

DATASHEET

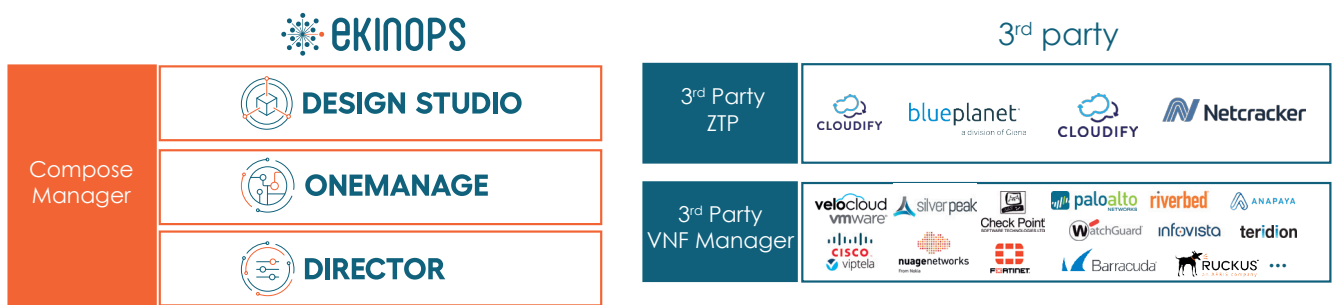
Open Network Virtualization



OneOS6-LIM (Local Infrastructure Manager) creates a virtualized compute environment to run multiple Virtualized Network Functions (VNFs) on a universal Customer Premises Equipment (uCPE).

Based on standard protocols and open data models, the programmable OneOS6-LIM middleware lays the foundation for hosting, chaining and managing both Ekinops and third party VNFs.

OneOS6-LIM is part of the Ekinops' Compose ecosystem that includes uCPE hardware (Open Virtualization Platform), a Zero Touch Provisioning (ZTP) tool (OneManage), a graphical network service design tool (Design Studio), and many alliances with third-party VNFs and network orchestration vendors.



Branch Edge



* LIM: Local Infrastructure Manager (hypervisor)
 ** OVP: Open Virtualization Platform

OneOS6-LIM in the Ekinops Compose ecosystem

Open Platform



OneOS6-LIM is a 100% open middleware using off-the-shelf x86-based white-box CPE hardware.

Service Providers can choose best-of-breed network functions, hardware (uCPE) and orchestration and management tools to execute seamless integration with any type of network to create unique and competitive service offerings.

Supporting both NETCONF/YANG and legacy management protocols, OneOS6-LIM is the ideal platform to implement fully automated networks while maintaining well-known management interfaces such as industry standard CLI, TR-069, SYSLOG and SNMP.

OneOS6-LIM avoids any vendor lock-in. Following diagram shows how OneOS-LIM integrates with different uCPE hardware, different VNFs and different orchestrators.

OneOS6-LIM

Advanced Embedded Router Functionality



OneOS6-LIM comes with embedded OneOS6 routing capability. This router includes Layer 3 functions including firewall, encryption and tunnelling mechanisms. This router can be unlocked for providing high-speed connectivity to end users with speeds up to 10 Gbps (license based).

When routing is required, no need for add an additional VNF. This means resources are optimized in terms of use of local computing resources, freeing up processing capacity for other VNFs.

