

# VMware Cloud Foundation 4.4

v1.0.5 – 6/24/22

## VMware Cloud Foundation 4.4

### Q1. What's New with VMware Cloud Foundation 4.4?

Here are the new features in Cloud Foundation 4.4:

- **Enhanced AI/ML workload support with NVIDIA AI Enterprise Suite and ability to share vGPUs across multiple instances.**
- **Flexible vRealize Product Upgrades:** After upgrading to VCF 4.4, customers will be able to upgrade vRealize products directly through vRealize Lifecycle Manager (vRSLCM), instead of waiting for a newer release of VMware Cloud Foundation that has the required vRealize product versions, to become available. Deployment and Upgrade of vRealize products will be managed through vRSLCM.
- **Improvements to upgrade prechecks:** Upgrade prechecks have been expanded to verify filesystem capacity, file permissions, and passwords. These improved prechecks help identify issues that you need to resolve to ensure a smooth upgrade.
- **Disable SSH on ESXi Hosts:** This release disables the SSH service by default on ESXi hosts in a VCF instance, following the vSphere security configuration guide recommendation
- **User Activity Logging:** New activity logs will capture all the API invocation calls, along with sufficient User context. User Login/Logout to the UI will also be captured
- **Security fixes:** This release includes fixes for the following security vulnerabilities **Apache Log4j Remote Code Execution Vulnerability:** This release fixes CVE-2021-44228 and CVE-2021-45046. See [VMSA-2021-0028](#). **Apache HTTP Server:** This release fixes CVE-2021-40438. See [CVE-2021-40438](#)

### Q2. What is being delivered in Cloud Foundation 4.4?

VMware Cloud Foundation 4.4 includes the following components:

- VMware SDDC Manager 4.4
  - vSphere 7.0 Update 3c with Tanzu
  - vCenter Server 7.0 Update 3c
  - vSAN 7.0 Update 3c supporting enhanced cloud native storage, integrated file services.
  - vRealize Suite provides numerous enhancements to vRealize log insight 8.6.2, vRealize Operations 8.6.2, and vRealize Automation 8.6.2. Note: VMware Cloud Foundation 4.4 deploys vRealize Lifecycle Manager (vRSLCM) 8.6.2, then vRSLCM deploys and provides ongoing life cycle management of other vRealize Components.
  - NSX-T 3.1.3.5, supporting new networking and security features including NSX-T Federation.
  - VMware Workspace ONE Access 3.3.6
- \*See Pricing and Packaging section for details.

### Q3. Are VMware vSphere+ and vSAN+ available with VMware Cloud Foundation?

Not at this time. VMware vSphere+ and vSAN+ are cloud connected, subscription-based versions of vSphere and vSAN and are not currently available as part of VMware Cloud Foundation. The existing vSphere and vSAN SKUs apply. Refer to the VMware Cloud Foundation Edition Matrix for more information (<https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/products/cloud-foundation/vmw-vcf-4-edition-matrix.pdf>) Can VMware Cloud Foundation customers use vSphere+ features and capabilities with VMware Cloud Foundation?

### Q4. Can VMware Cloud Foundation customers upgrade or add vSphere+ or vSAN+ within a VMware Cloud Foundation deployment?

Not at this time. The vSphere+ and vSAN+ Cloud Gateway, Cloud Console and Cloud Services are not yet supported by VMware Cloud Foundation.

- Q5. How can customers procure the VMware Cloud Foundation with Tanzu functionality?

*Tanzu Standard Edition is included in VMware Cloud Foundation with Tanzu Standard, Advanced and Enterprise editions. The VMware Cloud Foundation Starter, Standard, Advanced and Enterprise editions do NOT include Tanzu Standard. Refer to the [VMware Cloud Foundation Edition Comparison Page](#) for more details.*

- Q6. Will existing VMware Cloud Foundation 3.x deployments be able to upgrade to VMware Cloud Foundation 4.x?

*Yes, there are several methods to perform these migrations. Customers can engage the VMware Professional Service Organization (PSO) to perform an assessment for a potential in-place migration from VMware Cloud Foundation 3.x+ releases to VMware Cloud Foundation 4.x. Contact your sales and channel teams for guidance on choosing the best method for migrating your environment.*

- Q7. Does VMware Cloud Foundation 4.4 support automated deployment, patching and updating of vRealize Suite?

