

# VMware Simplifies SD-WAN Delivery For Telcos By Integrating With Ekinops NFVi Solution



In today's fast paced IT environment, telcos are looking to adopt two main disruptive technologies—network functions virtualization (NFV) and SD-WAN. They want to use NFV to quickly deploy and enable services at their customers' remote branches. They also require the ability to deploy services on demand, along with the ability to pinpoint failures and recover the failed sites while reducing or eliminating the need for truck rolls. Telcos want to offer their enterprise customers services that harness the power of SD-WAN to use multiple WAN transports simultaneously and maximize bandwidth, while ensuring application performance. Telcos are looking for a unique cloud-delivered SD-WAN architecture that offers these benefits for data center and cloud applications (SaaS/IaaS).

## Telco challenges

**Traditional networking brings its own set of challenges for telcos, which include:**

- All branches are connected back to the data center via MPLS circuits. Typically, branches access applications hosted either in the data center or in the cloud by backhauling traffic via MPLS links. Telcos want to offer local internet break-out to their customers while still guaranteeing SLAs, and providing visibility into link and application performance on a typical broadband connection.
- Telcos deploy physical devices for each service that they want to deploy on a customer site. This leads to the need for management and maintenance of a number of appliances. Also, more appliances increase the failure points at each branch, which can lead to outages.

**Meanwhile, adopting virtualization to solve traditional networking bring its own challenges:**

- While telcos want to deploy multiple services on a single hardware platform, the cost and complexity to integrate functions from different vendors on a single hardware platform for the branch—which can interoperate with existing OSS/BSS back-office systems—can be a challenge.
- Achieving an economic model for virtualization is challenging without a well optimized uCPE and middleware solution for functions like VNF resource usage and service chaining robustness. Further, uCPEs have to address needs for supporting multiple branch profiles, from small offices to larger headquarters or data centers.

Telcos need a NFV infrastructure (NFVi) solution that provides flexibility, robustness, multitenant capabilities and ease of deployment and maintenance. They want to move to a controller-led, software-defined architecture where universal customer premises equipment (uCPEs) can be easily onboarded using zero touch provisioning (ZTP) and virtual network functions (VNFs) deployed with a few clicks, while increasing the ROI and reducing TCO. With VMware SD-WAN® by VeloCloud™ and Ekinops NFVi solution, telcos can address all of the above challenges.

**TRADITIONAL NETWORKING CHALLENGES**

- All branches connect back to data centers via MPLS
- Physical devices must be deployed for each service on the customer site

**VMware SD-WAN and Ekinops**

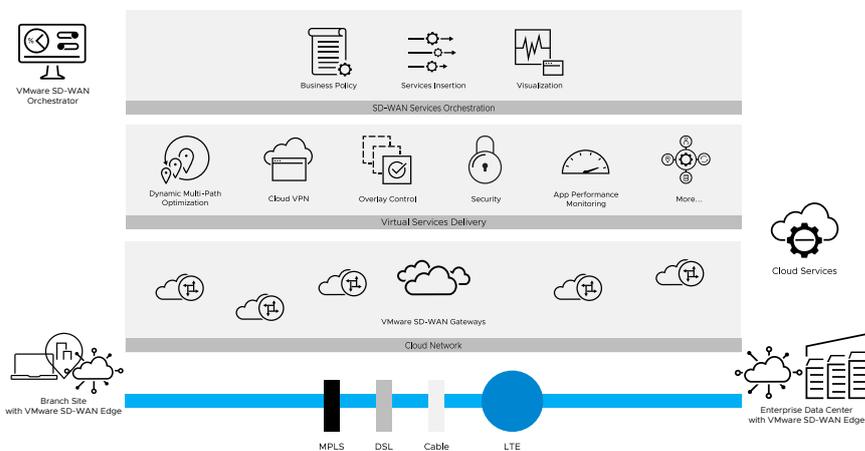
VMware is the industry leader in SD-WAN, delivering high-performance, reliable branch access to cloud services, private data centers, and SaaS-based enterprise applications. VMware SD-WAN consists of hosted or on-premises cloud gateways; branch office and data center appliances; a central orchestrator to automate policies; and virtual services insertion capabilities.

VMware SD-WAN was designed for network operators and application owners who want to ensure high application performance and availability for their customers and end users, while lowering networking costs. VMware SD-WAN ensures a reliable and resilient WAN, with a choice of connection types, including: MPLS, LTE, WiFi and broadband.

VMware SD-WAN combines multiple links and utilizes traffic steering technology to select the best path for each application in order to ensure performance and overcome quality issues and outages. It can detect slight degradation that would affect application performance, and it can improve performance over a single link using congestion mitigation technology, without any noticeable impact to the user experience.

VMware SD-WAN is built on software-defined networking principals to address end-to-end automation, application continuity, branch transformation, and security from the data center and cloud to the edge. The VMware architecture was built for delivery from the cloud and it is the only SD-WAN solution with a separate orchestration plane, control plane and data plane using a secure and scalable cloud network.

