

Exam Code: 3V0-632
Design Exam Preparation Guide Version 1.2
2 February 2016



Disclaimer:

This preparation guide is intended to provide information about the objectives covered by this exam, as well as related resources. The material contained within this guide 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 recommended in this guide where needed to gain that understanding.

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1. The Exam

1.1 Purpose of Exam

The VMware Certified Advanced Professional 6 – Cloud Management and Automation Design Exam (3V0-632) tests candidates on their ability to develop a vRealize 6.x conceptual design given a set of customer requirements, determine the functional requirements needed to create a logical design, and architect a physical design using these elements. A given solution may include any of these products and technologies:

- vRealize Automation
- vRealize Application Services
- vRealize Business Standard
- vRealize Orchestrator
- vCloud Connector
- vCloud Air

1.2 Intended Audience

A typical candidate for the VCAP6-CMA certification has approximately two years of experience designing VMware cloud solutions. They are typically designers or architects, capable of translating business requirements into a vRealize Automation 6.x design that can be utilized for deployment on a vSphere 6.x architecture. The candidate possesses an understanding of public/private/hybrid cloud design models, including multi-tenancy and cloud security. The candidate is capable of designing a solution that includes any or all of the vRealize Suite of products and technologies. Candidates are required to obtain a valid VMware Certified Professional 6 certification prior to attempting this certification.

2. Objectives covered in the VCAP6-CMA Design Exam

2.1 Introduction

It is recommended that candidates have the knowledge and skills necessary to install, configure and administer a vRealize Automation 6.x environment before taking the VCAP6-CMA Design Exam. While there is no course requirement for this exam, VMware recommends that candidates complete the [VMware Cloud Automation: Design and Deploy Fast Track \[V6.0\]](#) course. 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.

2.2 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 skillset.

Section 1 – Create a vRealize Automation Conceptual Design

Objective 1.1 – Gather and analyze business requirements

Knowledge

- Associate a stakeholder with the information that needs to be collected.
- Utilize customer inventory and assessment data from the current environment to define a baseline state.
- Analyze information from customer interviews to explicitly define customer objectives for a conceptual design.
- Given results of a requirements gathering survey, develop requirements for a conceptual design.
- Categorize business requirements by infrastructure quality to prepare for a logical design.

Tools

- [VMware vRealize Customer Deployment Scenarios](#)
- [Functional vs. Non-Functional Requirements](#)
- [Conceptual, Logical, Physical: It is Simple](#)
- [Foundations and Concepts](#)
- [Conceptual Architecture Action Guide](#)
- [Systems Architecture Fundamentals – Conceptual, Logical, Physical Designs](#)
- [A Guide to Hybrid Cloud](#)

Objective 1.2 – Gather and analyze application requirements

Knowledge

- Gather and analyze application requirements for a given scenario.
- Determine the requirements for a set of applications that will be included in the design.
- Collect information needed in order to identify application dependencies.
- Given one or more application requirements, determine the impact of the requirements on the design.

Tools

- [Foundations and Concepts](#)
- [vRealize Infrastructure Navigator User's Guide](#)

Objective 1.3 – Differentiate requirements, risks, constraints and assumptions

Knowledge

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

Tools

- [Developing Your Virtualization Strategy and Deployment Plan](#)
- [Constraints, Assumptions \(Risk, Requirements\) & Dependencies](#)

Objective 1.4 – Identify existing business practices and organizational structure

Knowledge

- Evaluate the customer's current capacity requirements.
- Categorize existing workloads.
- Recognize organizational structure and governance requirements.
- Analyze application architecture.

Tools

- [vRealize Operations Manager User Guide](#)
- [vRealize Business Standard User's Guide](#)
- [The Forrester Total Economic Impact of VMware Automated Application Deployment](#)
- [Cloud Automation Savings Calculator](#)
- [A Guide to Hybrid Cloud](#)

Section 2 – Create a vRealize Automation Logical Design

Objective 2.1 – Map Business Requirements to the Logical Design

Knowledge

- Analyze requirements for functional and non-functional elements.
- Build non-functional requirements into a specific logical design.
- Translate stated business requirements into a logical design.
- Incorporate the current state of a customer environment into a logical design.

