

Accelerate time to SD-WAN service revenue while lowering cost and risk

Nokia Cloud-Managed SD-WAN Service

NOKIA

The background of the slide is a clear blue sky with a few wispy clouds. A white contrail from an airplane streaks diagonally across the sky from the bottom left towards the top right. The word "NOKIA" is written in a large, bold, light blue font across the middle of the image, partially overlapping the contrail.

Managed SD-WAN services are now an essential part of the network infrastructure employed by enterprises. This is driving Communication Service Providers (CSPs) and System Integrators (SIs) to enhance their portfolios by including managed SD-WAN as a service offering. However, there are barriers that may prevent some from entering this market and reaping the benefits of offering this technology as a service. Hosting an SD-WAN service can include large start-up and hosting costs with a delayed time to revenue. In addition, there is the ongoing operations and maintenance of the service that may not be appealing to some CSPs. These factors may discourage some CSPs or SIs from hosting this service themselves.

Nokia has introduced a solution to this problem with a hosted SD-WAN service based on our industry-leading Nuage Networks technology. With this service, Nokia hosts and operates the SD-WAN infrastructure on behalf of CSPs and SIs allowing them to offer industry-leading SD-WAN and SASE services with a pay as you grow model that accelerates time to revenue and reduces start-up costs.

SD-WAN managed services are exploding but there are barriers to entry

SD-WAN solutions have become the “must have” network technology for enterprises today. With SD-WAN, enterprise IT departments gain deeper levels of visibility and control into their business traffic. This allows their wide area network to be transformed to have greater scalability, application performance, and security while utilizing network resources much more efficiently.

The SD-WAN enterprise consumption model has rapidly shifted from being primarily an enterprise-driven, do it yourself (DIY) model to a being a managed service from a CSP. Offering a managed SD-WAN service is a natural extension to a CSP’s existing network services portfolio and allows the enterprise to focus on their core business.

IDC¹ predicts that SD-WAN managed services will top \$4.3 billion in 2022. This growth market is further

validated by Gartner in 2020², who are calling out that enterprise spend on managed SD-WAN services is expected to grow at a CAGR of 76% from 2018 through 2023.

In order to react to market-pull for managed SD-WAN many CSPs and SIs have struggled with the financial burden of building, hosting and operating their own multi-tenant managed SD-WAN platform. Capital Expenditure requirements are high and ongoing Operational Expenditure to maintain the basic system capacity whilst sales pipelines are filled, and opportunities converted can place a strain on budgets.

As a result, many CSPs/SIs are adopting SD-WAN as a Service offerings like Nokia Cloud-Managed SD-WAN Service to remove the barriers to market entry and to accelerate their time to market.



1 - Worldwide SD-WAN Managed Services Forecast, 2018–2022, IDC #US43787218
2 - Gartner - Competitive Landscape: Managed SD-WAN Services ID: G00344120

Nokia Cloud-Managed SD-WAN Service

With the Nokia Cloud-Managed SD-WAN Service, entry barriers and business risks are dramatically reduced for CSPs and SIs who want to enter the SD-WAN managed services market with an industry-proven solution that can be tailored for each enterprise customer.

Based on industry-leading Nuage Networks from Nokia, SD-WAN 2.0 technology, this service provides best in class flexibility, scale, and security meeting specific and unique enterprise connectivity requirements.

This cloud-based, multi-tenant SD-WAN service has all infrastructure components fully maintained by Nokia in secure cloud hosting centers where it has full control and autonomy.

Nokia provides SD-WAN service capacity from this infrastructure as an OpEx “pay as you grow” model enabling each CSP/SI to provide their own managed SD-WAN service.

Nokia hosted SD-WAN service is designed for:

- CSPs who want to accelerate time to revenue, reduce TCO and risk
- SIs with the ability to operationally and directly support an enterprise SD-WAN service
- CSPs/SIs who want to re-brand and offer their own SD-WAN as a service (Network-aaS) model to sell directly to their enterprise and SMB customers
- CSPs/SIs who are looking for an OPEX “pay as you grow” commercial model
- Industry 4.0 enterprises who want to consume direct from Nokia as a Service.

With this service, CSPs and SIs will be able to remove the barriers to entry and are able to offer their own branded SD-WAN services with an accelerated time to revenue, lower risk, and a reduced total cost of ownership (TCO). This will allow them to focus on selling and revenue generation. By adopting this service, CSPs and SIs can rapidly become an SD-WAN Managed Service Provider (MSP).

