

VMware Telco Cloud Automation

Operational agility through simplified orchestration and automation for the telco cloud

AT A GLANCE

VMware® Telco Cloud Automation™ accelerates time to market for network functions and services, while igniting operational agility through simplified automation—across any network and any cloud.

KEY BENEFITS

- Accelerate time to market of network functions and services.
- Gain operational efficiencies and avoid error-prone manual tasks.
- Enhance the service experience through workload mobility, dynamic scalability, closed-loop healing and improved resilience.
- Improve service quality with VMware Smart Assurance integrated AI-driven workflows.
- Optimize cloud resource utilization through VMware NFVO, G-VNFM and VIM/NFVI integrations.
- Transform to cloud native with Kubernetes upstream compliancy and cloud-native patterns.
- Avoid costly integration fees, maximize current VMware investments, innovate faster, reduce project complexity and speed deployment with pre-built VMware integrations.
- Leverage best-of-breed network functions and benefit from a healthy multi-vendor ecosystem.
- Minimize version validation efforts.

Communications service providers (CSPs) are transitioning from physical to cloud networks to gain operational agility, network resiliency and lower operating costs. This shift marks a radical departure from the traditional single-purpose hardware appliance model, especially as CSPs must now design and operate services across a web of data centers—bridging physical and virtual ecosystems—while enabling interoperability across competing vendors.

Given the complexity of coordinating network functions and managing multiple services, CSPs want an automated approach that removes complexity and error-prone manual processes. To address these challenges and improve operational efficiency, CSPs are turning to VMware Telco Cloud Automation.

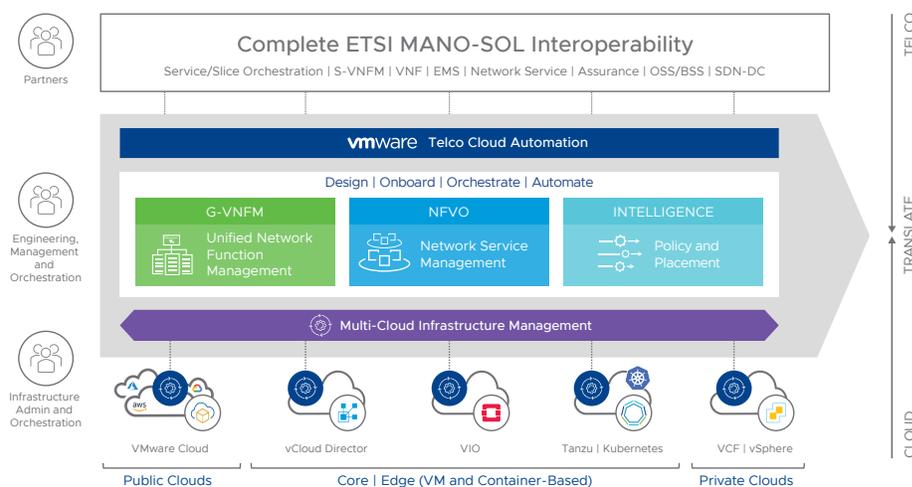


FIGURE 1: VMware Telco Cloud Automation

What is VMware Telco Cloud Automation?

VMware Telco Cloud Automation is an orchestrator that accelerates time to market for network functions and services while igniting operational agility through simplified automation—across any network and any cloud. It applies an automated, cloud-first approach that streamlines the CSP's orchestration journey with native integration into the VMware VIM/NFVI products.

VMware Telco Cloud Automation enables multi-cloud placement, easing workload instantiation and mobility from the network core to edge, and from private to public clouds. It also offers standards-driven generic modular components to integrate any multi-vendor MANO architecture. VMware further enhances interoperability by expanding partner VNF certification via the VMware Ready for NFV program. With simplified and certified interoperability, CSPs can now leverage best-of-breed solutions and reduce their risks.

KEY CAPABILITIES

- ETSI MANO-compliant architecture integrates seamlessly into any telco cloud environment.
- Build services with a combined G-VNFM and NFVO feature set.
- Deliver new network functions and services on-demand and at scale across multiple clouds.
- Gain repeatability across network functions and services.
- Onboard VNF and CNF using compliant-based TOSCA templates.
- Model network services based on multi-vendor network functions and combination of technologies (PNF/VNF/CNF).
- Optimize cloud resources and processes with intent-based placement.
- Automate network functions and services lifecycle management.
- Gain 360° awareness of the telco cloud from infrastructure to instantiated functions and services.
- Apply new and existing workflows and policies for automated closed-loop actions.
- Achieve end-to-end telco cloud service assurance with Smart Assurance integration.

VMware Telco Cloud Automation core capabilities

- Generic VNF Management (G-VNFM) to unify and standardize network function management across VM- and container-based infrastructures
- Domain Orchestration (NFVO) to simplify the design and management of centralized or distributed multi-vendor network services
- Multi-Cloud Infrastructure Management to ease multi-VIM registration, synchronize multi-cloud inventories/resources and collect faults and performance from infrastructure to network functions
- Policy and Placement Engine to enable intent-based and multi-cloud workload/policy placements from the network core to edge, and from private to public clouds

Operational efficiency and multi-cloud agility

VMware Telco Cloud Automation delivers operational efficiency at scale to accelerate time to market for new services, adapt existing services to meet customer demands, mitigate the cost of managing more complex networks, and ultimately improve the customer experience. VMware Telco Cloud Automation enables multi-cloud operational agility to simplify the design, onboarding, placement and management of both network functions and services seamlessly across data centers and tenants of the telco cloud.