*VMware Cloud Foundation 4.4 supports automated deployment for vRealize Suite Lifecycle Manager (vRSLCM) and then vRSLCM provides deployment of the underlying vRealize components as well as ongoing life cycle management of the vRealize Suite. VMware provides manual guidance to ensure that the vRealize Suite updates are successful.*

- Q8. Does VMware Cloud Foundation 4.4 support VMware PKS (TKGi)?

*Yes. VMware Cloud Foundation 4.4 will support VMware TKGi (formerly VMware PKS). For more information, see: <https://docs.pivotal.io/tkgi/1-11/vsphere-vcf.html>.*

- Q9. Does VMware Cloud Foundation 4.4 support the NVIDIA AI Enterprise (NVAIE) Suite and GPUs?

*Yes. VMware Cloud Foundation 4.4 supports the NVAIE Suite. This integration with NVAIE allows IT admin teams to deliver and provision GPU resources easily, while allowing data scientists to easily consume and scale GPU resources quickly when they need.*

*By integrating with the NVAIE, VMware Cloud Foundation 4.4 now supports the NVIDIA Ampere A30 and A100 GPUs.*

- Q10. Does VMware Cloud Foundation 4.4 support GPU virtualization?

*Yes. With the support of the NVIDIA AI Enterprise Suite, NVIDIA Ampere A100 and A30 GPUs can now be configured with VMware Cloud Foundation to support AI/ML workloads. VMware in partnership with NVIDIA has integrated the latest virtual GPU (vGPU) capabilities enabled by vSphere, into VMware Cloud Foundation. VMware Cloud Foundation customers can now extend their software defined private cloud platform to support a flexible and easily scalable AI-ready infrastructure.*

*Learn more at: [Deploy an AI-ready Enterprise platform on VMware vSphere 7 with VMware Tanzu Kubernetes Grid Service](#)*

- Q11. What is Multi Instance GPU (MIG) support?

*MIG is a new feature available with the NVIDIA Ampere A30 and A100 GPUs and helps maximize utilization of GPU devices and provides dynamic scalability by partitioning GPU devices into multiple smaller GPU instances. This enables right sizing the GPU allocations for optimized utilization of these GPUs and better QOS. MIG is supported on the A30 and A100 GPUs.*

## General

- Q12. Where can I find more information and resources?

*You can find additional Cloud Foundation information here:*

- *VMware Cloud Foundation Resource Center: <http://vmware.com/go/vcfrc>*
- *Product Page: [vmware.com/go/cloudfoundation](http://vmware.com/go/cloudfoundation)*
- *Documentation: [vmware.com/go/cloudfoundation-docs](http://vmware.com/go/cloudfoundation-docs)*
- *Community: [vmware.com/go/cloudfoundation-community](http://vmware.com/go/cloudfoundation-community)*
- *Talk to your VMware Partner or VMware Sales team.*

**Q13. What is VMware Cloud Foundation?**

VMware Cloud Foundation™ provides the simplest path to hybrid cloud through an integrated software platform that is the foundation for both private and public cloud environments. Cloud Foundation provides a complete set of software-defined services for compute, storage, network, and security, along with cloud management capabilities. The result is simple, secure, and agile cloud infrastructure that can be deployed on premises and consumed as a service from public cloud.

**Q14. How can I use Cloud Foundation in the public cloud?**

Select service providers from the VMware Cloud Provider program offer cloud services powered by VMware Cloud Foundation, including CenturyLink, OVH and Rackspace. Reach out to the specific service providers for more information.

VMware Cloud on AWS is an on-demand service operated, managed, and sold by VMware. VMware Cloud on AWS is powered by VMware Cloud Foundation.

Additional solutions such as Azure VMware Solution and Google Cloud VMware Engine are also powered by VMware Cloud Foundation.

**Note: The following questions and answers focus on Cloud Foundation for on-premises deployment.**

**Q15. What types of OEM integrated systems are available with Cloud Foundation from OEMs?**

Integrated Systems from OEMs can be either:

- Jointly Engineered Solutions - VMware Cloud Foundation on Dell EMC VxRail
- VMware vSAN Ready Nodes

**Q16. What is the unique integration of a jointly engineered solution?**

Jointly engineered systems, such as VMware Cloud Foundation on VxRail, provide unique integration with VMware Cloud Foundation components. VxRail integration with VMware Cloud Foundation includes, but is not limited to, lifecycle management of the hardware and software sub-systems using native SDDC Manager orchestrated workflows integrated with VxRail Manager.

Note that VxRail does require Dell professional services for installation.