Tools

- [Conceptual, Logical, Physical: It is Simple](#)
- [Functional vs. Non-Functional Requirements](#)
- [ITIL v3 Introduction and Overview](#)
- [Conceptual Architecture Action Guide](#)
- [Systems Architecture Fundamentals – Conceptual, Logical, Physical Designs](#)

Objective 2.2 – Map Service Dependencies

Knowledge

- Evaluate dependencies for infrastructure and application services that will be included in a vRealize Automation design.
- Create Entity Relationship Diagrams that map service relationships and dependencies.
- Analyze interfaces to be used with new and existing business processes.
- Determine service dependencies for logical components.
- Include service dependencies in a vRealize Automation logical design.
- Analyze services to identify upstream and downstream dependencies.
- Navigate logical components and their interdependencies and make decisions based upon all service relationships.

Tools

- [Datacenter Operational Excellence Through Automated Application Discovery and Dependency Mapping](#)
- [vRealize Infrastructure Navigator User's Guide](#)
- [VMware Application Dependencies and Entity Relationship Diagrams MK2](#)

Objective 2.3 – Build Availability Requirements into the Logical Design

Knowledge

- Evaluate which logical availability services can be used with a given vRealize Automation solution.
- Differentiate infrastructure qualities related to availability.
- Analyze a vRealize Automation design and determine possible single points of failure.
- Determine potential availability solutions for a logical design based on customer requirements.
- Create an availability plan, including maintenance processes.
- Balance availability requirements with other infrastructure qualities.

Tools

- [Protect Your Business with Automated Business Continuity Solutions](#)
- [VMware High Availability Deployment Best Practices](#)
- [vSphere Availability Guide](#)
- [Configuring VMware® vRealize Automation High Availability Using an F5 Load Balancer](#)
- [Configuring VMware® vCenter SSO High Availability for VMware vRealize Automation](#)

Objective 2.4 – Build Manageability Requirements into the Logical Design

Knowledge

- Evaluate which management services can be used with a given vRealize Automation Solution.
- Differentiate infrastructure qualities related to management.
- Build interfaces into the logical design for existing operations practices.
- Address operational readiness deficiencies.
- Define Event, Incident and Problem Management practices.
- Design a log management solution.
- Determine request fulfillment and release management processes.
- Define change management processes based on business requirements.
- Based on customer requirements, identify required reporting assets and processes.

Tools

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

- [Optimizing Your VMware Environment](#)

Objective 2.5 – Build Performance Requirements into the Logical Design

Knowledge

- Evaluate logical performance considerations for a given vRealize Automation solution.
- Differentiate infrastructure qualities related to performance.
- Analyze the current performance of an environment and address gaps when building a logical design.
- Use a conceptual design to create a logical design that meets performance requirements.
- Determine 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 a performance component for service level agreements and service level management processes.

Tools

- [Proven Practice: Implementing ITIL v3 Capacity Management in a VMware environment](#)
- [Competitive Analysis of the VMware vRealize Cloud Management Platform](#)

Objective 2.6 – Build Recoverability Requirements into the Logical Design

Knowledge

- Evaluate which logical recoverability services are available for a given vRealize Automation solution.
- Differentiate infrastructure qualities related to recoverability.
- Determine Business Continuity and Disaster Recovery solution options for a given vRealize Automation Design.
- Given recoverability requirements, analyze services that will be impacted and provide a recovery plan for impacted services.
- Determine recoverability component of service level agreements and service level management processes.
- Plan a data retention policy based on customer requirements.

Tools

- [A Practical Guide to Business Continuity and Disaster Recovery with VMware Infrastructure](#)
- [Mastering Disaster Recovery: Business Continuity and Disaster Recovery Whitepaper](#)
- [VMware IT Outcomes: High Availability and Resilient Infrastructure](#)
- [VMware vRealize Automation Reference Architecture](#)

Objective 2.7 – Build Security Requirements into the Logical Design

Knowledge

- Evaluate which security services can be used with a given vRealize Automation solution.
- Differentiate infrastructure qualities related to security.
- Build specific regulatory compliance requirements into the logical design.
- Analyze application and infrastructure security requirements.
- Build a role-based access model and map roles to services.
- Build a security policy based on existing security requirements and IT governance practices.
- Incorporate customer risk tolerance into the security policy.
- Assess the services that will be impacted and create an access management plan.
- Determine the proper security solution that would satisfy a regulatory requirement.
- Based on stated security requirements, analyze the current state for compliance/non-compliance.

