

VMware Certified Advanced Professional 5

Datacenter Design Exam Blueprint

VDCD510 Exam

Exam Blueprint Version 1.3

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Disclaimer:

This blueprint is intended to provide information about the objectives covered by this exam, related resources, and recommended courses. The material contained within this blueprint is not intended to guarantee that a passing score will be achieved on the exam. VMware recommends that a candidate thoroughly understands the objectives indicated in this guide and utilizes the resources and courses recommended in this guide where needed to gain that understanding.

Blueprint Authors:

Jon C. Hall, Sr. Technical Certification Developer, VMware, Inc.

Ryan K. Baker, Sr. Technical Certification Developer, VMware, Inc.

Contributors:

John Arrasjid, Principal Architect

Rawlinson Rivera, Senior Consultant

Jonathan McDonald, Sr. Technical Support Engineer

Horst Mundt, Sr. Technical Account Manager

Darren Rivey, Sr. Systems Engineer

Mostafa Khalil, Staff Technical Support Engineer

Karim Elatov, Enterprise Technical Support Engineer

Craig Risinger, Consulting Architect

Wade Holmes, Technical Solutions Architect

Andrew Hald, Sr. Technical Marketing Architect

John Krueger, Learning Consultant II

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Section 1: The Exam

1.1 Purpose of Exam

The VDCD510 VMware Certified Advanced Professional on vSphere – Datacenter Design exam tests potential VCAP-DCD candidates on their skills and abilities designing and integrating multi-site, large enterprise virtualized environments.

1.2 Number of Questions

The VDCD510 exam contains 100 questions. The items include a mixture of multiple-choice, drag-and-drop items and design items using an in-exam design tool. A short pre-exam survey is performed, consisting of 7 items.

During the exam you will be designing solutions based on customer scenarios using an in-exam design tool. These items take significantly longer to complete than the multiple choice or drag-and-drop items, and time should be budgeted accordingly during the exam.

1.3 Passing Score

This exam uses a scaled scoring method. The scale is from 100-500. Scaled scores are calculated using a mathematical formula that considers a variety of factors, including the number and type of exam questions included in a specific version of the exam. Because this combination may vary in different versions of the same examination, scaled scores provide a fair score for each individual based on the version of the exam taken. The passing score for this exam is 300.

1.4 How Objectives Relate to Questions on the Exam

Objectives summarize what the test is designed to measure. Objectives are developed by Exam Developers and SMEs based on identified tasks that relate to the job of designing a vSphere environment. Once the initial development process is complete, these objectives are verified using an external group of individuals in the

actual job role. The external survey determines the number of questions for each objective, which relates directly to the criticality of the task in the job role.

1.5 Languages

The exam is available in English.

1.6 Time Limit

The total time for this exam is 225 minutes. Candidates who take the VDCD510 exam in a country where English is not a primary language will have an additional 30 minutes added to the exam time. This time extension is automatic, no additional action is required from the candidate. For the purposes of this exam, countries where English is considered one of the primary languages include Australia, New Zealand, Belize, South Africa, Bermuda, the United Kingdom, Canada, the United States and Ireland. An additional 15 minutes is provided to complete the survey questions and agreements.

1.7 Scheduling and Taking the Exam

This exam is administered through Pearson VUE. For details on the rules and procedures associated with registering for and taking the exam, which exams are available, latest certification news and more, please visit the VMware page on Pearson VUE's website at <http://www.pearsonvue.com/vmware>.

Pearson VUE's website can also be used to locate a testing center in your area, schedule a VMware exam, and review exam history information.

The VDCD510 exam requires pre-authorization, which includes the verification of your existing VCP status. If you have been invited to take the beta exam, an authorization file has already been sent to Pearson VUE. When scheduling the exam, choose "Exams Requiring Authorization" to access this exam.

1.8 Certification Tracks

The VDCD510 exam is a core component of the VCAP-DCD certification. The certification requires a passing score on the exam, and the candidate must be a VCP to obtain this certification. There is no course requirement for this exam, though recommended courses are suggested [below](#).

The VCAP-DCD certification is a component of the [VMware Certified Design Expert](#) certification track.

1.9 Retake Policy

If a candidate fails an exam on the first attempt, he or she must wait 10 business days from their original appointment time before he or she can register to retake the exam. There is no limit to the number of retakes a candidate can attempt, but the same waiting period applies after each failed attempt. Once the exam is passed, a candidate may not make any further attempts.