Same uCPE and pCPE Operating System



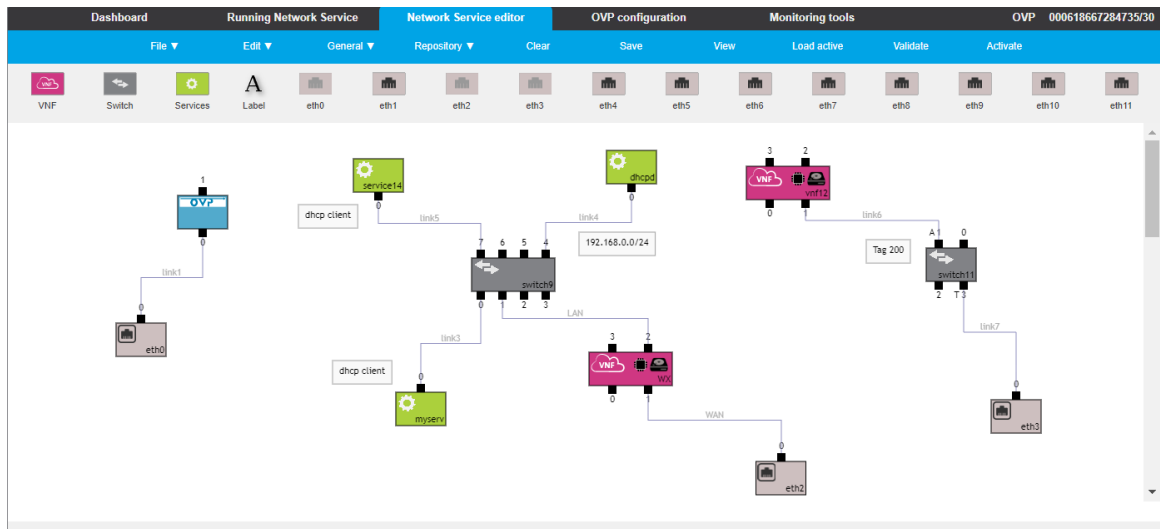
OneOS6-LIM shares the same OS as the physical routers (pCPE). Sharing the same operating system over different types of platforms offers the great advantage of being able to combine both types of products in a global network, sharing the same functionalities and operations. It makes it possible to combine the best from physical and virtualized worlds gaining on flexibility and cost-effectiveness.

Embedded GUI



Although not required for operation in an orchestrated network, OneOS6-LIM provides a powerful front-end for the configuration and troubleshooting of VNF service chains. Using a Web GUI interface, this part of the OneOS6-LIM manager enables the setup of a complete service chain using drag and drop for physical interfaces, VNFs and test probes. Once tested and debugged, the topology of the tested service chain as well as the associated VNFs can be exported using NETCONF to be used in the overall service provisioning chain.

Full Turnkey Solution

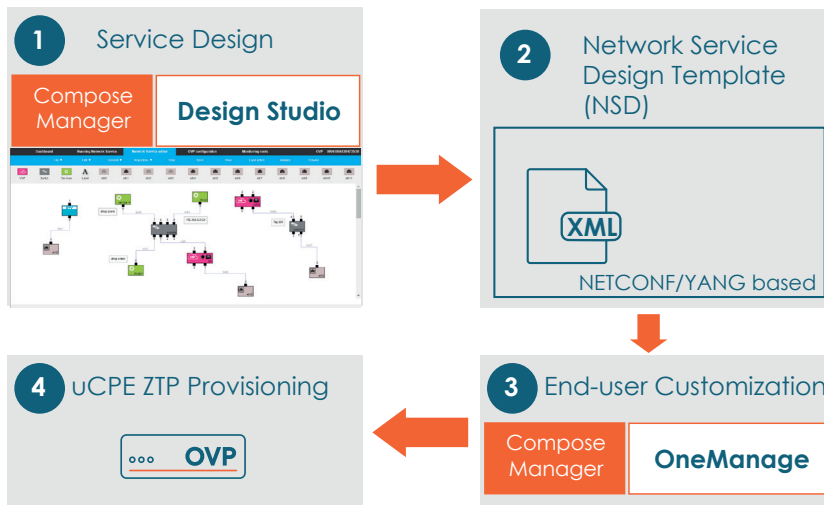


The full solution includes the Ekinops OneManage ZTP server and the graphical Design Studio network service design environment. The Ekinops Design Studio enables and accelerates the design of new service chains on the OVP. This tool generates XML descriptions of a new service chain in the OVP and these NETCONF/YANG service descriptors can be used as service templates.

OneOS6-LIM incorporates a KVM Hypervisor for hosting Virtual Machines (VMs), Open Virtual Switch (OVS), embedded router functions, micro-services and extensive management interfaces.

