VMware vSphere 8.x Professional

Exam Details (Last Updated: 1/25/2024)

The VMware vSphere 8.x Professional exam (2V0-21.23), which leads to the VMware Certified Professional - Data Center Virtualization 2024 certification, is a 70-item exam with a passing score of 300 using a scaled method. Candidates are given an exam time of 135 minutes, which includes adequate time to complete the exam for non-native English speakers.

Exam Delivery

This is a proctored exam delivered through Pearson VUE. For more information, visit the Pearson VUE website.

Certification Information

For details and a complete list of requirements and recommendations for attainment, please reference the VMware Learning Services – Certification website.

Minimally Qualified Candidate

The Minimally Qualified Candidate is able to install and configure a VMware vSphere 8.0 infrastructure, which includes VMware ESXi and VMware vCenter; but occasionally needs to research topics. The candidate understands most of the requirements for managing, operating and maintaining a highly available and scalable virtual infrastructure. The candidate is able to monitor the day-to-day operations of a vSphere infrastructure with minimal assistance. The candidate has a basic understanding of virtual data center, network and storage concepts. The candidate possesses most of the knowledge shown in the exam sections (blueprint).

Exam Sections

VMware exam blueprint sections are now standardized to the seven sections below, some of which may NOT be included in the final exam blueprint depending on the exam objectives.

Section 1 – Architecture and Technologies

Section 2 – Products and Solutions

Section 3 – Planning and Designing

Section 4 – Installing, Configuring, and Setup

Section 5 – Performance-tuning, Optimization, and Upgrades

Section 6 – Troubleshooting and Repairing

Section 7 – Administrative and Operational Tasks

If a section does not have testable objectives in this version of the exam, it will be noted below, accordingly. The objective numbering may be referenced in your score report at the end of your testing event for further preparation should a retake of the exam be necessary.

Sections Included in this Exam

Section 1 –Architectures and Technologies

- Objective 1.1 – Identify the pre-requisites and components for a VMware vSphere 8.x implementation
- Objective 1.2 – Describe the components and topology of a VMware vCenter architecture
- Objective 1.3 – Describe storage concepts
  - 1.3.1 – Identify and differentiate storage access protocols for VMware vSphere (NFS, iSCSI, SAN, etc.)
  - 1.3.2 – Describe storage datastore types for VMware vSphere
  - 1.3.3 – Explain the importance of advanced storage configurations (vStorage APIs for Array Integration (VAAI), vStorage APIs for Storage Awareness (VASA), multipathing, etc.)
  - 1.3.4 – Describe storage policies
  - 1.3.5 – Describe basic storage concepts in VMware vSAN and VMware Virtual Volumes (vVOLs)
  - 1.3.6 – Identify use cases for raw device mapping (RDM), Persistent Memory (PMem), Non-Volatile Memory Express (NVMe), NVMe over Fabrics (NVMe-oF), and RDMA (iSER)
  - 1.3.7 – Describe datastore clusters
  - 1.3.8 – Describe Storage I/O Control (SIOC)
- Objective 1.4 – Describe VMware ESXi cluster concepts
  - 1.4.1 – Describe VMware Distributed Resource Scheduler (DRS)
  - 1.4.2 – Describe vSphere Enhanced vMotion Compatibility (EVC)
  - 1.4.3 – Describe how DRS scores virtual machines
  - 1.4.4 – Describe VMware vSphere High Availability (HA)
  - 1.4.5 – Identify use cases for fault tolerance
- Objective 1.5 – Explain the difference between VMware standard switches and distributed switches
  - 1.5.1 – Describe VMkernel networking
  - 1.5.2 – Manage networking on multiple hosts with vSphere Distributed Switch (VDS)
  - 1.5.3 – Describe networking policies
  - 1.5.4 – Manage Network I/O Control (NIOC) on a vSphere Distributed Switch (VDS)
  - 1.5.5 – Describe Network I/O Control (NIOC)
- Objective 1.6 – Describe VMware vSphere Lifecycle Manager concepts
- Objective 1.7 – Describe the basics of VMware vSAN as primary storage
  - 1.7.1 – Identify basic vSAN requirements (networking, disk count, and type)
  - 1.7.2 – Identify Express Storage Architecture (ESA) concepts for vSAN 8
- Objective 1.8 – Describe the role of Virtual Machine Encryption in a data center
  - 1.8.1 – Describe vSphere Trust Authority

