

VMware Cloud Foundation

Build a modern infrastructure to power your organization forward

Key characteristics of a modern infrastructure

- Based on a cloud operating model
- Flexible and scalable
- Reliable, secure and resilient
- Software-defined and deeply integrated
- Supports modern workloads
- Automates infrastructure and operations
- Simplifies management
- Highly sustainable

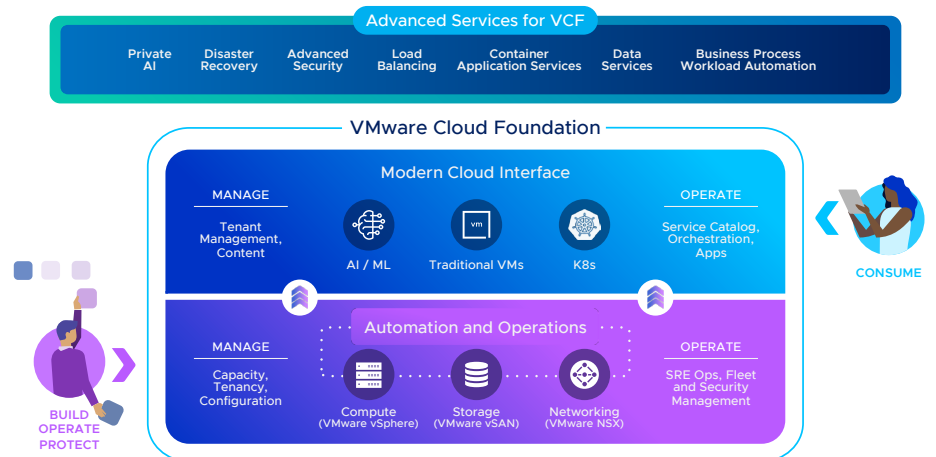
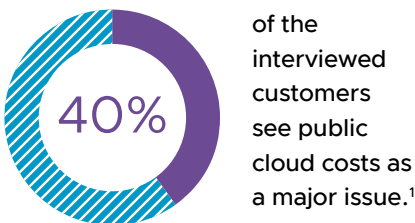
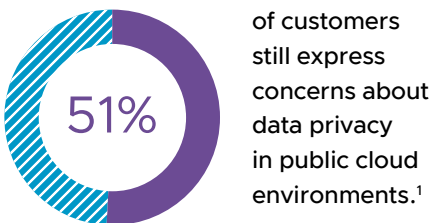
The term “modern infrastructure” refers to an advanced, flexible and scalable infrastructure that enables organizations to rapidly deliver new digital services, modern apps, and data-driven insights. It supports both traditional and modern workloads and provides an agile infrastructure with complete automation and orchestration capabilities.

While a modern infrastructure can be a game-changer for your organization, setting it up can present significant challenges:

- Legacy system integration can be complex, time-consuming and costly.
- Maintaining security and compliance can become even more complicated.
- Managing skills gaps can lead to higher costs and longer timelines.
- Infrastructure overprovisioning and unforeseen costs can hurt your ROI.
- Inconsistent infrastructure and vendor lock-in can limit flexibility.

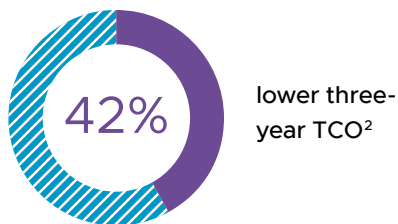
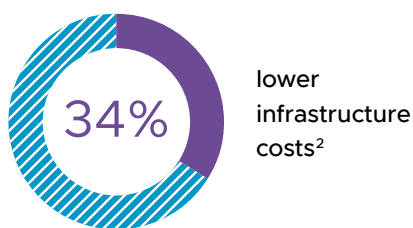
Overcome these challenges with VMware Cloud Foundation

VMware Cloud Foundation (VCF) is a comprehensive private-cloud platform that delivers virtual infrastructure with integrated, enterprise-class compute, networking, storage, management, and security.



Key benefits of using VCF for building or modernizing private cloud:

- A turnkey infrastructure for modern workloads
- Reduced operational overhead
- Improved resiliency and availability
- Hardened security
- Better cost efficiency



“I don’t have people patching in the middle of the night. I’m not spending months trying to get a patch in place because we’ve got multiple dependencies to secure. We know maintenance windows in advance, and everything is much simpler.”

Roger Joys
Vice President of Enterprise Cloud Platform, GCI Communications

A proven platform for a modern infrastructure

VCF spans across on-premises, private cloud, public cloud, partner clouds, sovereign clouds, edge, and colocation facilities. It combines the scale and agility of public cloud with the security and performance of private cloud, enabling faster time to market, increased innovation, lower TCO, and re-educated operational FTEs due to automated deployment and lifecycle management. By providing maximum visibility, VCF enables your IT staff to continuously optimize performance and costs, protect your organization from cyberthreats, and focus on outcomes instead of operations.

