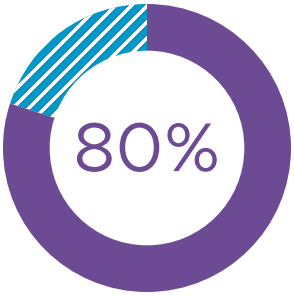
Implement Automated Infrastructure to Deliver Infrastructure as a Service

"Businesses are rethinking how to employ automation to maximize operational efficiency [...] and as data is embedded in the core of strategic capability for every organization, automation has become critical to scaling a digital business."[1]



According to IDC, by 2028, 80% of IT Buyers will prioritize "As-a-Service" consumption for key workloads that require flexibility to help optimize IT spending, augment IT skills, and attain key sustainability metrics.[2]

There is a growing demand for Infrastructure as a Service (IaaS) solutions as organizations aim to enhance their agility and efficiency in deploying IT resources. The trend toward self-service models in IT enables faster service delivery and a swift response to the needs of diverse users such as developers, DevOps engineers, platform engineers, data scientists, and lines of business (LoBs).

In today's fast-paced technological environment, embracing infrastructure automation is not just beneficial—it's essential. Organizations need to empower their users by simplifying the deployment process, establishing a self-service model for accessing infrastructure, and significantly reducing reliance on cumbersome traditional ticketing systems. Moreover, it is vital to ensure that these automated systems are efficient but also secure and compliant with organizational policies and standards.

Embracing infrastructure automation can be challenging for organizations. Here are some common obstacles to successfully implementing infrastructure automation for delivering IaaS:

- Support for new types of workloads (e.g. GPU-enabled, Kubernetes) and the increasing demands for digital resources are overwhelming, while IT resources remain limited.
- Await on time-consuming, ticket-driven, and manual provisioning processes, which require collaboration among multiple teams.
- Unable to provide Infrastructure as a Service (IaaS) similar to public cloud offerings and address inconsistencies in the operating, governing, and consuming cloud models across different environments.
- Experience less autonomy for application teams when using internal IT services compared to other public cloud options.
- Access to required infrastructure and timely implementation of changes is often impeded.
- Decline in productivity for developers due to the need to manage computing resources and address concerns about the underlying infrastructure.

VMware Cloud Foundation® can assist in overcoming these obstacles.

1. IDC FutureScape: Worldwide Digital Infrastructure 2025 Predictions, October 2024, IDC #US51665124
2. IDC FutureScape: Worldwide Future of Digital Infrastructure 2024 Predictions, October 2023

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Key Benefits

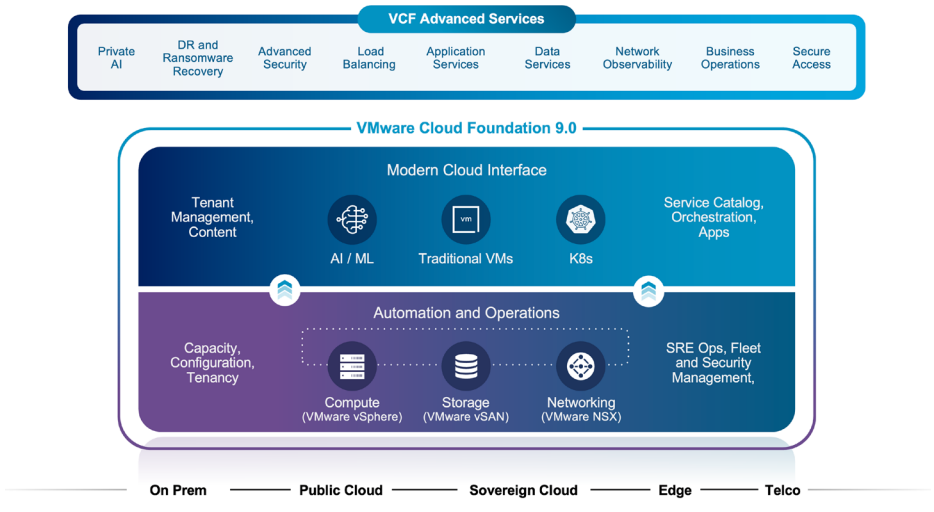
- Accelerated time to market
- Improved developer productivity
- Enhanced infrastructure team efficiency
- Improved scalability
- Reduced costs

"VMware Cloud Foundation provides everything we need: compute, storage and networking as well as load balancing and flexibility. With VMware Cloud Foundation 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: VMware Cloud Foundation

VMware Cloud Foundation (VCF) is a comprehensive private cloud platform that delivers virtual infrastructure with integrated, enterprise-class computing, networking, storage, management, and security to simplify IT operations. VCF combines the scale and agility of public clouds with the security and performance of private clouds, enabling faster time to market, increased innovation, and lower total cost of ownership (TCO). Its automation and orchestration capabilities ensure improved operational efficiency and scalability, while built-in security and resiliency capabilities ensure a secure and highly available infrastructure. Whether supporting traditional or modern workloads in a data center or enabling real-time processing at the edge, VCF delivers the agility and control needed to optimize private cloud environments for modern enterprise demands.



