

# VMware

## Exam Questions 3V0-21.21

Advanced Design VMware vSphere 7.x



#### NEW QUESTION 1

A customer requests a review of its current vSphere platform design.

The following information is noted:

- There are three different workload profiles for the virtual machines:
- Tier-1 virtual machines operate resource-intensive applications and require dedicated allocations for CPU and RAM.
- Tier-2 virtual machines operate internet-facing applications and require access to externally facing networks.
- Tier-3 virtual machines operate platform management tools such as vCenter Server and have different lifecycle management requirements.
- Tier-1, Tier-2 and Tier-3 virtual machines are all hosted on a single large vSphere cluster.
- The Chief Information Security Officer (CISO) has raised concerns that hosting externally facing applications alongside management tools does not meet internal compliance standards.
- The Operations team has raised concerns about Tier-1 virtual machines negatively impacting the performance of vCenter Server.
- The Operations lead has stated that management changes have consistently been rejected by application teams.

As a result of the review, which recommendation should the architect make regarding the design of this platform?

- A. Separate Tier-1, Tier-2 and Tier-3 virtual machines using dedicated distributed virtual switches (DVS)
- B. Separate Tier-2 virtual machines onto a dedicated cluster
- C. Separate Tier-1, Tier-2 and Tier-3 virtual machines onto dedicated clusters
- D. Separate Tier-1, Tier-2 and Tier-3 virtual machines using resource pools and shares

**Answer: C**

#### NEW QUESTION 2

A customer is deploying a new cluster and wants to be able to patch and update two hosts in parallel. The cluster must be able to maintain N+1 resiliency across the remaining hosts while patching activities are performed. The current expected utilization of the platform requires a minimum of two hosts to support all of the virtual machines.

What is the minimum number of hosts the customer will require in the cluster in order to meet the required resiliency level?

- A. Five
- B. Six
- C. Four
- D. Seven

**Answer: A**

#### NEW QUESTION 3

Following a recent acquisition, the architect learns that both companies use vSphere on-premise and will need to combine the data centers into one. The acquired company's licenses will not be renewed for cost-savings related to the acquisition. All consumed vSphere licenses must have active support to support line-of-business operations. The merged environment must maintain 25% spare capacity. The architect has a small budget remaining unallocated for hardware. The architect has calculated that the current vSphere environment can absorb the acquired company's virtual machines but the cluster will run at 90% memory utilization and at 50% CPU utilization.

Which design decision can the architect make to incorporate the new company's virtual machines into the combined vSphere environment?

- A. Migrate the acquired company's virtual machines into the vSphere environment as it will currently fit.
- B. Use the current budget to add memory to the cluster to increase each ESXi host's capacity and add the new virtual machines.
- C. Purchase extra hosts to add to the cluster in anticipation of adding the acquired company's virtual machines.
- D. Purchase new licenses for some of the acquired company's ESXi hosts and add them to the cluster to hold the acquired company's virtual machines.

**Answer: B**

#### NEW QUESTION 4

An architect is designing a new vSphere environment to meet the following requirements:

- The environment must support 5,000 virtual machines.
- The environment will be built initially using 350 hosts.

Which vCenter Server appliance deployment size should the architect specify for the design?

- A. Large
- B. Small
- C. Tiny
- D. Medium

**Answer: A**

#### Explanation:

<https://docs.vmware.com/en/VMware-vSphere/7.0/com.vmware.vcenter.install.doc/GUID-077C7523-E0EA-492>

#### NEW QUESTION 5

An architect is designing a new vSphere platform to meet a list of requirements from the security team. Which two requirements would be classified as non-functional requirements? (Choose two.)