Tools

- [Achieving Compliance in a Virtualized Environment](#)
- [Securing the Cloud](#)
- [VMware NSX Security Services Case Studies](#)
- [NSX Security and Micro-segmentation](#)
- [VMware NSX and vRealize Automation Solution Overview](#)
- [Organizing for the Cloud](#)
- [Key People, Process and Policy Considerations for vRealize Automation Success](#)

Section 3 - Design vRealize Automation Machine Blueprints

Objective 3.1 - Design a vRealize Automation multi-machine blueprint

Knowledge

- Determine features of multi-machine blueprints that apply to a given design.
- Differentiate multi-machine blueprints and vCloud Director vApps.
- Evaluate customer requirements to determine the multi-machine blueprints and/or application blueprints that are required for a given vRealize Automation design.
- Determine if a multi-tiered application should be designed as a multi-machine service or an application blueprint.
- Build the start and shutdown order for component machines into a vRA design.
- Determine lease duration for a multi-machine blueprint.

Tools

- [IaaS Integration for Multi-Machine Services](#)
- [IaaS Configuration for Virtual Platforms](#)
- [Tenant Administration](#)

Objective 3.2 - Design a complex multi-machine blueprint

Knowledge

- Include custom properties in a vRA design based on business needs.
- Determine if user defined custom properties are required for a given vRealize Automation design.
- Determine if custom formatting is needed for blueprint forms in a given vRealize Automation design.

Tools

- [vRealize Automation Custom Properties Reference](#)
- [IaaS Configuration for Virtual Platforms](#)
- [IaaS Configuration for Cloud Platforms](#)

Objective 3.3 - Design a machine blueprint according to resource requirements

Knowledge

- Analyze a given vRealize Automation design to determine machine blueprint requirements
- Evaluate requirements to determine appropriate type of machine blueprint: cloud, virtual, physical, multi-machine
- Based on requirements, determine which features are needed for a given machine blueprint:
 - Guest OS customization specification
 - Machine naming policy with a machine prefix
 - Minimum and maximum resource requirements of machines to be provisioned
 - Lease duration
 - Archive period
 - Whether reservation or storage reservation policies are required
 - If required actions should be enabled in the blueprint

Tools

- [IaaS Configuration for Virtual Platforms](#)
- [IaaS Configuration for Cloud Platforms](#)
- [IaaS Configuration for vCloud Air](#)
- [IaaS Configuration for Physical Machines](#)
- [IaaS Integration for Multi-Machines Services](#)

Objective 3.4 – Design vSphere templates/snapshots to match blueprint requirements

Knowledge

- Determine which vRealize Automation blueprint provisioning options (full clone, linked clone, AMI, PXE/Kickstart, etc.) fit a given vRealize Automation design.
- Analyze available vSphere template and snapshot features for a given vRealize Automation design.
- Evaluate requirements for vRealize Automation agents in specific machines.
- Determine required operating systems, applications and software agents to install in source virtual machines based on business requirements.
- Include vRealize Automation blueprint types (full clone or linked clone) based on business requirements.

Tools

- [IaaS Configuration for Virtual Platforms](#)
- [IaaS Integration for Multi-Machines Services](#)

Objective 3.5 - Integrate VMware network virtualization into a machine blueprint

Knowledge

- Determine which vRealize Automation Network Profile features are needed for a given vRealize Automation design.
- Evaluate what Networking and Security design requirements can be satisfied using either NSX or vCloud Air.
- Discern if the NSX plugin for vRealize Orchestrator is needed based on customer requirements.
- Determine which Network Profiles to integrate with NSX and/or vCNS
- Given a multi-tiered application configuration, determine the appropriate multi-machine network design

Tools

- [IaaS Integration for Multi-Machine Services](#)
- [IaaS Configuration for Virtual Platforms](#)
- [Machine Extensibility](#)

Section 4 - Design a vRealize Automation Catalog for Service Consumption

Objective 4.1 - Design a catalog service structure to given requirements

Knowledge

- Analyze a vRealize Automation design to determine required service catalog components including service categories, catalog items, item actions, entitlements and approvals
- Determine which service categories are required based on business requirements and their items in each service category

Tools

- [vRealize Automation Advanced Service Design](#)
- [Foundations and Concepts](#)
- [Tenant Administration](#)