Providing a full turnkey solution helps Service Providers in shortening drastically their time to market, from initial service design up to the actual service delivery.

OneOS6-LIM



The learning curve for network engineers is a matter of days. A full network automation is achieved in weeks, comparing with months or years required with traditional OSS solutions. The initial investment is greatly reduced, which de-risks the uCPE business case.

Rich VNF store



In order to support the widest possible service design capabilities, Ekinops already certified dozens of third-party VNFs, including their on-boarding capabilities, and their support to be used in a ZTP environment. For this purpose, Ekinops delivers an open certification program, which includes both the certification of baseline on boarding, as well as performance checking and integration into specific end-user environments.

OneOS6-LIM Use Cases

Appliance Consolidation



Consolidation of multiple network appliances on one single hardware platform, reducing the cost of installation and maintenance of multiple boxes at the customer premises.

Flexible Service Enablement



Service enablement of telecom services at the customer site and, once installed, creation and provisioning of new services on-demand, without the need for truck rolls and on-site intervention.

SD-WAN



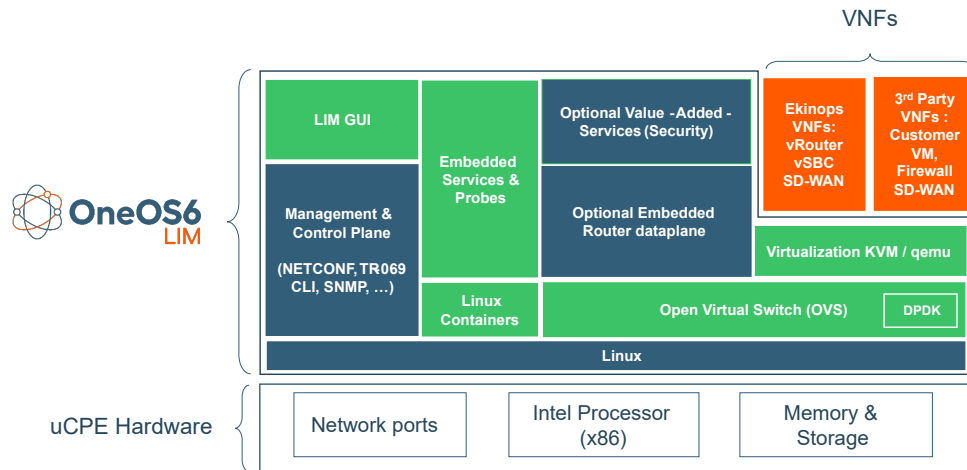
Operate virtualized SD-WAN Edge on a virtualization platform, avoiding hardware lock-in from the SD-WAN supplier and being able to create a service chain containing other VNFs like firewall or local IT services.

Unified Platform for Network Functions and Local IT Applications



Combine VNFs and PaaS (Platform as a Service) to extend the scope of the services offered to customers and increase the ARPU (Average Revenue Per User). This is especially interesting to address vertical market segments like Retail, Manufacturing, Bank & Insurance, Logistics, etc.

OneOS6-LIM Specifications



Software Architecture

- 100% open hosting platform for multi-vendor VNFs avoids vendor lock-in
- Linux-Debian-based
- Remotely upgradable (full upgrades or incremental via patches)
- Virtualization with KVM/Qemu via libvirt
- Container-based services: DHCP server, NAT, network probes to monitor connectivity
- Optional embedded enterprise-grade OneOS6 virtual router optimizes the use of local compute resources and minimizes resource footprint

Network Connectivity Capabilities

- OVS (Open Virtual Switch), integrated and managed, VLAN tagging, Port Mirroring
- Virtual switches are used to connect all elements of the service graph including OVP management, physical ports, embedded services (DHCP, etc.), VNF interfaces, management interfaces and test points
- When allowed by the configuration and/or hardware, the use of OVS can be substituted by any of: DirectIO between a VNF and a physical port, PCI passthrough, SR-IOV (VM-to-VM).
- Support of LTE (on selected hardware)

