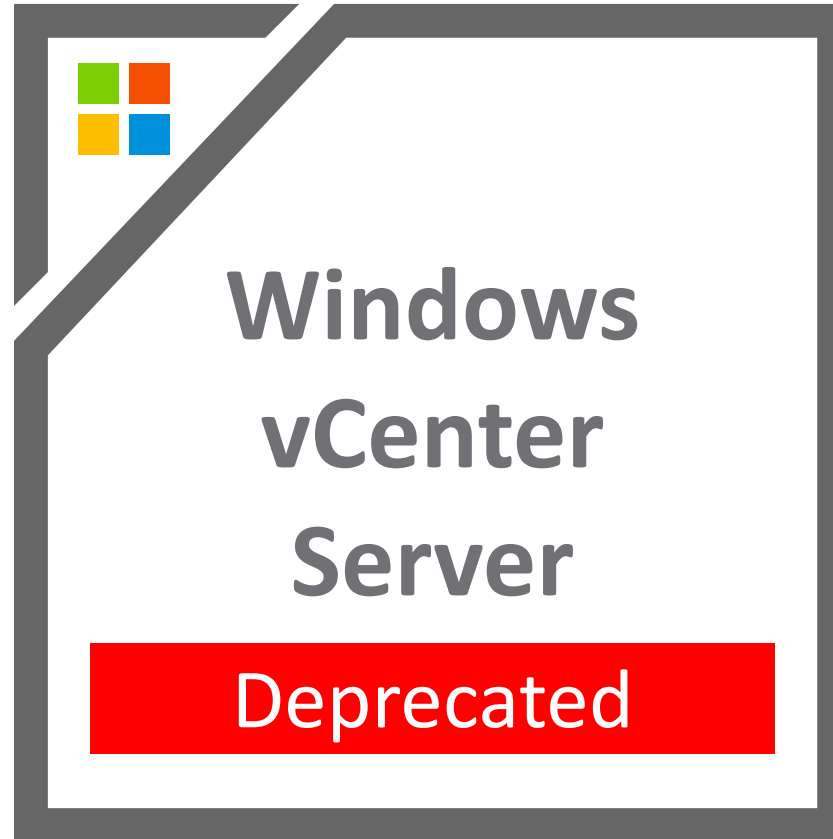
In his role, he covers vSphere with a focus on Lifecycle, Guest OS operations and VMware Tools.

He co-hosts the OpenTechCast podcast, blogs at <https://v-it.pro> and tweets as @kev_johnson (sometimes even about tech!)

vSphere News

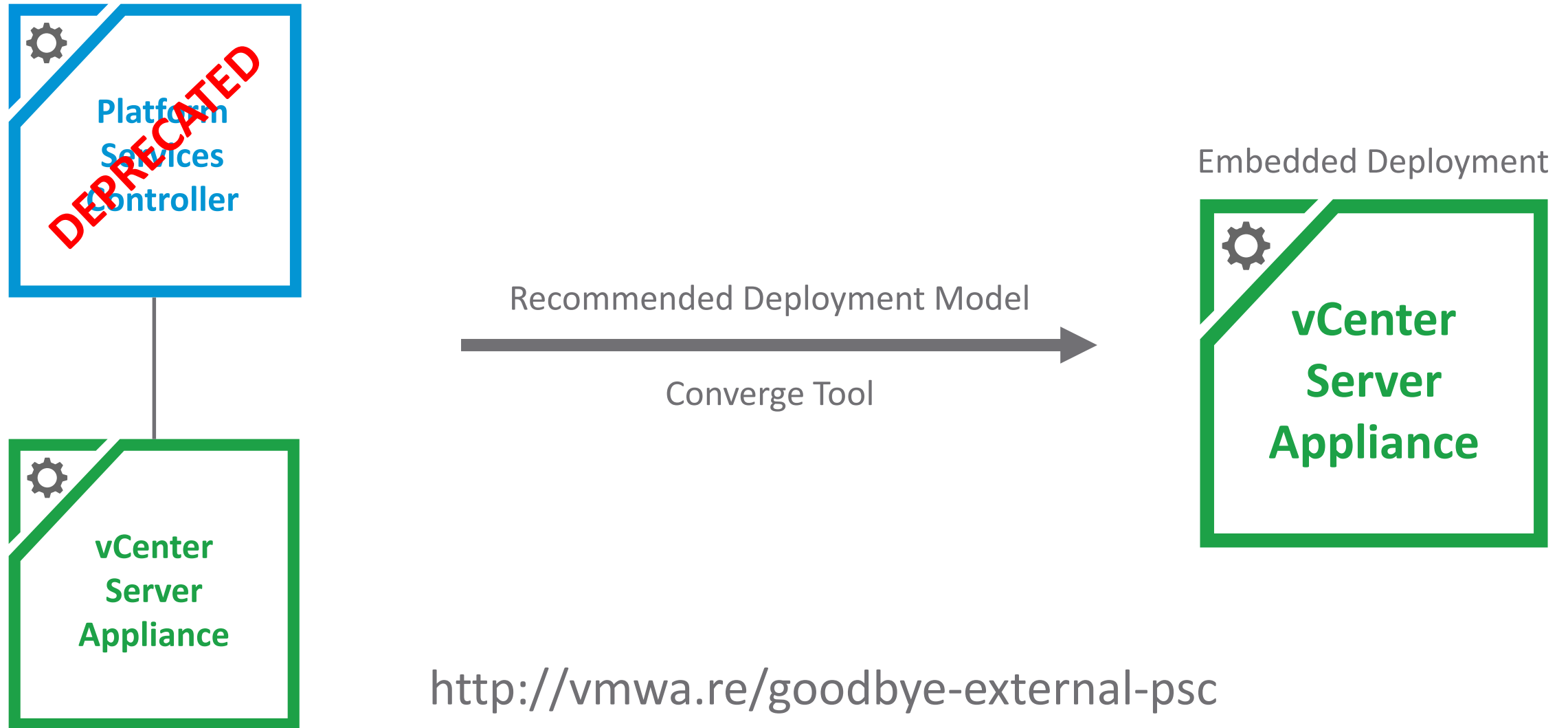


Windows vCenter Server

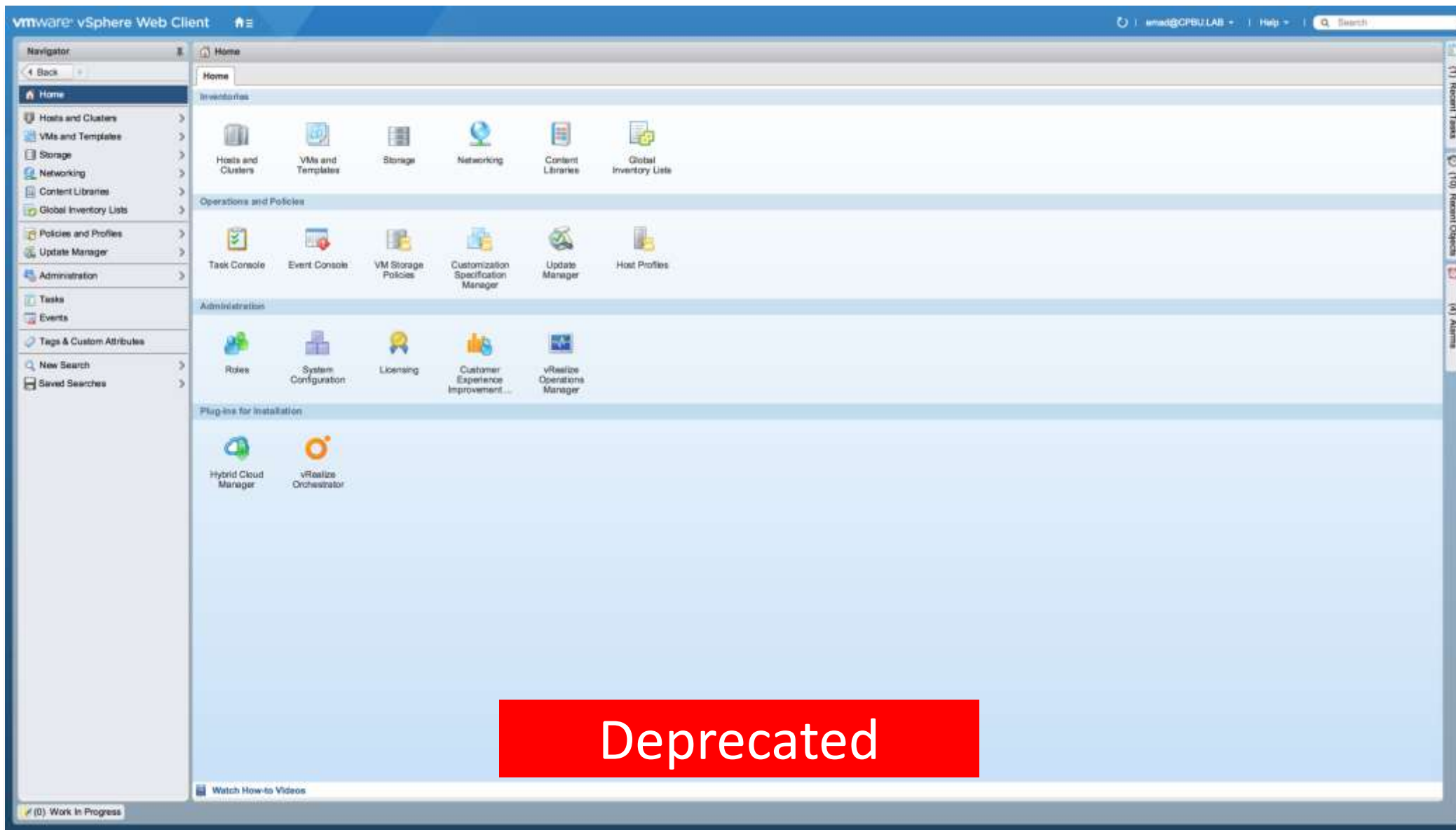


<http://vmwa.re/goodbyewinvc>

External PSC Deprecation



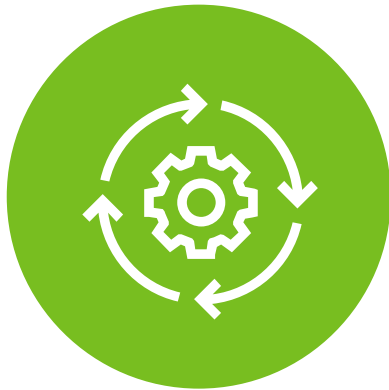
<http://vmwa.re/goodbye-external-psc>



Deprecated

Introducing vSphere 6.7

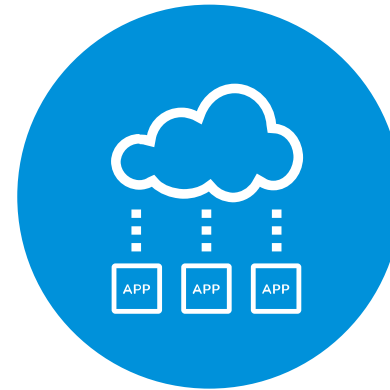
Efficient and Secure Platform for your Hybrid Cloud



Simple
management at
scale



Comprehensive
built-in security



Universal
application
platform



Seamless hybrid
cloud experience

What's New in vSphere 6.7 Update 1

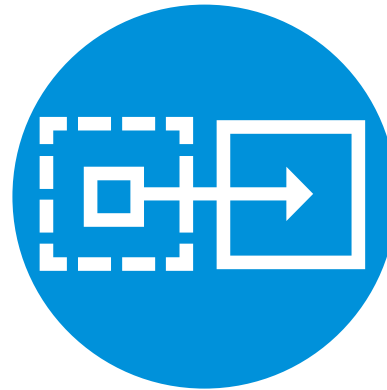
New Capabilities, Improved Experience, Bug Fixes



Fully Featured
HTML5-Based
vSphere Client



vMotion for
NVIDIA GRID
vGPU VMs;
Support for Intel
FPGA



vCenter Server
Converge Tool



Enhancements
for HCI and vSAN



Enhanced
Content Library

What's New in vCenter Server 6.7 Update 2



vCenter Server
Architecture



File-Based
Backup & Restore



vSphere Health



Content Library



vSphere Client

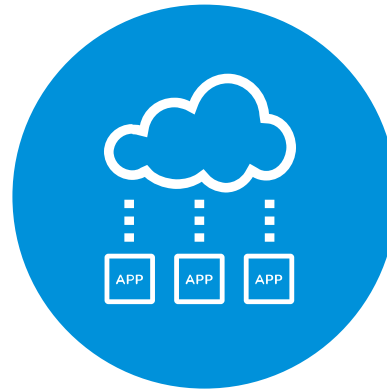
What's New in vSphere 6.7 Update 3



Support for
Multiple vGPUs



PNID Change
Capability



DDNS support

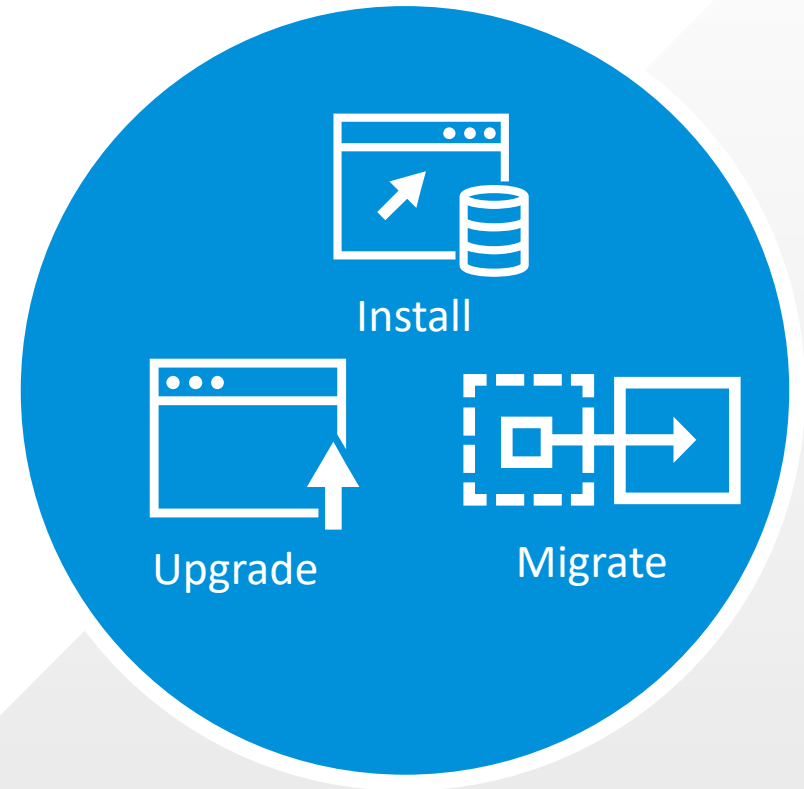


Driver
Enhancements



vSAN
Performance
Enhancements

vCenter Server Appliance Lifecycle



vCenter Server Appliance Overview

Quick provisioning

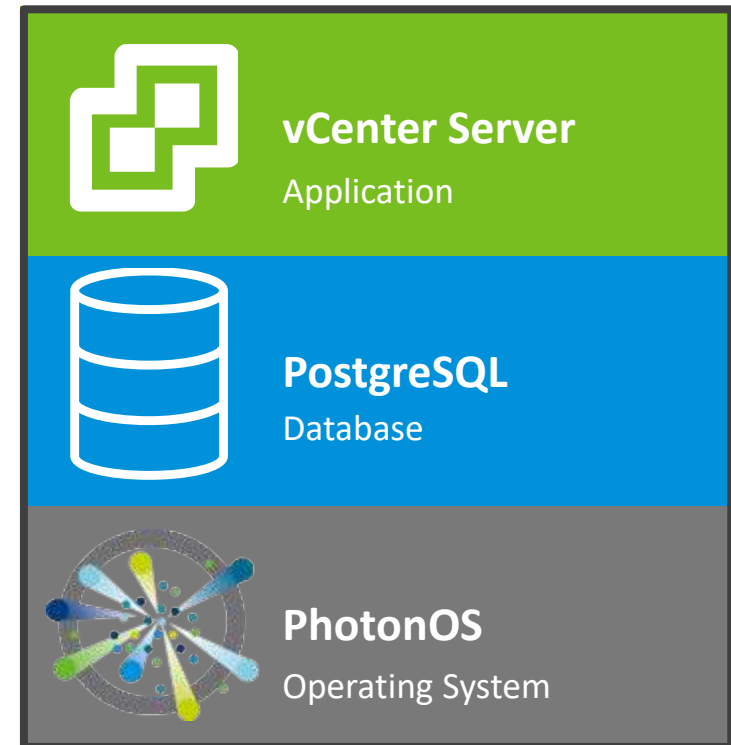
No operating system / database licenses

Unified patching / updating

Single point of support

Pre-tuned database

virtual machine



Installation

vm - Stage 1: Deploy appliance English



- Updated Clarity UI
- Removal of SSO "Site" for embedded deployments
- Embedded Linked Mode support
- Batch CLI available



Content Library

- Deploy from, Clone to, and Sync OVF and OVA templates
- Guest customization
- Support for native OVA and VMTX
 - Deploy from
 - Clone to
- ISO mounting support
- Store other files such as scripts

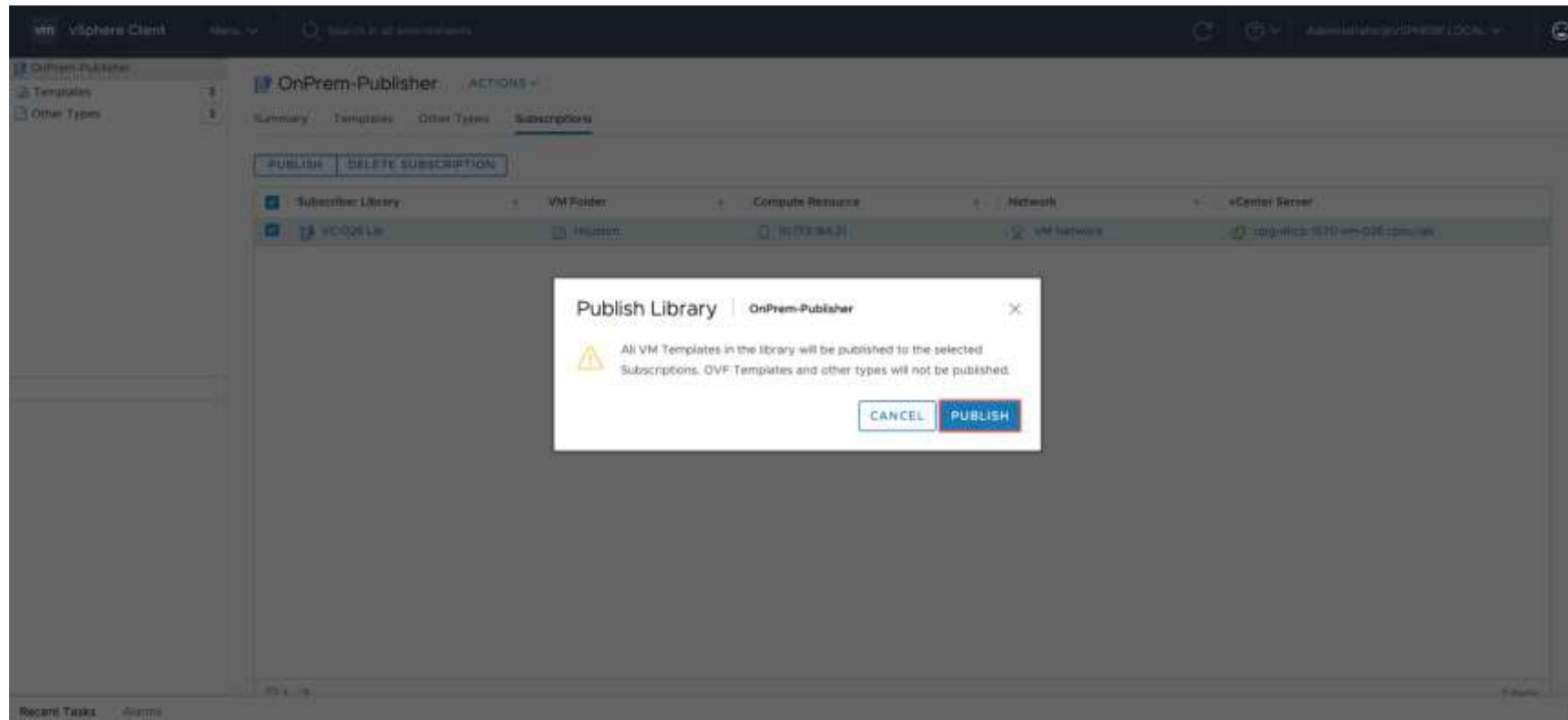
The screenshot shows the vSphere Client interface for 'Emad's Content Library'. The 'Templates' tab is active, displaying a table of templates:

Name	Type	Stored Locally	Guest OS	Size	Content Library
Nested_ESXi6.7_Applianc...	OVF Template	Yes	VMware ESXi 6.5 or ...	496.05 MB	Emad's Content Library
PhotonOS	VM Template	Yes	VMware Photon OS ...	16 GB	Emad's Content Library
WIN2016	VM Template	Yes	Microsoft Windows ...	40 GB	Emad's Content Library

Below the table, a wizard titled 'PhotonOS - Clone Virtual Machine To Template' is shown. The 'Basic information' step is active, with a dropdown menu for 'Template type' set to 'VM Template'. Other fields include 'Name' and 'Notes'.

Content Library

Template Distribution (Syncing)



Syncing of VM Templates (VMTX)

- vSphere
 - On-Prem to On-Prem
- VMware Cloud on AWS
 - On-Prem vSphere to VMC on AWS

Requirements:

- Enhanced Linked Mode
- Hybrid Linked Mode

vSphere Health

New Health Categories

Notifications & Alarms

- New Issues Detected Alarm
- Customizable Alarms

Health Categories

- Online Availability
- Compute
- Network
- Storage

The screenshot displays the vSphere Client interface for a specific environment. The main content area is titled "Health (Last checked: Mar 20, 2019, 1:10:29 PM)" and includes a "RETEST" button. The health checks are organized into several categories:

- Online Health Availability:** Shows a green status icon.
- Compute Health Checks:** Includes two items with yellow warning icons: "Concurrent-context attack vector vulnerability in Intel processors" and "Sequential-context attack vector vulnerability in Intel processors".
- Network Health Checks:** Includes three items with green status icons: "ESXi 6.5 or 6.7 host with IPv6 disabled", "vMotion network configuration check for vSphere Distributed Switch", and "vMotion network configuration check for vSphere Standard Switch".
- Storage Health Checks:** Includes four items with green status icons: "Disk space check for VMware vCenter Server Appliance", "Disk space check for historical data", "ESXi system logs on vSAN datastore", and "ESXi with problematic brcmfcoc or ipfc driver versions".

The left sidebar shows a navigation tree with "New York" and "Houston" clusters, and "Cluster01" selected under "Houston". The top navigation bar includes "Summary", "Monitor", "Configure", "Permissions", "Datacenters", "Hosts & Clusters", "VMs", "Datastores", "Networks", "Linked vCenter Server Systems", "Extensions", and "Updates".

vSphere Health

New Alerting

Notifications / Alarms

- New Issues Detected Alarm

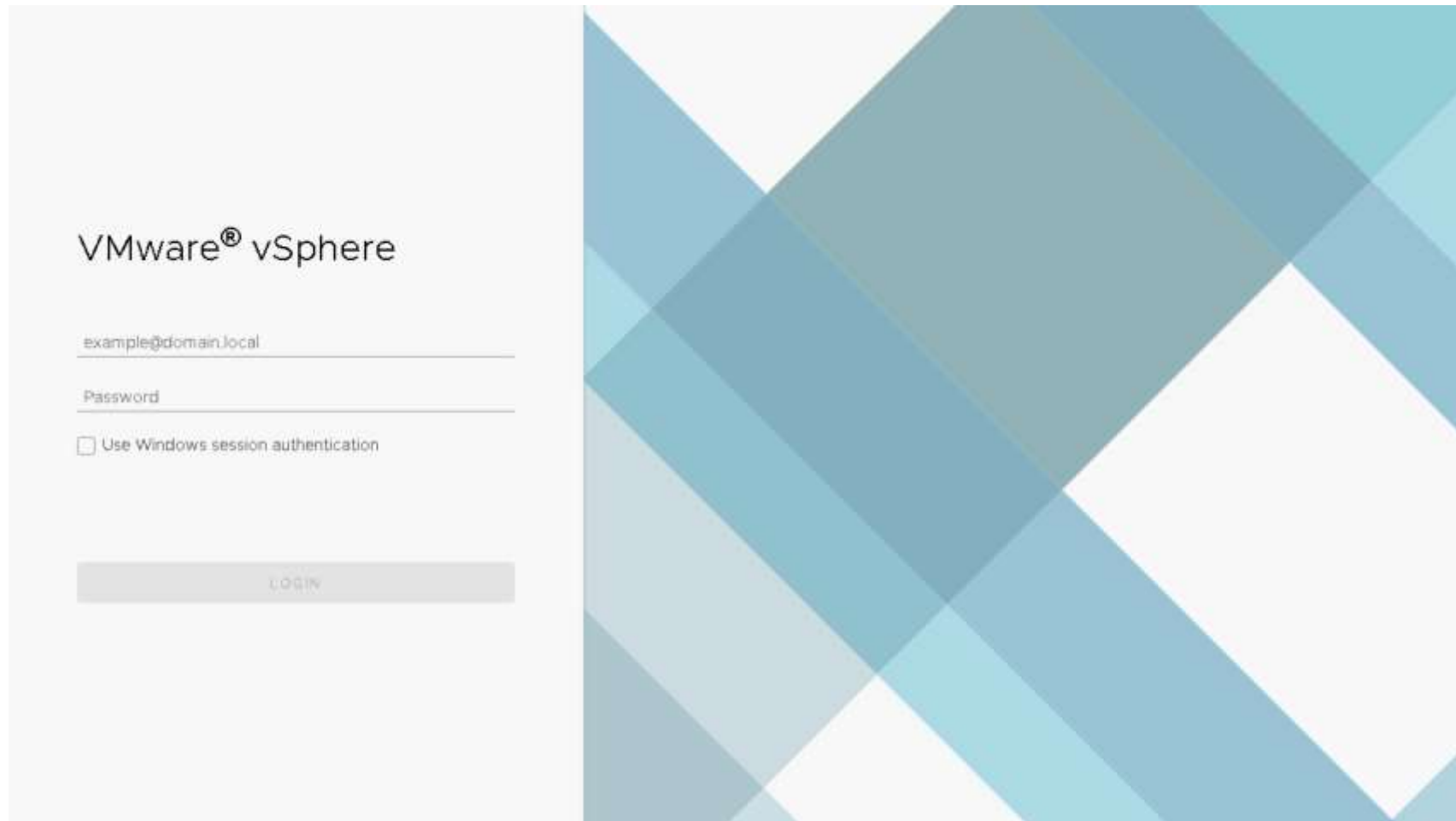
The screenshot displays the vSphere Client interface for a vCenter environment. The left sidebar shows a tree view with two clusters: 'New York' and 'Houston'. The 'New York' cluster is expanded, showing three hosts and several virtual machines. The 'Houston' cluster is also expanded, showing one host and one virtual machine. The main pane shows the details for the virtual machine 'upg-dhcp-1570-vm-026.cpbu.lab'. The 'Summary' tab is active, displaying a green health icon and the following statistics: Virtual Machines: 6, Hosts: 3. On the right, resource usage is shown for CPU (Used: 333 MHz, Capacity: 13.17 GHz, Free: 12.84 GHz), Memory (Used: 10.31 GB, Capacity: 24 GB, Free: 13.68 GB), and Storage (Used: 16 GB, Capacity: 142.99 GB, Free: 126.99 GB). A yellow banner at the top of the main pane displays a warning icon and the message: 'vSphere Health detected new issues in your environment'. Below the banner, there are several dropdown menus for 'Custom Attributes', 'Tags', 'Version Information', 'vCenter HA', and 'Update Manager'. The 'Version Information' dropdown is expanded, showing 'Version: 6.7.0' and 'Build: 12695745'. At the bottom of the banner, there are links for 'Acknowledge' and 'Reset To Green'. The bottom of the interface shows 'Recent Tasks' and 'Alarms' sections.

vCenter Server Appliance Monitoring & Management



Login Screen

New Look



Streamlined Monitoring

vSphere Appliance Monitoring

<https://fqdn or ip of VCSA:5480>

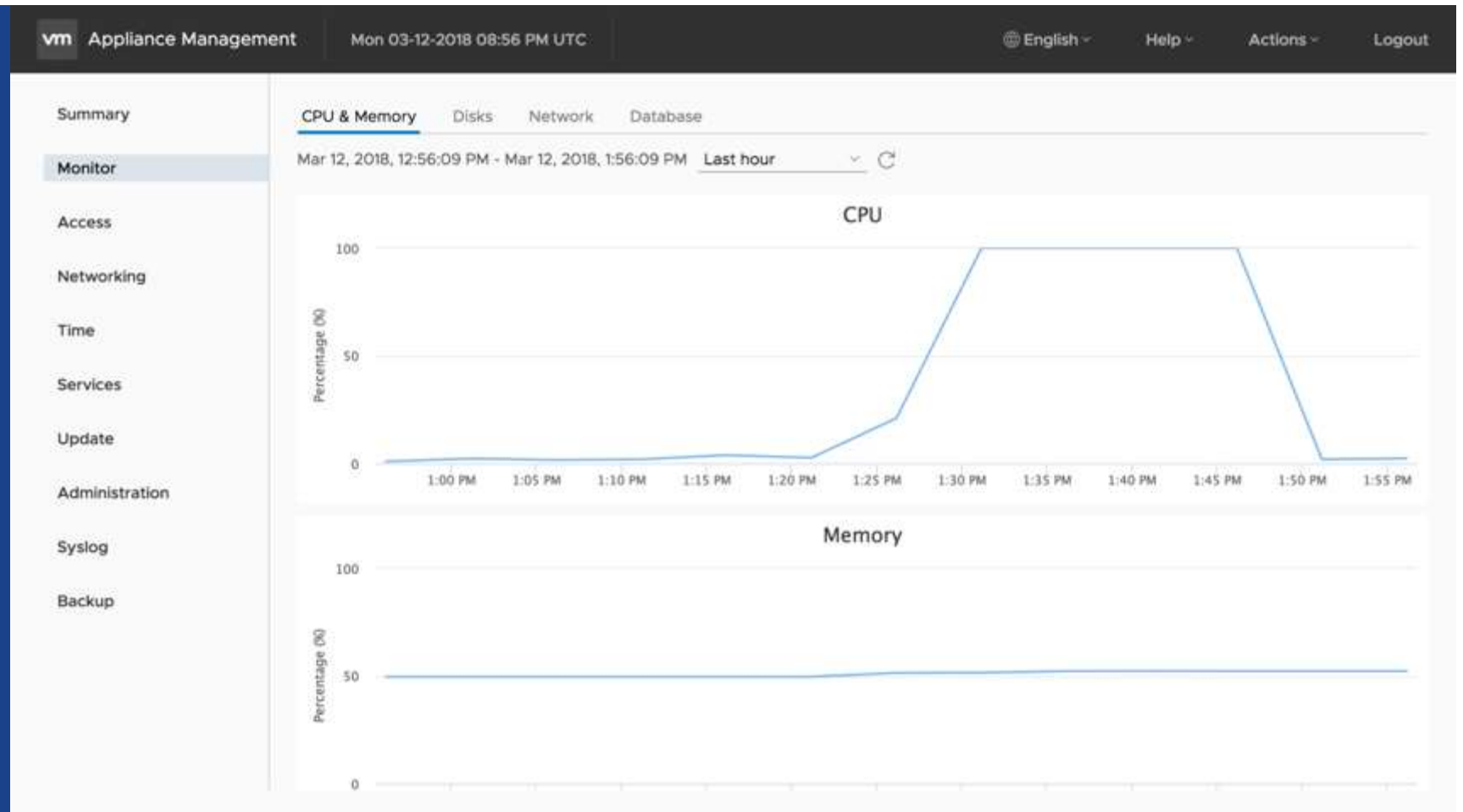
Built in monitoring:

- CPU
- Memory
- Network
- Disks

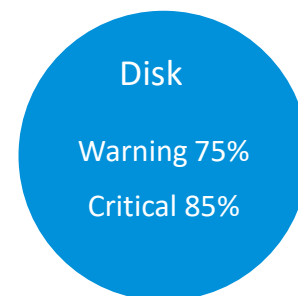
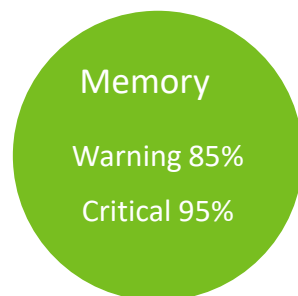
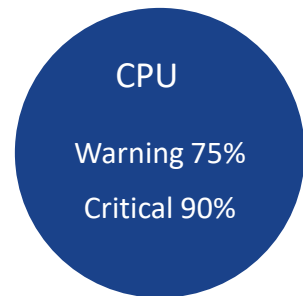
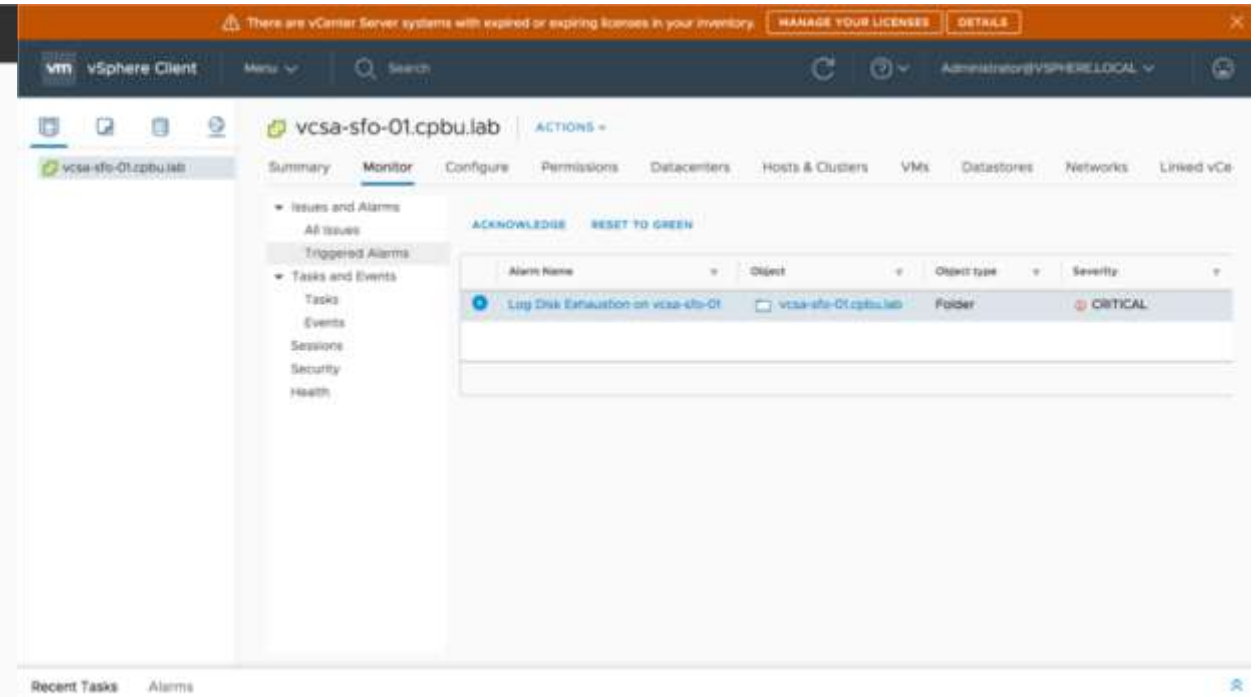
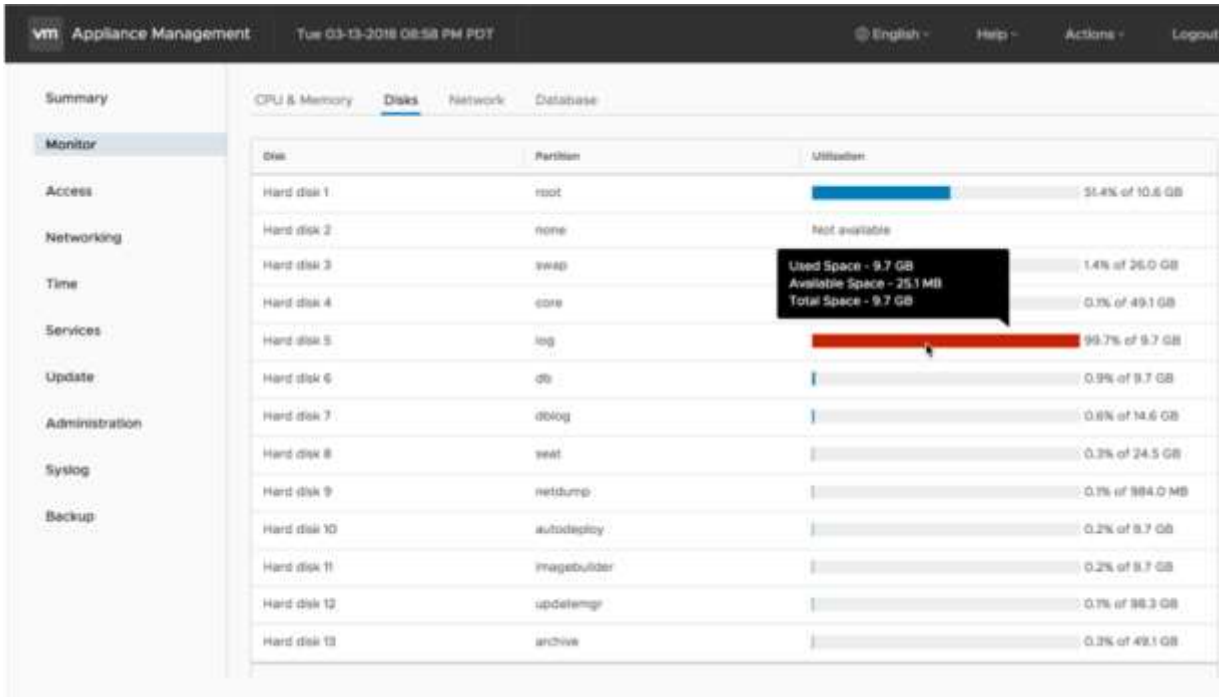
All monitoring under one tab

VCSA Services included

Syslog forwarding now supports up to 3 remote syslog servers



Streamlined Monitoring



Appliance Management Interface

vmware Appliance Management | Sat 06-16-2018 06:43 PM PDT | English | Help | Actions | Logout

Summary | Monitor | Access | Networking | Firewall | Time | Services | Update | Administration | Syslog | Backup

Firewall

ADD

NEW FIREWALL RULE

Network Interface: nic0

IP Address: 192.168.10.5

Subnet Prefix Length: 24

Action: Accept

Accept
Ignore
Reject
Return

Firewall actions

- Accept**: Allow packet with corresponding address.
- Ignore**: Drop packet with corresponding address.
- Reject**: Drop packet with corresponding address while sending destination not reachable.
- Return**: Apply default or port-specific rules to packet with corresponding address.

- Port 5480
- VCSA Firewall
 - Accept
 - Ignore
 - Reject
 - Return
- User Login
 - Root
 - SSO Users

Appliance Management Interface

SSO User Support

The screenshot displays the vSphere Client Administration interface. The top navigation bar includes the VMware logo, 'vSphere Client', a menu, a search bar, and user information. The left sidebar lists various administration tasks, with 'Users and Groups' under 'Single Sign On' selected. The main content area shows the 'Users and Groups' configuration page, specifically the 'Groups' tab. It features a breadcrumb trail for 'ALL GROUPS' and a section for 'Administrators'. Below this is an 'ADD MEMBERS' button and a table listing existing administrators.

Member Name	Domain
Administrator	vsphere.local
vSphere Admins	cpbu.lab

1 - 2 of 2 items

Streamlined Monitoring

vSphere Appliance Monitoring

<https://fqdn or ip of VCSA:5480>

Built in monitoring:

- CPU
- Memory
- Network
- Disks

All monitoring under one tab

VCSA **Services** included

Syslog forwarding now supports up to 3 remote syslog servers

vm Appliance Management Mon 03-12-2018 08:46 PM UTC English Help Actions Logout

Summary
Monitor
Access
Networking
Time
Services
Update
Administration
Syslog
Backup

RESTART START STOP

Name	Startup Type	Health	State
<input type="radio"/> VMware Performance Charts Service	Automatic	Healthy	Started
<input type="radio"/> VMware PSC Health	Automatic	Healthy	Started
<input type="radio"/> VMware Postgres	Automatic	Healthy	Started
<input type="radio"/> Appliance Management Service	Automatic	Healthy	Started
<input type="radio"/> VMware HTTP Reverse Proxy	Automatic	Healthy	Started
<input type="radio"/> vSAN health Service	Automatic	Healthy	Started
<input checked="" type="radio"/> VMware vSphere Web Client	Automatic	Healthy	Started
<input type="radio"/> ImageBuilder Service	Manual		Stopped
<input type="radio"/> License Service	Automatic	Healthy	Started
<input type="radio"/> VMware vCenter-Services	Automatic	Healthy	Started
<input type="radio"/> Content Library Service	Automatic	Healthy	Started
<input type="radio"/> VMware vSphere Profile-Driven Storage Service	Automatic	Healthy	Started
<input type="radio"/> VMware vSphere ESXi Dump Collector	Manual		Stopped
<input type="radio"/> VMware Analytics Service	Automatic	Healthy	Started
<input type="radio"/> VMware Postgres Archiver	Automatic	Healthy	Started

Syslog

vm Appliance Management | May 03-12-2018 10:51 PM UTC | English | Help | Actions | Logout

Summary | Monitor | Access | Networking | Time | Services | Update | Administration | Syslog | Backup

Forwarding Configuration

Info: In order to setting up the forwarding configuration, remote syslog server(s) must be configured and a network connection must exist between the appliance and syslog server(s) to enable log streaming.

Create Forwarding Configuration

Specify forwarding configuration for remote syslog servers (no more than three).

Server Address	Protocol	Port	
10.158.137.12	TLS	6514	✕
10.158.137.13	TCP	601	✕
10.158.137.14	UDP	514	✕

CANCEL SAVE

Flexible Patching & Update

The screenshot displays the VMware vCenter Appliance Management interface. The top navigation bar includes 'vm Appliance Management', the date 'Tue 10-16-2018 09:12 PM UTC', and user options like 'English', 'Help', 'Actions', and 'Logout'. A left sidebar contains navigation links: Summary, Monitor, Access, Networking, Time, Services, Update (highlighted), Administration, Syslog, and Backup. The main content area is titled 'Current version details' and shows 'Appliance Type: vCenter Server with an embedded Platform Services Controller' and 'Version: 6.7.0.10000'. Below this is the 'Available updates' section, which includes a note: 'Updates and patches are cumulative. The most recent update or patch in the table below will contain all previous patches.' There are two tabs: 'STAGE ONLY' and 'STAGE AND INSTALL'. A table lists available updates with columns for Version, Type, Release Date, Reboot Required, and Severity. The first update is selected, showing a detailed view with a summary, pre-update checks, estimated downtime, priority, services affected (32), and download size (1.94 GB). Below this table, a list of other updates is shown with expandable options.

Version	Type	Release Date	Reboot Required	Severity
6.7.0.11000	Fix	May 21, 2018	No	Critical
6.7.0.12000	Fix	Jun 27, 2018	No	Critical
6.7.0.13000	Fix	Jul 26, 2018	No	Critical
6.7.0.14000	Fix	Aug 13, 2018	No	Critical
6.7.0.20000	Fix	Oct 15, 2018	Yes	Critical

Staging options

- Stage only
- Stage & Install

Selectable Updates

Monthly Patches

Updates Options

- CDROM
- CDROM + URL

File-Based Backup & Restore

Native vCenter Server Appliance Backup

Backup Management

- Scheduled Backup
- Retention option
- Backup activity

Verifies VCSA state

Supports VCSA & PSC appliances - embedded & external deployments

Supported Protocols include:

- HTTP/S
- SCP
- FTP/S

The screenshot displays the vCenter Appliance Management interface. At the top, it shows 'vm Appliance Management' and the date/time 'Mon 03-12-2018 10:41 PM UTC'. There are links for 'English', 'Help', 'Actions', and 'Logout'. A navigation sidebar on the left includes 'Summary', 'Monitor', 'Access', 'Networking', 'Time', 'Services', 'Update', 'Administration', 'Syslog', and 'Backup' (which is selected). The main content area features a warning message: 'Before taking a backup, a backup server must be set up and configured such that the appliance has access to it. The protocols supported for backup are FTPS, HTTPS, SCP, FTP and HTTP.' Below this is the 'Backup Schedule' section, which is 'Enabled'. It lists: 'Schedule: Daily, 10:40 P.M. Etc/UTC', 'Backup Location: ftp://10.159.13.53/backup/aus', 'Backup data: Stats, Events, and Tasks; Inventory and configuration', and 'Number of backups to retain: Retain all backups'. There are 'EDIT', 'DISABLE', and 'DELETE' buttons. The 'Activity' section has a 'BACKUP NOW' button and a table of backup events.

	Backup Location	Type	Status	Data Transferred	Duration	End Time
>	ftp://10.159.13.53/backup/a...	Scheduled	Complete	199.95 MB	00:00:14	Mar 12, 2018, 3:23:18 PM
>	ftp://10.159.13.53/backup/a...	Manual	Complete	199.94 MB	00:00:14	Mar 12, 2018, 3:19:39 PM
>	ftp://10.159.13.53/backup/a...	Scheduled	Complete	199.98 MB	00:00:18	Mar 12, 2018, 3:30:22 PM
>	ftp://10.159.13.53/backup/a...	Scheduled	Complete	200.02 MB	00:00:14	Mar 12, 2018, 3:40:18 PM
>	ftp://10.159.13.53/backup/a...	Manual	Complete	199.97 MB	00:00:16	Mar 12, 2018, 3:16:59 PM

File-Based Backup & Restore

Addition of SMB/NFS

vm Appliance Management Tue 03-19-2019 06:17 AM UTC English Help Actions root

Summary Monitor Access Networking Firewall Time Services Update Administration Syslog **Backup**

Before taking a backup, a backup server must be set up and configured such that the appliance has access to it. The protocols supported for backup are FTPS, HTTPS, SCP, FTP, NFS, SMB and HTTP.

