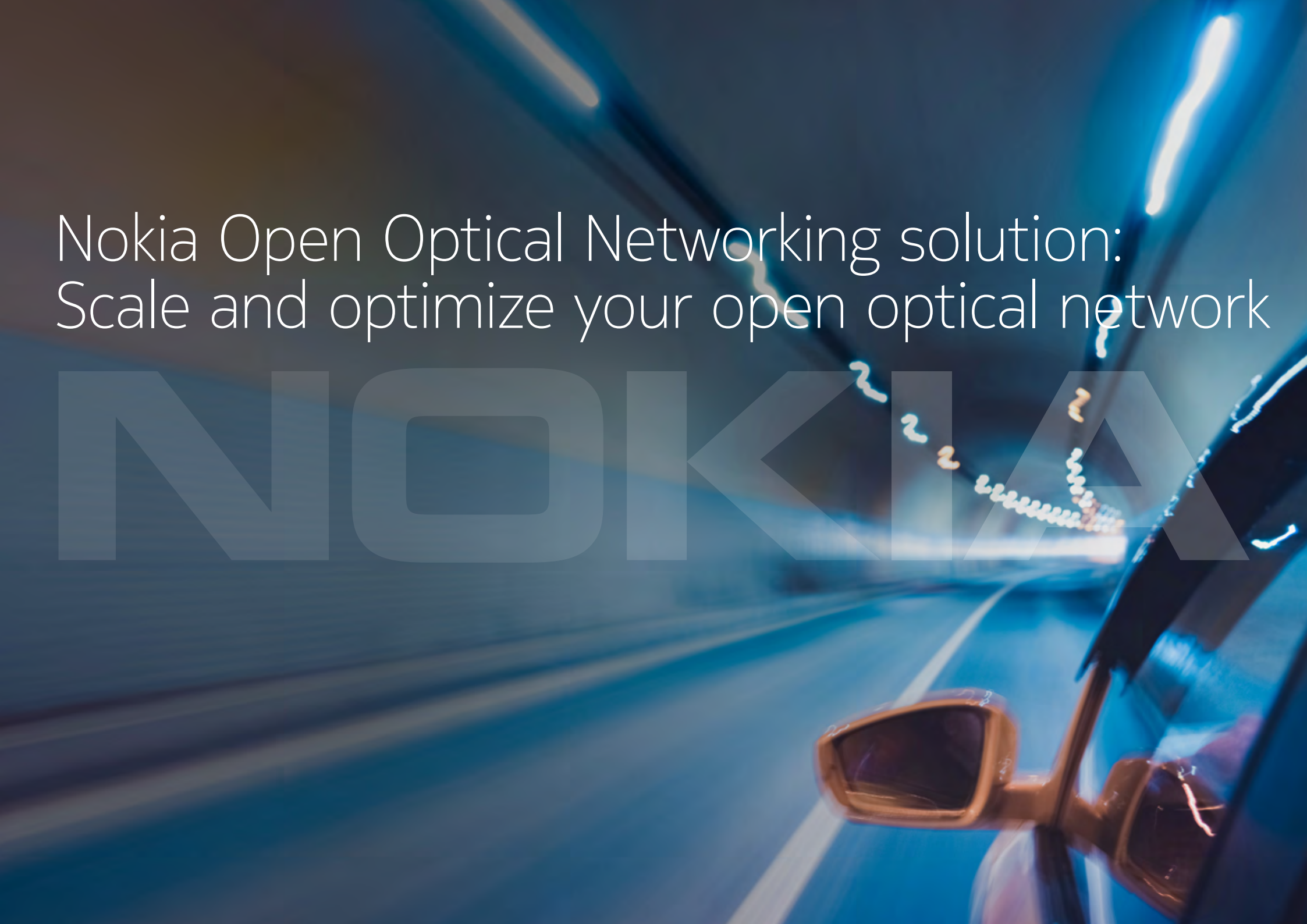
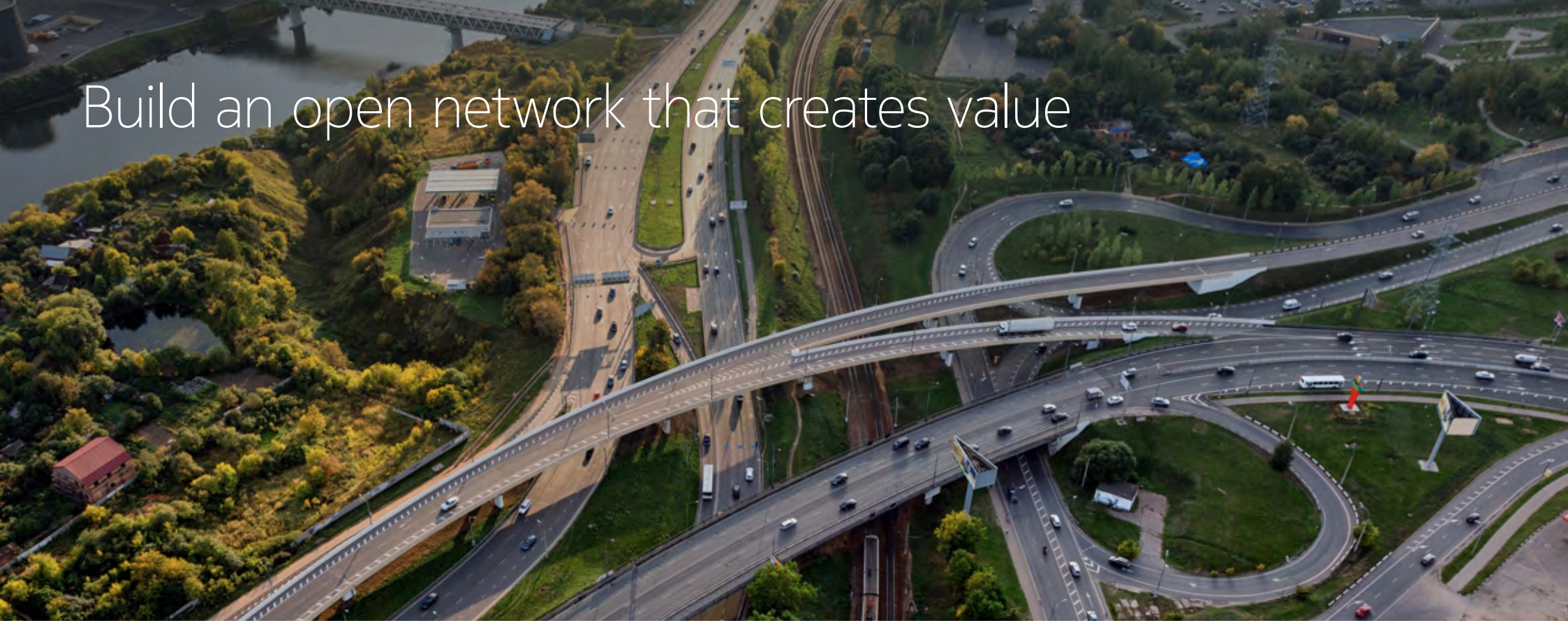
Nokia Open Optical Networking solution: Scale and optimize your open optical network