Objective 4.2 - Determine entitlements needed for a given design

Knowledge

- Determine the user and group organizational role requirements for a given vRealize Automation design.
- Create a vRealize Automation design that includes user and/or group entitlements for each:
 - Catalog service
 - Catalog item
 - Catalog item action

Tools

- [Key People, Process and Policy Considerations for vRealize Automation Success](#)
- [Tenant Administration](#)
- [Foundations and Concepts](#)

Objective 4.3 - Determine approval policy requirements for a given design

Knowledge

- Design approval phases and policy levels based on business requirements.
- Based on use case, establish users and/or groups that will assign approvals.
- Assess when an approval policy is required for a catalog item.
- Analyze approval policy placement for catalog items (e.g. request or item action request.)
- Consider whether adjustments to properties are required in approval policies.

Tools

- [Key People, Process and Policy Considerations for vRealize Automation Success](#)
- [Tenant Administration](#)
- [Advanced Service Design](#)

Section 5 - Design a vRealize Automation Solution for Multi-Tenancy

Objective 5.1: Determine Use Cases for Multi-Tenancy

Knowledge

- Evaluate multi tenancy feature requirements for a given vRealize Automation design, including:
 - Utilization of tenants vs. business groups.
 - Authentication boundaries of tenants vs. business groups.
 - Physical security and resource boundaries, including the presentation of fabrics/reservations to tenants vs. business groups.
 - Segmentation vs. segregation of services.
 - Limitations of approval and other notifications in nested business groups.
- Interpret security requirements that dictate tenant vs. business group delineation.
- Define core four resource presentation to tenants vs. business groups.
- Define security boundaries and authentication for tenants vs. business groups.
- Design business group structure to facilitate desired notification capabilities.

Tools

- [Tenant Administration](#)
- [Using Application Services with vRealize Automation](#)

Objective 5.2: Determine identity source requirements for a multi-tenant design

Knowledge

- Evaluate identity source requirements for a given vRealize Automation Design:
 - Use case of open LDAP and Active Directory architectures, including: groups, OUs and Schema.
 - Strengths and weaknesses of using vCSSO vs. the vRealize Automation identity appliance, including scale factors, high availability capabilities and maximums.
 - Significance of local vs. remote vs. replicated directory service on a per-tenant basis.
- Analyze priority of availability vs scalability as the choice relates to identity source selection in a vRealize Automation design.
- Determine tenant requirements for directory location and/or replication based on customer requirements.

Tools

- [Tenant Administration](#)

- [Advanced Service Design](#)
- [vRealize Automation Reference Architecture](#)

Objective 5.3: Determine RBAC requirements for a multi-tenant design

Knowledge

- Evaluate RBAC requirements for a given vRealize Automation Design, including:
 - Role-based access control
 - Role-based management of vRealize Automation tenants, infrastructure, fabrics, business groups, default tenant, etc.
 - Policy sets based on security group membership.
 - Entitlements based on business requirements: services, catalog items, actions
 - How roles can be effectively combined.
 - Which roles are customer/user focused and administrator focused
- Design logical RBAC hierarchy based on customer discovery (how roles are combined, assigned).

Tools

- [Key People, Process and Policy Considerations for vRealize Automation Success](#)
- [Organizing for the Cloud](#)
- [Advanced Service Design](#)

Section 6 – Incorporate Cloud Services into a vRealize Automation Design

Objective 6.1 – Determine use cases for incorporating cloud services into a vRealize Automation design

Knowledge

- Incorporate a supported cloud platform into a vRealize Automation design.
- Evaluate use cases for adding vRealize Automation Infrastructure Organizer to a given design.
- Determine DEM and Skill requirements for a given hybrid cloud design.
- Create a design that includes deployment of cloud based machines via vRealize Automation.
- Create a design that leverages vRealize Automation’s governance features for a hybrid cloud including AWS resources.

Tools

- [IaaS Configuration for Cloud Platforms](#)
- [IaaS Configuration for Virtual Platforms](#)
- [IaaS Configuration for vCloud Air](#)
- [Machine Extensibility](#)

Objective 6.2 – Design a vRealize Automation solution to support workload provisioning/migration into other clouds/cloud services

Knowledge

- Incorporate workload provisioning/migration capabilities into vRealize Automation hybrid cloud design.
- Evaluate vCloud Connector capabilities when creating a vRealize Automation hybrid cloud design.
- Analyze use cases for deploying cloud-based machines (e.g. DR, scale out/scale in, testdev in private cloud/prod in public cloud.)
- Given business requirements, design a DR solution that leverages either vCloud Air Disaster Recovery or VMware vCloud Connector.