Backup Schedule EDIT DISABLE DELETE

> Status Enabled

Activity BACKUP NOW

	Backup Location	Type	Status	Data Transferred	Duration	End Time
∨	nfs://ds-lin-01.cpbu.lab/nfs/..	Manual	Complete	212.77 MB	00:00:35	Mar 13, 2019, 1:47:48 PM
	Backup Location	nfs://ds-lin-01.cpbu.lab/nfs/vCenter/sri_upg-dhcp-1570-vm-025.cpbu.lab/M_6.7.0.30000_20190313-184713_JVQW45LBNGQEEYLDNN2XA===				
	Backup server user name	vmware				
	Start Time	Mar 13, 2019, 1:47:13 PM				
∨	smb://upg-ds-01.cpbu.lab/..	Manual	Complete	212.79 MB	00:00:17	Mar 13, 2019, 1:49:49 PM
	Backup Location	smb://upg-ds-01.cpbu.lab/vcsa/vCenter/sri_upg-dhcp-1570-vm-025.cpbu.lab/M_6.7.0.30000_20190313-184932_				
	Backup server user name	administrator				
	Start Time	Mar 13, 2019, 1:49:32 PM				
>	smb://upg-ds-01.cpbu.lab/..	Scheduled	Complete	214.99 MB	00:00:24	Mar 14, 2019, 12:00:28 AM
>	smb://upg-ds-01.cpbu.lab/..	Scheduled	Complete	218.58 MB	00:00:27	Mar 15, 2019, 12:00:31 AM

File-Based Backup

New Customizable Alarm

The screenshot displays the vSphere Client interface. The left sidebar shows a tree view with the following structure:

- vm vSphere Client
- upg-dhcp-1570-vm-025.cpbu.lab
- New York
 - Cluster01
 - 10.173.184.19
 - 10.173.184.20
 - 10.173.184.22
 - APP
 - DB
 - Win2012r2-template
 - upg-dhcp-1570-vm-026.cpbu...
 - Cluster01
 - Houston
 - Cluster01

The main content area is titled "Alarm Definitions" and shows a table of alarm configurations. The table has the following columns: Alarm Name, Object type, Defined In, Enabled, and Last modified. The table contains one entry:

Alarm Name	Object type	Defined In	Enabled	Last modified
Backup job status	vCenter Server	This Object	Enabled	03/11/2019, 10:51:03 AM

Below the table, the details for the "Backup job status" alarm are shown:

- Name: Backup job status
- Description: Default alarm to monitor backup job status.
- Targets: vCenter Server
- Alarm Rules: IF Backup job failed THEN trigger the alarm as **critical** OR IF Backup job finished successfully THEN trigger the alarm as **normal**
- Last modified: 03/11/2019, 10:51:03 AM

At the bottom right of the table area, it indicates "274 items".

File-Based Backup & Restore

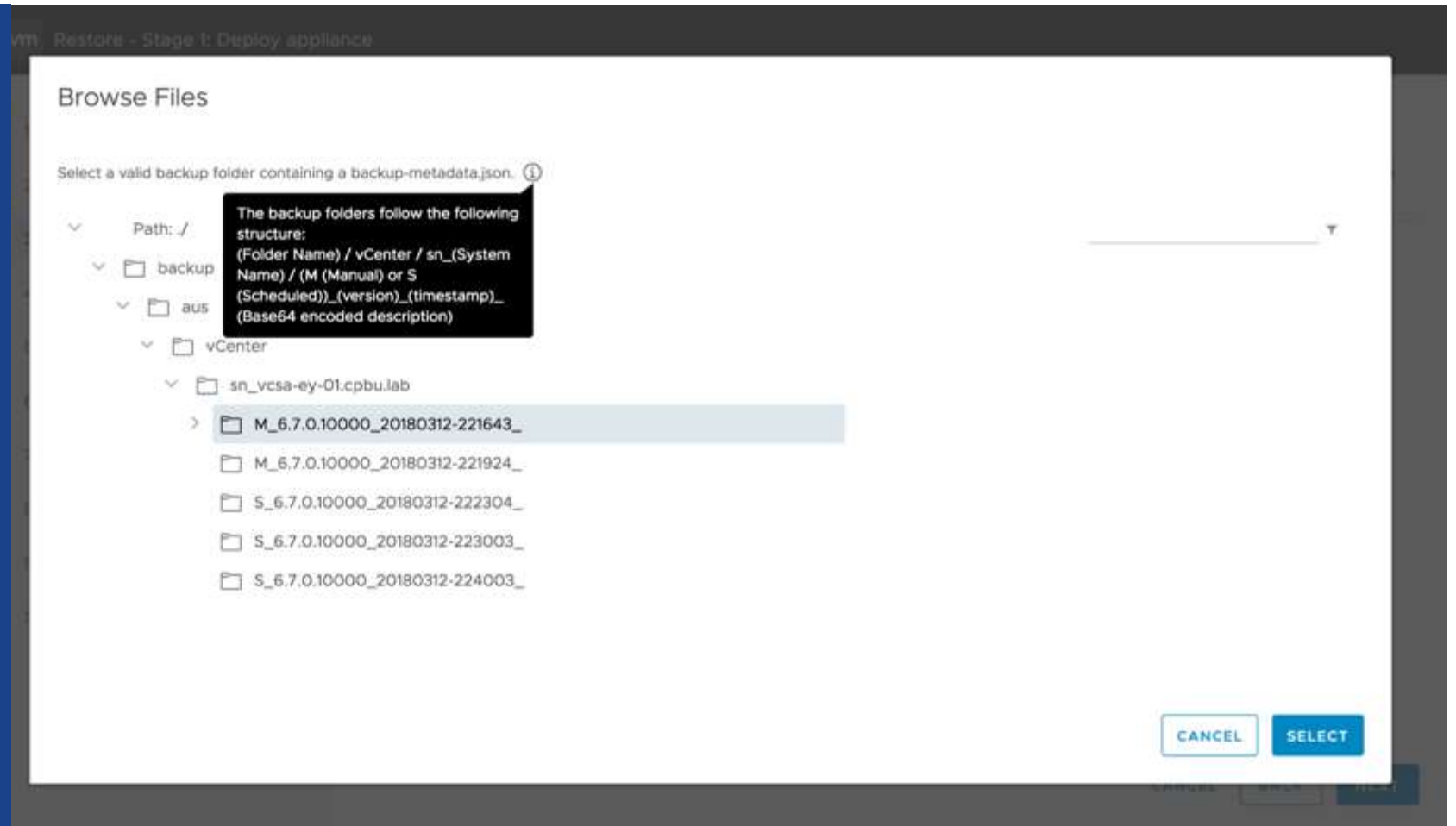
Restore directly from VCSA ISO

Browse Restore Files

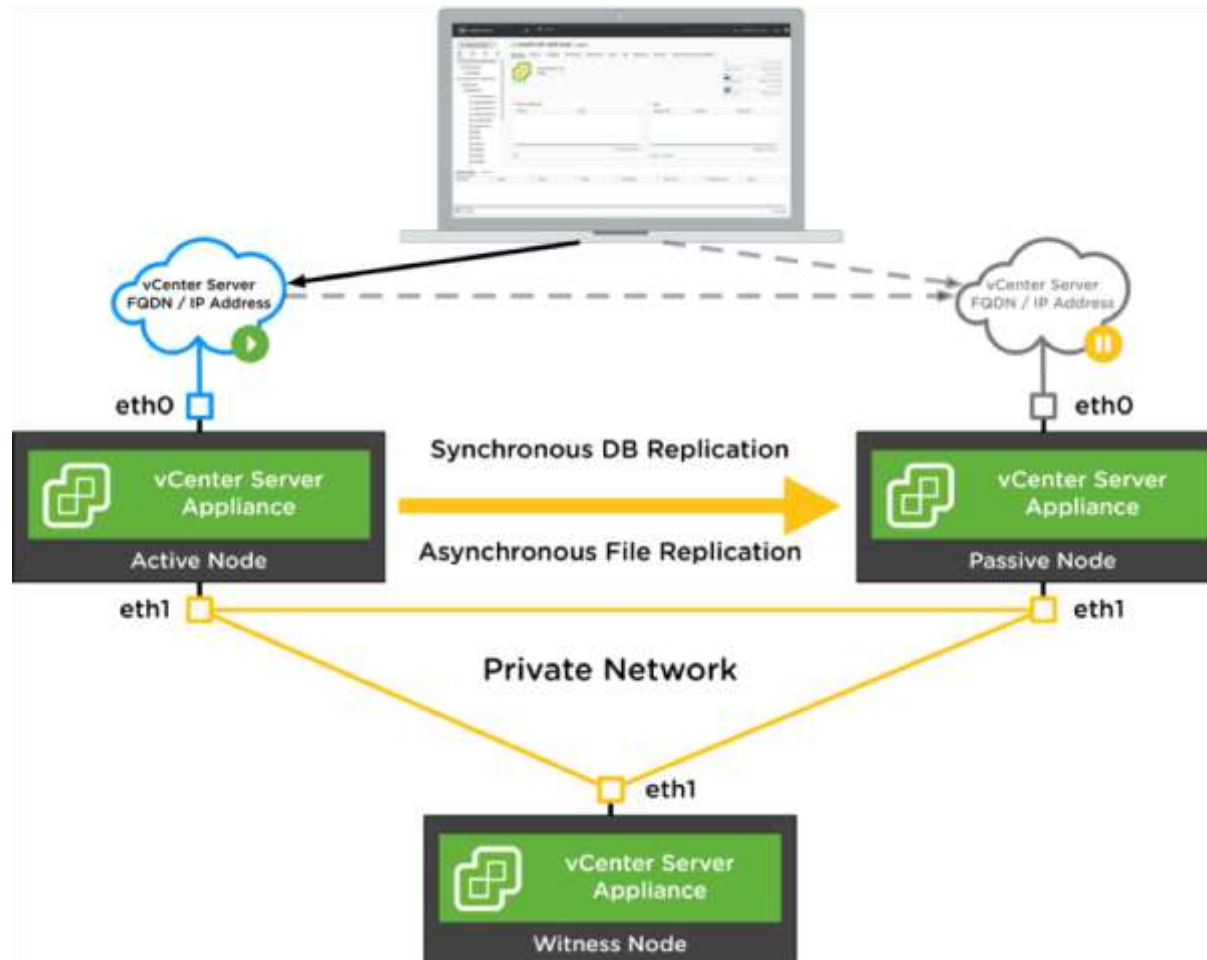
External PSC restore not supported when replication partners are available

Embedded Linked Mode Supported with reconciliation

Retains VCSA identity

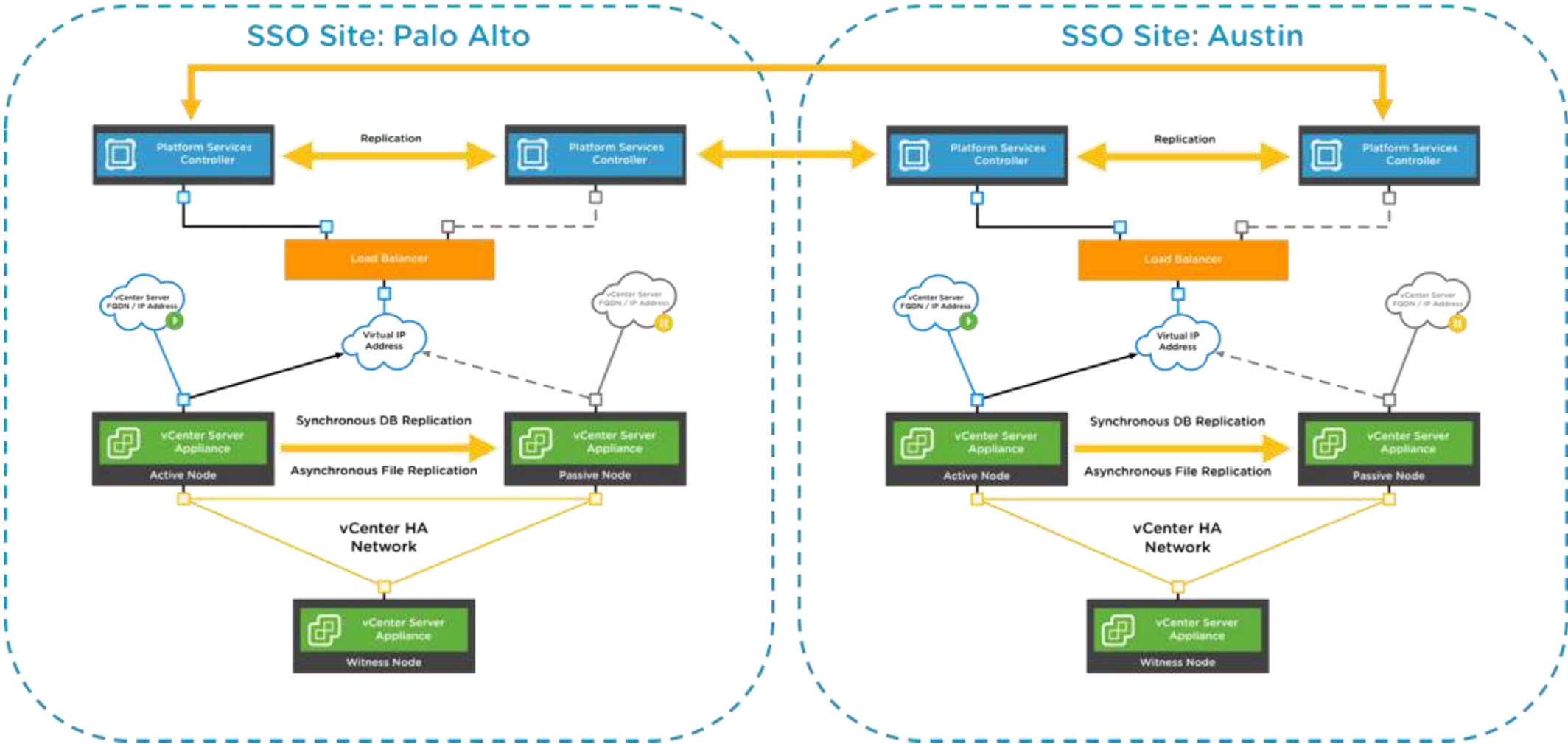


vCenter High Availability



PSC & vCenter Server High Availability

SSO Domain: vsphere.local



vCenter High Availability

- vSphere Client (HTML5) improved workflow
- Auto detects when VCSA is being managed
- REST APIs
- Auto clone creation option for passive and witness nodes
- Monitoring & Alerting

The screenshot shows the vSphere Client interface for configuring vCenter High Availability. The breadcrumb path is "vcsa-vcha-01.cpbu.lab" > "ACTIONS" > "Config...". The left-hand navigation pane is expanded to "vCenter HA". The main content area is titled "Set Up vCenter HA" and shows step "1. Management vCenter server credentials". A message states: "The Active node is currently managed by another vCenter Server. Enter Single Sign-On credentials of the management vCenter Server to proceed." There are two radio button options: "Management vCenter server credentials" (which is selected) and "I do not have Single Sign-On administrator credentials of management vCenter server". The selected option has three input fields: "Management vCenter Server FQDN or IP address" with the value "vcsa-aus-01.cpbu.lab", "Single Sign-On user name" with the value "administrator@vsphere.local", and "Single Sign-On password" with masked characters "*****". A blue "NEXT" button is located at the bottom left of the form.

vCenter High Availability

- vSphere Client (HTML5) improved workflow
- Auto detects when VCSA is being managed
- REST APIs
- Auto clone creation option for passive and witness nodes
- Monitoring & Alerting

The screenshot displays the vCenter HA configuration page in the vSphere Client. The page title is 'vcsa-vcha-01.cpbu.lab' and the mode is 'Enabled, State: Degraded'. There are three alerts:

- vCenter HA cluster has lost a node. Verify if the Passive node with IP address 192.168.10.2 is up and reachable.
- PostgreSQL replication is not in progress. Verify if PostgreSQL server is running on the Passive node and that the Passive node is reachable on the vCenter HA network.
- Appliance configuration is not replicating.

A warning message states: 'Automatic and manual failovers are disabled'.

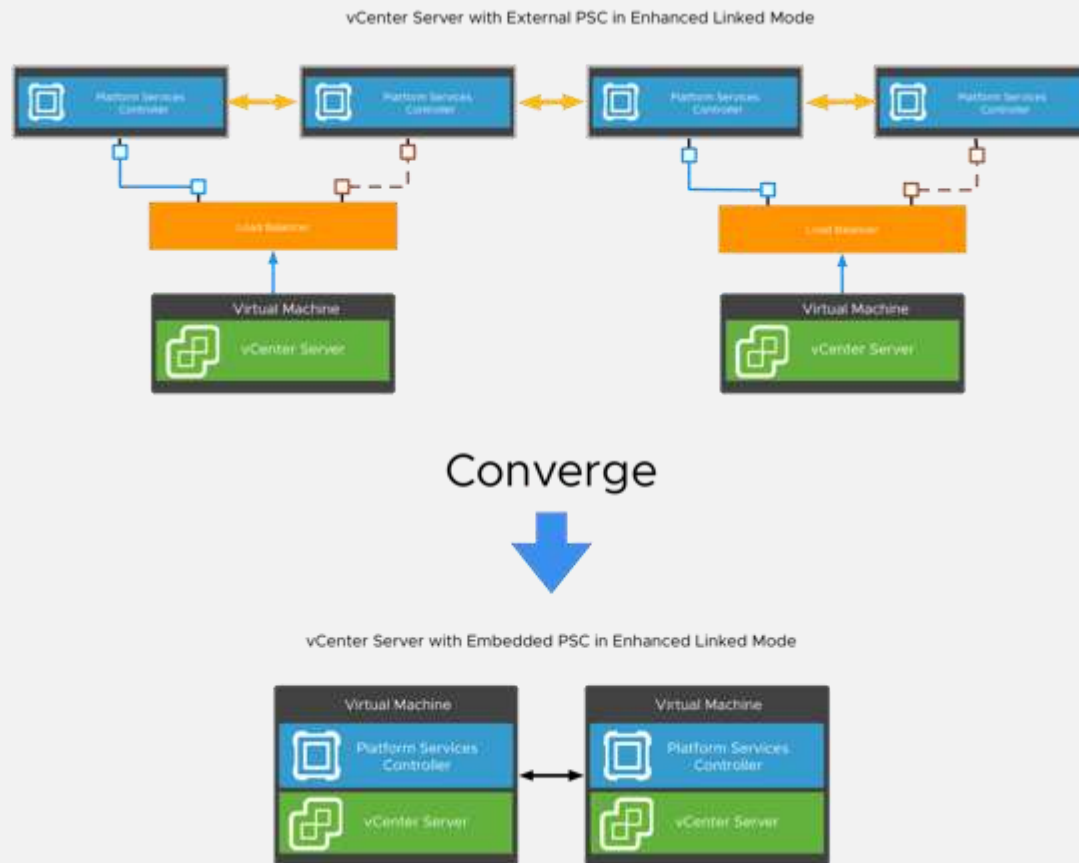
The 'Cluster Nodes' table is as follows:

Node	Status	vCenter HA IP address (NIC 1)	Management IP address (NIC 0)
Active	Up	192.168.10.1	10.158.137.180
Passive	Down | REDEPLOY	192.168.10.2	10.158.137.180
Witness	Up	192.168.10.3	

Below the table, there are sections for 'Active Node Settings' and 'IP Settings' (selected) and 'VM Settings'. The 'vCenter HA Network (NIC 1)' is expanded.

vCenter Server Converge Tool

Available in vSphere 6.7 Update 1 and vSphere 6.5 Update 2d or greater



* Available once all PSC and vCenter Server Components are updated to vSphere 6.7 Update 1 or 6.5 Update 2d

Overview

Converts an External Deployment Architecture to an Embedded Deployment Architecture

Decommission External PSCs

Benefits

Simplified Architecture

Support 15 vCenter Servers connected in ELM

No Load Balancer

VCHA Supported

vSphere Client (HTML5)



vSphere Client (HTML5)

Feature Complete

Improved Search

Auto Deploy

Global View

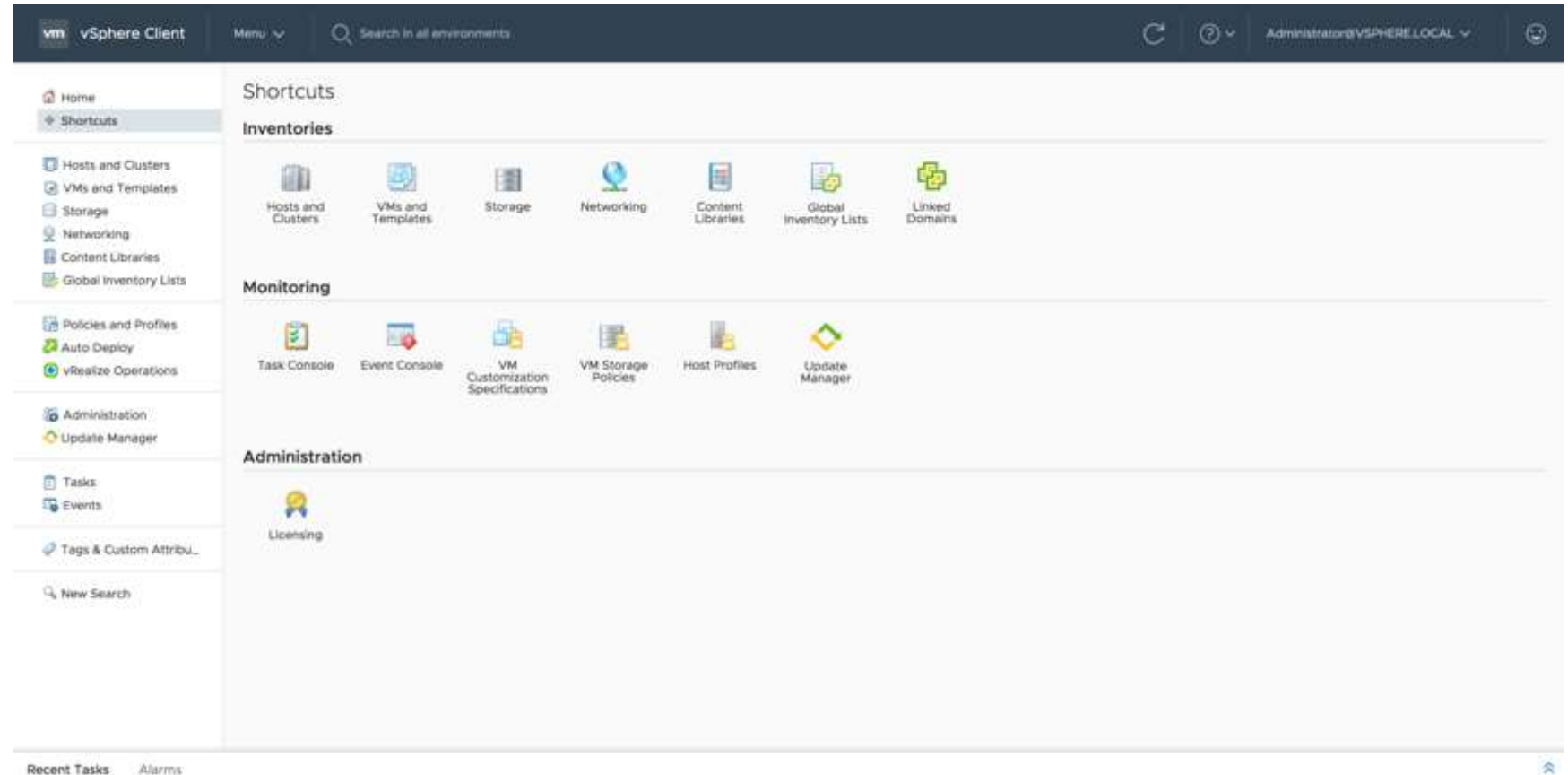
VM Operations

VCHA

Host Profiles

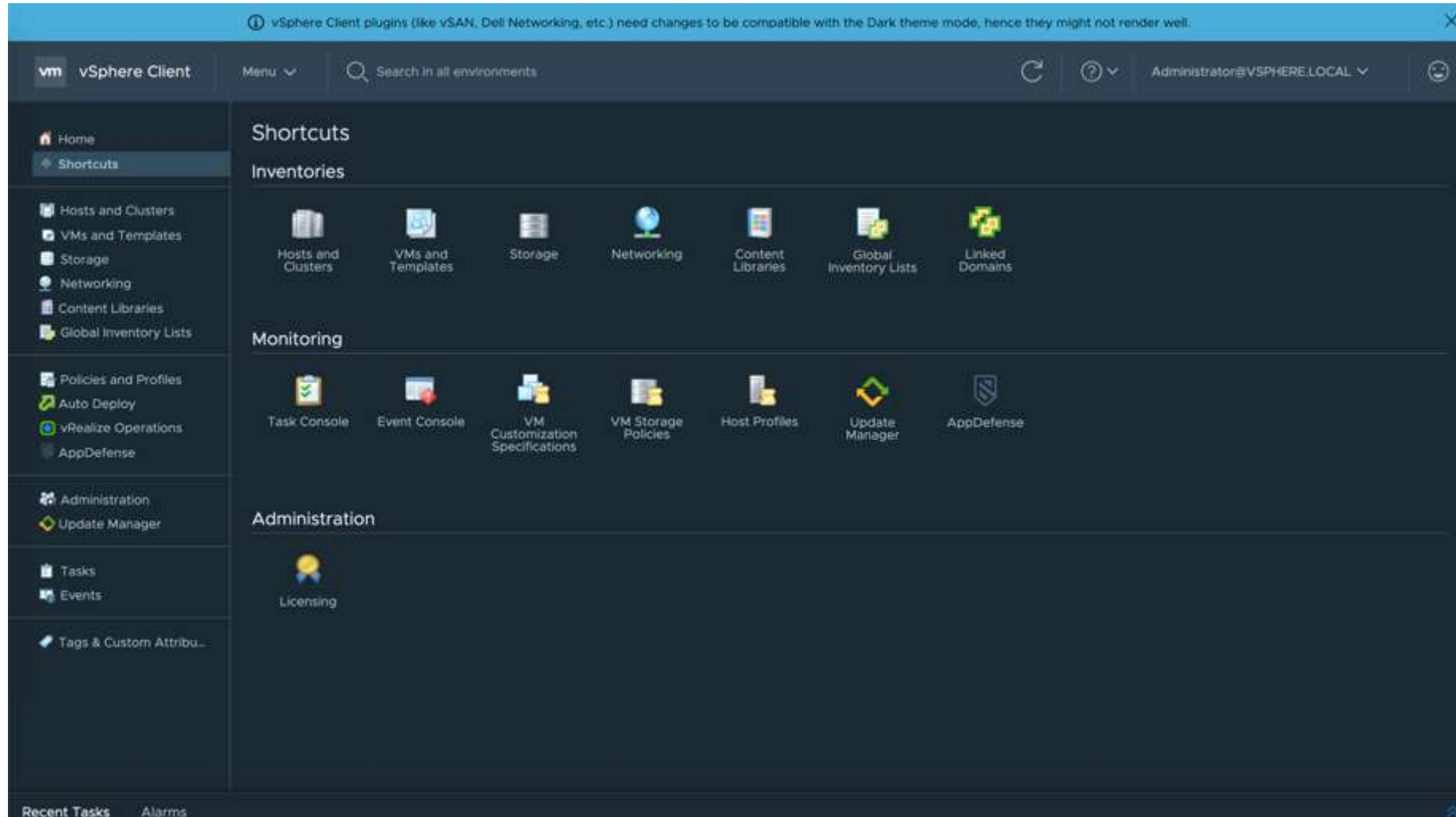
VUM

Networking



vSphere Client (HTML5)

vSphere 6.7 Update 1 – Dark Mode



vSphere Client – Feedback tool

vm vSphere Client

h5-acceptance-ui.eng.vmware.com

Send feedback to vSphere Client Team

Help us improve the vSphere Client with a quick comment. ⓘ

Select a type*

Idea Problem Compliment

Additional details png, jpeg, mp4, total file size 1 MB, 4 MB available

UPLOAD FILES

Description*

What does this mean??

Email address

admin@vmware.com

CANCEL SEND

REMOVE

Turn on comment mode to collaborate on this prototype

Improved Search Experience

The screenshot shows the vSphere Client interface with a search for "test". The search results are displayed in a table with columns for Name, State, Status, Provisioned Space, Used Space, Host CPU, and Host Mem. The results list various virtual machines and their properties. A filter panel on the left allows for refining the search results based on Power state, Guest OS, and Search in.

Search results for: "test"

Name	State	Status	Provisioned Space	Used Space	Host CPU	Host Mem
hm-halski-template-test (disconnected)	Powered Off	? Unknown	4.27 GB	4 MB	0 Hz	0 B
marinovm-test-esx-2 (disconnected)	Powered Off	? Unknown	34.21 GB	16.05 GB	0 Hz	0 B
New Virtual Machine test capture	Powered Off	✓ Normal	4.25 GB	80 MB	0 Hz	0 B
Onyx test vm (disconnected)	Powered Off	? Unknown	4.25 GB	80 MB	0 Hz	0 B
ShettyNikhil_test (disconnected)	Powered Off	? Unknown	1719 GB	16 GB	0 Hz	0 B
Test (inaccessible)	Powered Off	? Unknown			0 Hz	0 B
test	Powered Off	✓ Normal	118 GB	512 MB	0 Hz	0 B
test1 (disconnected)	Powered On	? Unknown	128.16 MB	128.16 MB	0 Hz	0 B
test123 (disconnected)	Powered On	? Unknown	40 MB	2.37 KB	0 Hz	0 B
testVM	Powered Off	✓ Normal	4.21 GB	2.36 KB	0 Hz	0 B
vap:test-app-server	Powered Off	✓ Normal	199.66 MB	16 MB	0 Hz	0 B
vap:test-db-server	Powered Off	✓ Normal	187.66 MB	4 MB	0 Hz	0 B
VM_test	Powered Off	✓ Normal	4.19 GB	12 MB	0 Hz	0 B

Filter

- Power state
 - Powered on
 - Powered off
 - Suspended
- Guest OS
- Search in
 - Any

SAVE SEARCH

Export | 13 items

vCenter Server Architecture

New: Converge UI / Table & Topology Views

System Configuration

- Table View
- Topology View

Converge from VCSA UI

- Converge To Embedded
- Decommission PSC

The screenshot shows the vSphere Client interface for System Configuration. The left sidebar contains a navigation menu with categories like Administration, Licensing, Solutions, Deployment, and Support. The main content area displays a table of nodes with columns for Node, Node health, Type, Version, and Uptime. A 'VIEW AS TOPOLOGY' link is visible in the top right of the table area.

	Node	Node health	Type	Version	Uptime
	psc-ha.vmware.demo	N/A	Load Balancer	N/A	N/A
	vcsa2.vmware.demo	Good	vCenter Server with external PSC	6.7.0.30000	24 minutes
	pscd1.vmware.demo	Good	PSC node	6.7.0.30000	29 minutes
	vcsa1.vmware.demo	Good	vCenter Server with external PSC	6.7.0.30000	23 minutes
	psc2.vmware.demo	Good	PSC node	6.7.0.30000	29 minutes

5 Items

Developer Center

Code Capture

The screenshot shows the vSphere Client interface with the Developer Center Code Capture page. The left sidebar contains navigation options like Home, Shortcuts, Hosts and Clusters, VMs and Templates, Storage, Networking, Content Libraries, Global Inventory Lists, Policies and Profiles, Auto Deploy, Developer Center (highlighted), vRealize Operations, Administration, Update Manager, Tasks, Events, and Tags & Custom Attributes. The main content area displays the Developer Center with tabs for Overview, API Explorer, and Code Capture. A message states "Your session has been recorded." and a toggle for "Enable Code Capture" is turned on. Below this are buttons for "CLEAR AND START ANOTHER", "STOP RECORDING", "COPY", and "DOWNLOAD". A "Generate as PowerCLI" link is also present. The code capture output shows a sequence of PowerCLI commands:

```
1 #----- Start of code capture -----  
2  
3 #----- ParentVApp-----  
4 $_this = Get-View -Id 'VirtualMachine-vm-32'  
5 $_this.ParentVApp  
6  
7 #----- PowerOffVM_Task-----  
8 $_this = Get-View -Id 'VirtualMachine-vm-32'  
9 $_this.PowerOffVM_Task()  
10  
11  
12 #----- End of code capture -----
```

Developer Center

API Explorer

The screenshot shows the vSphere Client interface with the Developer Center API Explorer active. The top navigation bar includes the vSphere Client logo, a menu, a search bar, and the user name Administrator@VSPHERE.LOCAL. The left sidebar contains various navigation options, with Developer Center highlighted. The main content area displays the API Explorer for the endpoint upg-dhcp-1570-vm-025.cpbu.lab and the API content. The API Explorer shows a list of endpoints with expandable arrows.

vm vSphere Client | Menu | Search in all environments | Administrator@VSPHERE.LOCAL

Home | Shortcuts

Hosts and Clusters | VMs and Templates | Storage | Networking | Content Libraries | Global Inventory Lists

Policies and Profiles | Auto Deploy | **Developer Center** | vRealize Operations

Administration | Update Manager

Tasks | Events

Tags & Custom Attributes

Developer Center

Overview | **API Explorer** | Code Capture

Select Endpoint: upg-dhcp-1570-vm-025.cpbu.lab | Select API: content | Filter

- > configuration
- > library
- > library/item
- > library/item/download_session
- > library/item/downloadsession/file
- > library/item/file
- > library/item/storage
- > library/item/update_session
- > library/item/updatesession/file
- > library/subscribed_item
- > library/subscriptions
- > local_library
- > subscribed_library

Recent Tasks | Alarms

Platform Services Controller

vSphere Client

PSC UI now included in vSphere Client

Configuration Tab

- Identity Sources
- Active Directory Domain
- Policies
- Login Banner
- Smart Card Configuration

Certificate Management

The screenshot displays the vSphere Client interface for the Platform Services Controller (PSC) Configuration tab. The left sidebar shows the navigation menu with 'Configuration' selected. The main content area is titled 'Policies' and includes tabs for 'PASSWORD POLICY', 'LOCKOUT POLICY', and 'TOKEN POLICY'. The 'PASSWORD POLICY' tab is active, showing a description: 'A set of rules and restrictions on the format and expiration of Single Sign-On user passwords'. Below this is a table with the following configuration details:

Description	
Maximum lifetime	Password must be changed every 90 days
Restrict reuse	Users cannot reuse any previous 5 passwords
Maximum length	20
Minimum length	8
Character requirements	At least 1 special characters At least 2 alphabetic characters At least 1 uppercase characters At least 1 lowercase characters At least 1 numeric character Identical adjacent characters: 3

At the bottom of the configuration area, there is an 'EDIT...' button. The footer of the interface shows 'Recent Tasks' and 'Alarms' sections.

vSphere Lifecycle



Cluster Quickstart

Hyperconverged Cluster Configuration

- Available in vSphere Client during new install or upgrade
- Multi host add
 - Validation
- Create, extend, and remove cluster
- Cluster and Network configuration
 - vSAN datastore
 - HA / DRS / EVC
 - VDS
 - NTP

The screenshot displays the vSphere Client interface for configuring a cluster. The top navigation bar includes the vSphere Client logo, a search bar, and the user's name (Administrator@SANFRANCISCO.LOCAL). The left sidebar shows the navigation tree with 'Cluster-01' selected. The main content area is titled 'Cluster-01' and has tabs for 'Summary', 'Monitor', 'Configure', 'Permissions', 'Hosts', 'VMs', 'Datastores', 'Networks', and 'Updates'. The 'Configure' tab is active, showing a 'Cluster quickstart' section with a 'SKIP QUICKSTART' button. Below this, there are three configuration steps: 1. Cluster basics (with a green checkmark and 'No selected services.'), 2. Add hosts (with 'Add new and existing hosts to your cluster.'), and 3. Configure cluster (with 'Configure network settings for vMotion and vSAN traffic, review and customize cluster services, and set up a vSAN datastore.'). Each step has an 'EDIT' or 'ADD' button and a 'RE-VALIDATE' button. The bottom of the interface shows 'Recent Tasks' and 'Alarms' sections.

Ease to deploy an HCI Cluster

Demo

Cluster Quickstart

vSAN and vSphere Update Manager Integration

Update software and firmware in a single maintenance cycle

vSAN IO Controller
Firmware Tool now
integrated into VUM

Retrieves and updates
firmware for the vSAN
Cluster

Can use vendor or
local repositories

Included in system-
managed baselines

The screenshot shows the vSphere Update Manager interface for a vSAN-Cluster. The 'Updates' tab is selected, and a warning message is displayed: 'Firmware engine needs to download hardware vendor's firmware tool.' A red arrow points to a 'Download vendor firmware tool' button. Below the warning, there is a table of attached baselines and baseline groups.

Attached Baselines and Baseline Groups	Compliance	Content
<input type="radio"/> Host Security Patches (Predefined)	Not Compliant	Patch
<input type="radio"/> Critical Host Patches (Predefined)	Not Compliant	Patch
<input type="radio"/> VMware ESXi 6.5.0 U1 (vSAN 6.6.1, build 5969303) with vSAN recommended patches ESXi650-201712401-BG	Not Compliant	Patch
<input type="radio"/> vSAN Cluster 'VSAN-Cluster'	Not Compliant	Group

Lifecycle Improvements for vSAN

Demo

Update Manager Firmware Integration

VMware vSphere 6.7 Optimizes Host Reboots

Two different ways to reduce host downtime during updates

Single Reboot Upgrade

- Applies to ESXi 6.5 hosts
- Faster upgrades to ESXi 6.7

Helps customers get to
vSphere 6.7 faster

Quick Boot

- Applies to ESXi 6.7 hosts
- Faster patching of ESXi 6.7 hosts

Minimize maintenance time
when patching vSphere 6.7

Quick Boot Demo

VMware ESXi 6.7.0 (VMKernel Release Build 816992Z)
Dell Inc. PowerEdge R740
2 x Intel(R) Xeon(R) Gold 5120 CPU @ 2.20GHz
302.7 GiB Memory

Shutting down device drivers ...

VMware ESXi 6.7.0 (VMKernel Release Build 816992Z)
Dell Inc. PowerEdge R740
2 x Intel(R) Xeon(R) Gold 5120 CPU @ 2.20GHz
302.7 GiB Memory

Shutting down APs ... This system has been halted.

It is safe to use the reset or power button to reboot.

crmsvc101 minutes ago

Recent Tasks Alarms

Task Name	Target	Status	Initiator	Start Time	Completion Time
Initiate host reboot	s0712.vcritical.com	✓ Completed	com.vmware.vcIntegrity	04/27/2018, 4:12:13 PM	04/27/2018, 4:12:13 PM
Initiate host reboot	s0713.vcritical.com	✓ Completed	com.vmware.vcIntegrity	04/27/2018, 4:12:13 PM	04/27/2018, 4:12:13 PM
Enter maintenance mode	s0712.vcritical.com	✓ Completed	com.vmware.vcIntegrity	04/27/2018, 4:12:13 PM	04/27/2018, 4:12:13 PM
Enter maintenance mode	s0713.vcritical.com	✓ Completed	com.vmware.vcIntegrity	04/27/2018, 4:12:13 PM	04/27/2018, 4:12:13 PM

All More Tasks

Simplified Workflow

Attach, Check Compliance, Remediate on one screen

The screenshot displays the vSphere Client interface for vSAN updates. The left sidebar shows the navigation tree with 'vSAN' selected under the 'Datacenter'.

The main content area is titled 'vSAN' and includes a navigation bar with tabs: Summary, Monitor, Configure, Permissions, Hosts, VMs, Datastores, Networks, and Updates (selected). The 'Updates' tab is active, showing a summary of the update status.

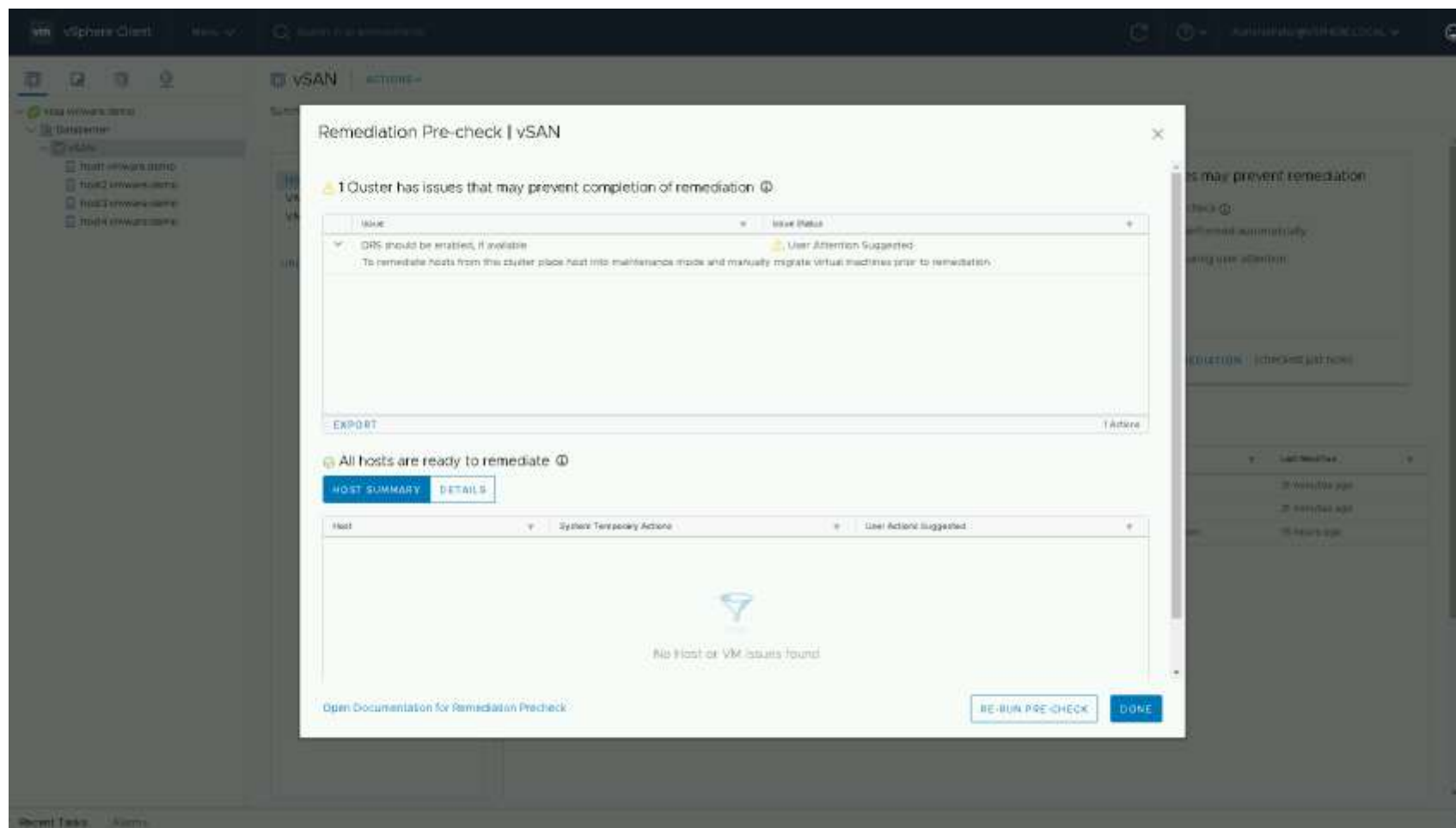
Key information displayed includes:

- Host Updates:** VMware Tools, VM Hardware.
- UPDATE MANAGER HOME** link.
- 4 Host(s)** summary card showing 4 ESXi version 6.7.0.
- 4 of 4 Hosts are non-compliant** warning card with a breakdown of compliance: 4 have non-compliant baselines, 0 have unknown compliance, and 0 have firmware update recommendations. It includes buttons for 'CHECK COMPLIANCE' (checked 2 minutes ago) and 'SCHEDULE'.
- Ready to remediate** card with a 'Remediation Pre-check' button and a 'PRE-CHECK REMEDIATION' button (never checked).

Below these cards is the 'Attached Baselines and Baseline Groups' section, which includes a table with columns for Attach, Detail, Stage, Remediate, Name, Status, Content, Type, and Last Modified.