- A. Migration of virtual machines between hosts must be encrypted
- B. Log information must be verbose to support incident resolution
- C. Critical events generated within the platform must be logged to an external Syslog service
- D. Data integrity must be ensured

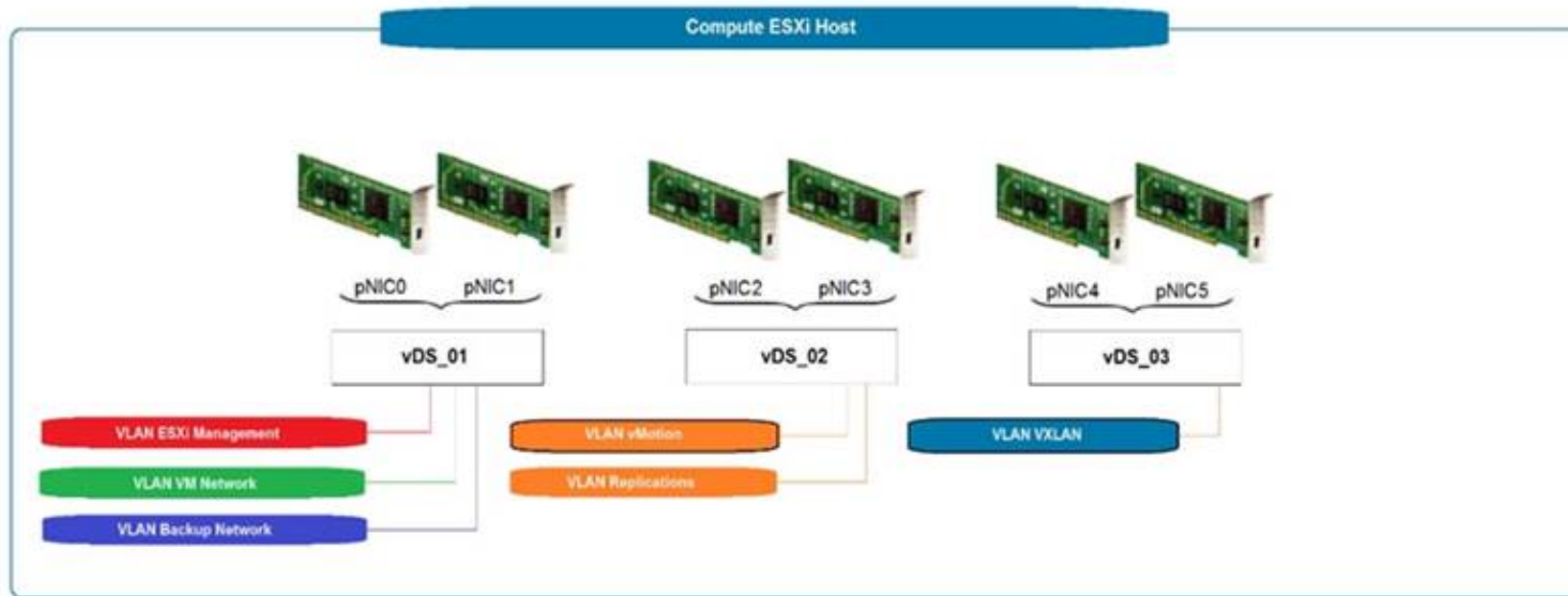
E. A common content library must be maintained across all data centers

**Answer:** CD

#### NEW QUESTION 6

Refer to the exhibit.

During a requirements gathering workshop, the architect shares the following diagram:



What should the architect recommend for guaranteed throughput for each service?

- A. Use explicit failover order with pNIC0 as Active for ESXi Management and VM Network Use explicit failover order with pNIC1 as Active for backup network Use explicit failover order with pNIC2 as Active for vMotion Use explicit failover order with pNIC3 as Active for replication
- B. Use the Route Based on IP Hash for ESXi management and VM network Use the Route Based on IP Hash for backup network Use the Route Based on the Originating Virtual Port for vMotion Use failover with pNIC3 as Active for replication
- C. Create a link aggregation group (LAG) for vDS\_01 Use the Route Based on Physical NIC Load for vMotion Use the Route Based on Physical NIC Load for replication
- D. Use the Route Based on IP Hash for ESXi management and VM network Use failover with pNIC1 as Active for backup network Create a link aggregation group (LAG) for vDS\_02

**Answer:** A

#### NEW QUESTION 7

Which design decision must be included in a design to allow for the deployment of a minimum supported configuration of vCenter High Availability (HA)?

