VCFDCM5 Notes & Errata

Part Number EDU-EN-VCFDCM5-LECT (13-NOV-2023)

Version	Date	Author(s)	Description of Change
01	October 22, 2023	Fabrizio de Luca	Initial Release
02	June 20, 2024	Fabrizio de Luca	Updated to Nov 13th Release Added references/notes to VCF 5.1.1
03	October 5, 2024	Pawel Piotrowski	Slide 2-9: Pantheon is deprecated as of v4.4

Module 1

1-8 - VMware Online Resources

WRONG —> *Documentation for **NSX-T**: https://docs.vmware.com/en/VMware-NSX-T-Data-Center/index.html* <— according to the release notes "Bill of Materials (BOM)" paragraph, VMware Cloud Foundation 5.0 supports VMware NSX 4.1.0.2; hence, the sentence above shall refer to **NSX**. [Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/rn/vmware-cloud-foundation-50-release-notes/index.html]

IMPROVABLE —> *VMware Hands-on Labs: **http://hol.vmware.com*** <— I rather prefer the direct link to the Hands-on Labs catalog **http://labs.hol.vmware.com**

1-9 - VMware Education Overview

OUT-OF-DATE / BROKEN LINK —> *For more information, see **https://vmwarelearningzone.vmware.com*** <— the **VMware Learning Zone (VLZ)** has changed name a few times, now it is **VMware Digital Learning** and it can be reached at **https://www.vmware.com/learning/digital-learning.html**

Module 2

2-5 - VMware Cloud Foundation

TYPO / OUT-OF-DATE —> ***VMware Cloud Foundation 4.3*** *provides a standardized and configured infrastructure for vSphere with Tanzu* <— this courseware is about **VMware Cloud Foundation 5.0**.

2-6 - Software Bill of Materials

TYPO / OUT-OF-DATE —> *You deploy* ***vRealize Suite Lifecycle Manager 8.4.1*** *using SDDC Manager* <— according to the VCF5 bill of materials, the correct version is **vRealize Suite Lifecycle Manager 8.10 Patch 1**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/rn/vmware-cloud-foundation-50-release-notes/index.html]

WRONG / OUT-OF-DATE —> ***if you deployed Application Virtual Networks during the bring-up process*** <— **"Starting with VMware Cloud Foundation 4.3, NSX segments are no longer configured during the management domain bring-up process, but instead are configured using the SDDC Manager UI. The new process offers the choice of using either overlay-backed or VLAN-backed segments"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-30F5CE03-F5EC-40F7-A606-C647F920AAE9.html]

<— **"Flexibility in Application Virtual Networks (AVN): Application Virtual Networks (AVN)s, which include the NSX Edge Cluster and NSX network segments, are no longer deployed and configured during bring-up. Instead they are implemented as a Day-N operations in SDDC Manager, providing greater flexibility"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/4.3/rn/vmware-cloud-foundation-43-release-notes/index.html]

WRONG / OUT-OF-DATE —> ***If you did not choose to deploy Application Virtual Networks, you must manually deploy vRealize Suite Lifecycle Manager*** <— **"You deploy the vRealize Suite Lifecycle Manager in VMware Cloud Foundation mode by using the SDDC Manager UI"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-57523CF3-84C0-4CE3-A991-74F9498A0CCD.html]

WRONG —> *To manage the infrastructure in the private cloud,* ***VMware Cloud Foundation uses SDDC Manager to automate the bring-up process, configuration, and provisioning of the full software stack*** <— as also explained in slide 2-7, the online documentation describes the bring-up process as performed by the VMware Cloud Builder appliance: **"The VMware Cloud**

Foundation deployment process is referred to as bring-up. You specify deployment information specific to your environment such as networks, hosts, license keys, and other information in the deployment parameter workbook and upload the file to the VMware Cloud Builder appliance to initiate bring-up of the management domain.
During bring-up, the management domain is created on the ESXi hosts specified in the deployment parameter workbook. The VMware Cloud Foundation software components are automatically deployed, configured, and licensed using the information provided".
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-deploy/GUID-0BF9473E-0277-48D2-812D-7158197FB3EE.html]
WRONG / OUT-OF-DATE —> *For more information about Cloud Foundation release notes and software BOM, see* ***VMware Cloud Foundation 4.x*** *Release Notes at https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html* <— this courseware is about **VMware Cloud Foundation 5.0**.

2-7 - Post Bring-Up Process Architecture
MORE DETAILS —> *The VMware Cloud Foundation software bundle also includes an* ***imaging appliance*** *which can be used to perform the server imaging. With the imaging appliance, you can also build custom images for servers which require drivers that are not included in the base ESXi image* <— **"The VMware Imaging Appliance (VIA), included with the VMware Cloud Builder appliance to image ESXi servers, is deprecated in VMware Cloud Foundation 5.0 and will be removed in a future release"**.
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/rn/vmware-cloud-foundation-50-release-notes/index.html]
As of VCF 5.1 "**The VMware Imaging Appliance (VIA), included with the VMware Cloud Builder appliance to image ESXi servers, is deprecated and removed"**.
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.1/rn/vmware-cloud-foundation-51-release-notes/index.html#Deprecation%20Notices]
OUT-OF-DATE / BROKEN LINK —> *You can run through a simulation of the bring-up process at* ***https://storagehub.vmware.com/j/initial-implementation/bring-up*** <— the only simulation I was still able to find is a VCF4.x bring-up process: despite not being the most up to date, it's still valid to get a preview of what it takes to initially deploy VCF.
https://core.vmware.com/vmware?share=isim_demo2193&title=vcf-4x-bring-up

2-9 - Role of SDDC Manager
WRONG / OUT-OF-DATE —> ***Pantheon: The service which manages multi-instance federations between VMware Cloud Foundation instances*** <— **as of VCF 4.4, Multi-Instance Management is deprecated and no longer available in the SDDC Manager UI**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/4.4/rn/vmware-cloud-foundation-44-release-notes/index.html#What's%20New]

2-13 - Introduction to vSphere+

OUT-OF-DATE <— With the Broadcom acquisition of VMware, all perpetual and SaaS licenses have been replaced by a subscription-based licensing model. According to VCF 5.1.1 release notes: **"VMware End Of Availability of Perpetual Licensing and SaaS Services. See https://blogs.vmware.com/cloud-foundation/2024/01/22/vmware-end-of-availability-of-perpetual-licensing-and-saas-services/ for more information"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.1.1/rn/vmware-cloud-foundation-511-release-notes/index.html#Deprecation%20Notices]

On top of that, in VCF 5.1.1, VMware has introduced the following additional option: **"Solution Licensing: The component products of VCF can now derive their entitlements from a single solution license key (except for vSAN, which still requires a separate license). Individual component license keys continue to be supported. Use the vSphere Client to apply the solution license or the SDDC Manager UI to apply individual component licenses"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.1.1/rn/vmware-cloud-foundation-511-release-notes/index.html#What's%20New]

As such, this and the following slides, whilst still being valid for existing VCF deployments up to version 5.1 and up until the first customer's SnS renewal, are no more applicable to new VCF deployments:

- **2-14 - vSphere+ Capabilities**
- **2-16 - Introduction to vSAN+**
- **2-18 - Licensing Mode**
- **2-19 - VMware Cloud Foundation+**
- **2-20 - Subscription Licensing Model**
- **2-21 - Calculating Subscription Capacity**
- **2-22 - Purchase and Apply VMware Cloud Foundation+ Subscription**
- **2-23 - Subscription Page**
- **2-24 - Perpetual Licensing Mode**

2-23 - Subscription Page

WRONG / OUT-OF-DATE —> *After a VMware Cloud Foundation+ subscription is applied to your Organization and you have a deployment of **VMware Cloud Foundation 4.5** managing your on-premises infrastructure […]* <— this courseware is about **VMware Cloud Foundation 5.0**.

MORE DETAILS —> *[…] you use **vCenter Cloud Gateway** to connect this deployment to VMware Cloud* <— this appliance is alternately named **vCenter Cloud Gateway** (i.e.: in the downloads portal) and **VMware Cloud Gateway** (i.e.: in the online documentation).

[Sources:
https://customerconnect.vmware.com/downloads/info/slug/datacenter_cloud_infrastructure/vmware_vcenter_cloud_gateway_for_vsphere_plus/cloud_gateway
https://docs.vmware.com/en/VMware-Cloud/services/vmware-cloud-gateway-administration/GUID-59D32883-B4C8-4BE0-9761-7CDDB6142613.html]

2-24 - Perpetual Licensing Mode

BOTCHED —> ***VMware vSphere*** <— this is too vague as **"The two core components of vSphere are VMware ESXi™ and VMware vCenter Server®".** This licensing requirement shall be listed detailing which of the two vSphere components the author is referring to here, in example **VMware ESXi**, thus complementing the second vSphere component – **VMware vCenter Server** – included at the end of this bulleted list.
[Source: https://docs.vmware.com/en/VMware-vSphere/8.0/vsphere-vcenter-esxi-management/GUID-302A4F73-CA2D-49DC-8727-81052727A763.html]

Module 3

VMware Cloud Foundation+ and VMware Cloud Connectivity (WHOLE MODULE 3)

OUT-OF-DATE <— With the Broadcom acquisition of VMware, all perpetual and SaaS licenses have been replaced by a subscription-based licensing model. According to VCF 5.1.1 release notes: "**VMware End Of Availability of Perpetual Licensing and SaaS Services. See https://blogs.vmware.com/cloud-foundation/2024/01/22/vmware-end-of-availability-of-perpetual-licensing-and-saas-services/ for more information**".

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.1.1/rn/vmware-cloud-foundation-511-release-notes/index.html#Deprecation%20Notices]

On top of that, in VCF 5.1.1, VMware has introduced the following additional option: "**Solution Licensing: The component products of VCF can now derive their entitlements from a single solution license key (except for vSAN, which still requires a separate license). Individual component license keys continue to be supported. Use the vSphere Client to apply the solution license or the SDDC Manager UI to apply individual component licenses**".