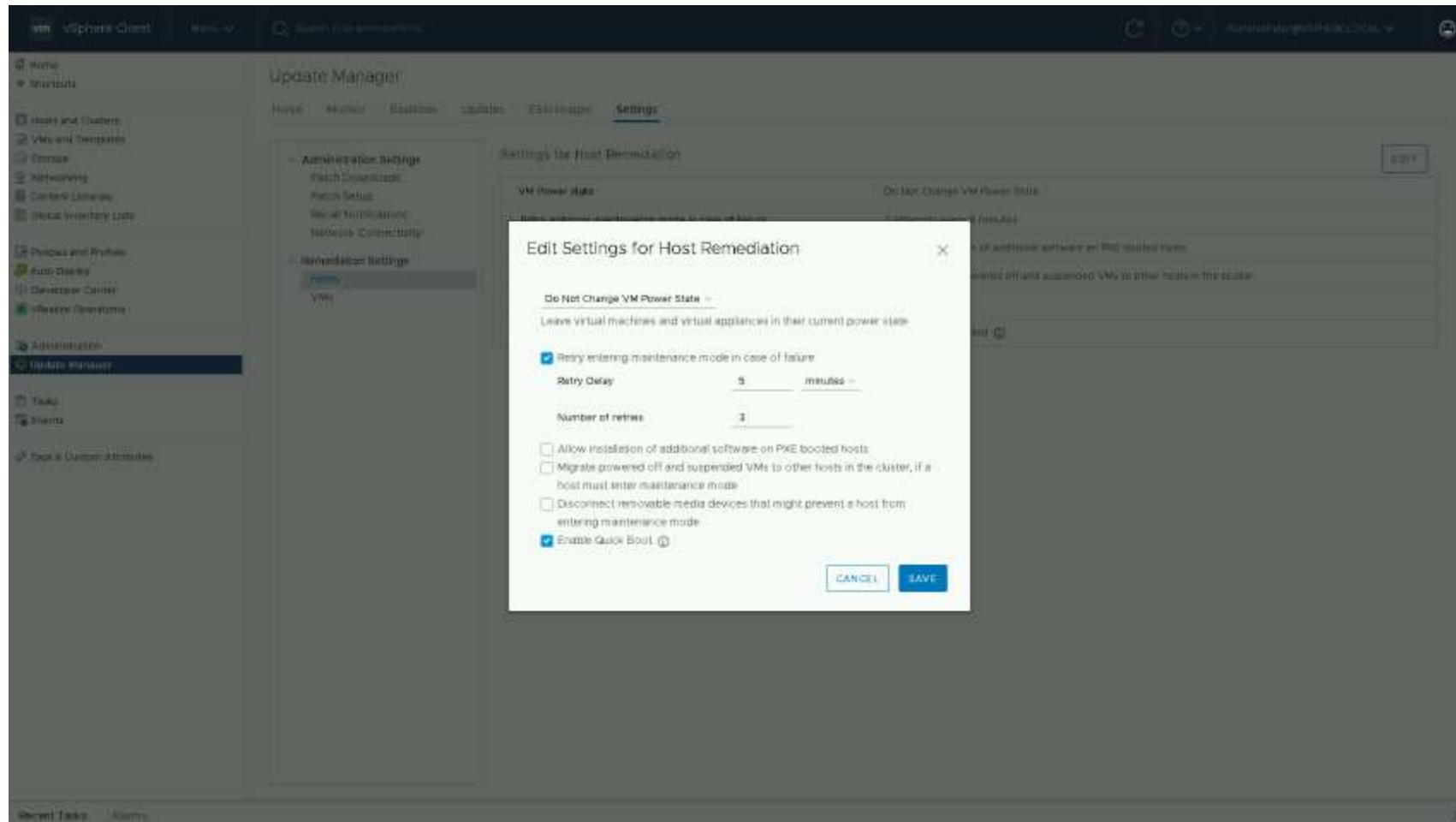
Attach	Detail	Stage	Remediate	Name	Status	Content	Type	Last Modified
<input type="checkbox"/>				Attached Baselines and Baseline Groups				
<input type="checkbox"/>				vSAN Cluster 'vSAN'	Non-compliant	Group	Recommendation	15 hours ago

Show Warning if DRS is not Enabled



Expose New Features in Remediation Settings

Disconnect, Removable Devices, Disable Quick Boot



View ESXi Image Details

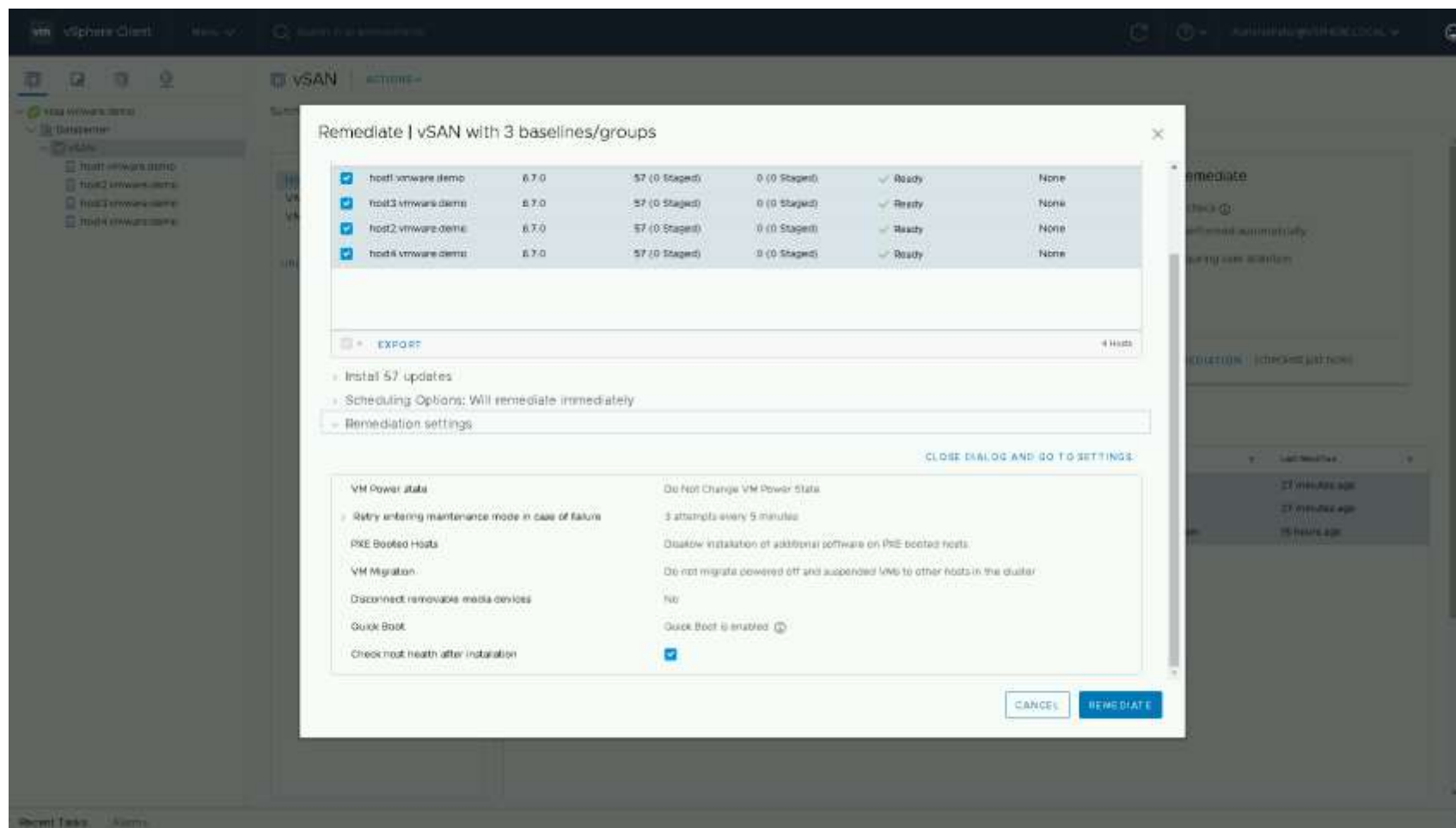
The screenshot displays the vSphere Client interface, specifically the Update Manager section. The left-hand navigation pane shows various management options, with 'Update Manager' selected. The main area is titled 'Update Manager' and includes tabs for 'Home', 'Monitor', 'Baselines', 'Updates', 'ESXi images', and 'Settings'. The 'ESXi images' tab is active, showing a table of installed updates. Below this, an 'EXPORT' button is visible, followed by a detailed table of update packages.

Name	Product	Version	Build	Vendor	Acceptance Level	Creation Date
ESXi-6.7.0-8168922-standalone	VMware ESXi 6.7.0	6.7.0	8168922	VMware, Inc	Partner	4/2/2018, 8:00 PM

Name	Version	Vendor	Acceptance Level	Creation Date	Size
shim-vmtoolsd-9.2-2-0	6.7.0-0.0.8168922	VMW	Certified	4/2/2018, 8:00 PM	34.30 KB
sdm-megaraid-mbr0x	3.20.51-6vmw.670.0.0.8168922	VMW	Certified	4/2/2018, 8:00 PM	27.30 KB
shim-vmtoolsd-9.2-2-0	6.7.0-0.0.8168922	VMW	Certified	4/2/2018, 8:00 PM	1.62 KB
net-mbr4-en	1.8.7.0-1vmw.670.0.0.8168922	VMW	Certified	4/2/2018, 8:00 PM	66.30 KB
hec-forcedata	0.81-2vmw.670.0.0.8168922	VMW	Certified	4/2/2018, 8:00 PM	37.14 KB
tools-light	10.2.0.2-1vmw.670.0.0.8168922	VMware	Certified	4/2/2018, 8:00 PM	177.69 MB
ata-pata-ahci	0.4.6-4vmw.670.0.0.8168922	VMW	Certified	4/2/2018, 8:00 PM	6.43 KB
lsi-lsi-megaraid-mpi-plugin	1.0.0-9vmw.670.0.0.8168922	VMware	Certified	4/2/2018, 8:00 PM	93.12 KB
glib2	1.0.26.0-2-1vmw.670.0.0.8168922	VMW	Certified	4/2/2018, 8:00 PM	252.34 KB
lsi-megacli	20.00.04.00-4vmw.670.0.0.8168922	VMW	Certified	4/2/2018, 8:00 PM	127.59 KB
libssl	2.0.22-1vmw.670.0.0.8168922	VMW	Certified	4/2/2018, 8:00 PM	140.47 KB

1 - 20 of 20 Packages

vSAN – Add Option to Skip Health Check



Allow Remediation of Multiple Baselines

The screenshot shows the vSphere Client interface for vSAN updates. The left sidebar shows the navigation tree with 'vSAN' selected. The main content area is titled 'vSAN | ACTIONS' and includes tabs for Summary, Monitor, Configure, Permissions, Hosts, VMs, Datastores, Networks, and Updates. The Updates tab is active, showing a summary of 4 hosts, with 4 of 4 hosts being non-compliant. A 'Ready to remediate' section is visible, along with a table of attached baselines and baseline groups.

Host Updates

4 Host(s)

- ESXi version 6.7.0

4 of 4 Hosts are non-compliant

Hosts' Compliance

- 4 have non-compliant baselines
- 0 have unknown compliance
- 0 have firmware update recommendations

CHECK COMPLIANCE (checked 42 seconds ago)

SCHEDULE

Ready to remediate

Remediation Pre-check

PRE-CHECK REMEDIATION (never checked)

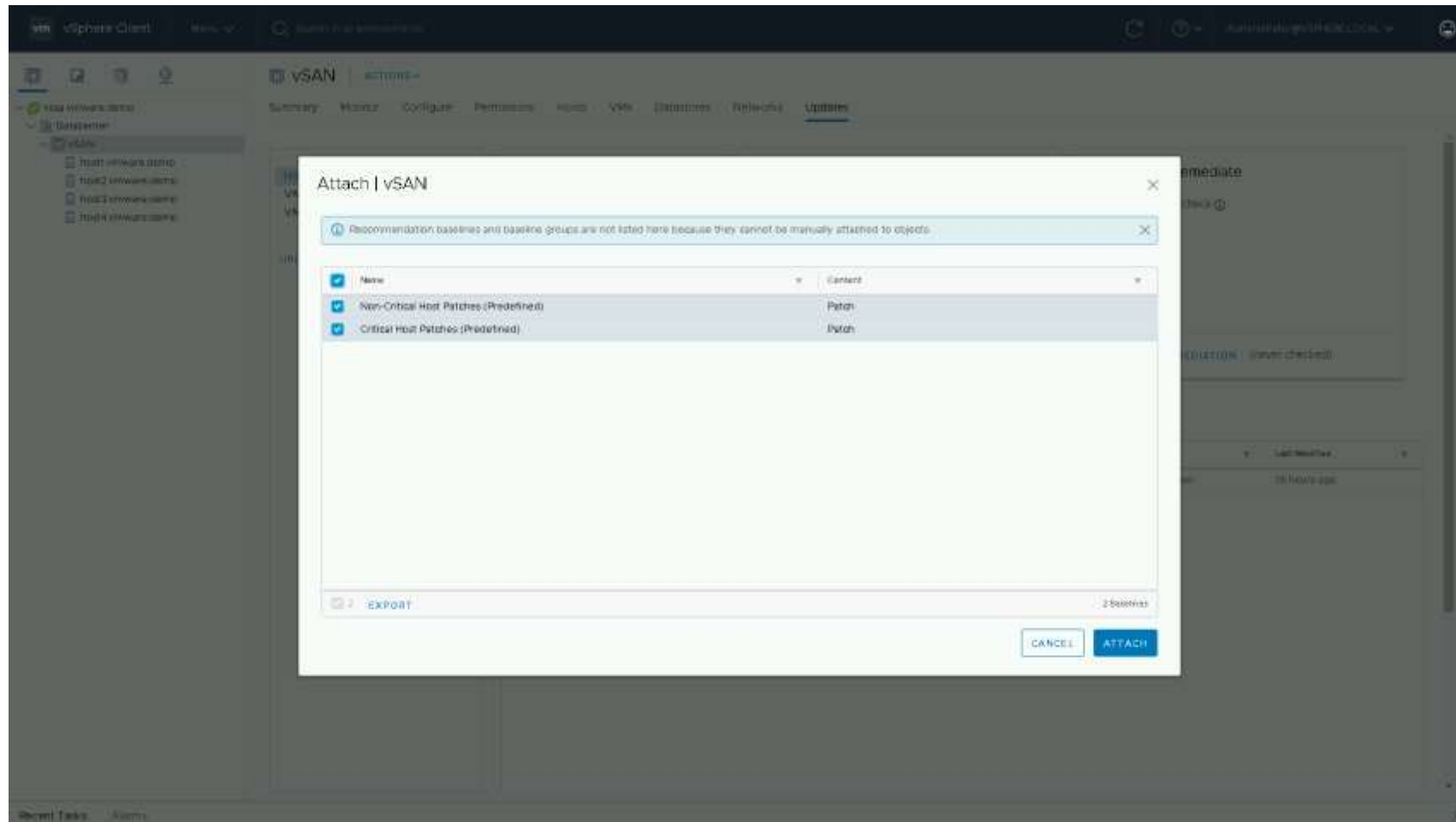
Attached Baselines and Baseline Groups

ATTACH DETAIL STAGE REMEDIATE

Attached Baselines and Baseline Groups	Status	Content	Type	Last Modified
<input checked="" type="checkbox"/> Attached Baselines and Baseline Groups				
<input checked="" type="checkbox"/> Critical Host Patches (Predefined)	Non-compliant	Patch	Predefined	27 minutes ago
<input checked="" type="checkbox"/> Non-Critical Host Patches (Predefined)	Non-compliant	Patch	Predefined	27 minutes ago
<input checked="" type="checkbox"/> vSAN Cluster vSAN	Non-compliant	Group	Recommendation	15 hours ago

Recent Tasks | Alarms

Allow Attach of Multiple Baselines



Host Profiles Web Client Interface (HTML5)

Initial release of Host Profiles UI offers basic capabilities

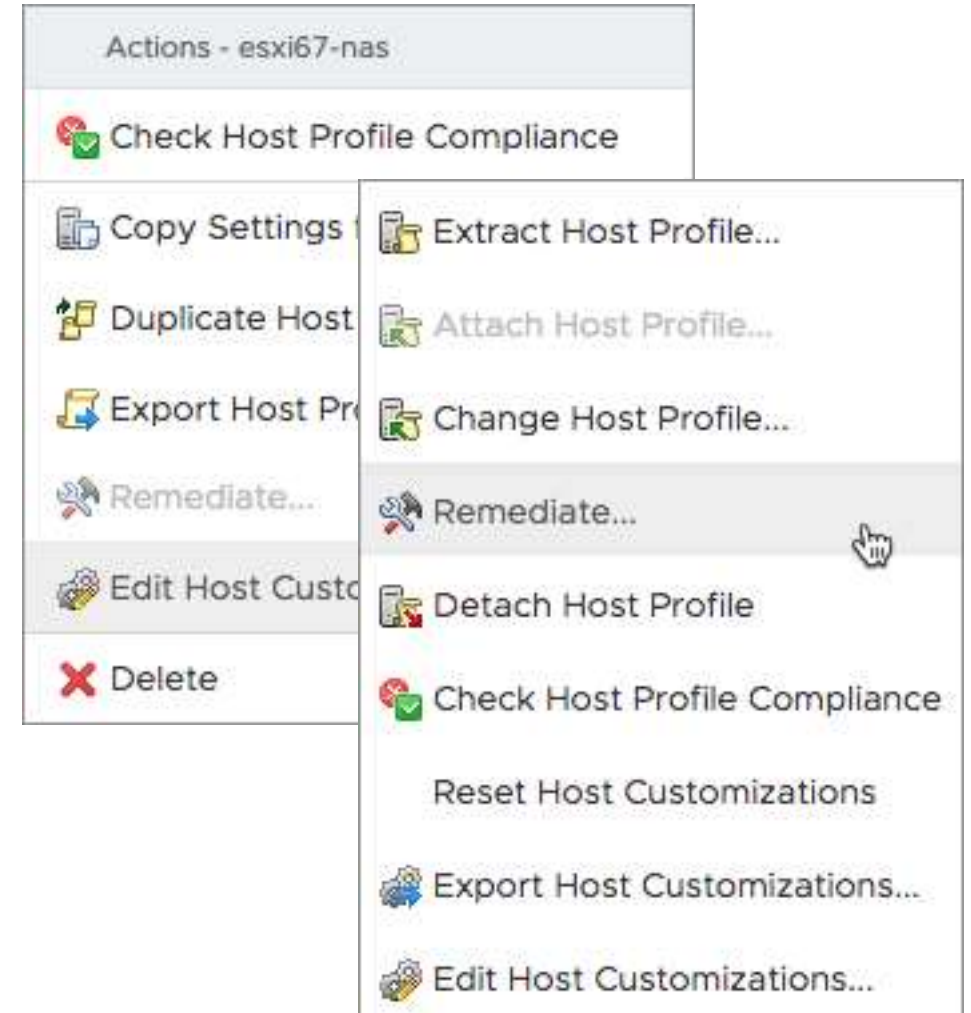
Minimum Viable Product (MVP) for Host Profiles

- Focused around base operational tasks

Primary capabilities in this release

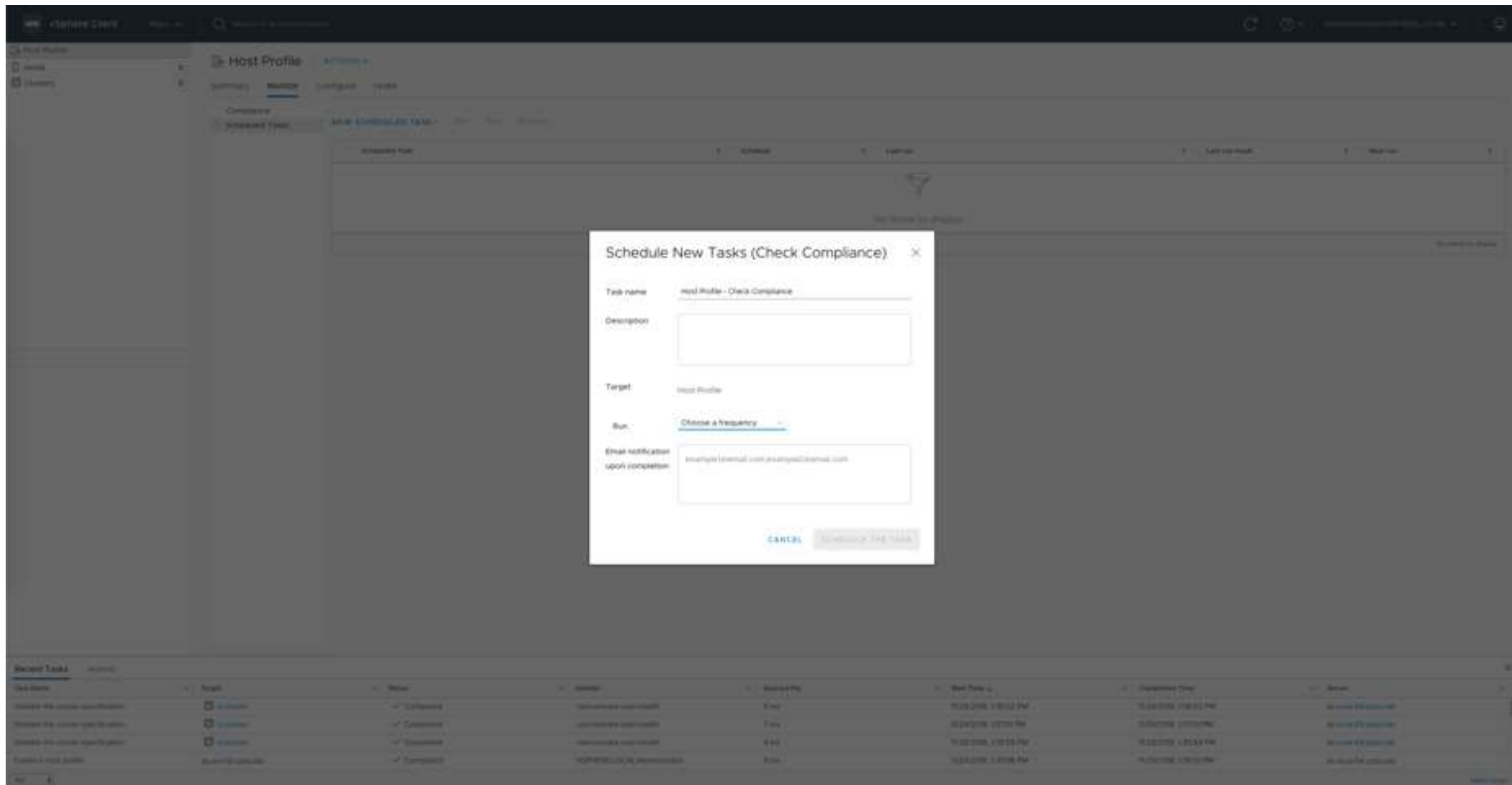
- Create/update profiles from a host
- Edit host customizations
- Check compliance
- Remediate

* Fully Supported in vSphere 6.7 Update 1 vSphere Client



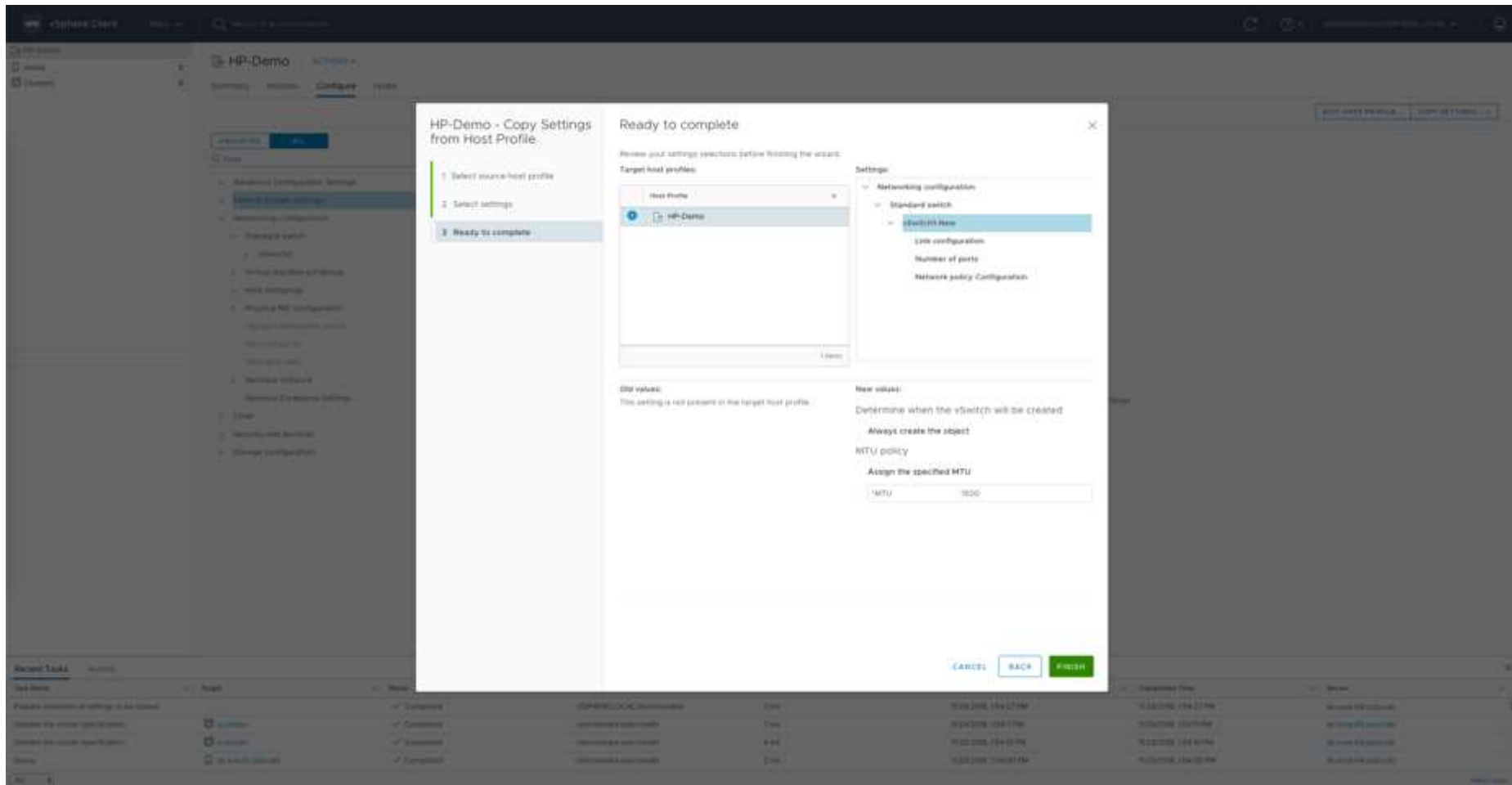
Host Profiles

Scheduled Compliance Check



Host Profiles

Copy Specific Settings



VMware Tools 10.3.10 Release

Driver updates

- vmxnet3 driver available through Windows Update for Windows Server 2016
- WDDM driver security fix
- Open Source components glib, openssl and libxml2 receive upgrades

VMware Tools 10.3.10 freezes TAR tools for legacy Linux

- No further development for these platforms, all dev efforts to open-vm-tools
 - Includes support for legacy kernels
 - RHEL 6.x is supported by Red Hat through November 2020
 - Over 50% of our RHEL customers run this version
 - 10.3.10 includes security fixes backported into TAR/OSP

vSphere 6.7 Update 2 ships with VMware Tools 10.3.5

Virtual Hardware Compatibility Level

VM Hardware

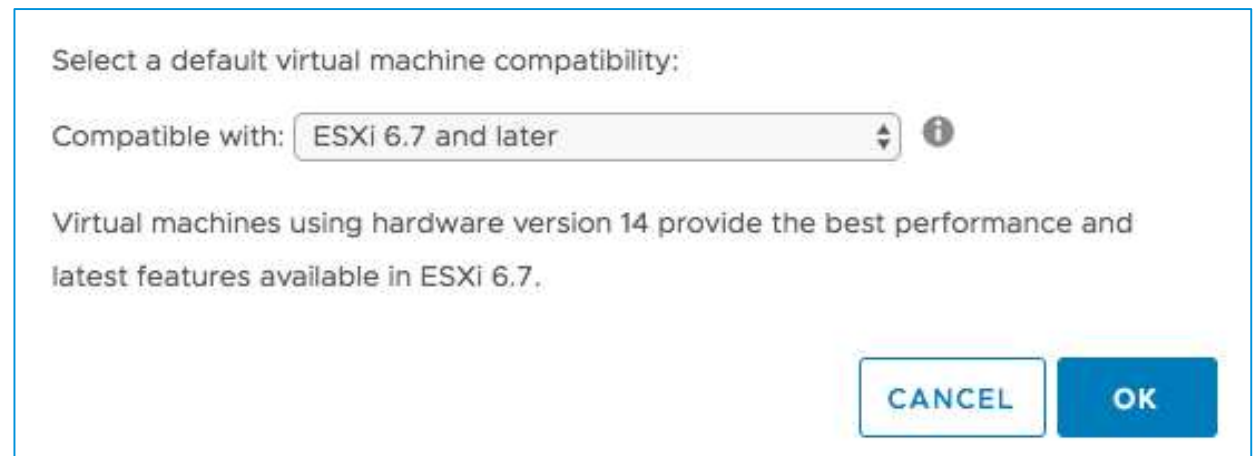
vSphere 6.7 brings forth VM hardware version 14

Primarily HW 14 adds support for security and application technologies:

- VBS, vTPM, vIOMMU
- vPMEM, updates to vRDMA and vNVMe,
- per-VM EVC

Most resource maximums, such as vRAM and vCPUs stay the same

- Maximum virtual disks increased
 - 60 → 256
- New CPU enablement

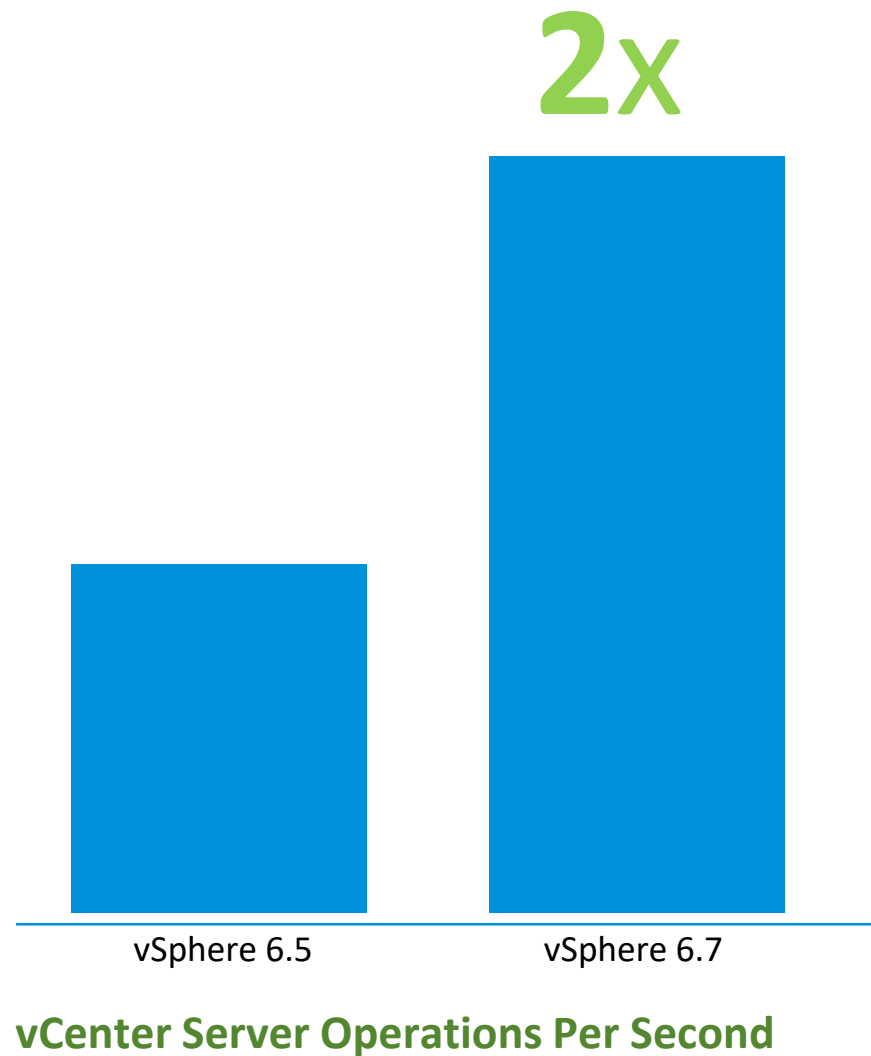


Select a default virtual machine compatibility:

Compatible with: ⓘ

Virtual machines using hardware version 14 provide the best performance and latest features available in ESXi 6.7.

Superior Performance: vSphere 6.7 versus 6.5



3x Reduction in memory usage

3x Faster DRS-related operations (e.g. Power-On VM latency)

(All metrics compared at cluster scale limits)

vSphere 6.7 API, CLI and SDKs



vSphere RESTful APIs

Newly Added APIs

- Appliance API
 - Backup Job Scheduling
 - Restore Job Creation
 - Granular Service Control
 - New Update Workflows
 - Policy Handling
 - Staging
 - Installation
 - Service Management
 - Local Account Configuration
- vCenter
 - New Deployment Methods
 - Compute Policies and Capabilities
 - Storage Policies
 - VM Cloning Tasks
 - vMotion Support
 - List Guest Customization Specifications
 - VM Tools Management
 - Improved Tag Handling
- CIS
 - Batch Activity Support
 - Task Management
- Content Library
 - Configuration Tasks
 - Item Lifecycle Management

VMware PowerCLI

The PowerCLI You Know and Love, Now Available Everywhere

Installable from the PowerShell Gallery

Now Supports PowerShell Core 6.0.1

- MacOS
- Linux

Deprecated Cmdlets

- Get/Set-VMGuestNetworkInterface
- Get/New/Remove-VMGuestRoute

Community Sourced Corrections

Default certificate behavior is to DENY

- Install Trusted Certificates
- Set-PowerCLIConfiguration -InvalidCertificateAction Ignore

```
kruddy-m01:~ kruddy$ pwsh
PowerShell v6.0.1
Copyright (c) Microsoft Corporation. All rights reserved.

https://aka.ms/pscore6-docs
Type 'help' to get help.

PS /Users/kruddy> Install-Module -Name VMware.PowerCLI -Scope CurrentUser
PS /Users/kruddy> Get-Module VMware.* -ListAvailable

Directory: /Users/kruddy/.local/share/powershell/Modules

ModuleType Version Name ExportedCommands
-----
Script 6.5.2.7... VMware.DeployAutomation {Add-DeployRule, Add-
Script 6.5.2.7... VMware.ImageBuilder {Add-EsxSoftwareDepot
Manifest 10.0.0... VMware.PowerCLI
Script 10.0.0... VMware.VimAutomation.Cis.Core {Connect-CisServer, D
Script 10.0.0... VMware.VimAutomation.Cloud {Add-CIDatastore, Con
Script 10.0.0... VMware.VimAutomation.Common
Script 10.0.0... VMware.VimAutomation.Core {Add-PassthroughDevice
Script 6.5.4.7... VMware.VimAutomation.HA Get-DrmInfo
```

VMware Datacenter CLI (DCLI)

Automation of vSphere and VMware Cloud on AWS

Accessible via:

- Windows, Linux, Mac OS
- VCSA shell
- Windows vCenter Server Cmd Prompt

Interactive Shell Mode

- Supports Tab Completion
- Saves History Across Sessions

Supported Output Formats

- Simple
- Table
- JSON
- XML
- HTML

```
root@photon-FgMoCqkY2 [ ~/vmware-dcli ]# ./dcli.sh
Welcome to VMware Datacenter CLI (DCLI)

usage: <namespaces> <command>

To auto-complete and browse DCLI namespaces:    <TAB>
If you need more help for a command:            vcenter vm get --help
If you need more help for a namespace:         vcenter vm --help
For detailed information on DCLI usage visit:   http://vmware.com/go/dcli
dcli> vm list
|-----|-----|-----|-----|-----|
|Vm      |Name                |PowerState |CpuCount|MemorySizeMiB|
|-----|-----|-----|-----|-----|
|vm-117  |photon01            |POWERED_OFF|1       |12048         |
|vm-119  |AppVM               |POWERED_OFF|1       |11024         |
|vm-120  |DBVM                |POWERED_OFF|1       |16            |
|vm-123  |f3680d62-b912-4909-b80e-c0e9b71545c6|POWERED_OFF|1       |11024         |
|-----|-----|-----|-----|-----|
dcli> system time get
version
storage
uptime
time
update
lastcheck
get
```

vSphere Automation SDKs

Open-Sourced SDKs Available on GitHub

VMware maintained

Get up & running in less than 5 minutes!

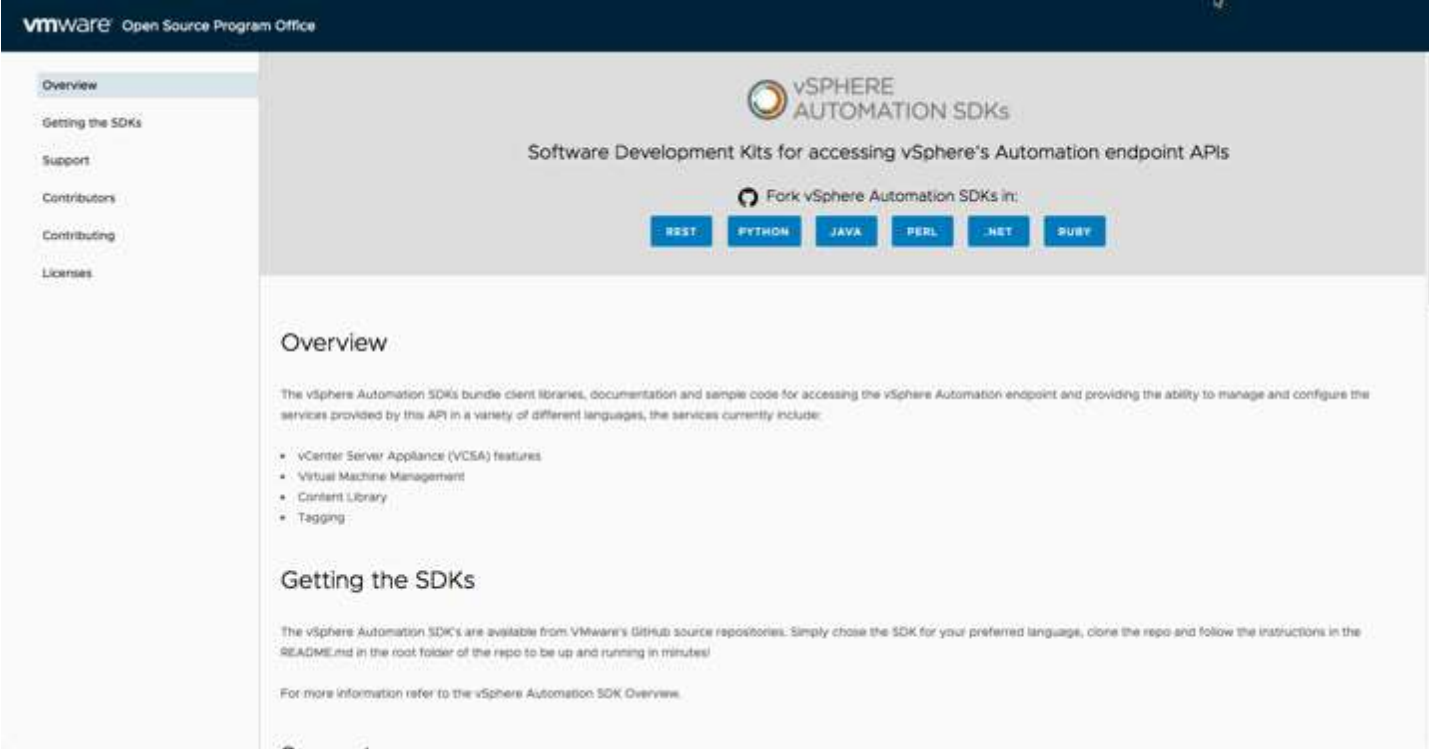
SDKs for managing vSphere REST API
and VMware Cloud on AWS

Available in languages such as:

- REST
- Python
- Java
- Perl
- .NET
- Ruby

Full of Samples

Community Contributions Welcome



The screenshot shows the VMware Open Source Program Office page for vSphere Automation SDKs. The page features a dark blue header with the VMware logo and 'Open Source Program Office'. Below the header, there is a navigation menu on the left with links for Overview, Getting the SDKs, Support, Contributors, Contributing, and Licenses. The main content area has a light gray background and features the vSphere Automation SDKs logo and the text 'Software Development Kits for accessing vSphere's Automation endpoint APIs'. Below this, there is a section titled 'Fork vSphere Automation SDKs in:' with buttons for REST, PYTHON, JAVA, PERL, .NET, and RUBY. The 'Overview' section contains text about the SDKs and a list of services currently included: vCenter Server Appliance (VCSA) features, Virtual Machine Management, Content Library, and Tagging. The 'Getting the SDKs' section provides instructions on how to access the SDKs from VMware's GitHub source repositories and refers to the vSphere Automation SDK Overview for more information.

Comprehensive Built-in Security



Data Center Reality Check

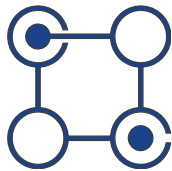
You must secure everything



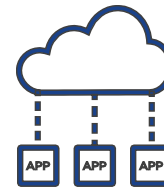
How do I prevent unauthorized **access**?



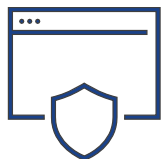
How do I make sure my **applications** are protected?



How do I ensure my **infrastructure** is locked down?



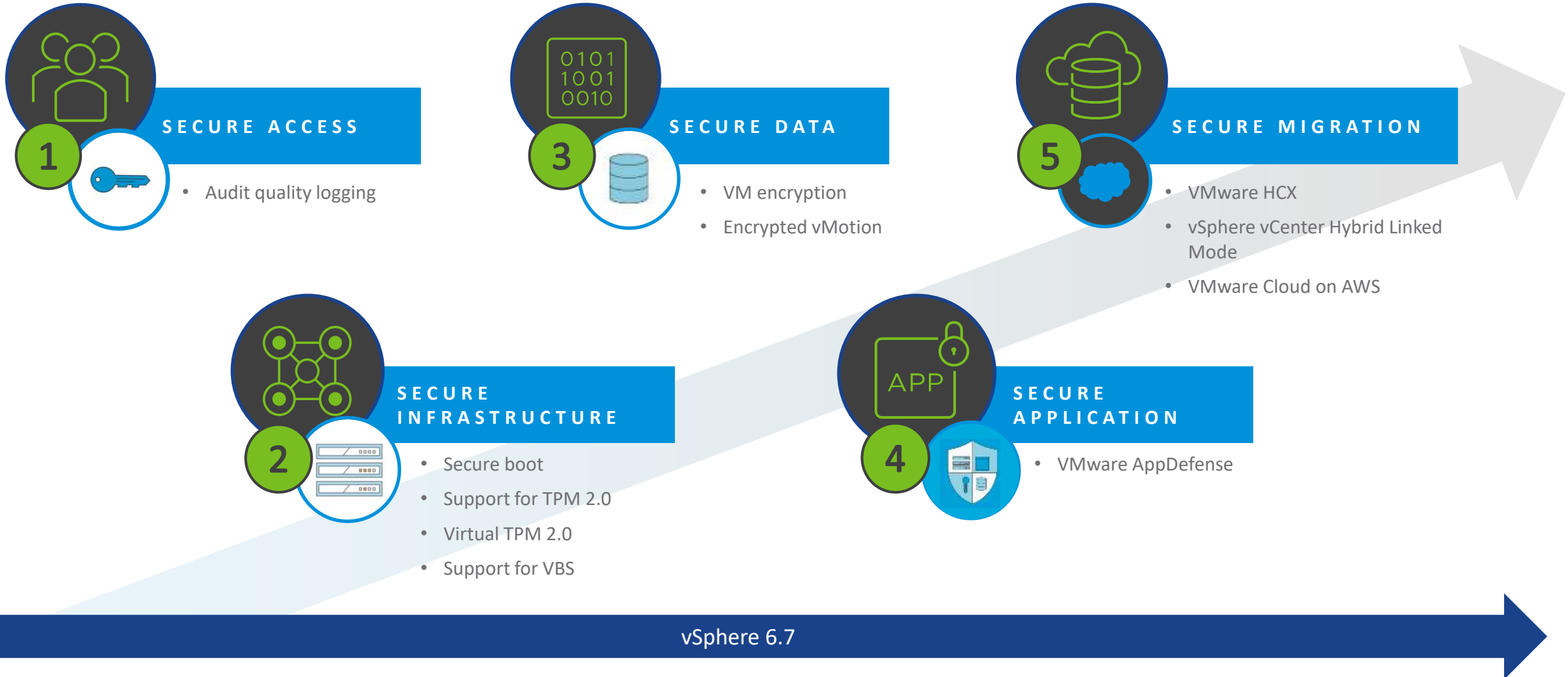
How do I securely **migrate** my applications to a hybrid cloud platform?



How do I make sure my company's **data** is not breached?

How to Secure Your Data Center with vSphere & vSphere Platinum

Access > Infrastructure > Data > Applications > Migration



Secure Access



Answer the Who, What, When and How

With Actionable Logging

- Understand **WHO** changed something
- Get a clear representation of **WHAT** was changed
 - From
 - To
- Provides down-stream Syslog/SIEM solutions with more **ACTIONABLE DATA**
- Allows for more **FOCUSED REMEDIATION AND RESPONSE** to events

```
d Table   Event Types   Event Trends
2016-08-12T16:37:49.586202+00:00 mgt-vc-01 vpxd 3546 - - [46197] [1-1] [2016-08-12T16:37:49.586202+00:00]
[vim.event.VmReconfiguredEvent] [info] [VSPHERE.LOCAL\Administrator] [Datacenter] [esxi-vc-01]
esxi-vc-01 in Datacenter.

Modified:
config.changeVersion: "2016-08-12T16:37:42.7008Z" -> "2016-08-12T16:37:45.978741Z";
config.hardware.device(4001).deviceInfo.summary: "PCI-vSwitch" -> "Non-PCI-vSwitch"
config.hardware.device(4001).backing.deviceName: "PCI-vSwitch" -> "Non-PCI-vSwitch"
... 9 lines are hidden ...
Show all hidden lines
source event_type hostname appname procid msgid
```

SSO Domain

Success Audit Events

The screenshot shows the vSphere Client interface with the Monitor tab selected for the environment 'upg-dhcp-1570-vm-025.cpbu.lab'. The left sidebar shows a tree view with 'New York' > 'Cluster01' > '10.173.184.19' selected. The main content area displays a list of events under the 'Events' category. One event is highlighted with a green box:

Description	Type	Date Time	Task
User ocui@127.0.0.1 logged out (login time: Thursday, March 21, 2019 1:39:15 PM UTC, number of API invocation...	Information	03/21/2019, 12:31...	
User VSPHERE.LOCAL\machine-9401e3af-8d5c-4b5b-9dd2-42d2b0698bea@127.0.0.1 logged out (login time: ...	Information	03/21/2019, 12:29...	
Successful login administrator@vsphere.local from 10.16.112.224 at 03/21/2019 17:26:42 UTC in SSO	Information	03/21/2019, 12:29...	
User VSPHERE.LOCAL\machine-9401e3af-8d5c-4b5b-9dd2-42d2b0698bea@127.0.0.1 logged in as pyymomi	Information	03/21/2019, 12:29...	
User VSPHERE.LOCAL\wpad-extension-9401e3af-8d5c-4b5b-9dd2-42d2b0698bea@127.0.0.1 logged out (login...	Information	03/21/2019, 12:28...	
User VSPHERE.LOCAL\wpad-extension-9401e3af-8d5c-4b5b-9dd2-42d2b0698bea@127.0.0.1 logged in as VM...	Information	03/21/2019, 12:28...	

Below the list, the details for the selected event are shown:

Date Time: 03/21/2019, 12:29:20 PM
Type: Information
User: administrator@vsphere.local
Description:
03/21/2019, 12:29:20 PM Successful login administrator@vsphere.local from 10.16.112.224 at 03/21/2019 17:26:42 UTC in SSO
Related events:
There are no related events.

SSO Domain

Failure Audit Events

The screenshot shows the vSphere Client interface with the Monitor tab selected for the environment 'upg-dhcp-1570-vm-025.cpbu.lab'. The left sidebar shows a tree view of the environment structure, including 'New York' and 'Houston' clusters. The main content area displays a list of events under the 'Events' category. A red box highlights a specific event: 'Failed login administrator@vsphere.local from 10.16.112.224 at 03/21/2019 17:53:46 UTC in SSO'. Below the list, the details for this event are shown, including the date and time (03/21/2019, 12:54:20 PM), the user (administrator@vsphere.local), and the description: '03/21/2019, 12:54:20 PM Failed login administrator@vsphere.local from 10.16.112.224 at 03/21/2019 17:53:46 UTC in SSO'. The event type is listed as 'Information'.

Description	T...	Date Time	T...	Ta...	U...	Ev...
User VSPHERE.LOCAL\vmachine-9401e3af-8d5c-4b5b-9dd2-42d2b0698bea@1270.01 logged o...	...	03/21/2019, 12:54:20 PM	...	...	VSP...	vim...
Successful login administrator@vsphere.local from 10.16.112.224 at 03/21/2019 17:54:06 UTC in S...	...	03/21/2019, 12:54:20 PM	...	...	adm...	com...
Failed login administrator@vsphere.local from 10.16.112.224 at 03/21/2019 17:53:46 UTC in SSO	...	03/21/2019, 12:54:20 PM	...	...	adm...	com...
Failed login from 10.16.112.224 at 03/21/2019 17:53:27 UTC in SSO	...	03/21/2019, 12:54:20 PM	...	...	hick...	com...
Failed login from 10.16.112.224 at 03/21/2019 17:53:21 UTC in SSO	...	03/21/2019, 12:54:20 PM	...	...	hick...	com...
Logout event by Administrator@VSPHERE.LOCAL from 10.16.112.224 at 03/21/2019 17:53:13 UTC	03/21/2019, 12:54:20 PM	...	...	Adm...	com...
Successful login administrator@vsphere.local from 10.16.112.224 at 03/21/2019 17:52:56 UTC in S...	...	03/21/2019, 12:54:20 PM	...	...	adm...	com...
Logout event by Administrator@VSPHERE.LOCAL from 10.16.112.224 at 03/21/2019 17:52:40 UTC...	...	03/21/2019, 12:54:20 PM	...	...	Adm...	com...