**Q17. Can vSAN ReadyNodes be added to Dell EMC VxRail deployments (and vice versa)?**

No. It is not possible to deploy vSAN ReadyNodes and VxRail nodes within the same deployment. Refer to the [VCF on VxRail admin guide](#) for more information.

**Q18. What VMware Technical Support options are available for VMware Cloud Foundation?**

The [VMware Technical Support Matrix](#) lists the following support options for VMware Cloud Foundation:

- Basic
- Production

You can compare the support options [here](#). We recommend purchasing **Production** support. Or better, enhance your support experience with [VMware Success 360](#). VMware Success 360 is a comprehensive success offering that can guide you through all stages of your VMware Cloud Foundation journey, including:

- Success Planning provides personalized guidance to help you achieve outcomes faster
- Adoption Guidance and Workshops help you with onboarding, adopting, consuming, and optimizing your VMware technology
- Digital Learning empowers your team to gain new skills to accelerate your technology value realization
- Dedicated and Proactive Support with predictive issue prevention and fast, prescriptive problem resolution to help maximize productivity and uptime

**Q19. How can I purchase Cloud Foundation software?**

There are four ways to purchase Cloud Foundation software:

(1) directly from VMware, (2) from VMware channel partners (3) as part of an integrated system from OEM

vendors and (4) as a subscription service from a public cloud service provider.

#### Q20. Can I install the Cloud Foundation software myself?

Yes. VMware provides documentation for customers to deploy the Cloud Foundation software on their own. It is highly recommended that you work with VMware Professional Services or your Solution Provider to receive assistance with your deployment. Visit the Documentation page for more information on how to deploy Cloud Foundation.

#### Q21. What is the difference between SDDC Manager and vRealize Automation?

SDDC Manager and vRealize Automation automate different aspects of building and running private and Hybrid clouds. SDDC Manager automates the installation and lifecycle management of the vSphere, vSAN, NSX, and vRealize Suite components from bring-up and configuration to patching and upgrading, making it simple for the cloud admin to build and maintain the SDDC.

SDDC Manager is used to deploy vRealize Suite Lifecycle Manager (vRSLCM) in Cloud Foundation mode and creates a two-way communication channel between the two products. When deployed in this way, vRSLCM is now VCF aware, and reports back to the SDDC Manager what vRealize products are installed. With the new flexible upgrades capability, vRSLCM enables the selection of the desired version of vRealize suite independent of the VMware Cloud Foundation version.

#### Q22. Does SDDC Manager replace other existing management tools, such as vCenter Server?

No. SDDC Manager complements vCenter Server by delivering new functionality that helps cloud admins build and maintain the SDDC. The cloud admin will continue to use vCenter Server as the primary management interface for the virtualized environment.

## Pricing and Packaging

#### Q23. What editions are available for VMware Cloud Foundation?

VMware Cloud Foundation is available in the following SKUs; **Starter, Standard, Advanced and Enterprise**

editions, with and without vSAN. These editions do not include Tanzu Standard, but Tanzu can be purchased as an add-on.

For more information on each edition and the software components included in each edition please see <https://www.vmware.com/products/cloud-foundation.html#compare>.

#### Q24. Is the vCenter Server license included with VMware Cloud Foundation licenses?

Although part of the platform deployed by VMware Cloud Foundation, vCenter Server is sold and licensed separately. Customers must provide a separate vCenter Server license for a VMware Cloud Foundation environment. Only one vCenter Server license is needed per VMware Cloud Foundation instance, regardless of the number of workload domains in the environment.

#### Q25. What editions are available for VMware Cloud Foundation with Tanzu?

The 'VMware Cloud Foundation with Tanzu' **Standard, Advanced** and **Enterprise** editions are offered with VMware Tanzu Standard to run and manage Kubernetes across multiple clouds. Note that these are only available via ELA and SPF. Contact your VMware account team for more information.

For more information on each edition, please see <https://www.vmware.com/products/cloud-foundation.html#compare>.

#### Q26. What capabilities are added when Tanzu Standard is sold with VMware Cloud Foundation?

VMware Tanzu Standard includes a Kubernetes based container management (Tanzu Kubernetes Grid), global policy management (subset of Tanzu Mission Control capabilities) and support for monitoring (via Prometheus and Grafana). This can be added to 'VMware Cloud Foundation' Starter, Standard, Advanced and Enterprise editions. VMware Cloud Foundation with Tanzu includes Tanzu Standard as part of the standard SKUs.

For more information on each edition, please see <https://www.vmware.com/products/cloud-foundation.html#compare>.