1.10 Exam Security

VMware reserves the right to refuse certifying a candidate who violates exam security policies. This includes copying and redistribution of exam material, using any type of study material during the exam itself, attempting to photograph exam items and taking an exam using a false identity. VUE testing centers will take you photo and capture your digital signature upon arrival to take the exam.

Section 2: Intended Audience

2.1 Intended Audience

Candidates should have approximately two years of experience working in a virtual environment and have demonstrated technical leadership with vSphere technologies. Candidates should be capable of designing a VMware solution in a multi-site, large enterprise environment. Successful candidates should have a deep understanding of the following three bodies of knowledge:

1. VMware core components and their relation to data center components such as storage and networking components.
2. Data center design methodologies and principles.
3. Application and infrastructure services, their relationship to the virtual infrastructure, and the integration with that environment.

Section 3: Objectives covered in the VDCD510 Exam

3.1 Introduction

It is recommended that candidates have the knowledge and skills necessary to install, configure and administer a vSphere 5 environment before taking the VDCD510 exam. While there is no course requirement for this exam, courses are available that can help provide knowledge on objectives that are covered by this exam. It is recommended that the candidate utilize these courses and/or other materials where needed to provide background information on the objectives in the exam.

3.2 Objectives

Prior to taking this exam, candidates should understand each of the following objectives. Each objective is listed below; along with related tools the candidate should have experience with, and related documentation that contains information relevant to the objective. All objectives may also be referenced in other product documentation not specifically highlighted below. The candidate should be familiar with all relevant product documentation or have an equivalent skill set.

VDCD510 Section 1 – Create a vSphere Conceptual Design

Objective 1.1 – Gather and analyze business requirements

Skills and Abilities

- Associate a stakeholder with the information that needs to be collected.
- Utilize customer inventory and assessment data from a current environment to define a baseline state.
- Analyze customer interview data to explicitly define customer objectives for a conceptual design.
- Identify the need for and apply requirements tracking.
- Given results of a requirements gathering survey, identify requirements for a conceptual design.
- Categorize requirements by infrastructure qualities to prepare for logical design requirements.

Tools

- [VMware Virtualization Case Studies](#)
- [Five Steps to Determine When to Virtualize Your Servers](#)
- [Functional vs. Non-Functional Requirements](#)
- [Conceptual, Logical, Physical: It is Simple](#)
- Product Documentation

Objective 1.2 – Gather and analyze application requirements

Skills and Abilities

- Given a scenario, gather and analyze application requirements
- Given a set of applications within a physical environment, determine the requirements for virtualization.
- Gather information needed in order to identify application dependencies.
- Given one or more application requirements, determine the impact of the requirements on the design.

Tools

- [VMware Cost-Per-Application Calculator](#)
- [VMware Virtualizing Oracle Kit](#)
- [VMware Virtualizing Exchange Kit](#)
- [VMware Virtualizing SQL Kit](#)
- [VMware Virtualizing SAP Kit](#)
- [VMware Virtualizing Enterprise Java Kit](#)
- [Business and Financial Benefits of Virtualization: Customer Benchmarking Study](#)
- Product Documentation

Objective 1.3 – Determine Risks, Constraints, and Assumptions

Skills and Abilities

- Differentiate between the general concepts of a risk, a requirement, a constraint, and an assumption.
- Given a statement, determine whether it is a risk, requirement, a constraint, or an assumption.
- Analyze impact of VMware best practices to identified risks, constraints, and assumptions.

Tools

- [Developing Your Virtualization Strategy and Deployment Plan](#)
- Product Documentation

Section 2 – Create a vSphere Logical Design from an Existing Conceptual Design

Objective 2.1 –Map Business Requirements to the Logical Design

Knowledge

- Explain the common components of logical design.
- List the detailed steps that go into the makeup of a common logical design.
- Differentiate functional and non-functional requirements for the design.

Skills and Abilities

- Build non-functional requirements into a specific logical design.
- Translate given business requirements and the current state of a customer environment into a logical design.
- Create a Service Catalog

Tools

- [Conceptual, Logical, Physical: It is Simple](#)
- [VMware vSphere Basics Guide](#)
- [What's New in VMware vSphere 5](#)
- [Functional vs. Non-Functional Requirements](#)
- [ITIL v3 Introduction and Overview](#)
- Product Documentation

Objective 2.2 – Map Service Dependencies

Knowledge

- Identify basic service dependencies for infrastructure and application services.