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.1.1/rn/vmware-cloud-foundation-511-release-notes/index.html#What's%20New]

As such, **this whole module**, whilst still being valid for existing VCF deployments up to version 5.1 and up until the first customer's SnS renewal, are no more applicable to new VCF deployments.

3-6 - Key Terminology

BOTCHED / DUPLICATE WRONG LINK —> *The VMware Cloud Services Console […]. It can be accessed at* ***https://cloud.vmware.com/*** <— the link is written twice in a raw. More importantly, this link doesn't give you access to the VMware Cloud Services Console, but just to the product marketing pages. The correct link to the Console is:

https://console.cloud.vmware.com/

3-9 - Sign-up for VMware Cloud Services

WRONG —> ***Purchase the service from the VMware Marketing website. https://cloud.vmware.com/*** <— there is currently no option to purchase the service from the marketing pages; at best, you can contact VMware Sales.

DUPLICATE LINK —> *If your account is not federated, see How do I onboard as a user in VMware Cloud Services at* ***https://docs.vmware.com/en/VMware-Cloud-services/services/Using-VMware-Cloud-Services/GUID-AA6889EB-3455-4D11-A2DD-264F5053D0DD.html*** <— the link is written twice in a raw.

3-13 - Cloud User Account Types

DUPLICATE LINK —> *If your account is not federated, see How do I onboard as a user in VMware Cloud Services at* ***https://docs.vmware.com/en/VMware-Cloud-services/services/Using-VMware-Cloud-Services/GUID-AA6889EB-3455-4D11-A2DD-264F5053D0DD.html*** <— the link is written twice in a raw.

3-20 - Billing and Subscriptions Page

OUT-OF-DATE SCREENSHOT <— **the screenshot belongs to a previous release of the VMware Cloud Services Console**. It can be determined based on the UI layout of the tabs **Services**, **Identity & Access Management**, **Billing & Subscriptions**, and **Support Center**: in the screenshot, they're laid out horizontally; in the current release, they are populated in a vertical navigation bar on the left side of the UI.

3-27 - Cloud Gateway Environment Requirements

MORE DETAILS —> *By default, a VMware Cloud Gateway instance can be connected to* ***up to four workload domains including the management domain****. This limit can be increased.* <— **"In a VMware Cloud Foundation instance running version 4.5.1 or later, you directly connect up to eight workload domains"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/services/vcfplus/GUID-6D0A237E-2EFC-4553-A226-845D4D3DBCE9.html]

3-33 - Connecting VMware Cloud Foundation+ Instance

TYPOS —> *Connecting VMware Cloud* ***Foundation+*** *Instance* <— AND —> *After registering the cloud gateway, you connect the VMware Cloud* ***Foundation+*** *instance to VMware Cloud.* <— as correctly stated in the slide notes, it's quite the opposite as you **"Connect your on-premises VMware Cloud Foundation deployment to VMware Cloud Gateway to monitor your infrastructure from VMware Cloud Foundation+"**.

MORE DETAILS —> *By default, you can connect a VMware Cloud Foundation instance that has* ***no more than four workload domains, including the management domain****, to the VMware Cloud Gateway instance.* <— **"In a VMware Cloud Foundation instance running version 4.5.1 or later, you directly connect up to eight workload domains"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/services/vcfplus/GUID-6D0A237E-2EFC-4553-A226-845D4D3DBCE9.html]

MISPLACED NOTES —> *In a web browser, go to https://:5480/gw-platform/ where is the IP address or FQDN of VMware Cloud Gateway.*

Under the VMware Cloud card, click Get Started. Connect VMware Cloud Gateway to VMware Cloud. On the Connect VMware Cloud Gateway card, click Connect. Log in to VMware Cloud Gateway as the root account user.

All connectivity tests that run next must complete successfully. Resolve all detected issues and run the tests again. Click Launch VMware Cloud.

In the Cloud Services Console, log in by using your VMware Customer Connect account and click Next.
Enter the identification code that is generated by VMware Cloud Gateway in the Cloud Services Console console and click Submit. <— these notes belong to slides 3-31 and 3-32.

3-40 - VMware Cloud Foundation+ Building Blocks
MORE DETAILS —> *The **VMware Cloud Gateway** deployed in the management domain of the on-premises VMware Cloud Foundation instance. You install **VMware Cloud Gateway** in your VMware Cloud Foundation instance manually* <— this appliance is alternately named **vCenter Cloud Gateway** (i.e.: in the downloads portal) and **VMware Cloud Gateway** (i.e.: in the online documentation).
[Sources:
https://customerconnect.vmware.com/downloads/info/slug/datacenter_cloud_infrastructure/vmware_vcenter_cloud_gateway_for_vsphere_plus/cloud_gateway
https://docs.vmware.com/en/VMware-Cloud/services/vmware-cloud-gateway-administration/GUID-59D32883-B4C8-4BE0-9761-7CDDB6142613.html]

3-41 - Supported Limits
MORE DETAILS —> *The Cloud gateway supports connecting **four workload domains including the management domain** per VMware Cloud Foundation instance* <— **"In a VMware Cloud Foundation instance running version 4.5.1 or later, you directly connect up to eight workload domains"**.
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/services/vcfplus/GUID-6D0A237E-2EFC-4553-A226-845D4D3DBCE9.html]

3-45 - Subscribe VMware Cloud Foundation+ Instance Workflow
DUPLICATE LINK —> *see Manual registration of SDDC Manager root CA certificates on VMware Cloud Gateway at **https://kb.vmware.com/s/article/89726** for SDDC Manager **https://kb.vmware.com/s/article/89726*** <— the link is written twice in a raw.

3-50 - Infrastructure Operations: Security
BOTCHED / WRONG COPY&PASTE —> *Go to Infrastructure Operations → **Events** on the VMware Cloud console* <— the author likely copied and pasted the sentence from the previous slide, but forgot to update the text: we're looking at the **Security** tab here.

Module 4

4-9 - External Certificates During Bring-up (1)

BOTCHED / GENERIC LINK —> *See the **Configure ESXi Hosts with Signed Certificates** document at **https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html*** <— the specific link, pointing at the mentioned paragraph is the following: **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-deploy/GUID-91824B56-91F3-44FE-B67B-180A50B94717.html**

4-10 - External Certificates During Bring-up (2)

DUPLICATE SENTENCE —> *Convert the Parameter Workbook Excel file to a JSON and add the certificate details. **Convert the Parameter Workbook Excel file into a JSON file.*** <— this sentence is repeated twice in a raw.

MISSING DETAILS <— the slide doesn't make any reference to the fact that, before uploading the JSON file to the Cloud Builder appliance, you must "`Update the securitySpec section, choosing Custom for the esxiCertsMode and entering your signing CA chain for certChain`".

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-deploy/GUID-70ECFCCC-8B4D-4BE7-824C-6A6731C9CB06.html]

BOTCHED / GENERIC LINK —> *Documentation on how to add the details to the JSON file are in the **Deploy the Management Domain Using ESXi Hosts with External Certificates** guide, found here: **https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html*** <— the specific link, pointing at the mentioned paragraph is the following: **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-deploy/GUID-70ECFCCC-8B4D-4BE7-824C-6A6731C9CB06.html**

4-17 - Automated Deployment with VMware Cloud Builder

MORE DETAILS —> *Runs an embedded **VMware Imaging Appliance** imaging service for ESXi deployment and host preparation* <— AND —> *It also contains the **VMware Imaging Appliance** imaging service which can automate the ESXi imaging process.* <— see notes for slide 2-7.

4-18 - Summary of Day 0 Tasks

MORE DETAILS —> *You can choose to **use the VMware Imaging Appliance imaging tool to deploy ESXi to their hosts**, or you can use your own processes for imaging ESXi.* <— see notes for slide 2-7.

WRONG —> *Optionally, **VMware Aria Suite Lifecycle Manager**, **VMware Aria Log Insight**, **VMware Aria Network Insight**, and **VMware Aria Automation** can be deployed.*

*The deployment of **VMware Aria Suite Lifecycle Manager** is done manually. Deployments of **VMware Aria Log Insight**, **VMware Aria Network Insight**, and **VMware Aria Automation** are automated through **VMware Aria Suite Lifecycle Manager**.* <— some of these **VMware Aria suite** products names are misspelled, the correct names are **VMware Aria Suite Lifecycle**, **VMware Aria Operations for Logs**, and **VMware Aria Operations for Networks**.
[Source: https://docs.vmware.com/allproducts.html]
Yet, more importantly, shall be noted that – according to the Bill of Materials in the release notes – **VMware Cloud Foundation 5 supports VMware vRealize Suite Lifecycle Manager 8.10 Patch 1**; hence, the correct cloud management and automation product names mentioned above shall rather be – due to the supported version number – the following:

- **VMware vRealize Suite Lifecycle Manager**
- **VMware vRealize Automation**
- **VMware vRealize Operations**
- **VMware vRealize Log Insights**
- **VMware vRealize Network Insights**

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/rn/vmware-cloud-foundation-50-release-notes/index.html#VMware%20Cloud%20Foundation%20Bill%20of%20Materials%20(BOM)]

4-23 - Management Domain: Components
WRONG —> *(Optional) **VMware Aria Suite Lifecycle Manager**, **VMware Aria Log Insight**, **VMware Aria Operations**, and **VMware Aria Automation*** <— see notes for slide 4-18.

4-25 - Management Domain: Resource Use
WRONG —> *(Optional) Three-node **Aria Log Insight** cluster* <— see notes for slide 4-18.

