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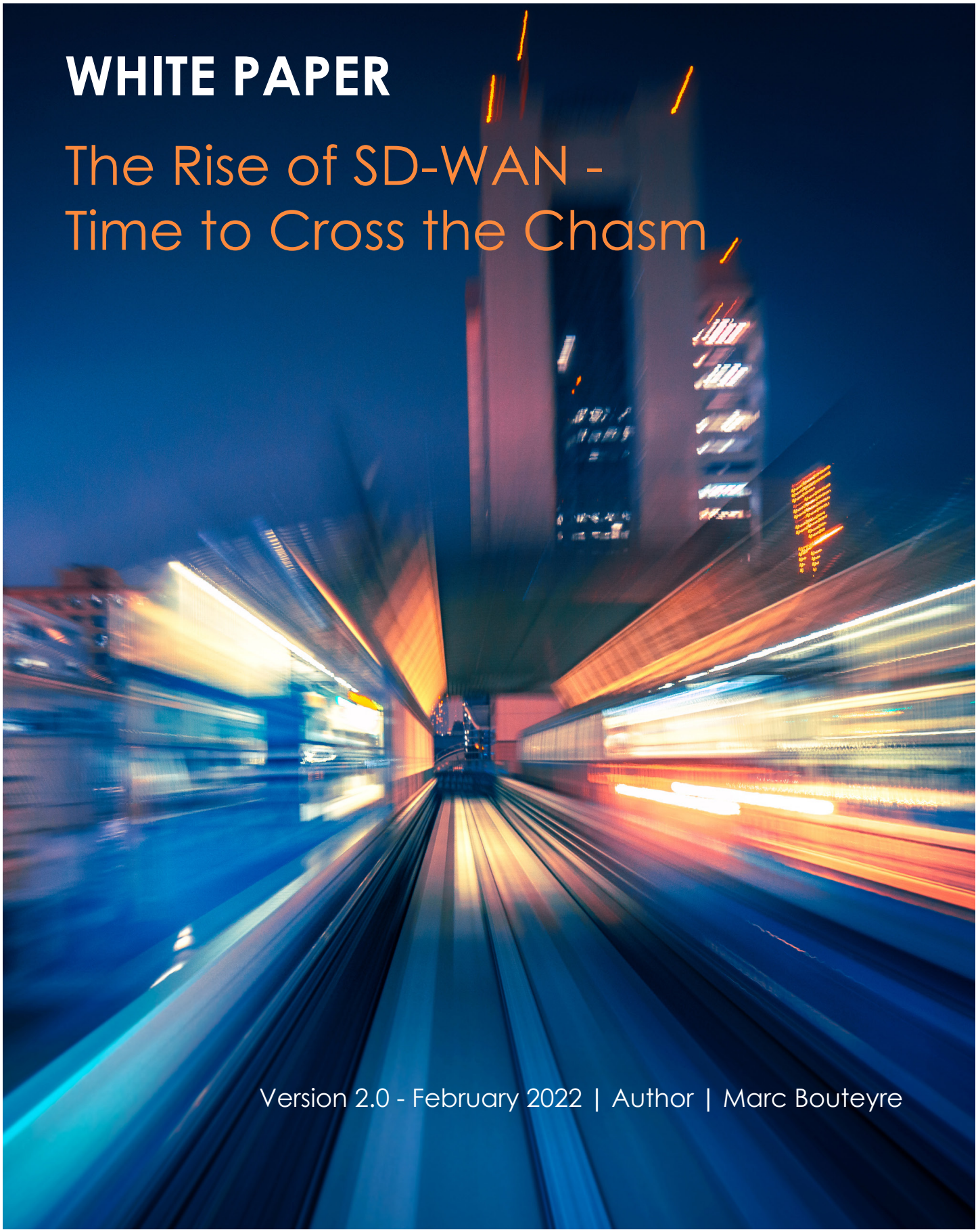
WHITE PAPER

The Rise of SD-WAN - Time to Cross the Chasm



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Key Findings and Market Status

Over the past years, the global SD-WAN market has experienced rapid growth, reaching a value of around $1B in 2018 according to analysts at Global Markets Insights. Driven by the demand for cost effective WAN management solutions, the increasing adoption of cloud technologies, the need for simplified network architecture, end-to-end network security and visibility, the market is forecast to grow at over 30% CAGR through to 2025. [1]

As defined in Moore's – "Crossing The Chasm" [2] description of high tech products lifecycle and adoption, now is the time of "Early and Late Majority" adoption of the SD-WAN: the mass market.

