Modernize Your Network With VMware Telco Cloud Platform

Deliver a Cloud-First Network on Consistent Infrastructure with Multi-Layer Automation

AT A GLANCE

Powered by field-proven infrastructure and cloud-first automation, VMware Telco Cloud Platform™ is a cloud-native platform that empowers communications service providers (CSPs) to manage virtual and cloud native network functions across distributed 5G networks with efficiency, scalability, and agility.

Introduction

Amid a backdrop of fierce competition and digital transformation, communications service providers seek to develop new business models, simplify operations, and launch new services, all in a quest to increase revenue and expand profit margins.

Although 5G opens up new business opportunities, the complex, siloed architecture of CSPs' existing networks stands in the way of rapid innovation and operational agility, hampering the digital transformation of CSPs. These existing networks, which tend to be founded on vertically integrated monolithic stacks designed to run vendor-specific virtual network functions (VNFs), make automating deployment and management difficult.

When CSPs turn to cloud-native technology to run network functions in containers alongside VNFs in their existing network, the complexity can spiral out of control, and the entire network becomes more difficult to operate. Traditional orchestration tools lack telco-centric features to automate multi-tenant, distributed cloud-native network functions (CNFs) and to deliver the resiliency and reliability that's required in a highly regulated industry with strict service-level agreements and demanding consumers.

To achieve web-scale speed and agility while maintaining carrier-grade performance, reliability, and quality, CSPs need a platform that combines telco-specific cloud-native solutions and cloud-first automation with consistent infrastructure.

Cloud-Native Technology and Cloud-First Automation

Capitalizing on the opportunities of 5G in a multi-cloud world hinges on two keys ingredients: cloud-native technology and cloud-first automation.

Cloud-native technology decouples containerized functions from the infrastructure so they can be deployed quickly, shared among services, updated easily, and managed independently. Orchestration and automation dynamically scale network functions to meet changes in demand. By implementing containers as a service (CaaS), CSPs can use the same technology to meet different requirements across their 5G networks, from the core to the edge. As a result, CSPs can design more efficient 5G networks.

Cloud-first automation unites multi-cloud resources in a centralized orchestration system and then uses intent-based placement for optimization. With cloud-first automation, which continuously synchronizes with registered clouds, CSPs obtain context-aware information about their diverse set of sites, the state of these sites, the applications running there, the embedded technologies available to foster service delivery, and the cloud resources available for allocation. When the orchestrator can access this information, it can automatically place network services and functions in a way that aligns requirements with available cloud resources and capabilities. In this way, cloud-first automation further simplifies the deployment and management of network functions.

KEY BENEFITS OF VMWARE TELCO CLOUD PLATFORM

- Innovate faster by modernizing your telco cloud with web-scale speed and agility while maintaining carrier-grade performance, resiliency, and quality
- Rapidly deploy network functions and services throughout 5G networks, from the core to edge sites
- Run CNFs and VNFs side by side with consistent horizontal infrastructure
- Accelerate the time it takes to deploy functions and services through automated provisioning and the VMware Ready for Telco Cloud program

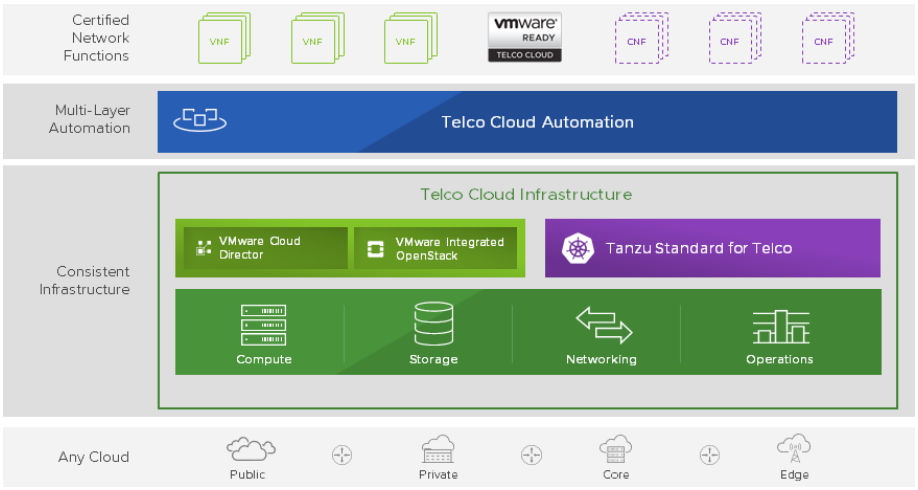

FIGURE 1: VMware Telco Cloud Platform combines VMware Telco Cloud Infrastructure and VMware Telco Cloud Automation in a cloud-native platform that runs CNFs and VNFs on any cloud with visibility, orchestration, and operational consistency.