4-26 - Management Domain: Shared Storage Design
INCOMPLETE / MORE DETAILS —> ***All-flash vSAN** configuration* [2x occurrences] <— VMware Cloud Foundation supports **"vSAN Original Storage Architecture (OSA) as hybrid storage or all-flash storage"**.
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-design/GUID-AB264295-7391-4F01-92BF-C96304DE2F91.html]
Nevertheless, **"All Flash is recommended for VMware Validated Design"** (note: shall be **VMware Validated Solutions**).
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-planning-and-preparation-workbook.zip]
MORE DETAILS <— as of VCF 5.1, VMware has introduced **"Support for vSAN ESA: vSAN ESA is an alternative, single-tier architecture designed ground-up for NVMe-based platforms to deliver higher performance with more predictable**

I/O latencies, higher space efficiency, per-object based data services, and native, high-performant snapshots”.
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.1/rn/vmware-cloud-foundation-51-release-notes/index.html#What's%20New]
WRONG / OUT-OF-DATE —> *Additional setup for the stretched cluster: Manual configuration and manual guidance on **VMware Cloud Foundation 4.0.1*** <— this courseware is about **VMware Cloud Foundation 5.0**.

4-27 - About Design Decisions
WRONG / OUT-OF-DATE —> *VMware Cloud Foundation provides **validated design decisions** for deployments.* <— multiple references to **VMware Validated Designs**, including several links to discontinued documentation matching VCF 4.2 as the latest, are provided.
“VMware Validated Design 6.x has been discontinued after VMware Validated Design 6.2 and VMware Cloud Foundation 4.2. Starting with VMware Cloud Foundation 4.3, the guidance for the SDDC components natively supported by the VMware Cloud Foundation automation is moved to the VMware Cloud Foundation documentation and the guidance for the solutions on top of VMware Cloud Foundation is now published under a new class of technical reference implementations called VMware Validated Solutions.
For full information on VMware Validated Solutions including guided documentation flows, solution overviews, FAQs, and CLI repository, see The Cloud Platform Tech Zone”.
[Source: https://docs.vmware.com/en/VMware-Validated-Design/index.html]

Module 5

5-7 - Configure the Backup Server

BOTCHED SENTENCE —> *You must be logged into the SDDC Manager as a user with the Admin role, **~~and the SFTP Server~~** and if you want to schedule backups, the SFTP server must be configured for file-based backups.* <— the sentence seems messed up, by removing the text in red though, it works again.

5-11 - Online Depot

OUT-OF-DATE —> *Environments where the SDDC Manager does not have internet connectivity have the option to download bundles and transfer them using the **Offline Download Bundle Utility**.* <— this tool was used with VCF 4.x; now the new tool is the **Bundle Transfer Utility**. [Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-lifecycle/GUID-1670629D-ABAC-4349-9C8F-CECCF370DB5E.html]

5-18 - Service Accounts

WRONG / OUT-OF-DATE —> For information about service accounts for specific products, see the **VMware Validated Design** documentation at **https://docs.vmware.com/en/VMware-Validated-Design/index.html**. <— see notes for slide 4-27.

5-22 - VMware Cloud Foundation Password Management

MORE DETAILS —> *VMware Cloud Foundation manages the passwords for various VMware components and solutions, including:*

- *ESXi hosts*
- *vCenter Server Appliance*
- *NSX Manager*
- *NSX Edge*
- *vRealize Suite Lifecycle Manager*
- *SDDC Manager backup user*

<— according to the online documentation, in the SDDC Manager **"You can rotate passwords for the following accounts:**

- **ESXi**
- **vCenter Server**
- **vSphere Single-Sign On (PSC)**
- **NSX Edge nodes**
- **NSX Manager**
- **vRealize Suite Lifecycle Manager**
- **vRealize Log Insight**

- **vRealize Operations**
- **vRealize Automation**
- **Workspace ONE Access**
- **SDDC Manager backup user".**

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-28D29FFA-2D81-4781-AD79-85697497D45B.html]

5-24 - Rotating Passwords

BOTCHED / GENERIC LINK —> *For more details, please refer to the Rotate Passwords documentation in the VMware Cloud Foundation Administration Guide at:* ***https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html*** <— the correct direct link to the mentioned documentation page is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-28D29FFA-2D81-4781-AD79-85697497D45B.html**

5-26 - Updating and Remediating Passwords

MORE DETAILS —> *The UPDATE option updates the password for an account that is in sync with SDDC Manager* <— the slide doesn't explain the difference between rotating and updating a password. Luckily, the online documentation does it as follows: **"You can manually change the password for a selected account. Unlike password rotation, which generates a randomized password, you provide the new password. You can update only one password at a time"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-815B1682-BF65-4AFA-80FA-A4AB9DFE0853.html]

5-27 - Using the lookup_passwords Command

BOTCHED / OUT-OF-DATE —> *For more information about using APIs for password management, see the* ***VMware Cloud Foundation API Reference Guide*** *at* ***https://code.vmware.com/apis/1077/vmware-cloud-foundation*** <— this is the link to the API for VCF 4.2; the updated link to VCF 5.0 API is **https://developer.vmware.com/apis/vcf/5.0.0/**

5-30 - API Commands

BOTCHED / OUT-OF-DATE —> *For information about how to use the complete list of available APIs, see the* ***API Reference Guide*** *at* ***https://code.vmware.com/apis/1077/vmware-cloud-foundation*** <— this is the link to the API for VCF 4.2; the updated link to VCF 5.0 API is **https://developer.vmware.com/apis/vcf/5.0.0/**

Module 6

6-6 - About NSX

WRONG [slide graphic] —> *Data Plane, ESXi Hypervisor, **N-VDS**/VDS* <— NSX 4.x no longer supports N-VDS on ESXi hosts.
[Source: https://docs.vmware.com/en/VMware-NSX/4.0/rn/vmware-nsx-4001-release-notes/index.html#Feature%20Deprecation]

6-11 - Logical Switching Terminology

WRONG [slide graphic] —> *Transport Node (ESXi/**KVM**)* <— NSX 4.x no longer supports KVM.
[Source: https://docs.vmware.com/en/VMware-NSX/4.0/rn/vmware-nsx-4001-release-notes/index.html#Feature%20Deprecation]

6-21 - NSX Edge Cluster Deployment Considerations

BOTCHED —> *Management network and gateway must be reachable from the **NSX hosts** and NSX Edge instances* <— IMHO, this is too vague, it should be better using **NSX Hypervisor transport nodes**.

6-24 - Specifying the NSX Edge Cluster Use Case

MORE DETAILS —> *The NSX Edge large appliance is suitable for environments that require **load balancing**. The NSX Edge extra-large appliance is suited to very large environments that require **load-balancing** services.* <— students shall not forget that VMware Cloud Foundation 5 supports NSX 4.1.0.2 (see Release Notes - Bill of Materials) and that VMware has already announced multiple times that they **"intend to deprecate the built-in NSX load balancer"** and **"do not intent to provide support for the built-in NSX load balancer beyond the last NSX 4.x release"**, so they **"recommend customers migrate to NSX Advanced Load Balancer (Avi) as soon as practical"**.
When this happens, the statement above will have to be reconsidered.
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/rn/vmware-cloud-foundation-50-release-notes/index.html#VMware%20Cloud%20Foundation%20Bill%20of%20Materials%20(BOM)
Source: https://docs.vmware.com/en/VMware-NSX/4.1.0/rn/vmware-nsx-410-release-notes/index.html#Feature%20and%20API%20Deprecations,%20Behavior%20Changes]
WRONG —> ***If you require certain services such as NAT, stateful firewall, or VPN, you must choose active-standby.*** <— don't forget that, since NSX v4.0.1.1: **"Stateful Active-Active Edge Services: this release introduces support for stateful services on Tier-0 and Tier-1 gateway in Active-Active HA mode. The**

following stateful services are supported: L4/L7 Gateway Firewall, URL Filtering, NAT and TLS Inspection".
[Source: https://docs.vmware.com/en/VMware-NSX/4.0.1.1/rn/vmware-nsx-4011-release-notes/index.html#What's%20New]
BOTCHED —> *For information about services that require an active-standby configuration, see the VMware NSX Administration Guide at* ***https://docs.vmware.com/en/VMware-NSX/index.html****.* <— whilst the text part of the link that is visualized is correct, when you click the link, the embedded – and outdated – URL takes you to the VMware NSX-T Data Center v3.1 documentation pages. As mentioned above, VCF5 support NSX v4.1.0.2, therefore the correct link to the NSX administration pages is either the generic **https://docs.vmware.com/en/VMware-NSX/index.html** or the more version specific **https://docs.vmware.com/en/VMware-NSX/4.1/administration/GUID-FBFD577B-745C-4658-B713-A3016D18CB9A.html**.

6-27 - Configuring NSX Edge Appliances
WRONG —> ***One edge TEP IP address for each edge node*** *on the edge TEP VLAN* <— IMHO, this shall be better described as **one edge TEP IP address for each edge node virtual NIC used as an uplink by the edge N-VDS**.
Considering the NSX Edge Design Requirements **VCF-NSX-EDGE-REQD-CFG-002** and **VCF-NSX-EDGE-REQD-CFG-004**, and the NSX Edge Design Recommendation **VCF-NSX-EDGE-RCMD-CFG-008** (see the link below "NSX Edge Node Design for VMware Cloud Foundation"), we are rather going to have **two edge TEP IP addresses for each edge node**.
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-design/GUID-B6F707E5-E23F-43FB-8396-E0DB4B2371B4.html#nsx-edge-design-requirements-6]
WRONG —> ***One uplink IP address for each edge node*** *on separate uplink VLANs* <— according to the BGP Routing Design Requirements **VCF-NSX-BGP-REQD-CFG-001** and **VCF-NSX-BGP-REQD-CFG-002**, we are rather going to have **two uplink IP addresses for each edge node**.
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-design/GUID-FF3FF1C8-BBC8-4502-85A9-20C28D6FD631.html#bgp-routing-design-requirements-1]

6-30 - Resizing the NSX Edge Cluster
WRONG / OUT-OF-DATE —> *In* ***VMware Cloud Foundation 4.3****, you can expand or shrink an NSX Edge cluster that you created with SDDC Manager.* <— this courseware is about **VMware Cloud Foundation 5.0**.

