

VMware Validated Designs

July 2018

General

Q. What is a VMware Validated Design?

- A. [VMware Validated Designs](#) are comprehensive and extensively tested blueprints to build and operate a private cloud based on VMware's Software-Defined Data Center (SDDC) architecture.

Validated Design represents a standardized, scalable private cloud architecture backed by VMware's technical expertise. Each design comprises a software Bill of Materials (BOM) that is comprehensively tested for integration and interoperability across the SDDC software stack (compute, storage, networking and management), together with detailed guidance that synthesizes VMware best practices on how to deploy, integrate and operate the SDDC and ensure performance, availability, security and operational efficiency of the private cloud.

Q. Who should use the VMware Validated Designs?

- A. Validated Designs are architectures for enterprise customers ready to deploy a private cloud based on a VMware Software-Defined Data Center architecture.

Q. Are the VMware Validated Designs "production ready"?

- A. Yes, key design factors such as availability, scalability, and recoverability are built into each design.

Q. How many VMware Validated Designs are there?

- A. As of June 2018, there are currently three Validated Designs:
- [VMware Validated Design for SDDC Standard Design](#)
 - [VMware Validated Design for SDDC Consolidated Design](#)
 - [VMware Validated Design for SDDC Remote Office/Branch Office \(ROBO\)](#)

Q. What is a VMware Validated Design Use Case?

- A. Validated Design Use Cases provide supplemental documentation that present the design objectives, high-level overview, and prescriptive guidance for enabling different SDDC use cases on top of the VMware Validated Designs.

As of June 2018, guidance is provided for the following use cases:

- [VMware Validated Design for IT Automating IT](#)
- [VMware Validated Design for Intelligent Operations](#)

Q. How do I access the VMware Validated Design documentation?

- A. Validated Design documentation is freely available from docs.vmware.com and includes:
- **Release Notes** - Any known issues with the design.
 - **Software Bill of Material** – Inter-operable versions of software that work together for a given VMware Validated Design version.
 - **Architecture and Design** – Design Objectives, Design Decisions and the technical aspects of the designs. Includes visualizations of the architecture and the design.
 - **Planning and Preparation** – Software, tools and external services required to successfully implement the platform.
 - **Deployment and Upgrade Guides** – Detailed instruction on how to deploy and upgrade the SDDC.
 - **Operational Verification** – How to test and validate prior to go-live.
 - **Operational Guides** – Detailed guidance on Monitoring and Alerting, Backup and Restore, Upgrade, Site Protection and Recovery, Startup and Shutdown, and more operation modules
 - **Use Case Guides** – Modular guides that cover use cases like IT Automating IT, Intelligent Operations, and more

Q. How do I implement a VMware Validated Design?

- A. There are three ways customers can implement the VMware Validated Designs:
1. Customers can work with VMware Professional Services to purchase a [VMware Validated Design for SDDC deployment service](#).
 2. Customers can adopt a VMware Validated Design through certified partners, such as, IBM, Accenture and HCL Technologies, with more to be announced.
 3. VMware Validated Designs are also available as free public documents for customers who choose to implement the SDDC by themselves. Visit vmware.com/go/vvd-docs.

Q. What is the VVD Cloud Builder?

- A. The VVD Cloud Builder replaces the Deployment Toolkit in the VVD for SDDC 4.3 release. It is used to automate the

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deployment of the VVD for SDDC. In 4.3, the VVD Cloud Builder introduces several enhancements and includes a new a UI.

Q. I've heard the VVD Cloud Builder (formerly known as the Deployment Toolkit (DTK)) can be used to automate the deployment of the VVD. How do I get access to it?

A. The VVD Cloud Builder is available as part of a [Validated Design deployment service](#) that is purchased through VMware Professional Services or from certified VMware partners. It is not directly available to customers.

Q. The vRealize Lifecycle Manager Appliance (vRSLCM) provides automation capabilities for the vRealize Suite. Can I use it with the VVD?

A. Yes, starting with the VVD for SDDC 4.3 the vRealize Suite Lifecycle Automation Manager appliance (v 1.2) has been added to the software BOM and the guidance for deploying and configuring the vRealize Suite has been updated to incorporate the use of the vRealize Suite Lifecycle Manager appliance.

Q. Is there a VMware Community for the VMware Validated Designs?

A. Yes. There is a public community available at <http://vmware.com/go/vvd-community>. Here customers can learn, ask questions, as well as provide feedback on VMware Validated Designs.

Within the community there are sub-communities for each VMware Validated Design release and an early access community for upcoming designs.

Q. How are software upgrades applied to the VMware Validated Designs?

A. As new versions of the VMware component products become available they are tested and validated against the VMware Validated Design. Once the testing and revalidation is complete, the upgrade steps are documented and made available as an official [VMware Validated Design upgrade guide](#). This approach helps to reduce risk and instill confidence by ensuring that component product upgrades have been rigorously tested and validated by VMware prior to being deployed by the customer.