## VMware Cloud Foundation Subscription

**Q27.** What are the different subscription offerings and how do they differ from each other?

*VMware Cloud Foundation Subscription (VCF-S) is an on-premises term subscription that is available through the **VMware Cloud Universal** program and, effective June 2022, is now as a standalone VCF-S offer.*

*VMware Cloud Universal, is a flexible subscription program that simplifies the purchase and consumption of VMware multi-cloud infrastructure and management services across the data center, edge, or public cloud. To learn more about VMware Cloud Universal go to: <https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/products/vmware-cloud-universal-program-guide.pdf>*

**Q28.** Can customers use VMware Tanzu using VMware Cloud Foundation Subscription

*Yes, the Tanzu Standard Edition is included in VMware Cloud Foundation Subscription offering from Day 1, so that customers can modernize their applications from the get-go.*

**Q29.** Will existing VMware Cloud Foundation customers be able to consume VMware Cloud Foundation Subscription?

*Some limitations apply as far as SPP credits. Contact your VMware account team or partner sales.*

**Q30.** Where can I go for additional information on Cloud Foundation Pricing and Packaging?

*Consult with your VMware Sales Representative, channel partner or qualified OEM partner for more pricing and packaging information.*

## Technical

**Q31.** What is VMware SDDC Manager?

*SDDC Manager is the centralized management software in Cloud Foundation used to automate the lifecycle of vSphere, vSAN, NSX Data Center and vRealize Suite\*, from bring-up, to configuration, to infrastructure provisioning to upgrades/patches. (\* limitations noted)*

**Q32.** Can I use the SDDC Manager with existing deployments?

*No. To benefit from SDDC Manager's automation capabilities you do a fresh install of the full SDDC software stack.*

**Q33.** What is the Cloud Builder?

*Cloud Builder is a Photon OS VM that is delivered as an OVA file and includes a virtual imaging appliance (VIA). It contains all code and product bits to automate the deployment of the full SDDC stack for the management domain for your VMware Cloud Foundation instance. The VM can be deployed on any physical device that has connectivity with the ESXi hosts, including laptops and external hosts. Follow the Cloud Builder UI on the VM to deploy the SDDC stack. Input parameters are passed in via a deployment parameters file import.*

**Q34.** Is Multi-Instance Management obsolete?

*Multi-instance Management capability is deprecated from VCF 4.4 release. Customers can use*

## Hardware

**Q35.** What are the physical server requirements?

*VMware Cloud Foundation is supported on vSphere-compatible server hardware which meets the minimum requirements for VMware Cloud Foundation and the desired workloads. For Workload Domains using vSAN, refer to the vSAN Compatibility Guide and the VMware Cloud Foundation product documentation for details.*

**Q36.** What switching hardware is supported?

*You can use those Enterprise-grade network switches that meet the requirements of vSAN, and which are capable of meeting the scale demands of a highly connected set of vSAN hosts.*

**Q37.** How does Cloud Foundation leverage Composable Infrastructure?

*Composable Infrastructure allows building physical servers on the fly using an API. Cloud Foundation has a composability plug-in which uses the "RedFish API" to perform this integration. This API communicates with the*

*composable hardware manager to request physical infrastructure on demand.*

**Q38. Which Composable Infrastructure systems are supported?**

*VMware Cloud Foundation supports Dell MX and HPE Synergy as composable infrastructure systems.*

**Q39. How does VMware Cloud Foundation integrate with composable systems?**

*Composable systems, such as Dell MX and HPE Synergy integrate with Cloud Foundation through the Redfish API that enables the ability to compose and decompose hardware resources under control of VMware Cloud Foundation.*

**Q40. Who supports Cloud Foundation software and hardware?**

*When purchasing an OEM Solution, the OEM partner will be the single point of contact for support of both hardware and software. When Cloud Foundation software is purchased from VMware, the support model will follow the standard practice of VMware products with VMware Technical Support delivering support for the Cloud Foundation software.*

## Workload Domains

**Q41. What is a workload domain?**

*Workload Domains are a logical abstraction of private Cloud capacity that is provisioned automatically by SDDC Manager and administered and patched independently. Workload Domains provide a unit of consumption at the SDDC level by presenting an integrated selection of compute, storage, and network resources for business workloads to run in.*

**Q42. Why would a user create another workload domain?**

*In order to scale deployments, assign unique characteristics and maintain workload isolation, it is a best practice to create additional workload domains for new workloads.*