In the Innovators and Early Adopters phase, end users have deployed various SD-WAN solutions designed to improve their branch-office networks with broadband services. Some managed to reduce costs associated to legacy MPLS connectivity, with varying degrees of success as some hidden cost emerged as well. Based on these pioneer user experiences, analysts have been able to evaluate the main benefits delivered by SD-WAN and provide guidance on "if and when" to deploy a SD-WAN approach to network architecture.

One key finding is that the rate of adoption has not been uniform across the globe. The original promise of SD-WAN related to MPLS cost reduction was met in some countries such as North America where MPLS is expensive and high-speed broadband access is widely available. This has led to the US showing the largest growth in SD-WAN adoption.

However, in EMEA and APAC, MPLS replacement by internet-only based SD-WAN has not happened for a variety of reasons. Firstly, the cost of an MPLS connection has remained at a reasonable level in many countries. Secondly, there is a wide variation in the quality and cost of Internet connections, as well as real issues with security, in some regions with some countries even preventing VPN connections over Internet. In addition, many SD-WAN early adopters, particularly in EMEA & APAC were looking to complement rather than replace MPLS. This has led to the need to combine multiple types of access technologies including Ethernet, xDSL, LTE and GPON while keeping existing routers in place, making the "One Box" consolidation cost reduction proposition unachievable.

[1] https://www.gminsights.com/industry-analysis/software-defined-wide-area-network-sdwan-marke
[2] Geoffrey *A Moore - Crossing The Chasm. Marketing and Selling Disruptive Products to Mainstream Customers*

SD-WAN Benefits: Not Just Cost Reduction

So, why are some countries now adopting SD-WAN, even if at a slow pace, and driving the late majority to cross the chasm? The reason is that SD-WAN is offering multiple benefits other than cost reduction. Simplifying network management, improvements in connectivity usage, secured local breakout for trusted applications, better visibility and control of applications and networks are all key drivers in the decision process. Crucially SD-WAN allows enterprises to adapt their network needs to their applications, without complexity. In the end, all enterprises around the globe are undergoing rapid digital transformation to enhance their business activities and competitiveness making solutions such as SD-WAN a must.

Given these benefits what is required for SD-WAN to become mainstream? Some key value propositions are expected by early and late majority enterprises. Those are mainly SMBs or are from verticals adopting Digital Technologies in a second wave.

1. **Simple.** Everyone prefers simple rather than complex solutions. Even more so for enterprises without networks expertise, where you do not or cannot invest in an army of gurus but still need to adapt networks to business trends. Here, you expect a UI (User Interface) that "talks" applications and lets you decide what is critical. You want managed services for all operational tasks so you can focus on what matters for your business. You expect that your existing branch router can do it all or at the minimum that you can replace existing numerous boxes by one, and only one, to control everything that is WAN Edge.

2. **Open.** Adopting SD-WAN should not mean a jump into the unknown and a rush into a "rip and replace" approach. Some of the key questions that need to be carefully considered include: Shall I replace my current service provider who is doing a good job? Shall I cancel my MPLS contract for which I have SLAs? Shall I drop my security solution that is protecting us well today? The first wave of SD-WAN solutions were demanding all of that as a requirement to be in control of applications traffic. Now, an SD-WAN solution must be open to existing assets, must leverage MPLS as well as other connections and allow service providers to support their customers while offering more flexibility. For enterprises that have different sites in various regions, it is expected that SD-WAN can be adapted to the local requirements to the point that some might never actually use the SD-WAN solution except for communicating with the others in the group.