VMware SD-WAN enables enterprises to securely support application growth, network agility, and simplified branch implementations, while delivering high-performance, reliable branch access to cloud services, private data centers and SaaS-based enterprise applications.



Ekinops has 15 years of experience with Telco OSS/BSS integration and is invested in its Open Virtualization framework. This framework provides best-of-breed technologies to build a uCPE and deliver the associated management platform, together with a toolkit for rapid onboarding capabilities, while alleviating the complexity of such deployments.

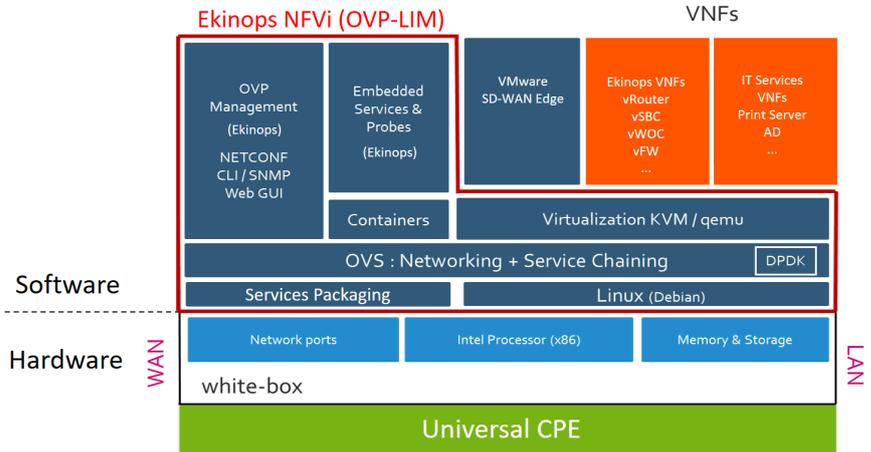
**VIRTUALIZATION ADOPTION CHALLENGES**

- Cost and complexity to integrate functions from different vendors
- Achieving an economic model of virtualization

The Ekinops NFVi solution, named OVP for “Open Virtual Platform”, is composed of several key elements, including the OVP-LIM (for Light Infrastructure Manager) which is the heart of the Ekinops solution. The OVP-LIM encompasses the NFVi role and the Virtual Infrastructure Manager (VIM) role when deployed on a x86 white box (the uCPE).

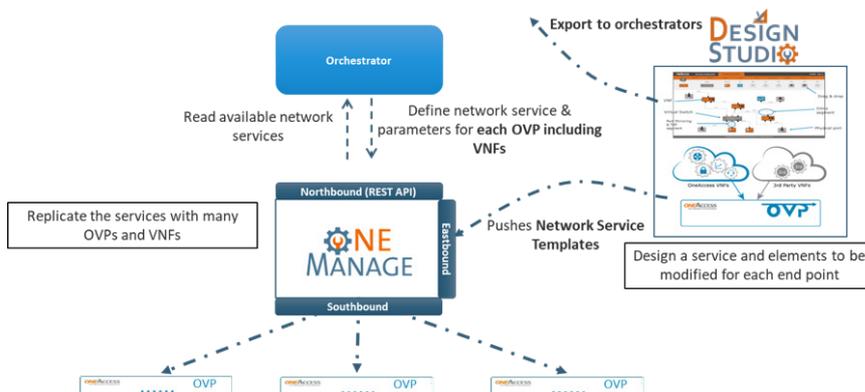
This lightweight approach allows for delivery of all the required services for efficient third party VNF onboarding while simplifying integration with the VMware SD-WAN Orchestrator by exposing a Netconf/Yang Northbound API complemented with a traditional telecom solution, such as one that uses SNMP. With such a solution, a partner can decide to directly integrate the Ekinops Solution into their existing OSS/BSS and Orchestrator or they can rely on the Ekinops Management suite to simplify this integration and speed up their time to market (TTM).

To complement the OVP-LIM openness, the underlying hardware platform hosting the OVP-LIM is a true x86 white box solution (the uCPE), either provided by Ekinops or by one of our partners. Ekinops recently announced a partnership with Dell EMC Inc. to provide such a platform.

