COMPOSE

ekinops
Empowering Networks

SD-WAN Xpress

To support service providers and enterprises, Ekinops has extended its widely deployed branch routing solution (OneOS6) on pCPE & VNF to include SD-WAN ready functionality.

The solution supports service providers in evolving their WAN offers and leverages a software-defined approach to deliver services while reducing deployment complexity.

SD-WAN Xpress functionalities focus on delivering high value to small and medium enterprises (SMB) or large enterprises with small offices (Point of Sales) by simplifying their usage of WAN connectivity, securing their critical business applications traffic and delivering an affordable approach for secured Internet break out.

Complete with robust visibility and delegation capabilities, SD-WAN Xpress enables service providers to rapidly deploy or upgrade their business VPN offer with agility, security and visibility.

Features & Benefits

Features	Benefits
One-box Solution SD-WAN Xpress is a service included in OneOS6, therefore available on all Ekinops pCPE and uCPE routers. Xpress is also available on our vRouter VNF to run on any white boxes.	Service providers can reduce their operational costs by having a single box for all services and all connectivity (DSL, 4/5G, G-FAST, Fiber ....
Multi-tier & Multi-tenant Management SD-WAN Xpress comes with an SD-WAN management platform called Director. The Director offers a 3-tier approach allowing service providers to delegate to a partner and to a customer while offering a consistent interface to each of them.	Service providers can address their various go-to-market models: direct, indirect, full managed services and co-management, within the same solution. Director delivers a customer portal (and partner portal) to accelerate market launch and provides a single point of interaction with OSS/BSS.
Flexibility and Scalability SD-WAN Xpress leverages best-in-class architecture with a clear split between data, control and management plane allowing scaling on demand.	Service providers can leverage their existing assets to extend their services to their customers. Ekinops SD-WAN is unique as it avoids disruption by offering this extension.
Simplicity Zero-touch provisioning, underlay configuration, LAN services deployment, all can be achieved through the Director and its northbound interface. SD-WAN Xpress is template-based in order to replicate rapid deployments with limited efforts.	Service providers can easily address SMBs and offer SLAs, even for very small configuration.
Visibility SD-WAN Xpress enables customers, partners and service providers to rapidly monitor their network/infrastructure and define the best strategy to match their connectivity to their usage.	Optimize connectivity and monitor which applications contribute to network consumption in order to take the right business decision.
Application Centric SD-WAN Xpress comprises a powerful application recognition engine, allowing "1st packet" identification of over 4,500 applications including SaaS applications.	More and more applications are delivered through the Cloud. The ability to rely on applications and ensure efficient steering is essential.
Security SD-WAN Xpress decides which applications can be trusted, which traffic must be sent over to a firewall (on the Cloud or on premises), and protects the local interface to prevent intrusion.	Service providers can avoid additional firewall deployment for small sites.

Use Cases

Dynamic and agile business VPN

For: Small and Medium Business Enterprise, Point of Sales

Building a VPN over multiple underlay types within a dynamic environment (new sites, temporary sites, over 4G, mixed MPLS and Broadband, etc.) requires important efforts to deploy and sustain. The context gets even more complex when customers need some segregation and protection for their business critical applications.

SD-WAN Xpress enables service providers to deploy VPNs in this type of environment in a few clicks (or through API). Xpress will adapt to the underlying technology for optimal usage and will provide simple and easy segregation both to protect high priority business applications and to isolate traffic from others for confidentiality.

Thanks to the Ekinops one-box approach, service providers will continue to fully manage their underlay networks and will be able to simplify operation and deployments.

Cloud service enablement / hybrid WAN

For: Enterprise engaged in a digitalization project

Enterprises are moving traditional services to the Cloud (O365, Human Resources, Security, etc.). However, they need to preserve the Quality of Experience (QoE) which is essential to guarantee proper acceptance. This is a challenge from both a network and an agility standpoint. Companies want to avoid the "trombone effect" which affects QoE and need to carve localized services with strong security while minimizing latency.

SD-WAN Xpress simplifies the acceptance of Cloud services by setting specific applications on "local break out". Those services are localized, allowing the best possible QoE. Xpress recognizes amongst 4.500 SaaS applications to simplify their access without compromising on security thanks to an embedded zone-based firewall. Service providers also get a DDoS protection of the CPE when enabling local Internet breakout.

Appliance consolidation and flexible service enablement

For: Small and Medium Enterprise sites

SD-WAN is traditionally delivered as an add-on of the service provider connectivity, i.e. with a dedicated appliance interconnected to the service provider's CPEs which makes the deployment and the management of such solution complex and costly.

As an embedded feature of the OneOS6 operating system, service providers can begin using SD-WAN at any time just by applying an activation license. Service providers can continue to manage their underlay connectivity and parameters and the SD-WAN out of the same solution.

Simplified management solution for simplified operations

For: Service providers' operational teams and partners – Customer specialist

Traditionally, service providers required several sub-systems to manage their infrastructure and to offer their customers dedicated services, which only they could access. Developing appropriate customer portals implied significant effort and time and very often limited the delegation capabilities to their end customers. Today, the trend is for customers to ask for self-managed services to gain agility; an agility often seen as a threat by their service provider.

