

# Self-Service Private Cloud with VMware Cloud Foundation

## A Smarter Way to a Unified Cloud Consumption Experience

“VMware Cloud Foundation provides everything we need: compute, storage, and networking as well as load balancing and flexibility. With VCF Automation we’re providing a public cloud-like user experience while maintaining security, compliance and control. We are a small team, but VMware enables us to offer anything as a service (XaaS).”

- Philippe Morel, Director of IT Operations and Infrastructure, EPFL

### SOLUTION OVERVIEW

VMware Cloud Foundation® (VCF) enables IT organizations to deliver a self-service private cloud for application teams to build, run, and manage AI, Kubernetes, and VM-based applications. VCF makes it easier to jump start and scale a multi-tenant cloud with private cloud services available out-of-the-box to help bring applications to market faster, while maintaining control with policy-based governance. The solution helps VI Admins evolve into Cloud Admins that can offer self-service consumption of infrastructure resources “as a Service” to application teams. Application teams gain improved secure and compliant consumption experience with better request reliability, while IT teams are freed up time spent on helpdesk tickets and infrastructure maintenance to focus on more strategic initiatives, driving innovation.

### Accelerating data center modernization

As organizations navigate a complex world of geopolitical tensions, inflation, and global trade wars, emerging technologies like generative AI and AI Agents have triggered an urgency for many to accelerate the transformation of applications and clouds to deliver a differentiated, digital customer experience and increase revenue. Many CIOs recognize one of the key requirements to leading a full-scale modernization of the enterprise is cloud infrastructure transformation, redefining the foundation of IT with cloud capabilities and modern architectures from the data center that can also extend to public cloud and the edge for all applications.

However, in many cases, IT organizations are simply not ready to benefit from these emerging technologies and opportunities due to outdated infrastructure and processes. Furthermore, competing priorities, no time to investigate, and the lack of skillsets to transform cloud infrastructure often make it challenging for many organizations to adopt on-premises private clouds. Meanwhile, lines of business and application teams have leveraged public clouds and open source tools without a lot of IT oversight to address their needs around agile software development, DevOps, and continuous delivery.

### Unlocking self-service consumption for private clouds

As organizations accelerate modernization, they encounter a critical reality: the public cloud is not a universal fix. Issues with cost unpredictability, data sovereignty, and compliance are driving a strategic pivot toward hybrid models. Yet, application teams refuse to trade agility for control; they demand the instant, frictionless experience they have grown accustomed to. This tension is fueling a massive shift toward internal platforms to support next-generation workloads.

According to IDC’s latest Platform Engineering and DevOps Survey, 93% of organizations are piloting, using, expanding the use of, or planning to use an internal developer platform (IDP) within the next year<sup>1</sup>. This surge underscores a new mandate: IT must evolve from a manual gatekeeper into a self-service provider. By embracing platform engineering, organizations can abstract infrastructure complexity and offer “golden paths” for developers—

delivering compute resources on-demand while retaining strict private cloud governance. However, successfully replicating this utility within a secure data center remains a significant operational hurdle.

