

Accelerate Delivery of Communication Services for VoLTE Networks with the Nokia TAS on VMware vCloud NFV

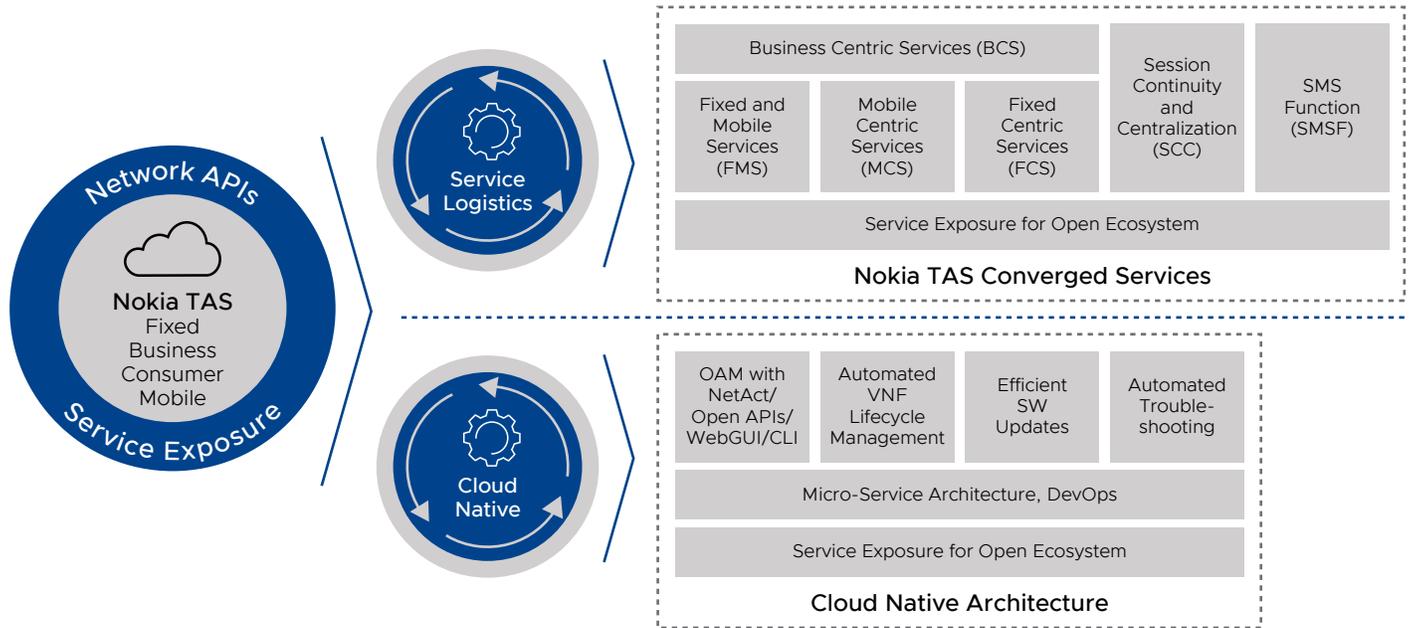
The Nokia TAS serves as the IMS telephony application server (TAS) at the heart of Voice over Long-Term Evolution (VoLTE) networks enabling a wide set of subscriber services for VoLTE, Voice over Wi-Fi (VoWi-Fi), and fixed-access networks. The Nokia TAS is cloud native by design, supporting the agility and programmability communications service providers (CSPs) need to ensure sustainable business during rapid change.

High performance and service parity with traditional mobile circuit switched voice makes the Nokia TAS well suited to fast VoLTE rollout. The Nokia TAS provides the same benefits for voice and video over 5G, because it relies on the same IMS technologies for those services. The Nokia TAS deployed on VMware® vCloud® NFV™ delivers the industry-proven performance, stability, and agility expected by service providers for delivering VoLTE and 5G communication services in their core networks.

[Nokia TAS on VMware vCloud NFV solution overview](#)

Key trends in the telecommunications world include cloud transformation, service convergence, open ecosystems, and operational agility. The Nokia TAS addresses these with its cloud-native design, support for open interfaces and APIs, and a rich set of features.

The Nokia TAS delivers the capability to quickly adapt to new service needs and roll out services in days or even hours. An advanced software architecture supports an innovative and modular service delivery environment for VoLTE, IMS, and standalone 5G networks. Functions are defined, packaged, and delivered as microservices, ensuring optimized performance, extended inter- and intra-VNF redundancy, and support for live upgrade with zero downtime.



The Nokia TAS serves multiple IMS application server roles. These include high-quality voice, video, and messaging services covering mobile, fixed, and business applications with exceptional service parity.