VMware Telco Cloud Platform

Powered by field-proven telco infrastructure and cloud-first automation, VMware Telco Cloud Platform is a cloud-native platform that enables CSPs to rapidly deploy and efficiently operate multi-vendor CNFs and VNFs with agility and scalability across 5G networks that span from the core and the edge to the radio access network (RAN).

By solving the problems that undermine the architecture of existing telecommunications networks—monolithic stacks marred by complexity, silos, and vendor lock-in—VMware Telco Cloud Platform empowers CSPs to launch innovative services on consistent infrastructure that reduces operational complexity and radically improves agility. The two fundamental elements of this architecture are VMware Telco Cloud Infrastructure™ and VMware Telco Cloud Automation™.

The Fast Path to Cloud-Native Networks

VMware Telco Cloud Platform establishes an open, disaggregated, and vendor-agnostic ecosystem for CSPs to streamline 5G service delivery from design to lifecycle management automation while creating a unified, developer-friendly architecture with key capabilities for resource optimization, operational consistency, multi-cloud mobility, and multi-layer automation. Amid the monumental shift that is taking place with 5G rollouts, these following capabilities empower CSPs to modernize their network architectures, transform their businesses, and accelerate the delivery of disruptive services.

- **Cloud-native architecture:** CSPs can deploy, orchestrate, and optimize cloud resources and processes with intent-based placement. The platform's architecture includes not only compute, storage, and networking but also CaaS and automation. This cloud-native architecture establishes network resiliency, seamless cross-cloud application continuity, and complete multi-tenant service isolation to address business requirements and compliance regulations, such as high availability and service-level agreements.
- **Unified and consistent platform:** The platform's hybrid IaaS and CaaS modernizes existing clouds so they can run both VNFs and CNFs across consistent horizontal infrastructure. This architecture fosters low-latency performance in the data plane and improves scalability through virtualized networking with VMware NSX®.

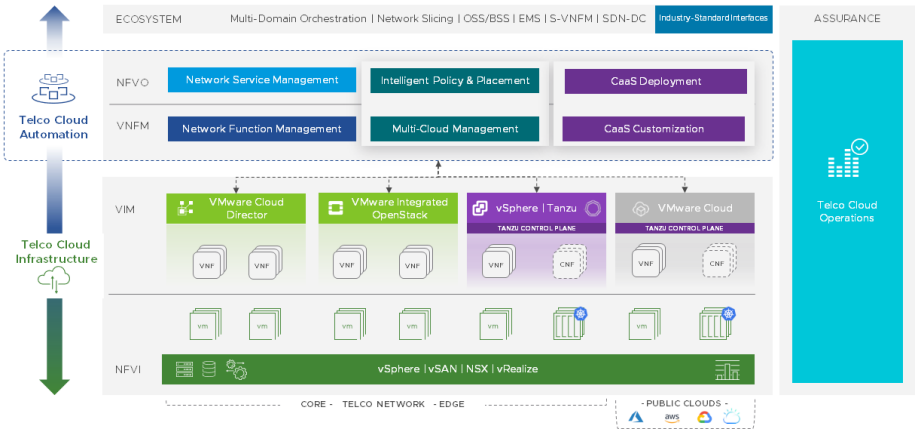

FIGURE 2: The functional architecture of VMware Telco Cloud Platform.

- **Carrier-grade Kubernetes:** The platform lets CSPs capitalize on the advantages of a microservices architecture. CSPs can use microservices with a resource-optimized Kubernetes runtime for device attachment, NUMA alignment, resource reservation, and placement. This cloud-native architecture delivers the capability to roll out 5G networks with Multus, DPDK modules, an SR-IOV plugin, CPU/Topology Manager, and Kubernetes cluster automation tailored for telco use cases.
- **Zero-touch provisioning:** The platform enables CSPs to automate the onboarding and upgrading of network functions and infrastructure components with zero-touch provisioning. Full lifecycle management can define and apply policies using a decisioning engine to automate deployments, operations, and maintenance.

Accessing an Ecosystem of Multi-Vendor Network Functions

CSPs require well-established and trusted solutions with an ecosystem of network functions. CSPs can accelerate the deployment of 5G services by removing integration challenges between the platform and the network functions through the VMware Ready for Telco Cloud program, which tests whether network functions from various vendors interoperate with VMware Telco Cloud Platform.

The program helps prepare workloads for rapid deployment with VMware Telco Cloud Platform by ensuring gVNFM interoperability and the creation of standard-based onboarding artifacts. The descriptor, workflow, and resource and commissioning artifacts help automate deployment and lifecycle management.