1.8.2 – Describe the role of a Key Management Services (KMS) server in vSphere

Objective 1.9 – Recognize methods of securing virtual machines

1.9.1 – Recognize use cases for a virtual Trusted Platform Module (vTPM)

1.9.2 – Differentiate between Basic Input or Output System (BIOS) and Unified Extensible Firmware Interface (UEFI) firmware

1.9.3 – Recognize use cases for Microsoft virtualization-based security (VBS)

Objective 1.10 – Describe identity federation

1.10.1 – Describe the architecture of identity federation

1.10.2 – Recognize use cases for identity federation

Objective 1.11 – Describe VMware vSphere Distributed Services Engine

1.11.1 – Describe the role of a data processing unit (DPU) in vSphere

Objective 1.12 – Identify use cases for VMware Tools

Objective 1.13 – Describe the high-level components of VMware vSphere with Tanzu

1.13.1 – Identify the use case for a Supervisor Cluster and Supervisor Namespace

1.13.2 – Identify the use case for vSphere Zones

1.13.3 – Identify the use case for a VMware Tanzu Kubernetes Grid (TKG) cluster

Section 2 – VMware Products and Solutions

Objective 2.1 – Describe the role of VMware vSphere in the Software-Defined Data Center

Objective 2.2 – Not included in the exam

Objective 2.3 – Identify use cases for VMware vCenter Converter

Objective 2.4 – Identify disaster recovery (DR) use cases

2.4.1 – Identify VMware vCenter replication options

2.4.2 – Identify use cases for VMware Site Recovery Manager (SRM)

Section 3 – Planning and Designing - There are no testable objectives for this section

Section 4 – Installing, Configuring, and Setup

Objective 4.1 – Describe single sign-on (SSO)

4.1.1 – Configure a single sign-on (SSO) domain

4.1.2 – Join an existing single sign-on (SSO) domain

Objective 4.2 – Configure vSphere distributed switches

4.2.1 – Create a distributed switch

4.2.2 – Add ESXi hosts to the distributed switch

4.2.3 – Examine the distributed switch configuration

Objective 4.3 – Configure Virtual Standard Switch (VSS) advanced virtual networking options

Objective 4.4 – Set up identity sources

4.4.1 – Configure identity federation

- 4.4.2 – Configure LDAP integration

Objective 4.5 – Deploy and configure VMware vCenter Server Appliance (VCSA)

Objective 4.6 – Create and configure VMware HA and DRS advanced options (Admission Control, Proactive HA, etc.)

Objective 4.7 – Deploy and configure VMware vCenter High Availability

Objective 4.8 – Set up content library

- 4.8.1 – Create a content library
- 4.8.2 – Add content to the content library
- 4.8.3 – Publish a local content library

Objective 4.9 – Subscribe to content library

- 4.9.1 – Create a subscribed content library
- 4.9.2 – Subscribe to a published content library
- 4.9.3 – Deploy virtual machines (VMs) from a subscribed content library

Objective 4.10 – Manage virtual machine (VM) template versions

- 4.10.1 – Update template in content library

Objective 4.11 – Configure VMware vCenter file-based backup

Objective 4.12 – Configure vSphere Trust Authority

Objective 4.13 – Configure vSphere certificates

- 4.13.1 – Describe Enterprise PKIs role for SSL certificates

Objective 4.14 – Configure vSphere Lifecycle Manager

Objective 4.15 – Configure different network stacks

Objective 4.16 – Configure host profiles

Objective 4.17 – Identify ESXi boot options

- 4.17.1 – Configure Quick Boot
- 4.17.2 – Securely Boot ESXi hosts

Objective 4.18 – Deploy and configure clusters using the vSphere Cluster Quickstart workflow

- 4.18.1 – Use Cluster Quickstart workflow to add hosts
- 4.18.2 – Use Cluster Quickstart workflow to configure a cluster
- 4.18.3 – Use Quickstart to expand clusters

