

TECHNICAL WHITE PAPER:  
November 2024



# VMware Cloud Foundation Automation to provide IaaS via a self-service catalog

Customer Adoption Path

## Table of contents

Setup the Cloud for IaaS .....	2
Introduction to vSphere Supervisor	2
Getting started with vSphere Supervisor	2
Extend Supervisor capabilities with Supervisor Services	3
Deploy and Manage Virtual Machines with Desired State	3
Deploy and Manage vSphere Kubernetes Clusters	3
Database Deployment and Management using DSM	3
Deliver the IaaS Services .....	4
Construct a Cloud Abstraction Layer	4
Create VCF Automation Templates (IaC)	4
Create CCI Based Deployments using VCF Automation	4
Enhance lifecycle management using extensibility in VCF Automation	4
Applying Governance and Policies for the Private Cloud	5
Create a catalog for Self-Service Consumption	5
Create a VCF Orchestrator Workflow	5

## Setup the Cloud for IaaS

### Introduction to vSphere Supervisor

Learn about how the various VCF Automation Services can help with building out a modern private cloud. Supervisor includes a set of services such as vSphere Kubernetes Service (VKS), VM Service, Network Service, Storage Service, Database Services and more. The VCF Automation Services provide a modern and flexible way to provision and consume infrastructure services. Transform your existing infrastructure to unlock the power of running modern workloads alongside existing traditional workloads.

- [Overview Demo of vSphere Supervisor](#)
- [Supervisor Architecture Documentation](#)
- [VMware Validated Solutions](#)

### Getting started with vSphere Supervisor

Enable Supervisor Consumption by configuring vSphere Namespaces, logical units that provide resource allocation, governance, and workload isolation. Learn how to build core IaaS services via CLI and UI and working in the Workload Management section of vSphere client.

- [Configuring the Supervisor](#)
- [Configure vSphere Namespace](#)

- [Configuring and Managing the Supervisor](#)
- [Supervisor Series: Enabling the Supervisor](#)

### Extend Supervisor capabilities with Supervisor Services

Supervisor Services extend the service offering with additional services that may be required by consumers for their workloads, such as private OCI image registry to store their images, or an ingress controller for their workloads. Learn how to register Supervisor Services with vCenter, and install them on a Supervisor.

- [Deploying LCI](#)
- [GitHub Files for Supervisor Services](#)
- [Managing and Deploying Supervisor Services Documentation](#)
- [Supervisor Series: Deploying Contour and Harbor as Supervisor Services](#)

### Deploy and Manage Virtual Machines with Desired State

VM Service is a modern consumption interface through which any persona can self-service deploy and manage Virtual Machines. It allows users to declaratively define their Virtual machine configuration in a manifest and deploy it using the same APIs as they would use to deploy Kubernetes clusters. The desired state of the VM is then managed by the Supervisor. Consumers can also directly access these Virtual Machines without needing to have access to vCenter. Learn how VM Service can revolutionize the way you deploy and manage Virtual Machines.

- [Create a Content Library for VM Images](#)
- [Supervisor Series: Deploy a 3-Tier Application](#)
- [Deploying a VM using VM Service](#)

### Deploy and Manage vSphere Kubernetes Clusters

vSphere Kubernetes Service makes Kubernetes cluster deployment very quick and easy. VCF Automation Services seamlessly integrate with the underlying storage and networking to automatically generate Persistent Volumes and Load Balancers on demand. Learn how to deploy Kubernetes clusters in minutes and how to deliver new Kubernetes releases to consumers faster than ever before.

- [Deploying a Kubernetes cluster](#)
- [Update TKG Service](#)
- [Configuring and Managing a Kubernetes Cluster](#)

### Database Deployment and Management using DSM

Learn how to deploy and configure databases using Data Services Manager (DSM). DSM is a supervisor service that can be managed via the CLI or VCF Automation can deploy databases as part of the CCI integration. Empower application teams with self-service developer access to deploy databases as part of the application. Learn how to use the Kubernetes API to Manage data services and how VCF Automation can deploy databases from a self-service catalog.