Skills and Abilities

- Document service relationships and dependencies (Entity Relationship Diagrams)
- Identify interfaces to existing business processes and define new business processes
- Given a scenario, identify logical components that have dependencies on certain services.
- Include service dependencies in a vSphere 5 logical design.
- Analyze services to identify upstream and downstream service dependencies.
- Having navigated logical components and their interdependencies, make decisions based upon all service relationships.

Tools

- [Datacenter Operational Excellence Through Automated Application Discovery & Dependency Mapping](#)
- Product Documentation

Objective 2.3 – Build Availability Requirements into the Logical Design

Knowledge

- Understand what logical availability services are provided by VMware solutions.
- Identify and differentiate infrastructure qualities (Availability, Manageability, Performance, Recoverability, Security)
- Describe the concept of redundancy and the risks associated with single points of failure.
- Differentiate Business Continuity and Disaster Recovery concepts.

Skills and Abilities

- Determine availability component of service level agreements (SLAs) and service level management processes.
- Explain availability solutions for a logical design based on customer requirements.
- Define an availability plan, including maintenance processes.
- Prioritize each service in the Service Catalog according to availability requirements.
- Balance availability requirements with other infrastructure qualities

Tools

- [Improving Business Continuity with VMware Virtualization Solution Brief](#)
- [VMware High Availability Deployment Best Practices](#)
- [vSphere Availability Guide](#)
- Product Documentation

Objective 2.4 – Build Manageability Requirements into the Logical Design

Knowledge

- Understand what management services are provided by VMware solutions.
- Identify and differentiate infrastructure qualities (Availability, Manageability, Performance, Recoverability, Security)

Skills and Abilities

- Build interfaces to existing operations practices into the logical design
- Address identified operational readiness deficiencies

- Define Event, Incident and Problem Management practices
- Define Release Management practices
- Determine Request Fulfillment processes
- Design Service Asset and Configuration Management (CMDB) systems
- Define Change Management processes
- Based on customer requirements, identify required reporting assets and processes

Tools

- [Optimizing Your VMware Environment](#)
- [Four Keys to Managing Your VMware Environment](#)
- [Operational Readiness Assessment](#)
- [Operational Readiness Assessment Tool](#)
- Product Documentation

Objective 2.5 – Build Performance Requirements into the Logical Design

Knowledge

- Understand what logical performance services are provided by VMware solutions.
- Identify and differentiate infrastructure qualities (Availability, Manageability, Performance, Recoverability, Security)
- List the key performance indicators for resource utilization.

Skills and Abilities

- Analyze current performance, identify and address gaps when building the logical design.
- Using a conceptual design, create a logical design that meets performance requirements.
- Identify performance-related functional requirements based on given non-functional requirements and service dependencies.
- Define capacity management practices and create a capacity plan.
- Incorporate scalability requirements into the logical design.
- Determine performance component of SLAs and service level management processes.

Tools

- [Proven Practice: Implementing ITIL v3 Capacity Management in a VMware environment](#)
- [vSphere Monitoring and Performance Guide](#)
- Product Documentation

Objective 2.6 – Build Recoverability Requirements into the Logical Design

Knowledge

- Understand what recoverability services are provided by VMware solutions.
- Identify and differentiate infrastructure qualities (Availability, Manageability, Performance, Recoverability, Security)
- Differentiate Business Continuity and Disaster Recovery concepts.
- Describe and differentiate between RTO and RPO

Skills and Abilities

- Given specific RTO and RPO requirements, build these requirements into the logical design.
- Given recoverability requirements, identify the services that will be impacted and provide a recovery plan for impacted services.
- Given specific regulatory compliance requirements, build these requirements into the logical design.
- Based on customer requirements, identify applicable site failure / site recovery use cases.
- Determine recoverability component of SLAs and service level management processes.
- Based on customer requirements, create a data retention policy.

Tools

- [VMware vCenter Site Recovery Manager Evaluation Guide](#)
- [A Practical Guide to Business Continuity and Disaster Recovery with VMware Infrastructure](#)
- [Mastering Disaster Recovery: Business Continuity and Disaster Recovery Whitepaper](#)
- [Designing Backup Solutions for VMware vSphere](#)
- Product Documentation

Objective 2.7 – Build Security Requirements into the Logical Design

Knowledge

- Understand what security services are provided by VMware solutions.
- Identify and differentiate infrastructure qualities (Availability, Manageability, Performance, Recoverability, Security).
- Describe layered security considerations, including but not limited to Trust Zones.