The Ekinops Director is a multi-tier and multi-tenant solution. Each tier has its predefined roles. The service provider, depending on its organization, can decide to fully manage or delegate part or the entire SD-WAN configuration to its customer. Concurrently, the Director is also managing the underlay part of the network but this part is reserved to the service provider. By having a single simple solution, service providers can, for instance enhance their operations or troubleshooting using the Director as the reference for the deployed solution (from underlay to overlay).

# Director - A multi-tier & multi-tenant solution

DIRECTOR

The Director delivers all the FCAPS functions of an Network Management System (NMS) and delivers powerful User Interfaces (UI) to delegate activities, if needed. Director is a 3-tier model, each tier having its dedicated UI focusing on its field of responsibilities.

While providing usual SD-WAN configuration capabilities, the Director enables service providers to enroll pre-provisioned equipment automatically (zero-touch provisioning). Service providers may also provision (or update) underlay configuration elements from the Director. They can operate their deployment seamlessly and simplify migration scenarios through a true "one-box" solution: an Ekinops pCPE handles a multitude of underlay types, centrally managed by the Director.

The Director utilizes a template and delegation model from the service provider up to the end customer. New customers can rapidly be deployed using a single template freeing up service providers to focus on customer-specific requirements as needed.

The Director comprises a partner portal enabling partners to deliver managed services to their end customers leveraging a common infrastructure delivered and sustained by the service provider. As such, service providers can leverage the same solution across their various go-to-market models: direct, indirect or project-based from the same infrastructure.

Customers may also directly monitor their SD-WAN deployment from their dedicated portal and depending on the granted delegation level perform some actions like traffic steering rules definition, site enrolment, LAN service configuration, etc.
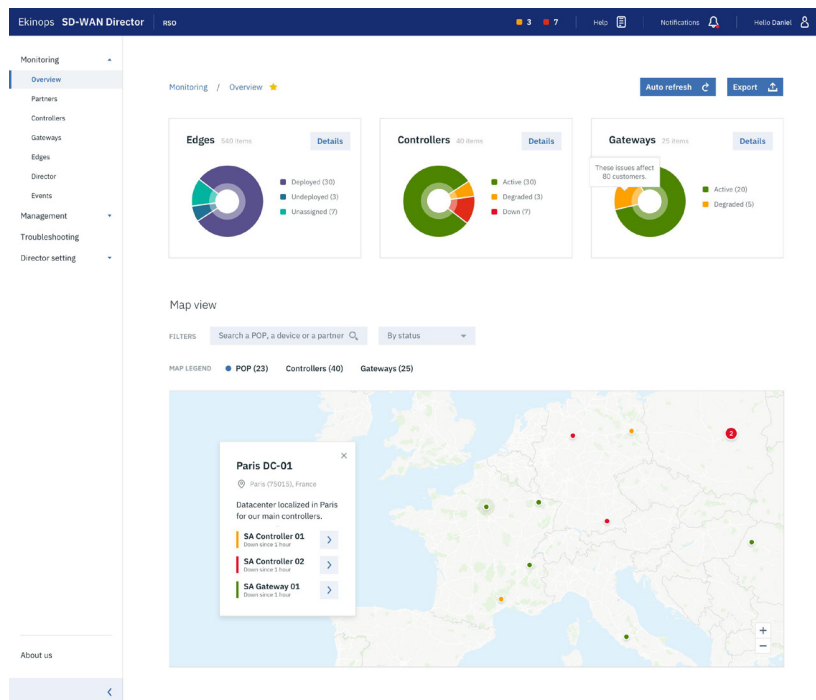
Controllers

The controllers manage the control plane of the SD-WAN solution. This encompass the following services:

- Zero-touch provisioning
- Route reflectors
- Key servers
- Collectors (netflow collector)

CONTROLLER

Controllers are delivered as Virtual Machines (VMs) and are multi-tenant. Controllers can be shared between customers (and partners) making scaling from small to very large networks possible.

Each service can be deployed separately or combined within a single controller using containers. This architecture can dedicate a controller for a specific customer to answer the most stringent isolation requirements or can specialize controllers for large-scale multi-tenant deployments.