- A. A new subnet will be provisioned for vCenter HA services
- B. A vSphere cluster will consist of more than three nodes
- C. The deployed vCenter Server will be Tiny
- D. The vCenter HA network will support a latency of less than 50 ms

**Answer:** A

#### Explanation:

<https://docs.vmware.com/en/VMware-vSphere/7.0/com.vmware.vsphere.avail.doc/GUID-8FD87389-8CC9-429>

#### NEW QUESTION 8

An architect is tasked with designing a greenfield VMware software-defined data center (SDDC) solution that will be used to deliver a private cloud service for a customer.

During the initial meeting with the service owner and business sponsor, the customer has provided the following information to help inform the design:

- The solution must support the concurrent running of 1,000 virtual machines
- The production environment must be delivered across two geographically dispersed data centers All virtual machines must be capable of running in either data center.
- The two data centers are currently connected to each other through a single but diversely routed, high bandwidth and low latency link.
- The link between the two data centers is capable of supporting a round-trip time (RTT) of 150 ms The existing server hardware standard document states that all virtual infrastructure hosts must be deployed using vSAN ReadyNodes
- The service owner has stated that it is critical to ensure the availability target of 99.9% All virtual machine backups must be completed using the existing backup service
- The recovery time objective (RTO) for the service is five minutes
- The recovery point objective (RPO) of the service is four hours

Which two elements represent risks to the successful delivery of this solution? (Choose two.)

- A. The use of only two data centers
- B. The network connectivity between data center sites
- C. The use of vSAN ReadyNodes
- D. The RTT on the link between the two data centers
- E. The use of the existing backup service

**Answer:** DE

**NEW QUESTION 9**

The Chief Operating Officer (COO) at an organization raises concerns that their virtual infrastructure environment is vulnerable. Recently, a security-related issue with a virtual machine caused all management services to become unavailable. No budget is available in the short term for additional platform investment. An architect is asked to review the current environment and make recommendations to mitigate concerns.

A virtualization administrator has provided the following details:

- There is a single four node cluster of ESXi servers
- There are two, Layer 2, physical network switches connecting resources
- The data center network is presented as a single /16 subnet

Given the information provided, which functional requirement should the architect include in the design to mitigate the COOs concerns?

- A. The virtual infrastructure environment must connect application virtual machines and management services to new physical network switches
- B. The virtual infrastructure environment must connect application virtual machines and management services to separate distributed virtual switches (DVS)
- C. The virtual infrastructure environment must connect application virtual machines and management services to separate VLANs
- D. The virtual infrastructure environment must connect management services to a vSphere standard switch (VSS)

**Answer: D**

**NEW QUESTION 10**

A Cloud Service Provider wants to introduce backup as a service for a customer's vSphere-based virtual machines.

The following information is noted:

- All top-of-rack (ToR) switches are 10 GbE and fully populated
- The backup traffic must not impact existing services

Which two recommendations should the architect make to help the customer incorporate the service? (Choose two.)

- A. Enable and tag traffic on the backup distributed port group
- B. Add a new two-port 10 GbE NIC per ESXi host
- C. Replace the existing NIC with a two-port 25 GbE NIC per ESXi host
- D. Match the Class of Service (CoS) and Differentiated Services Code Point (DSCP) values to the physical network
- E. Create a new virtual switch using the 1 GbE uplinks

**Answer: AB**

**NEW QUESTION 10**

An architect is finalizing the design for a new vSphere platform based on the following information:

- All Windows virtual machines will be hosted on a dedicated cluster for licensing purposes.
- All Linux virtual machines will be hosted on a dedicated cluster for licensing purposes. All management virtual machines will be hosted on a dedicated cluster.
- A total of ten physical sites will be used to host virtual machines.
- In the event of one physical datacenter becoming unavailable, the manageability of the virtual infrastructure in the remaining data centers should not be impacted.
- Access to configure the management virtual machines via vCenter Server must be controlled through the management Active Directory domain.
- Access to configure the Windows and Linux virtual machines must be controlled through the resource Active Directory domain.
- The management and resource Active Directory domains are part of separate Active Directory forests and do not have any trusts between them.
- The design will use Active Directory with Integrated Windows Authentication.

How should the architect document the vCenter Server configuration for this design?