6-31 - Adding NSX Edge Cluster Nodes
BOTCHED / NON-SENSE —> *When the Tier-0 service high availability setting is active-standby and you require more than two NSX Edge nodes for services* < AND > *When the Tier-0 service high availability setting is active-active and you require more than eight NSX Edge nodes for services* <— both statements refer to the configuration maximums for a single Tier-0 Gateway – respectively for

active-standby (2 nodes) and active-active (8 nodes) high availability modes – and mention the idea of adding "more than <N> NSX Edge nodes for services". Besides being technically possible – an Edge cluster can have up to 10 Edge nodes assigned -, the author doesn't clarify WHAT will use the additional nodes… they may want to rephrase the concept.

6-32 - Removing NSX Edge Cluster Nodes

BOTCHED / NON-SENSE —> *For active-active configurations, the NSX Edge cluster must contain two or more NSX Edge nodes* ***with two or more Tier-0 routers*** *after the NSX Edge nodes are removed.* <— it simply doesn't make sense: just imagine having a single Tier-0 Gateway with an active-active Edge cluster with, say in example, 4 Edge nodes and you want to remove 1 or 2 of them… according to what stated, you won't be allowed (because you have just 1 Tier-0 router). This rather seems to me a "copy&paste" error: the author may want to rephrase the concept.

6-41 - Leveraging Multiple NICs

WRONG —> *Option 2: Use one of the* ***two predefined network profiles*** *in the Deployment Parameter Workbook* <— **the available network profiles in the Deployment Parameter Workbook – "Hosts and Networks" worksheet – are currently three**:

1. **Profile-1:** one DVS with 2x or 4x NICs in total:
    a. Primary DVS: Management, vMotion, vSAN, Host Overlay
2. **Profile-2:** two DVS with 4x NICs in total:
    a. Primary DVS: Management, vMotion, Host Overlay
    b. Secondary DVS: vSAN
3. **Profile-3:** two DVS with 4x NICs in total:
    a. Primary DVS: Management, vMotion, vSAN
    b. Secondary DVS: Host Overlay

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-deploy/GUID-2FF9A809-B2DF-43EF-8838-21DCB3DF5E8E.html]

6-43 - Connectivity to Physical Layer 3 Devices: Routing Feature Set

WRONG —> *The connectivity between the Tier-0 logical router and the Tier-1 logical router is provided by a Routerlink, which is a /31 subnet within the* ***100.64.0.0/10*** *reserved address space (RFC6598) and is automatically created when deployed.* <— it's not indisputably clear whether the actual subnet being used by the T0-T1 Routerlinks is either ***100.64.0.0/10*** (see RFC 6598) or ***100.64.0.0/16***:

- Some online documentation pages mention 100.64.0.0/10.
  [Source: https://docs.vmware.com/en/VMware-NSX/4.1/installation/GUID-370D06E1-1BB6-4144-A654-7AF2542C3136.html]
- Some other online documentation pages mention 100.64.0.0/16.
  [Source: https://docs.vmware.com/en/VMware-NSX/4.1/administration/GUID-7B0CD287-C5EB-493C-A57F-EEA8782A741A.html]

For the records, searching through the VMware online documentation, the number of occurrences referring to 100.64.0.0/16 are way more than the other option.
Additionally, when checking the NSX API v4.1.0.0, the **transit_subnets** parameter in the body of a `PUT /policy/api/v1/infra/tier-0s/{tier-0-id}` request does refer to 100.64.0.0/16.
Hence, unless a general mistake has been spread across the documentation, I'm prone to adapt the 100.64.0.0/16 option.
[Source: https://vdc-repo.vmware.com/vmwb-repository/dcr-public/612caf56-5bb1-4a0b-8d2b-12ccd8981904/37be75ba-aa56-42f4-99c3-f6c989ddbe57/api_includes/method_CreateOrReplaceTier0.html]

6-55 - Application Virtual Networks
BOTCHED / MISPLACED NOTES —> *BGP is a standardized routing protocol that supports route propagation between autonomous systems (AS) on the Internet but is also used internally in larger IP networks. An AS defines a collection of BGP routers that belong to the same network or that share routing policies. Autonomous systems are assigned a unique 16-bit or 32-bit AS number (ASN). Certain ASN ranges are reserved for private use in a private network, similar to private IP address ranges. The 16-bit private ASN range is from 64512 to 65534. The ASN ranges in the example are private ASNs. The physical routers in AS65001 require a public ASN to connect to an ISP's BGP routers.*
BGP peers can be configured with MD5 authentication, where each peer must be configured with the same password. Each TCP segment sent between the peers must be verified or the connection will not be made. VMware Cloud Foundation requires that a password be set for MD5 authentication between BGP peers.
Routers within the same autonomous system can communicate using BGP. This implementation is known as Interior Border Gateway Protocol (iBGP). Communication between routers in different autonomous systems is known as Exterior Border Gateway Protocol (eBGP). <— these notes are a partial duplicate of slide 6-45 "BGP Design Considerations" and are not strictly related to AVNs.
WRONG / OUT-OF-DATE —> *Mgmt-RegionA01-VXLAN is used for vRealize Suite workloads that do not require portability between regions: You use this network for vRealize Log Insight and* ***vRealize Automation Proxy Servers*** *guided deployment* <— the correct list of vRealize Suite Components and related NSX Segments is:

vRealize Log Insight	Region-A
vRealize Operations Manager	X-Region
Workspace ONE Access	X-Region
vRealize Automation	X-Region
vRealize Suite Lifecycle Manager	X-Region

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-59E5BEE3-B157-426D-A40C-F21171586863.html]

6-57 - Day N Application Virtual Networks

BOTCHED / CONFLICTING STATEMENTS —> ***Starting with VMware Cloud Foundation 4.3, the creation of AVNs is no longer performed during bring-up.*** < VS > ***If you choose not to deploy AVNs during the bring-up process [...]*** <— the statement here highlighted in red – that can be found in the slide notes – conflicts with what just stated at the beginning of the slide and with what announced in the VCF 4.3 release notes: **"Flexibility in Application Virtual Networks (AVN): Application Virtual Networks (AVN)s, which include the NSX Edge Cluster and NSX network segments, are no longer deployed and configured during bring-up. Instead they are implemented as a Day-N operations in SDDC Manager, providing greater flexibility"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/4.3/rn/vmware-cloud-foundation-43-release-notes/index.html#What's%20New]

WRONG / OUT-OF-DATE —> *However,* ***you must reconfigure the SDDC Manager service configuration to allow the deployment on VLAN-backed NSX segments.*** <— with the SDDC Manager UI/API **"you can create overlay-backed NSX segments or VLAN-backed NSX segments"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-59E5BEE3-B157-426D-A40C-F21171586863.html]

WRONG / OUT-OF-DATE —> ***You must also manually deploy and configure the NSX Edge cluster.*** <— means that this is done, as the one-and-only standard option since VCF 4.3 (see above), via the SDDC Manager UI/API after bring-up.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-8FA66DA3-3166-426B-84A8-C45FA7651658.html]

WRONG / OUT-OF-DATE —> ***For information about the steps required to deploy vRealize Suite Lifecycle Manager without AVNs, see VMware knowledge base article 78608 at https://kb.vmware.com/s/article/78608.*** <— this does not apply to VCF anymore since V4.3 (see above).

WRONG / OUT-OF-DATE —> ***If your physical network does not support BGP, you cannot deploy AVNs. Using SDDC Manager, you must deploy NSX Edge clusters after the bring-up process and configure static routes instead.*** <— this does not apply to VCF anymore since V4.3 (see above).

6-61 - vRealize Suite Lifecycle Manager Deployment with AVNs

WRONG / OUT-OF-DATE —> ***The cross-region AVN name*** *is recorded in the SDDC Manager database and* ***is defined in the Deployment Parameter Sheet during the bring-up process.*** <— this does not apply to VCF anymore since V4.3 (see notes for slide 6-57).

6-62 - NSX Edge in a Single Rack Consolidated Management Domain

WRONG / OUT-OF-DATE —> *For more information about workload domains and racks in the management domain, see* ***VMware Validated Design*** *Product Documentation at*

https://docs.vmware.com/en/VMware-Validated-Design/index.html. <— see notes for slide 4-27.

6-63 - Prerequisites for Enabling vSphere with Tanzu in the Management Domain

WRONG / OUT-OF-DATE —> *If you specify a large form factor NSX Edge transport node configuration* ***during the bring-up process****, the management domain primary cluster is compatible for vSphere with Tanzu.* <— since V4.3, the Edge Cluster and related Edge Transport nodes deployment to support Application Virtual Networks is done, as the one-and-only standard option, via the SDDC Manager UI/API after bring-up. In any other situation, Edge Clusters can only be deployed via the SDDC Manager UI/API.
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/4.3/rn/vmware-cloud-foundation-43-release-notes/index.html#What's%20New]

6-64 - Preparing the Management Domain for vSphere with Tanzu

BOTCHED —> ***SDDC Manager automatically configures vCenter Server trust.*** < VS > ***You must enable trust for the vCenter Server instance so that NSX Manager trusts vCenter Server for authentication*** <— the statement here highlighted in red – that can be found in the slide notes – conflicts with what just stated in the slide bullet list.

6-65 - NSX Edge Placement for Workload Domains

WRONG / OUT-OF-DATE —> *For more information about clusters and racks in a virtual infrastructure workload domain, see* ***VMware Validated Design*** *Product Documentation at* ***https://docs.vmware.com/en/VMware-Validated-Design/index.html***. <— see notes for slide 4-27.