Features and benefits

Prebuilt and configured cloud-based infrastructure

- Dramatically reduced service startup costs
- Accelerated time to revenue
- Reduced total cost of ownership
- Pay as you grow commercial model

Cloud-based infrastructure operationalized and maintained

- Reduced operational infrastructure support
- Reduced infrastructure maintenance
- Reduced operational risk

Industry-leading SD-WAN 2.0 technology

- Differentiated service and technology
- SD-WAN portal offers multiple tiers of customized control and visibility
- Leader in SD-WAN market share in service provider segment

Nokia as partner

- World-class professional services
- Pioneers in delivering global telco services
- Proven global tech support organization

Cloud Hosted Infrastructure

The Nokia Cloud-Managed SD-WAN Service is hosted in a rigorously engineered, high availability cloud infrastructure.

This comprehensive hosting infrastructure is built across three regions globally to serve different parts of the world.

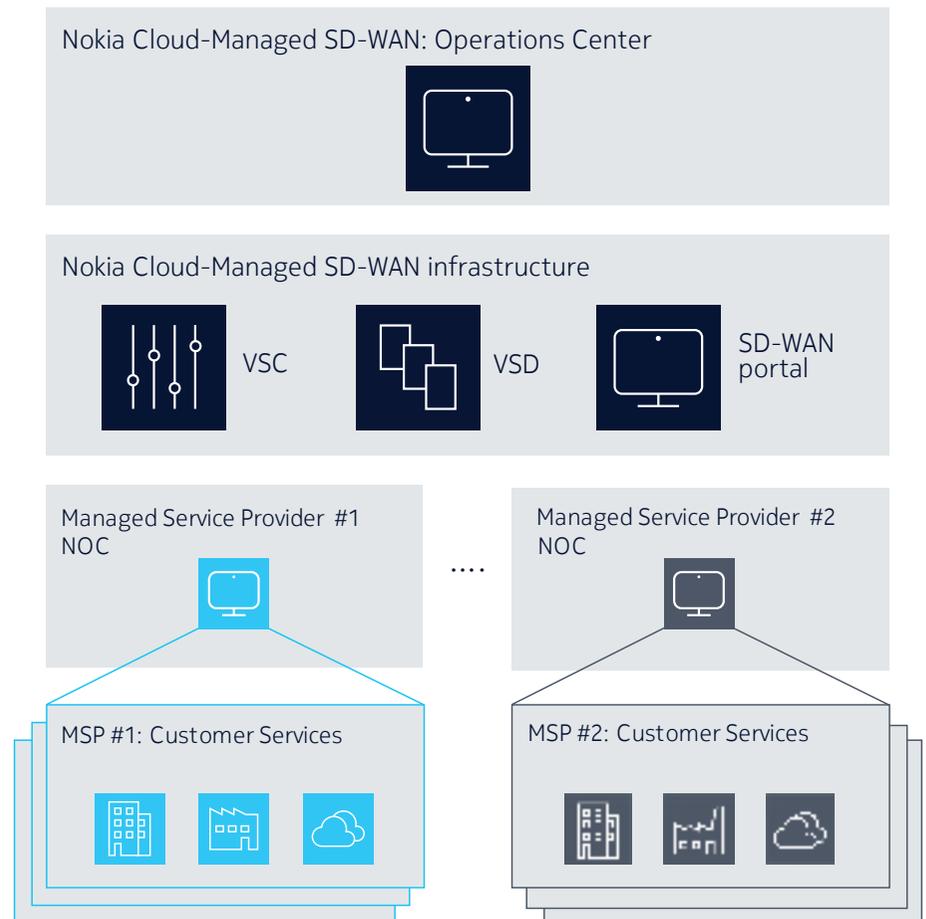
Each region is designed to be geo-diverse across multiple availability zones, ensuring the highest levels of service resiliency.