- A. Deploy a vCenter server for the management cluster. Deploy a vCenter Server for all remaining cluster
- B. Create a shared SSO domain for each physical site.
- C. Deploy a vCenter Server for the management cluster. Deploy a vCenter Server for all remaining cluster
- D. Create a shared SSO domain across all physical sites.
- E. Deploy a vCenter Server for the management cluster with a dedicated SSO domain. Deploy a vCenter Server for all remaining clusters and use a dedicated SSO domain for each physical site.
- F. Deploy a vCenter Server for the management cluster with a dedicated SSO domain. Deploy a vCenter Server for all remaining clusters and use a dedicated SSO domain into a single physical site.

**Answer: B**

**NEW QUESTION 15**

Following a recent acquisition, an architect needs to merge IT assets into its current data center. The combined vSphere environment will need to run the newly acquired company's virtual machines.

Network integration work has already been completed and the current environment has capacity to host all virtual machines. The Operations team needs to identify which virtual machines belong to the acquired company and report on their usage.

How should the architect merge the company's assets and virtual machines?

- A. Leave the newly acquired company's assets in its current place
- B. Lift and shift the acquired assets into the data center
- C. Migrate the acquired company's virtual machines into the existing vSphere environment
- D. Migrate and apply vSphere tags to the acquired company's virtual machines

**Answer: D**

**NEW QUESTION 18**

An architect is designing a solution based on the following information:

- Each ESXi host has a single physical NIC with two 10 Gbps ports.
- There is a performance-based service-level agreement (SLA) that guarantees 15 Gbps bandwidth for production virtual machines at all times.

- There is no budget to purchase additional hardware.
- The hardware replacement SLA is based on a delivery agreement of two business days.

Which recommendation for the configuration of vSphere High Availability (HA) should the architect include in the design?

- A. Configure vSphere HAConfigure % based admission control Configure two isolation addresses Consider an OEM with NIC failure conditions in their Proactive HA plugin
- B. Configure vSphere HASet das.IgnoreRedundantNetWarning to trueConsider an OEM with NIC failure conditions in their Proactive HA plugin
- C. Configure vSphere HAConfigure two existing data stores for heartbeatConsider an OEM with NIC failure conditions in their Proactive HA plugin
- D. Configure Proactive HA Automation Level: Automated Remediation: Maintenance mode for all failuresConsider an OEM with NIC failure conditions in their Proactive HA plugin

**Answer: A**

#### NEW QUESTION 19

Which requirement would be classified as a functional requirement within the application design documentation?

- A. The application must be hosted with redundancy levels of N+1 or better.
- B. Penetration testing must be executed quarterly with a pass rate of 80% or higher.
- C. The application must be capable of handling 200 transactions per second.
- D. Administrators must monitor the network traffic of the desired systems.

**Answer: C**

#### NEW QUESTION 21

A customer has a database cluster with 40/60 read/write ratio and a high IOPs requirement with no contention on an all-flash vSAN cluster. Which two storage settings should be configured for best performance? (Choose two.)

- A. IOPs limits enabled
- B. RAID 1
- C. Deduplication and Compression disabled
- D. RAID 5/6
- E. Deduplication and Compression enabled

**Answer: AB**

#### NEW QUESTION 25

The architect for a large enterprise is tasked with reviewing a proposed design created by a service partner. Which design elements are expected to be detailed within the physical design section of the documentation?

- A. A design diagram illustrating the configuration and specific attributes, such as IP addresses
- B. A list of requirements, constraints, and risks
- C. A solution architecture diagram with the components and data flow
- D. An entity relationship diagram describing upstream and downstream dependencies for specific service components

**Answer: B**

#### NEW QUESTION 30

An architect is designing a new VMware solution for a customer that has a number of different resource profiles.

The following are the business requirements for the design:

The solution must support virtual machines with the following storage profiles:

- Write-intensive
- Backup
- Write-Once-Read-Many (WORM) archive

- The solution must support migration of virtual machine disks between storage profiles.
- The WORM archive data must be located at an isolated secure site.
- The backup storage array must only be connected to a backup media server.
- All data should be recoverable from backup.