Within this framework, VMware Cloud Foundation Automation (VCF Automation) serves as a key component, delivering a self-service private cloud for AI, Kubernetes, and VM-based applications. VCF Automation facilitates the rapid scaling of isolated private clouds with rich IaaS services, helping to bring applications to market faster while maintaining control through policy-based governance.

Here are some key features and capabilities:

Automate infrastructure with VCF Automation: The self-service catalog enables low-tech users to quickly provision items using the UI / self-service catalog. The self-service IaaS provides a unified console that aggregates services from multiple Supervisor clusters, offering a comprehensive view and control over infrastructure resources. VCF Automation supports a low-code approach, allowing IT teams to create blueprints for VMs and applications via a visual design canvas, which generates configurations in YAML. It promotes standardized templates and seamlessly integrates with tools like HashiCorp Terraform and Red Hat Ansible, enhancing the infrastructure automation

"We used to take up to three or four days to [deliver] services, but now customers can provision them directly from the VMware Cloud Foundation Automation catalog in about a half hour. That's it. We have gone from days to minutes."

Cloud and System Administrator
Oil and Gas

"Our IT culture has shifted from managing infrastructure to the management of services. We deliver a self-service catalog to our consumers who manage their environment. Providing our consumers with the self-service catalog reduced delivery of workloads from weeks to hours and it significantly increased their overall satisfaction."

Senior IT Director and Enterprise Architect
Large Healthcare Provider in US

ecosystem while providing orchestration capabilities for custom workflows. It also incorporates version control through repositories like GitHub and GitLab, which simplifies the management of blueprints and scripts.

Run Kubernetes workloads natively on ESXi hosts with vSphere Supervisor: vSphere Supervisor establishes a Kubernetes control plane directly on the hypervisor layer, facilitating the provisioning of Infrastructure as a Service (IaaS) offerings, including Network Service, Storage Service, VM Service, and vSphere Kubernetes Service, among others. By leveraging a Kubernetes control plane on the hypervisor in vSphere, admins can create and configure vSphere Namespaces, allocating specific resources for DevOps teams. This allows DevOps engineers to execute Kubernetes workloads, deploy Kubernetes clusters using vSphere Kubernetes Service (VKS), and manage both containers and virtual machines on a unified platform. Simultaneously, admins retain complete visibility and control over resource utilization and deployment activities through the VCF Automation.

Streamline consumption of IaaS services with Supervisor Services: Supervisor Services are vSphere-certified Kubernetes operators designed to deliver Infrastructure-as-a-Service components alongside closely integrated Independent Software Vendor (ISV) services for developers. By deploying Supervisor Services on vSphere Supervisor, admins can enhance the platform with additional IaaS offerings that DevOps engineers can access in various ways. Some of the key services, enabled via VCF Automation, include vSphere Kubernetes Service, VM Service, Network Service, and other Supervisor services such as Object Storage, Image Registry (Harbor), Backup and Recovery Service, and Data Services Manager, among others. These public cloud-like IaaS services are delivered by your private cloud, straight out-of-the-box via a Modern Cloud Interface. This empowers your application teams to access the infrastructure they need—whenever, wherever, and however they need it, boosting productivity and user satisfaction.

Offer a choice of consumption methods: Users have access to a variety of interfaces — UI, CLI, API — allowing them to explore IaaS services and utilize the platform effectively.

Utilize a standardized set of APIs and CLIs: VCF Automation improves consistency across environments by offering a comprehensive suite of APIs and CLIs for infrastructure management. This standardization guarantees that each deployment is predictable, repeatable, and free from configuration drift.

Apply governance resource policies: Admins can centrally manage and enforce policies related to the catalog, including approvals and resource leases, through the VCF platform. They can create custom policies for IaaS resources using YAML-based policy as code and enable consistent enforcement across clusters, reducing human error and ensuring compliance with organizational requirements. Moreover, predefined policy templates are available to assist admins in efficiently managing resource policies.