The key “cloud-based” components of the SD-WAN 2.0 platform are the Virtualized Services Directory (VSD), the Virtualized Services Controller (VSC), and the enterprise facing SD-WAN portal. The key functions they deliver are:

- VSD represents the multi-tenant unified policy engine that provides visibility and control across each enterprise SD-WAN service. It supports service definition

capabilities with intuitive templates, and provides a granular applications analytics engine with detailed reporting

- VSC is the multi-tenant software-defined networking (SDN) controller built on the industry-leading SR-OS routing stack. It maintains all routing information and communicates with the network service gateways (NSGs) to establish SD-WAN overlay paths or VXLAN tunnels
- Enterprise SD-WAN portal is the multi-tenant management platform that provides comprehensive network and application visualization, and template-driven policy control for the network. This platform is instrumental in the delivery of the service as its multi-tenant capability allows for securely partitioned and unique views for each Enterprise SD-WAN service for both the MSP’s own NOC team and the enterprise’s own view.



Managed Service Provider NOC

Each MSP operates their own Network Operations Center (NOC) and leverages their own customized and dedicated SD-WAN portal view to develop SD-WAN services for their enterprise customers or downstream resellers. All functions, including the degree of policy-driven network and application control and visibility are enabled by Nokia as part of the service.

Each MSP purchases network services gateways (7850 NSG) directly from Nokia to meet their enterprise customer's branch networking requirements. The MSP also monitors the status and health of the enterprise SD-WAN network and 7850 NSGs through their NOC.

If a network issue arises that can be attributed to Nokia, then the MSP can raise a ticket to engage the Nokia global technical support service.

Enterprise SD-WAN service

The enterprise SD-WAN service typically consists of a combination of WAN transport links that can include IP/MPLS circuits and broadband Internet circuits that connect branches and other locations.

At the network level, an SD-WAN service is realized by a private overlay network that connects the physical (branches) and virtual (Cloud/SaaS) SD-WAN endpoints creating a programmable overlay networking fabric.

To deploy an SD-WAN service, the enterprise will first deploy MSP-provided 7850 NSGs at each desired branch location. These 7850 NSGs will, via a zero-touch provisioning process, authenticate to the enterprise service and within minutes the branch will be up and running as programmed by the service definition defined by the MSP for the enterprise.

There are several types of 7850 NSGs functions that can be purchased by the MSP to deploy in the enterprise customer's network:

- Branch 7850 NSG is the most common type and is deployed at branch locations and has a wide range of physical and virtual form factors that are right sized for throughput and interface requirements
- 7850 NSG-Border Router (NSG-BR) is a specific type of NSG that is deployed on the boundary of the data center and WAN allowing for a seamless forwarding plane across both network boundaries for enterprises with private data center hosted applications
- 7850 NSG-Underlay Border Router (NSG-UBR) is a specific type of NSG that is deployed within the WAN to connect underlay WAN segments including MPLS for interworking between SD-WAN and MPLS based IP-VPN customer locations.

Each enterprise will have their own view of the SD-WAN portal for management and visualization of the SD-WAN service and may also have limited self-service capabilities. The availability of the service function is enabled by the MSP as part of their managed services offering.

Beyond Connectivity

All enterprises are adopting business change via a Digital Transformation program, for many this is a step change in their use of internally hosted and managed IT systems to Software as a Service and the utilization of virtual compute across multiple public clouds.

The industry is adopting technology strategies to achieve the business benefits enterprises crave with Digital Transformation. The first of these services was SD-WAN which provided the network connectivity, agile

programmability and network security. Of late has been a complementary strategy, coined by industry analyst Gartner³; Secure Access Service Edge (SASE, pronounced 'sassy').