Which design decision should the architect make to meet the business requirements?

- A. The solution will leverage a single storage array for the WORM archive and write-intensive storage profiles
- B. The solution will leverage the same array for the backup and write-intensive storage profiles
- C. The solution will leverage a different array for each storage profile
- D. The solution will leverage a single storage array for all storage profiles

**Answer: C**

#### NEW QUESTION 33

An architect is designing a new vSphere cluster. The requirement is to provide a total of 96 CPU cores and 1.5 TB RAM across all hosts.

The following information has been provided:

Two different physical hardware profiles are available for the ESXi hosts in the cluster.

- Profile 1: 16 CPU cores and 256 GB RAM
- Profile 2: 32 CPU cores and 512 GB RAM

Profile 2 is twice as expensive to purchase as Profile 1.

Which two aspects should the architect consider when selecting the hardware profile? (Choose two.)



- A. The manufacturer and model of the CPUs in the hosts
- B. The amount of capacity available for failover of virtual machines within the cluster
- C. The downtime allowed for virtual machines that will be running within the cluster
- D. The cost to procure and maintain the hardware
- E. The number of virtual machines that will be running within the cluster

**Answer:** BE

#### NEW QUESTION 35

As part of a new hybrid cloud initiative for a large financial company, the customer technical team is presenting an overview of the current state of the infrastructure and their vision for a new solution.

The project team captures notes during the presentation and adds them to the discovery documentation. Which of the listed statements is a design constraint?

- A. The applications are created in-house with in-guest recovery protection
- B. The maximum tolerable data loss is 10 minutes
- C. The two data center locations have a network latency of 8 ms round-trip time (RTT)
- D. The existing storage is out of maintenance

**Answer:** D

#### NEW QUESTION 39

A new real-time financial service application is being developed by the engineering team at a financial firm and will be released as a public Software-as-a-Service (SaaS) offering. The solutions architect has designed and deployed a new vSphere environment and the supporting network infrastructure for hosting all public services. ESXi hosts are configured to use Precision Time Protocol (PTP) and a local stratum-1 network time server.

Application provisioning and scaling will be managed by VMware vRealize Automation and can be run on Microsoft Windows or multiple distributions of Linux.

Which three recommendations should the architect include in the design to ensure that the service maintain timekeeping within an accuracy of one second? (Choose three.)

- A. Use Microsoft Windows Server as the guest operating system.
- B. Configure the chrony time-sync agent on each virtual machine guest operating system.
- C. Set the virtual hardware device to use Host System Time (NTP) for each virtual machine running the application.
- D. Add a precision clock virtual device to each virtual machine running the application.
- E. Use a Linux distribution as the guest operating system.
- F. Add a virtual watchdog timer (VWDT) device to each virtual machine running the application.

**Answer:** ABC

#### NEW QUESTION 43

An architect decides to separate virtual desktops and application servers into separate vSphere clusters to meet security and management requirements.

What are two implications of this design decision? (Choose two.)

- A. There will be an increase in management overhead.
- B. Identical hardware must be procured for all hosts.
- C. There will be a reduction in performance.
- D. The patching cycles will affect both clusters at the same time.
- E. There will be additional licensing and cost requirements for both clusters.

**Answer:** DE

#### NEW QUESTION 46

An architect is tasked with expanding an existing VMware software-defined data center (SDDC) solution so that it can be used to deliver a virtual desktop infrastructure (VDI) service off-shore development activities.

The production environment is currently delivered across two geographically dispersed data centers. The two data centers are currently connected to each other through multiple diversely routed, high bandwidth and low latency links. The current operations management components are deployed to a dedicated management cluster that is configured with N+1 redundancy. The current VMware software-defined data center (SDDC) has a monthly availability target of 99.5%, which includes all management components.

The customer requires that the new solution scale to support the concurrent running of 500 persistent virtual desktops. The virtual desktops must not share the same virtual infrastructure as existing virtual machines, but can be managed using the same VMware operations management components. Any new VDI service management components must be installed into the management cluster. There is no requirement to back up the virtual desktops because all relevant user data is stored centrally. The VDI service is providing business critical services and must have an availability target of 99.9%.