How VCF Facilitates the Successful Implementation of Infrastructure Automation for Delivering IaaS

- 53% more infrastructure team efficiencies, 61% faster to deploy new VMs[3]
- 60% increase in deployment capacity, Avoided 60% of infrastructure-related IT tickets with automated, self-service provisioning[4]
- 6% higher net developer productivity[5]
- 61% faster to deploy new VMs[5]

73%

Reduction in unplanned downtime

60%

Increase in annual deployment capacity

50%

Reduction in the time to deploy new VMs

3. IDC FutureScape – The Infrastructure and Cloud Impact
4. The Total Economic Impact™ Of VMware Cloud Foundation Automation, Study Commissioned by Broadcom, August 2024
5. IDC White Paper, sponsored by VMware by Broadcom, The Business Value of VMware Cloud Foundation, doc #US52312224, August 2024

How VCF addresses challenges in implementing infrastructure automation for IaaS delivery

Reduced CapEx and OpEx: The automation capabilities within VCF help minimize CapEx by lowering hardware expenses through enhanced control over consumption, preventing over-provisioning of servers or storage, and reducing the need for unnecessary or excessive hardware purchases. Infrastructure utilization is optimized by intelligently provisioning workloads to their best destinations and eliminating "zombie" resources, streamlining operational efficiency. The reduction in OpEx boosts overall efficiency and productivity by diminishing manual tasks and human intervention, allowing IT teams to concentrate on more strategic initiatives rather than repetitive, time-consuming responsibilities, thus lowering IT labor costs. Moreover, VCF Automation strengthens reliability by minimizing human errors and the associated costs of corrections, which also reduces costs linked to downtime and troubleshooting.

Enhanced agility to promote faster innovation and collaboration: VCF Automation accelerates time to market and offers a competitive edge by streamlining self-service provisioning, deployment, and configuration of resources, enabling quicker introduction of new products and services. With VCF, enhanced collaboration between development and operations teams cultivates a more agile and responsive IT organization, fostering better alignment and cooperation that ultimately drives success in today's dynamic environment.

Improved efficiency and productivity while facilitating cost reduction: By enhancing efficiency and productivity, VCF Automation allows IT teams to shift their focus from repetitive, time-consuming tasks to more strategic initiatives. This approach not only reduces manual tasks and human intervention but also optimizes resource utilization, leading to significant cost reductions. Automation minimizes human errors, and the expenses tied to correcting them while enabling intelligent resource allocation. Furthermore, policy-based controls help manage consumption, prevent over-provisioning, and ultimately reduce unnecessary operational costs.

Enhanced control for greater operational excellence: VCF enhances consistency and reliability by ensuring uniform configurations across environments, which helps to reduce discrepancies and standardize systems for increased reliability. This approach minimizes the risk of configuration drift, leading to more dependable systems overall. Additionally, improving compliance and security becomes more achievable by consistently enforcing policies and regulatory requirements across all systems. This reduces the likelihood of human error in configurations, ensuring that resources align with organizational and regulatory standards. With VCF Automation, gaining improved visibility and control over cloud infrastructure consumption is vital; it enables organizations to make more informed decisions and proactively manage their infrastructure resources through comprehensive data insights.

Resources to Learn More

- VCF Website
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- Watch latest videos on YouTube
- VCF Automation Website
- VCF Automation Blogs
- VCF Cloud Maturity Model for Consumption White Paper
- VCF Automation Forrester TEI Report

Increased flexibility through a variety of governance models, consumption models, and extensibility options: By providing a variety of governance models, the automation component of VCF allows IT service providers the flexibility to adjust their cloud operational strategies in response to evolving business requirements. Similarly, offering diverse consumption models empowers consumers to select their preferred infrastructure usage methods, enabling them to leverage familiar tools and workflows, which enhances productivity and comfort. VCF Automation helps organizations to achieve greater extensibility by customizing and adapting automation workflows and actions to meet specific and evolving needs, facilitating the integration of third-party tools and services. This approach not only supports unique use cases but also future-proofs automation investments, enabling the platform to incorporate new technologies and evolve its capabilities to remain competitive in the market.

Get Started

Learn more about how VCF can help you implement automated infrastructure to deliver Infrastructure as a Service. Whether you're looking to scale seamlessly, enhance security, or simplify your IT operations, VCF provides the flexibility and power you need.

Want help in your cloud journey? Our Private Cloud Modernization Program is designed to guide you through every step, no matter where you are in the process. Please contact your Broadcom representative to learn more and start your journey toward a future-proof IT infrastructure.

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