Addressing 5G Use Cases with Key Capabilities

Part of the power of VMware Telco Cloud Platform is that it provides capabilities to streamline operations and lifecycle management while using its telco-grade Kubernetes implementation to pursue 5G use cases and new business opportunities with speed and agility. These capabilities come together to establish an extensible set of building blocks for developing, deploying, and optimizing new functions and services, easing the way for business organizations to execute on 5G use cases.

On-demand network capacity: Zero-touch provisioning simplifies operations by automatically provisioning new sites, services, and functions.

Service-aware infrastructure: This capability optimizes resource utilization and increases agility through analyzing infrastructure usage and service requirements. This intelligence empowers CSPs to architect their 5G systems for optimal application response, scale, and service availability.

THE VMWARE TELCO CLOUD AT A GLANCE

We help communications service providers build, run, manage, and protect their telco cloud to transform their networks, accelerate the delivery of modern services, and thrive in a multi-cloud world.

The VMware telco cloud puts in place consistent infrastructure for operating all generations of cellular and fixed-line technology while leading the way to 5G adoption with solutions for orchestration, automation, optimization, and intrinsic security.

At the dawn of 5G, the VMware telco cloud combines consistent infrastructure and operations with intrinsic security and cloud native technology to give CSPs a strong foundation for digital transformation and rapid innovation.

LEARN MORE

For more information about VMware Telco Cloud Platform, call 1-877-VMWARE (outside North America, dial +1-650-427-5000) or visit *https://telco.vmware.com/*

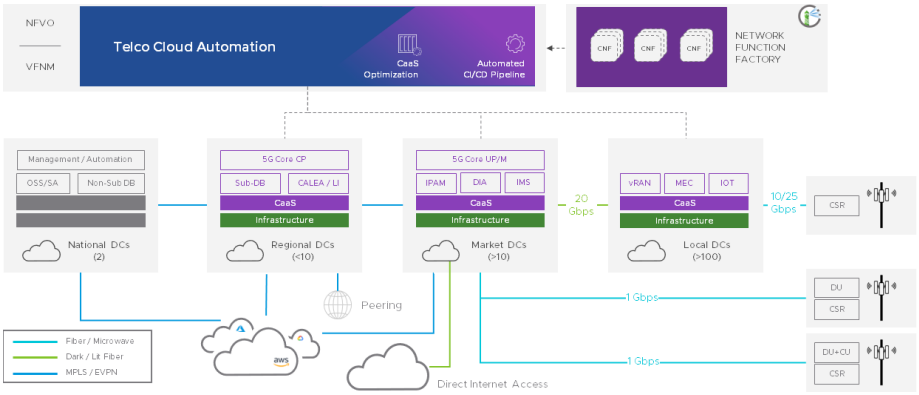

FIGURE 3: The key capabilities of VMware Telco Cloud Platform—including cloud-native technologies and automation—power flexible solutions for 5G use cases. Access to an automated CI/CD pipeline as well as CNFs and VNFs from multiple vendors provide extensible building blocks to deploy new services and explore emerging use cases.

Comprehensive fault and performance data: This collection framework gathers data from all the layers of the MANO architecture, including VIMs, clusters, VNFs, and CNFs. The platform supports multiple automated operational models, triggering actions from operations or an element management system (EMS). The result enhances service quality and operational efficiency. These capabilities help CSPs link their existing business operations with the platform and reduce silos between teams.

Multi-layer lifecycle management: The platform improves operational efficiency by automating the provisioning and management of all the layers of the telco cloud, from network services to infrastructure, reducing provisioning and maintenance costs.

Kubernetes cluster management: The platform deploys and operates new Kubernetes versions and worker nodes, and it validates on-boarded network functions on the updated version of Kubernetes. Cluster management eases the shift to Kubernetes so the business can focus on deploying new services.

CI/CD pipeline integration: The platform makes possible lean and agile DevOps practices across operational functions with integration of a CI/CD pipeline to deploy, redeploy, and upgrade network functions quickly and reliably, which helps achieve telco-grade resiliency and always-on service availability.

These capabilities empower CSPs to connect their business objectives and organizational structures with technical solutions that address 5G use cases.

Conclusion

To capitalize on the opportunities of 5G and to improve their competitive position, CSPs are seeking to overcome the limitations of their existing network architectures and transform their businesses into an agile force with streamlined operations. VMware Telco Cloud Platform combines telco-specific cloud-native solutions and cloud-first automation with consistent infrastructure to propel CSPs into the future with agility and efficiency while maintaining carrier-grade performance, reliability, and quality.

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