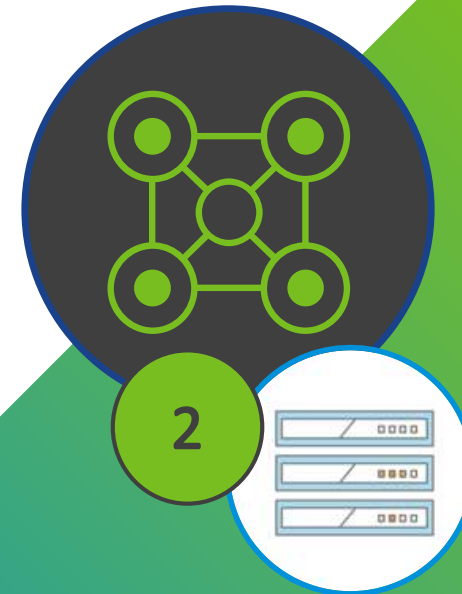
Date Time: 03/21/2019, 12:54:20 PM **Type:** Information

User: administrator@vsphere.local

Description:
03/21/2019, 12:54:20 PM Failed login administrator@vsphere.local from 10.16.112.224 at 03/21/2019 17:53:46 UTC in SSO

Related events:
There are no related events.

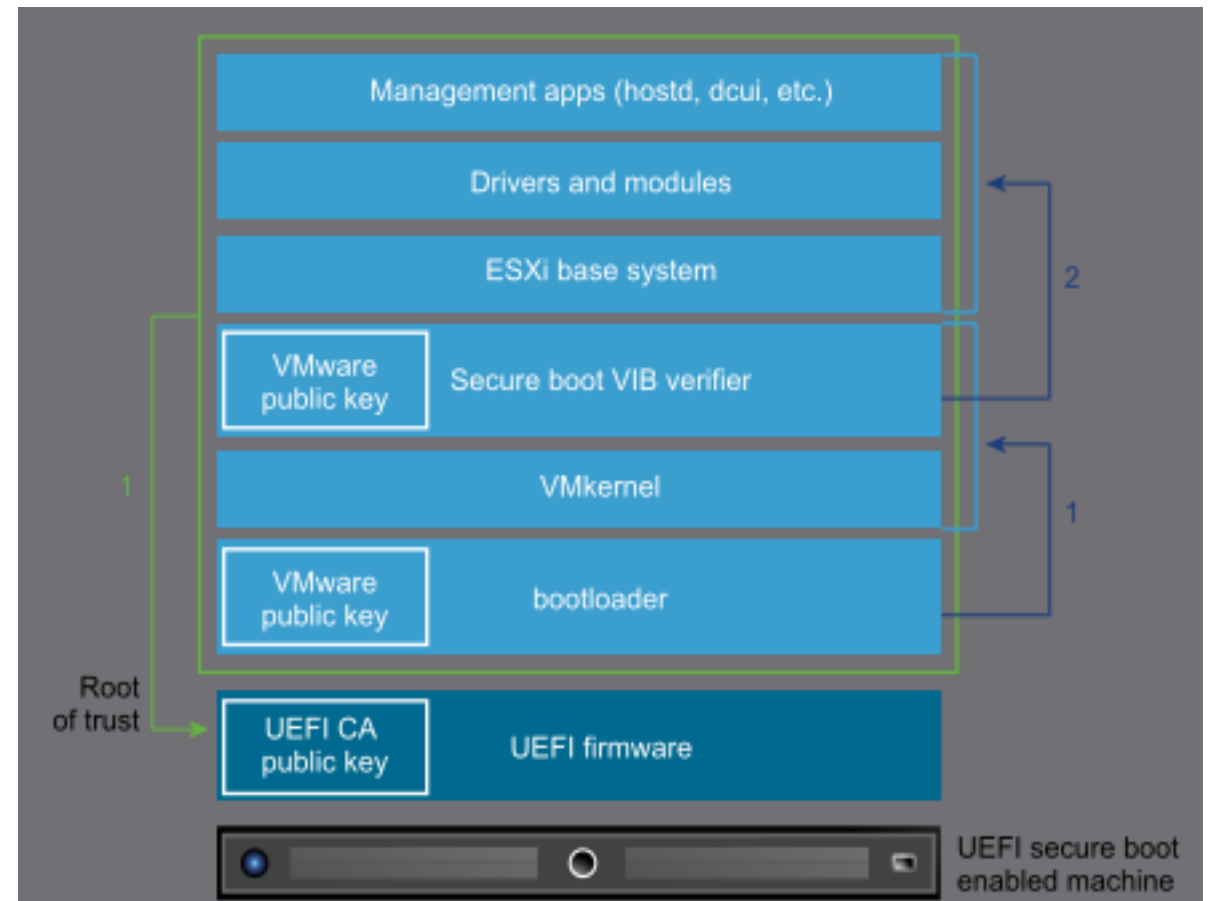
Secure Infrastructure



Hypervisor Assurance – Digital Code Signing

Secure Boot for ESXi

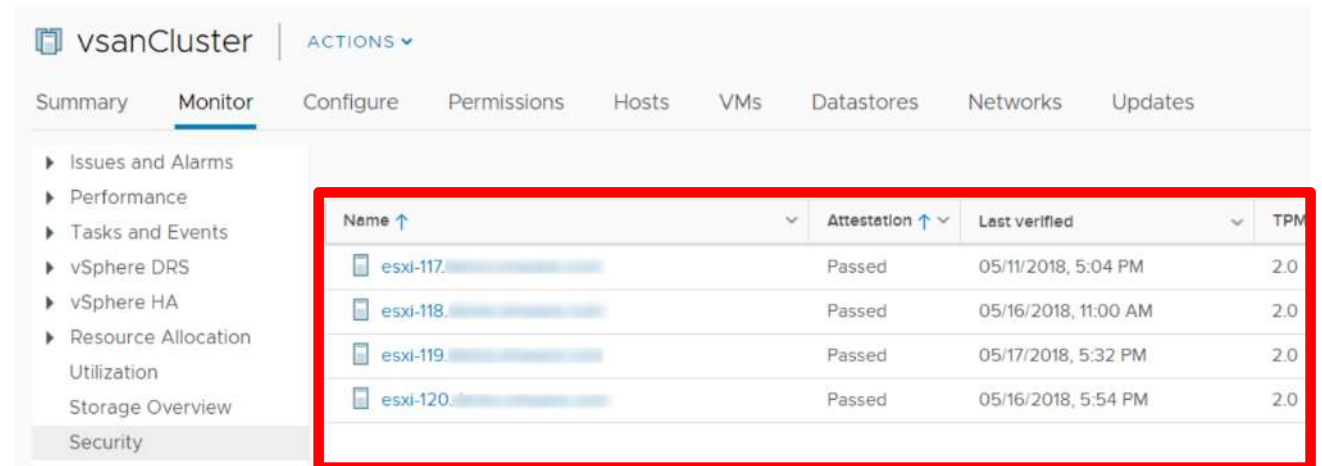
- Cryptographic **ASSURANCE** of ESXi
 - Vendor UEFI Firmware validates the Boot Loader
 - Boot Loader validates the Kernel
 - Kernel validates the OS components
 - All via digital certificates and code signing
- When enabled, unsigned code **WILL NOT LOAD**
- When enabled, unsigned code is **UNABLE TO BE INSTALLED**



Hypervisor Assurance – Remote Attestation

TPM for ESXi

- Uses TPM to store a **MEASUREMENT** of the boot process
- Confirms that **SECURE BOOT** “did its job”
- Provides additional **ASSURANCE**
- Provides **REPORTING** on attestation in the vSphere Client
- vCenter **COMPARES** TPM stored measurements with running system to validate boot process



The screenshot shows the vSphere Client interface for a vsanCluster. The 'Monitor' tab is active, and the 'Security' section is expanded. A table displays the attestation status for four ESXi hosts. The table is highlighted with a red border.

Name ↑	Attestation ↑	Last verified	TPM
esxi-117. [redacted]	Passed	05/11/2018, 5:04 PM	2.0
esxi-118. [redacted]	Passed	05/16/2018, 11:00 AM	2.0
esxi-119. [redacted]	Passed	05/17/2018, 5:32 PM	2.0
esxi-120. [redacted]	Passed	05/16/2018, 5:54 PM	2.0

Security Without Compromise

Virtual TPM 2.0

- Does **NOT** require a Hardware TPM
- Requires **VM ENCRYPTION** and **KEY MANAGEMENT SERVER**
- **ROOT OF TRUST** is in the KMS
- Supported **NATIVELY** in Windows 10+ and Windows Server 2016+
- **NO IMPACT** to vMotion, DRS or HA
- Disaster Recovery **FRIENDLY**

The screenshot shows the 'Edit Settings' window for a virtual machine named 'Windows2016'. The 'Virtual Hardware' tab is selected. A table lists various hardware components with their current settings. A dropdown menu is open over the table, showing a list of device types that can be added. The 'Trusted Platform Module' option is highlighted at the bottom of the menu, with a mouse cursor pointing to it.

Component	Setting
> CPU	2
> Memory	4 GB
> Hard disk 1	40 GB
> SCSI controller 0	LSI Logic SAS
> Network adapter 1	VM Network
> CD/DVD drive 1	Client Device
> USB xHCI controller	USB 3.0
> Video card	Specify custom settings
VMCI device	Device on the virtual machine PCI bus that provides support for the

ADD NEW DEVICE

- CD/DVD Drive
- Host USB Device
- Hard Disk
- RDM Disk
- Existing Hard Disk
- Network Adapter
- SCSI Controller
- USB Controller
- SATA Controller
- NVDIMM
- NVMe Controller
- Trusted Platform Module**

Support for Windows 10+ / Windows 2016+ Security Features

Virtualization Based Security (VBS) supporting Credential Guard on vSphere

Simple **“ONE CLICK”** enablement!

- Nested Virtualization
- IOMMU
- EFI Firmware
- Secure Boot

Sets all necessary **VIRTUAL HARDWARE** settings

VM is ready for **ENABLEMENT OF VBS** in the Guest OS

New Virtual Machine

- ✓ 1 Select a creation type
- ✓ 2 Select a name and folder
- ✓ 3 Select a compute resource
- ✓ 4 Select storage
- ✓ 5 Select compatibility
- 6 Select a guest OS**
- 7 Customize hardware
- 8 Ready to complete

Select a guest OS

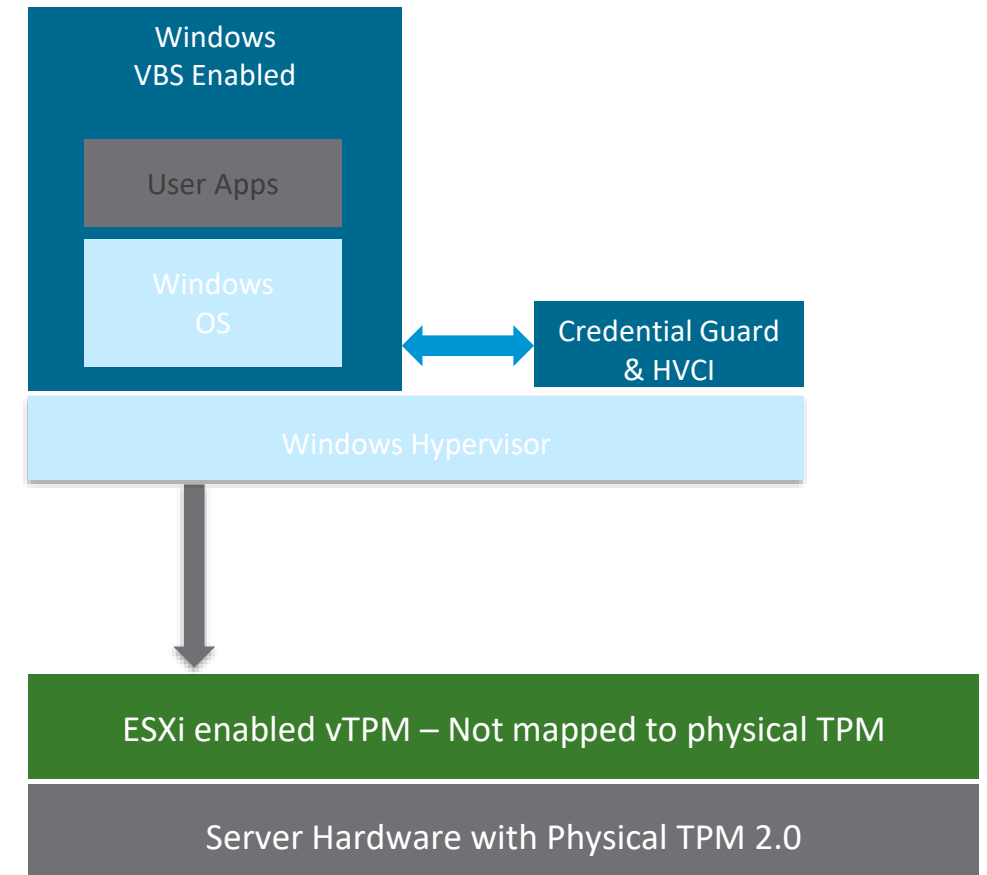
Choose the guest OS that will be installed on the virtual machine

Identifying the guest operating system here allows the wizard to provide the appropriate defaults for the operating system installation.

Guest OS Family:

Guest OS Version:

Enable Windows Virtualization Based Security ⓘ



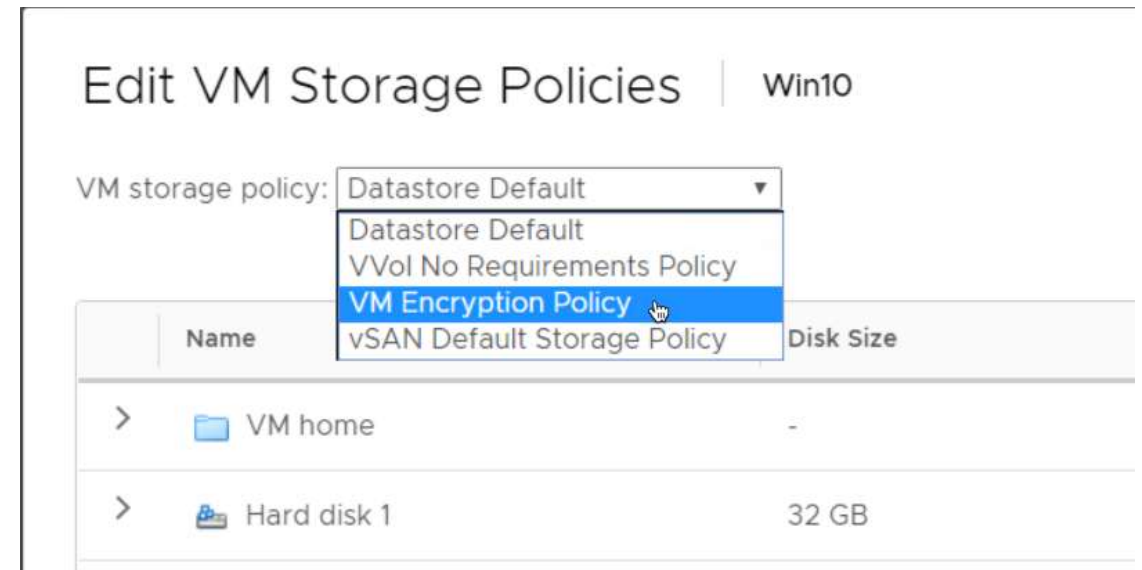
Secure Data



Encryption at Rest Without the Complexity

With Virtual Machine Encryption

- Hypervisor **ENCRYPTS** VM home files & VMDKs
- Guest OS **AGNOSTIC**
 - Does not require in-guest OS support
- Requires a KMIP Key Management Server infrastructure
 - List in the HCL
- Frees you from SEDs and specialized storage, use what you have right now
- **EASY TO MANAGE** via UI or PowerCLI
- Reports via PowerCLI with **ONE LINE OF CODE!**
- Additional vCenter Permissions to help **PREVENT EXFILTRATION**



Encryption of Data in Flight

With Encrypted vMotion

- Encrypts **vMotion** Traffic
- Encryption done using an **AES256-bit key** and **64-bit Nonce** generated by vCenter
- One time only use key.
NOT PERSISTED
- **SIMPLE** to enable via UI or PowerCLI
- **NO** network configuration required

Edit Settings | Win10

Virtual Hardware | **VM Options**

> General Options	VM Name: Win10
> VMware Remote Console Options	<input type="checkbox"/> Lock the guest operating system when the last remote user disconnects
> Encryption	Expand for encryption settings.
Encrypt VM	Datastore Default ▾
Encrypted vMotion	Opportunistic ▾ ⓘ
> Power management	
> VMware Tools	
> Boot Options	
> Advanced	
> Fibre Channel NPIV	

Disabled
Do not use encrypted vMotion, even if available.

Opportunistic
Use encrypted vMotion if source and destination hosts support it, fall back to unencrypted vMotion otherwise. This is the default option.

Required
Allow only encrypted vMotion. If the source or destination host does not support vMotion encryption, do not allow the vMotion to occur.

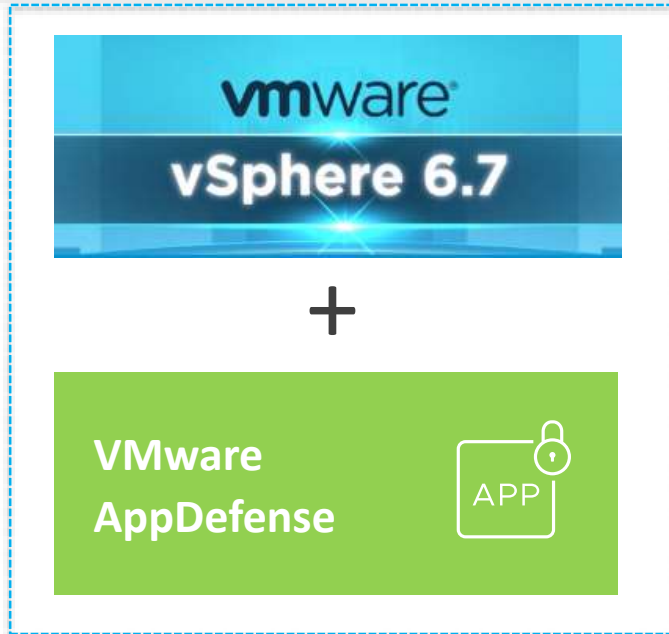
Secure Application



Introducing vSphere Platinum

The Efficient and Secure Platform for Your Hybrid Cloud

Solution



Credits for
VMware Cloud on AWS

Highlights

Secures

Infra and apps leveraging the hypervisor and the power of machine learning

Built-in

Operationally simple, with minimal overhead or impact on performance

Focus on the 'Known Good' State

apps run as they should

Path to the Hybrid Cloud

\$10k credits for VMware Cloud on AWS

vSphere Platinum Comprehensive Built-in Security

Across the Entire IT Environment

Application Visibility

- Understand application and VM behavior
- Visualize connected application components
- Quickly recognize anomalies

“Know what’s good, so you can detect what’s bad”

Behavioral Analysis

- Focus on detection and response to anomalous behavior in the data center
- Orchestrate threat response

“The right response at the right time”

Shrink the Attack Surface

- Reduce cyber risk with least privilege
- Fill a critical gap on the endpoint by focusing on application-level behavior that attackers often use

“Heart of a secure SDDC”

Embed threat detection and response into the virtualization layer

AppDefense Embeds Visibility and Classification into vCenter

vSphere Platinum Plugin delivers key AppD information to the vAdmin

VISIBILITY & CONTEXT (for Cyber Hygiene)

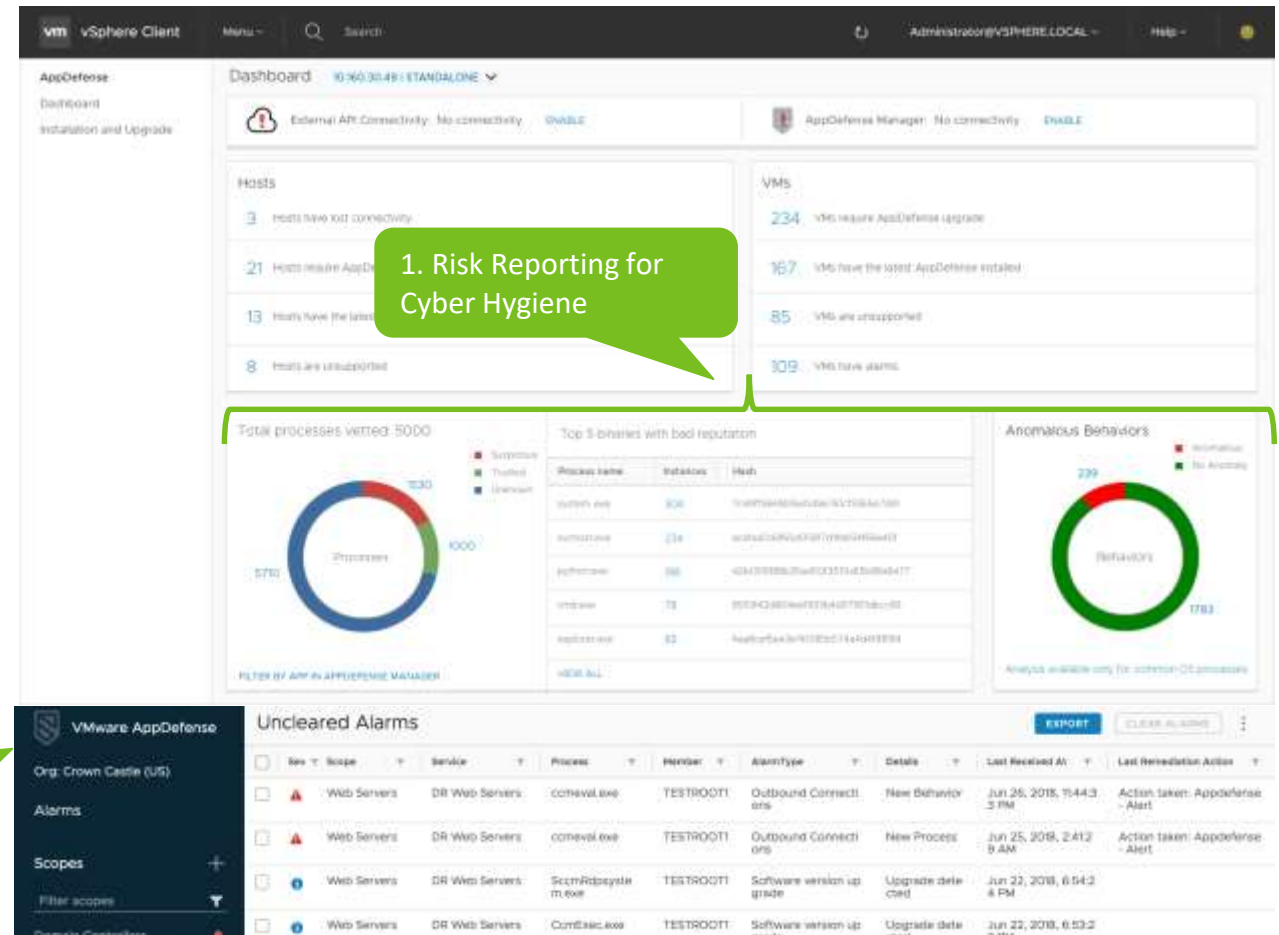
Empowers VI Admins to deliver Secure VMs for data center applications

COLLABORATION

Enables VI Admins to collaborate easily with security, compliance and app teams

SECURITY INFRA ADMINISTRATION

Simplifies lifecycle management of the security infrastructure with low operational burden



AppDefense Updates

Built-in VM Security gets Simplified Operations and Enhanced Visibility



New Scope Level Dashboard

- Real-time snapshot of your application health
- Overview of the security validation checks performed



Adaptive Allowed Behavior

- Reduce alerts by automatically adapting to security events that have been classified as normal by the AppDefense Verification Engine.



Monitoring and Event Classification

- AppDefense Verification Engine now alerts as three severities: Serious, Minor, and Info to reduce operational overhead by focusing on critical responses



Application Health Monitoring

- New counters show how many allowed behaviors and connections are protected and monitored by AppDefense

Testdrive vSphere Platinum Now!

<http://www.vmware.com/go/testdriveplatinum>

Empower Digital Workspace | Accelerate Cloud Journey | Transform Networking and Security

Dynamic IT Environments Demand Heightened Security

Ready to Use Experiences

Get started exploring VMware products right away on a completely set-up and integrated environment.

VMware vSphere Platinum delivers advanced security capabilities fully integrated into the world's leading hypervisor for complete data center protection. It combines vSphere and VMware AppDefense in a purpose-built, operationally simple solution with minimal overhead and performance impact.

LAUNCH
via Workspace ONE

TestDrive Walkthroughs
[Introduction to vSphere Platinum with AppDefense](#)

Credentials
Username: dstamen
Password: *****

My Products

- Empower Digital Workspace
- Accelerate Cloud Journey
- Transform Networking and Security

Help & Support

- Walkthroughs
- Videos
- Hands-on Labs
- Contact us

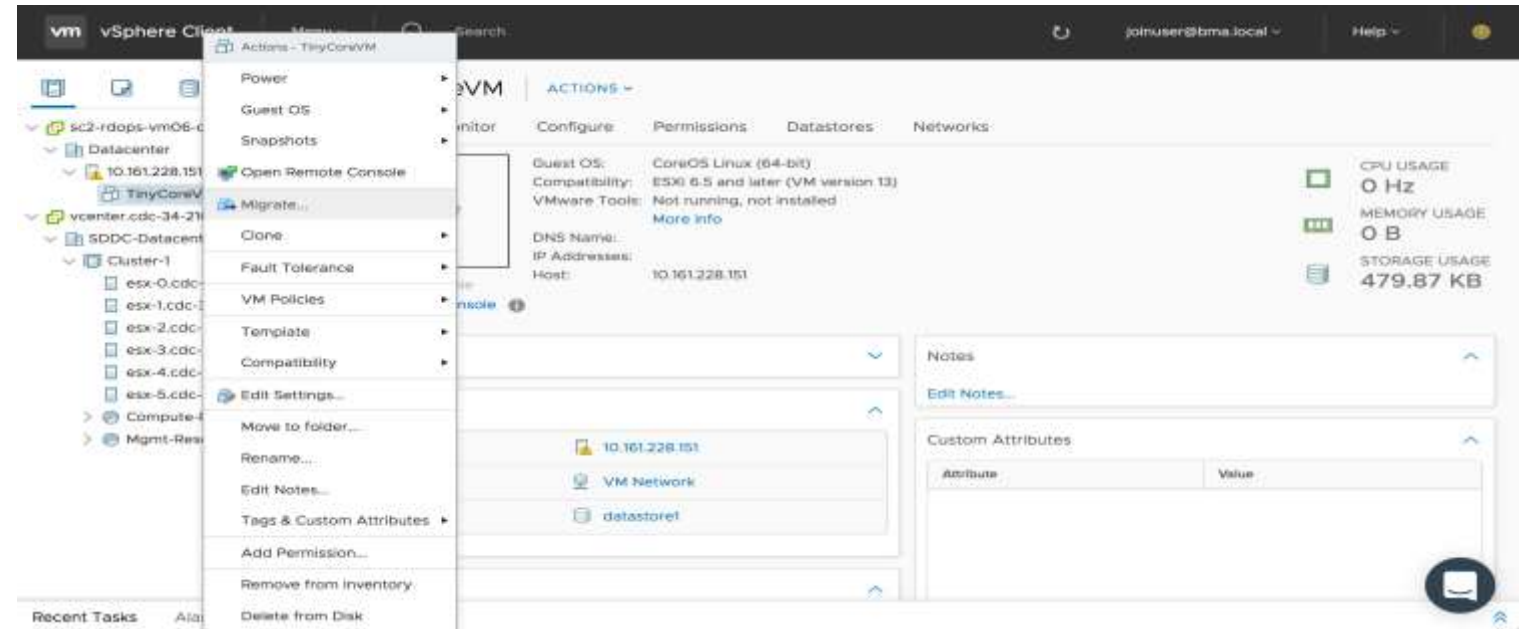
Secure Migration



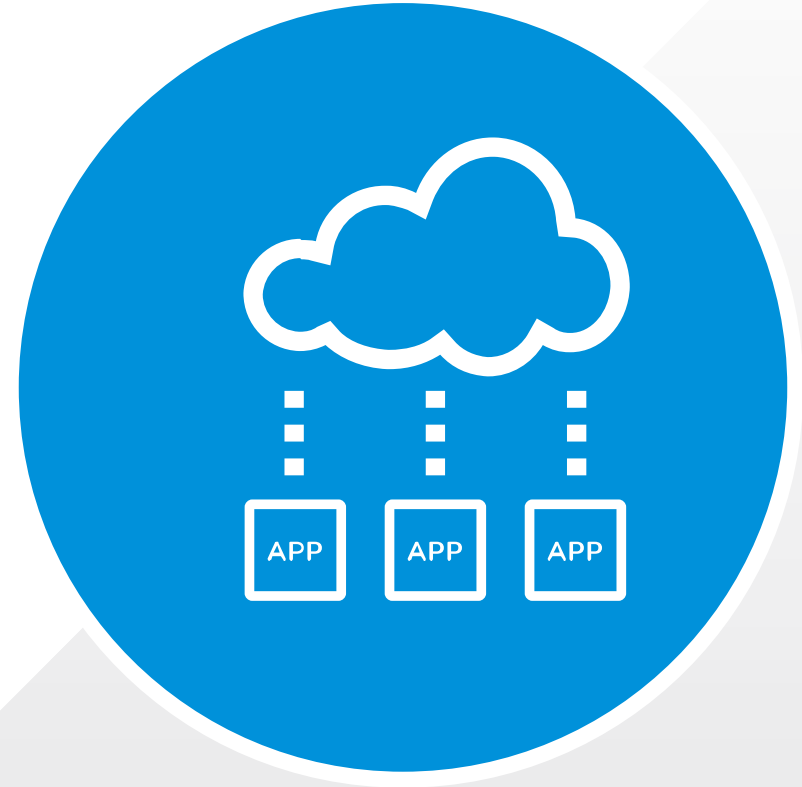
Securing the Hybrid Cloud Experience

VMware HCX enables EASY migration to VMware Cloud on AWS with vCenter Hybrid Linked Mode

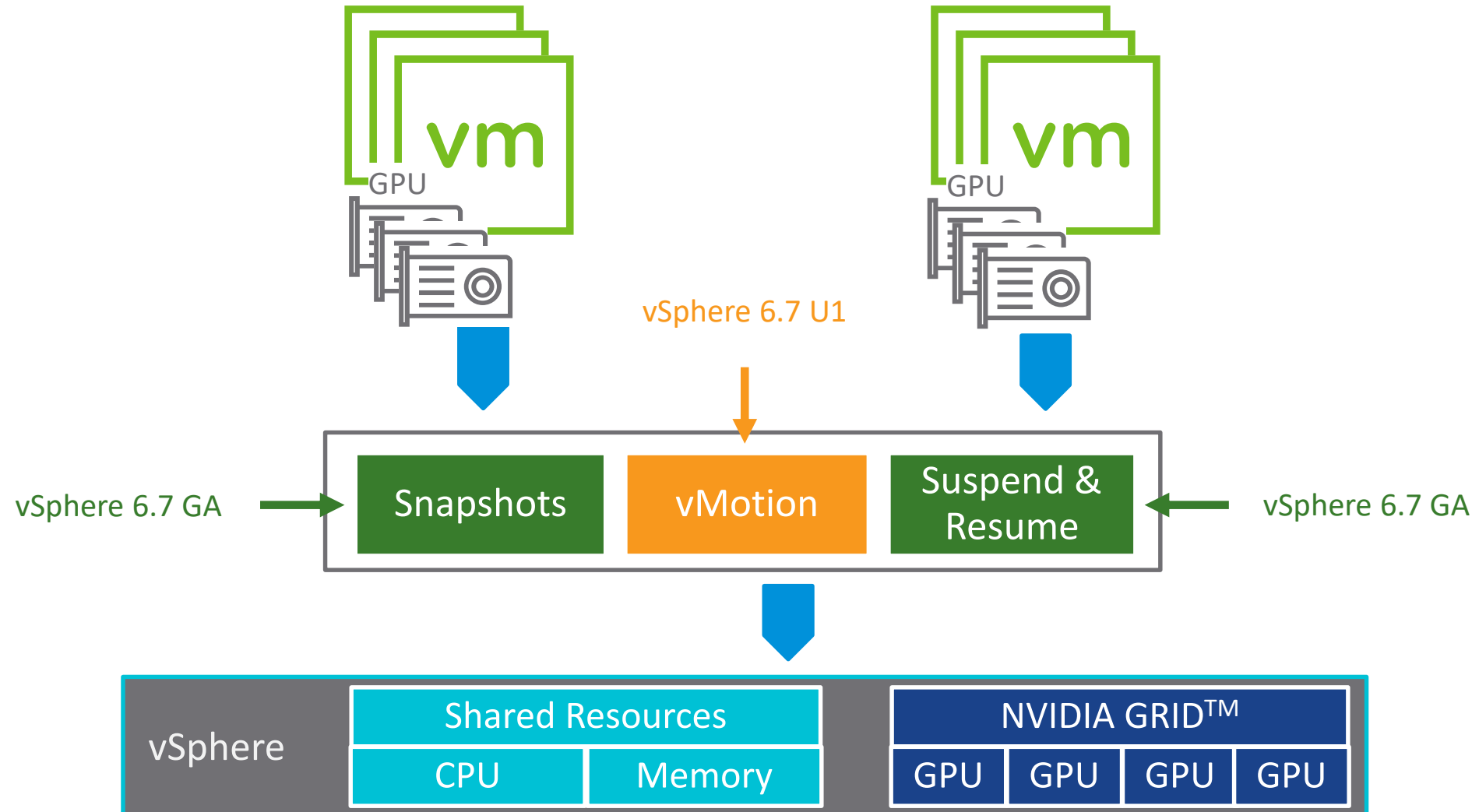
- **SIMPLE** to configure
- **RIGHT-CLICK AND MIGRATE**, just like a normal vMotion
- **NO VIRTUAL MACHINE RECONFIGURATION** necessary
- **NO SWITCHING** between VM formats



Universal Application Platform



vMotion for NVIDIA GRID vGPU Powered VMs



Feature Support for vGPU

Features	vSphere 6.7	vSphere 6.7 U1
Suspend and resume	Supported	Supported
Disk-only snapshot	Supported	Supported
Clone	Supported	Supported
Powered off migration	Supported	Supported
Memory snapshot and quiescing	Not supported	Supported
vSphere vMotion	Not supported	Supported
vSphere Storage vMotion	Not supported	Supported
Hot-Add of virtual devices	Not supported	Supported

Persistent Memory (PMEM)

Convergence of Memory and Storage

New tier of storage aimed at **Enterprise Applications**

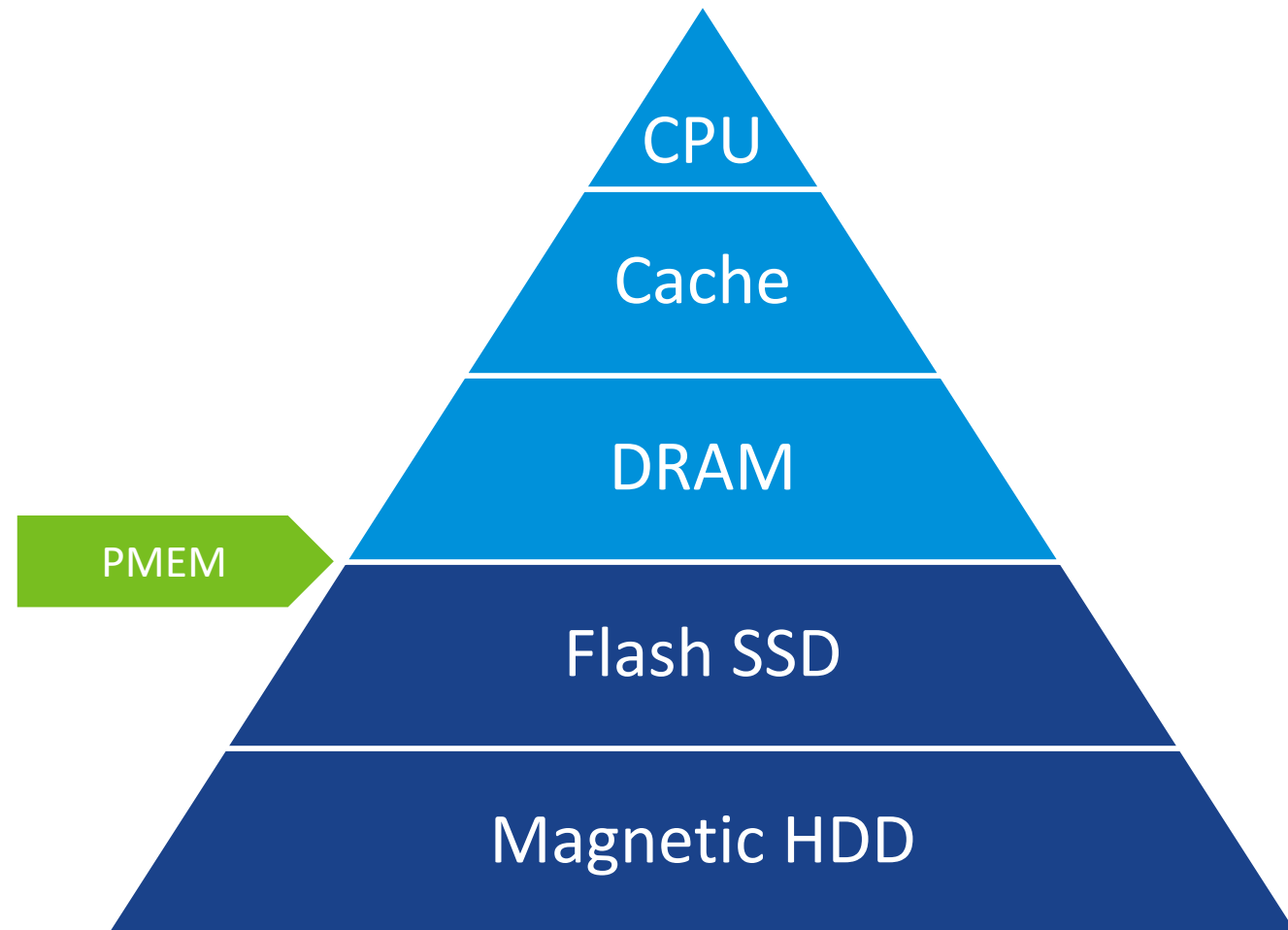
Lower cost than DRAM / **Higher performance** than SSD

Byte Addressable

Average latency of less than 0.5 microseconds

High durability

Lower power consumption than DRAM



Instant Clone

- Single API call
- Clone independent of the source VM
- vMotion/HA/DRS support



Rebootless

Instant Clone helps deploy hundreds of VMs instantly without needing to reboot while preserving the VM state

30x

Instant
Clone

Performance

Helps move to a new paradigm of “Just-in-time” provisioning with 30x improvement for time taken to fork a clone



Flings

Customers are already using Instant Clone fling today to deploy 700+ VMs daily in their production CI-CD environment to achieve their DevOps goals

More Performance for More Applications

Support for 40 & 100 Gb Ethernet and RDMA

- Enables more network-hungry applications & distributed computing

VM Compatibility version 15

- Provides support for up to 256 vCPU
 - Will only be supported on vSphere 6.7U2
 - Customer driven, targeted at SAP HANA and other compute intensive workloads
 - No change to other guest maximums



Seamless Hybrid Cloud Experience



Hybrid Linked Mode

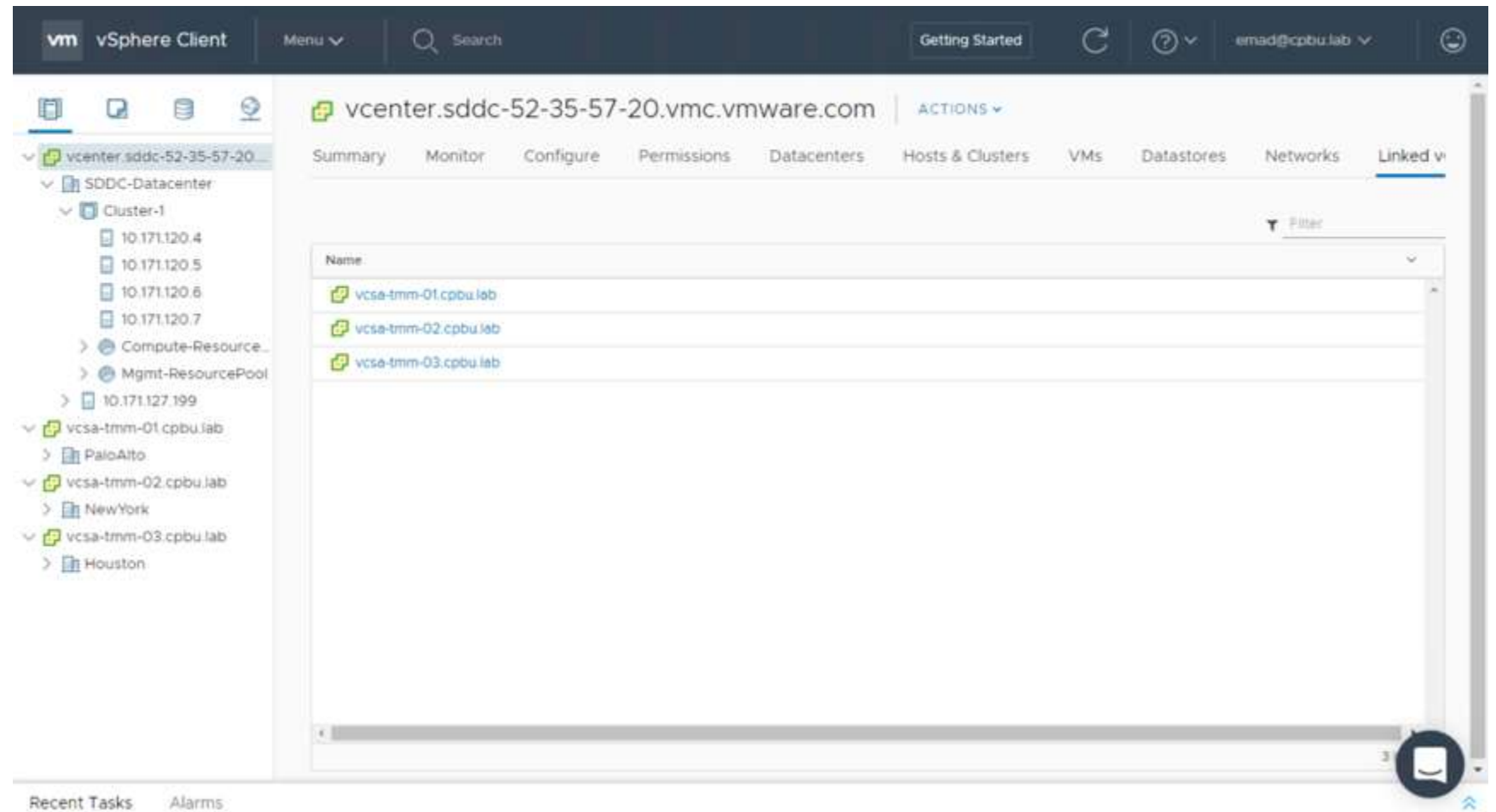
Single Management View

Single management view across VMware Cloud on AWS and on-premises datacenter

Supports both embedded or external deployments on-premises

Maintains separate permissions between Cloud SDDC and on-premises datacenter

Enable and disable linking



Workload Mobility

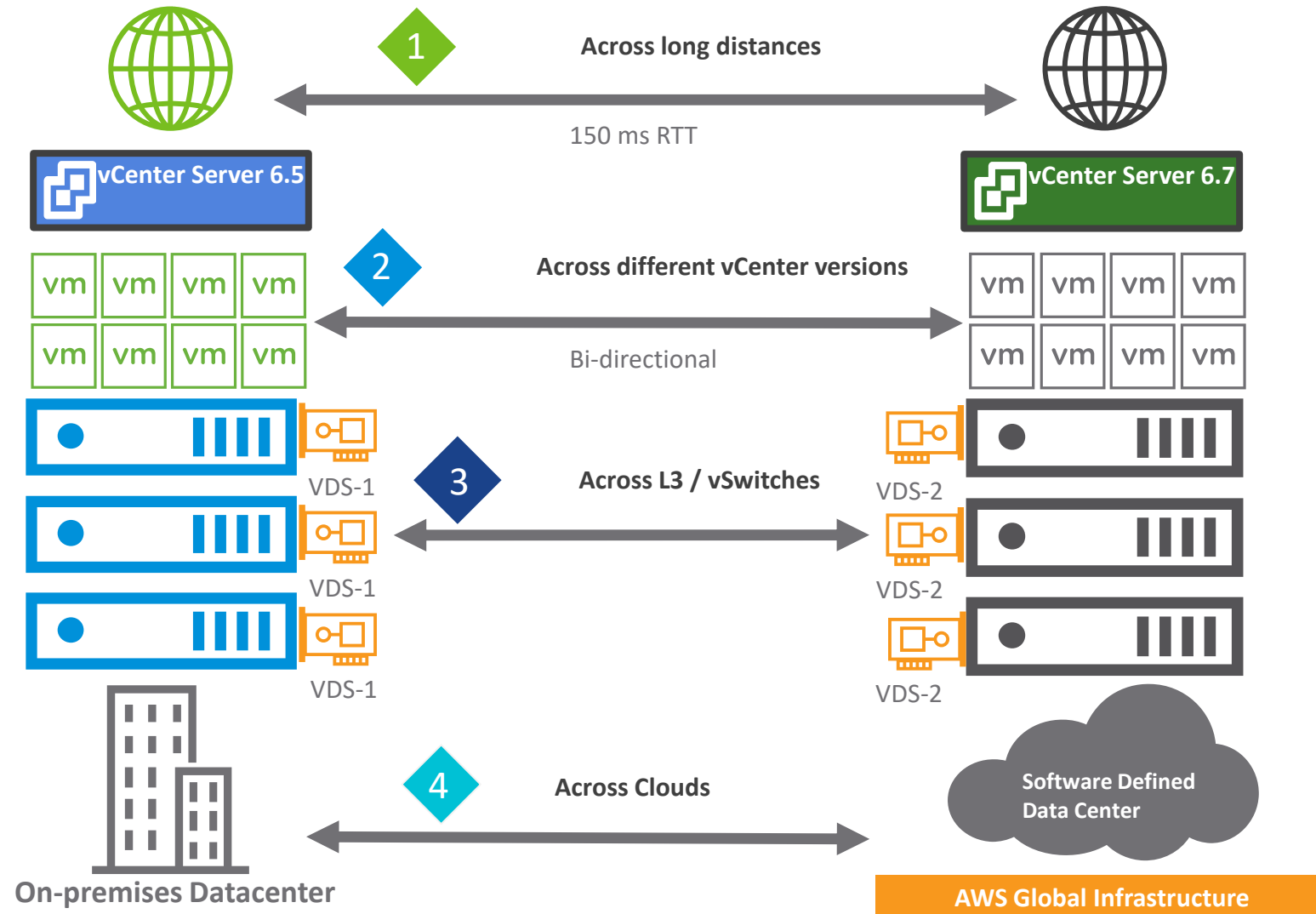
Cross-vCenter Mixed Version Provisioning

Requirements

- 150 ms RTT
- 250 Mbps
- VM Compatibility v9



Transit vMotion data is encrypted



Per-VM Enhanced vMotion Compatibility

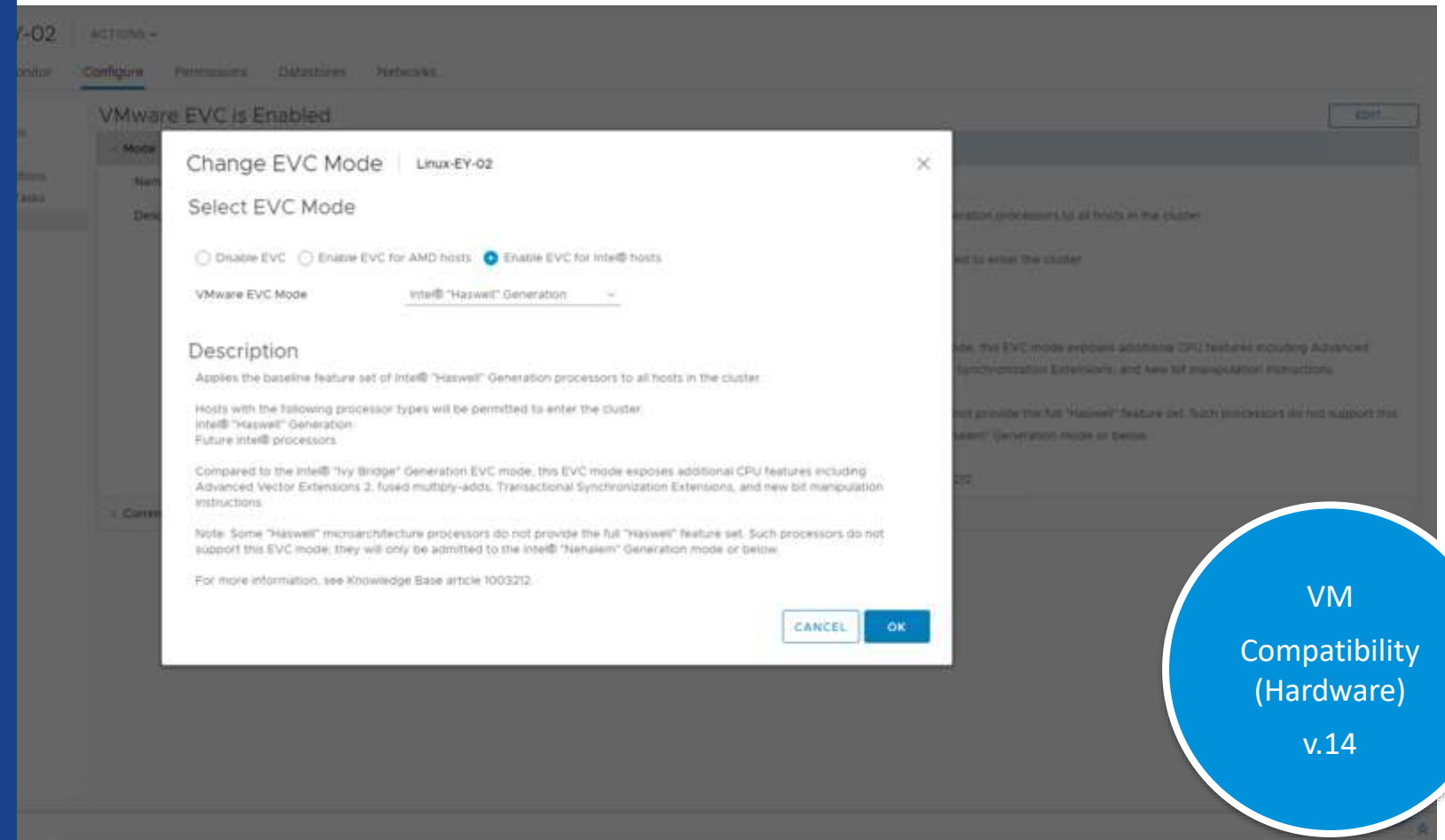
Allows granularity of enabling EVC for particular VMs rather than a cluster of hosts

Improving the mobility of a VM beyond a cluster including to VMware Cloud on AWS.