Module 7

7-8 - Workload Domain Types

WRONG / OUT-OF-DATE —> *VMware Cloud Foundation supports up to one management domain and **14 workload domains**.* <— starting with VCF 5.0, **"Maximum number of Isolated VI Workload Domains per SDDC Manager instance is 24 Maximum number of VI workload domains per SDDC Manager in ELM mode is 14"**.
[Source: https://configmax.esp.vmware.com/guest?vmwareproduct=VMware%20Cloud%20Foundation&release=VMware%20Cloud%20Foundation%205.0&categories=17-0]

WRONG / OUT-OF-DATE —> ***All vCenter Server instances deployed by VMware Cloud Foundation are configured in Enhanced Linked Mode (ELM) and are all joined to the same vCenter Single Sign-On domain.*** *vCenter Single Sign-On supports a maximum of 15 vCenter Server instances per domain.* <— starting with VCF 5.0, **"When you create a VI workload domain, you can join it to the management domain's vCenter Single Sign-On domain or a new vCenter Single Sign-On domain that is not used by any other workload domain. Joining a new vCenter Single Sign-On domain enables a VI workload domain to be isolated from the other workload domains in your VMware Cloud Foundation instance. The vCenter Single Sign-On domain for a VI workload domain determines the local authentication space"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-E64CEFDD-DCA2-4D19-B5C5-D8ABE66407B8.html#GUID-4AFEFE7B-5801-41AE-B099-F6A3DEE1020C__GUID-FFDAFFD1-52D4-4F84-B5D2-5D180D1285F7]

7-13 - Multiple Workload Domains or Multiple Clusters

WRONG —> ***You can add up to 14 VI workload domains.*** <— see notes for slide 7-8.

7-20 - Workload Domains: Basic Components

WRONG —> ***Principal storage choices include** vSAN, **NFS v3 and v4.1**, VMFS on FC, or vVOLs.* <— **"VMware Cloud Foundation only supports NFS protocol version 3 when used as principal storage. Supplemental storage can use either vSphere supported NFS protocol version 3 or 4.1"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-8E19B8EA-279C-4170-BC08-99E00AF98317.html]

WRONG / INCOMPLETE —> Supplemental storage choices include NFS v3 and v4.1, VMFS on FC, or vSphere Virtual Volumes <— vSAN and iSCSI are missing from the list.
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-2C4653EB-5654-45CB-B072-2C2E29CB6C89.html]

7-21 - Network Pools

BOTCHED / MISSING DETAILS —> *Depending on the storage option, the network pool includes information about subnets reserved for the **vMotion, vSAN, or NFS networks** that are required for adding a host to the VMware Cloud Foundation inventory.* <— the iSCSI option is missing here, yet – according to the online documentation – it is available: **"Depending on the storage option, it includes information about subnets reserved for the vMotion and vSAN, NFS, or iSCSI networks that are required for adding a host to the SDDC Manager inventory"**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-BC60080F-FCBE-47F9-B696-72CAE2A41EAF.html]

7-24 - Network Pool Sizing

WRONG —> *Each cluster can be expanded to the **maximum number of hosts supported by vCenter Server, which is 64 hosts*** <— current configuration maximum for vSphere 8.x is **96 ESXi hosts per vSphere Cluster**.

[Source: https://configmax.esp.vmware.com/guest?vmwareproduct=vSphere&release=vSphere%208.0&categories=2-0]

WRONG —> **A vSAN stretched cluster can be expanded to a maximum of 30 hosts** <— current configuration maximum for vSphere 8.x is **40 hosts (20 per site x 2)**.

[Source: https://configmax.esp.vmware.com/guest?vmwareproduct=vSphere&release=vSphere%208.0&categories=7-0]

7-28 - Host Commissioning

MORE DETAILS —> *You can use the **VMware Imaging Appliance (VIA)**, which is included with the VMware Cloud Builder VM, to image servers for use in VMware Cloud Foundation.* <— see notes for slide 2-7.

7-31 - Host Validation

WRONG / OUT-OF-DATE [slide graphic] <— **the screenshot belongs to a previous VCF release**: in VCF 5.0, to confirm hosts fingerprints in the SDDC Manager, there is a toggle button right above the **Hosts Added** table in the **Commission Hosts** wizard, **Host Addition and Validation** page.

[Source: GUI observation on SDDC Manager 5.0]

7-40 - Workload Domain Prerequisites

WRONG —> ***You cannot assign static TEP address pools using VMware Cloud Foundation automated deployment of NSX-T Data Center.*** <— **"If you do not plan to use DHCP, you can use a static IP pool for the NSX host overlay**

network. The static IP pool is created or selected as part of VI workload domain creation".
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-4EBF9094-F732-4800-86FF-30C5D88B9758.html]
Additionally, also note that **"You can only use a static IP pool for VI workload domains with uniform L2 clusters. For L3 aware or stretch clusters, DHCP is required for Host Overlay Network TEP IP assignment."**.
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-E64CEFDD-DCA2-4D19-B5C5-D8ABE66407B8.html#procedure-14]
WRONG —> ***VMware Cloud Foundation creates a DHCP IP address pool in NSX Manager by API during the workload domain creation.*** <— no, it doesn't, it does rather create a **Transport Node Profile** that uses DHCP for **IP Assignment**.
BOTCHED / NON-SENSE —> ***If you select NSX-T Data Center as the NSX platform […]*** <— there is no other option. And – BTW – throughout the whole paragraph, please note that all occurrences of "**NSX-T Data Center**" shall be read as "**NSX**" (starting with version 4, VMware NSX-T Data Center is known as VMware NSX).
[Source: https://docs.vmware.com/en/VMware-NSX/index.html]

7-52 - Workload Domain Design Considerations
WRONG —> *vCenter Server design for a VI workload domain: For this design, **you determine the number of vCenter Server instances in the workload domain**, their size, networking configuration, cluster layout, redundancy, and security configuration.* <— according to the Configuration Maximums portal, the **"Maximum number of vCenters associated to a VI Workload Domain" is 1**.
[Source: https://configmax.esp.vmware.com/guest?vmwareproduct=VMware%20Cloud%20Foundation&release=VMware%20Cloud%20Foundation%205.0&categories=73-0]

7-56 - vCenter Server Design for Workload Domains
MORE DETAILS —> *A vCenter Server instance is deployed for each workload domain, **using Enhanced Linked Mode** to connect, view, and search across all linked vCenter Server systems.* <— see notes for slide 7-8.

7-61 - Shared Storage Design for Workload Domains (1)
BOTCHED / INCOMPLETE —> ***For principal storage, the choices are vSAN, FC. or NFS. For supplemental storage, you can select FC, NFS, or iSCSI*** <— **"For a VI workload domain, the initial storage** – [Ed.: known as principal storage] – **type can be one of the following:**

- **vSAN**
- **Fibre Channel (FC)**

- Network File System (NFS) protocol version 3
- VMware vSphere Virtual Volumes (vVols)
    - vVols supports FC, NFS, and iSCSI storage protocol types.

The additional supported shared storage – [Ed.: known as supplemental storage] – options include:

- vSAN
- Fibre Channel (FC)
- iSCSI Network File System
- Network File System (NFS) protocol version 3 or 4.1
- VMware vSphere Virtual Volumes (vVols)
    - vVols supports FC, NFS, and iSCSI storage protocol types".

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-2C4653EB-5654-45CB-B072-2C2E29CB6C89.html]

7-62 - Shared Storage Design for Workload Domains (2)

WRONG [SLIDE GRAPHIC] —> ***Supplementary Storage: Chosen during domain deployment.*** Used post-deployment. <— "To create and manage a workload domain, VMware Cloud Foundation requires at least one shared storage type for all ESXi hosts within a cluster. This initial shared storage type, known as principal storage, is selected during the creation of a workload domain or cluster in SDDC Manager. Additional shared storage, known as supplemental storage, can be added using the vSphere Client after a cluster has been created".

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-2C4653EB-5654-45CB-B072-2C2E29CB6C89.html]

BOTCHED / INCOMPLETE —> *You can use **vSAN, NFS, and FC as principal storage**, and you can use **NFS, FC, and iSCSI as supplemental storage**.* <— see notes for slide 7-61.

7-63 - Workload Domain Design Decisions (1)

BOTCHED / MISPLACED STATEMENT —> *vSphere networking:*

You consider the number of hosts and clusters to be included in the workload domain. Right-sizing vCenter reduces the likelihood that you must increase the vCenter appliance size. <— considerations about right-sizing the vCenter Server appliance resources have nothing to do with the vSphere networking discussion.

DUPLICATED LINK —> *you can use the new vSAN sizer at https://vsansizer.vmware.com.* ***https://vsansizer.vmware.com/*** <— link is repeated twice.

Module 8

8-22 - About Shared Edge and Compute Clusters

WRONG / OUT-OF-DATE —> *For more information about a shared edge and compute cluster topology, see the **VMware Validated Design** documentation at **https://docs.vmware.com/en/VMware-Validated-Design/index.html**.* <— see notes for slide 4-27.

8-37 - Workload Management: Cluster Requirements

WRONG —> ***The clusters are part of a workload domain configured with vSphere Lifecycle Manager Baselines only.*** <— this alleged **requirement is not listed anywhere** in **VMware Cloud Foundation > VMware Cloud Foundation Administration Guide > Enable Workload Management > Prerequisites**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-E8D0A432-8573-4DF5-9330-A4FE15F74128.html#prerequisites-0]

Additionally, checking the online documentation at the **vSphere Lifecycle Manager and vSphere with Tanzu** paragraph, you may verify that "`You can manage the lifecycle of a Supervisor with either vSphere Lifecycle Manager baselines or vSphere Lifecycle Manager images`".