- [Agile Deployment using DSM](#)
- [Data Services Manager: The Hidden Gem Powering Modern Workloads](#)
- [Deploy Database as a Service](#)

- [DSM Overview Technical](#)

## Deliver the IaaS Services

### Construct a Cloud Abstraction Layer

Within VCF Automation abstract storage, networking, and compute for flexible and agnostic provisioning. Allocate tags and assign resources such as security groups, clusters, and load balancers. Implement a cloud agnostic automation strategy and boost agility by deploying applications to any cloud. VCF Automation can also onboard existing workloads via Onboarding Wizard that walks admins through a process to onboard VMs and apply policies and properties to the onboarded deployment.

- [Try the Hands on Lab - Module 1 - Create a Cloud Abstraction Layer](#)
- [Add Cloud Accounts to VCF Automation](#)

### Create VCF Automation Templates (IaC)

Create and deploy cloud templates declaratively using YAML IaC and integrate them with distributed version control platforms like GitHub. Develop cloud-agnostic templates to specify the machines, applications, and services that users in the organizations can deploy. Using cloud templates from VCF Automation, standardize and expedite automation with repeatable and consistent results.

- [Try Hands On Lab - Module 3 - Create Aria Automation Templates](#)
- [Using IaC and Git to manage Templates](#)
- [Design IaC Templates in VCF Automation](#)
- [Creating and Designing Cloud Templates in VCF Automation](#)
- [More Automation Assembler Template Examples](#)

### Create CCI Based Deployments using VCF Automation

Using the same application code from the previous session we will now create and deploy the application using the CCI elements within the Cloud Template. The CCI Elements provide resource types to deploy Supervisor Namespaces, Supervisor Resources etc. From defining the ports on a load balancer to injecting cloud-init scripts for in-guest configurations, the CCI elements in the Cloud Template can help application teams deliver apps and services using a modern methodology.

- [Configuring and working with the Cloud Consumption Interface](#)
- [Cloud Consumption Interface \(CCI\) Template Elements](#)
- [Cloud Consumption Interface \(CCI\) Service UI Enhancements in VCF](#)
- [Deploying OpenCart Application using Cloud Consumption Interface\(CCI\)](#)

### Enhance lifecycle management using extensibility in VCF Automation

Build subscriptions to trigger actions based on deployment lifecycle events such as create, read, update, and delete. Actions are version controlled and polyglot (e.g., NodeJS, Python, JSON). Reduce complexity by adding extensibility when events happen in the deployments and save time by automating operations.

- [Try Hands on Lab - Module 6 Enhance Lifecycle Management Using Extensibility in VCF Automation](#)
- [Extending and Automating Application Lifecycles with Extensibility](#)

### Applying Governance and Policies for the Private Cloud

VCF Automation provides a set of policies that can be applied to deployment such as lease and approval policies. Apply governance via tags and other constraints in order to ensure workloads go to the proper location based on compliance or company standards.

- [Setting up Automation Service Broker policies](#)

### Create a catalog for Self-Service Consumption

Empower users with self-service consumption of Kubernetes and infrastructure resources “as a Service” via Self-Service Catalog, API, or Cloud Consumption Interface (CCI). Learn how to build a curated content catalog where users can request items to deploy application and services. As-a-service such as XaaS, IaaS, CaaS, and more are available via items backed by orchestrator or ABX actions. Also each catalog item form can be highly customized using a form designer with drag and drop elements.

- [Create a Catalog for Self-Service Consumption](#)
- [Adding Content to the Catalog](#)

### Create a VCF Orchestrator Workflow

Add scripted workflows and tasks with VCF Orchestrator to step up your automation strategy. With the help of scalable workflows and processes provided by VCF Orchestrator, you can automate even more tasks by using a range of programming languages, including Python, PowerShell, NodeJS, and Java. VCF Orchestrator is a modern workflow automation platform that can help increase agility and extensibility for those complex data center tasks.

- [Create an VCF Orchestrator Workflow](#)
- [VCF Orchestrator Workshop](#)



Copyright © 2024 Broadcom. All rights reserved.

The term "Broadcom" refers to Broadcom Inc. and/or its subsidiaries. For more information, go to [www.broadcom.com](http://www.broadcom.com). All trademarks, trade names, service marks, and logos referenced herein belong to their respective companies. Broadcom reserves the right to make changes without further notice to any products or data herein to improve reliability, function, or design. Information furnished by Broadcom is believed to be accurate and reliable. However, Broadcom does not assume any liability arising out of the application or use of this information, nor the application or use of any product or circuit described herein, neither does it convey any license under its patent rights nor the rights of others.

Item No: vmw-bc-wp-tech-temp-uslet-word-2024 1/24