### Key challenges

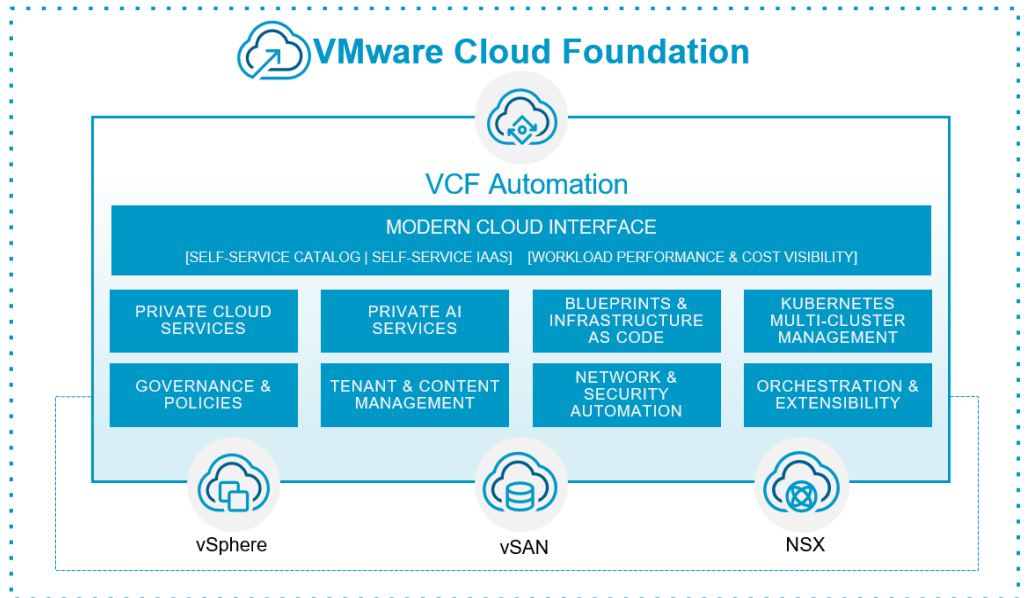
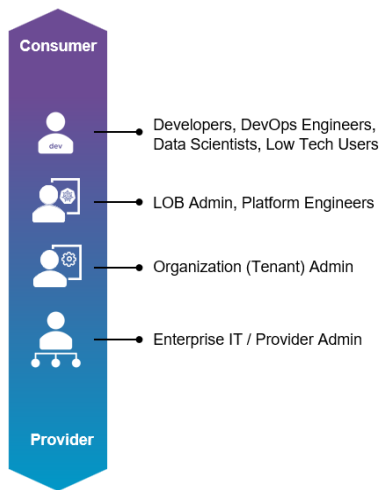
The rapid growth of AI and container workloads is stretching IT resources to the breaking point. For many organizations, a widening skills gap and complex, siloed environments hinder the ability to build and deliver a unified self-service cloud experience.

- **VI and Cloud Admins:** IT staff are often overwhelmed by time-consuming, ticket-driven, and manual provisioning processes that are subject to error and rework. Admins struggle to manage inconsistent operating and governance models across diverse workload types, including AI, Kubernetes, and VM-based applications. Consequently, they are often unable to provide application teams with the IaaS services and consumption choices available in the public cloud.
- **Platform Engineers:** Tasked with supporting modern development practices, these engineers face "multi-cluster management nightmares," such as configuration drift, inconsistent security policies, and fragmented monitoring across numerous Kubernetes clusters. They often struggle to build and maintain the internal developer platforms (IDPs) necessary to provide self-service while ensuring governance and compliance.
- **Developers:** These consumers often lack the autonomy found in the public cloud, unable to get the infrastructure they need when they need it. Instead of focusing on coding, they are frequently forced to learn how to manage compute resources and navigate underlying infrastructure intricacies, wasting valuable productivity.
- **IT Decision Makers:** Attempts to build a DIY private cloud from scratch often result in heavy capital costs, slow deployment timelines, and increased operational expenses. Furthermore, existing skill shortages make it challenging to modernize on-premises data centers without disrupting business operations.

### Solution description

Self-service private cloud with VMware Cloud Foundation enables IT organizations to transform data centers into a modern private cloud with self-service consumption and delivery capabilities, as well as deliver a private cloud on VMware supported public clouds. At the heart of this transformation is VMware Cloud Foundation Automation, the industry's leading cloud infrastructure automation solution, a component of VCF.

VMware Cloud Foundation delivers the software-defined private cloud with compute by VMware vSphere®, networking by VMware NSX®, storage by VMware vSAN™, VMware Cloud Foundation Operations, and VMware Cloud Foundation Automation. As a core component of VMware Cloud Foundation, VCF Automation abstracts resources across a fleet of VCF environments and provides a single consumption interface, transforming any data center infrastructure based on VMware Cloud Foundation into a modern, self-service private cloud.



Data Center | Edge | Service Provider | Public Cloud

FIGURE 1. VMware Cloud Foundation enables Providers to deliver a true self-service cloud consumption experience to Consumers via a Modern Cloud Interface and infrastructure automation capabilities in a private cloud environment.

