VMware Cloud Foundation: Solution Architecture and Design (v9.1)

Duration: 5 Days **Course Code: VMVCFSAD91** **Delivery Method: Company Event**

Overview:

This course teaches the architectural constructs, design patterns and decision-making discipline needed to design a VMware Cloud Foundation solution at enterprise scale.

You will be taken through a logical design sequence: the shape of the fleet, the management plane, the domain and cluster layout for each instance, and how a tenant consumes VCF services and resources. Physical design considerations are examined, along with network, storage, and the recovery design. You will apply design principles to a case study throughout, to reinforce key design decisions and how they can be applied in practice.

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Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

Target Audience:

Architects, Solution Engineers, Senior Administrators.

Objectives:

- **By the end of the course, you should be able to meet the following objectives:**
- Understand and select the right design blueprints and models based on stated requirements.
- Design instance, management domain, workload domains, cluster layouts, and host specifications.
- Design the three management domain recovery tiers, from component restore to fleet disaster recovery.
- Design for both traditional shared storage (NFS and Fiber Channel) and vSAN storage as part of a VCF solution.
- Design the appropriate network architecture given physical network constraints and stated requirements.
- Design a VCF Automation tenancy model, including Supervisor and VKS-related services.
- Understand the design considerations relating to a Private AI Foundation / Services solution.
- Appreciate physical datacenter design considerations that affect a VCF solution design.
- Apply AMPRS design qualities to all aspects of the VMware Cloud Foundation solution design.

Prerequisites:

This course has the following prerequisites:

- Working knowledge of vSphere, vCenter, ESX, vSAN and NSX networking.
- Experience with enterprise datacenter operations and solution design.
- Attendance of VMware Cloud Foundation: Build, Manage, Secure and VMware Cloud Foundation: Automate and Operate courses or equivalent experience.

Testing and Certification

None

Follow-on-Courses:

None

Content:

1. Introduction

- Explain the value of VCF as an operational cost argument, not a feature list.
- Describe what VCF 9.1 consolidates, and what is still yours to design.
- Differentiate the personas a private cloud serves and the decisions each one drives.
- Describe the five AMPRS qualities and the trade-offs they create.
- Sequence a design decision as requirement, decision, justification and implication.

2. Fleet Designs and Blueprints

- Describe how the Fleet, Instance, Domain, Cluster and Host constructs nest.
- Choose a fleet deployment model and a fleet sizing model from stated requirements.
- Design a fleet from a published blueprint, substituting Design Library models.
- Choose an edge design pattern for a given site count, WAN budget and autonomy requirements.
- Differentiate the three recovery tiers and identify which one answers a failure.

3. Fleet Components

- Size a VCF Operations analytics cluster from an object count and an availability model.
- Choose a License Server model and defend the choice against a named requirement.
- Describe what runs on the VCF Management Services runtime and what stays a separate appliance.
- Differentiate the Simple and High Availability VCFMS models by their failure behavior.
- Design Log Management retention, partitioning and archiving to a stated requirement.
- Place the Identity Broker as a per-Instance service and pick its deployment model.

4. Instance, Domain and Cluster Designs

- Describe the Instance, Domain and Cluster constructs and the related design decisions.
- Design a Management Domain: sizing, storage, networking and the reserves it must hold.
- Place every management component correctly in a first and an additional Instance.
- Choose how many Workload Domains an estate needs and defend each one by what it isolates.
- Choose a cluster model and a vSAN cluster type, then size the host count that follows.
- Explain how a storage policy sets usable capacity and the minimum host count.

5. Consumption

- Identify every path a consumer can take to reach the platform.
- Design a VCF Automation tenancy model from Organizations down to quota.
- Choose between the All Apps and VM Apps Organization models.
- Explain Supervisor activation and associated design decisions.
- Design the substrate a VKS cluster and its related services need.
- Place VCF Operations Orchestrator, Harbor, DSM and Private AI within a solution design.

6. Physical Datacenter Architecture

- Explain the five physical layers comprising a VCF-ready datacenter.
- Size rack power and cooling for mixed VM, container and accelerated AI hosts.
- Design a leaf-spine fabric that meets VCF bandwidth, latency and MTU needs.
- Choose a single-site, multi-site or multi-region fabric based on stated requirements.
- Identify the CPU, memory, NVMe drives and uplinks a ReadyNode must carry.
- Explain how NUMA and the 9.1 Topology Aware Scheduler affect placement.

7. Networking

- Design the VLAN and MTU plan a VCF solution requires, end to end.
- Choose a distributed switch model from the physical adapters you can justify.
- Differentiate centralized and distributed connectivity and size what each need.
- Place a workload on the network and choose where its traffic is inspected.
- Choose between the NSX load balancer, Avi Load Balancer and an incumbent ADC.

8. Storage Design

- Choose a principal and a supplemental storage model based on stated requirements.
- Explain the vSAN ESA architecture and the data services it delivers by default.
- Design storage policies and size raw capacity from the resulting space factor.
- Design the vSAN network, encryption and operational model.
- Integrate Kubernetes persistent storage with vSAN through storage policies.
- Design NFS and Fiber Channel storage where an array estate already exists.

9. Management Domain Backup and Restore

- Design a backup solution that covers every VCF management component.
- Size an SFTP target from backup size, retention and instance count.
- Sequence a full instance restore in the documented dependency order.
- Outline the instance recovery toolkit, its prerequisites and its cmdlets.
- Design fleet disaster recovery across two instances in two regions.
- Explain the recovery point and recovery time each tier can support

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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