Persisting EVC mode across:

- Cluster
- Data Center
- vCenter Server

Persists through a power cycle



VM
Compatibility
(Hardware)
v.14

BREAK

Pre-Upgrade Considerations

vSphere Lifecycle Information

KB 66977 – EOL vSphere 6.0

March 12, 2020

End of General Support for vSphere 6.0 (66977)

Last Updated: 2/7/2019 Categories: Informational

▼ Purpose

This article provides information on the End of General Support for vSphere 6.0, which includes vSphere Hypervisor ESXi 6.0 and vCenter Server 6.0.

▼ Resolution

The End of General Support for vSphere 6.0 is March 12, 2020. To maintain your full level of Support and Subscription Services, VMware recommends upgrading to vSphere 6.5 or vSphere 6.7. VMware has extended the general support for vSphere 6.5 to a full five years from date of release, which means the general support for vSphere 6.5 will end on November 16, 2021. The End of General support for vSphere 6.7 will also be on November 16, 2021. For more information on the benefits of upgrading and how to upgrade, visit the [VMware vSphere Upgrade Center](#).

If you would like assistance in moving to a newer version of vSphere, VMware's vSphere Upgrade Service is available. This service delivers a comprehensive guide to upgrading your virtual infrastructure. It includes recommendations for planning and testing the upgrade, the actual upgrade itself, validation guidance and rollback procedures. For more information, contact your Technical Account Manager or visit [VMware Professional Services](#) and [VMware Consulting Engagement Request](#).

Technical Guidance for vSphere 6.0 is available until March 12, 2022 primarily through the self-help portal. During the Technical Guidance phase, VMware does not offer new hardware support, server/client/guest OS updates, new security patches or bug fixes unless otherwise noted. For more information, visit [VMware Lifecycle Support Phases](#).

▼ Related Information

- [VMware vSphere Upgrade Center](#)
- [VMware Lifecycle Product Matrix](#)
- [Professional Services Consulting Request](#)
- [VMware Professional Services](#)
- [VMware Support](#)
- [vSphere Central](#)

▼ Request a Product Feature

To request a new product feature or to provide feedback on a VMware product, please visit the [Request a Product Feature](#) page

VMware Lifecycle Product Matrix

vmware.com/go/lifecycle

VMware Lifecycle Product Matrix

Supported Products, as of July 15, 2019

Dates highlighted in **red** indicate a product version is within 6 months of End of General Support or End of Technical Guidance. Dates highlighted in **purple** indicate a product version has gone past its End of General Support.

PRODUCT RELEASE	GENERAL AVAILABILITY	END OF GENERAL SUPPORT	END OF TECHNICAL GUIDANCE	LIFECYCLE POLICY	END OF AVAILABILITY	NOTES
AirWatch Console 9.3	2018/03/14	2019/09/14	N/A	EDP		N
App Volumes 2.12	2016/12/08	2018/12/06	2019/12/06	EDP		A, B
App Volumes 2.13	2017/10/19	2019/10/19	2020/10/19	EDP		A, B
App Volumes 2.14	2018/05/29	2020/05/29	2021/05/29	EDP		A, B
App Volumes 2.15	2018/12/13	2020/12/13	2021/12/13	EDP		
App Volumes 2.16	2019/03/14	2021/03/14	2022/03/14	EDP		
AppDefense Plugin 2.0 for Platinum Edition	2018/10/31	2019/10/31	N/A	N-2		
AppDefense Plugin 2.1 for Platinum Edition	2019/02/19	2020/02/19	N/A	N-2		
AppDefense Plugin 2.2 for Platinum Edition	2019/05/21	2020/05/21	N/A	N-2		
Cloud Provider Pod 1.0	2018/10/18	2020/10/18	N/A	EAP		
Essentials PKS 1.13.4	2019/04/02	2020/04/01	N/A	N-2		
ESXi 5.5	2013/09/19	2018/09/19	2020/09/19	EIP		A, B
ESXi 6.0	2015/03/12	2020/03/12	2022/03/12	EIP		
ESXi 6.5 and 6.7	2016/11/15	2021/11/15	2023/11/15	EIP		A, B

vSphere 6.7 Upgrade Paths

Source	Destination	Upgrade Path
vSphere 6.0 (any)	vSphere 6.7 (any)	Supported
vSphere 6.0 u3j	vSphere 6.5 or 6.7 (any)	Not Supported
vSphere 6.5 – 6.5 U1g	vSphere 6.7 (any)	Supported
vSphere 6.5 U2	vSphere 6.7	Not Supported
vSphere 6.5 – 6.5 U2c	vSphere 6.7 U1 or greater	Supported
vSphere 6.5 U2d/e/f	vSphere 6.7 – 6.7 U1b	Not Supported
vSphere 6.5 U2d/e/f	vSphere 6.7 U2 or greater	Supported
vSphere 6.5 U3	vSphere 6.7 – 6.7 U2c	Not Supported
vSphere 6.5 U3	vSphere 6.7 U3	Supported

* Always consult the release notes prior to patching or upgrading *

vSphere Back-in-Time Upgrade Restriction



Product Release Notes

VMware vCenter Server 6.7 Update 1b Release Notes

Last Updated 01/18/2019

[Add To MyLibrary](#)

vCenter Server 6.7 Update 1b | JAN 17 2019 | ISO Build 11726888

vCenter Server Appliance 6.7 Update 1b | JAN 17 2019 | Build 11726888

Check for additions and updates to these release notes.

What's in the Release Notes

The release notes cover the following topics:

- [What's New](#)
- [Earlier Releases of vCenter Server 6.7](#)
- [Upgrade Notes for This Release](#)
- [Patches Contained in this Release](#)
- [Resolved Issues](#)
- [Known Issues from Earlier Releases](#)

What's New

The vCenter Server 6.7 Update 1b release addresses issues documented in the [Resolved Issues](#) section.

Earlier Releases of vCenter Server 6.7

Features and known issues of vCenter Server are described in the release notes for each release. Release notes for earlier releases of vCenter Server 6.7 are:

- [VMware vCenter Server 6.7 Update 1 Release Notes](#)
- [VMware vCenter Server 6.7.Dd Release Notes](#)
- [VMware vCenter Server 6.7.Dc Release Notes](#)
- [VMware vCenter Server 6.7.Db Release Notes](#)
- [VMware vCenter Server 6.7.Da Release Notes](#)
- [VMware vSphere 6.7 Release Notes](#)

For internationalization, compatibility, installation and upgrades, open source components and product support notices see the [VMware vSphere 6.7 Release Notes](#).

Upgrade Notes for This Release

IMPORTANT: Upgrade and migration paths from vCenter Server 6.5 Update 2d and vCenter Server 6.5 Update 2e to vCenter Server 6.7 Update 1b are not supported.

vSphere Back-in-time release upgrade restriction

vSphere Back-in-time release upgrade restriction (67077)

Last Updated: 4/15/2019 Categories: Troubleshooting

▼ Symptoms

- Upgrade to a vSphere version that is released prior to your current installation is not supported.
- Back-in-time release: A patch or update release that is backdated with reference to the release you are planning to upgrade from.

E.g. your current installation is vSphere 6.5 u2d (released on 29-Nov-2018) and you plan to upgrade to vSphere 6.7u1 (released on 16-Oct-2018). vSphere 6.7u1 is considered back-in-time release with reference to vSphere 6.5u2d.
- Upgrade from vSphere 6.5u2d to vSphere 6.7u1 is not supported due to the back-in-time nature of vSphere 6.7u1. vSphere 6.5u2d contains code and security fixes that are not in vSphere 6.7u1 and might cause regression.

▼ Purpose

This article provides information on the concept of "back-in-time" upgrade scenarios. Back-in-time upgrades are not supported by VMware.

▼ Resolution

A back-in-time scenario is defined as an upgrade path that would result in the deliberate regression of code and security fixes.

Example:

1. The current installation is vSphere 6.5 u2d (released on 29-Nov-2018).
2. The planned upgrade path is to vSphere 6.7u1 (released on 16-Oct-2018).
3. vSphere 6.7u1 is therefore considered a back-in-time release with reference to vSphere 6.5u2d.

Due to recent out-of-band patching for PhotonOS, there are versions of vCenter Server with a release date that appear to make them supported upgrade paths, but would still create a regression of code. These are detailed below.

vCenter Server Appliance 6.5 U2d > vCenter Server Appliance 6.7 U1a
vCenter Server Appliance 6.5 U2d > vCenter Server Appliance 6.7 U1b

Note: Always reference the vSphere Release Notes for considerations when planning an upgrade to a vSphere environment.

Related Resources

- KB • Estimating the time for migration of vCenter Server 5.5 or 6.0 to vCenter Server Appliance 6.5 (2147711)
- KB • Emails are not sent from vCenter Server Appliance 6.5 or 6.7 after an Alert/Event is triggered. (54375)
- KB • Increasing the disk space for the VMware vCenter Server Appliance in vSphere 6.7 (67762)
- Blogs • Upgrade vCenter Server Appliance 6.5 to 6.7
- KB • Unable to Configure NTP in vCenter Server Appliance 6.7 VAMI (59729)

Related Versions:

VMware vSphere ESXi 6.0
VMware vSphere ESXi 6.7
VMware vSphere ESXi 6.5
VMware vCenter Server Appliance 6.7.x
VMware vCenter Server Appliance 6.5.x
VMware vCenter Server Appliance 6.0.x
VMware vCenter Server 6.7.x
VMware vCenter Server 6.5.x

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VMware vSphere Product Documentation Technical Articles

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- GUI Deployment of the vCenter Server Appliance and Platform Services Controller Appliance**
- Required Information for Deploying a vCenter Server Appliance or Platform Services Controller Appliance
- > Deploy the vCenter Server Appliance with an Embedded Platform Services Controller by Using the GUI
- > Deploy a Platform Services Controller Appliance by Using the GUI
- > Deploy the vCenter Server Appliance with an External Platform Services Controller by Using the GUI
- > CLI Deployment of the vCenter Server Appliance and Platform Services Controller Appliance
- > Installing vCenter Server and Platform Services Controller on Windows
- > File-Based Backup and Restore of vCenter Server Appliance
- > Image-Based Backup and Restore of a vCenter Server Environment
- > After You Install vCenter Server or Deploy the vCenter Server Appliance
- > Troubleshooting vCenter Server Installation or

GUI Deployment of the vCenter Server Appliance and Platform Services Controller Appliance

Last Updated 01/10/2018 👍 0

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You can use the GUI installer to perform an interactive deployment of a vCenter Server Appliance with an embedded Platform Services Controller, a Platform Services Controller appliance, or a vCenter Server Appliance with an external Platform Services Controller.

When you perform the GUI deployment, you download the vCenter Server Appliance installer on a network client machine, run the deployment wizard from the client machine, and provide the inputs that are required for the appliance deployment and setup.

Important:

For topologies with external Platform Services Controller instances, you must deploy the replicating Platform Services Controller instances in a sequence. After the successful deployment of all Platform Services Controller instances in the domain, you can perform concurrent deployments of multiple vCenter Server appliances that point to a common external Platform Services Controller instance.

The GUI deployment process includes a series of two stages:

Stage 1 - OVA Deployment



The first stage walks you through the deployment wizard to choose the deployment type and appliance settings. This stage completes the deployment of the OVA file on the target server with the deployment type and appliance settings that you provide.

As an alternative to performing the first stage of the deployment with the GUI installer, you can deploy the OVA file of the vCenter Server Appliance or Platform Services Controller appliance by using the vSphere Web Client or VMware Host Client. To deploy the OVA file on an ESXi host or vCenter Server instance of 6.0, you can also use the vSphere Client. After the OVA deployment, you must log in to the appliance management interface of the newly deployed appliance to proceed with the second stage of the deployment process.

vSphere Interoperability Matrices

<http://www.vmware.com/go/interop>

 Compatible
 Incompatible
 Not supported

VMware vCenter Server	6.7 U3	6.7 U2	6.7 U1	6.7.0	6.5 U3	6.5 U2	6.5 U1	6.5.0	6.0 U3	6.0.0 U2	6.0.0 U1	6.0.0	5.5 U3	5.5 U2	5.5 U1	5.5	5.1 U3
6.7 U2	✓																
6.7 U1	✓	✓															
For vCenter Server 6.7.0 onwards, applies to vCenter Server as well as to Update Manager Upgrade from 6.5 patches post 6.5 U2, dated November 2018 or after, to 6.7 U1 are unsupported as it is considered back-in time																	
6.5 U2	✓	✓	✓	✗	✓												
6.5 U1	✓	✓	✓	✓	✓	✓											
6.5.0	✓	✓	✓	✓	✓	✓	✓										
6.0 U3	✓	✓	✓	✓	✓	✓	✓	✗									
6.0.0 U2	✓	✓	✓	✓	✓	✓	✓	✓	✓								
6.0.0 U1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
6.0.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						

vSphere Interoperability Matrices

<http://www.vmware.com/go/interop>

 Compatible
 Incompatible
 Not supported

VMware vCenter Server	6.7 U2	6.7 U1	6.7.0	6.5 U2	6.5 U1	6.5.0	6.0 U3	6.0.0 U2	6.0.0 U1	6.0.0
 VMware Site Recovery Manager										
8.2	✓	✓	✓	✓	✓	✓	✓	—	—	—
8.1.2	✓	✓	✓	✓	✓	✓	✓	—	—	—
8.1.1	✓	✓	✓	✓	✓	✓	✓	—	—	—
8.1	✓	✓	✓	✓	✓	✓	✓	—	—	—
8.0	—	—	—	✓	✓	✓	✓	—	—	—
6.5.1	—	—	—	✓	✓	—	—	—	—	—
6.5	—	—	—	—	—	✓	—	—	—	—
6.1.2	—	—	—	—	—	—	✓	—	—	—
6.1.1	—	—	—	—	—	—	—	✓	—	—
6.1	—	—	—	—	—	—	—	✓	✓	—
6.0	—	—	—	—	—	—	—	✓	✓	✓

VMware vRealize Automation	7.6.0	7.5.0	7.4.0	7.3.1
Microsoft SQL Server 2012 Enterprise (SP2) - 32 bit	—	—	✓	✓
Microsoft SQL Server 2012 Enterprise (SP2) - 64 bit	—	—	✓	✓
Microsoft SQL Server 2012 Standard (SP2) - 32 bit	—	—	✓	✓
Microsoft SQL Server 2012 Standard (SP2) - 64 bit	—	—	✓	✓
Microsoft SQL Server 2012 Enterprise (SP3) - 32 bit	✓	—	✓	✓
Microsoft SQL Server 2012 Enterprise (SP3) - 64 bit	✓	—	✓	✓
Microsoft SQL Server 2012 Standard (SP3) - 32 bit	✓	—	✓	✓
Microsoft SQL Server 2012 Standard (SP3) - 64 bit	✓	—	✓	✓
Microsoft SQL Server 2014 Standard (SP1) - 32-bit	✓	✓	✓	✓
Microsoft SQL Server 2014 Standard (SP1) - 64-bit	✓	✓	✓	✓
Microsoft SQL Server 2014 Enterprise (SP1) - 32-bit	✓	✓	✓	✓
Microsoft SQL Server 2014 Enterprise (SP1) - 64-bit	✓	✓	✓	✓
Microsoft SQL Server 2014 Standard (SP2) - 32-bit	✓	✓	✓	✓
Microsoft SQL Server 2014 Standard (SP2) - 64-bit	✓	✓	✓	✓
Microsoft SQL Server 2014 Enterprise (SP2) - 32-bit	✓	✓	✓	✓
Microsoft SQL Server 2014 Enterprise (SP2) - 64-bit	✓	✓	✓	✓

Update sequence for vSphere 6.7

Supported Update Sequence

Use the scroll bar in the table to view the complete list.

	vRA	vRO	vRB	vROPs	vRLI	vRLI Agent	vROps EPOps	vADP-based Backup solution	NSX-v	NSX-T	External PSC	vCenter Server	VUM	FR	SRM	UMDS	ESXi	VMware Tools	Virtual Hardware	VSAN/VMFS					
Seq.	1																								
		2	2																						
				3	3																				
						4	4																		
								5																	
										6	6														
												7													
													8												
														9											
															10	10									
																	11								
																		12							
																			13						
																				14					
																								15	

Note: If you need to update multiple products in your environment, start with updating the product with the lowest sequence number. After you update the product, update the product with the next sequence number. If a product is not present in your environment, update the subsequent product. If you need to update two products with the same sequence number, the order of update does not matter.

CrashMe

ESXiinVM cr0=0x80010031 cr2=0x2e023514c cr3=0x12f51a000 cr4=0x142768

*PCPU0:2099462/vsish

PCPU 0: US

Code start: 0x418038e00000 VMK uptime: 0:00:01:45.816

0x451a1761b360: [0x418038f08ca5]PanicvPanicInt@vmkernel#nover+0x439 stack: 0x430481394010

0x451a1761b400: [0x418038f08ed8]Panic_NoSave@vmkernel#nover+0x4d stack: 0x451a1761b460

0x451a1761b460: [0x4180390f241e]CrashMeCurrentCore@vmkernel#nover+0x83b stack: 0x2e0235

0x451a1761b560: [0x4180390f2cae]CrashMe_VsiCommandSet@vmkernel#nover+0xd7 stack: 0x0

0x451a1761b5a0: [0x418038e02444]VSI_SetInfo@vmkernel#nover+0x369 stack: 0x451a1761b690

0x451a1761b620: [0x4180395a2b7b]UW64VMKSyscallUnpackVSI_Set@(user)#<None>+0x2d8 stack: 0x0

0x451a1761bed0: [0x418039532660]User_UWVMK64SyscallHandler@(user)#<None>+0x249 stack: 0x5f278753f88d24ac

0x451a1761bf30: [0x418038f5d498]SyscallUWVMK64@vmkernel#nover+0x90 stack: 0x0

base fs=0x0 gs=0x418040000000 Kgs=0x0

Coredump to disk. Slot 1 of 1 on device mpx.vmhba0:C0:T0:L0:9.

Finalized dump header (14/14) DiskDump: Successful.

No file configured to dump data.

No port for remote debugger. "Escape" for local debugger.

Hardware Compatibility Guide

CPU/Memory

VMware Compatibility Guide

Search Compatibility Guide: All Listings

What are you looking for: **Systems / Servers** Compatibility Guides [Help](#) Current Results: **0**

Product Release Version: All ESXi 6.7 ESXi 6.5 U2 ESXi 6.5 U1 ESXi 6.5 ESXi 6.0 U3	System Type: All Blade Mother Board Rack or Tower Rackmount Tower	Additional Criteria: (Collapse All)	
Partner Name: All A10 Networks Aberdeen LLC Ace Computers Acer Inc. ACMA Computers Action Adlink technology Inc. Advantech Corporation AIC Inc. Alcatel-Lucent AMAX Information Technologies	Features: All Extended Configuration Maximum Fault Tolerant(FT) Legacy FT Persistent Memory SR-IOV Trusted Platform Module (TPM) UEFI Secure Boot vDGA_Linux vDGA_Win VM Direct Path IO VM DirectPath IO for General Purpose GPU	Min Certified Memory: All	Max Certified Memory: All
Keyword: <input type="text"/>		Sockets: All	Enhanced vMotion Capability Modes: All AMD Opteron™ Generation 1 AMD Opteron™ Generation 2 AMD Opteron™ Generation 3 AMD Opteron™ Generation 3 without 3DN AMD Opteron™ Generation 4
		Max Cores per Socket: All	Fault Tolerant Compatible Sets: All AMD Bulldozer Generation AMD Opteron™ Generation 3 AMD Piledriver Generation Intel® Haswell Generation Intel® Ivy-Bridge Generation Intel® Nehalem Generation Intel® Penryn Generation Intel® Sandy-Bridge Generation
		CPU Series: All AMD EPYC 7XX1 Series AMD Opteron 13xx Series AMD Opteron 22xx Series AMD Opteron 23xx Series AMD Opteron 24xx Series AMD Opteron 2xx Rev-C Series	
		Posted Date Range: All	

Hardware Compatibility Guide

IO Devices

VMware Compatibility Guide

Search Compatibility Guide: All Listings

What are you looking for: **IO Devices** Compatibility Guides Help Current Results: 0

Product Release Version: All ESXi 6.7 ESXi 6.5 U2 ESXi 6.5 U1 ESXi 6.5 ESXi 6.0 U3	I/O Device Type: All Block FC FCoE CNAs Hardware Acceleration Infiniband Memory Channel Attached Storage (MCA NVMe Network PATA SAS	Features: All 4K 512e DIF/DIX (Type 1) Firmware NetDump GENEVE-Offload IPv6 N-VDS Enhanced Data Path NetDump RSS Secondary LUNID (Enables VVols)	VID : All
Brand Name : All Adaptec Adaptec by PMC Allied Telesis AMCC	Driver Types: All Partner Async VMware Inbox	Driver Model: All native vmklinux	DID : All
Keyword: <input type="text"/>			SVID : All
			Max SSID: All
			Posted Date Range: All

ESXi Compatibility Checker

<https://labs.vmware.com/flings/esxi-compatibility-checker>

Search for Compatible IO Devices such as Network and Storage

Automated Process

- Provides Compatibility
- Links to supported drivers/firmware
- Export to CSV/HTML

```
VirtualCenter mgmt-vcsa-01.cpbu.lab> hosts
[1] Host mgmt-esx-04.cpbu.lab (Management): VMware ESX Server 6.7.0 (VMware ESXi 6.7.0 build-8169922)
[2] Host mgmt-esx-03.cpbu.lab (Management): VMware ESX Server 6.7.0 (VMware ESXi 6.7.0 build-8169922)
[3] Host mgmt-esx-02.cpbu.lab (Management): VMware ESX Server 6.7.0 (VMware ESXi 6.7.0 build-8169922)
[4] Host mgmt-esx-01.cpbu.lab (Management): VMware ESX Server 6.7.0 (VMware ESXi 6.7.0 build-8169922)
```

VC	DataCenter	Host	Type	Model Name	Installed Release	Compatible Status	Hardware Detail
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-01.cpbu.lab	Server	ProLiant DL360 Gen9	6.7.0	Compatible	CPU:Intel(R) Xeon(R) CPU E5-2660 v4 @ 2.00GHz (Feature:0000:0000:0000:0100:0000:0110)
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-01.cpbu.lab	IO Device	NetXtreme BCM5719 Gigabit Ethernet	6.7.0	Compatible	PCIID:14E4:1657:103C:22BE Driver: ntg3 4.1.3.0-1vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-01.cpbu.lab	IO Device	Ethernet Controller X710 for 10GbE SFP+	6.7.0	Compatible	PCIID:8086:1572:103C:22FC Driver: i40en 1.3.1-18vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-01.cpbu.lab	IO Device	Ethernet Controller X710 for 10GbE SFP+	6.7.0	May Not Be Compatible	PCIID:8086:1572:103C:0 Driver: i40en 1.3.1-18vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-01.cpbu.lab	IO Device	Smart Array P840	6.7.0	Compatible	PCIID:103C:3239:103C:21CB Driver: nhpsa 2.0.22-1vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-04.cpbu.lab	Server	ProLiant DL360 Gen9	6.7.0	Compatible	CPU:Intel(R) Xeon(R) CPU E5-2660 v4 @ 2.00GHz (Feature:0000:0000:0000:0100:0000:0110)
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-04.cpbu.lab	IO Device	NetXtreme BCM5719 Gigabit Ethernet	6.7.0	Compatible	PCIID:14E4:1657:103C:22BE Driver: ntg3 4.1.3.0-1vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-04.cpbu.lab	IO Device	Ethernet Controller X710 for 10GbE SFP+	6.7.0	Compatible	PCIID:8086:1572:103C:22FC Driver: i40en 1.3.1-18vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-04.cpbu.lab	IO Device	Ethernet Controller X710 for 10GbE SFP+	6.7.0	May Not Be Compatible	PCIID:8086:1572:103C:0 Driver: i40en 1.3.1-18vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-04.cpbu.lab	IO Device	Smart Array P840	6.7.0	Compatible	PCIID:103C:3239:103C:21CB Driver: nhpsa 2.0.22-1vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-02.cpbu.lab	Server	ProLiant DL360 Gen9	6.7.0	Compatible	CPU:Intel(R) Xeon(R) CPU E5-2660 v4 @ 2.00GHz (Feature:0000:0000:0000:0100:0000:0110)
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-02.cpbu.lab	IO Device	NetXtreme BCM5719 Gigabit Ethernet	6.7.0	Compatible	PCIID:14E4:1657:103C:22BE Driver: ntg3 4.1.3.0-1vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-02.cpbu.lab	IO Device	Ethernet Controller X710 for 10GbE SFP+	6.7.0	Compatible	PCIID:8086:1572:103C:22FC Driver: i40en 1.3.1-18vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-02.cpbu.lab	IO Device	Ethernet Controller X710 for 10GbE SFP+	6.7.0	May Not Be Compatible	PCIID:8086:1572:103C:0 Driver: i40en 1.3.1-18vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-02.cpbu.lab	IO Device	Smart Array P840	6.7.0	Compatible	PCIID:103C:3239:103C:21CB Driver: nhpsa 2.0.22-1vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-03.cpbu.lab	Server	ProLiant DL360 Gen9	6.7.0	Compatible	CPU:Intel(R) Xeon(R) CPU E5-2660 v4 @ 2.00GHz (Feature:0000:0000:0000:0100:0000:0110)
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-03.cpbu.lab	IO Device	NetXtreme BCM5719 Gigabit Ethernet	6.7.0	Compatible	PCIID:14E4:1657:103C:22BE Driver: ntg3 4.1.3.0-1vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-03.cpbu.lab	IO Device	Ethernet Controller X710 for 10GbE SFP+	6.7.0	Compatible	PCIID:8086:1572:103C:22FC Driver: i40en 1.3.1-18vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-03.cpbu.lab	IO Device	Ethernet Controller X710 for 10GbE SFP+	6.7.0	May Not Be Compatible	PCIID:8086:1572:103C:0 Driver: i40en 1.3.1-18vmw.670.0.0.8169922
mgmt-vcsa-01.cpbu.lab	Management	mgmt-esx-03.cpbu.lab	IO Device	Smart Array P840	6.7.0	Compatible	PCIID:103C:3239:103C:21CB Driver: nhpsa 2.0.22-1vmw.670.0.0.8169922

```
but certified driver versions are higher than 1.3.1-18vmw.670.0.0.8169922
More information: http://www.vmware.com/resources/compatibility/detail.php?deviceCategory=io&productid=40939
- IO Device 'HP Smart Array P840 controller' (PCIID:103c:3239:103c:21cb) is certified
but certified driver versions are higher than 2.0.22-1vmw.670.0.0.8169922
More information: http://www.vmware.com/resources/compatibility/detail.php?deviceCategory=io&productid=37429
```

vSphere Health Checks

vCheck

vCheck

General Information

- Cluster Node version
- QuickStats Capacity Planning
- DRS Rules
- Clusters Without Host Profile Attached
- ESXi with Technical Support mode or ESXi Shell enabled
- ESXi hosts which do not have Lockdown mode enabled
- Active Directory Authentication
- NTP Name and Service
- System Name
- Host Build versions in use
- Number of VMs per Datastore
- Datastores with Storage I/O Control Disabled
- vSwitch Security
- VMs with over CPU Count
- Checking VM Hardware Version
- VMs in inconsistent folders
- Find VMs with thick or thin provisioned disks
- ESX Mismatch
- VMs with CPU or Memory Limits Configured
- Virtual machines with incorrect OS configuration
- Powered Off VMs
- VMs by Operating System
- MS-named virtual machines

General Information

General details on the infrastructure

Number of hosts:	8
Number of VMs:	30
Number of Templates:	4
Number of Clusters:	1
Number of Datastores:	3
Active VMs:	18
In-active VMs:	12
DRS Migrations for last 1 Days:	0
Number of Datastore Clusters:	0

Cluster Node version

Display per cluster nodes version if unique or mismatch

Cluster	VMware ESXi 6.5.1 build-xxxxx
Cluster-1	VMware ESXi 6.5.1 build-xxxxx

QuickStats Capacity Planning

vCheck v6.23 by Alan Renouf generated on Monday, October 2, 2017 at 8:02:52 PM

<https://github.com/alanrenouf/vCheck-vSphere>



RVTools

RVTools (app-vcsa-01.cpbulab)

File Edit View VM ESX Health Help

vInfo vCPU vMemory vDisk vPartition vNetwork vFloppy vCD vSnapshot vTools vRP vCluster vHost vHBA vNIC vSwitch vPort vSwitch vPort vSCSI vColocate vMultiPath vLicense vHealth

Name	Message	Message type	VI SDK Server	VI SDK UUID
[vsanDatastore] 97e2a70b-b6fb-f02d-1248-246e	Possibly a Zombie vmdk file! Please check.	Zombie	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
[vsanDatastore] 97e2a70b-b6fb-f02d-1248-246e	Possibly a Zombie vmdk file! Please check.	Zombie	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
[vsanDatastore] 97e2a70b-b6fb-f02d-1248-246e	Possibly a Zombie vmdk file! Please check.	Zombie	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
[vsanDatastore] 950095b-1288-7e2f-cede-246e	Possibly a Zombie vmdk file! Please check.	Zombie	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
[vsanDatastore] a08b405c-308a-c1b5-770e-246e	Possibly a Zombie vmdk file! Please check.	Zombie	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
[vsanDatastore] aa00f5c-000b-c2ab-cb73-246e	Possibly a Zombie vmdk file! Please check.	Zombie	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
[vsanDatastore] cb54446c-4f5d-4317-cea1-246e	Possibly a Zombie vmdk file! Please check.	Zombie	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
dc-vmware-demo	Inconsistent Foldername! VMname = dc-vmware-demo Foldername = 2025705c-1ea4-d7e2-1aa1-246e	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
DS-F5-01	Inconsistent Foldername! VMname = DS-F5-01 Foldername = ea173a6c-6876-7087-6556-246e0d429	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
DS-H5-01	Inconsistent Foldername! VMname = DS-H5-01 Foldername = c5a0385c-e0d4-d253-e420-246e96d2c	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
DS-LIN-01	Inconsistent Foldername! VMname = DS-LIN-01 Foldername = 114a195c-0a71-7e3b-dc83-246e96d42	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
esx-photon-small	Inconsistent Foldername! VMname = esx-photon-small Foldername = 2a8c445c-aa1d-3e30-5443-246e	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
EncryptedVM-01	VMware tools are out of date, not running or not installed!	VM Tools	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
ESX-CDR-01	Inconsistent Foldername! VMname = ESX-CDR-01 Foldername = Be93075c-9a40-580e-a34a-246e96d	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
ESX-CDR-02	Inconsistent Foldername! VMname = ESX-CDR-02 Foldername = d495075c-8c75-2759-3d1c-246e96d	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
ESX-CDR-03	Inconsistent Foldername! VMname = ESX-CDR-03 Foldername = f993075c-8420-c899-d9e-246e96d	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
ESX-CDR-04	Inconsistent Foldername! VMname = ESX-CDR-04 Foldername = 2b5a375c-fc3e-8c1e-3744-246e96d	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
ESX-EDB-01	Inconsistent Foldername! VMname = ESX-EDB-01 Foldername = 4407195c-9885-8e06-1994-246e96d4	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
ESX-EDB-02	Inconsistent Foldername! VMname = ESX-EDB-02 Foldername = 9167195c-fa02-a904-3e0d-246e96d4	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
ESX-EDB-03	Inconsistent Foldername! VMname = ESX-EDB-03 Foldername = 3e67195c-aa57-231c-9882-246e96d	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
ESX-EDB-04	Inconsistent Foldername! VMname = ESX-EDB-04 Foldername = c867195c-f452-2a94-112b-246e96d4	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
ESX-LDN-01	Inconsistent Foldername! VMname = ESX-LDN-01 Foldername = 0744ab7b-d4b8-5c37-7774-246e96d	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
ESX-LDN-02	Inconsistent Foldername! VMname = ESX-LDN-02 Foldername = d44484b-d8b3-c08e-1107-246e96d2	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...
ESX-LDN-03	Inconsistent Foldername! VMname = ESX-LDN-03 Foldername = ab49ab7b-d631-e13d-0859-246e96d	Foldername	app-vcsa-01.cpbulab	2c78b83-9310-4420-ba51...

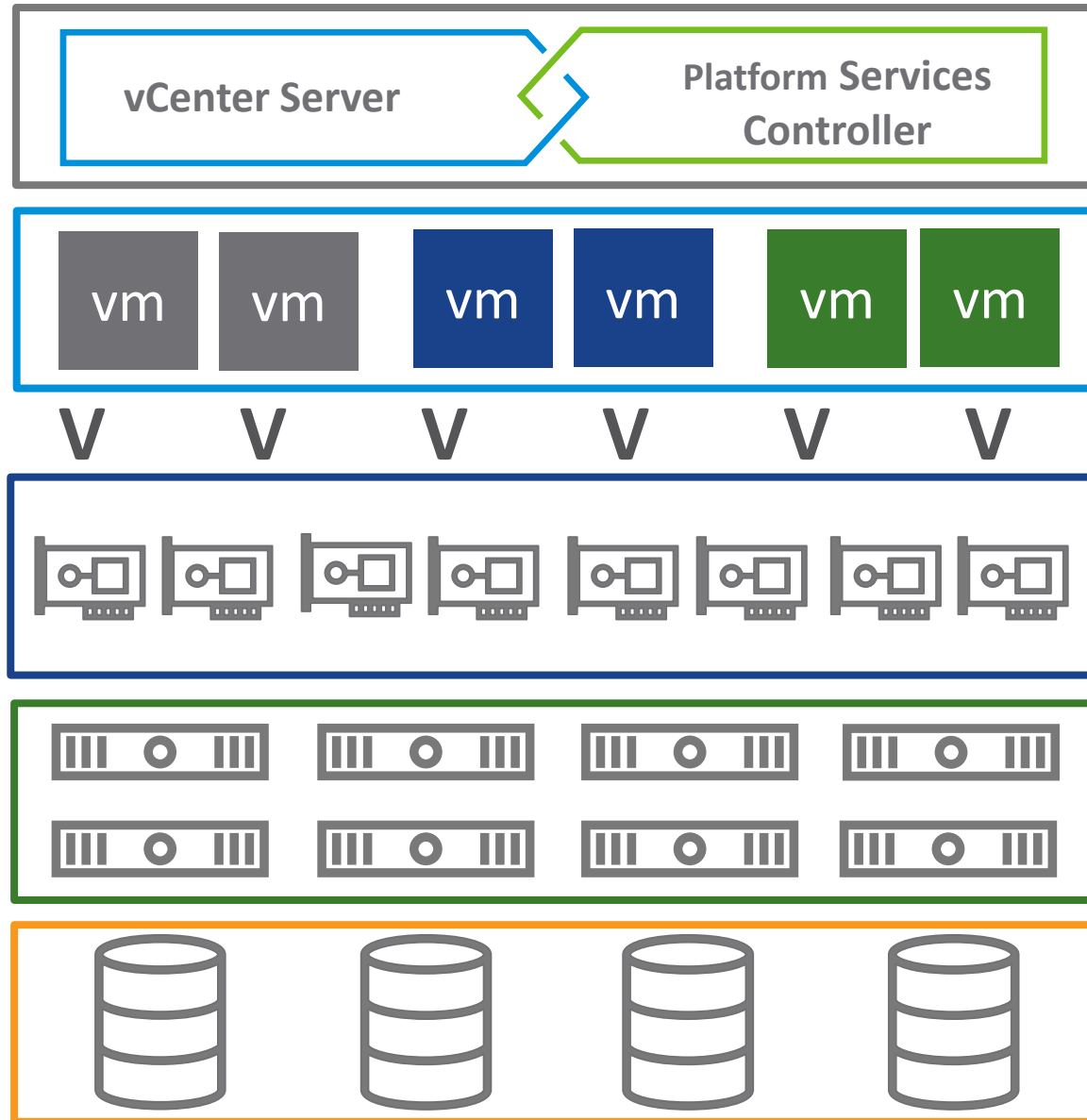
CPUs: 4 vCPUs 16GB vRAM 16GB vDisk 16GB vNetwork 16GB vFloppy 16GB vCD 16GB vSnapshot 16GB vTools 16GB vRP 16GB vCluster 16GB vHost 16GB vHBA 16GB vNIC 16GB vSwitch 16GB vPort 16GB vSwitch 16GB vPort 16GB vSCSI 16GB vColocate 16GB vMultiPath 16GB vLicense 16GB vHealth

162 rows | Last refresh: 2018/05/28 14:22:18

<https://www.robware.net/rvtools>

vSphere Upgrade Process

vSphere Upgrade Process



Step 1: Platform Services Controller

Step 2: vCenter Server

Step 4: VM Tools / Compatibility

Step 6: Virtual Distributed Switch

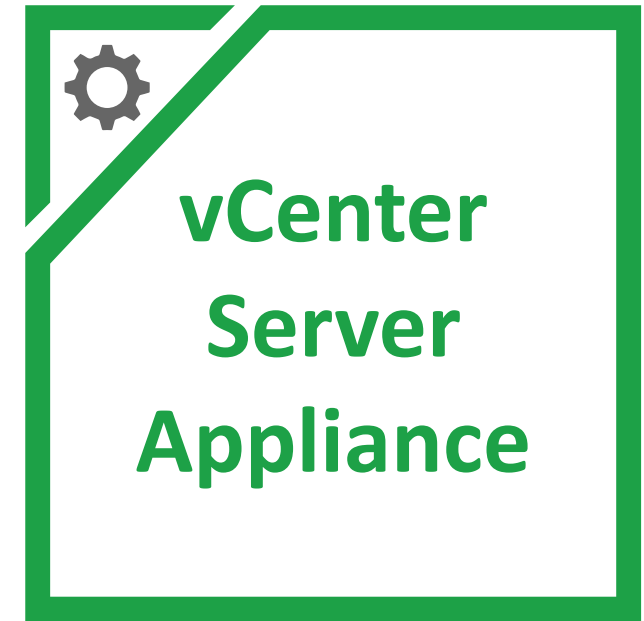
Step 3: Hypervisor - ESXi

Step 5: Storage – VMFS / vSAN

Horizontal Migration



6.7



6.7

“A vCenter Server migration is BOTH a migration and upgrade”

Migration / Upgrade Overview



- Support for 6.0 or 6.5 → 6.7
- Retains the identity of the source vCenter Server (UUID, IP, FQDN, Certs, etc.)
- Migration of both embedded and external topologies



- Embedded & External database support: MSSQL & Express, Oracle, Postgres
- Migrates Inventory & Configuration by default (includes VDS)
- Historical and Performance data migration is optional



- vSphere Update Manager (VUM) Included
- Migration Assistant pre-checks
- Easy rollback

vm Migrate - Stage 2: vCenter Server Appliance

- 1 Introduction
- 2 Connect to source vCenter Se...
- 3 Join AD Domain
- 4 Select migration data**
- 5 Ready to complete

Select migration data

Select the data that you want to copy from the source vCenter Server for Windows.

The data sizes shown below represent only the data that will be copied to the target server. It does not correspond to the actual size of your data on the source server. The identity of the server will also be copied and the source server will remain unchanged.

- Configuration (2.67 GB) Estimated downtime: 33 minutes
- Configuration and historical data (events and tasks) (2.77 GB)
- Import historical data in the background. Estimated downtime: 34 minutes**
vCenter Server Appliance will start once the configuration data has been imported. The historical data will be imported in the background. During this time, the performance of vCenter Server Appliance might not be optimal.
- Import all data now. Estimated downtime: 35 minutes**
vCenter Server Appliance won't start until all data has been imported from vCenter Server.
- Configuration and historical data (events, tasks and performance metrics) (2.77 GB)

CANCEL BACK NEXT

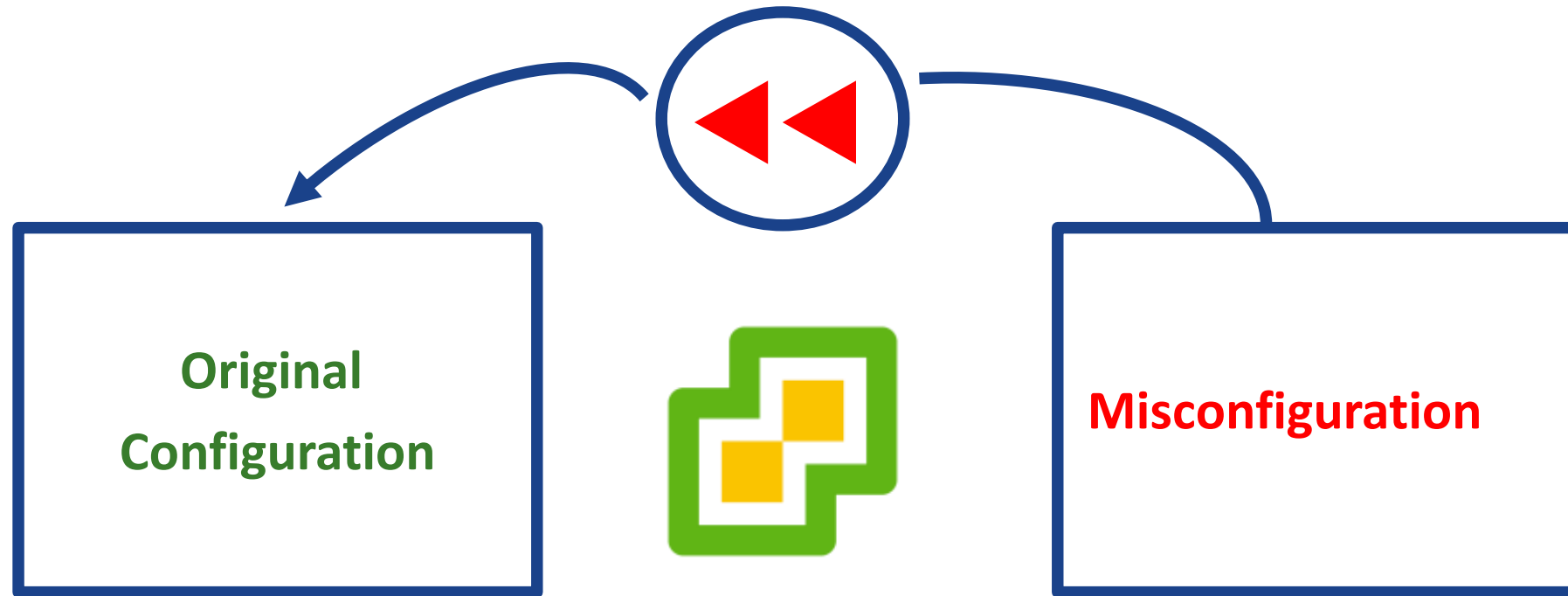
Historical Data Management

The screenshot displays the VMware Appliance Management interface. At the top, a blue notification bar states: "Historical data is being imported in the background. (88% complete)" with a "MANAGE" button and a close icon. The main header includes "vm Appliance Management", the date and time "Thu 04-05-2018 04:35 AM UTC", and navigation links for "English", "Help", "Actions", and "Logout".