[Source: https://docs.vmware.com/en/VMware-vSphere/8.0/vsphere-lifecycle-manager/GUID-7664A328-DFB5-4A16-BCDE-CCAFCFC817E0.html#requirements-1]

Yet, please note that "`You cannot stretch a cluster in the following conditions: […] The cluster uses vSphere Lifecycle Manager images. […]`".

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-7B4CC729-20BD-4CC9-B855-B38F02F74D40.html]

BOTCHED / MISLEADING —> *An **NSX-T cluster** ready for Workload Management is deployed and available.* <— the author doesn't specify whether they refer to an **NSX Management cluster** or an **NSX Edge cluster**. The correct answer can be found in the online documentation: "`A Workload Management ready NSX Edge cluster must be deployed on the workload domain. You must select Workload Management on the Use Case page of the Add Edge Cluster wizard.`".

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-E8D0A432-8573-4DF5-9330-A4FE15F74128.html#prerequisites-0]

8-38 - Cluster Validation

BOTCHED —> *you must manually configure **NSX-T*** <— it's **NSX**, see notes for slide 1-8.

8-42 - Configuring the Workload Network

OUT-OF-DATE SCREENSHOT <— **this is a vSphere 7.x screenshot**: the **API Server endpoint FQDN (Optional)** parameter in the **Workload Network** screen of the **Workload Management** deployment wizard that can be seen in the screenshot, is mentioned in the vSphere v7.x online documentation and not in the vSphere v8.x one.

[Source for vSphere v7.x: https://docs.vmware.com/en/VMware-vSphere/7.0/vmware-vsphere-with-tanzu/GUID-287138F0-1FFD-4774-BBB9-A1FAB932D1C4.html

Source for vSphere v8.x: https://docs.vmware.com/en/VMware-vSphere/8.0/vsphere-with-tanzu-installation-configuration/GUID-287138F0-1FFD-4774-BBB9-A1FAB932D1C4.html]

8-57 - Unified Runtime in TKG 2.0

MORE DETAILS —> *Tanzu Kubernetes Grid 2.0* <— **"Tanzu Kubernetes Grid 2.0 is an implementation of the open source Cluster API project that defines a set of custom resources and controllers to manage the life cycle of Kubernetes clusters. Tanzu Kubernetes Grid is a component of Supervisor. Tanzu Kubernetes Grid has three layers of controllers to manage the life cycle of TKG 2 clusters, including Virtual Machine Service, Cluster API, and Cloud Provider Plugin.**

- VM Operator

The Virtual Machine Service controller provides a declarative, Kubernetes-style API for management of VMs and associated vSphere resources. The Virtual Machine Service introduces the concept of a virtual machine class that represents an abstract reusable hardware configuration. TKG uses the Virtual Machine Service manage the life cycle of the control plane and worker node VMs hosting a workload cluster.

- Cluster API

The Cluster API controller provides declarative, Kubernetes-style APIs for cluster creation, configuration, and management. The inputs to Cluster API include a resource describing the cluster, a set of resources describing the virtual machines that make up the cluster, and a set of resources describing cluster add-ons.

- Cloud Provider Plugin

Tanzu Kubernetes Grid provisions workload clusters that include the components necessary to integrate with the underlying vSphere Namespace resources. These components include a Cloud Provider Plugin that integrates with the Supervisor. TKG uses the Cloud Provider Plugin to pass requests for persistent volumes to the Supervisor, which is integrated with VMware Cloud Native Storage (CNS)."

[Source: https://docs.vmware.com/en/VMware-vSphere/8.0/vsphere-with-tanzu-tkg/GUID-E5B8E6BE-3FF2-4D26-A5A9-375BDCDC5C30.html#tanzu-kubernetes-grid-5]

Module 9

9-7 - Principal Storage Options

MORE DETAILS —> ***vSphere Virtual Volumes*** *is supported as principal storage.* <— "**vVols supports FC, NFS, and iSCSI storage protocol types**" (see notes for slide 7-62).

WRONG [incl. GRAPHIC] —> ***NFS 3 and 4.1 mounts*** *must be configured for hosts before VMware Cloud Foundation can present the mount.* <— **principal storage** only supports "**Network File System (NFS) protocol version 3**" (see notes for slide 7-61).

9-8 - Supplemental Storage Options

INCOMPLETE [incl. GRAPHIC] —> *Management and Workload domains support the same three supplemental storage options.* <— **supplemental storage** also supports "**iSCSI Network File System**" (see notes for slide 7-61).

MORE DETAILS —> *Management and Workload domains support the same three supplemental storage options.* <— **vSphere Virtual Volumes** "**supports FC, NFS, and iSCSI storage protocol types**" (see notes for slide 7-61).

WRONG —> ***vSAN cannot be used for supplemental storage*** <— besides clearly conflicting with the slide graphic, **vSAN is supported as supplemental storage** (see notes for slide 7-61).

MORE DETAILS —> *Read and write (R/W) to root, no root_squash* <— "**NFS 3 and non-Kerberos (AUTH_SYS) NFS 4.1 do not support the delegate user functionality that enables access to NFS volumes using non-root credentials. If you use NFS 3 or non-Kerberos NFS 4.1, ensure that each host has root access to the volume. Different storage vendors have different methods of enabling this functionality, but typically the NAS servers use the no_root_squash option. If the NAS server does not grant root access, you can still mount the NFS datastore on the host. However, you cannot create any virtual machines on the datastore.**".

[Source: https://docs.vmware.com/en/VMware-vSphere/8.0/vsphere-storage/GUID-011DCC67-9876-4071-AED9-710D1E712E74.html#GUID-E5A8D15D-B883-41AF-B9CE-0166C1F84FC1__GUID-42AEFD5C-3CE9-42E5-B6DD-2A5ABEABFE19]

9-10 - Host Design Hardware Decisions

BOTCHED / GENERIC LINK —> *For more information, see the* ***VMware Cloud Foundation on Dell EMC VxRail Admin Guide*** *at* ***https://docs.vmware.com.*** <— this is the VMware Docs portal home page: just a bit too vague, students will have to look for the content by themselves. The correct, direct link is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/com.vmware.vcf.vxrail.doc/GUID-A5029B3C-F47C-43D1-BA12-AC3ADAE2B765.html**

9-17 - vSAN Sizing Considerations (1)

BROKEN LINK —> *For more information about designing and sizing a vSAN cluster, see vSAN Planning and Deployment at* ***https://docs.vmware.com/en/VMware-vSphere/8.0/vsan-80-planning-deployment-guide.pdf****.* <— the guide has been updated, the new link is **https://docs.vmware.com/en/VMware-vSphere/8.0/vsan-802-planning-deployment-guide.pdf**

9-50 - SPBM with Other Storage Types

MISSING WORD —> *Policy* ***compliance whether*** *the VM resides on a datastore with the correct tag.* <— the correct phrase – IMHO – shall be "Policy compliance **checks** whether the VM resides on a datastore with the correct tag".

TYPO —> *Capability-based rules are* ***mush*** *more powerful rule sets.* <— fix it with "**much**".

Module 10

10-6 - Availability of Key Infrastructure Components

MORE DETAILS / MISLEADING —> *VMware Cloud Foundation uses Dynamic Host Configuration Protocol (DHCP) to obtain IP addresses for NSX tunnel endpoints on ESXi hosts during workload domain creation.* <— stated this way, it may let students believe this is the only option. According to the online documentation, though, **"for the management domain and VI workload domains with uniform L2 clusters, you can choose to use static IP addresses instead"**, yet **"caution: if you use static IP addresses for the management domain Host Overlay Network TEPs, you cannot stretch clusters in the management domain or any VI workload domains."**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-deploy/GUID-2FF9A809-B2DF-43EF-8838-21DCB3DF5E8E.html#nsx-host-overlay-network-5]

MORE DETAILS / MISLEADING —> *BGP peers must be in place and available to properly route network traffic.* <— stated this way, it may let students believe this is the only option. According to the online documentation, though, when you deploy an NSX Edge cluster to provide north-south routing and network services to a workload domain, you can define the **"Tier-0 Routing Type: select Static or EBGP to determine the route distribution mechanism for the tier-0 gateway. If you select Static, you must manually configure the required static routes in NSX Manager. If you select EBGP, VMware Cloud Foundation configures eBGP settings to allow dynamic route distribution."**.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-D17D0274-7764-43BD-8252-D9333CA7415A.html#procedure-2]

10-8 - Restoring SDDC Manager Backups

BOTCHED / MISLEADING —> *Use the vSphere Client to **deploy a new SDDC Manager OVA Management cluster**.* <— stated this way, it may let students believe that the SDDC Manager can be clustered, instead the SDDC Manager is a single-node deployment. You should read the above-mentioned statement as follows: "**Use the vSphere Client to deploy a new SDDC Manager OVA onto the VCF Management Domain vSphere cluster**".

MISSING LINK —> *For more information on **restoring SDDC Manager backups**, please see the VMware Cloud Foundation Administering Guide at VMware Docs.* <— this is the direct link to the guide: **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-F8634D37-FA26-40DF-A135-62D0265DA4FA.html**

10-10 - Restoring NSX Managers

WRONG & BOTCHED —> ***WHOLE SLIDE*** <— this is a botched and wrongly mixed, apparently random, selection of the different procedures required based on the starting state after the failure. There are different possible use cases that need to be identified before starting the restore:

1. **"If all three NSX Manager nodes in an NSX Manager cluster are in a failed state, you begin the restore process by restoring the first cluster node."**
2. **"If two of the three NSX Manager nodes in the NSX Manager cluster are in a failed state, you begin the restore process by deactivating the cluster."**
3. **"If only one of the three NSX Manager nodes in the NSX Manager cluster is in a failed state, you directly restore the failed node to the cluster."**

Check the detailed procedures in the online documentation navigating to the URL below and reviewing all its children pages.
[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-85ECE776-F5F2-4ABF-B031-8CC6F982403D.html]

10-13 - vCenter Single Sign-On Architecture

TYPO —> *VMware recommends using a single SSO domain unless you require* ***multi-tendency*** *or you need to exceed the max SSO vCenter limitation.* <— **multi-tenancy**.