3. **Future-proof.** Enterprise are not investing for 1 or 2 years, not even 3. They expect a long-term solution. As networking technologies are constantly evolving, the SD-WAN solution cannot be static. This starts with the hardware. Take 5G for instance; while it is promising as an access technology, 4G will still be dominant for the next 5 years and is likely needed for another 10 years or more. Although fiber is being widely rolled out many places in the world are still relying on their existing legacy copper networks. The predicted MPLS decline is slow which means xDSL is key but not enough. The SD-WAN appliance must support all of these access technologies. In addition, SD-WAN has to be agile and able to adapt to new and specific security threats that exist between the datacenters and the cloud then from cloud to edge networks. Last, the SD-WAN solution needs to be flexible in itself. Enterprises need to be able to deploy at their own pace, decide which SD-WAN functions are required per site and not as a whole. They need some guarantees that the SD-WAN solution they implement is OK for today's site configuration and will still be usable in 5 years.

An Opportunity for Service Providers

For the vast majority of enterprises with limited technical resources in-house, implementing SD-WAN is not a realistic a "Do It Yourself" proposition. Businesses need to rely on trusted experts who can guarantee a smooth and successful deployment of SD-WAN configured to their own operational and network requirements.

That represents a major new opportunity for service providers who have the necessary proven skills and experience. During the "Innovators" phase, many MSPs perceived SD-WAN vendors as a threat they had to fight in order to preserve their business. In a way, they were right to be concerned as the early SD-WAN vendors launched with deliberate "anti-Telcos" messages. But today, it is obvious that unless you are either an SMB with very few sites in a same neighborhood, or a super-sized multi-national acting as a telco, deploying and operating an entire network is not a skill most enterprises host internally, which has led to a strong growth in outsourcing a wide range of IT and networking resources.

The challenge for MSPs is skill up and expand their portfolio to diversify from their traditional connectivity services. They have to offer the expected flexibility for end users to adapt networks to applications needs, and then expand with security, cloud and other new services.

Many MSPs have already begun the process by adding SDN-NFV technologies to their range of skills needed to support the digital transformation process. This approach is stable now and it remains viable for some use cases but not all. SD-WAN represents the next logical step for service providers to enhance their portfolios and enable their customers to leverage the full benefits of an Internet and cloud based communications infrastructure.

Whilst being able to offer the necessary skill set is essential, MSPs also need a flexible, multi-functional hardware platform in a single device, which is easy to configure, with multi-tenancy and multi-tier capabilities that can support a hybrid MPLS/Internet meshed overlay environment offering the guarantee of a smooth migration for end customers.

Even more importantly, it requires a trusted SD-WAN vendor relationship in which the service providers can remain in control of the business model and the end-customer relationships while also guaranteeing long term portfolio sustainability.

The Ultimate SD-WAN Features

So, what are the essential requirements for MSPs wanting to help their customers to cross the chasm?

#1 A single SD-WAN box. A real one

With an Ethernet port and some routing functions, you can have a "One Box" solution for the WAN Edge. Yet this only matches just a fraction of the network topology. A real "One Box" has to be a "One Box" for all topologies and functions supporting multiple interfaces including Ethernet, LTE, xDSL, GPON, Wi-Fi and 5G, as well as all routing and security protocols in addition to the SD-WAN functions.

Ideally SD-WAN needs to be considered as an evolution of the existing CPE, rather than as a replacement requiring a new box to deploy. The prospect of having to change existing routers or add multiple new boxes at the WAN edge has been a characteristic of the early SD WAN solutions and has been a major factor stopping the late majority from crossing the chasm.

#2 Hybrid is the norm! Leveraging existing infrastructure…

Equally, many businesses have strong, legitimate reasons for wanting to retain their MPLS connections for critical business applications. MSPs need to be able to provide for this requirement alongside SD-WAN functionality via dedicated connections that support the full range of end-to-end communication options in a single box.

In addition, not all branch sites will need the same SD-WAN features and configurations. For some, the priority is to lower cost of bandwidth. For others, dynamic application steering is critical. In the case of lowering the cost, the SD-WAN solution should be "light", without complex dynamic resource hungry functions. Where applications performance is critically important, MSPs need to be able to offer a range of more powerful devices capable of adapting to different vertical sector requirements such as Government, finance, manufacturing and retail sectors

#3 A migration, not a disruption: Why replace routers when you can just upgrade them?