This overview will look at how VCF helps unlock three key use cases:

1. Building and operating private cloud infrastructure on-premises or at the edge
2. Implementing automated infrastructure to deliver IaaS
3. Extending your data center into the cloud

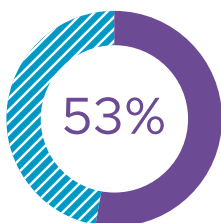
Use case: Build and operate private cloud infrastructure on-premises or at the edge

You might be looking to build a new private-cloud infrastructure—either on-premises or at edge sites—for a new line of business or new applications. Or, you might want to modernize your existing infrastructure with a cloud operating model to extract more value from existing assets. Either way, VCF has you covered, with capabilities and features to make building or modernizing private cloud a snap, including the following:

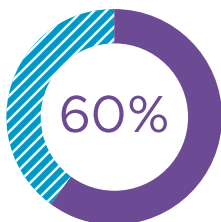
- **An integrated private cloud platform** with packaged compute (VMware vSphere®), storage (VMware vSAN™), networking (VMware NSX®), management (VCF Automation and VCF Operations), and security that can be deployed in hours instead of months or years.
- **Modern edge infrastructure delivered by VMware Cloud Foundation Edge**, an optimized configuration of VCF tailored for edge use cases that enables you to start small and scale later as business needs require.
- **Infrastructure automation and orchestration** capabilities including self-service app/infrastructure provisioning, policy-based governance, network automation, Kubernetes automation, Private AI automation, APIs, and more.
- **Automated deployment** of the entire SDDC stack.
- **Automated installation and lifecycle management** including configuration, patches, updates and upgrades, via an SDDC Manager.
- **Tenant management** allowing IT admins to create tenants, assign resources, maintain security, and configure policies for each tenant and provide isolated, dedicated environments to application teams as per their needs.
- **Centralized fleet management** with VCF Operations offering a single console for unified license management, cost optimization, identity management, certificate management, password management, and continuous health and performance monitoring.

Key benefits of using VCF to automate infrastructure to deliver IaaS

- Faster time to market
- Enhanced developer productivity
- Improved infrastructure team efficiency
- Reduced costs



more infrastructure team efficiencies²



reduction in infrastructure-related IT tickets³

“VMware Cloud Foundation Automation has been a game-changer. The ability to easily access resources in real time, without having to ask for them, is enormously appreciated by our users. Ultimately, IT isn’t a worry for them anymore.”

David Varusio
IT cloud project manager, Orange France

- **Intelligent operations** via VCF Operations including performance optimization, capacity management, cost efficiency management, configuration management, compliance, monitoring, and troubleshooting.
- **Advanced security, compliance and governance**, with features such as microsegmentation, data-at-rest and data-in-transit encryption, identity and access management (RBAC), data governance, auditing and monitoring capabilities, advanced threat detection, and regulatory compliance enforcement.
- **Superior availability and resiliency** with built-in features such as vSAN Data Protection, Stretched Clusters and vSphere HA.
- **Extensibility** across on-premises, public clouds, partner clouds, sovereign clouds, edge and colocation facilities, along with seamless workload migration across any of these endpoints via VMware HCX.
- **VCF Import**, which converts and imports existing vSphere, vSAN, VMFS-FC, and NFS environments into VCF to simplify integration.
- **AI-ready infrastructure with integrated Kubernetes runtime** to deploy and run traditional VMs as well as modern AI/ML workloads and containerized workloads on a single platform.
- **Sustainability features** to control your organization’s energy footprint, reduce resource usage, and increase capacity and consumption visibility.

Use case: Implement automated infrastructure to deliver IaaS

Today, more and more organizations are looking to build automation processes to deliver IaaS to their developers, DevOps engineers, platform engineers, data scientists, and line-of-business owners using a self-service model. VCF includes a host of capabilities to handle this use case with ease, including the following:

- **Automated infrastructure with VCF Automation**, a core component of VCF that delivers a self-service infrastructure resources consumption experience to consumers, along with management and governance capabilities to administrators. Here are some of its key features:
 - **Self-service catalog** – A curated, prescriptive catalog of items, based on Infrastructure as Code (IaC) templates, that’s especially useful for non-technical users.
 - **Self-service IaaS** – A single self-service console that aggregates all IaaS services from multiple supervisor clusters to provide a global view for consumers.
 - **Infrastructure as Code** – A unique low-code approach to implement IaC that provides users with the ability to create blueprints for machines, applications, services, and serverless extensibility actions using a visual design canvas for easy drag-and-drop configuration. This canvas provides a palette of components, with the visual representation rendered in YAML. Additionally, users can build standardized reusable templates and subscriptions to trigger actions (create, read, update, delete, etc.) based on deployment lifecycle events.

Key benefits of using VCF to extend your data center into the cloud:

- On-demand scalability
- Faster response to changing business needs
- Seamless integration
- Improved flexibility and choice
- Investment protection

“VMware Cloud Foundation is a robust and comprehensive solution that is ahead of its time, enabling us to move in an agile, secure, and simple manner between the public cloud to the private cloud and vice versa.”