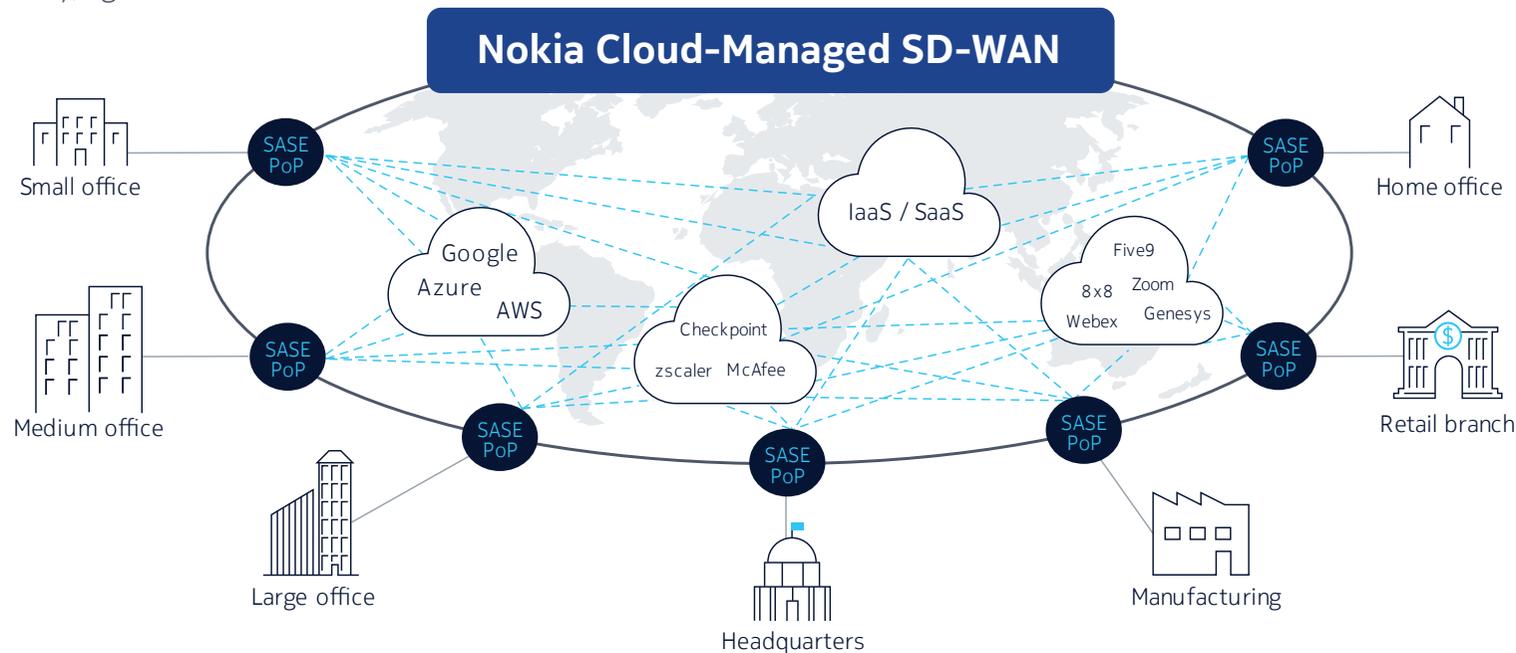
SASE complements SD-WAN by adding a **'Secure it'** strategy to the **'Connect it'** capabilities of SD-WAN and together these two technologies will form the unified network and security framework for enterprises that have adopted cloud hosted IT infrastructures.

Nokia Cloud-Managed SD-WAN service is at the forefront of the SD-WAN/SASE market trend and offers SASE-Points of Presence (SASE-PoP) as an optional feature of the service.

With SASE-PoP the MSP can offer their enterprise customers a natural extension from the SD-WAN service directly into the world's leading Public Cloud Providers and Software as a Service vendors.

These PoP's are operated by Nokia on dedicated SASE-gateway service hardware and allow the seamless extension of the customer WAN to the cloud and SaaS at regional 'meet-me' points.

With many of the leading providers already validated to connect to the Nokia Cloud-Managed SD-WAN service the MSP can easily extend their SD-WAN service offering to include managed cloud and SaaS connections via their managed SD-WAN service.



3 - <https://blogs.gartner.com/andrew-lerner/2019/12/23/say-hello-sase-secure-access-service-edge/>