The left sidebar contains a menu with the following items: Summary (highlighted), Monitor, Access, Networking, Time, Services, Update, Administration, Syslog, and Backup.

The central area features a "Historical Data Import" dialog box. It contains a progress bar showing 88% completion. Below the bar, it states: "Historical data already imported 23.16MB out of 26.21MB." At the bottom of the dialog, there are three buttons: "PAUSE" (highlighted with a red box), "CANCEL", and "CLOSE".

Rollback



- No changes made to the source vCenter Server
- Shutdown and delete new vCenter Server Appliance
- Join source vCenter Server back to AD domain
- Do not rely on cached credentials on Windows vCenter Server


vSphere Update Manager (VUM)

Home Logout

Managed Object Type: **ManagedObjectReference:ExtensionManager**
Managed Object ID: **ExtensionManager**

Properties

NAME	TYPE	VALUE	
extensionList	Extension[]	extensionList["com.vmware.vim.sms"]	Extension
		extensionList["com.vmware.vim.vsm"]	Extension
		extensionList["VirtualCenter"]	Extension
		extensionList["com.vmware.vim.stats.report"]	Extension
		extensionList["com.vmware.vim.sps"]	Extension
		extensionList["com.vmware.vim.vcha"]	Extension
		extensionList["hostdiag"]	Extension
		extensionList["com.vmware.vim.is"]	Extension
		extensionList["com.vmware.vcenter.iso"]	Extension
		extensionList["com.vmware.vcenter.vmtx"]	Extension
		extensionList["com.vmware.ovf"]	Extension
		extensionList["com.vmware.cl"]	Extension
		extensionList["com.vmware.vim.eam"]	Extension
		extensionList["com.vmware.vcIntegrity"]	Extension
		extensionList["com.vmware.vmcam"]	Extension
		extensionList["com.vmware.vsan.dp"]	Extension
		extensionList["com.vmware.vsan.health"]	Extension
		extensionList["com.vmware.vsphere.client.h5vsan"]	Extension
		extensionList["com.vmware.vrops.install"]	Extension
		extensionList["com.vmware.rbd"]	Extension
		(less...)	



Methods

RETURN TYPE	NAME
Extension	FindExtension
string	GetPublicKey
ExtensionManagerIpAllocationUsage[]	QueryExtensionIpAllocationUsage
ManagedObjectReference:ManagedEntity[]	QueryManagedBy
void	RegisterExtension
void	SetExtensionCertificate
void	SetPublicKey
void	UnregisterExtension
void	UpdateExtension

- Requires migration assistant only for migration
- Unregister extension to prevent migration
- *vCenter Server FQDN or IP/mob*
- *com.vmware.vcIntegrity*

Migration Steps

Step 1: Migration Assistant

```
vm vCenter Server service is configured to run under the 'CFBD\SVC-VCENTER' service account.
Enter 'CFBD\SVC-VCENTER' service account password: *****

-----
DO NOT CLOSE this console until the migration is complete.
-----

Extracting Migration Assistant scripts...
Running Prechecks...
Finished running prechecks.

Warning: Files that cannot be used with Update Manager 6.7 will not be copied from the source. These files include VM guest OS patch baselines, but not upgrade baselines and files, and ESX 5.5 and lower version host patches baselines.
Resolution: Please review VMware Update Manager 6.7 Documentation for details.

-----
Source Configuration:
  Deployment type: VMware vCenter Server 6.0 with an external VMware Platform Services Controller
  Deployment size: Small
  ID type: external

Destination Configuration:
  Deployment type: VMware vCenter Server Appliance 6.7 with an external VMware Platform Services Controller
  ID type: embedded

Migration Settings:
  FQDN: VM-UC-01.opblab
  Single Sign-On username: Administrator@opblab.local
  SSL thumbprint: 16:3d:1c:27:1b:f1:91:c7:d4:4b:d8:a2:73:ca:32:d3:24:2f:81:d4
  Ports: 443
  Export data folder: C:\Users\osad\AppData\Local\VMware\Migration-Assistant\

Migration Steps:
  1. Launch vCenter Server Appliance 6.7 Installer and click 'Migrate' to start the migration wizard.
  2. In the 'Connect to source server' step, enter the FQDN, Migration Assistant port number, and SSO credentials for this Windows server.
  3. Validate and accept the SSL thumbprint.
  4. Follow the rest of the steps in the wizard to complete your migration. 'Small' or larger will be available as valid Deployment size options.

-----
Note: This machine will be shutdown as part of the migration. If migration fails, you can power off the target vCenter Server Appliance and then power on this machine to rollback the migration.

-----
DO NOT CLOSE this console until the migration is complete.
-----

Waiting for migration to start...
```

- PSC & vCenter Server pre-checks
- Data transport mechanism

Step 2: Migration Tool

vm vCenter Server Appliance 6.7 Installer

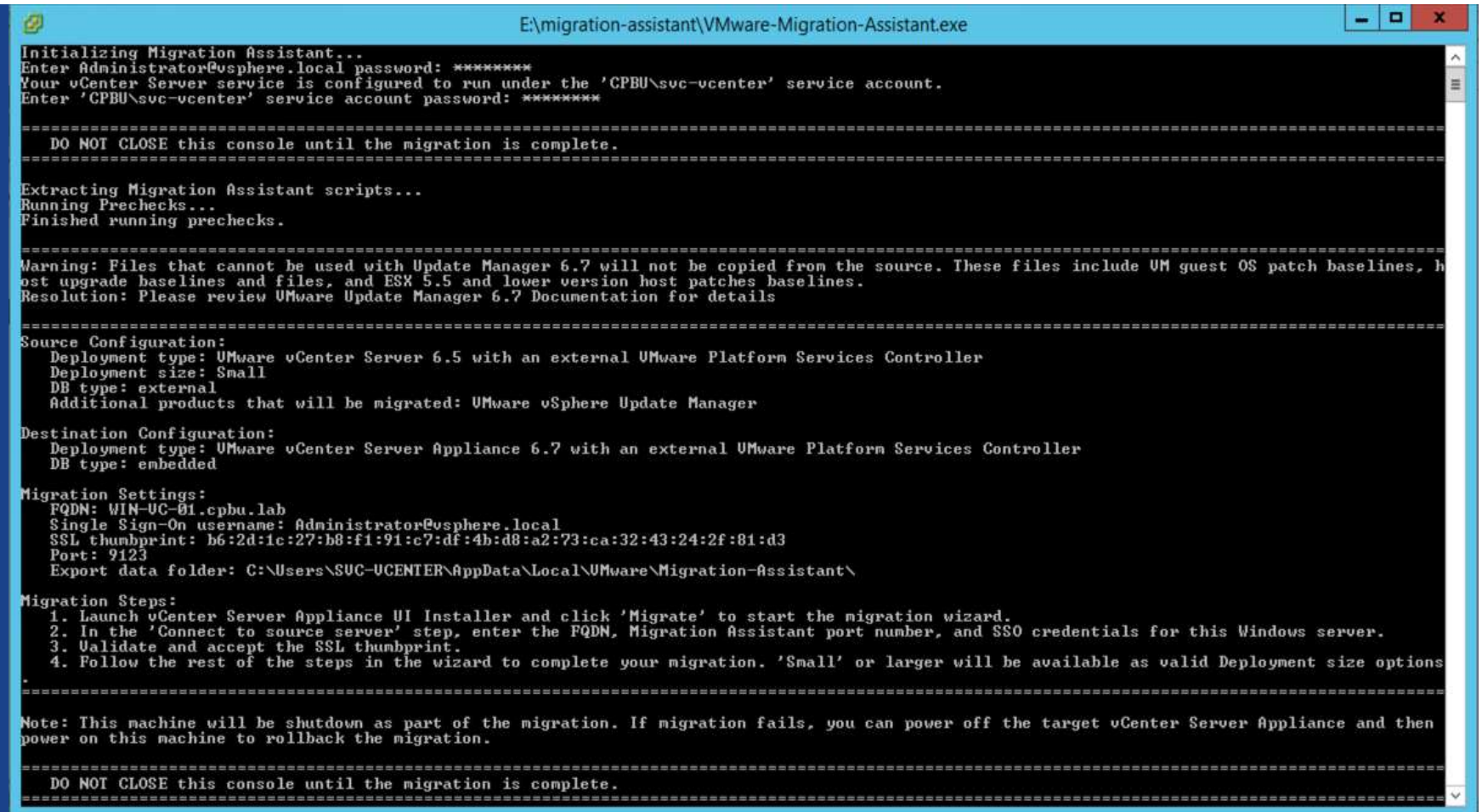
English



- Stage 1: VCSA deployment
- Stage 2: Configuration & data import

Migration Assistant

- Run on source PSC, vCenter Server, or VUM
- **Validate DNS & NTP**
- What's installed on vCenter Server being migrated
- Topology & migration settings
- Port 9123



```
E:\migration-assistant\VMware-Migration-Assistant.exe
Initializing Migration Assistant...
Enter Administrator@vsphere.local password: *****
Your vCenter Server service is configured to run under the 'CPBU\svc-vcenter' service account.
Enter 'CPBU\svc-vcenter' service account password: *****

=====
DO NOT CLOSE this console until the migration is complete.
=====

Extracting Migration Assistant scripts...
Running Prechecks...
Finished running prechecks.

=====
Warning: Files that cannot be used with Update Manager 6.7 will not be copied from the source. These files include UM guest OS patch baselines, host upgrade baselines and files, and ESX 5.5 and lower version host patches baselines.
Resolution: Please review VMware Update Manager 6.7 Documentation for details
=====

Source Configuration:
  Deployment type: VMware vCenter Server 6.5 with an external VMware Platform Services Controller
  Deployment size: Small
  DB type: external
  Additional products that will be migrated: VMware vSphere Update Manager

Destination Configuration:
  Deployment type: VMware vCenter Server Appliance 6.7 with an external VMware Platform Services Controller
  DB type: embedded

Migration Settings:
  FQDN: WIN-UC-01.cpbu.lab
  Single Sign-On username: Administrator@vsphere.local
  SSL thumbprint: b6:2d:1c:27:b8:f1:91:c7:df:4b:d8:a2:73:ca:32:43:24:2f:81:d3
  Port: 9123
  Export data folder: C:\Users\SUC-UCENTER\AppData\Local\VMware\Migration-Assistant\

Migration Steps:
  1. Launch vCenter Server Appliance UI Installer and click 'Migrate' to start the migration wizard.
  2. In the 'Connect to source server' step, enter the FQDN, Migration Assistant port number, and SSO credentials for this Windows server.
  3. Validate and accept the SSL thumbprint.
  4. Follow the rest of the steps in the wizard to complete your migration. 'Small' or larger will be available as valid Deployment size options

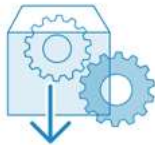
=====
Note: This machine will be shutdown as part of the migration. If migration fails, you can power off the target vCenter Server Appliance and then power on this machine to rollback the migration.
=====
DO NOT CLOSE this console until the migration is complete.
=====
```

Migration Tool

- On a Routable network to source
- Temporary IP address
- Target vCenter or ESXi
- VCSA size same or greater
- Active Directory account
- Estimated time built-in (vSphere 6.7)


vm - Stage 1: Deploy appliance

English ▾



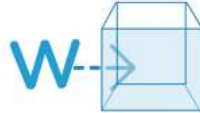
Install

Install a new vCenter Server Appliance or Platform Services Controller



Upgrade

Upgrade an existing vCenter Server Appliance or Platform Services Controller Appliance



Migrate

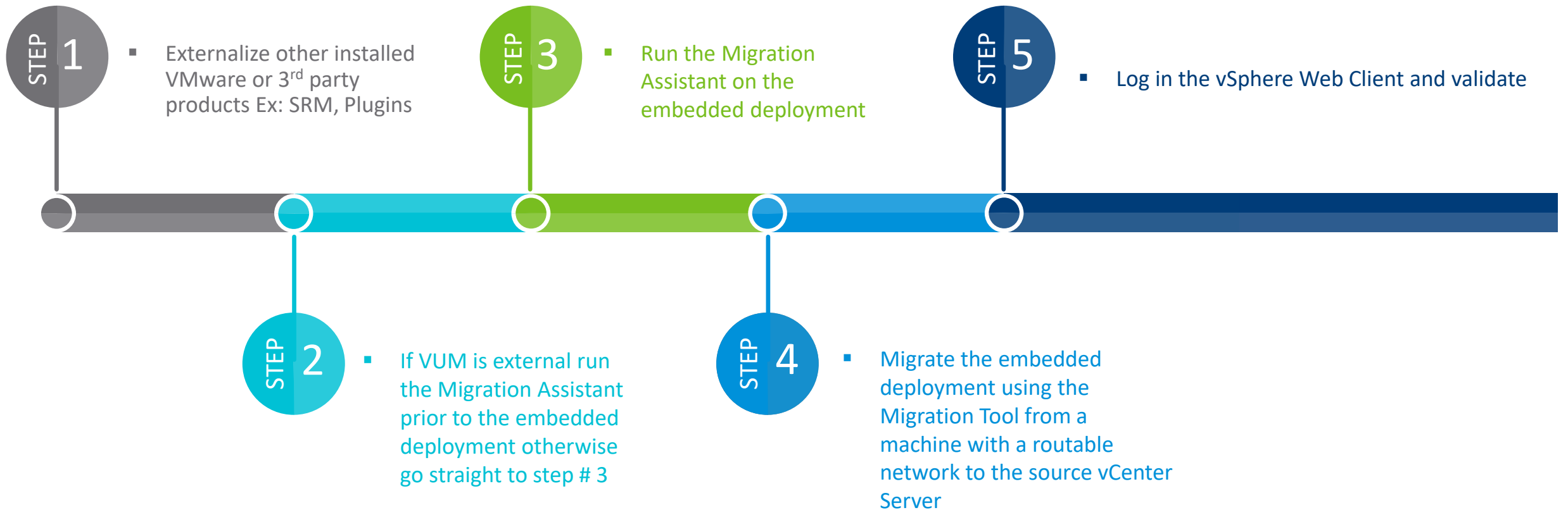
Migrate from an existing vCenter Server or Platform Services Controller or Single Sign-On server for Windows to Appliance



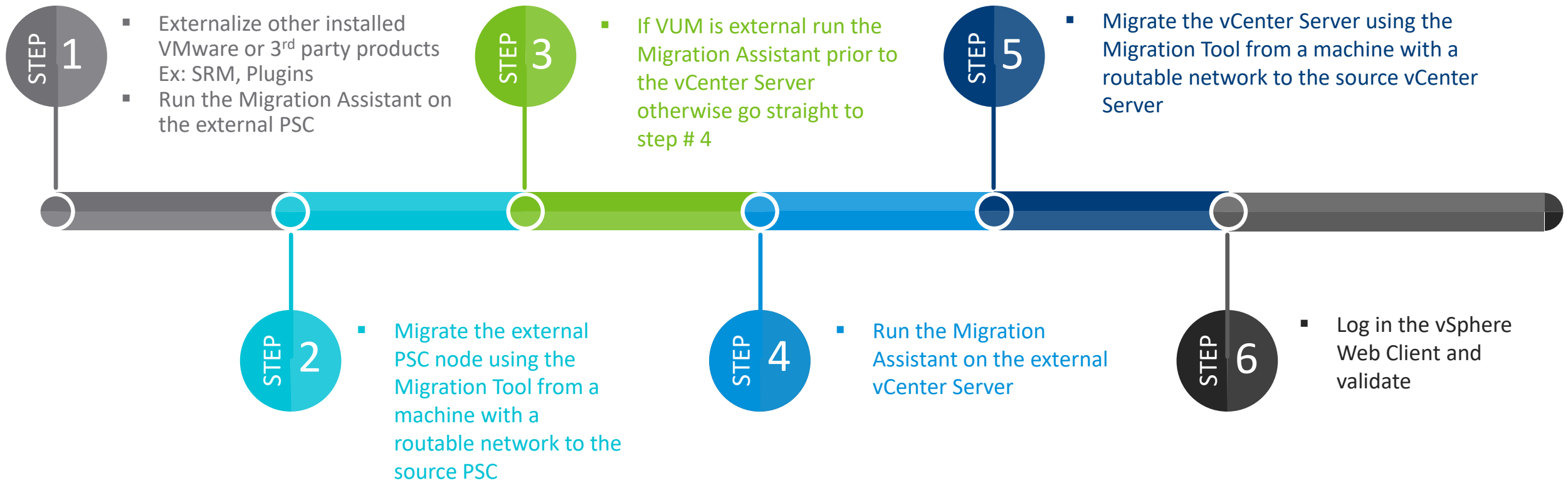
Restore

Restore from a previously created vCenter Server Appliance or Platform Services Controller Appliance backup

Migration Embedded Workflow



Migration External Workflow



vCenter Server Appliance CLI Installer

VMware-VCSA-all-*.ISO

- vcsa-cli-installer
- Example Templates
 - Precheck
 - Help
- VCSA lifecycle
 - Install
 - Upgrade
 - Migrate
- Batch Mode

```
"new_vcsa": {  
  "esxi": {  
    "hostname": "esxi-01.vmworld.lab",  
    "username": "root",  
    "password": "VMworld1!",  
    "deployment_network": "VM Network",  
    "datastore": "Datastore-01"  
  },  
  "appliance": {  
    "__comments": [  
      "4,16,340,100,1000"  
    ],  
    "thin_disk_mode": true,  
    "deployment_option": "management-small",  
    "name": "vCenter-Server-Appliance"  
  },  
  "os": {  
    "password": "VMworld1!",  
    "ssh_enable": true  
  },  
  "temporary_network": {  
    "ip_family": "ipv4",  
    "mode": "static",  
    "ip": "192.168.15.10",  
    "dns_servers": [  
      "192.168.15.5"  
    ],  
    "prefix": "24",  
    "gateway": "192.168.15.253"  
  },  
  "user_options": {  
    "vcdb_migrateSet": "core"  
  }  
},
```

CLI Demo



Top Migration and Upgrade Considerations

1. DNS & NTP are critical
2. Know your topology & What's installed on vCenter Server
3. Migration Tool will not use a previously deployed VCSA
4. Recommended to only Export Configuration & Inventory
5. Check Interoperability Matrices for VMware solutions
6. Check Vendor Websites for 3rd party solutions
7. Backups – Image level or Native File-Based
8. Display Name Retention
9. Verify connectivity of plugins
10. Dual homing not supported on VCSA

Bonus

- ESXi hosts are not touched
- Target hosts must be 6.0 or greater

Hypervisor Upgrades - ESXi



Support for
latest server
hardware



vSAN
improvements



VM, Host, and
Cluster scalability
boosts



VMFS
enhancements

ESXi Upgrade

vSphere Update Manager

Easily Import Image

Install Upgrades, Patches and Extensions in single Step using VUM Baselines

Interactive / Scripted

To be used when you need to patch to version other than vCenter Server

- Ex: vCenter Server 6.7 and Upgrade ESXi Hosts from 6.0 to 6.7

To be used when hosts in remote site need to be patched locally

- Ex: Slow Internet Connection and Unable to Stage the ISO in VUM

Auto Deploy

Install new image on reboot

Stateless and Stateful Installations

Requires use of Host Profiles

vSphere Update Manager (VUM)

VMware Update Manager on Windows

- Additional Windows VM for VUM
- Extra configuration; DB dependency
- Sizing and latency considerations
- No inherent backup or failover



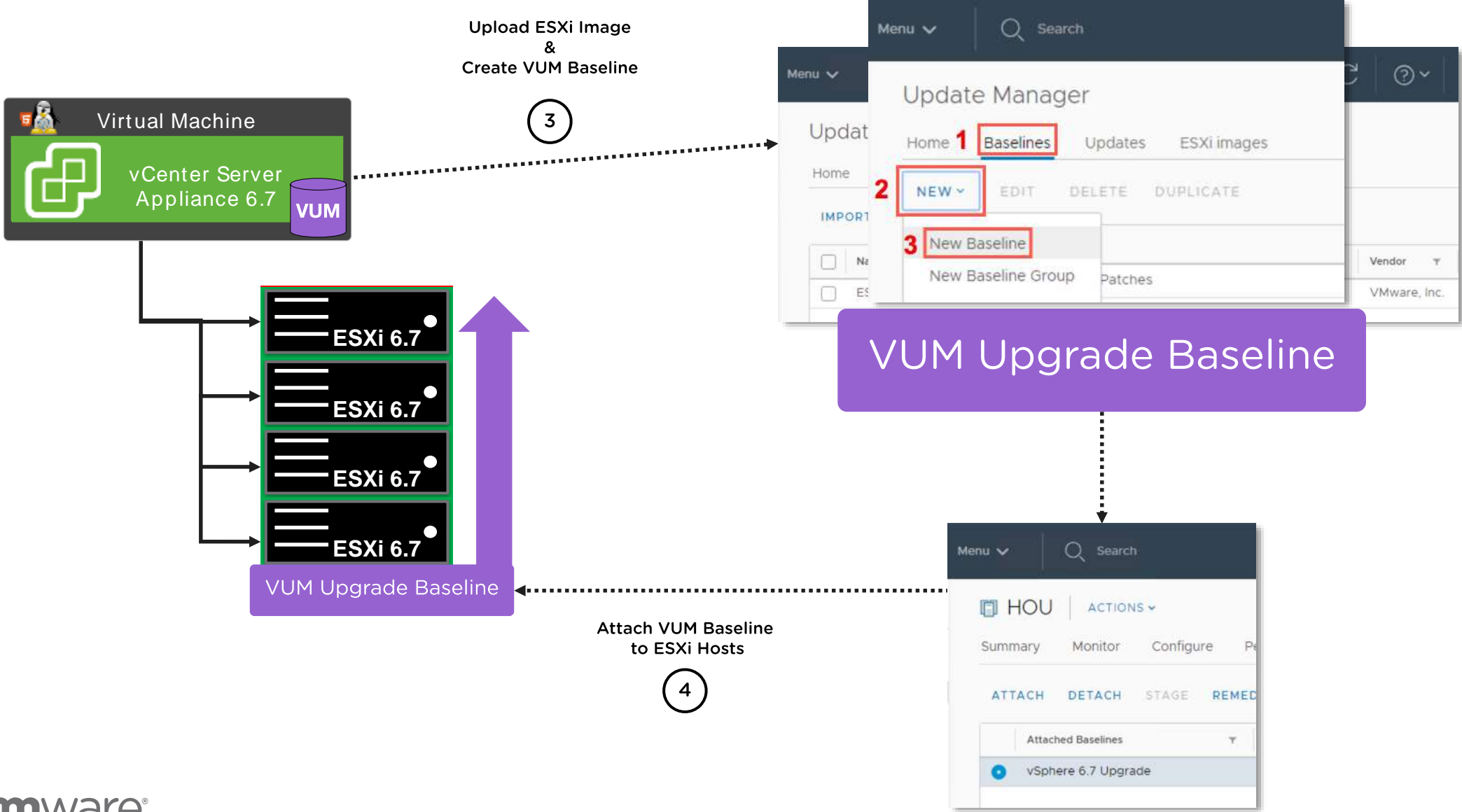
2-3X
Increase

VMware Update Manager on VCSA

- Integrated and enabled by default
- Zero setup; embedded DB
- Scalable and low impact on resources
- Leverages VCSA **HA and backup**

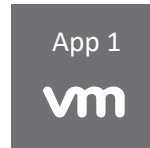


Upgrading ESXi hosts via vSphere Update Manager

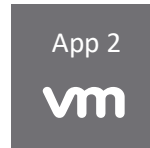


VM Tools

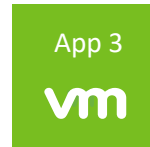
Production Cluster



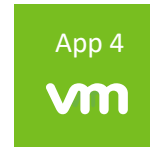
Tools - Current



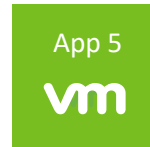
Tools - Current



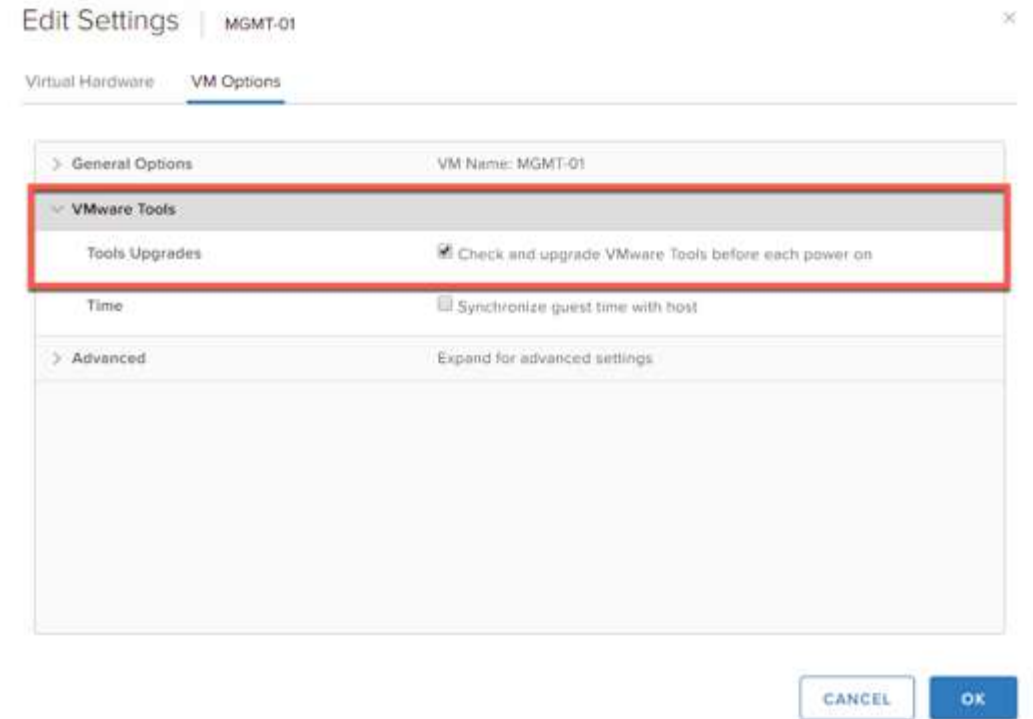
Tools - Out of Date



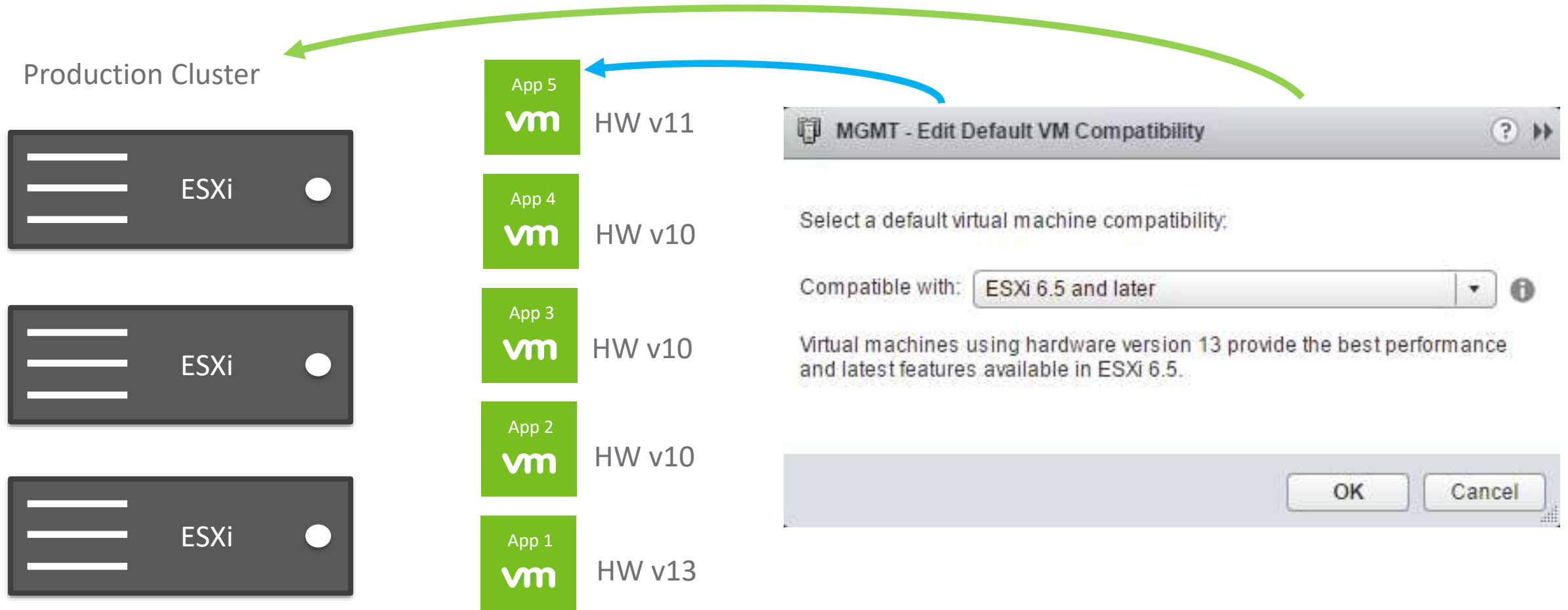
Tools - Out of Date



Tools - Out of Date

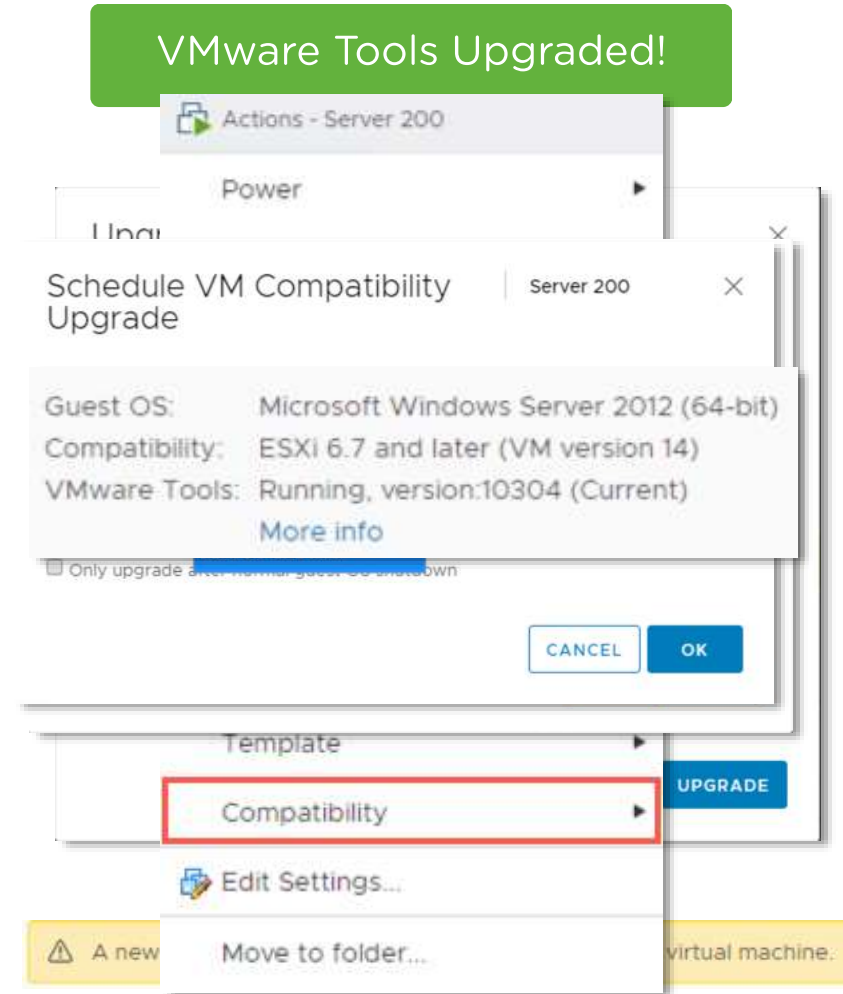
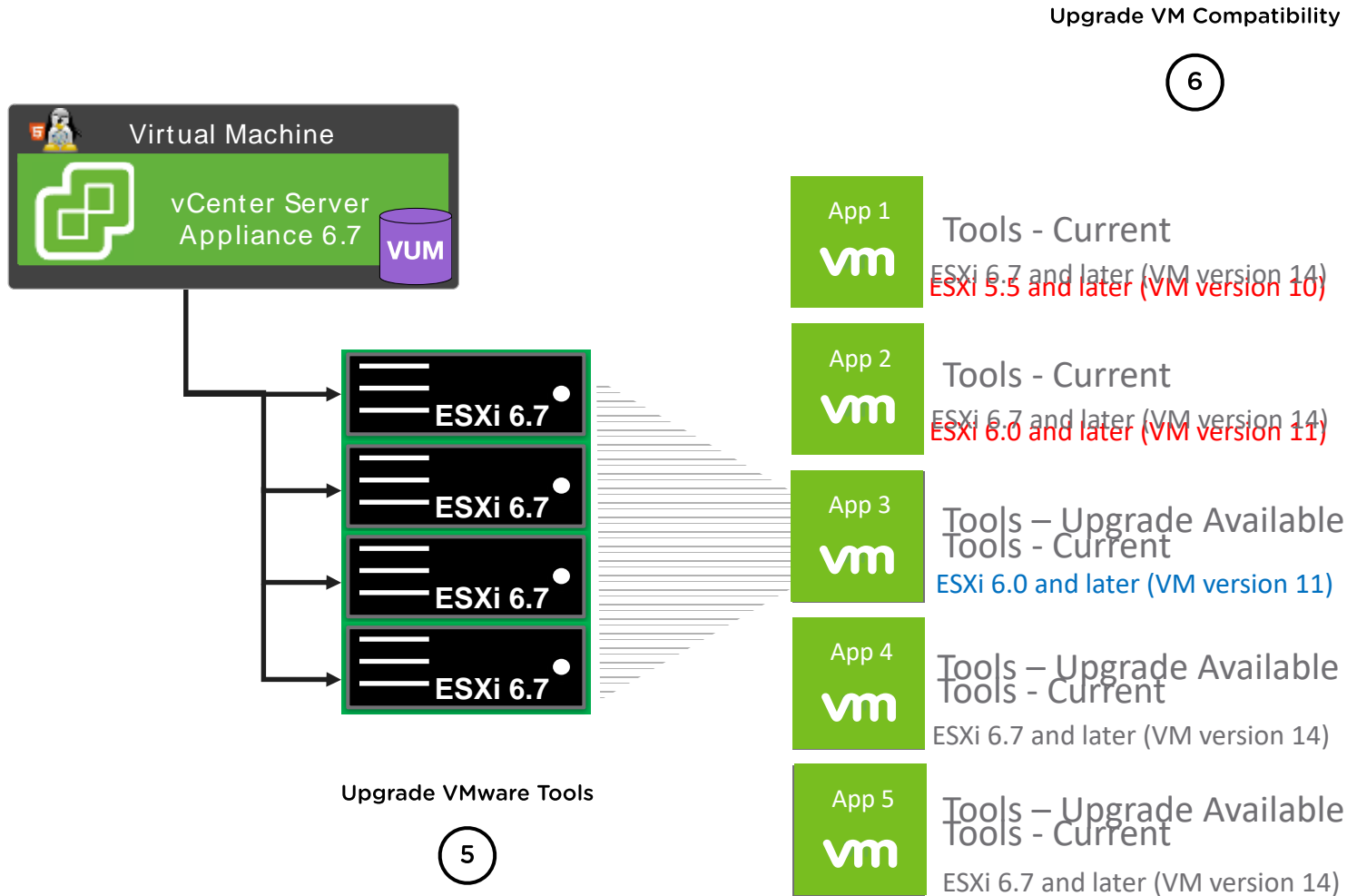


VM Compatibility formerly vHardware



Schedule available per VM

Upgrading VMware Tools & Compatibility



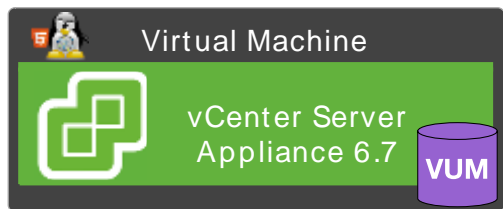
Storage – VMFS6

Feature / Function	VMFS6 (6.5 or 6.7)	VMFS5 (5.x or 6.x)
Access for ESXi 6.5 or 6.7 hosts	Yes	Yes
Access for ESXi hosts version 6.0 and earlier	No	Yes
Datstores per host	512	512
Automatic space reclamation	Yes	No
Space reclamation from guest OS	Yes	Limited
MBR storage device partitioning	No	Yes
Block size	1 MB	1 MB
Default snapshots	SEsparse	VMFSsparse (virtual disks < 2 TB) SEsparse (virtual disks > 2 TB)

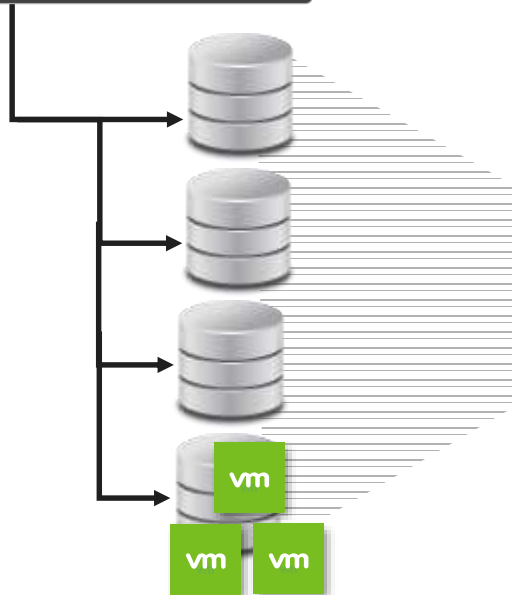
Upgrading VMFS Storage

Upgrade Storage (VMFS)

7



Update-VmfsDatastore



```

2018-07-05T14:13:52 [Preparation] Log folder path: C:\Windows\system32\log_folder_vcasa-ds-03.cpbu.lab_VMF55-2
2018-07-05T14:13:52 [Preparation] Log file path: C:\Windows\system32\log_folder_vcasa-ds-03.cpbu.lab_VMF55-2\Datastore_Upgrade_07-05-2018_02-13-52.log
2018-07-05T14:13:52 [Preparation] Checkpoint file path: checkvcasa-ds-03.cpbu.labVMF55-2
2018-07-05T14:13:52 [Preparation] The datastore VMF55-2 will be deleted and recreated with VMFS-6.
2018-07-05T14:13:57 [Preparation] The datastore VMF55-2 Should not be part of HBR[Target/Source] / SRM config.
2018-07-05T14:14:02 [Preflight Check] checking if VADP is enabled on any of the VMs
2018-07-05T14:14:02 [Preflight Check] Checking for VADP enabled VM(s)
2018-07-05T14:14:03 [Preflight Check] Checking if VADP is enabled on any of the VMs
  
```

Evacuate Datastore 1st!

```

2018-07-05T14:14:08 [DRS Cluster Settings] Changing DrsAutomationLevel of clusters to manual. Will be reverted to original once operation is completed.
2018-07-05T14:14:11 [StorageIOControl] Changing storageIOControlEnabled to false. It will be reverted to original once operation is complete.
2018-07-05T14:14:13 [DRS Cluster] Save properties of datastore cluster. It will be reverted to original once operation is complete.
2018-07-05T14:14:13 [Preparation] Moving list of VMs to temporary datastore.
2018-07-05T14:14:13 [Preparation] VM4 VM3
2018-07-05T14:14:15 [Migration Pre-Check phase] VMF55-TEMP Contain FreeSpace of 38.80078125 GB to accommodate VM4 VM3 of size 7 GB
2018-07-05T14:14:15 [Migration] VM4 : Migration is in progress From:VMF55-2 To:VMF55-TEMP
2018-07-05T14:14:15 [VM migration] VM = VM4, Datastore = VMF55-2 and Target datastore = VMF55-TEMP and id is VirtualMachine-vm-28
2018-07-05T14:14:15 [Migration] VM3 : Migration is in progress From:VMF55-2 To:VMF55-TEMP
2018-07-05T14:14:15 [VM migration] VM = VM3, Datastore = VMF55-2 and Target datastore = VMF55-TEMP and id is VirtualMachine-vm-27
2018-07-05T14:14:45 [Migration] Migration of VM3 is successful Start Time : 07/05/2018 14:14:15 End Time : 07/05/2018 14:14:17
2018-07-05T14:14:45 [Migration] Migration of VM4 is successful Start Time : 07/05/2018 14:14:15 End Time : 07/05/2018 14:14:17
2018-07-05T14:14:58 [Unmount Datastore] Unmounting datastore from all Hosts
2018-07-05T14:15:08 [Unmount Datastore] Unmounting datastore ...
2018-07-05T14:15:08 [Unmount Datastore] Unmounting VMFS Datastore VMF55-2 from host esx-ds-01.cpbu.lab...
2018-07-05T14:15:17 [Delete Datastore] Deleting and recreating VMFS-6 Filesystem.
2018-07-05T14:15:17 [Delete Datastore] Deleting datastore from hosts...
2018-07-05T14:15:17 [Delete Datastore] Removing Datastore VMF55-2 on host esx-ds-01.cpbu.lab...
2018-07-05T14:15:17 [Create VMFS-6] Creating VMFS-6 Filesystem
2018-07-05T14:15:17 [Datastore Create] Creating Datastore...
  
```


Upgrading vSAN Disk Version

vSAN | ACTIONS

Summary Monitor **Configure** Permissions Hosts VMs Datastores Networks Updates

Services
vSphere DRS
vSphere Availability

Configuration
Quickstart
General
Licensing
VMware EVC
VM/Host Groups
VM/Host Rules
VM Overrides
Host Options
Host Profile
I/O Filters

More
Alarm Definitions
Scheduled Tasks

vSAN
Services
Disk Management
Fault Domains
iSCSI Target Service

⚠ All 8 disks on version 5.0 UPGRADE PRE-CHECK UPGRADE

⚠ Pre-check completed with issues on Jul 23, 2019, 3:50:38 AM ([see details](#))

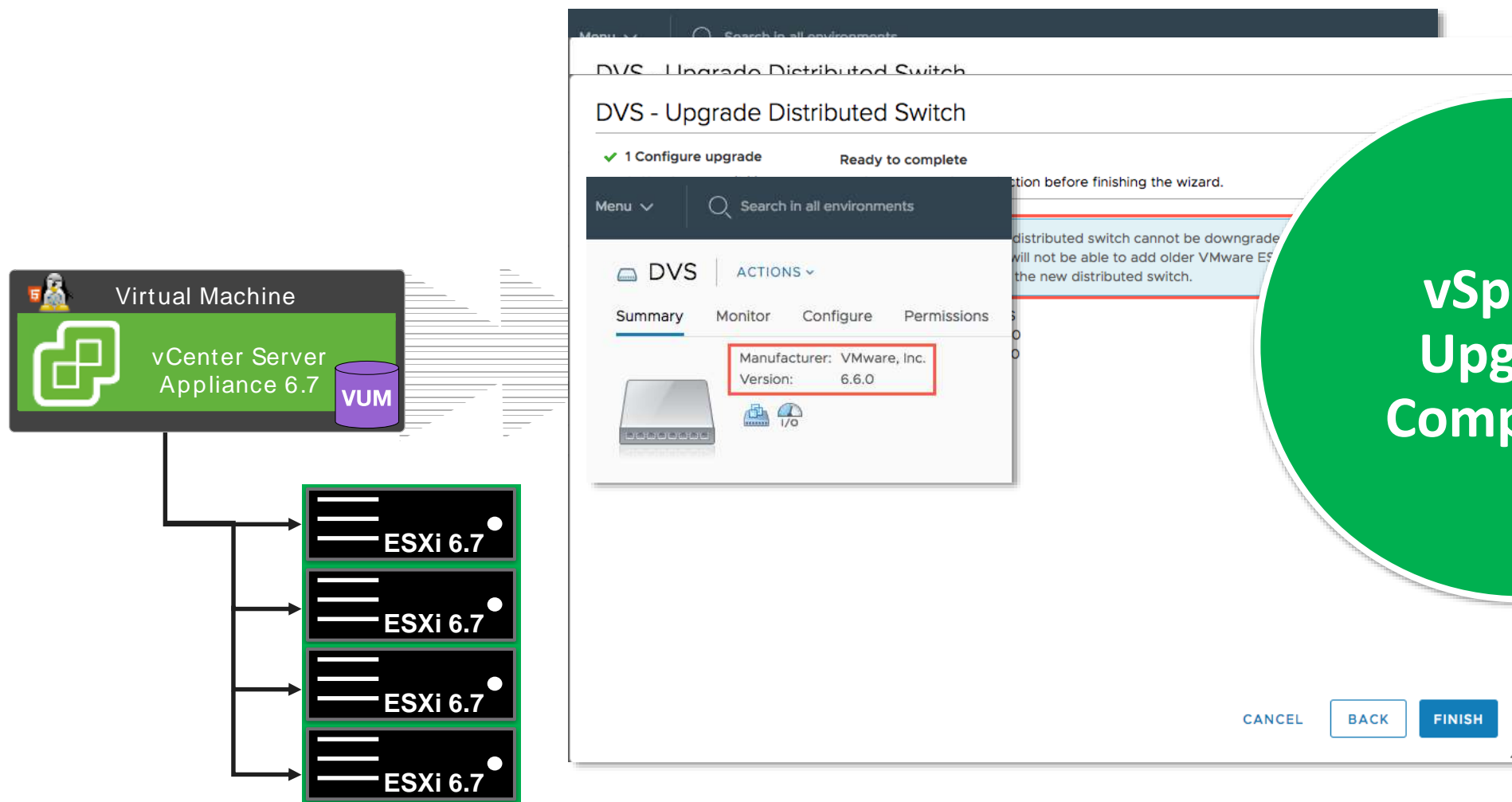
Show: By Disk Groups

Disk Group	Disks in Use	State	vSAN Health Status	Type	Fault Domain	Network Partition Group	Disk Format Version
host1.vmware.demo	2 of 2	Connected	Healthy			Group 1	
Disk group (0000000000766d686261303a313...)	2	Mounted	Healthy	Hybrid			5
host2.vmware.demo	2 of 2	Connected	Healthy			Group 1	
Disk group (0000000000766d686261303a313...)	2	Mounted	Healthy	Hybrid			5
host3.vmware.demo	2 of 2	Connected	Healthy			Group 1	
Disk group (0000000000766d686261303a313...)	2	Mounted	Healthy	Hybrid			5
host4.vmware.demo	2 of 2	Connected	Healthy			Group 1	
Disk group (0000000000766d686261303a313...)	2	Mounted	Healthy	Hybrid			5

Networking

- **Dedicated Gateways for VMkernel Network Adapter**
 - Prior to vSphere 6.5, vSphere DRS, vSphere vMotion, iSCSI, and provisioning have leveraged a single gateway.
- **Virtual Distributed Switch Enhancements**
 - **Distributed switch: 6.6.0**
 - MAC Learning
 - **Distributed switch: 6.5.0**
 - Port Mirroring Enhancements
 - **Distributed switch: 6.0.0**
 - Network I/O Control version 3
 - IGMP/MLD snooping

Upgrading Virtual Distributed Switches (VDS)



Upgrade Networking (VDS)

8

vSphere Upgrade Documents

Knowledge Base Articles

- Information before upgrading to vSphere 6.7 ([53704](#))
- VMware vSphere Upgrade Policies ([2149713](#))
- Update Sequence for vSphere 6.7 and its compatible VMware products ([53710](#))
- Best Practices for upgrading to vCenter Server 6.7 ([54008](#))
- Supported and Deprecated Topologies for VMware vSphere 6.5 ([2147672](#))
- Supported Upgrade paths for vSAN 6.6 ([2149840](#))
- Migrating VMFS 5 datastore to VMFS 6 datastore ([2147824](#))
- Known issues while upgrading to DVS version 6.6 ([52621](#))

Documentation

- [VMware vSphere 6 Documentation](#)
 - Release Notes
 - [Configuration Maximums](#)
 - Product documentation including vSphere Upgrade Guide
- [Guest Operating System Installation Guide](#)
- [VMware Compatibility Guide](#)

Cross vCenter Workload Migration Utility

<https://labs.vmware.com/flings/cross-vcenter-workload-migration-utility>

vm Cross vCenter vMotion Utility API ?