Objective 4.19 – Set up and configure VMware ESXi

- 4.19.1 – Configure Time Configuration
- 4.19.2 – Configure ESXi services
- 4.19.3 – Configure Product Locker
- 4.19.4 – Configure Lockdown Mode
- 4.19.5 – Configure ESXi firewall

Objective 4.20 – Configure VMware vSphere with Tanzu

- 4.20.1 – Configure a Supervisor Cluster & Supervisor Namespace
- 4.20.2 – Configure a Tanzu Kubernetes Grid Cluster
- 4.20.3 – Configure vSphere Zones
- 4.20.4 – Configure Namespace permissions

Section 5 – Performance-tuning, Optimization, Upgrades

- Objective 5.1 – Identify resource pools use cases
  - 5.1.1 – Explain shares, limits and reservations (resource management)
- Objective 5.2 – Monitor resources of a VMware vCenter Server Appliance (VCSA) and vSphere 8.x environment
- Objective 5.3 – Identify and use resource monitoring tools
- Objective 5.4 – Configure Network I/O Control (NIOC)
- Objective 5.5 – Configure Storage I/O Control (SIOC)
- Objective 5.6 – Configure a virtual machine port group to be offloaded to a data processing unit (DPU)
- Objective 5.7 – Explain the performance impact of maintaining virtual machine snapshots
- Objective 5.8 – Use Update Planner to identify opportunities to update VMware vCenter
- Objective 5.9 – Use vSphere Lifecycle Manager to determine the need for upgrades and updates
  - 5.9.1 – Update virtual machines
  - 5.9.2 – Update VMware ESXi
- Objective 5.10 – Use performance charts to monitor performance
- Objective 5.11 – Perform proactive management with VMware Skyline
- Objective 5.12 – Use VMware vCenter management interface to update VMware vCenter
- Objective 5.13 – Complete lifecycle activities for VMware vSphere with Tanzu
  - 5.13.1 – Update Supervisor cluster
  - 5.13.2 – Back up and restore VMware vSphere with Tanzu

Section 6 – Troubleshooting and Repairing

- Objective 6.1 – Identify use cases for enabling vSphere Cluster Services (vCLS) retreat mode
- Objective 6.2 – Differentiate between the main management services in VMware ESXi and vCenter and their corresponding log files
- Objective 6.3 – Generate a log bundle

Section 7 – Administrative and Operational Tasks

- Objective 7.1 – Create and manage virtual machine snapshots
- Objective 7.2 – Create virtual machines using different methods (Open Virtualization Format (OVF) templates, content library, etc.)
- Objective 7.3 – Manage virtual machines (modifying virtual machine settings, VMware per-VM EVC, latency sensitivity, CPU affinity, etc.)
- Objective 7.4 – Manage storage
  - 7.4.1 – Configure and modify datastores
  - 7.4.2 – Create virtual machine storage policies

7.4.3 – Configure storage cluster options

Objective 7.5 – Create DRS affinity and anti-affinity rules for common use cases

Objective 7.6 – Migrate virtual machines

7.6.1 – Identify requirements for Storage vMotion, Cold Migration, vMotion, and Cross vCenter Export

Objective 7.7 – Configure role-based access control

Objective 7.8 – Manage host profiles

Objective 7.9 – Utilize VMware vSphere Lifecycle Manager

7.9.1 – Describe firmware upgrades for VMware ESXi

7.9.2 – Describe VMware ESXi updates

7.9.3 – Describe component and driver updates for VMware ESXi

7.9.4 – Describe hardware compatibility check

7.9.5 – Describe ESXi cluster image export functionality

7.9.6 – Create VMware ESXi cluster image

Objective 7.10 – Use predefined alarms in VMware vCenter

Objective 7.11 – Create custom alarms

Objective 7.12 – Deploy an encrypted virtual machine

7.12.1 – Convert a non-encrypted virtual machine to an encrypted virtual machine

7.12.2 – Migrate an encrypted virtual machine

7.12.3 – Configure virtual machine vMotion encryption properties

Recommended Courses

VMware vSphere: Install, Configure, Manage [V8]

VMware vSphere: Operate, Scale and Secure [V8]

Certification Requirements

VCP-DCV 2023

References

In addition to the recommended courses, item writers used the following resources for information when writing exam questions. It is recommended that you study the reference content as you prepare to take the exam, in addition to the recommended training.