Rita Saul Antonio Reyes
Director of Technology and Information Systems, UNIMINUTO

- **Orchestration and extensibility** – Frameworks such as VCF Operations orchestrator workflows and event broker subscriptions allow users to integrate and work with third-party complementary infrastructure automation engines, including Terraform and Ansible.
- **Version control** – Integration with GitHub/GitLab/Atlassian BigBucket repositories enables users to manage blueprints and action scripts under source control.
- **Ability to run Kubernetes workloads natively on ESXi hosts with vSphere Supervisor** – The vSphere Supervisor component provides a Kubernetes control plane directly on the hypervisor layer and enables provisioning of IaaS services such as Network Service, Storage Service, VM Service, and VMware Kubernetes Service. Having a Kubernetes control plane on the hypervisor layer allows administrators to create and configure vSphere Namespaces with allocated resources for DevOps teams. DevOps engineers can then run Kubernetes workloads, deploy Kubernetes clusters with TKG, and manage containers or VMs on the same platform, while administrators maintain full visibility and control over resource usage and deployments via VCF Automation.
- **Easy consumption of IaaS services with VCF Automation Services** – Previously known as Supervisor Services, VCF Automation Services are vSphere-certified Kubernetes operators that deliver IaaS components and tightly integrated Independent Software Vendor services to developers. By installing VCF Automation Services on vSphere Supervisor, admins can extend the platform with additional IaaS services that DevOps engineers can consume, including vSphere Kubernetes Service, VM Service, Network Service, Storage Services, Capacity Planning, and other supervisor services such as Object Storage, Image Registry (Harbour), Backup and Recovery Service, and Data Services Manager (for self-service deployment and management of databases).
- **Choice of consumption methods** – VCF provides flexibility by giving consumers a wide choice of consumption methods—UI, CLI, API or IaC.
- **Standardized set of APIs and CLIs** – With a rich set of Kubernetes-style APIs and CLIs for infrastructure management, VCF ensures that every deployment is predictable, repeatable, and free from configuration drift.
- **Governance resource policies** – Admins can centrally manage and enforce policies related to the catalog, including approvals and resource leases, through the VCF platform. With the integration of VMware Kubernetes Service (VKS), they can create custom policies for Kubernetes clusters and IaaS resources using YAML-based Policy as Code, without needing external tools. Additionally, predefined policy templates are available as well.

Use case: Extend your data center into the cloud

Many of today's organizations are looking to extend their data centers to cloud for a variety of reasons, including footprint expansion, on-demand capacity requirements, the need to set up a DEV/QA/UAT environment, or a desire to have infrastructure ready for unplanned projects. Whatever the reason, VCF offers features and capabilities to make extending your data center to the cloud as simple as can be, including the following:

Helpful resources

VCF [website](#)

VCF [datasheet](#)

Private Cloud Modernization Program [Solution Brief](#)

VCF TCO [white paper](#) and [infographic](#)

VCF [technical documentation](#)

VCF [Getting Started Hands on Lab](#) and [HoL catalog](#)

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- **Seamless workload migration, workload rebalancing, and disaster recovery across private and public clouds with VCF Operations HCX.** This platform provides an exceptionally efficient migration experience for moving workloads between different environments, eliminating the need for manual intervention and minimizing disruption to business operations. It also helps migrate workloads from existing vSphere 6.x environments directly to VCF when doing a hardware refresh or relocating workloads to a different server/cluster.
- **Live migration with HCX-assisted vMotion,** a feature that enables live VM migrations between on-premises and cloud environments with no downtime, simplifying workload migration and ensuring continuous availability.
- **Consistent infrastructure across on-premises and cloud environments,** eliminating the need to refactor or re-architect apps and allowing you to move those apps back to on-premises as business needs require.
- **Consistent operations,** enabling IT teams to use the same tools and skill-sets across on-premises and cloud environments with minimal learning curve.
- **Bi-directional workload portability,** which allows you to move workloads bi-directionally across private and public cloud environments to meet changing business needs.
- **VCF license portability,** enabling you to port licenses across on-premises, certified VMware Cloud Service Provider (VCSP) partner services, or hyperscalers (AWS, GCVE, AVS). This ensures a consistent experience across environments to drive innovation, reduce TCO, enhance flexibility and lower business risk.
- **Avi Load Balancer license portability.** Avi Load Balancer, an advanced service for VCF, delivers a modern software-defined load balancer and container ingress that simplifies and accelerates private cloud application availability and resiliency. The Avi Load Balancer Cloud Console manages licenses for a pool of Avi Controllers, whether they're deployed on-prem or in the cloud.

Start building your modern infrastructure

Discover how [VMware Cloud Foundation](#) can help you build modern infrastructure.

Take advantage of our [Private Cloud Modernization Program](#) where Broadcom will help you in your IT infrastructure transformation journey, regardless of where you are in your private cloud journey.

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1. IDC FutureScape. "The Infrastructure and Cloud Impact." Franco Chiam, 2023.
 2. IDC White Paper, sponsored by VMware by Broadcom. "The Business Value of VMware Cloud Foundation", doc #US52312224. August 2024.
 3. Forrester, commissioned by Broadcom. "The Total Economic Impact™ Of VMware Cloud Foundation Automation." August 2024.