Network Management

- All functionality modelled in YANG for seamless integration with service orchestrators using NETCONF/YANG for service automation
- Includes SSH, CLI and TR-069 support for gradual migration of management systems and operational support
- Powerful HTTPs GUI enables to create and debug complex service chains in no time
- Supports Syslog and SNMP event logging and fault management

VNF Management

- VNF images (download, settings)
- VNF instances lifecycle management (configure/start/stop/pause/resume/snapshot)
- VNF states are saved and restored after boot
- VNF config drive / cloud-init
- VNF CPU load, network traffic monitoring
- VNF service chains via an intuitive GUI
- Console access for any VNF through the GUI

Compose Ecosystem

- Ekinops' and third-party: over 30 tested in various categories including: SD-WAN, firewalls, Wan optimization, WiFi management, etc. (*)
- Integration in wide range of third party hardware vendors (*)

(*) List available upon request

Order Codes

OneOS6-LIM Licenses

The license of the OneOS6-LIM is dependent on the number of virtual CPUs (threads) of the underlying uCPE hardware. It is the base license for enabling the virtualization capabilities of the OneOS6-LIM.

OneOS6 e600 Licenses

The optional OneOS6 e600 license unlocks the full potential of the embedded router. This license is only required when this enterprise grade router is needed as part of the service design. The OneOS6 e600 license is dependent of the needed routing capacity, from 50 Mbps up to 10 Gbps.

OneOS6 e200 Licenses

The optional OneOS6 e200 license unlocks the full potential of the embedded router. This license is only required when this enterprise grade router is needed as part of the service design. The OneOS6 e200 license is dependent of the needed routing capacity, from 50 Mbps up to 1 Gbps with up to 25.000 concurrent sessions.

OneOS6 ACS Licenses

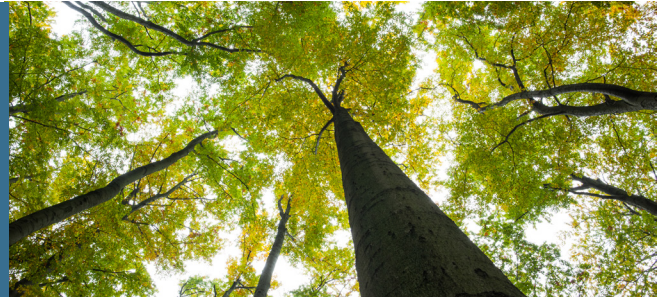
The optional OneOS6 ACS (Advanced Connectivity and Security) license provides additional security features such as DMZ on the embedded OneOS6 e200 and e600 router. As a pre-requisite, the OneOS6 e600 license needs to be installed.

Supported Hardware

As a software designed for white boxes, OneOS6-LIM is highly portable and has been proven on hardware from the following vendors as well as the Ekinops OVP:



About Ekinops



Ekinops is a leading provider of open and fully interoperable Layer 1, 2 and 3 solutions to service providers around the world. Our programmable and highly scalable solutions enable the fast, flexible and cost-effective deployment of new services for both high-speed, high-capacity optical transport networks and virtualization-enabled managed enterprise services

Our product portfolio consists of three highly complementary product and service sets: Ekinops360, OneAccess and Compose.

- Ekinops360 provides optical transport solutions for metro, regional and long-distance networks with WDM for high-capacity point-to-point, ring and optical mesh architectures, and OTN for improved bandwidth utilization and efficient multi-service aggregation.
- OneAccess offers a wide choice of physical and virtualized deployment options for Layer 2 and Layer 3 access network functions.
- Compose supports service providers in making their networks software-defined with a variety of software management tools and services, including the scalable SD-WAN Xpress and SixSq Edge-to-Cloud solutions.

As service providers embrace SDN and NFV deployment models, Ekinops enables future-proofed deployment today, enabling operators to seamlessly migrate to an open, virtualized delivery model at a time of their choosing.

A global organization, Ekinops (EKI) - a public company traded on the Euronext Paris exchange operates on 4 continents.

EKINOPS360
Dynamic Optical Transport

ONEACCESS
Fast Network Virtualization

 **COMPOSE**