**Q43. What is a management domain?**

*The management domain is a special purpose workload domain that is used to host the infrastructure components needed to instantiate, manage, and monitor the Cloud Foundation infrastructure. The management domain is automatically created using the Cloud Builder appliance when it is initially configured.*

**Q44. How many nodes are required for the management domain?**

*The management domain leverages vSAN for storage and requires a minimum of 4 nodes.*

**Q45. How many vCenter Server instances can be deployed in a workload domain?**

*Each workload domain has one dedicated vCenter Server instance. (Note: Only one vCenter Server license is needed per Cloud Foundation instance or 15 workload domains)*

**Q46. What is the minimum number of vSphere hosts that can be in a Virtual Infrastructure Workload Domain?**

*Workload domains require a minimum of three hosts.*

**Q47. Can I extend/delete a workload domain after it has been created?**

*Yes, Cloud Foundation provides a fully automated process for creating, extending, and deleting workload domains using SDDC Manager. If supplemental storage has been added to the workload domain, manual processes may be required to provision or un-provision this storage accordingly.*

**Q48. Can I reduce the size of a workload domain?**

*Yes, Cloud Foundation allows removing hosts and clusters from workload domains.*

## Storage

**Q49. What is the difference between Principal storage and Supplemental storage within VMware Cloud Foundation?**

*Principal storage is selected when creating a management domain, workload domain, or when creating a new cluster within a workload domain.*

*Supplemental storage may be added to management or workload domain clusters after their creation. Principal storage is required for every cluster. Supplemental storage can be used for additional storage options. Both principal and supplemental storage can be used for primary workloads/use-cases.*

**Q50. Can I change the principal storage selection after creating a workload domain cluster?**

*No, you must create a new cluster within the workload domain or a new workload domain to change the principal storage selection. vMotion can be used to move the VMs to the newly created cluster. Supplemental storage can be manually added or removed without re-creating the cluster.*

**Q51. Is vSAN required with Cloud Foundation?**

*vSAN is required for the Cloud Foundation management domain principal storage. It is possible to add supported storage options as supplemental storage for the management domain (see A36). The workload domains may use vSAN or a supported storage option for principal storage, with a variety of additional storage options available as supplemental storage (see A36).*

**Q52. Which principal storage options are supported with VMware Cloud Foundation?**

*VMware Cloud Foundation can consume and is validated against vSAN, vVols, NFS v3, and VMFS on FC. vSAN is the only principal storage option for the management domain.*

*NVMe-oF and iSCSI are not currently supported as principal storage for Workload Domains.*

*VMware recommends using vSAN as the principal storage for all workload domains to leverage the benefits of managing and maintaining a full software defined stack. vSAN is also updated and patched by SDDC Manager. Updating and patching non-vSAN storage is a manual task and falls outside of the lifecycle management offered by SDDC Manager. To ensure supportability, the storage system will need to be validated on the vSphere SAN/NAS Compatibility Guide: <http://vmw.re/storagevcg>.*

**Q53. Which supplemental storage options are supported with VMware Cloud Foundation?**

*VMware Cloud Foundation supports the use of NFS (v3, or v4.1), VMFS on FC, iSCSI, NVMe-oF, and vVols as supplemental storage. Supplemental storage is not integrated to or shown within SDDC Manager.*

**Q54. Can I use any server to create a workload domain when utilizing non-vSAN storage?**

*Yes, any vSphere-compatible server can be used for a workload domain cluster not using vSAN. They do not need to be vSAN ReadyNodes in this case.*

**Q55. Does VMware Cloud Foundation 4.4 support vSAN Stretched Clusters?**

*vSAN stretched clusters are currently only supported on workload domains using vLCM Baselines (formally known as vSphere Upgrade Manager (VUM)) vs. vLCM Images (formally known as vSphere Lifecycle Manager (vLCM)).*

*Note: In VCF 4.2 vSphere Update Manager was rebranded as vSphere Lifecycle Manager Baselines in the SDDC Manager UI.*

*Metro cluster/stretch solutions on external storage are supported for both principal and supplemental storage within Workload Domains. Please consult with your external storage vendor for guidance on how to implement metro cluster/stretch cluster in VMware Cloud Foundation.*

**Q56. Is stretched clustering supported for a workload domain configured for Kubernetes?**

*No. vSAN Stretched Clustering for workload domains that are configured for Kubernetes Workload Management is currently not supported.*

**Q57. How does VMware Cloud Foundation support VMware vSAN Data Persistence Platform (vSAN DDP)?**

*Data Persistence Platform provides a framework for modern stateful service providers to build deep integration with the underlying virtual infrastructure leveraging the Kubernetes operator method and vSphere Pod Service, allowing customers to run their stateful*

applications with lower TCO and simplified operations and management.