Note: Upgrade guidance is limited to the [VMware Validated Design for SDDC Standard Design](#). We continue to evaluate

options for adding upgrade guidance for other designs.

Q. I understand that upgrades will be provided as an official update to the VMware Validated Designs. Do I also need to wait for the patches to be made available as part of an official VMware Validated Design update?

A. Each Validated Design is implemented on a standardized software Bill of Materials (BOM). Deviating from the tested/validated software BOM is discouraged.

Customers running a private cloud based on the VMware Validated Design should use the latest security patches for a given component when deploying VMware Validated Design.

Post-deployment customers are encouraged to continue to apply hot fixes and security updates as required to maintain the security and integrity of the private cloud.

However, customers should wait for upgrade guidance before updating to new versions of the component products that fall outside of the BOM.

Q. Can the VVD Cloud Builder be used by VMware Professional Services or a Certified VMware Partner to update or upgrade the Validated Design?

A. No, the VVD Cloud Builder is for new deployments only. To upgrade to a newer version of the Validated Design refer to the [Validated Design upgrade documentation](#).

Q. Can I use the vRealize Suite Lifecycle Manager Appliance introduced with VVD for SDDC 4.3 to update/upgrade the vRealize Suite components that have been deployed as part of a VMware Validated Design?

A. No, currently the vRealize Suite Lifecycle Manager is only used to perform the initial deployment and configuration of the vRealize Suite. Customers should continue to follow the manual upgrade guidance found in the VVD for SDDC Upgrade Guide to apply software updates.

Note: Use of the vRealize Suite Lifecycle Manager to upgrade the vRealize Suite software components is planned for a future release.

Q. Are there any support benefits that come when deploying a VMware Validated Design?

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- A. Currently there is not a higher-level support agreement available for customers running a Validated Design. However, using the Validated Designs will expedite the support process because VMware GSS will have a detailed and comprehensive understanding of the customer's private cloud architecture, which will facilitate root cause analysis and expedite problem resolution.

Q. How can partners use the VMware Validated Design?

- A. VMware partners can accelerate the adoption of the VMware Software-Defined Data Center technologies in the ecosystem by using the VMware Validated Design-based Solution Enablement Toolkits (SET), resources, knowledge, and support from VMware to deliver the designs and associated use cases.

The VMware Validated Design Certified Partner Architecture program also certifies partner architectures upon validating that it meets VMware Validated Design guidelines.

Visit vmware.com/go/vvd-cpa for more information on the VMware Validated Design Certified Partner Architecture program.

Q. How is VMware Cloud Foundation different from the VMware Validated Designs?

- A. The VMware Validated Designs are documented designs that define blueprints and guidelines on how to build and operate an SDDC. VMware Validated Designs provide guidance for customers that choose to follow a "build your own" approach to the SDDC either by assembling the software components themselves or through assistance from VMware professional services or a certified partner.

VMware Cloud Foundation is an engineered solution that leverages the advanced automation capabilities of the VMware SDDC Manager to automate the deployment and simplify the ongoing operations of a private cloud that is based on the VMware Validated Design. For more information, refer to the [VMware Cloud Foundation FAQ](#).

Q. Is there an upgrade path from the Validated Design to Cloud Foundation?

- A. Not at this time. Contact the ISBU for guidance on migrating Validated Design customers to Cloud Foundation.

Technical

Q. What products and versions are included in VMware Validated Design for SDDC?

- A. Refer to the release notes for the respective VMware Validated Design for SDDC version at vmware.com/go/vvd-docs.

Q. Do I have to run all the VMware products, or can I pick and choose a subset of components to run in my private cloud?

- A. Each VMware Validated Design includes a complete set of components needed to implement a private cloud based on the VMware Software-Defined Data Center Architecture. To realize the full benefits of the SDDC, it is recommended that customers adopt the full design as documented.

If customer requirements dictate deviating from the design, use the guidance as an example and translate the design decisions to the alternate solution. To mitigate risks customers should perform their own testing and validation to ensure the integrity of the SDDC is maintained and that the design objectives can be met.

Please note that some components of the design cannot be substituted (i.e. vSphere and NSX).

Q. How many physical hosts are required to implement a VMware Validated Design?

- A. The Validated Design for SDDC supports two architectures:

When deploying the **Consolidated design**, a minimum of 4 hosts are required. In this design the Management, Edge, and Compute workloads run together on a single vSphere cluster. Resource pools are used to isolate the different workload types.

When deploying the **Standard design**, a minimum of 8 hosts are required. In this design the Management workloads run on a dedicated 4-node vSphere cluster and the Edge and Compute workloads run together on a separate 4-node vSphere cluster.