Skills and Abilities

- Identify required roles, create a role-based access model and map roles to services.
- Create a security policy based on existing security requirements and IT governance practices.
- Incorporate customer risk tolerance into the security policy.

- Given security requirements, assess the services that will be impacted and create an access management plan.
- Given a regulatory requirement example, determine the proper security solution that would comply with it.
- Based upon a specified security requirement, analyze the current state for areas of compliance/non-compliance.
- Explain how compliance requirements will impact the logical security design.

Tools

- [vSphere Security Guide](#)
- [Developing Your Virtualization Strategy and Deployment Plan](#)
- [Achieving Compliance in a Virtualized Environment](#)
- [Infrastructure Security: Getting to the Bottom of Compliance in the Cloud](#)
- [Securing the Cloud](#)
- Product Documentation

Section 3 – Create a vSphere Physical Design from an Existing Logical Design

Objective 3.1 – Transition from a Logical Design to a vSphere 5 Physical Design

Skills and Abilities

- Determine and explain design decisions and options selected from the logical design.
- Build functional requirements into the physical design.
- Given a logical design, create a physical design taking into account requirements, assumptions and constraints.
- Given the operational structure of an organization, identify the appropriate management tools and roles for each staff member.

Tools

- [Conceptual, Logical, Physical: It is Simple](#)
- [vSphere Server and Host Management Guide](#)
- [vSphere Virtual Machine Administration Guide](#)
- Product Documentation
- vSphere Client

Objective 3.2 – Create a vSphere 5 Physical Network Design from an Existing Logical Design

Knowledge

- Describe VLAN options, including Private VLANs, with respect to virtual and physical switches.
- Describe switch-specific settings for ESXi-facing ports, including but not limited to:
 - STP
 - Jumbo Frames
 - Load-balancing
 - Trunking
- Describe network redundancy considerations at each individual component level.
- Cite virtual switch security policies and settings

Skills and Abilities

- Based on the service catalog and given functional requirements, for each service:
 - Determine the most appropriate networking technologies for the design.
 - Implement the service based on the required infrastructure qualities (AMPRS).
- Determine and explain the selected network teaming and failover solution.
- Implement logical Trust Zones using network security/firewall technologies.
- Based on service level requirements, determine appropriate network performance characteristics.
- Given a current network configuration as well as technical requirements and constraints, determine the appropriate virtual switch solution:
 - vSphere Standard Switch
 - vSphere Distributed Switch
 - Third-party solutions (ex. Nexus 1000V)
 - Hybrid solutions
- Based on an existing logical design, determine appropriate host networking resources.
- Properly apply converged networking considering VMware best practices.

Tools

- [vSphere Server and Host Management Guide](#)
- [vSphere Installation and Setup Guide](#)
- [vMotion Architecture, Performance and Best Practices in VMware vSphere 5](#)
- [VMware vSphere™: Deployment Methods for the VMware® vNetwork Distributed Switch](#)
- [vNetwork Distributed Switch: Migration and Configuration](#)
- [Guidelines for Implementing VMware vSphere with the Cisco Nexus 1000V Virtual Switch](#)
- [VMware® Network I/O Control: Architecture, Performance and Best Practices](#)
- Product Documentation
- vSphere Client

Objective 3.3 – Create a vSphere 5 Physical Storage Design from an Existing Logical Design

Knowledge

- Describe selection criteria for commonly used RAID types

Skills and Abilities

- Based on the service catalog and given functional requirements, for each service:
 - Determine the most appropriate storage technologies for the design.
 - Implement the service based on the required infrastructure qualities.
- Create a physical storage design based on selected storage array capabilities, including but not limited to:
 - Active/Active, Active/Passive
 - ALUA, VAAI, VASA
 - PSA (including PSPs and SATPs)
- Identify proper combination of media and port criteria for given end-to-end performance requirements.
- Specify the type of zoning that conforms to best practices and documentation.
- Based on service level requirements utilize VMware technologies, including but not limited to:
 - Storage I/O Control
 - Storage Policies
 - Storage vMotion
 - Storage DRS
- Determine use case for virtual storage appliances, including the vSphere Storage Appliance.
- Given the functional requirements, size the storage for capacity, availability and performance, including:
 - Virtual Storage (Datastores, RDMs, Virtual Disks)
 - Physical Storage (LUNs, Storage Tiering)
- Based on the logical design, select and incorporate an appropriate storage network into the physical design:
 - iSCSI
 - NFS
 - FC
 - FCoE

Tools

- [Fibre Channel SAN Configuration Guide](#)
- [iSCSI SAN Configuration Guide](#)
- [vSphere Installation and Setup Guide](#)
- [Performance Implications of Storage I/O Control–Enabled NFS Datastores in VMware vSphere® 5.0](#)
- [Managing Performance Variance of Applications Using Storage I/O Control](#)
- [VMware Virtual Machine File System: Technical Overview and Best Practices](#)

- Product Documentation
- vSphere Client

Objective 3.4 – Determine Appropriate Compute Resources for a vSphere 5 Physical Design

Knowledge

- Describe best practices with respect to CPU family choices.