vSAN DDP is supported for use when deploying VCF with Tanzu. vSAN DDP is a management framework, that allows third parties to integrate their cloud native applications with vSphere management, lifecycle, and data placement operations. vSAN DDP leverages the Kubernetes operator method and vSphere Pod Service,

#### Q58. What is VMware HCI Mesh?

VMware HCI Mesh is vSAN's all new feature that provides for "Disaggregated HCI" or DHCI exclusively through software. HCI Mesh allows an administrator to easily define a relationship between two vSAN clusters, and borrow capacity from another cluster, improving the agility and efficiency in an environment. This disaggregation allows the administrator to separate compute from storage. HCI Mesh uses vSAN's native protocols for optimal efficiency and interoperability between clusters. Complimenting the inherent capability within vSAN to treat storage as an exclusive resource of the cluster, HCI Mesh delivers the flexibility in resource provisioning that many of our customers have been asking for.

#### Q59. Which vSAN features are not supported by VMware Cloud Foundation 4.4?

- vSAN HCI Mesh Compute-only Clusters – Not Supported
- HCI Mesh support for remote or stretched clusters – Not Supported
- 2-node vSAN clusters in Remote Office Branch Office (ROBO) scenarios. – Not Supported
- Storage DRS – Not Supported
- Multiple pNIC (physical NIC) with external storage and vVols – Not Supported
- vSAN Direct – Not Supported
- L3 support for external storage including vVols – Not Supported

## Networking

#### Q60. Can I connect the NSX-T Manager in Cloud Foundation to other non-Cloud Foundation infrastructure?

No. This is not supported. NSX-T is only aware of the corresponding Cloud Foundation Workload Domains

#### Q61. Does VMware Cloud Foundation support Bare Metal Edge Servers in NSX-T?

Yes. The overwhelming majority of customers deployment use case can be fulfilled with VM form factor edge nodes. Support for Bare Metal Servers configured as NSX-T Edge Nodes is provided for customers specific use cases which cannot be supported on an VM form factor edge node.

#### Q62. Does VCF support Bare Metal Servers (i.e., Windows or Linux servers) or KVM as NSX-T transport nodes?

No, VCF does not support hosts which are not managed by SDDC Manager to be part of the NSX-T installation. Today, SDDC manager does not support KVM or other NSX-T bare metal servers as transport nodes.

#### Q63. What is NSX-T Federation?

NSX-T Federation capabilities provide a cloud-like operating model for network administrators by simplifying the consumption of networking and security constructs. This includes centralized management, consistent networking and policy configuration with enforcement and synchronized operational state across large scale federated NSX-T deployments.

#### Q64. What value does NSX-T Federation provide?

With NSX-T Federation, VCF customers can leverage stretched networks and unified security policies that span multi-region VCF deployments providing workload mobility and simplifying disaster recovery.

#### Q65. How does NSX-T Federation work in VMware Cloud Foundation 4.4?

VCF customers can now leverage NSX-T Federation capabilities to federate and manage multiple NSX-T domains through a single pane of glass, using Global



*Manager (GM). GM provides a graphical user interface and an intent-based REST API endpoint. Through the GM, you can configure consistent security policies across multiple locations and stretched networking objects: Tier0 and Tier1 gateways.*

**Q66.** For which use cases is NSX-T Federation support in VMware Cloud Foundation targeted?

*NSX-T Federation can support a variety of use cases based on business demands and preferred architectures. NSX-T is well-suited for hybrid cloud connectivity, workload mobility, and disaster recovery across cloud environments.*

**Q67.** Is NSX-T Federation automatically implemented by SDDC Manager?

*NSX-T Federation in 4.4 is implemented and supported through manual guidance, including architecture and design documentation, on the VMware Docs site [here \(link\)](#).*

**Q68.** Are there limitations with NSX-T Federation in VMware Cloud Foundation 4.4?

*SDDC Manager is not integrated with NSX-T Global Manager in this release. As such, SDDC Manager functions (like password rotation, certificate replacement, and LCM) do not interact with NSX-T Global Manager. Further, vRealize Operations cannot collect data from the Global Managers, and vRealize Automation cannot provision workloads with Global Managers.*

**Q69.** Are there any limitations with NSX-T Federation working with 2<sup>nd</sup>/3<sup>rd</sup> party products?

*NSX-T Federation moves the management plane from Local Manager to Global Manager. Any products that integrate with NSX-T or consume NSX-T APIs should evaluate their compatibility with NSX-T Federation*