Enter task information Migrate Register

Operation Type Relocate Clone Advanced options

Source Site

Target Site

Source Datacenter

Virtual Machine(s)

Placement Target

Target Datastore

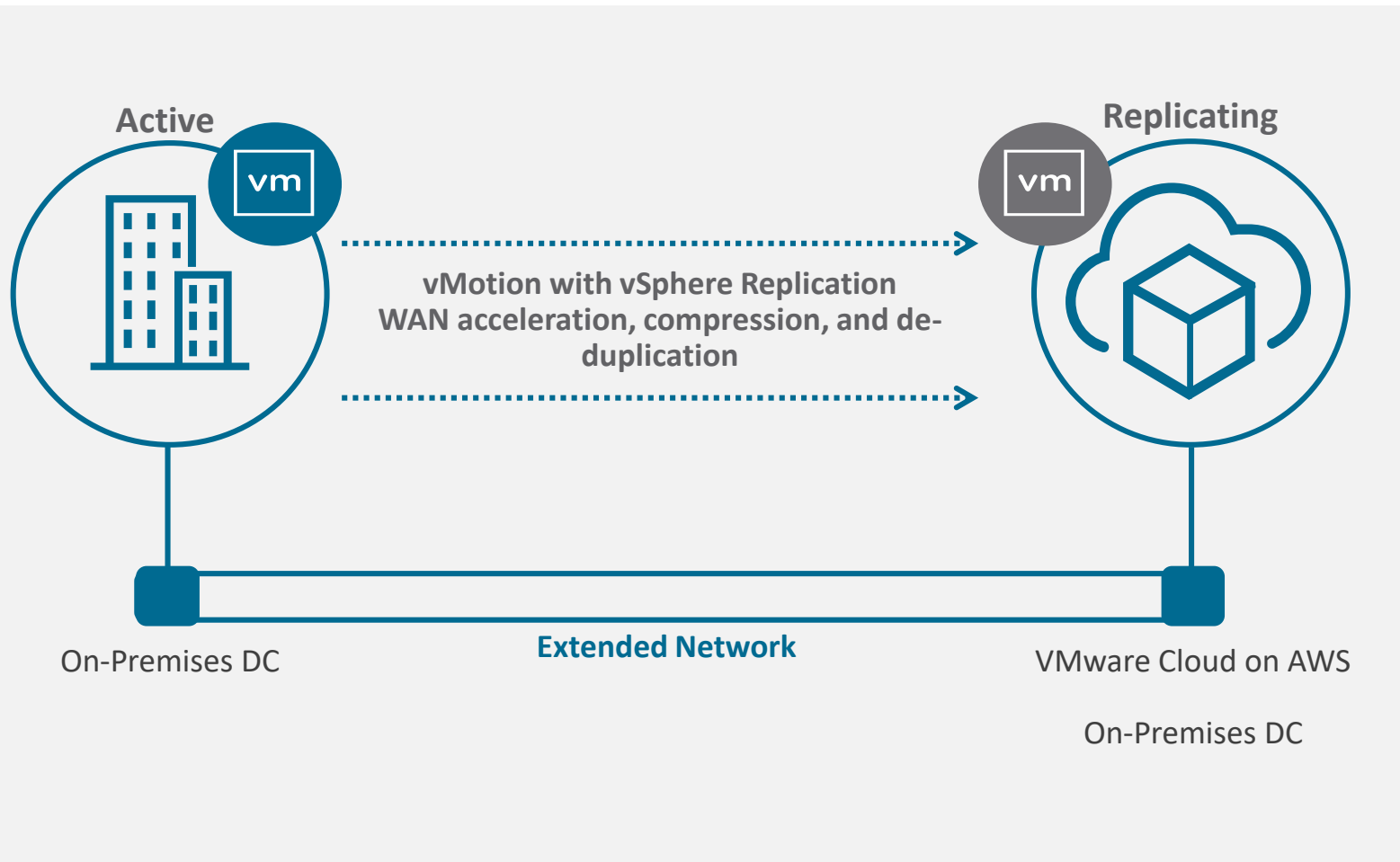
Network Mapping(s)

<input type="text" value="VDS-MGMT-VM Network-1501"/>	→	<input type="text" value="VDS-VMs"/>
<input type="text" value="VDS-MGMT-VM Network-EPH"/>	→	<input type="text" value="VM Network"/>

Submit Cancel

NSX Hybrid Connect

Migrate 1000s of VMs with Minimal Downtime



Overview

VMs replicating while remaining online in source on-premises environment.

Schedule switchover immediate after replication, or in a pre-determined maintenance window.

Benefits

- Migration Support from vSphere 5.0+
- Utilizes hypervisor replication
- Upgrade VM Tools / Compatibility
- Remove snapshots
- Force unmount ISOs

Post-Upgrade Considerations

Certificates

VMCA Default

VMCA Provides the **Root** certificate

All vSphere Certificates chain to VMCA

Regenerate certificates on demand **easily**

Recommended

Hybrid

Replacement of the **Machine_SSL** certificates

VMCA provides the certificates for Hosts and Solution Users

Very **popular** with high security customers

Recommended

Custom

Disable VMCA as CA

Provision Custom certificates for each solution user and endpoint

More **complicated**

For highly security conscious customers only

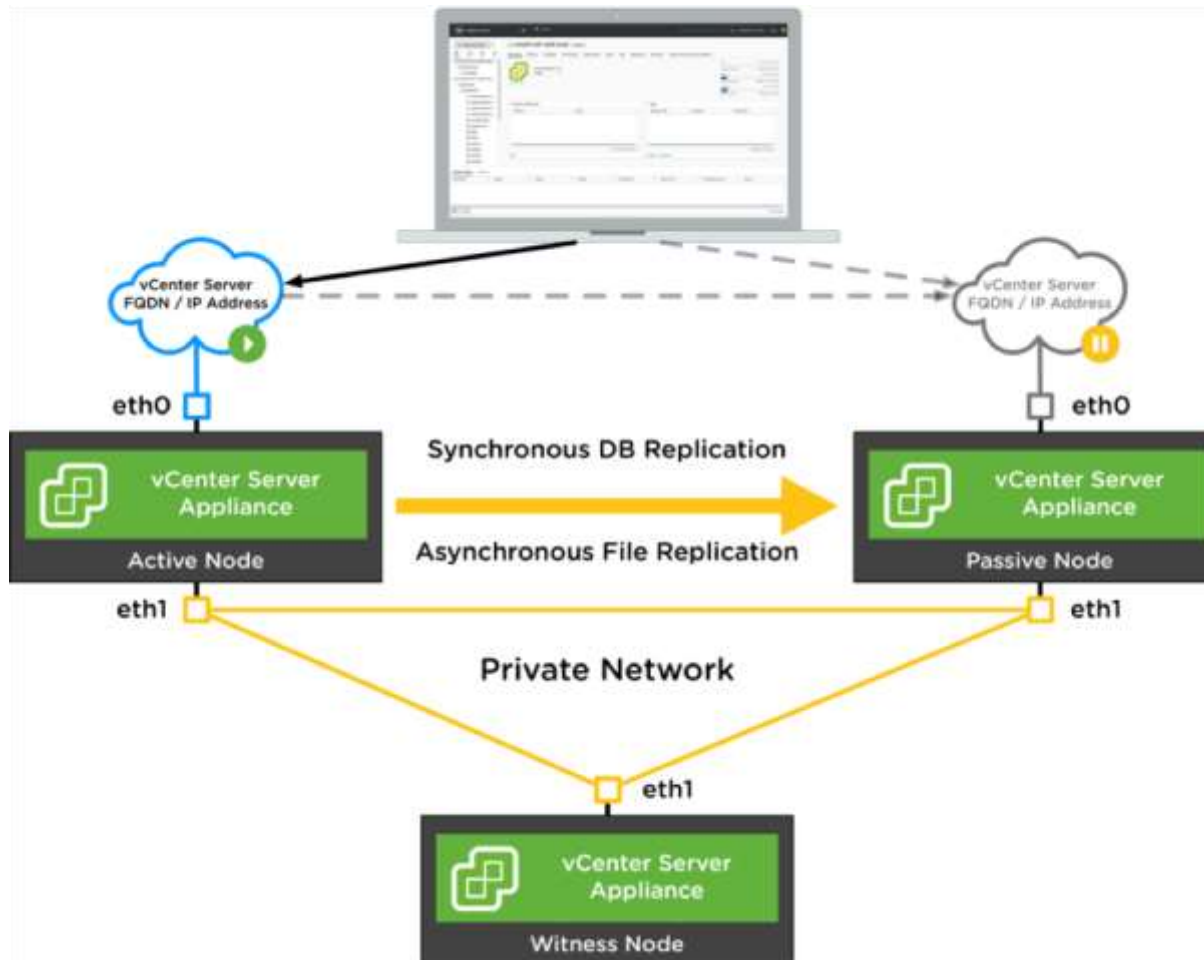
VMCA Enterprise

Replace VMCA CA Certificate with a **Subordinate** CA certificate from enterprise PKI

Upon **removal** of old VMCA CA certificates, all old certificates will be **regenerated**