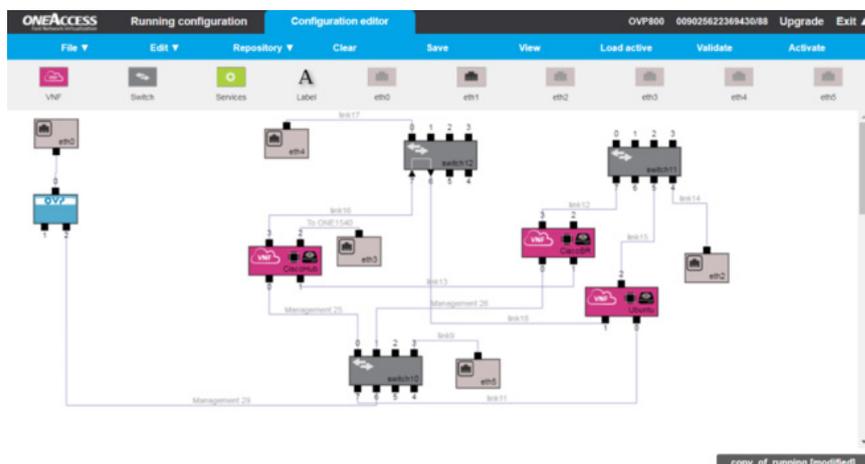


Together with the OVP-LIM, Ekinops offers an element management system (EMS) called OneManage that allows traditional performance and fault management (extended to underlying hardware). When it comes to provisioning and configuration management, OneManage extends its capabilities towards hosted VNFs by managing the VNF’s ability to perform basic management tasks, such as bootstrapping, and upgrades. It also manages network service insertion, leveraging a templating approach on which VNFs are chained according to the requested services.

OneManage offers a Northbound API, which customers can rely on to develop a feature rich uCPE management solution while integrating easily within a service management orchestrator. Concurrently, the OneManage platform can also interact with third party service orchestrators (such as VMware SD-WAN Orchestrator) to further simplify end-to-end integration, allowing a single point of interaction/activation for deploying a service and preventing a mismatch during the deployment process.



In order to further simplify service creation and insertion, Ekinops incorporates Design Studio to allow for easy creation of service templates. With a drag and drop approach, a customer can build a service chain in just a few clicks, associating VNF attributes (image, parameter, resources, networking capabilities and service logic) and finishing with a validation of designed services for the targeted platform. The output of the Design Studio is an XML file which is automatically propagated to OneManage and can be assigned to customers or devices. This file can also be consumed by a third party orchestrator.

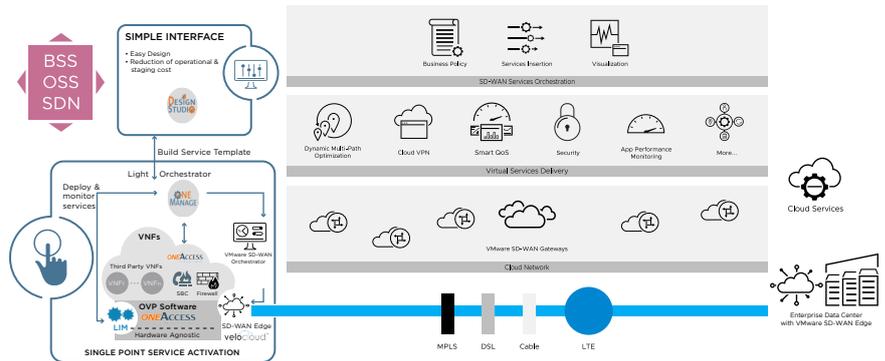


Along with the Design Studio tool, Ekinops is also offering services to telcos to certify any VNFs required to build a VNF store based on templates that can be offered to enterprise customers. Ekinops certification is composed of 5 levels from 0 to 4. When level 4 is reached, the VNF is fully integrable into the Service Provider OSS/BSS process. In other words, customers can manage: deployment, bootstrapping, ZTP, licensing, updating, performance and resource usage. VMware SD-WAN VNF is certified at level 4.

### Integration

Ekinops OVP is designed with network-centric elements. One of the key features of the OVP is its ability to support ZTP from within the operating system. When a platform running OVP is deployed and booted, the OVP first makes a call home to its management controller, OneManage. After successful authentication of the device, OneManage then securely communicates with OVP and instantiates the VNFs. OneManage provides northbound APIs that can integrate with existing upper level service orchestrators and use its southbound APIs to communicate with Ekinops OVP to deploy VMware SD-WAN and other VNFs. OneManage integrates with VMware SD-WAN Orchestrator's northbound API to gather all of the required day-0 configuration templates and attach them to the VMware SD-WAN VNF at the time of instantiation. This ensures that when the VMware SD-WAN SD-WAN Edge device boots up, it has all the necessary information to automatically do a ZTP call home to the Orchestrator and register itself. The network admin then manages the instance and can push further day-1/N configurations to the virtual instances. In order to scale, OneManage provides network service templates that allow the user to create a generic service template once and reuse that template across multiple sites.

By integrating VMware SD-WAN as a virtual edge on Ekinops' NFVi environment, customers can now reap the benefits of SD-WAN and virtualization, all while reducing the IT footprint at the branches. Customers can deploy a VMware SD-WAN and other VNFs on a single x86 platform using Ekinops OneManage orchestration platform.



### A winning combination

The combination of VMware SD-WAN and Ekinops OVP solves the two main telco challenges: it provides the capacity to offer carrier grade quality of services on top of any combination of network underlay (LTE, MPLS, Broadband) and it provides a robust and simple integration of those services on a branch form factor fully integrated into their back-office system (OSS/BSS) with a rich variety of functions. The VMware and Ekinops solution offers an economical model of SDN-NFV deployment for service providers and opens up a large market opportunity for deploying SD-WAN as a service.