Making significant changes in a live production environment is never an easy task. Introducing SD-WAN in particular needs to be carefully handled to ensure the least possible disruption to normal business operations. An ideal solution is to be able allow a phased introduction of the new services in line with the needs of the business that leverage existing WAN edge devices and connectivity. For MSPs this means being able to deploy branch devices using common middleware running an SD-WAN service that can be remotely enabled/disabled on demand.

#4 "Multi-everything" for a real flexibility

For MSPs it is essential that devices support multi-tenancy functionality using a single SD-WAN management platform, to manage multiple customers. However, simple multi-tenancy is not always enough particularly for a global telco or system integrator where there can be a need for multi-tenant / multi-tiered SD-WAN to delegate some end-enterprise management to local channels or smaller system integrators down the line. Since all tenants need access to the same platform the SD-WAN solution must be able to accept different delegations and user profiles with different privileges and responsibilities with the possibility to reverse any mistakes. This means that devices need to include SD-WAN functionality by design to avoid costly and complex upgrades at a later date.

#5 And ... price

Ultimately most companies considering adopting SD-WAN are looking to reduce costs and need to way-up the implications and benefits of keeping their MPLS connections, going full SD-WAN or deploying a hybrid solution. One of the key factors in the decision is whether it will mean deploying multiple devices at the WAN edge. So if the MSP can eliminate this factor from the equation it can significantly improve the chances that the customer will take the leap of faith across the chasm.

Cost-reduction is achievable if the SD-WAN solution is effectively fully compatible with existing assets and sold as an option on top of network services. Costs can be controlled by:

- limiting the number of devices,
- deciding the best connectivity option for each site,
- allowing fully secured internet local breakout where possible,
- limiting trunk rolls at deployment stage.

Summary

Up to now, SD-WAN solutions were considered as a disruptive technology. It answered the initial demand of accessing Cloud resources while controlling cost, applauded by early adopters located in a regions with network situations matching such solutions.

Widespread deployment of SD-WAN will be reached when it becomes **simple** for Enterprises and Service Providers to enable the value proposition, while remaining **open** to eco-systems, local specificities as well as leveraging existing assets that can **future-proof** the solution with flexible devices.

Service Providers will be the driver for the SD-WAN mass-market adoption. They own the relationship with enterprises, they have a huge experience in managing services, and they can guarantee the quality (SLAs), the sustainability and simplify the technology adoption if they select the right SD-WAN solution. In addition, Service Providers are not limited to communication/network service providers. The development of SD-WAN served by MSPs is the main driver to get SMBs adopting SD-WAN.

To support this mass-market adoption, the new features expected are a real “One Box”, supporting “hybrid” configuration at various levels, extending multi-tenancy to multiple levels, including multi-tiers delegation that guarantees an affordable solution and leverage as much as possible of the existing assets; devices, routing middleware and links to deliver SD-WAN as a “routing evolution”, not a disruption.

Ekinops SD-WAN

The Ekinops/OneAccess range of multi-access, multi-functional branch office routers are SD-WAN ready by design, providing the answer to meet the mass market needs. Field proven with over 3 million world-wide deployments by major Telcos and CSPs all Ekinops devices share a common operating system, OneOS6, which includes a fully featured SD-WAN option ready to be remotely license-activated when required.

Delivered either as a physical (pCPE) or universal (uCPE) multi-links capable appliance, the Ekinops/OneAccess CPE range offers high speed performance ranging from 100Mb to 10Gb and an array of in-house and third party VNFs including vRouter and vSBC as well as SD-WAN Xpress option.

SD-WAN Xpress is a secured full-meshed overlay SD-WAN, extremely scalable and easy to deploy and is designed to meet the basic mass-market requirements.

All Ekinops CPE can be fully integrated with the existing Telco OSS/BSS in multi-tenant management format with API & Eco system Integration and support for the full range of SD-WAN Services.

Competitively priced, Ekinops/OneAccess CPE enables service providers to rapidly rollout SD-WAN services at a realistic and affordable price point for SMEs and large Enterprise customers.

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

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