**Q70.** Once I upgrade to VMware Cloud Foundation 4.2 or later, can my existing VCF deployment adopt NSX-T Federation?

*NSX-T Federation in VCF 4.2 or later releases is targeted for greenfield (pre-production) deployments only. Please raise a ticket with GSS and your account team to evaluate if your brownfield VCF deployment (production) is suitable to adopt NSX-T Federation.*

**Q71.** Is NSX-T Federation supported between VCF and non-VCF deployments?

*No. NSX-T Federation in VCF 4.4 is targeted between VCF deployments only.*

**Q72.** Is NSX-T Federation supported between VCF Ready Node and VCF on VxRail deployments?

*Yes, with some exceptions noted below:*

- *NSX-T Federation for vSAN Ready Node (vSRN) and VxRail is supported on VCF 4.3 greenfield only. There is no process available for brownfield environments.*

- *VCF deployments on both environments need to have Application Virtual Networks (AVNs) deployed so the NSX-T edges are deployed and configured.*

- *Designating which site is primary is up to the customer, there is no VCF preference.*

**Q73.** Do I need to federate the Management Domain in order to federate the VI Workload domain?

*No. You can choose to federate VI Workload domains without federating the management domain. If you need availability of the management components such as vRA, vROps deployed in the management domain, then you need to federate the management domain.*

**Q74.** Can I federate between the Management domain and VI Workload domain?

*No. This is not supported.*

**Q75.** Does VCF 4.4 require the configuration of Application Virtual Networks (AVNs) at Bring-up?

*No. VCF 4.3 no longer provides an option to deploy AVN at Bring-up. This results in a faster and seamless initial deployment. For customers who are looking to deploy vRealize Suite components through vRSLCM, AVN is configured through SDDC Manager.*

## VCF Remote Clusters

**Q76.** Is there a hard requirement of 3-4 nodes per VCF Remote Cluster site?

*If vSAN is used, VCF only supports a minimum of 3 nodes and a maximum of 4 nodes per VCF Remote Cluster. If NFS, vVOLs or Fiber Channel is used as principal storage, then VCF supports a minimum of 2 and a maximum of 4 nodes.*

**Q77.** What is the license requirement for VCF Remote Clusters?

*VCF standard pricing applies to VCF Remote Clusters, no special pricing or licensing is required.*

*VMware Cloud Foundation ROBO licensing is available, allowing up to 25 VMs in remote office/branch office locations. Contact your VMware Sales representative or Partner for additional information.*

**Q78.** Are there any hardware specific requirements for VCF Remote Clusters?

*No, any vSAN Ready Nodes or Dell VX Rail system will support VCF Remote Clusters.*

**Q79.** Why is the requirement to have two active WAN links from the remote sites to the central site?

*VCF Remote Cluster is designed to optimize for cost in the remote sites. The SDDC Manager & NSX Manager is in the central, so if the WAN link between the central site and remote sites fails when a node in the remote site reboots, resulting in a dual failure state, the VMs running on the node at the remote site will not be operational until the WAN link becomes active. This can cause application instability in the remote sites. To avoid, it is strongly recommended to use dual active WAN links across sites.*

**Q80.** What is VMware Cloud Foundation ROBO?

*VCF ROBO is a cost-effective licensing option for a VCF remote cluster as it is licensed on a 25-VM pack. VCF ROBO includes vSphere, vSAN, NSX, and SDDC Manager, all licensed on a 25-VM pack basis.*

## Patching and Upgrades

**Q81.** What software components can be patched/upgraded using SDDC Manager?

*VMware vSphere, vSAN, NSX, vCenter Server and SDDC Manager components are patched/upgraded.*

**Q82.** How am I notified when patches/upgrades become available?

*Users are automatically notified from the SDDC Manager user interface when patches and upgrades become available. From VCF 4.4, the vRealize Suite, components are updated using vRealize Suite Lifecycle Manager.*

**Q83.** Can I schedule when patches and upgrades are applied?

*Yes, SDDC Manager allows patches and upgrades to be scheduled to coincide with regular maintenance windows.*

**Q84.** Can I patch/upgrade workload domains independent of each other?

*Yes, patches and upgrades are scheduled on a per-workload domain basis allowing updates to be "rolled-in" over time.*

*With VMware Cloud Foundation 3.9, you can apply cluster level upgrades for ESXi.*