Skills and Abilities

- Based on the service catalog and given functional requirements, for each service:
 - Determine the most appropriate compute technologies for the design.
 - Implement the service based on the required infrastructure qualities.
- Explain the impact of a technical design on the choice of server density:
 - Scale Up
 - Scale Out
 - Auto Deploy
- Determine a consolidation ratio based upon capacity analysis data.
- Calculate the number of nodes in an HA cluster based upon host failure count and resource guarantees.
- Explain the implications of using reservations, limits, and shares on the physical design.
- Specify the resource pool and vApp configuration based upon resource requirements.
- Size compute resources:
 - Memory
 - CPU
 - I/O devices
 - Internal storage
- Given a constraint to use existing hardware, determine suitability of the hardware for the design.

Tools

- [vSphere Server and Host Management Guide](#)
- [vSphere Installation and Setup Guide](#)
- [vSphere Resource Management Guide](#)
- Product Documentation
- vSphere Client

Objective 3.5 – Determine Virtual Machine Configuration for a vSphere 5 Physical Design

Knowledge

- Describe the applicability of using an RDM or a virtual disk for a given VM.

Skills and Abilities

- Based on the service catalog and given functional requirements, for each service:
 - Determine the most appropriate virtual machine configuration for the design.
 - Implement the service based on the required infrastructure qualities.
- Based on an existing logical design, determine appropriate virtual disk type and placement.
- Size VMs appropriately according to application requirements, incorporating VMware best practices.
- Determine appropriate reservations, shares, and limits.
- Based on an existing logical design, determine virtual hardware options.
- Design a vApp catalog of appropriate VM offerings (e.g., templates, OVF, vCO).
- Describe implications of and apply appropriate use cases for vApps.
- Decide on the suitability of using FT or 3rd party clustering products based on application requirements.
- Determine and implement an anti-virus solution

Tools

- [vSphere Server and Host Management Guide](#)
- [Virtual Machine Administration Guide](#)
- [Best Practices for Performance Tuning of Latency-Sensitive Workloads in vSphere VMs](#)
- [Virtualizing a Windows Active Directory Domain Infrastructure](#)
- [Guest Operating System Installation Guide](#)
- Product Documentation
- vSphere Client

Objective 3.6 – Determine Datacenter Management Options for a vSphere 5 Physical Design

Knowledge

- Differentiate and describe client access options.

Skills and Abilities

- Based on the service catalog and given functional requirements, for each service:
 - Determine the most appropriate datacenter management options for the design.
 - Implement the service based on the required infrastructure qualities.

- Analyze cluster availability requirements for HA and FT.
- Analyze cluster performance requirements for DRS and vMotion.
- Analyze cluster storage performance requirements for SDRS and Storage vMotion.
- Determine the appropriate vCenter Server design and sizing requirements:
 - vCenter Server Linked Mode
 - vCenter Server Virtual Appliance
 - vCenter Server Heartbeat
- Determine appropriate access control settings, create roles and assign users to roles.
- Based on the logical design, identify and implement asset and configuration management technologies.
- Determine appropriate host and virtual machine deployment options.
- Based on the logical design, identify and implement release management technologies, such as Update Manager.
- Based on the logical design identify and implement event, incident and problem management technologies.
- Based on the logical design, identify and implement logging, monitoring and reporting technologies.

Tools

- [vSphere Monitoring and Performance Guide](#)
- [vCenter Server and Host Management Guide](#)
- [VMware vCenter Update Manager 5.0 Performance and Best Practices](#)
- Product Documentation
- vSphere Client

Section 4 – Implementation Planning

Objective 4.1 – Create an Execute a Validation Plan

Knowledge

- Recall standard functional test areas for design and operational verification.
- Differentiate between operational testing and design verification.