10-18 - Stretched Cluster Architecture

BOTCHED / OUT-OF-DATE —> ***The maximum number of hosts in a stretched cluster is 31: • 15 hosts in each data site • 1 witness host in the witness site*** <— this was the vSphere 7.0 (up to Update 1) configuration maximum. **In vSphere 7.0 Update 2 and later, the maximum number of hosts is 40 (20 per site x 2), plus 1 witness in the witness site.** Do not forget that VMware Cloud Foundation 5.0 supports vSphere ESXi v8.0 Update 1a.
[Source: https://configmax.esp.vmware.com/guest?vmwareproduct=vSphere&release=vSphere%208.0&categories=7-0]

10-21 - Stretched Cluster Requirements

BOTCHED / OUT-OF-DATE —> *Before deploying a stretched cluster, you should review Implementation of Availability Zone 2 for the Management Domain in Region A in the* ***VMware Validated Design*** *Product Documentation at* ***https://docs.vmware.com/en/VMware-Validated-Design/index.html****.* <— this is an outdated design document available at **https://docs.vmware.com/en/VMware-Validated-Design/6.2/sddc-deployment-of-the-management-domain-in-the-first-region/GUID-63361EE0-CCB1-46B1-9858-241F15E7225E.html** (see also notes for slide 4-27). The new content has been integrated in the

VMware Cloud Foundation documentation at **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-7B4CC729-20BD-4CC9-B855-B38F02F74D40.html**

10-33 - Stretched Cluster NSX-T Routing Considerations

BOTCHED / MISLEADING —> *For example, **if a segment with the 192.168.21.0/24 network is connected to the Tier-1 router of the NSX Edge cluster, the NSX Edge cluster advertises that network to BGP peers** so that traffic can route in to the 192.168.21.0/24 from external sources.* <— stated this way, students may believe that Tier-1 routers run BGP, but they don't run any dynamic routing protocol, nor they can connect to any physical router. **"A tier-1 gateway has downlink connections to segments and uplink connections to tier-0 gateways. You can configure route advertisements and static routes on a tier-1 gateway. Recursive static routes are supported."**.

[Source: https://docs.vmware.com/en/VMware-NSX/4.1/administration/GUID-6244CFD2-4119-4718-BA52-1BC9682A8C6E.html]

That said, you shall read the above-mentioned sentence as something like "For example, **if a segment with the 192.168.21.0/24 network is connected to the Tier-1 router, then:**

- **first, the Tier-1 router has to advertise it to the Tier-0 router;**
- **next, the Tier-0 router has to redistribute it into the BGP protocol;**
- **last, the network is advertised to the BGP peers by NSX Edge cluster (which is where the Tier-0 Service Router component runs the BGP protocol),** *so that traffic can route in to the 192.168.21.0/24 from external sources.*"

TYPO —> *The corporate routers have two possible paths, the 192.168.21.0/24 network in AS 65003, through AS 65001 and AS **65010**.* <— it's AS **65011**.

10-36 - Example: Dual Site Mirroring with RAID 1 in Local Sites

MORE DETAILS —> *If the object existed initially on the **preferred** site, a copy is made on the **non-preferred** site.* <— **"A stretched cluster requires three fault domains: the preferred site, the secondary"** [Ed.: or non-preferred] **"site, and a witness host"**.

[Source: https://docs.vmware.com/en/VMware-vSphere/8.0/vsan-planning/GUID-1BDC7194-67A7-4E7C-BF3A-3A0A32AEECA9.html]

Objects that are not set to leverage **"Site disaster tolerance = Site mirroring – stretched cluster"** have three alternative options:

- **None – keep data on Preferred (stretched cluster).**
- **None – keep data on Secondary (stretched cluster).**
- **None – stretched cluster.**

10-38 - Expanding a Stretched Workload Domain Cluster

BOTCHED / GENERIC LINK —> *For more information about expanding a stretched workload domain, see **Expand a Stretched Cluster** in the **VMware Cloud Foundation Operations and***

Administration Guide *at* ***https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html****.* <— the direct link to the documentation pages is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-928542C0-65E1-46F1-A62D-E7A106AC593B.html**.

10-39 - Replacing Failed Hosts in a Stretched Workload Domain Cluster
BOTCHED / GENERIC LINK —> *For more information, see* ***Replace a Failed Host in a Stretched Cluster*** *in the* ***VMware Cloud Foundation Operations and Administration Guide*** *at* ***https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html****.* <— the direct link to the documentation pages is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-92FD3AEE-5B5F-421C-B722-44AE0314D84E.html**.

Module 11

11-14 - VMware Certificate Authority

MORE DETAILS —> ***Provides signed certificates to*** *vSphere, ESXi hosts, and* ***solutions like NSX****.* <— **"If VMware Cloud Foundation™ (VCF) was used to deploy NSX, the default NSX API and Cluster certificates get replaced with CA certificates signed by the VMware Certificate Authority (VMCA) from vCenter. The API and Cluster certificates might still display in the certificate list, but are not used. Replace the CA-signed certificates using the procedure in the VCF Administration Guide. After you perform the replacement, your NSX Manager stores in the UI contain the API and Cluster certificates, the VMCA CA certificates, and the signed certificates by the third-party organization. From then on, the NSX Manager uses the signed certificate from your organization."**.

[Source: https://docs.vmware.com/en/VMware-NSX/4.1/administration/GUID-CA4DC685-3013-40F4-930D-A10173F8FA25.html]

MORE DETAILS —> *Does not integrate with the VMware Cloud Foundation certificate Management.* <— see step by step instructions for installing third-party certificates at https://docs.vmware.com/en/VM ware-Cloud-Foundation/5.0/vcf-admin/GUID-2A1E7307-84EA-4345-9518-198718E6A8A6.html

11-22 - Configuring Microsoft CA: Requirements

BOTCHED / GENERIC LINK —> *For more information, see the section on preparing the certificate service template in the* ***VMware Cloud Foundation Operations and Administration Guide*** *at* ***https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html****.* <— the direct link to the **Create and Add a Microsoft Certificate Authority Template** paragraph within the **VMware Cloud Foundation Administration Guide** is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-194B5856-8B2C-40D3-AEC2-DD4324980C05.html**

MORE DETAILS —> *For the steps to create the certificate service template, see* ***VMware knowledge base article 2112009*** *at* ***https://kb.vmware.com/s/article/2112009****.* <— this link and the link above provide functionally identical instructions.

11-25 - Workflow: Installing Certificates Using an Integrated CA

BOTCHED / INCOMPLETE —> *Using a supported integrated Certificate Authority workflow:*

1. Select the entity to replace certificates on.

2. Click GENERATE SIGNED CERTIFICATES.

3. After the certificate generate, click INSTALL CERTIFICATES.

<— regardless of whether you will be using an Integrated Microsoft CA or an Integrated OpenSSL CA, in the list above the creation of a **Certificate Signing Request (CSR)** is missing. The correct workflow is:

1. **Select the resource type for which you want to replace a certificate.**
2. **Click GENERATE CSRS.**
3. **Click GENERATE SIGNED CERTIFICATES.**
4. **Click INSTALL CERTIFICATES.**

The step-by-step procedures can be found at the following URLs:

- **Microsoft CA: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-1C048081-8BF5-437C-BBED-885183B17392.html**
- **OpenSSL CA: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-C08A3777-B438-4E59-80F4-9AA14D71B0B4.html**

BOTCHED / GENERIC LINK —> For additional details on certificate processes, refer to the VMware Cloud Foundation Administration Guide here: **https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html**. <— the direct links to step-by-step procedures – for Integrated Microsoft CAs or an Integrated OpenSSL CAs – are the two URLs highlighted in blue right above.

11-26 - Workflow: Installing Certificates using a Non-Integrated CA

BOTCHED / GENERIC LINK —> For additional details on certificate processes, refer to the VMware Cloud Foundation Administration Guide here: **https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html**. <— the process for Non-Integrated CAs (slide 11-26) and Third-Party CAs (slide 11-27) are basically identical. The direct link is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-2A1E7307-84EA-4345-9518-198718E6A8A6.html**

11-27 - Workflow: Installing Third-Party Certificates

BOTCHED / GENERIC LINK —> For additional details on certificate processes, refer to the VMware Cloud Foundation Administration Guide here: **https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html**. <— the process for Non-Integrated CAs (slide 11-26) and Third-Party CAs (slide 11-27) are basically identical. The direct link is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-2A1E7307-84EA-4345-9518-198718E6A8A6.html**

11-29 - Using APIs to Manage Certificates

BOTCHED / OUT-OF-DATE —> *For more information, see VMware Cloud Foundation API at **https://code.vmware.com/apis/1126/vmware-cloud-foundation**.* <— this is the link to the API for VCF 4.3; the updated link to VCF 5.0 API is **https://developer.vmware.com/apis/vcf/5.0.0/**

Module 12

12-8 - About Bundle Types

MORE DETAILS —> *Two types of bundles are available for VMware Cloud Foundation* <— **"In addition to upgrade bundles"** [Ed.: and Install Bundles] **", VMware Cloud Foundation includes the following bundle types:**

- Configuration Drift Bundles

A configuration drift bundle applies configuration changes across the managed components and detects, remediates, and prevents configuration drift. These policies can help ensure that virtual machines stay in compliance with the intended state, reducing the risk of performance, stability, and security issues.

- Async Patch Bundles

An async patch bundle allows you to apply critical patches to certain VMware Cloud Foundation components (NSX Manager, vCenter Server, and ESXi) when an update or upgrade bundle is not available. To download an async patch bundle, you must use the Async Patch Tool. See Async Patch Tool.".