*With VMware Cloud Foundation 3.10, you can apply cluster level upgrades and parallel cluster upgrades for both ESXi and NSX-T.*

*With VMware Cloud Foundation 4.1 and later releases, you can apply cluster level upgrades and parallel cluster upgrades for ESXi and NSX-T on VUM enabled domains. This feature is not available for NSX-T on vLCM enabled domains yet. Customers are given an option to choose vSphere Update Manager (VUM) or vSphere Lifecycle Manager (vLCM) when creating a workload domain.*

## Configuration Minimums and Maximums

**Q85.** What is the minimum size of a Cloud Foundation environment with a consolidated deployment?

*You need at least 4 servers to run Cloud Foundation in a consolidated architecture. Workload VMs are placed in dedicated resource pools in the Management Domain.*

**Q86.** What is the minimum size of a Cloud Foundation environment to use VI workload domains?

*With a standard architecture, you need at least 7 servers to run Cloud Foundation with a VI workload domain when vSAN is being used, We can create workload domains of 2 servers when using NFS, Fiber Channel or vVOLS.*

*What is the maximum size of a Cloud Foundation environment? Cloud Foundation inherits configuration maximums from the component products. For information on sizing VMware Cloud Foundation refer to <https://configmax.vmware.com>*

**Q87.** What is the maximum size of a workload domain?

*Each workload domain has its own vCenter Server and it can have as many hosts and clusters as a single vCenter Server can handle. Within Cloud Foundation 4.3, you may also size the vCenter Server instance during VI WLD*

*creation via the API or change the vCenter size after deployment. vCenter Server limits apply, see <https://configmax.vmware.com> for more information.*

**Q88.** How many workload domains can a Cloud Foundation instance have?

*Cloud Foundation always has 1 management domain and up to 14 VI workload domains. Each workload domain can contain multiple ESXi host clusters. This limit is imposed by the max number of vCenter Server instances that can be configured in enhanced linked mode which supports up to 15 vCenter Servers, and each workload domain has its own vCenter Server. See <https://configmax.vmware.com> for more information.*

## Advanced Security for VMware Cloud Foundation Addon

**Q89.** What is VMware Advanced Security for Cloud Foundation?

*VMware Advanced Security for Cloud Foundation brings together world-class workload protection, intrusion detection and prevention, advanced load balancing, and web application firewall for public and private clouds based on VMware Cloud Foundation.*

**Q90.** How is VMware Advanced Security for Cloud Foundation sold?

*VMware Advanced Security for Cloud Foundation is sold as an add-on to VMware Cloud Foundation. Two bundles are now available: Network and App Security Add-on for Cloud Foundation, and Advanced Security Add-on for Cloud Foundation. What is included with the Network and App Security Add-on for Cloud Foundation?*

*The Network and App Security Add-on for Cloud Foundation includes VMware NSX® Advanced Threat Prevention (includes VMware NSX® Firewall, VMware NSX® Distributed IDS/IPS and VMware NSX® Intelligence) and VMware NSX® Advanced Load Balancer/WAF*

*The Advanced Security Add-on for Cloud Foundation includes VMware Carbon Black Cloud Workload, VMware NSX® Advanced Threat Prevention (includes VMware NSX® Firewall, VMware NSX® Distributed IDS/IPS and VMware NSX® Intelligence) and VMware NSX® Advanced Load Balancer/WAF for increased protection for workloads running within a Cloud Foundation environment.*

**Q91.** Can the security bundle be added to previous versions of Cloud Foundation?

*The Network and App Security Add-On for Cloud Foundation is available on Cloud Foundation 4.2 and above.*

**Q92.** Will Network and Security Add-On for Cloud Foundation work in a vSphere environment?

*Only as part of a VMware Cloud Foundation environment running NSX-T 3.1 or later.*

## Miscellaneous

Q93. Does SDDC Manager automate the deployment of other management components, such as vRealize Network Insight (vRNI)?

*vRNI can be manually deployed and externally integrated with VMware Cloud Foundation*

Q94. What logs are sent to the vRealize Log Insight in the Cloud Foundation management cluster?

*Cloud Foundation can be configured to send event logs for vSphere, vSAN, NSX, SDDC Manager, vCenter and Horizon into vRealize Log Insight.*

Q95. How can SDDC Manager be protected by backup?

*In Cloud Foundation 4.3 and later releases, SDDC Manager backup and recovery capabilities have been enhanced, allowing administrators to configure external backup targets as well as scheduled backups and backup retention schedules. SDDC Manager backups also include NSX Manager configurations*