Tools

- [vCloud Air Hybrid Cloud Manager Installation and Administration Guide](#)
- [VMware vCloud Air – Disaster Recovery User's Guide](#)
- [Installing VMware vCloud Connector for VMware vCloud Air](#)

Section 7 – Determine Resource Allocations for a vRealize Automation Design

Objective 7.1: Determine vSphere requirements for a given endpoint design

Knowledge

- Determine vRealize Automation workloads based on business requirements.
- Determine how resource tiers can/will be applied to tenants/organizations.
- Create a vRealize Automation design that includes DEM-W/Agents.

- Based on customer workload requirements, decide if a vSphere resource cluster can be used as a viable endpoint.
- Project growth of vSphere resource clusters based on customer workloads.
- Create a vRealize Automation design using vSphere endpoints that satisfies customer scaling and resource tier needs.

Tools

- [vRealize Automation Machine Extensibility](#)
- [vRealize Automation Reference Architecture](#)
- [Using Application Services](#)

Objective 7.2: Integrate VMware network virtualization into a vRealize Automation solution

Knowledge

- Evaluate available VMware network solutions for a given vRealize Automation design.
- Analyze machine blueprints to determine network security and topology requirements.
- Determine appropriate networking solution based on customer requirements.
- Design machine blueprints that use:
 - External network profiles
 - Routed network profiles
 - NAT network profiles
 - Private network profiles
- Evaluate a given vRealize Automation solution to determine applicability of preconfigured or fully automated networking models
- Determine security policy requirements for a given multi-machine blueprint

Tools

- [VMware NSX and vRealize Automation](#)
- [vRealize Automation and NSX Micro-Segmentation](#)
- [Automated Provisioning with the VMware Software-Defined Data Center](#)
- [IaaS Integration for Multi-Machine Services](#)

Objective 7.3: Design tiered resource solutions as part of a vRealize Automation design

Knowledge

- Given business and resource requirements, determine the design for the following vRA components.

- Reservations
- Reservation policies
- Fabrics
- Fabric Groups
- Analyze business and technical requirements to ensure sufficient capacity exists in the fabric design
- Analyze multi-tenant design to ensure fabric groups are created with sufficient capacity
- Determine endpoint requirements for a given fabric
- Evaluate business requirements to determine reservation and business group relationships
- Evaluate virtual machine provisioning operations against capacity available within applicable reservations

Tools

- [IaaS Configuration for Cloud Platforms](#)
- [IaaS Configuration for vCloud Air and vCloud Director](#)
- [Automated provisioning with the Software-Defined Data Center](#)
- [vRealize Automation Foundations and Concepts](#)

Section 8 – Incorporate vRealize Orchestration into a vRealize Automation Design

Objective 8.1 – Determine method of deployment for vRealize Orchestrator in a given design

Knowledge

- Given business requirements:
 - Select the vRealize Orchestrator installation mode.
 - Determine the number of vRealize Orchestrator endpoints required in vRealize Automation.
 - Ascertain which WFStub workflows in vRealize Automation will be integrated within vRealize Orchestrator.
 - Resolve how many menu/action hooks will be required to integrate vRealize Automation with vRealize Orchestrator.
 - Determine availability requirements for vRealize Automation.
- Determine the vRealize Orchestrator plug-ins required to integrate vRealize Automation and vRealize Orchestrator into a given design.
- Evaluate database options based on vRealize Orchestrator mode of installation.

Tools

- [Installing and Configuring VMware vRealize Orchestrator](#)
- [Using the VMware vRealize Orchestrator Client](#)
- [Using VMware vRealize Orchestrator Plug-Ins](#)

Objective 8.2 – Determine how vRealize Orchestrator will be used in a given design (IaaS)

Knowledge

- Given business requirements:
 - Ascertain whether native vRealize Automation functionality (e.g. custom properties, machine prefixes, network profile) will be sufficient or whether vRealize Orchestrator workflows will be required.
 - Determine which vRealize Automation machine lifecycle states will be used as points of integration with vRealize Orchestrator.