Name	Products
https://docs.vmware.com/	VMware vSphere Product Documentation; vCenter Converter Standalone Product Documentation; Site Recovery Manager Product Documentation

https://kb.vmware.com/	Collecting diagnostic information for VMware ESXi (653); vCenter High Availability (2148003); Understanding ESXi Quick Boot Compatibility (52477); Best practices for using VMware snapshots in the vSphere environment (1025279)
https://blogs.vmware.com/	Announcing vSAN 8; VMware vSphere+: Introducing the Enterprise Workload Platform;
https://core.vmware.com/	vSphere Replication Technical Overview
*vSphere content in this exam is based on version 8.0. Review all 8.0 release notes and material for features and function.	

Sample Questions

Sample questions presented here are examples of the types of questions candidates may encounter and should not be used as a resource for exam preparation.

Sample Question 1

An administrator is responsible for maintaining a single cluster VMware solution with the following characteristics:

- A single VMware vCenter is deployed.
- The solution hosts critical, network I/O intensive workloads.
- At the hardware level, each node is identically configured with two CPUs (16-cores), 512GB RAM and four 10GbE connections.
- Each host currently uses vSphere Standard Switches.

After completing some maintenance tasks requiring the administrator to live migrate workloads onto another ESXi host, the administrator has noticed that the live migration of workloads takes a very long time.

Which three actions should the administrator take to ensure the time required to live migrate workloads between nodes within the cluster is reduced? (Choose three.)

A Configure a vSphere Distributed Switch and add each ESXi host to it.
B Enable Network I/O control to ensure that sufficient bandwidth for system traffic is reserved.
C Enable Network I/O control to ensure that sufficient bandwidth for virtual machine traffic is reserved.
D Configure a new vSphere Standard Switch on each ESXi host.
E Migrate all of the workloads and networking to the new vSphere Distributed Switch.
F Migrate some of the workloads to the new vSphere Standard Switch.

Answers: A,B,E

Sample Question 2

An administrator is tasked with creating a copy of a virtual machine (VM) running in Microsoft Hyper-V. A developer must be able to run a local copy of this VM on their laptop.

The following constraints apply:

- The laptop is part of the same domain as VMware vCenter.
- The laptop is not connected to the network on which the software-defined data center (SSDC) is placed.
- The copy of the VM must be able to run in VMware Workstation.

How can the administrator enable the developer to run the VM in VMware Workstation?

A Export the VM from Microsoft's Hyper-V server, export the VM and import the VM into VMware Workstation.
B Use VMware vCenter Convertor, convert the VM to the right format, export the VM and deploy on VMware Workstation.
C Export a backup of the VM and import the backup into VMware Workstation.
D Create a clone of the VM, export the clone of the VM and import into VMware Workstation.

Answer: B

Sample Question 3

An administrator is tasked with deploying a new software-defined data center (SDDC) that will contain five VMware vCenter instances.

The following requirements must be met:

- All vCenter instances should be visible in a single vSphere Client session.
- All vCenter inventory should be searchable from a single vSphere Client session.
- Any administrator must be able to complete operations on any vCenter instance using a single set of credentials.

A combination of which two configurations should the administrator use to meet these requirements? (Choose two.)

A The first vCenter instance should create a new vCenter Single Sign-On domain.
B The first vCenter instance should create a remote vCenter Single Sign-On domain.
C The first vCenter instance should create a multi-tenant vCenter Single Sign-On domain.
D Any additional vCenter instances should join the existing vCenter Single Sign-On domain.
E Any additional vCenter instances should create standalone vCenter Single Sign-On domains.

Answers: A, D

Sample Question 4

When configuring vCenter Identity Provider Federation in vSphere, which three pieces of information are required? (Choose three.)

