

VMware Cloud Foundation Operations for Networks

AT A GLANCE

VMware Cloud Foundation Operations for Networks uses network flow visibility within VMware Cloud Foundation to deliver intelligent network operations for private clouds. Capabilities include application discovery, network assessment, VPC planning, end-to-end visibility and troubleshooting across virtual and physical networks helping customers deploy, manage, and scale their VCF infrastructure.

KEY BENEFITS

- Easily transition from vSphere networking to modern VPC based networks
- Map application dependencies during application migration planning
- Troubleshoot quickly across virtual and physical networking and security
- Manage and scale VCF Networking deployments with confidence
- Accelerate application performance by optimizing your network and eliminating bottlenecks
- Operationalize VMware Kubernetes Service (VKS) and troubleshoot connectivity issues between containerized workloads

Unlock network planning, visibility, and insights for VMware Cloud Foundation

VMware Cloud Foundation Operations for networks delivers intelligent operations enabling customers to build an optimized, highly available, and secure network infrastructure in the private cloud.

It utilizes network flow visibility within VMware Cloud Foundation to discover existing applications, understand the current network state, and enable customers to plan their transition to modern VPC-based networking. It also enables enhanced VCF Health dashboards and operational views for end-to-end visibility and troubleshooting across virtual and physical networks including networking alerts, real-time metrics, logs and flows for managing and scaling VCF network infrastructure.

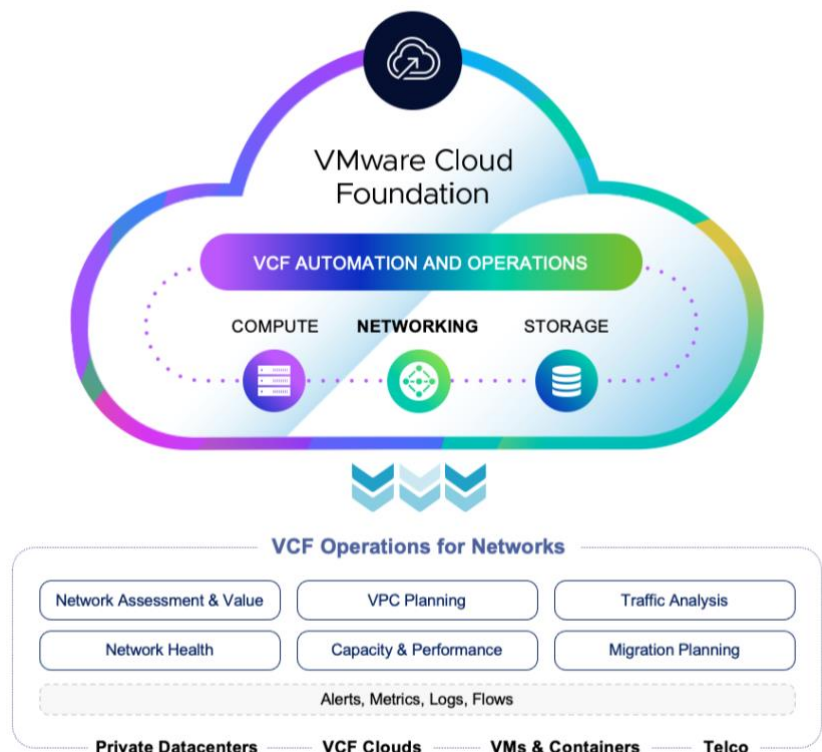


Figure 1: Network Planning and Operations with VCF Operations for Networks

VCF Operations for Networks is available as part of VMware Cloud Foundation and provides the tools, workflows, and best practices for VCF network deployments.

VCF Operations for Networks

VCF Operations for networks delivers all the tools and dashboards that networking teams and VCF cloud admins need for successfully planning and deploying the network. This includes the ability to assess your network traffic, develop planning and design, and ultimately adopt networking capabilities that help optimize the private cloud.

Assess and Evaluate

Network assessment and value helps users understand their current network infrastructure and evaluate how VCF networking capabilities can drive key business outcomes.

- **Assessment and Value:** Assess the existing network architecture and configuration including vSphere Distributed Switch (VDS) and vSphere clusters to evaluate potential improvements in server consolidation, workload mobility, and traffic hair-pinning through the physical infrastructure. This allows VCF users to monitor east-west and north-south traffic flows without challenging and time-consuming manual processes and optimize infrastructure costs.

Plan and Deploy

Network planning and deployment helps users design, plan, and execute the transition from their current network infrastructure to modern VPC-based networking.

- **VPC Planning:** Design and plan the transition from vSphere networking (VDS) to VPC based networking. VPC planning analyzes your existing network infrastructure including VLANs, network traffic patterns, and reachability and provides the users relevant networking parameters required to create VPCs. VPC planning can help simplify server consolidation and workload mobility, logical workload isolation, and self-service for developers.
- **Migration and Workload Connectivity:** Use flow visibility to map your applications to VPC subnets and move workloads using VCF Operations workload mobility (formerly VMware HCX). Users can connect workloads to the VPC Transit Gateway to implement workload connectivity policies recommended during VPC planning.