Given the information from the customer, which two assumptions would the architect include in the design? (Choose two.)

- A. The existing virtual infrastructure has sufficient capacity to host the new VDI workloads
- B. The existing operations monitoring tools have sufficient capacity to monitor the new VDI services
- C. The existing management cluster has enough available capacity to host any VDI service management component
- D. The management cluster has N+1 redundancy
- E. The VDI service has a higher service-level agreement (SLA) than the operations management SLA

**Answer:** BD

#### NEW QUESTION 47

Which of the listed requirements would be classified as a recoverability non-functional requirement?

- A. The platform must be integrated with existing change control policies.
- B. The platform must be able to support a maximum tolerable downtime (MTD) of 30 minutes.
- C. Maintenance windows must be scheduled to take place monthly during an established overnight period.
- D. The platform must be available 24 hours a day, 7 days a week with the exception of scheduled downtime.

**Answer:** A

#### NEW QUESTION 49

An architect is tasked with designing a new VMware software-defined data center (SDDC) solution for an online retail customer who has a primary and secondary data center as well as 10 distribution hubs.

The customer has provided the following business requirements to help inform the design:

- The solution must support the running of up to 1,000 concurrent virtual machines across the primary and secondary data center.
- The solution must support the running of up to 20 concurrent virtual machines in each distribution hub.
- The solution must support the separation of management and lines-of-business application virtual machines.
- All management components (including directory services, backup, automation, operations and logging) must be deployed to the primary data center.
- All virtual infrastructure components must have redundancy of N+1.
- The solution should support a monthly uptime target of 99.9%.
- The recovery time objective (RTO) for the solution must be four hours.
- The recovery point objective (RPO) for the solution must be 24 hours.

Given the information from the customer, which assumption should the architect include in the design?

- A. All business application virtual machines can be deployed into a single cluster within the primary data center.
- B. Each distribution hub should be configured with a backup device.
- C. The wide area network has sufficient bandwidth to support centralized management.
- D. Each cluster will have a minimum of four hosts.

**Answer:** B

#### NEW QUESTION 54

A customer has six hosts available in a cluster. When running at full capacity, all virtual machines can be run on two hosts.

How many hosts can the customer place into maintenance mode at the same time while still providing N+2 resiliency to the cluster?

- A. Two
- B. Three
- C. One
- D. None

**Answer:** A

#### NEW QUESTION 57

A customer requires the use of data encryption to ensure data is not accessible when a drive is removed from the primary storage platform. However, there is also a requirement to use deduplication and compression against all workloads in order to conserve space.

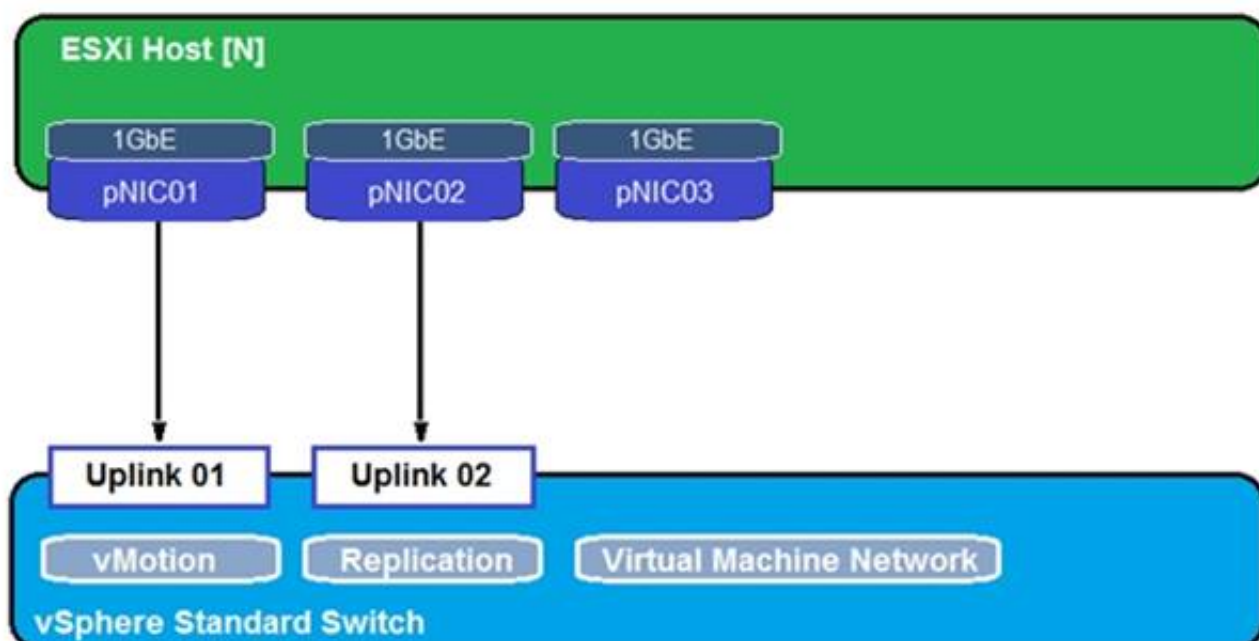
Which solution meets the customer requirements?