The profile-driven Nokia TAS business logic delivers converged services in three main levels: (1) serving both consumer and business type users (2) both mobile and fixed accesses as (3) mobile and both native IMS and non-native devices.

For example, the Nokia TAS service profiles cover thorough capabilities for IR.92/IR.94 VoLTE and IR.51 VoWi-Fi for mobile devices with native client, VoIP with downloadable soft clients, VoIP with SIP phones, PSTN transformation with POTS via RGW, POTS via MSAN, payphones, business features via hosted IP-Centrex, and PBX trunking.

The Nokia TAS richly supports standards-compliant interfaces for charging and an extensive set of innovative services developed in close partnership with device ecosystems, including multidevice and flexible alerting. In non-IMS network scenarios, the Nokia TAS supports 5G SMS.

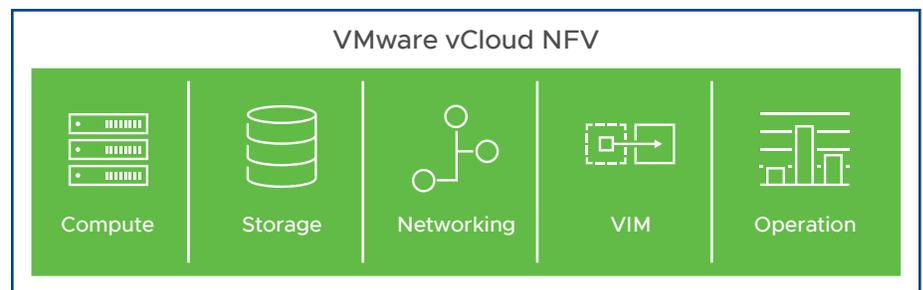
Installation time—including software installation, commissioning, and integration of Nokia TAS—is hours, not weeks, expediting network rollouts. VNF lifecycle management operations are implemented by Mistral workflows, invoked in Nokia CBAM as the pre-integrated VNF manager according to the ETSI NFV MANO standards.

The Nokia TAS architecture follows the design for failures principle with auto recovery actions. In summary, Nokia has developed its Nokia TAS to:

- Help operators create innovative ecosystems to more flexibly use third-party services with operator infrastructure
- Offer a device- and access-agnostic, multi-purpose, flexibility-converged service engine
- Support potentially unlimited scale and elasticity to cater to next-generation converged networks
- Offer serviceability and operability for best-in-class total cost of ownership (TCO)

VMware vCloud NFV: A production-proven NFV platform

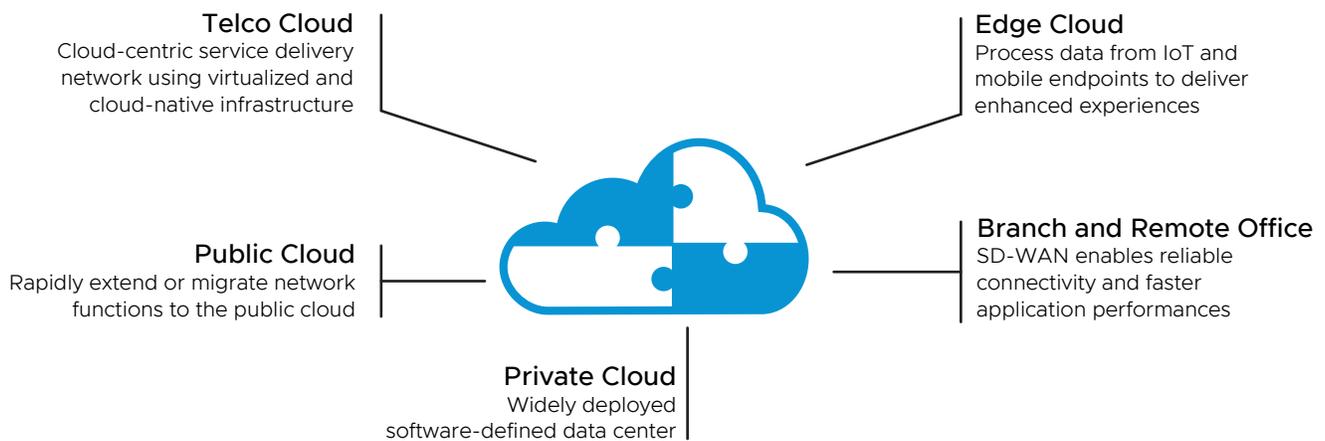
VMware vCloud NFV is a fully integrated, modular, multi-tenant network functions virtualization (NFV) platform. It provides compute, storage, networking, management, and operational capabilities to help simplify, scale, and secure production NFV services. The transformative platform allows CSPs to accelerate time to market, increase revenue, streamline operations, reduce network infrastructure costs, and deploy elastic business models for telecommunication workloads. Its flexible platform architecture allows CSPs to deploy applications and services today for 4G networks, deploy services at the edge, and seamlessly migrate to 5G networks.