Note: Additional hosts are required when deploying across multiple availability zones and between separate regions.

Q. Is VMware vSAN required with the VMware Validated Design? Can I use other storage architectures?

- A. No, the choice of storage to be used is at the discretion of the

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customer. Any vSphere supported storage can be used.

Note: VMware Validated Designs are designed, tested, and validated using VMware vSAN in the management & shared edge and compute domains. Choosing an alternative storage type will require additional testing and validation to ensure the integrity of the design is retained.

Q. The VMware Validated Design calls for a leaf-and-spine network architecture but I use a different network architecture. Can I still use the design?

A. Yes. While a leaf-and-spine physical network design is the preferred network architecture it is not required. All that is required from the physical network is that it be a reliable data plane.

Q. The VMware Validated Designs call for using BGP for peering? Can I use OSPF instead?

A. BGP was chosen for the VMware Validated Design based on the NSX design recommendations and guidance. Network admins may have concerns about allowing NSX to participate in OSPF in their network as OSPF requires every area be adjacent to area 0, which in most cases, means the NSX ESGs for north/south routing would be in the area for the SDDC as well as area 0.

While we do not encourage deviation from the design decisions, especially for the management stack above the physical/logical border, we acknowledge that some customers are not able to fully align to the VMware Validated Design along this boundary with their physical infrastructure and may have to deviate.

Refer to the [Deploying VMware Validated Design Using OSPF Dynamic Routing Technical Note](#) for an example on how to enable OSPF in the Validated Design.

Note that VMware does not test or validate the Validated Design with OSPF.

Q. What is the difference between a “Single-Region” and “Dual-Region” deployment of the VMware Validated Design for SDDC?

A. Single-region implements a private cloud in a single data center. A dual-region deployment extends the private-cloud across two data centers located in geographically dispersed locations. The dual-region deployment includes VMware vSphere Replication™ and VMware Site Recovery Manager™ are added to protect the

SDDC management stack from a catastrophic event at one of the regions.

Note: The same business continuity/disaster recovery principles outlined in the Validated Design to protect the management stack can be applied to protect the business workloads as well.

Q. What is an Availability Zone and how many Availability Zones are allowed?

A. Within a region, availability zones represent infrastructure that is isolated as to prevent the propagation of a site failure or outage across zone boundaries. For example, separate physical data centers, or separate zones within a single data center that are physical distinct in terms of power, cooling and physical integrity. The Validated Design for SDDC supports two availability zones in the primary region and one available zone in the secondary region.

Q. Does the VMware Validated Design support vSAN Stretched Clusters?

A. Yes, the VVD for SDDC supports using vSAN Stretched Clusters as part of the Management Domain in region A. [Refer to the documentation](#) for guidance for implementing vSAN stretch cluster support across separate availability zones in the primary region.

Q. Does the VMware Validated Design support NSX-T?

A. The VVD for SDDC does not include support for using NSX-T at this time. However, a preview of the proposed guidance for running NSX-T in a workload domain is available in the [VVD Early Access Community](#).

Note: Early access documents are provided to show intension and solicit feedback. They are not tested or validated as part of the Validated Design.

Q. Can I deploy the VMware Validated Design on top of VxRail?

A. Yes, VMware has worked with DellEMC to certify the VMware Validated Design for SDDC to run on top of VxRail as a certified partner architecture. Refer to <https://kb.vmware.com/s/article/54816> for more information.

Q. How did VMware Calculate the 99% uptime for the VMware Validated design?

A. The overall availability of the SDDC is a calculation based on a

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summation of the availability of the separate components that make up the private cloud.

The 99% uptime noted in the [Validated Design for SDDC design objectives](#) is based on the forecasted availability of the single vCenter Server instance used to manage the Management Domain and its reliance on vSphere HA to protect against downtime in the event of an outage.

Note: the 99% calculation is for the VMware Private Cloud Management stack only and is not a statement on what can be achieved in a Workload Domain. Workload Domains can potentially achieve higher availability based on customer workload type and need.

Q. What is a Workload Domain and how does it compare to a Pod?

A. A workload domain represents a logical boundary of functionality within the private cloud that is managed by a single vCenter Server instance. Earlier releases of the Validated Design referred to workload domains as pods.

Each workload domain is backed by a separate vSphere cluster. In the Standard SDDC architecture there are a minimum of two workload domains:

- A dedicated Management Workload Domain
- A shared Edge/Compute Workload Domain

As the private cloud grows, additional compute-only workload domains can be added.

In the Consolidated SDDC architecture, the management, edge, and compute workloads co-exist in a shared management workload domain. As the environment grows, you scale out by first creating a separate edge/compute workload domain and then adding additional compute-only workload domains as required.

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