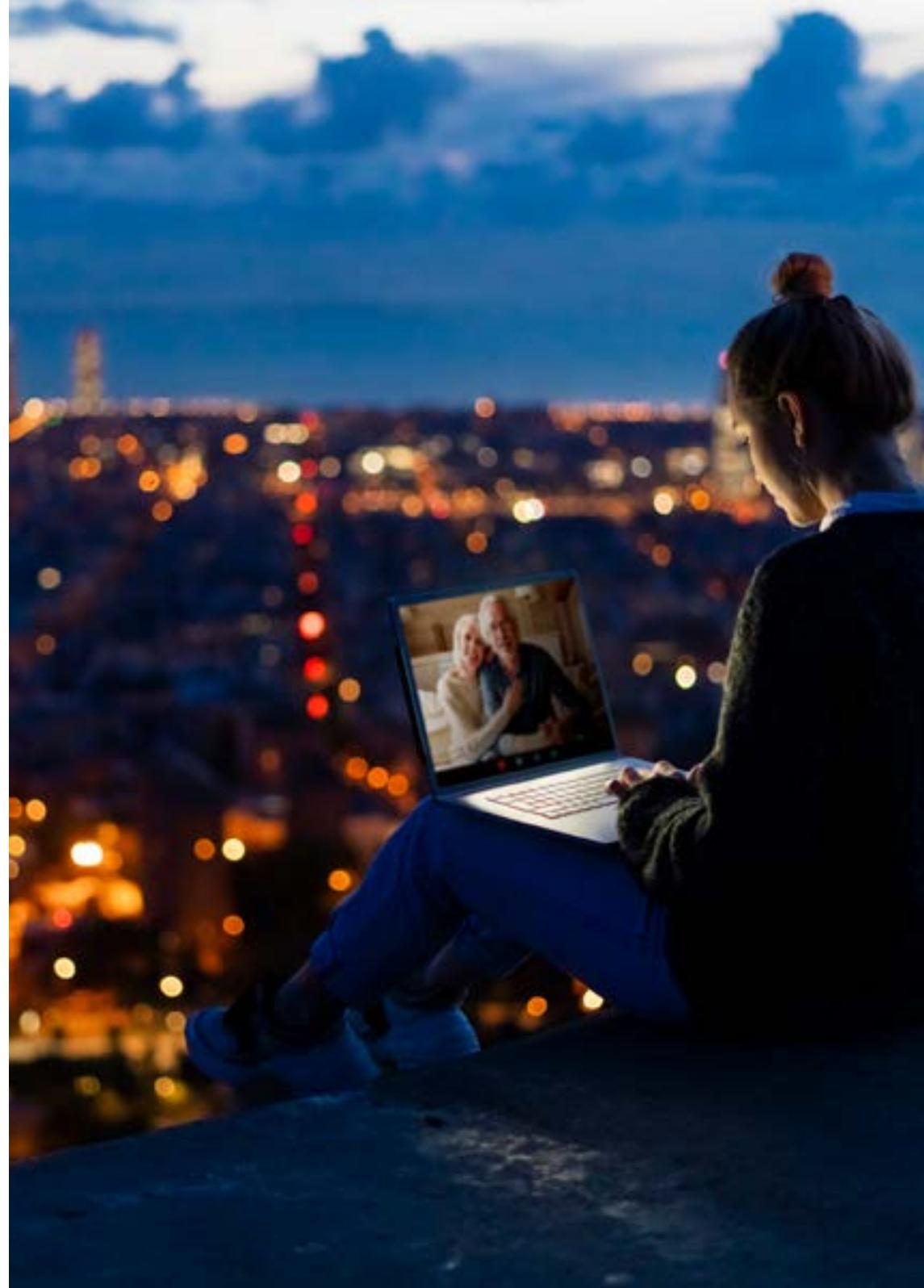
Conclusion

SD-WAN services are a critical part of enterprise WAN transformation bringing a crucial level of visibility, control, security and automation in the era of cloud architectures. By adopting a hosted SD-WAN service from Nokia, CSPs and SIs can transform themselves immediately into an SD-WAN MSP with minimal investment and start to add net new service revenue to complement their existing service offerings.

Nokia has an established market leadership position in the telecommunications market with leading positions in next generation fixed and wireless broadband, 4G and 5G mobile networks and is the #1 provider of IP/MPLS edge routing for CSP's worldwide.

In SD-WAN, Nokia is a leader in the Service Provider Managed SD-WAN market with validation coming from ACG Research putting Nokia globally at #1 with over 25% share in their 1H-2020 report.

By partnering with Nokia for the move into SD-WAN/SASE, MSPs are choosing the right platform to evolve their managed service offerings and will stay at the forefront of technology to differentiate themselves well into the future.



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About Nokia

We create the critical networks and technologies to bring together the world's intelligence, across businesses, cities, supply chains and societies.

With our commitment to innovation and technology leadership, driven by the award-winning Nokia Bell Labs, we deliver networks at the limits of science across mobile, infrastructure, cloud, and enabling technologies.

Adhering to the highest standards of integrity and security, we help build the capabilities we need for a more productive, sustainable and inclusive world.

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