Tools

- [vRealize Automation Machine Extensibility](#)
- [Using VMware vRealize Orchestrator Plug-Ins](#)
- [vRealize Automation Advanced Service Design](#)
- [vRealize Automation Custom Properties Reference](#)

Objective 8.3 – Determine how vRealize Orchestrator will be used in a given design (XaaS)

Knowledge

- Evaluate Advanced Service Designer capabilities for use with a given design.
- Determine Advanced Service Designer endpoint requirements.
- Given business requirements:
 - Resolve whether the design will require XaaS custom resource integration and/or XaaS custom action integration.
 - Examine whether the design will require managed service blueprints and/or unmanaged service blueprints.
 - Determine whether or not any customization of the ASD form be required.
 - Explain which field types (e.g. text field, text area, date and time, check box, etc.) will be required in the ASD form.
 - Decide which properties need to be set on the ASD form fields.

Tools

- [vRealize Automation Advanced Service Design Guide](#)
- [Using VMware vRealize Orchestrator Plug-Ins](#)
- [vRealize Automation Custom Properties Reference](#)
- [VMware vCenter Orchestrator Plug-In Development Best Practices](#)

Section 9 - Incorporate vRealize Business Standard into a vRealize Automation Design

Objective 9.1 – Determine a cost management structure based on customer requirements

Knowledge

- Determine the capabilities of vRealize Business Standard required for a given design.
- Given business requirements:
 - Determine cost analysis across various cloud environments.
 - Analyze per machine blueprint, per tenant and/or business group costs.
 - Evaluate appropriate roles for user and/or group access.

Tools

- [vRealize Business Standard Installation and Administration Guide](#)
- [vRealize Business Standard User's Guide](#)
- [Real IT Transformation Requires a Real IT Service Costing Process](#)
- [vRealize Business: Managing the Business of IT in the Cloud Era](#)

Objective 9.2 – Customize a vRealize Business Standard solution to fit a given design

Knowledge

- Describe the cost calculation features in vRealize Business Standard and update features.
- Given business requirements, determine whether the built-in cost drivers are appropriate for each of the following:
 - Server Hardware
 - Storage
 - Operating System Licensing
 - Maintenance
 - Labor
 - Cost of Facilities
 - Additional Costs
- Given a scenario, decide which pricing mode is appropriate.

- Determine whether the reference database should be automatically updated.

Tools

- [vRealize Business Standard Installation and Administration Guide](#)
- [vRealize Business Standard User's Guide](#)
- [IT Financial Management Challenge: Where is the ROI?](#)

Section 10 - Incorporate vRealize Application Services into a vRealize Automation Design

Objective 10.1 – Design a tiered application solution using vRA Application Services

Knowledge

- Determine the capabilities of vRealize Application Services of a given design.
- Given a scenario, analyze the elements that comprise an application blueprint.
- Given business requirements, determine if a vRealize Automation design should include:
 - Cloud templates
 - Logical templates
 - Services
 - Applications
- Design an application blueprint in vRealize Application Services.
- Map logical templates to cloud templates.

Tools

- [vRealize Automation Using Application Services](#)
- [vRealize Automation Using Application Services Library Services](#)
- [Using Application Services REST APIs](#)

Objective 10.2 – Design an application to be deployed by vRA to multiple clouds/cloud services

Knowledge

- Given business requirements, design an application that includes:
 - Application Versioning
 - An Application Blueprint/Advanced Blueprint
 - An Artifact Repository specification
 - An Artifact specification
 - Service Catalog Entitlements
- Evaluate the deployment profile capability of vRealize Automation Application Services.
- Analyze the deployment environment for vRealize Automation Application Services.

- Given business requirements, design a single application blueprint that allows an application to be deployed to multiple clouds.

Tools

- [vRealize Automation Using Application Services](#)
- [vRealize Automation Using Application Services Library Services](#)
- [vRealize Automation Using Application Services REST APIs](#)

3. Additional Resources

3.1 Community

VMware provides an online community for VCAP/VCIX candidates. This community contains valuable information from other candidates and senior VCAPs/VCIXs, and is moderated by VMware certification staff. The community is located at:

<http://communities.vmware.com/community/vmtn/certedu/certification/vcix>

3.2 Test Driving a VMware vRealize Automation environment

VMware provides Hands-on Labs for Cloud Management and Automation. These labs provide an environment where you can work with the products covered in this exam. The labs can be accessed by going here: <http://www.vmware.com/go/try-vrac-hol>