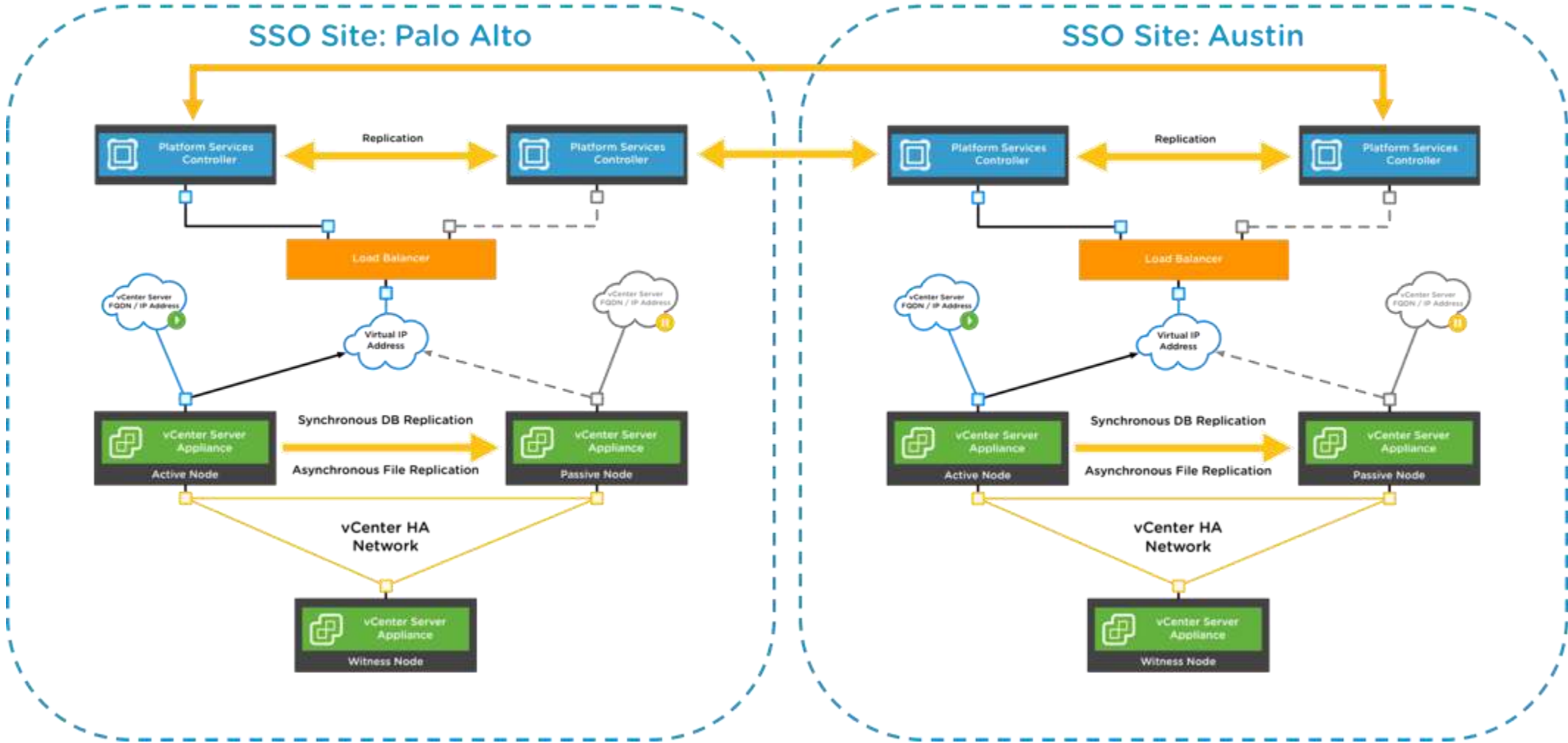
Not Recommended

vCenter High Availability

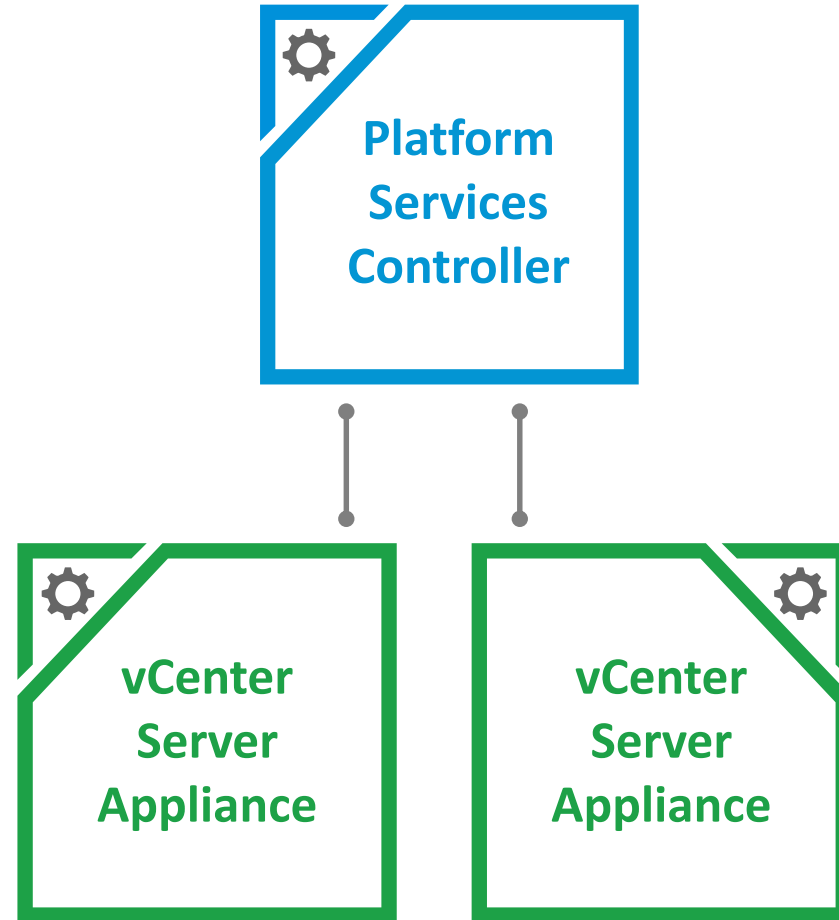


PSC & vCenter Server High Availability

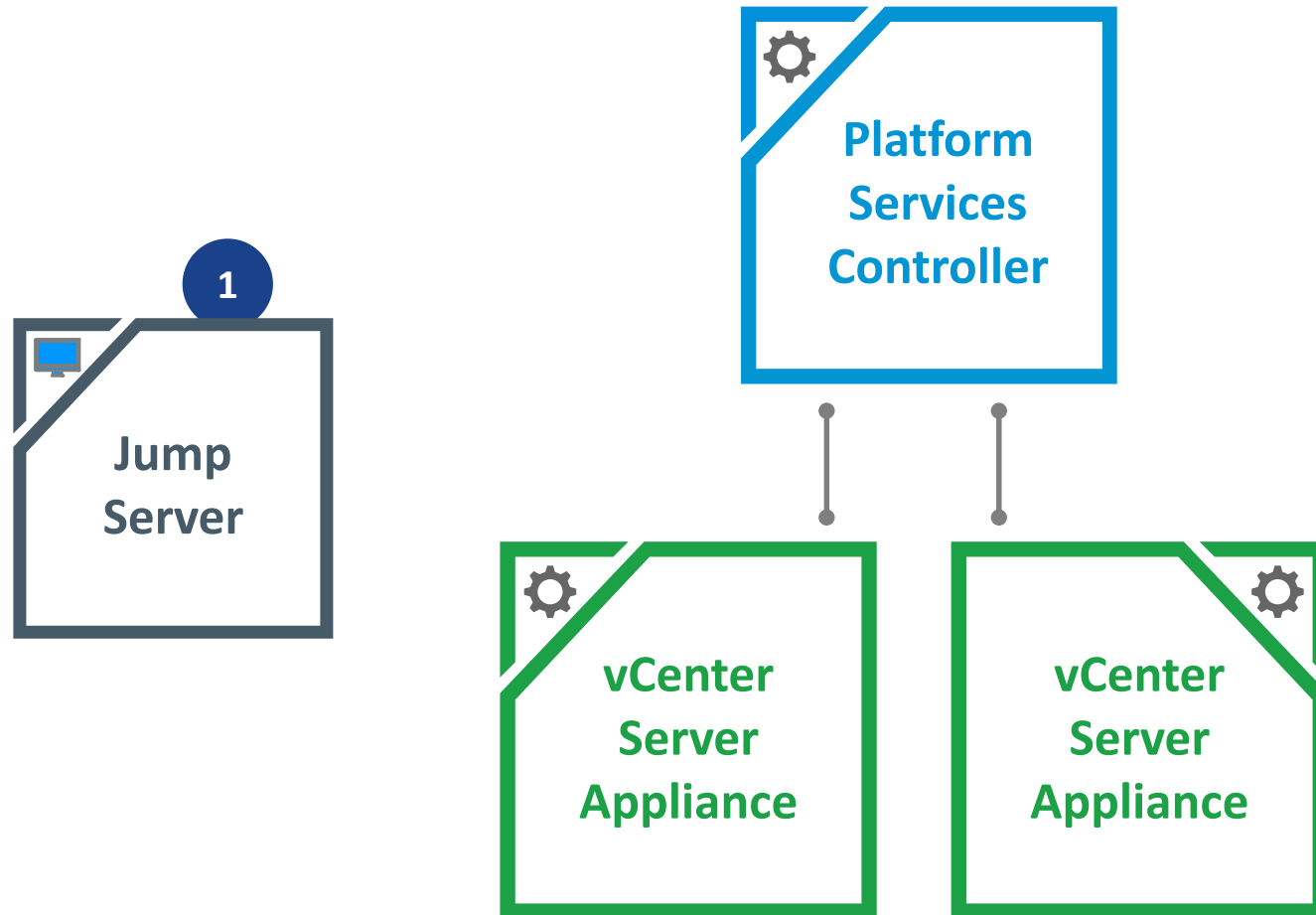
SSO Domain: vsphere.local



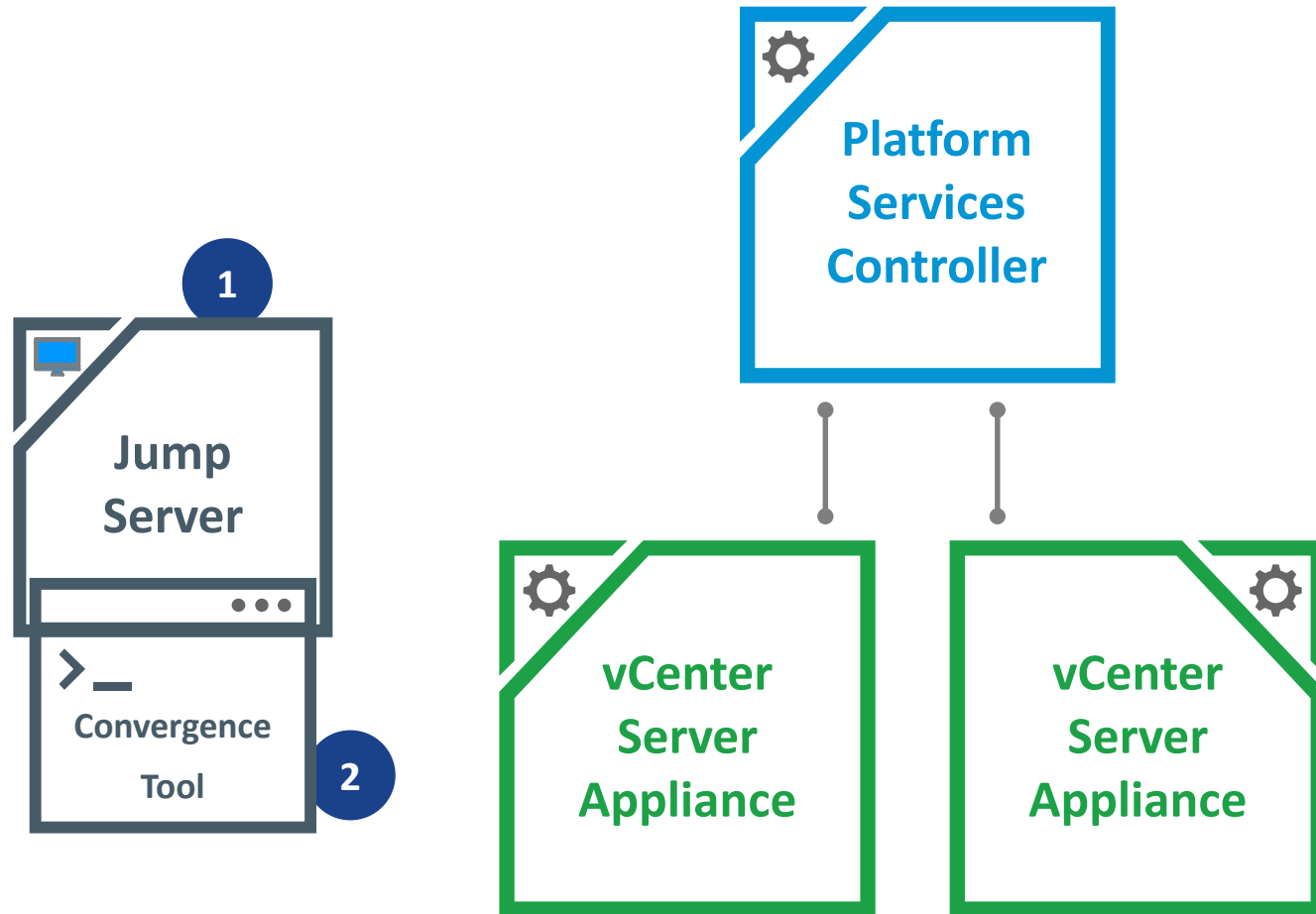
Convergence Example



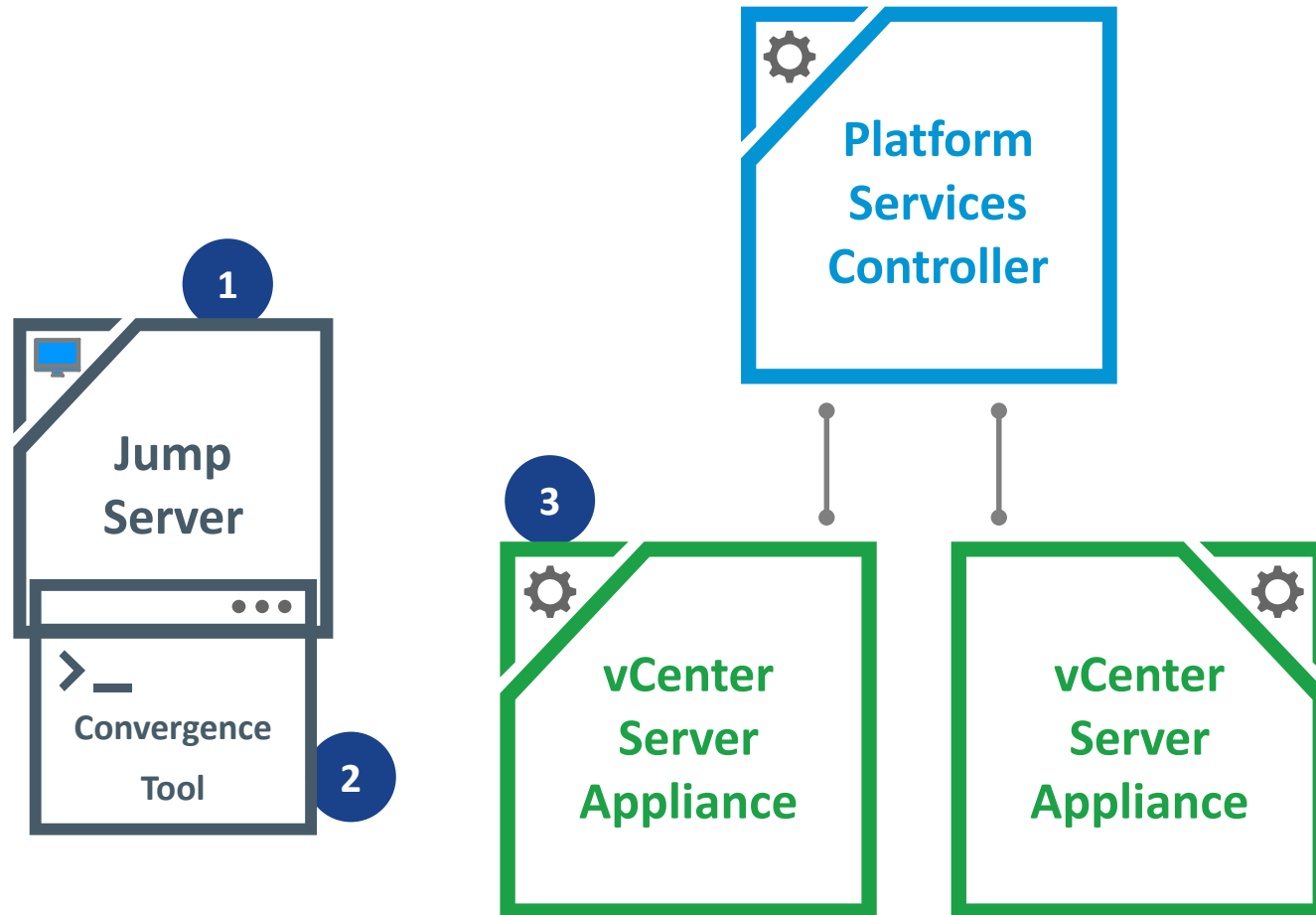
Convergence Example



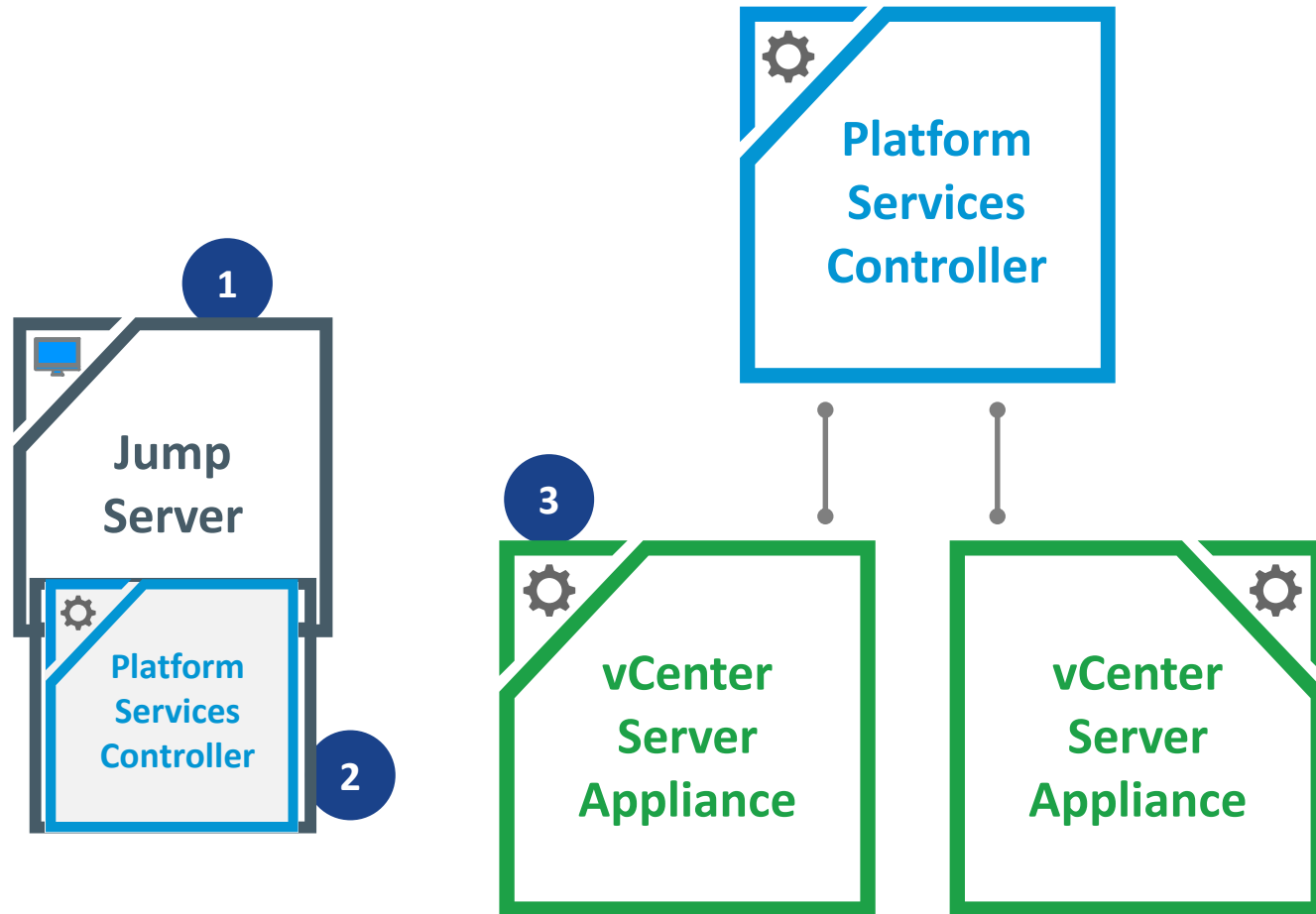
Convergence Example



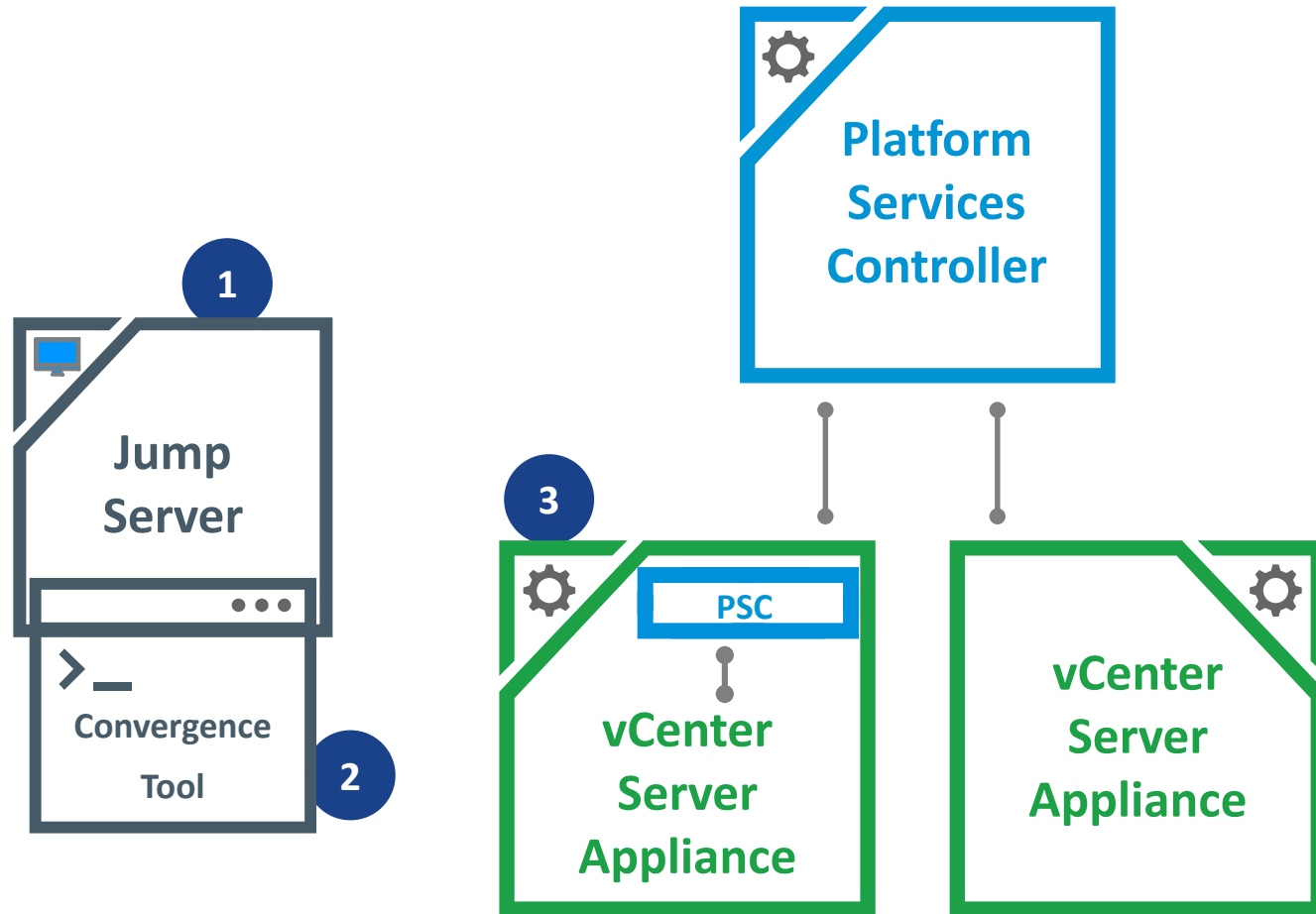
Convergence Example



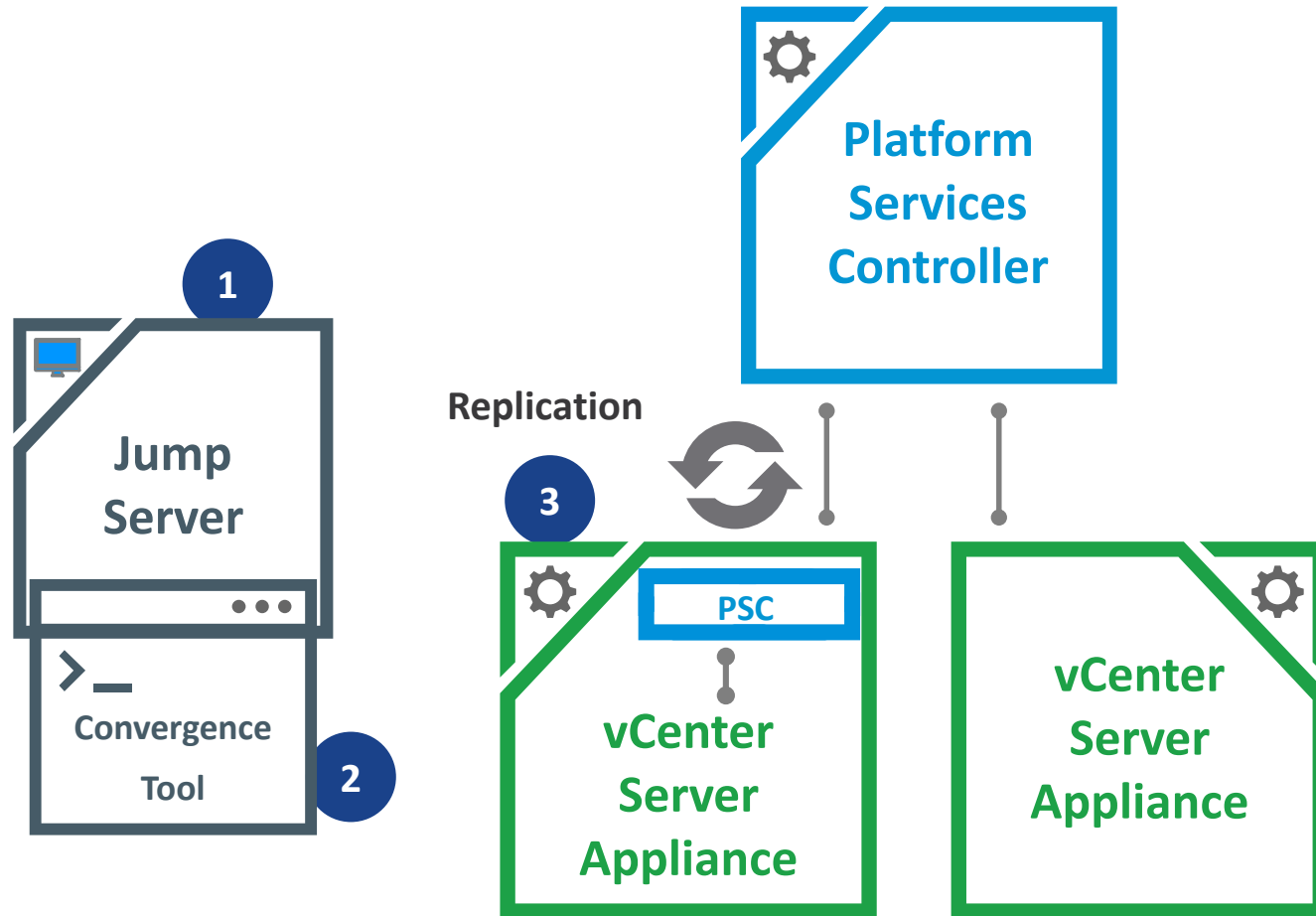
Convergence Example



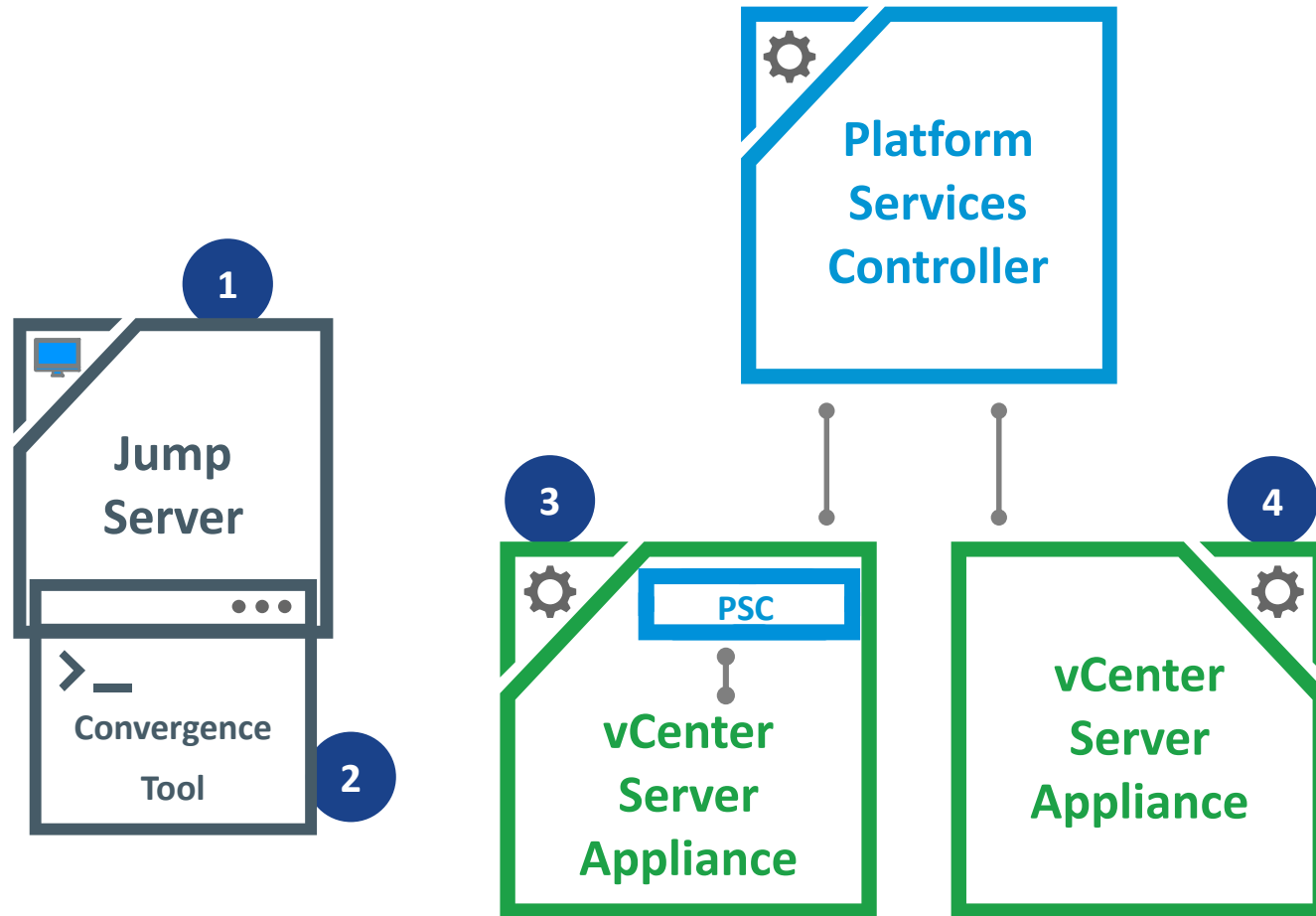
Convergence Example



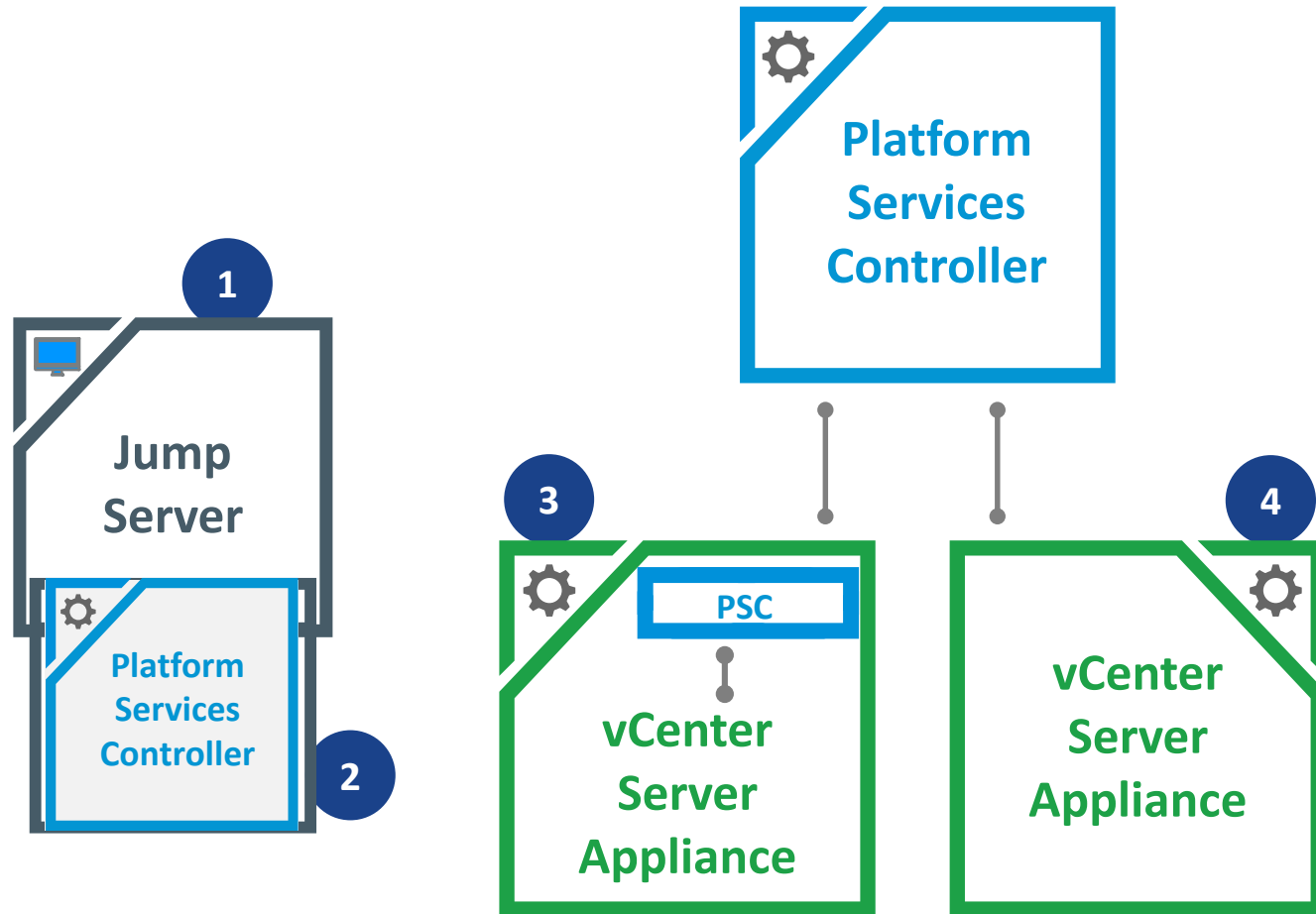
Convergence Example



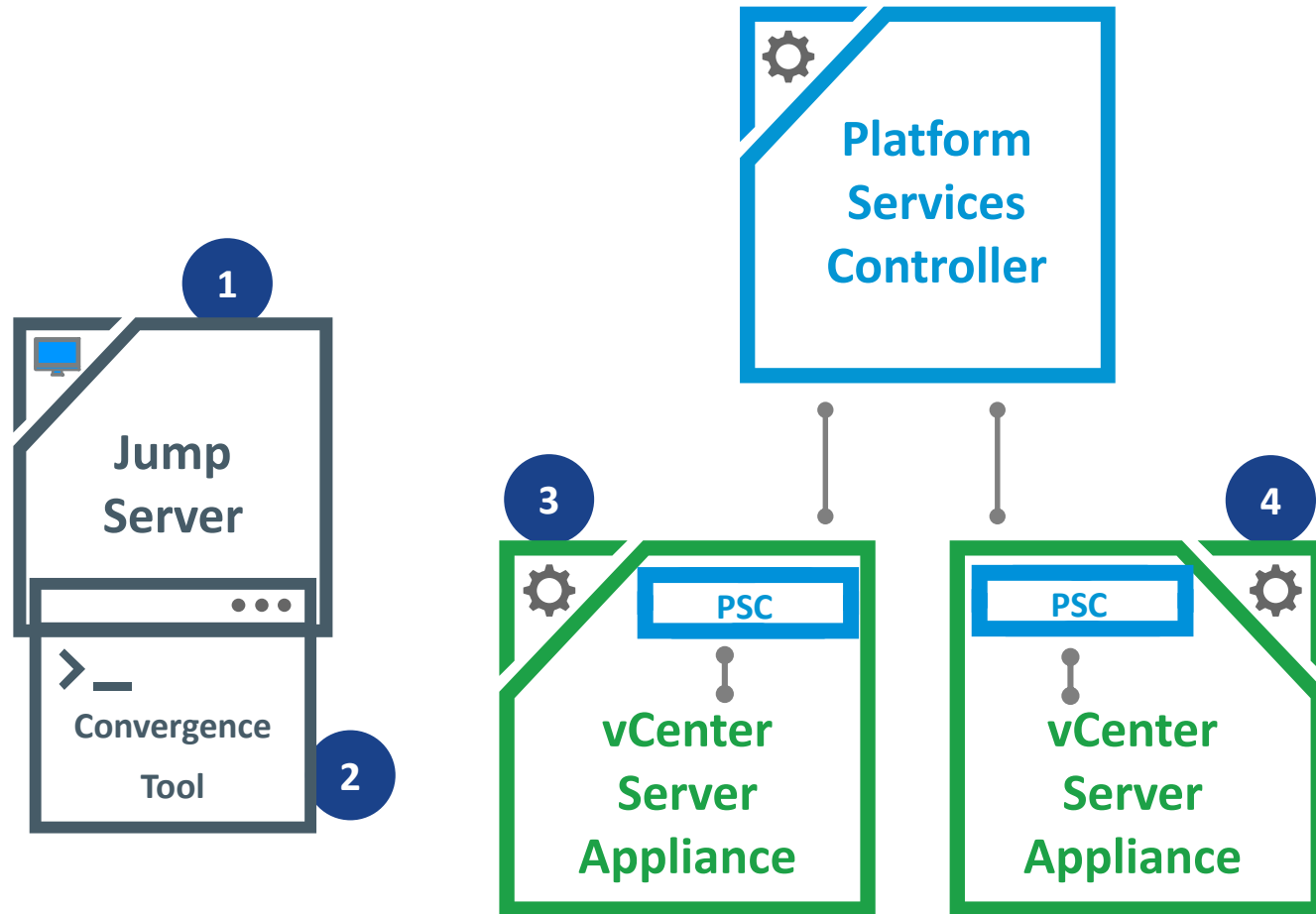
Convergence Example



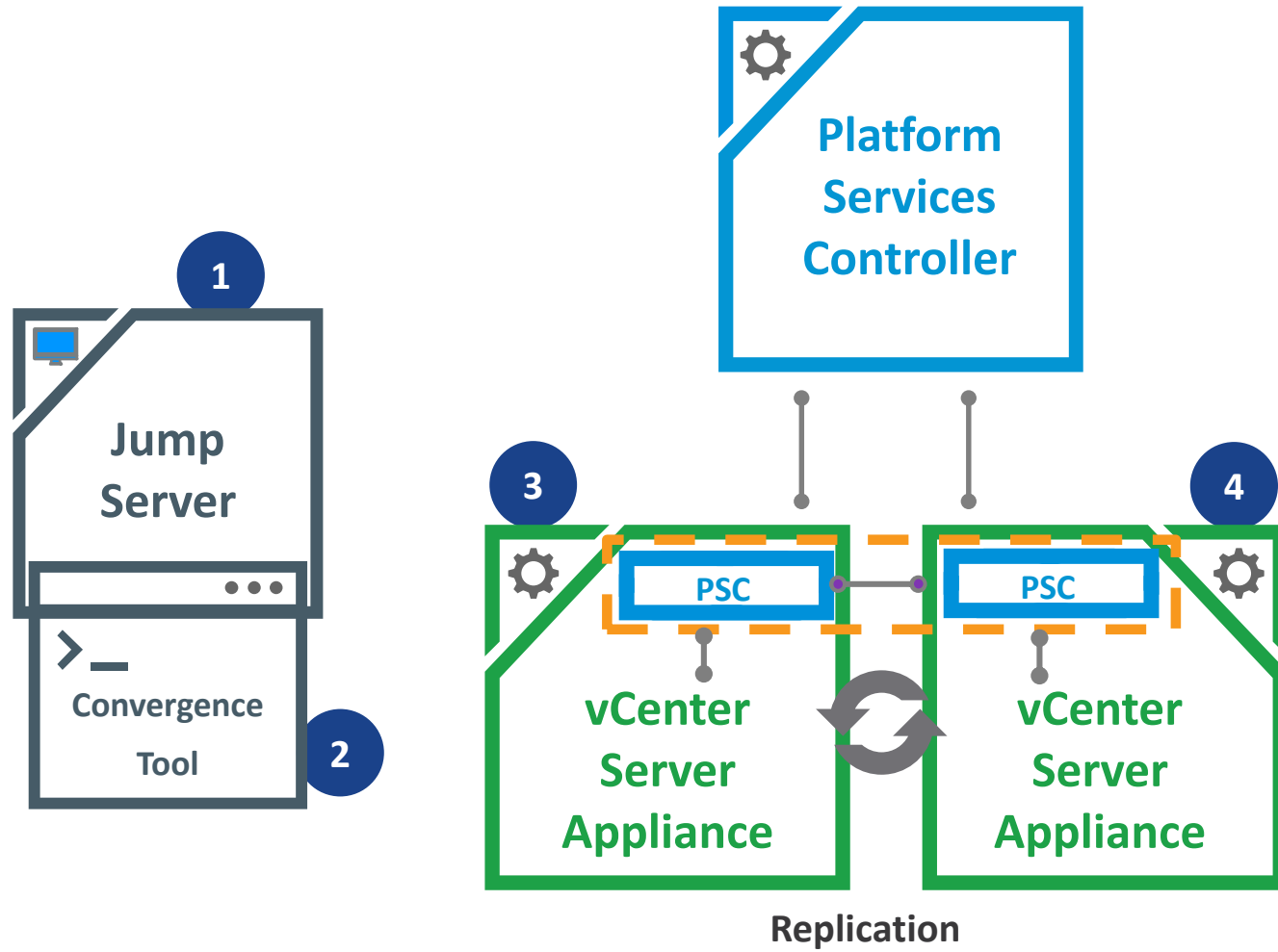
Convergence Example



Convergence Example

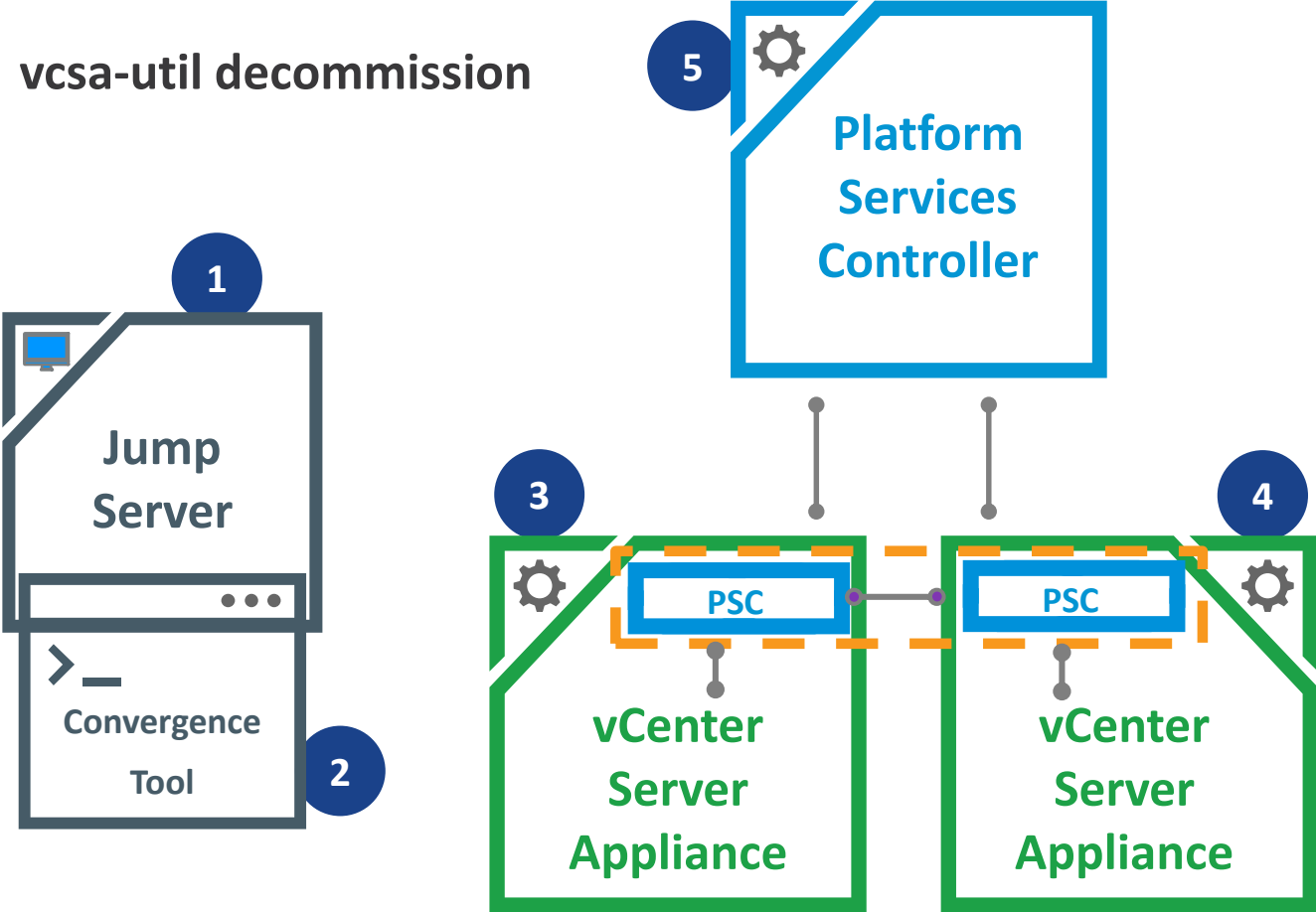


Convergence Example



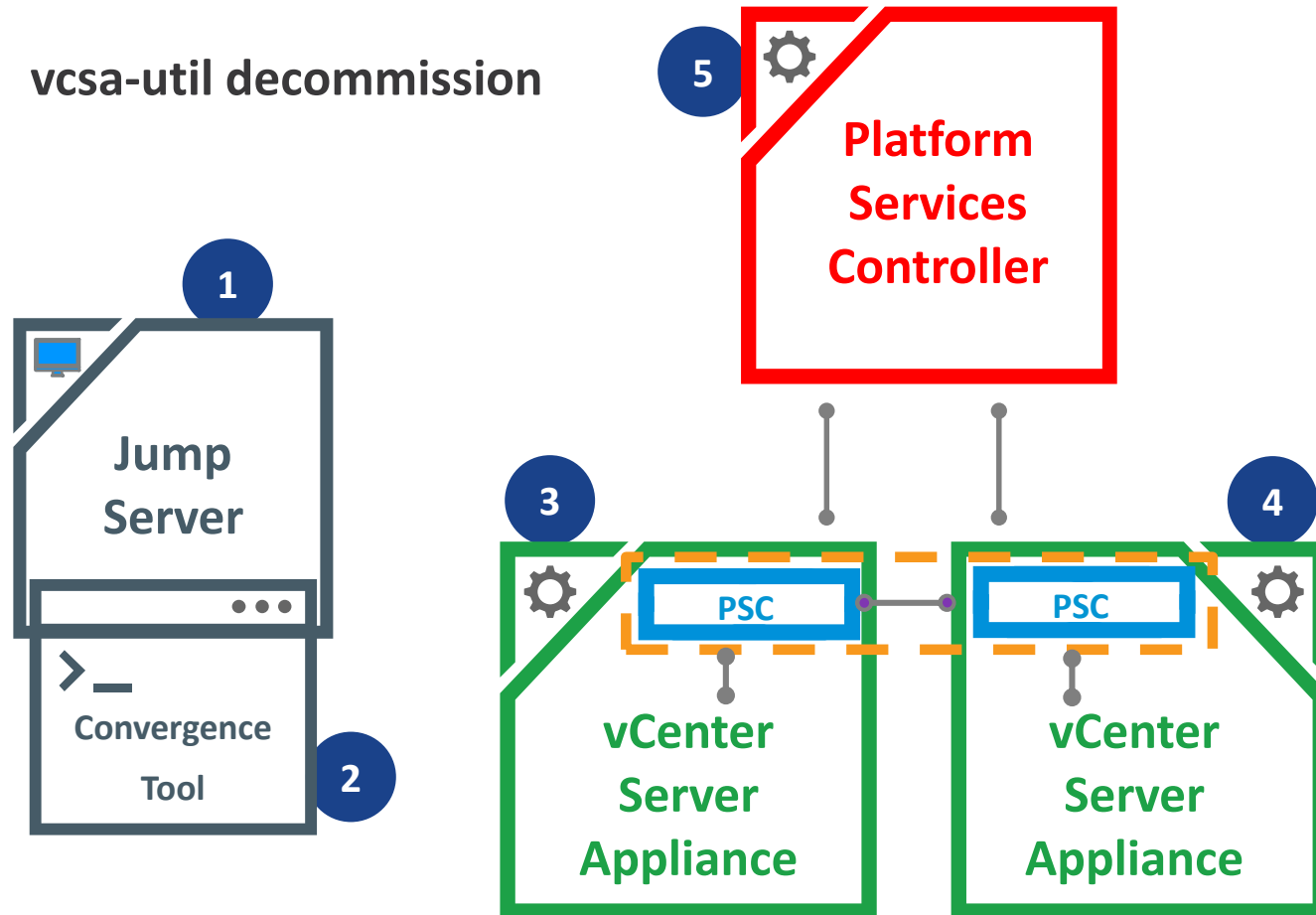
Convergence Example

vcsa-util decommission



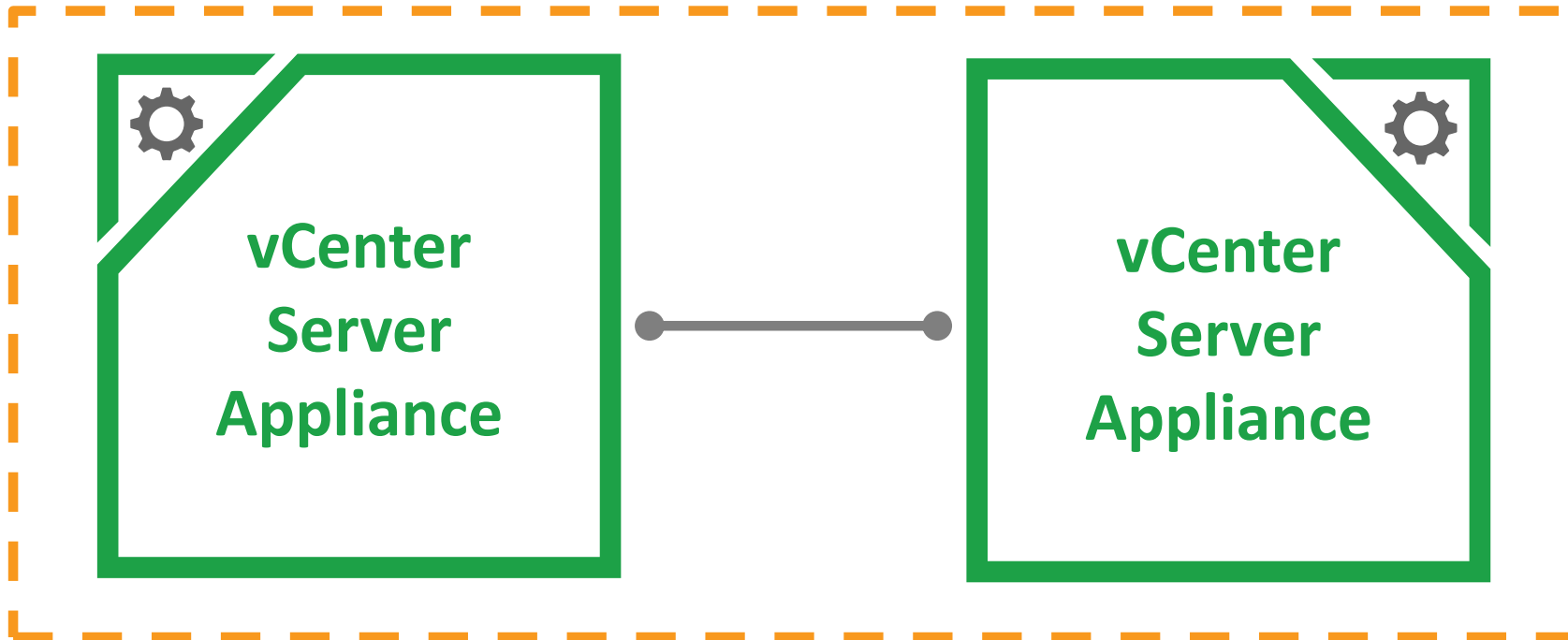
Convergence Example

vcsa-util decommission



Convergence Example

vsphere.local



vCenter Server Converge Tool

Demo

UI Converge Demo

File-Based Backup & Restore

Native vCenter Server Appliance Backup

Backup Management

- Scheduled Backup
- Retention option
- Backup activity

Verifies VCSA state

Supports VCSA & PSC appliances

Supported Protocols include:

- HTTP/S
- SCP
- FTP/S
- NFS (6.7 Update 2)
- SMB (6.7 Update 2)

The screenshot displays the vCenter Appliance Management interface. At the top, it shows 'vm Appliance Management', the date and time 'Mon 03-12-2018 10:41 PM UTC', and navigation options for 'English', 'Help', 'Actions', and 'Logout'. A sidebar on the left contains menu items: Summary, Monitor, Access, Networking, Time, Services, Update, Administration, Syslog, and Backup (which is highlighted).

The main content area features a blue information box with the text: 'Before taking a backup, a backup server must be set up and configured such that the appliance has access to it. The protocols supported for backup are FTPS, HTTPS, SCP, FTP and HTTP.'

Below this is the 'Backup Schedule' section, which is currently 'Enabled'. It includes the following configuration details:

- Schedule:** Daily, 10:40 P.M. Etc/UTC
- Backup Location:** ftp://10.159.13.53/backup/aus
- Backup data:** Stats, Events, and Tasks; Inventory and configuration
- Number of backups to retain:** Retain all backups

At the bottom of the configuration section is an 'Activity' section with a 'BACKUP NOW' button. It contains a table of backup activities:

	Backup Location	Type	Status	Data Transferred	Duration	End Time
>	ftp://10.159.13.53/backup/a...	Scheduled	Complete	199.95 MB	00:00:14	Mar 12, 2018, 3:23:18 PM
>	ftp://10.159.13.53/backup/a...	Manual	Complete	199.94 MB	00:00:14	Mar 12, 2018, 3:19:39 PM
>	ftp://10.159.13.53/backup/a...	Scheduled	Complete	199.98 MB	00:00:18	Mar 12, 2018, 3:30:22 PM
>	ftp://10.159.13.53/backup/a...	Scheduled	Complete	200.02 MB	00:00:14	Mar 12, 2018, 3:40:18 PM
>	ftp://10.159.13.53/backup/a...	Manual	Complete	199.97 MB	00:00:16	Mar 12, 2018, 3:16:59 PM

File-Based Backup & Restore

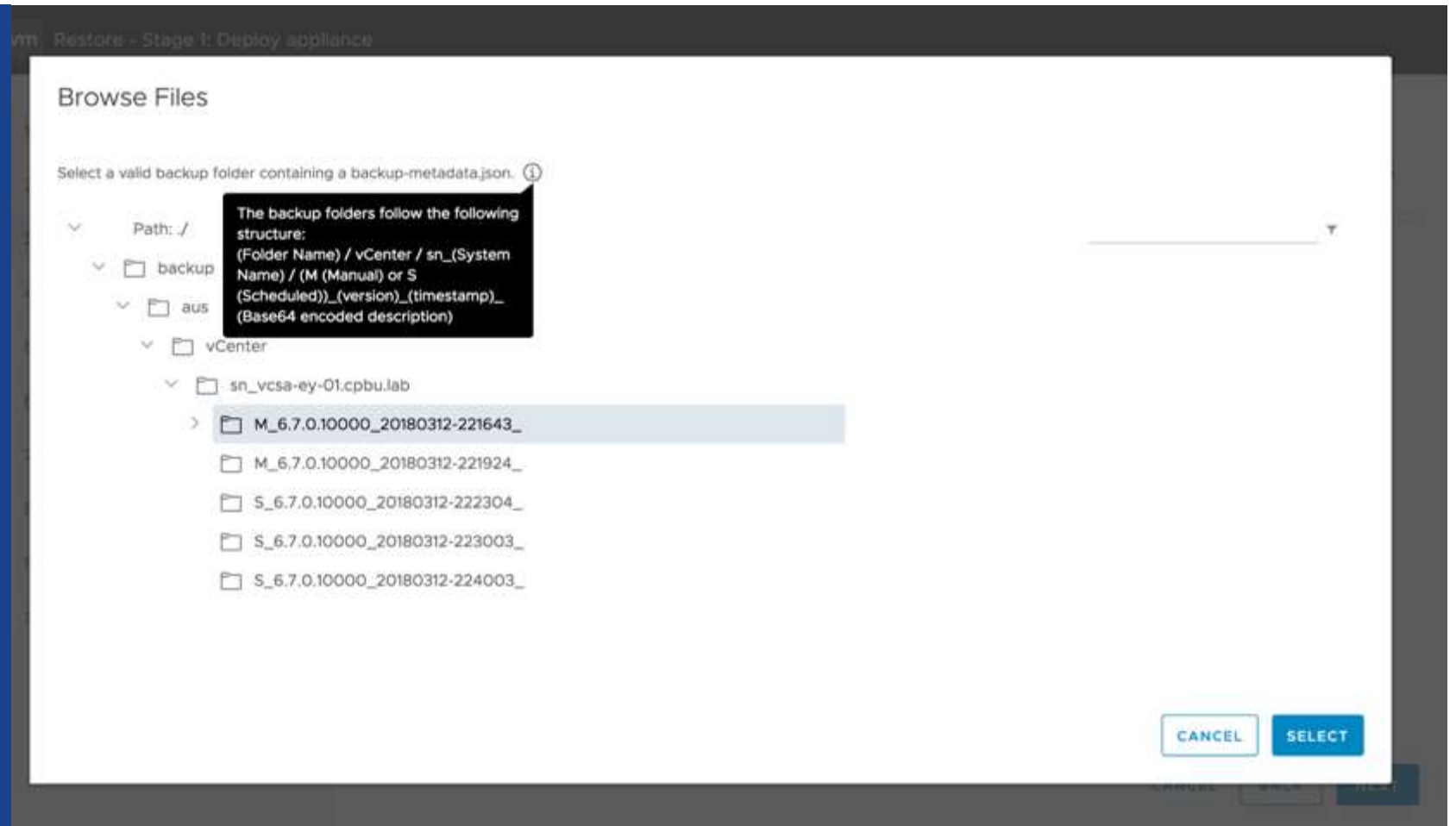
Restore directly from VCSA ISO

Browse Restore Files

External PSC restore not supported when replication partners are available

Embedded Linked Mode Supported with reconciliation

Retains VCSA identity



Domain Repoint

Move vCenter Server Across Domains

Consolidate vSphere SSO Domains

Migrates Tags, Licenses, Categories,
Global Permissions

Pre-check option

External Deployments

Embedded Deployments (6.7U1)

cmsso-util domain-repoint

```
Terminal — ssh root@vcsa-sfo-01.cpbu.lab
root@vcsa-sfo-01 [ ~ ]# cmsso-util
usage: cmsso-util [-h] {unregister,reconfigure,repaint,domain-repaint} ...

Tool for orchestrating unregister of a node from LS, reconfiguring a vCenter
Server with embedded PSC and repainting a vCenter Server to an external PSC in
same as well as different domain.

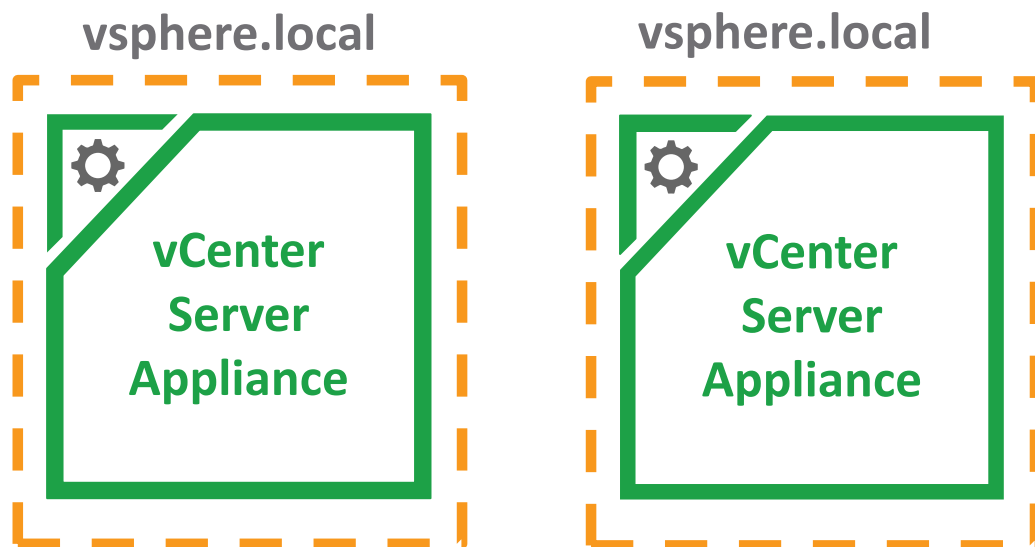
positional arguments:
  {unregister,reconfigure,repaint,domain-repaint}
    unregister          Unregister node. Passing --node-pnid will unregister
                        solution users, computer account and service
                        endpoints. Passing --hostId will unregister only
                        service endpoints and solution users.
    reconfigure         Reconfigure a vCenter with an embedded Platform
                        Services Controller(PSC) to a vCenter Server. Then it
                        repoints to the provided external PSC node.
    repaint            Repoints a vCenter with an external Platform Services
                        Controller(PSC) to the provided external PSC node.
    domain-repaint     Repoint vCenter Server from one Platform Services
                        Controller to another Platform Services Controller in
                        a different domain. The repainting operation will
                        migrate Tags, Authorization, License data to another
                        Platform Services Controller.

optional arguments:
  -h, --help          show this help message and exit
```

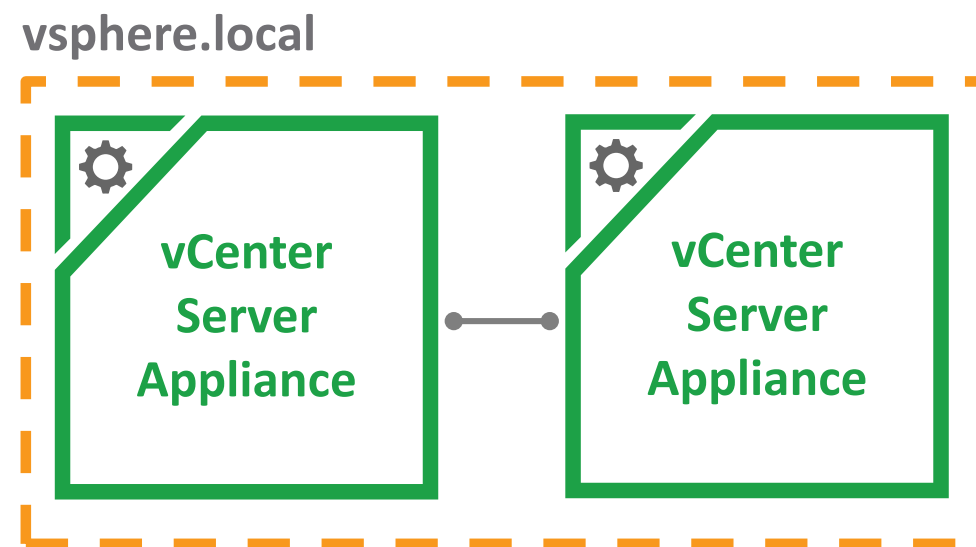
Domain Repoint: Embedded Deployment

cmsso-util domain repoint

Current environment: separate SSO domains



Goal: single SSO domain



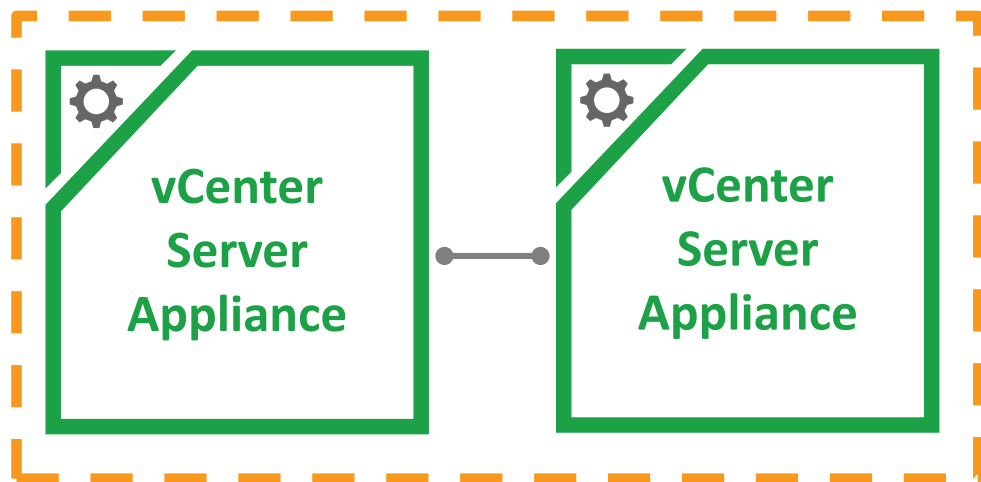
Enhanced Linked Mode

Splitting Enhanced Linked Mode

cmsso-util domain-repoint

Current environment: single SSO domains

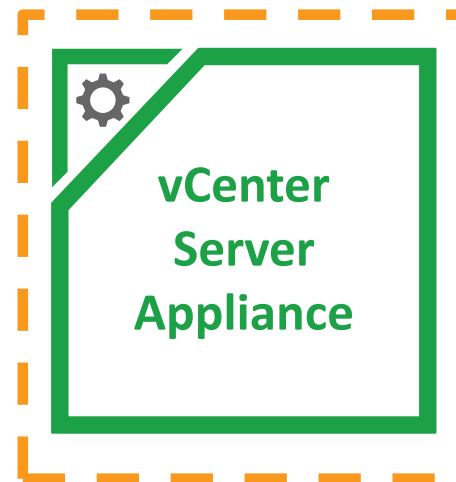
vsphere.local



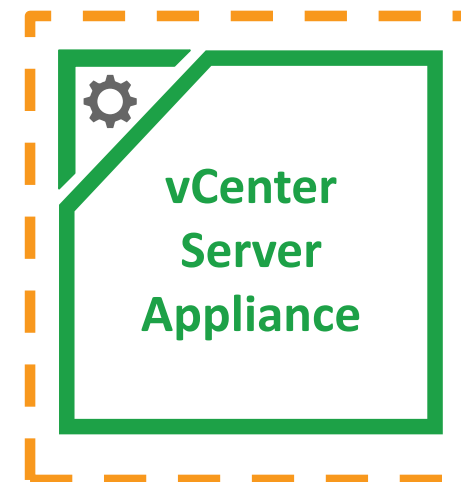
Enhanced Linked Mode

Goal: separate SSO domains

vsphere.local



vsphere.local



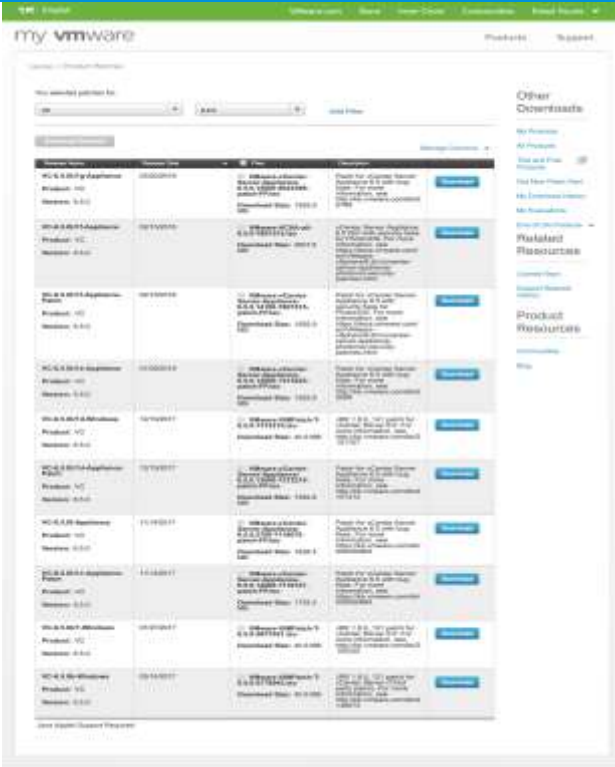
Efficient Security Patch Delivery

Predictable Monthly Cadence

Delivery

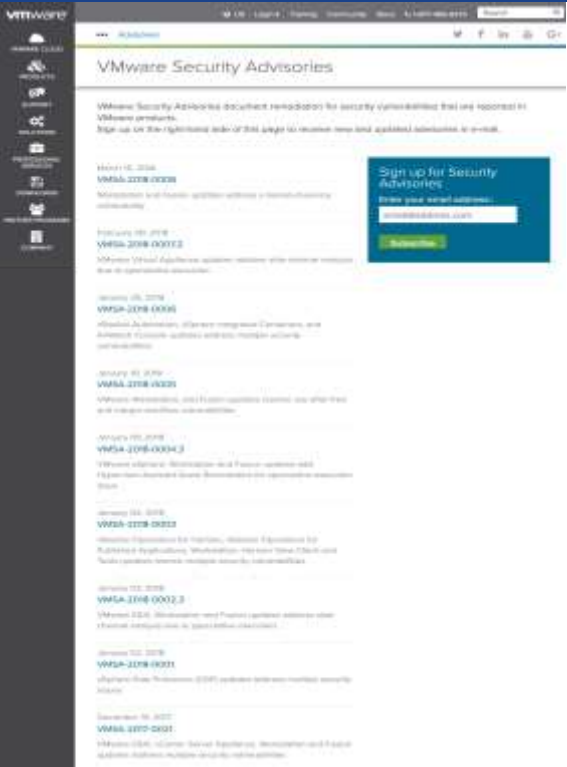
- Photon OS - operating system built for virtualization
- OS vulnerability patches on a monthly release cycle
- Patches available on my.vmware.com patch portal
- Security alerts on the VMware Security page

Patches



<http://www.vmw.re/productpatches>

Advisories



<http://www.vmw.re/securityadvisories>

Additional Resources

vSphere Upgrade eBooks

vSphere 6.5 Upgrade eBook

<http://vmware.com/go/65ebook>



vSphere 6.7 Upgrade eBook

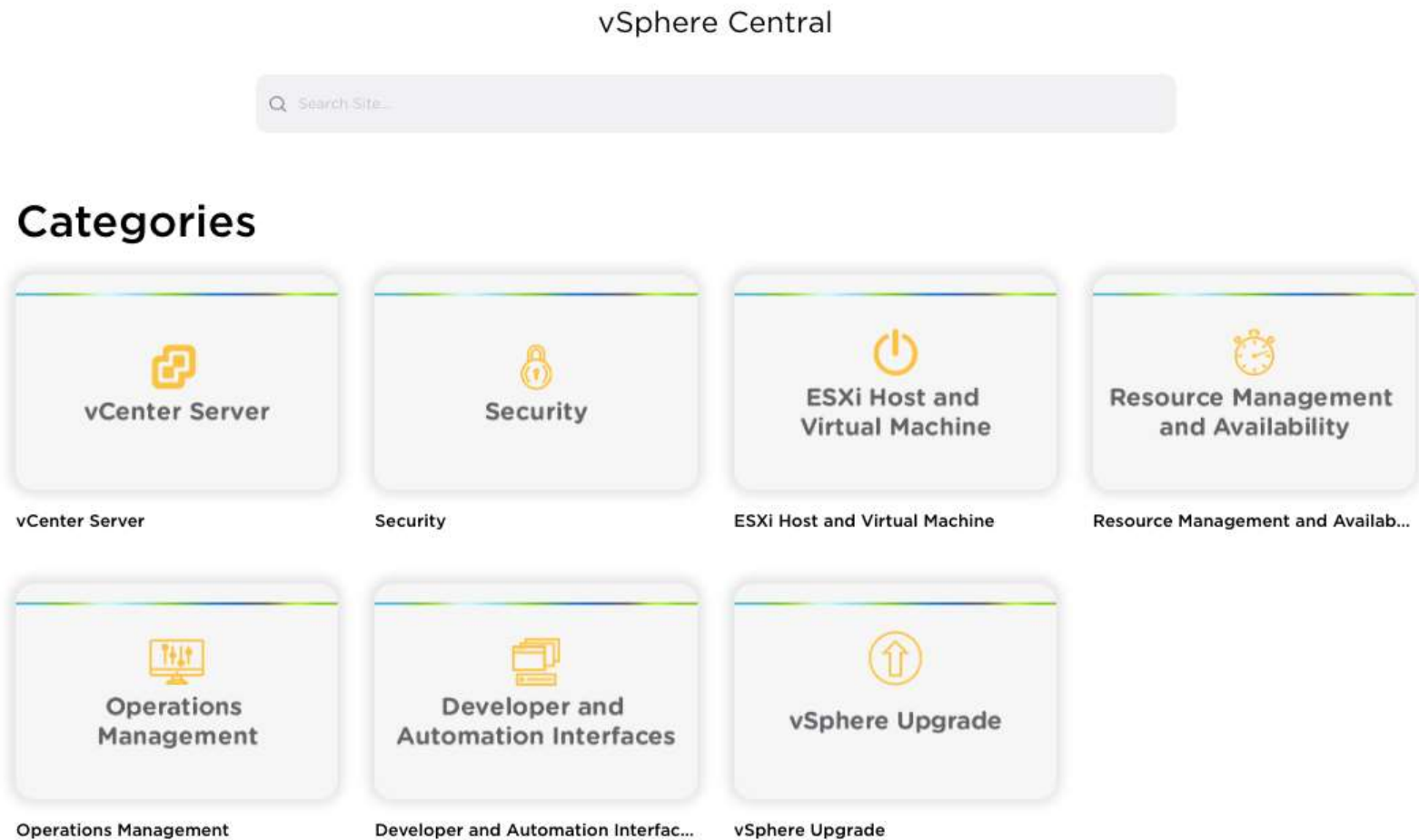
<http://vmware.com/go/67ebook>



vSphere Central

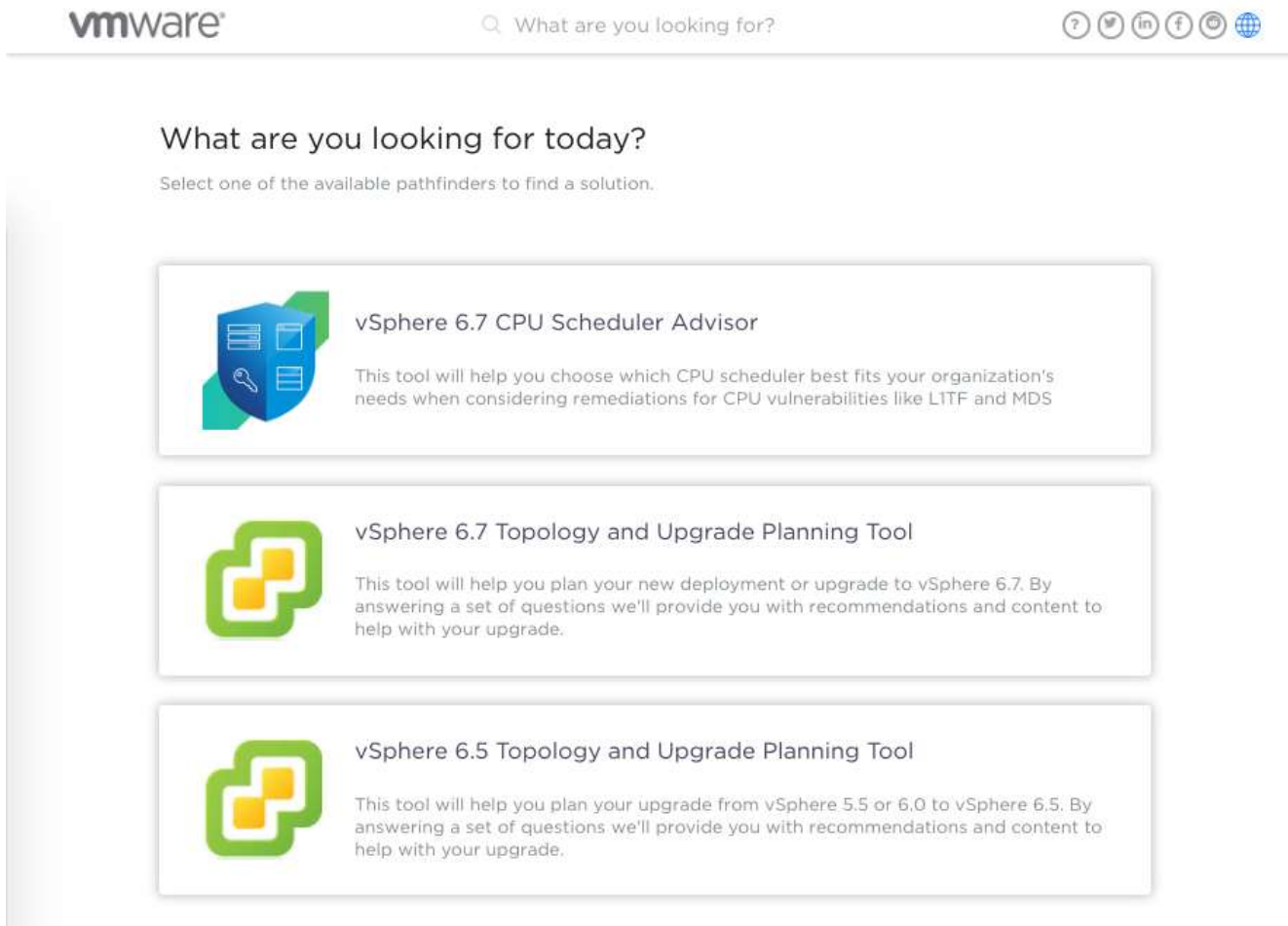
<http://vspherecentral.vmware.com>

- Curated repository of vSphere resources including blogs, KBs, videos, and walkthroughs
- Simple to access and a single URL to remember
- Conveniently export resources to PDF for offline viewing



vSphere Central – Path Finder

<https://vspherecentral.vmware.com/path-finder/>



The screenshot shows the vSphere Central Path Finder interface. At the top left is the VMware logo. To its right is a search bar with the text "What are you looking for?". Further right are social media icons for help, Twitter, LinkedIn, Facebook, YouTube, and a globe. Below the search bar is the heading "What are you looking for today?" followed by the instruction "Select one of the available pathfinders to find a solution." There are three tool cards listed:

- vSphere 6.7 CPU Scheduler Advisor**: This tool will help you choose which CPU scheduler best fits your organization's needs when considering remediations for CPU vulnerabilities like LITF and MDS.
- vSphere 6.7 Topology and Upgrade Planning Tool**: This tool will help you plan your new deployment or upgrade to vSphere 6.7. By answering a set of questions we'll provide you with recommendations and content to help with your upgrade.
- vSphere 6.5 Topology and Upgrade Planning Tool**: This tool will help you plan your upgrade from vSphere 5.5 or 6.0 to vSphere 6.5. By answering a set of questions we'll provide you with recommendations and content to help with your upgrade.

- Online, browser-based tool – no install necessary
- Walks you through key decisions when planning and upgrade or new deployment
- Provides upgrade/deployment steps along with a diagram and links to key documentation

vSphere YouTube Channel

<https://vmware.com/go/vsphere67playlist>

vSphere 6.7 – Getting In-Depth with the Top Features
10 videos • 17,638 views • Last updated on Jun 14, 2018

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VMware vSphere 2:01
- 4 Optimize GPU Usage For VM on vSphere 6.7 Servers | vSphere**
VMware vSphere 3:25
- 5 TPM 2.0 Trusted Platform Module For vSphere 6.7 | vSphere**
VMware vSphere 2:14
- 6 VMware vCenter Server Appliance 6.7 Migration**
VMware vSphere 5:11
- 7 VMware vCenter Server Appliance 6.7 File-Based Backup & Restore**
VMware vSphere 4:29

VMware Assessment Lounge

VMware Assessment Lounge

@ VMvillage



Learn how to use VMware Assessment Tools to discover, design and optimize your IT environment live @ VMworld Europe

HOURS

Monday, Nov. 4 th	12:00 PM – 5:00 PM
Tuesday, Nov. 5 th	8:00 AM – 5:30 PM
Wednesday, Nov. 6 th	8:00 AM – 5:00 PM
Thursday, Nov. 7 th	8:00 AM – 2:30 PM

Assessment demos and raffle: Mon 4:30pm, Tues & Wed, 1:30pm and 4:30pm, Thurs 1:30pm

Closed for keynote 9:00 AM -10:30 AM



vSphere Assessment Tool
(vSAT)



HCI Assessment
(HCI)



Virtual Network Assessment
(VNA)



vSphere Optimization
Assessment (VOA)

QUESTIONS?



vmworld® **2019**

Please Fill Out Your Survey

Take a survey and enter
a drawing for a VMware
store gift card.

**Make
Your
Mark**

vmworld® 2019

Thank you!

Make
Your
Mark