SD-WAN Xpress Main Features

Edge Features	
Service Provider demarcation CPE (xDSL, Fiber, 4G, MPLS) inc. underlay configuration (PPoE, etc.)	Yes
Dynamic Edge to Edge	Yes
Topologies: Full Mesh, Hub & spoke, Hybrid	Yes
Blackout/Brownout Protection/Link Steering	Yes ~3s
Segmentation	Yes
Aggregate Capacity for higher WAN Utilization (Local Break out)	Yes - Roadmap (ECMP: session, Destination, LLF)
Auto QoS—Adjusts with link & Apps	Partial
Edge H.A	Yes
Routing Support on LAN for Flexible Insertion	Yes (BGP, OSPF, static)
Uni and Bi-Directional Link Measurements	Yes
Applications	
Application recognition and Custom defined (5 Tuples)	Yes (3000+)
1st Packet identification	Yes (inc. SaaS)
Granular App Aware Policies QoS	at Overlay level
Application Break out: Local, Distant (DC), CLOUD service	Yes
QoE measurement	Yes
Application SLA performance (E2E)	Partial
Services	
Integrated Services— WLAN, DHCP server, port forwarding	Yes
MPLS and Service Gateway	Yes
Security	
Device Authentication (IKEv2) – configurable lifetime	Yes
VPN encryption traffic: AES, GCM,... per tunnel	Yes
VPN Key update (per Tunnel) – configurable lifetime	Yes
Zone based Firewall, ACL, NAT, ...	Yes
DDOS protection	Roadmap
Secured Break Out to CLOUD services (AWS, Azure)	Roadmap
Cloud Security services with VPN monitoring (Zscaler)	Yes
URL filtering based on category	Roadmap
Management	
Delivered On Premises	Yes
Multi-Tier Management solution with Self-service GUI	Yes
Integrated Service Provider Portal with dedicated RBAC	Yes
Integrated Partner Portal with dedicated RBAC	Yes
Integrated Customer Portal with dedicated RBAC	Yes
Troubleshooting tools	Yes
Visibility	Yes
REST API Framework	Yes
PKI Support for VPN	Partial (integrated)
NFV readiness	
vCPE Ready (x86)	Yes
Third-Party Security VNF on Edge	Yes
ONEV600 on AWS, Azure, Google	Roadmap
Director as a single Management platform for uCPE/SD-WAN	Roadmap

COMPOSE

Supported Hardware

Ekinops SD-WAN solution is running on all the Ekinops devices running OneOS6, which includes a large range of pCPE offering multiple connectivity options, the Ekinops vRouter (ONEV600) as well as uCPEs (Ekinops and third-party).

Product	OneAccess pCPE family					Ekinops vRouter		
	ONE421	ONE521 ONE526 ONE531 ONE1526	ONE2501 ONE2511 ONE2520	ONE2540	ONE3540	ONEv600-100	ONEv600-500	ONEv600-1000
Throughput performance								
Aggregated recommended WAN speed in Mbps	200	400-700	1200/2000	2000/4000	20000	200	1000	2000
Aggregated recommended **SD-WAN Xpress** speed in Mbps	60	100	500/1000	2000	10000	100	500	1000
Connectivity								
WAN interfaces supported - Wireline	A/VDSL 1x GbE	A/VDSL 1x GbE 1x SFP	2x GbE 2x SFP	2x GbE 1x SFP	2x SFP+ (10Gb) 2x SFP+ (opt)	Ekinops uCPE platforms offers a wide range of supported interfaces		
WAN interface supporter - Wireless	NA	4G optional	4G optional	NA	NA			
LAN interfaces	4x GbE	4/12x GbE (12= optional on ONE521/531)	4/8x GbE (8=optional on ONE2501)	8x GbE	15x GbE			
WiFi	Dual concurrent 11acbgn	Dual concurrent 11acbgn	ONE2501: Dual concurrent 11acbgn	NA	NA			
PoE	NA	ONE521, ONE531: optional (up to 8 ports)	optional (up to 8 ports on ONE2501)	NA	NA			
Voice ready (eSBC)	optional	optional	optional	optional	NA	optional	optional	optional

Ekinops is also extending the support of SD-WAN to its OneOS6-LIM. As a software designed for white boxes, OneOS6-LIM is highly portable and has been proven on hardware from the following vendors delivering rich uCPE functionalities.

DELLEMC   Lanner   ADVANTECH   Silicom Connectivity Solutions   Hewlett Packard Enterprise

Ekinops sells OneOS6-LIM pre-installed on the following hardware:

Hardware Name	Processor	Number of vCPU	RAM	SSD	Ports	Redundant PSU
OVP404	C3558	4	8 GB	120 GB	2 SFP + 6 UTP	No
OVP408	C3758	8	16 GB	120 GB	2 SFP + 6 UTP	No
OVP808	D-1518	8	16 GB	240 GB	12 UTP	No
VEP-4600 E	D-2145	8	16 GB	240 GB	2 x 10G SFP + 4 UTP	No
VEP-4600 M	D-2145	8	32 GB	1 TB	22 x 10G SFP + 4 UTP	No
VEP-4600 L	D-2187	16	32 GB	256 GB	2 x 10G SFP + 4 UTP	No

All the routing functions of OneOS6 are now embedded in the OneOS6-LIM and can be enabled via a licence. As such, OneOS6-LIM becomes eligible to deliver rich SD-WAN features as a base service for uCPE use cases. Service providers can choose from an extended hardware portfolio to support any type of deployment requirements.

(NB: Ekinops OneOS6-LIM remains fully compatible with the deployment of third party SD-WAN solution as a VNF).

COMPOSE

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.

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 in 4 continents

EKINOPS360
Dynamic Optical Transport

ONEACCESS
Fast Network Virtualization

COMPOSE