As a network leader, you know your optical network must transform to become a responsive, automated and high-value platform. It must scale to meet dynamic and diverse traffic demands and support new cloud-based services and business models—all while improving performance and resilience. At the same time, the network must be optimized to make more efficient use of resources.

With the Nokia Open Optical Networking solution, you can transform your network into the responsive, automated and high-value digital platform you need—and your customers demand.



Build an open network that creates value

Open optical architectures and technologies are key enablers in the transformation of optical networks into responsive, automated and high-value digital platforms.

Network operators are assessing, testing and deploying the enabling open hardware and software building blocks. Operators are leveraging open optical network architectures and technologies to optimize CAPEX, reduce OPEX and enhance revenue-generating services.

Open, disaggregated networks help operators take advantage of the pace of coherent transport innovation by decoupling DWDM line systems with relatively long lifespans from shorter-lifespan transponders. Open networks also unlock value by enabling automated network and service operations that accelerate and improve service activation and availability.

The key enabling open technologies include hardware platforms optimized for open networking and transport software-defined networking (SDN)-based open interfaces and data models. Operators are challenged to integrate and optimize the price-performance of these elements now sourced from multiple suppliers.

Nokia provides a complete open optical networking solution for critical networks that creates value.

Nokia Open Optical Networking solution

The Nokia end-to-end Open Optical Networking solution reduces risk, accelerates deployment and creates value. Our hardware and software building blocks are complemented by value-added critical network knowledge, software applications and control, and integration and deployment services.

We offer a complete, value-added open optical solution that combines complementary hardware, software and services. The solution components utilize open features and automation capabilities to extract and leverage the advanced coherent-optimized optical performance built in to our 1830 PSS and 1830 PSI network elements. This results in key benefits for your critical, open network:

- Scale network capacity and capabilities: Grow capacity while improving performance and automating operational capabilities.
- Optimize the network infrastructure and operations: Make more efficient use of network resources to reduce cost per bit.
- Create value: Support new cloud-based services and business models—without adding OPEX