### Key capabilities

VCF 9.1 delivers a radically new approach to private cloud that enables you to become your own cloud provider with the following capabilities:

- **Modern Cloud Interface** – Empower users with a choice of self-service consumption options: provider-oriented self-service catalog curated with pre-approved standardized application blueprints, or developer-oriented self-service IaaS exposing private cloud services consumed via choice of interfaces (UI, CLI, declarative Kubernetes APIs). Provide users with direct visibility into workload performance and cost.
- **Private Cloud Services** - Deliver public cloud-like IaaS services (vSphere Kubernetes Service (VKS), Container, VM, Network, Volume, VM Image) straight out-of-the-box. Enable application teams to use a Kubernetes manifest to provision VMs and VKS clusters (as Kubernetes objects) for a more agile and responsive development process. Manage services via Services Framework and expand with extensible services (e.g., Harbor for image registry, Argo CD for GitOps continuous delivery, etc.).
- **Private AI Services** - Reduce the time required to set up enterprise-ready AI as a Service. Automate private AI service setup and provisioning of GPU-enabled machines for ML and RAG workloads. Offer vector DBs, deep learning VMs, Data Indexing and Retrieval service, AI Agent Builder service, and Model Context Protocol (MCP) to streamline model deployment with privacy and security.
- **Blueprints & Infrastructure as Code (IaC)** – Enable source controlled iterative development with enterprise-ready IaC. Design blueprints via a visual canvas with a drag-and-drop interface and/or define through IaC using low code YAML format. Create reusable sandbox environments with app stack formation, by capturing a group of VMs—including their network configuration and disks—into a blueprint for reuse in deploying identical or differentiated environments. Increase standardization for more reliable systems and minimize risk of configuration drift.

### RESOURCES:

- Visit the [VMware Cloud Foundation](#) and [VCF Automation](#) webpages for more information, or contact your VMware representative.
- Connect with a VMware expert for a tailored self-service private cloud demo for you and your team.
- Test-drive via [Hands-on Lab](#).
- Visit the [VMware Cloud Foundation blog](#) to read more about private cloud.
- Follow us on X [@vmwarevcf](#).
- **Kubernetes Multi-cluster Management** - Gain a single unified view of distributed VKS cluster fleets running across multiple Projects. Enforce consistent security and configuration settings across VKS cluster fleets. Protect data, by backing up entire clusters or specific namespaces to help support cluster or application recovery in the event of a cluster failure, region outage, rack power outage, etc.
- **Governance & Policies** - Centrally manage and enforce catalog instance-centric policies (approval, Day 2 Action, lease). Build custom policies for IaaS resources with YAML-based Policy as Code without having to rely on external tools or add-ons. Programmatically enforce / apply policies at the infrastructure-level, helping to ensure infrastructure resources adhere to organization requirements and improve compliance
- **Tenant Management** - Establish a multi-tenant private cloud by isolating infrastructure using [Virtual Private Cloud \(VPC\)](#) constructs, managing Organizations, and applying Projects and Namespace Classes for resource allocation, quota, chargeback, and organizational control. Additionally with **Content Management**, easily discover, create, and synchronize content libraries and VM images across vCenters leveraging content library management. Subscribe to Canonical content libraries for native, secure access to Ubuntu OS images. Streamline managing and publishing standardized content (VM images, blueprints, etc.) to a self-service catalog for efficiency with Content Hub.
- **Network & Security Automation** - Deliver a VPC network model and different subnet types. Empower tenants with self-service networking (e.g., VPN, NAT, static routes). Support IPAM with multiple CIDRs, Infoblox integration, and flexible IP allocations. Automate Avi Load Balancer\* provisioning via blueprints. Simplify infrastructure with Distributed Transit Gateway and multi-cluster zones for abstraction. Deploy a zero trust private cloud, enabling security as code where workloads are provisioned with micro-segmentation policies, firewall rules, and compliance tags, with VMware vDefend\* during deployment.
- **Orchestration and Extensibility** – Leverage custom extensibility frameworks, like orchestrator workflows and event subscription services. Adapt and customize automation via workflows and actions to meet unique and changing needs, integrating seamlessly with 3rd party tools. Future-proof automation investments by incorporating new technologies and keeping automation capabilities competitive.

### Discover self-service private cloud from Broadcom

Discover how VCF 9.1 redefines private cloud with its unified self-service consumption experience. Powered by VCF Automation, VMware Cloud Foundation helps you jump start and scale a multi-tenant private cloud that enables your application teams to build workloads faster, more securely, and at lower cost. Learn how you can replicate the scalability and agility of the public cloud in your data center with the security and performance of private cloud. Find out how you can implement a centralized consumption interface on a single platform for both VMs and containers to drive greater business and IT agility, productivity, and efficiency. Unlock the potential of your IT resources with the true cloud experience delivered by VMware Cloud Foundation.

*\* Advanced Services*