Skills and Abilities

- From an existing template, choose the appropriate test areas.
- Identify expected results
- Demonstrate an ability to track results in an organized fashion
- Compare actual and expected results and explain differences
- Apply validation plan metrics to demonstrate traceability to business objectives

Tools

- [vSphere Server and Host Management Guide](#)
- [Validation Test Plan](#)
- Product Documentation
- vSphere Client

Objective 4.2 – Create an Implementation Plan

Skills and Abilities

- Based on key phases of enterprise vSphere 5 implementations, map customer development needs to a standard implementation plan template.
- Evaluate customer implementation requirements and provide a customized implementation plan.
- Incorporate customer objectives into a phased implementation schedule.
- Match customer skills and abilities to implementation resource requirements.
- Identify and correct implementation plan gaps.

Tools

- [vSphere Server and Host Management Guide](#)
- [Operational Test Requirement Cases](#)
- Product Documentation
- vSphere Client

Objective 4.3 – Create an Installation Guide

Knowledge

- Identify standard resources required to construct an installation guide.

Skills and Abilities

- Consider multiple product installation dependencies to create a validated configuration.
- Recognize opportunities to utilize automated procedures to optimize installation.
- Create installation documentation specific to the design.

Tools

- [vSphere Server and Host Management Guide](#)
- [Deployment Guide](#)
- Product Documentation
- vSphere Client

Section 4: VCAP-DCD Paths and Suggested Courses

4.1 VCAP-DCD Path Options



4.2 Suggested Courses

The VCAP-DCD exam covers the principles and theory of designing vSphere architectures. VMware offers a course that covers this body of knowledge, as shown below:

VMware vSphere: Design Workshop [v5.0]

This 3 day course explores a design methodology, criteria, and approach for designing a VMware vSphere® 5 virtual infrastructure. Given an organization's constraints and requirements, the infrastructure should be available, scalable, manageable, and secure while meeting the organization's business objectives. The course is based on VMware ESXi™ and VMware vCenter™ Server 5. This course, by discussing the benefits and risks of available design alternatives, provides information that supports making sound design decisions. This course also provides an opportunity to practice your design skills by working with peers on a design project.

- Understand and apply the VMware® Architecture Framework to a design
- Design a storage solution to use vSphere in an enterprise
- Design a network to use vSphere in an enterprise
- Design compute resources for an enterprise
- Design virtual machines to run applications in a virtual infrastructure
- Design a virtual datacenter for an enterprise
- Incorporate management and monitoring features in the design
- Identify design goals, requirements, constraints, and risks
- Recognize and analyze best-practice recommendations

This course covers design related objectives on the VDCD510 exam. All vSphere designs follow a specific VMware methodology that is covered in this course. It is highly recommended that candidates that have not designed a vSphere environment using this methodology attend either this workshop or the partner equivalent training prior to taking the VDCD510 exam.

DRBC Design - Disaster Recovery and Business Continuity Fundamentals

This 4 hour online course provides students with an introduction to disaster recovery and business continuity concepts and enables them to map some of these concepts to specific VMware product features.

- Describe the differences between disaster recovery and business continuity.
- Describe decision trees involved in disaster-recovery design with vSphere/vCenter and SRM, and the pros and cons of each path in the tree.
- Map SRM features to DR concepts.
- Describe vSphere best practices that facilitate successful DR implementations.
- Describe the role of VMware clustering and backup/restore technologies in disaster recovery.
- Plan for performance monitoring in the event of a failover.
- Describe the business planning and process planning required to implement a disaster recovery and business continuity design for a VMware vSphere deployment.

This course covers design related objectives for disaster recovery and business continuity that are covered on the VDCD510 exam. This course provides an overview of these topics only; additional resources should be used to prepare for the exam.

Section 5: Additional Resources

5.1 Mock Exam

VMware provides a simulation of the design-tool found on the exam. This simulation is located at:

<http://www.vmware.com/go/vcap>

5.2 VCAP-DCD Community

VMware provides an online community for VCAP-DCD candidates. This community contains valuable information from other candidates and senior VCAPs, and is moderated by VMware certification staff.

The community is located at: <http://communities.vmware.com/community/vmtn/certedu/certification/vcap>

5.3 Building a vSphere Test Environment

All VMware products, including vSphere 5, can be downloaded and evaluated for 60 days. If you have the equipment to install a copy of ESXi 5.x, you can install ESXi in a VM. This would allow you to install multiple copies of ESXi and a copy of vCenter Server. For shared storage, obtain a virtual appliance that contains an iSCSI target. Several of these are available on the [appliance marketplace](#).