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-lifecycle/GUID-1670629D-ABAC-4349-9C8F-CECCF370DB5E.html]

12-14 - Downloading Offline Bundles

BOTCHED / GENERIC LINK —> *For detailed steps to use the bundle transfer utility, see* ***Download Bundles with the Bundle Transfer Utility*** *at* ***https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html****.* <— the direct link to the subject is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-lifecycle/GUID-1670629D-ABAC-4349-9C8F-CECCF370DB5E.html#GUID-8FA44ACE-8F04-47DA-845E-E0863094F7B0__GUID-FB0AE639-2862-4A0C-BBBF-072D03267D49**

12-16 - Create the Marker File

WRONG / OUT-OF-DATE —> ***WHOLE SLIDE*** <— this is a VCF 4.x procedure; in VMware Cloud Foundation 5.0 the process requires you to download the compatibility data file (**VmwareCompatibilityData.json**) and copy it to the SDDC Manager appliance. The full step-by-step procedure can be found in the link below.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-lifecycle/GUID-1670629D-ABAC-4349-9C8F-CECCF370DB5E.html#GUID-8FA44ACE-8F04-47DA-845E-E0863094F7B0__GUID-FB0AE639-2862-4A0C-BBBF-072D03267D49]

12-17 - Download the Bundles

WRONG / OUT-OF-DATE —> ***WHOLE SLIDE*** <— this is a VCF 4.x procedure; in VMware Cloud Foundation 5.0 the process requires that you download your bundles with **`lcm-bundle-transfer-util --download`** providing your **`current-vcf-version`** and **`target-vcf-version`** parmeters. The full step-by-step procedure can be found in the link below.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-lifecycle/GUID-1670629D-ABAC-4349-9C8F-CECCF370DB5E.html#GUID-8FA44ACE-8F04-47DA-845E-E0863094F7B0__GUID-FB0AE639-2862-4A0C-BBBF-072D03267D49]

12-21 - Custom ESXi ISO Images with VMware PowerCLI <AND>

12-22 - Custom ESXi ISO Images with vSphere Lifecycle Manager

MORE DETAILS <— regardless how you create your custom ESXi ISO image, the author doesn't explain what to do next. There are additional mandatory steps that need to be completed before the custom ESXi ISO image can be used. Failing to do so, the stock VMware Cloud Foundation ISO is used for the upgrade and the custom ISOs are ignored. The detailed step-by-step procedure can be found described within the **Upgrade ESXi with Custom ISOs** paragraph – applicable to both Management and VI Workload Domains – at the following URL https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-lifecycle/GUID-1670629D-ABAC-4349-9C8F-CECCF370DB5E.html#GUID-10738818-5AD4-4503-8965-D9920CB90D22__GUID-68DB4F9B-55A1-41A4-89C3-775E8805B9B5

12-23 - Stock ESXi Images and Additional Drivers

MORE DETAILS —> *You create a JSON file with the* **`esxPatchesAbsolutePaths`** *attribute which specifies one or more ZIP files containing the required drivers.* <— the author doesn't explain what to do next. There are additional mandatory steps that need to be completed before the additional drivers can be used. Failing to do so, the stock VMware Cloud Foundation ISO is used for the upgrade and the custom VIBs are overwritten. The detailed step-by-step procedure can be found described within the **Upgrade ESXi with VMware Cloud Foundation Stock ISO and Async Drivers** paragraph – applicable to both Management and VI Workload Domains – at the following URL https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-lifecycle/GUID-1670629D-ABAC-4349-9C8F-CECCF370DB5E.html#GUID-10738818-5AD4-4503-8965-D9920CB90D22__GUID-68DB4F9B-55A1-41A4-89C3-775E8805B9B5

12-28 - About Cluster Images

BOTCHED / GENERIC LINK —> *For more information about* ***vSphere Lifecycle Manager images****, see* ***vSphere Lifecycle Manager Images in VMware Cloud Foundation*** *in the* ***VMware Cloud Foundation Administration Guide*** *at* ***docs.vmware.com****.* <— the direct link to the subject is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-916CA16B-A297-46AB-935A-23252664F124.html#vsphere-lifecycle-manager-images-in-vmware-cloud-foundation-1**

12-32 Exporting Cluster Images

BOTCHED / GENERIC LINK —> *For more information, see the section about **importing a cluster image** in the **VMware Cloud Foundation Operations and Administrator Guide** at **https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html*** <— the direct link to the subject is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-2887EF33-39D7-406E-8759-D969838CF961.html**

12-36 - Making Cluster Images Available in VMware Cloud Foundation

BOTCHED —> ***WHOLE SLIDE*** <— the slide lists two methods to make a cluster image available in VMware Cloud Foundation – extracting and importing –, but then it only shows the former. More details and step-by-step instructions for both methods can be found in the online documentation at **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-BE597379-C55A-4825-A38D-400D0F53D184.html**

12-38 - Firmware Updates

MORE DETAILS —> *You must deploy and configure a hardware support manager to apply firmware using cluster images* <— **"You can find the full list of all VMware-certified hardware support managers in the VMware Compatibility Guide at https://www.vmware.com/resources/compatibility/search.php?deviceCategory=hsm."**. For more details about how to use Hardware Support Managers with vSphere Lifecycle Manager see the online documentation at **https://docs.vmware.com/en/VMware-vSphere/8.0/vsphere-lifecycle-manager/GUID-34AF5B19-FC80-4915-8358-D5FCC8A8E69E.html**

12-43 - VMware Cloud Foundation Components: Upgrade Order

BOTCHED / PRODUCTS NAMES —> ***Aria** Suite Lifecycle Manager, **Aria** Suite products* <AND> *You must also install **Aria** Lifecycle Manager before installing **Aria** Operations or **Aria** Automation products.* <— VMware Cloud Foundation 5 Bill of Materials supports VMware vRealize Suite Lifecycle Manager 8.10 Patch 1 and related vRealize Suite products.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/rn/vmware-cloud-foundation-50-release-notes/index.html#VMware%20Cloud%20Foundation%20Bill%20of%20Materials%20(BOM)]

All VMware vRealize Suite products have been renamed as VMware Aria starting with version 8.12, released in April 2023; hence, the products mentioned above shall still be named vRealize.

[Source: https://docs.vmware.com/en/VMware-Aria-Suite-Lifecycle/8.12/rn/vmware-aria-suite-lifecycle-812-release-notes/index.html#Rebranding%20of%20vRealize%20Suite%20Lifecycle%20Manager%20to%20VMware%20Aria%20Suite%20Lifecycle]

12-44 - Performing Upgrade Prechecks

BOTCHED / GENERIC LINK —> *For more information, see the VMware Cloud Foundation documentation on* ***https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html****.* <— the direct link to the subject is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-lifecycle/GUID-1670629D-ABAC-4349-9C8F-CECCF370DB5E.html#GUID-E3F6EEFF-698F-48F0-BCBF-E6CAEF6C1EBD__GUID-5080A8B9-FE64-4394-93E8-C44443577B41**

12-47 - Upgrading VMware Cloud Foundation Software

BOTCHED / GENERIC LINK —> *For additional information about upgrading VMware Cloud Foundation software, see* ***Upgrade VMware Cloud Foundation Software*** *at* ***https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html****.* <— the direct link to the subject is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-lifecycle/GUID-1670629D-ABAC-4349-9C8F-CECCF370DB5E.html#GUID-E101AFB5-1034-4CF9-B96E-A2E70DCF02F5__GUID-74FECF4C-8D40-4D01-876B-450944AD44A6**

12-48 - NSX-T Data Center Upgrade Considerations

BOTCHED / PRODUCT NAME —> ***NSX-T Data Center*** <— VMware Cloud Foundation 5 Bill of Materials supports VMware NSX 4.1.0.2.

[Source: https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/rn/vmware-cloud-foundation-50-release-notes/index.html#VMware%20Cloud%20Foundation%20Bill%20of%20Materials%20(BOM)]

Starting with version 4.0, VMware NSX-T Data Center is known as VMware NSX.

[Source: https://docs.vmware.com/en/VMware-NSX/index.html]

12-49 - Skipping Hosts During ESXi Upgrades

BOTCHED / GENERIC LINK —> *For more information, see Skip Hosts During ESXi Update at* ***https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html****.* <— step-by-step instructions – applicable to both Management and VI Workload Domains – can be found at the following URL **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-lifecycle/GUID-1670629D-ABAC-4349-9C8F-CECCF370DB5E.html?hWord=N4IghgNiBcIKYGcAeA6ArgBwOYCcwBM4UEBrASwxQAsB7BAFxTPwRAF8g#GUID-10738818-5AD4-4503-8965-D9920CB90D22__GUID-68DB4F9B-55A1-41A4-89C3-775E8805B9B5**

Module 13

13-7 - SoS Tool: Performing Health Checks

BOTCHED / GENERIC LINK —> *For more information about the options available with the SoS tool, see the section about **SoS utility options** in the **VMware Cloud Foundation Operations and Administration Guide** at **https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html**.* <— the direct link to the subject is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-9EBC6D42-B799-4177-9EFF-78E98FDBA0FD.html**

13-9 - SoS Tool: Collecting Log Files

BOTCHED / GENERIC LINK —> *For more information about log bundle collection, see the section about **collecting logs** for your VMware Cloud Foundation system in the **VMware Cloud Foundation Operations and Administration Guide** at **https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html**.* <— the direct link to the subject is **https://docs.vmware.com/en/VMware-Cloud-Foundation/5.0/vcf-admin/GUID-77C40307-8466-4331-A510-9334C0F6CF32.html**

13-10 - Opening Service Requests with VMware Support

BOTCHED / PRODUCT NAME —> ***NSX-T Data Center*** <— see notes for slide 12-48.

13-13 Example: Failed Workflow in the SDDC Manager UI

BOTCHED / PRODUCT NAME —> ***NSX-T*** <— see notes for slide 12-48.