A LDAP Address
B Client Identifier for the application group

C Shared Secret for the application group
D Server Application Name
E One Time Passcode
F OpenID Address

Answers: B,C,F

Sample Question 5

An administrator is tasked with configuring certificates for a VMware software-defined data center (SDDC) based on the following new corporate security policy:

- All solutions must only use certificates signed by the Enterprise Certificate Authority (CA).
- No intermediate CAs are allowed in the certificate chain.

Which two actions should the administrator take to ensure the solution meets corporate policy? (Choose two.)

A Replace the solution user certificates with trusted certificates generated from the subordinate VMware Certificate Authority (VMCA).
B Replace the solution user certificates with self-signed certificates generated from the VMware Certificate Authority (VMCA).
C Replace the solution user certificates with custom certificates generated from the Enterprise CA.
D Replace the machine SSL certificates with self-signed certificates generated from the VMware Certificate Authority (VMCA).
E Replace the machine SSL certificates with custom certificates generated from the Enterprise CA.

Answers: C, E

Sample Question 6

An administrator needs to configure a new vSphere cluster to ensure Engineering workloads receive sufficient capacity when the cluster is experiencing resource contention.

The following information has been provided:

- The vSphere cluster contains Engineering and Sales workloads.
- The Sales workloads are further subdivided into Marketing and Finance workloads.
- vSphere Distributed Resource Scheduler (DRS) is enabled and set to fully automatic.
- The following resource allocation logic applies when in contention for resources:
    - Engineering workloads should always receive 50% of all available CPU and memory resources.
    - Marketing workloads should each receive 20% of the remaining available CPU and memory resources.
    - Finance workloads should each receive 80% of the remaining available CPU and memory resources.

Which four steps could the administrator take to ensure that all resource allocation requirements are met? (Choose four.)

A Create sibling resource pools for the Engineering and Sales workloads.
B Assign normal memory and CPU shares to both the Engineering and Sales resource pool.
C Assign high memory and CPU shares to the Engineering resource pool and low memory and CPU shares to the Sales resource pool.
D Create a parent resource pool for the Engineering workloads and child resource pools for Sales, Marketing and Finance workloads.

E Create two child resource pools under the Sales resource pool for the Marketing and Finance workloads.
F Assign 3000 memory and CPU shares to the Marketing resource pool and 1000 memory and CPU shares to the Finance resource pool.
G Assign low memory and CPU shares to the Marketing resource pool and high memory and CPU shares to the Finance resource pool.

Answers: A, B, E, G

Sample Question 7

An administrator configures a vSphere cluster to use vSphere Lifecycle Manager images for managing host version compliance.

Which action should the administrator take to find the latest verified software available in the vSphere Lifecycle Manager depot?

A Check hardware compatibility
B Check compliance
C Check for recommended images
D Manage depot overrides

Answer: C

Sample Question 8

An administrator has enabled vSphere Cluster Services (vCLS) Retreat Mode on a cluster with three ESXi hosts.

What will be the impact of this change in the event of a host failure?

A vSphere High Availability (HA) Optimal Placement will not be available on the cluster.
B vSphere Distributed Resource Scheduler (DRS) will be set to disabled on the cluster.
C vSphere High Availability (HA) will be set to disabled on the cluster.
D Enhanced vMotion Compatibility (EVC) will not be available on the cluster.

Answer: A

Sample Question 9

A vSphere cluster has three DNS server virtual machines (VMs). These VMs provide DNS services and can run on any host in the cluster. The administrator must ensure that DNS services are available at all times, even if one or more hosts in the cluster fails.

Which type of rule must the administrator create to meet this requirement?

A A VM-VM affinity rule
B A VM-VM anti-affinity rule
C A VM-Host affinity, preferential rule
D A VM-Host anti-affinity, preferential rule

Answer: B

Sample Question 10

Which two things should an administrator consider when tasked with deploying new encrypted virtual machines into an existing VMware vSphere environment? (Choose two.)

A VM encryption is only supported when a datastore is backed by Self-Encrypting Drives (SEDs).
B All virtual machine data (excluding swap files) is encrypted when using VM encryption.
C Once encrypted, the process of unencrypting a virtual machine is destructive.
D VM encryption works uniformly across all supported guest operating systems.
E All virtual machine data (including swap files) is encrypted when using VM encryption.

Answers: D, E

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