With automation, scalability, and a flexible platform for creating and delivering new services, CSPs can begin to match the agility of cloud service providers. VMware vCloud NFV platform includes industry-leading virtualization products (VMware vSphere®, VMware vSAN™, and VMware NSX®); a choice of virtualized infrastructure managers (VIMs) such as VMware Integrated OpenStack and VMware vCloud Director®; and NFV operations management capabilities including VMware vRealize® Operations™, vRealize Log Insight™, and vRealize Network Insight™.

- VMware vSphere provides carrier-grade virtual compute designed to run modern and traditional applications side-by-side for optimized performance, high availability, fault tolerance, and workload optimization.
- VMware vSAN offers converged storage embedded in the hypervisor that can be co-located with the VNF workloads to minimize jitter and latency.
- VMware NSX enables granular overlay networking and security at the hypervisor level. This provides distributed network services for VNFs including granular network isolation using NSX microsegmentation and simplified operations.
- The vCloud NFV platform also provides CSPs with a choice of VIMs—VMware Integrated OpenStack and vCloud Director—for lifecycle management of NFVI compute, storage, and networking for both VM- and container-based workloads.
- VMware vRealize Operations Manager™, vRealize Log Insight, and vRealize Network Insight are fully integrated and provide real-time NFV operations monitoring, analytics, and optimization.

Embracing the multicloud vision: Through deep integration with public cloud platforms such as Amazon Web Services (AWS), hybrid cloud networking technologies like VMware Hybrid Cloud Extension (HCX) abstract on-premises and cloud resources and presents them to the CSP applications as one continuous hybrid cloud, offering ultimate deployment flexibility and cloud economics.



Infrastructure that evolves with modern application and services: CSPs want to leverage cloud-native methodologies to increase their competitiveness, build an environment where they can spin up services quickly, and realize operational gains. The vCloud NFV platform supports container-based VNFs with integrated container orchestration and management support. Enabling VM- and container-based network functions to run from a single VIM. The deployment of VNFs can be VM-only, container-only, hybrid—where a container will run in VMs providing security and isolation features—and heterogeneous mode, where some VNFs will run in VM, some in containers, alongside a mix of both, allowing CSPs to evaluate their deployment methods as per their requirements.

With the largest ecosystem of application and hardware vendor support, and continual evolution of platform interfaces to meet changing market requirements, VMware vCloud NFV provides a single platform capable of supporting all business functions today and for the future. With comprehensive cloud-native solutions from infrastructure to application, and open-source technologies for interoperability and rapid innovation, CSPs can develop cloud services quickly and easily.

Built on industry-leading virtualization and cloud-native technologies, the VMware vCloud NFV platform is uniquely capable of empowering CSPs to achieve the full benefit of NFV. Its combination of modularity, freedom of choice through open standards, mature ecosystem, future-ready agility, and carrier-grade support distinguish it from other offerings.

VMware vCloud NFV and Nokia TAS: A Strong Partnership

Nokia TAS delivered on vCloud NFV provides a superior value proposition for the CSP.

The power of industry leadership: Nokia and VMware are leaders in their respective markets. VMware is well known as a comprehensive supplier of high-performance and feature-rich virtualized and cloud technology. Nokia leads the market in worldwide VoLTE deployments and new 5G deployments and customer engagements. Both companies are recognized as experts in their fields, with extensive deployment experience and strong professional services. Our combined solution de-risks the deployment of new cloud-based communications networks and accelerates time to market for new 5G-based services.

A cohesive, pre-tuned solution: VMware and Nokia work together to pre-tune IMS-based networks delivered on VMware NFV platforms. Both companies invest in deep collaboration with architectural interlocks to ensure that the combined solution delivers maximum value. A pre-tuned solution reduces integration work and deployment risk, and results in faster time to production—at scale—enabling ROI and time to revenue for carrier services.

Seamless, efficient operations: A cohesive, combined solution also means streamlined operations, making them more efficient and effective. Service providers can spend more time creating new services that bring in additional revenue and less time managing day-to-day operations.

Bi-directional engineering for future-looking network architectures: Nokia and VMware are leaders in scaling solutions to mass production on NFV platforms, and invest in joint research to solve tomorrow's problems. Our R&D-to-R&D relationship allows us to learn from our respective expertise and ensure that we can bring the most advanced technology to our customers while catching problems before they impact live networks.

With the power of Nokia and VMware behind your network, you can be assured of fast time to revenue, efficient and effective NFV-based communications, and the strong support of two leaders in bringing cloud-based services to service provider networks.

Learn how these companies can help accelerate your telco cloud journey at telco.vmware.com.