Operate and Optimize

- **Network Observability and Troubleshooting:** VCF Operations for networks delivers fleet level network and infrastructure visibility and troubleshooting for VCF admins.
 - **Diagnostics and Findings:** Overall health dashboard provides infrastructure visibility into critical issues impacting virtual network appliances and capabilities. This includes out of the box dashboards for network inventory, capacity monitoring, and detailed metrics for the NSX Edge appliance and ESX host networking. Users can run integrated ODS runbooks and triage issues quickly. A troubleshooting workbench provides VCF wide alerting, metrics, and logging mechanism that centralizes networking alerts, metrics and logs.
 - **Flow Analytics and Path Topology:** Granular flow visibility across VMs and Containers (Pods) is possible through IPFIX support on VDS and Antrea CNI. This helps administrators understand the traffic patterns and top talkers. It also provides path visibility in the context of troubleshooting performance issues.

- **Real Time Network Metrics in Workbench:** Granular network metrics from Host and Edge are available in troubleshooting workbench. There are also out of the box network utilization dashboards for Host and Edge nodes. Administrators now have all that at their disposal when needed without needing to log into individual hosts and edge nodes to collect metrics or write scripts.

Key Features ¹	
VMware Cloud Foundation Network Visibility and Troubleshooting	<ul style="list-style-type: none"> • VCF traffic flows (VDS IPFIX, V2V, V2P) • Out of the box dashboards for VCF Networking (hosts and virtual appliances) • Flow IPv6 traffic from VMware vCenter and NSX • Metrics for NSX Load Balancer • Visibility for VMware Kubernetes Services (Antrea IPFIX flows)
Network Assessment and Value	<ul style="list-style-type: none"> • Configuration based network assessment for VDS based networks • Flow based network assessment for VDS based networks • VCF Networking Value dashboard with TCO/ROI calculations
VPC Planning	<ul style="list-style-type: none"> • Planning workflow to transition from VDS to VPC based networking based on existing configuration
Real-time Metrics	<ul style="list-style-type: none"> • ESX Host • NSX Edge nodes
App-centric Flow-Based Network Troubleshooting and Analytics	<ul style="list-style-type: none"> • Application discovery (names, tags, RegEx) • Flow-Based Application Discovery • DNS mapping (import bind file) • Application dashboard (alerts, intent failures, security issues, and guided network troubleshooting incidents) • Visibility of Incomplete TCP sessions • Flow/threshold analytics and reporting
Path Visibility	<ul style="list-style-type: none"> • Network visibility of logical routing and switching
Health and Performance Monitoring	<ul style="list-style-type: none"> • Guided network troubleshooting (in VCF Ops Workbench) • Streaming databus to export information learned from the platform • Day 2 network ops (topology view, health checklist, edge load balance dashboard) • Public APIs to view and access network metrics • VM and IP address network analysis

¹ For detailed feature capabilities and entitlements, please refer to [NSX Feature and Edition Guide](#)

Resources

[VCF Ops for Networks webpage](#)

[VCF Networking webpage](#)

[VCF Operations webpage](#)

For more information or to purchase VMware products

Call 877-4-VMWARE (outside North America, +1-650-427-5000), visit vmware.com/products, or search online for an authorized reseller. For detailed product specifications and system requirements, refer to the [VCF Operations for Networks documentation](#)

Getting Started

VCF Operations for Networks delivers network visibility and network troubleshooting for VMware Cloud Foundation. Use it to run a pre-deployment assessment of the network to understand traffic flows in your VCF environment and prepare for VPC deployment. Run Application Discovery to understand the application environment and which VMs are communicating with other VMs. Use the solution in Day 2 operations to view network topology and metrics and to optimize network capacity.

Features	
Application Discovery and Visibility	Application Discovery uses machine learning to categorize dynamic network traffic, enabling users to gain deeper insights into the applications running on VMware Cloud Foundation. Get insights into what VMs are part of an application by using machine learning to analyze traffic flow when working with VMware Cloud Foundation.
Network Assessment & Planning	Accelerate your applications with insights into network health, performance, and traffic forwarding. Assess existing traffic flows to identify areas for improvements and plan the transition to modern VPC-based networking.
Enhanced Troubleshooting	Proactively optimize your network with advanced network monitoring to minimize application latency, improve performance, and increase reliability. Guided network troubleshooting uses machine learning to help users proactively root cause issues in their network infrastructure by visualizing all the inter-related variables in a topology tree. Views of baseline versus anomalies are also available to enhance troubleshooting.
Day 2 Network Operations	Validate and verify app centric network traffic/path, firewall and ACL health for apps, VMs, and containers on VMware Cloud Foundation.