Tailored design and onboarding

VMware Telco Cloud Automation provides a visual blueprint composer that allows CSPs and equipment providers to easily create optimized VNF/CNF and network service TOSCA templates compliant with ETSI standards. Telco Cloud Automation is vendor-neutral and lets you onboard any VNF/CNF and network service with descriptor and package compliant with ETSI SOL001/004 standards. Network services can also be designed with a combination of network functions from any vendor in any format (VNF, CNF and PNF). The onboarded elements are then available in centralized catalogs for maximum reusability.

Integrated lifecycle management automation

Leveraging the centralized Telco Cloud Automation catalogs, CSPs can trigger instantiation action while being guided at each step by an intent-based placement engine that aligns the blueprint requirements with the capabilities of each cloud. It also offers automation driven by a policy engine that executes closed-loop policies described in VNFD and NSD, plus custom rules for tailored decisions. These placement and policies apply to the entire lifecycle management (day 0; day 1; day 2 operations) of network functions and services for lean operational processes. They also remove complicated, tedious and repetitive tasks while maximizing overall resource utilization through optimal placement, dynamic scaling and multi-cloud workload mobility.

Enhanced service experience

VMware Telco Cloud Automation enables real-time awareness across every layer of the telco cloud for monitoring and closed-loop operations such as healing and scaling. A holistic fault and performance data collection framework gathers data points across all layers of the MANO architecture, including VIMs and, VNF/EMS, to enable these operations. Telco Cloud Automation supports multiple auto-operation models, triggering actions from NFVO, VNFM or EMS for enhanced service quality and resiliency.

BUILT FOR A THRIVING OPEN MULTIVENDOR ECOSYSTEM

While many vendor ecosystems inherently restrict interoperability, VMware Telco Cloud Automation follows the latest ETSI guidelines. The G-VNFM and NFVO are used as combined or standalone modules interfacing any ETSI SOL-compliant components of the MANO framework (OSS, BSS, EMS/ VNFM, etc.). And the solution VNF designer tool, coupled with the VMware Ready for NFV program, bolsters innovation and interoperability—providing ready access to new capabilities.

LEARN MORE

Visit vmware.com/products/telco-cloud-automation to learn more about how VMware Telco Cloud Automation can help you leverage the telco cloud to its full potential.

Call 877-4-VMWARE (outside North America, +1-650-427-5000), visit telco.vmware.com.

Streamline the orchestration journey

VMware Telco Cloud Automation delivers a cloud-first solution where all layers—from VIM to domain orchestration (NFVO)—are coupled for consistency, optimized deployment and workload management across any cloud.

Cloud-first approach

Because VMware Telco Cloud Automation natively integrates with VMware vCloud™ NFV and VMware Cloud™ technologies, it can transform integration-intensive projects into efficient product deployments. It also eliminates the risks of error-prone configurations, simplifies future upgrades and reduces overall project costs. Close integration between VMware Telco Cloud Automation and the infrastructure also means continuous knowledge of the telco cloud state, optimized placements, VIM configurations auto-discovery capabilities and continuous VIM-VNFM-NFVO synchronization (inventories, resources, faults and performance, etc.).

Unified network function management

VMware Telco Cloud Automation G-VNFM offers a unified network function ecosystem (PNF/VNF/CNF), supporting the design and automation of any TOSCA-compliant network function (SOL001/004). The platform orchestrates workloads seamlessly from VM- and container-based infrastructures for a future-proof service-delivery foundation. Through our certification program, we validate new versions and updates of partner network functions, to ensure continued interoperability for our telco customers.

Hybrid cloud, multi-cloud and multi-VIM ready

As the Telco Cloud evolves, the need to distribute workloads across core, edge private and public clouds becomes mandatory. VMware Telco Cloud Automation natively integrates with VMware vCloud NFV (vCloud Director/OpenStack editions), VMware Cloud (VMC/VCF/HCX) and VMware Tanzu™ (Kubernetes), allowing turnkey registration of multiple VIM and consistent workload management for any network function across any registered cloud.

INTEROPERABILITY		
Standard interfaces	<ul style="list-style-type: none"> • Vi-Vnfm: VMware vCloud NFV – (vCD/VIO editions), VMC, TKG Cluster API plus Helm support for resource description • Ve-Vnfm-vnf: ETSI NFV IFA008/SOL002; VNF and NS descriptors compliant with IFA011/SOL001; VNF and NSD package format of IFA014/SOL004 	<ul style="list-style-type: none"> • Ve-Vnfm-em: Third-party EMS per ETSI NFV IFA008/SOL002 • Or-Vnfm: ETSI NFV IFA007/SOL003 • Os-Ma-nfvo: ETSI NFV IFA013/SOL005 and TM Forum
Open architecture	<ul style="list-style-type: none"> • Modular NFVO / G-VNFM architecture • Pre-built integration with VMware telco and cloud technologies (including VMware HCX and Smart Assurance) • Simplified integration with third-party OSS, VIM, VNF, SDN-C and S-VNFM 	
<p>VMware actively cooperates with multiple VNF vendors including all key NEPs, having them certify in the VMware Ready for NFV program. This is a comprehensive certification program that ensures interoperability and operational readiness between third-party-developed VNFs and the ETSI-compliant VMware vCloud NFV platform. The program helps ensure that CSPs can rapidly onboard and deploy multi-vendor VNFs with the VMware vCloud NFV platform. VMware Telco Cloud Automation will leverage this program to certify interoperability with network function vendors, offering a neutral and pre-tested end-to-end MANO solution.</p>		