- A. Data-in-transit encryption
- B. OS-level encryption
- C. Encrypted backups
- D. Array-based encryption

**Answer:** D

#### NEW QUESTION 61

Refer to the exhibit.



During a requirements gathering workshop, the customer shares the following about their existing ESXi host virtual networking infrastructure:

The customer confirms that:

- Each ESXi host has approximately 200 virtual machines.
- They want to maximize the number of concurrent virtual machine migrations.
- When placing a host in maintenance mode, it takes a long time to evacuate the virtual machines. Which two recommendations should the architect make in order to help the customer overcome their challenge? (Choose two.)

- A. Configure the network to use MTU for the VMotion VMKernel to 1,600 bytes
- B. Configure the network to use MTU for the VMotion VMKernel to 9,000 bytes
- C. Create an additional standard switch with pNIC3 to use for vMotion
- D. Use the 3 pNICs and bundle them in a link aggregation group (LAG) configuration
- E. Use 10 GbE NICs instead of 1 GbE

**Answer:** CE

#### NEW QUESTION 64

Application owners require support of a Microsoft Windows Server Failover Cluster (WSFC). Their current environment consists of the following components:

- vSphere 7.0 and vSAN 7.0
- External array supporting NFS 3.0/4.1, Server Message Block (SMB) 2.1
- 10 GbE storage connectivity for all devices

The solution architect is tasked with coming up with a solution to meet this requirement while utilizing their existing investments. Which two recommendations could the architect make? (Choose two.)

- A. Use vSAN native support for WSFC
- B. Use NFS 4.1 shares for quorum and shared disk
- C. Use raw device mapping (RDM)
- D. Use the SMB 2.1 protocol for sharing disks
- E. Run WSFC on vSAN iSCSI Target Service

**Answer:** AE

#### Explanation:

<https://blogs.vmware.com/virtualblocks/2018/04/18/vsan-6-7-introducing-wsfc-support-vsan>

#### NEW QUESTION 69

An architect is designing a VMware software-defined data center (SDDC) solution based on the following customer requirements:

- The solution must initially support 1,000 virtual machines
- The solution must scale to support the concurrent running of up to 5,000 virtual machines
- The production environment should be delivered across two data centers
- The solution should have a maximum tolerable downtime (MTD) of four hours
- The solution should have a monthly service availability target of 99.8%

Which two assumptions could the architect make based on the information from the customer to help size the solution? (Choose two.)

- A. The number of vSphere hosts in a cluster
- B. The average resource utilization of a virtual machine
- C. The size (CPU/RAM/storage) of the average virtual machine
- D. The guest operating system for each virtual machine
- E. The size (CPU/RAM/storage) of the vSphere hosts

**Answer:** AE

#### NEW QUESTION 72

An architect has 50 ESXi hosts to deploy and DHCP servers are not allowed on any network. Which automated host deployment method should the architect use?

- A. Stateless vSphere Auto Deploy
- B. Stateful vSphere Auto Deploy
- C. Scripted installation
- D. Interactive installation

**Answer:** C

#### NEW QUESTION 73

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