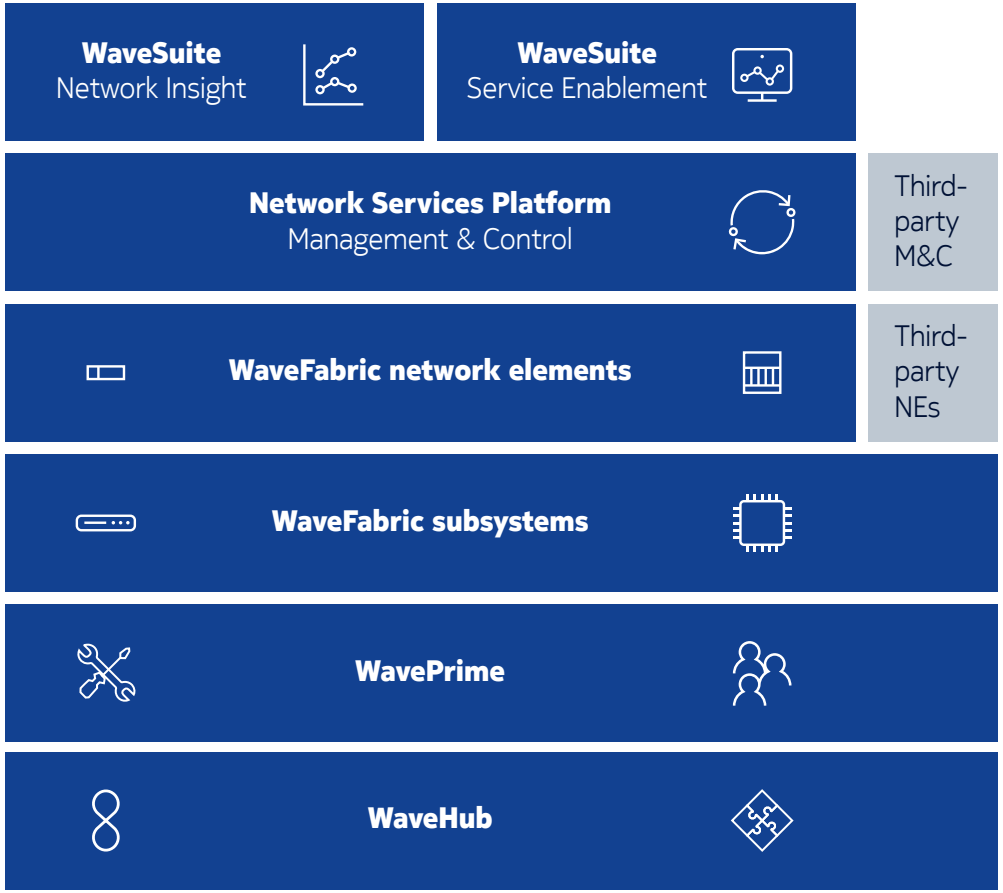
Nokia Optical Networks Portfolio

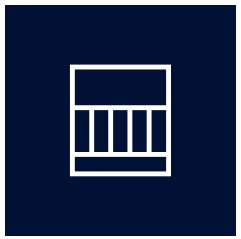
The Nokia Optical Networks Portfolio comprises modular, value-added components for automated and open optical networking (see Figure 1):

- Nokia WaveSuite open applications: Health & Analytics, Optimizer
- Nokia Network Services Platform (NSP) SDN management and control
- Support for open software-defined networking (SDN) control
- Nokia WaveFabric 1830 PSS and 1830 PSI network elements with open agents
- Support for third-party, multi-vendor networks
- Nokia WavePrime open systems integration practice
- Nokia WaveHub open development and innovation ecosystem

Featuring 1830 PSS and 1830 PSI with open agents

Figure 1. Nokia Optical Networks Portfolio

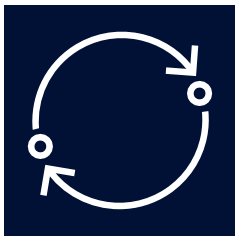




Scalable and openly programmable application-optimized infrastructure

The Nokia Open Optical Networking solution consists of telco, chassis-based systems and data center interconnect (DCI)-optimized compact modular platforms that leverage advanced coherent digital signal processors (DSPs), line systems and open agents.

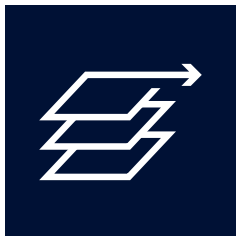
- Nokia 1830 Photonic Service Switch (1830 PSS): Integrated transport/line platforms supporting both transponders and line systems.
- Nokia 1830 Photonic Service Interconnect (1830 PSI): Disaggregated, open platforms supporting transport-only functions such as 1830 PSI-Modular (PSI-M) and line system-only functions including 1830 PSI-L and 1830 PSI-CL.



Open programmability and control

Multi-vendor SDN hierarchical control/orchestration and domain management and control options support Nokia and third-party open transponders/terminals, open line systems and open pluggable transceivers by leveraging standardized northbound T-API and southbound OpenConfig APIs as well as standardized NETCONF/YANG-based data models.

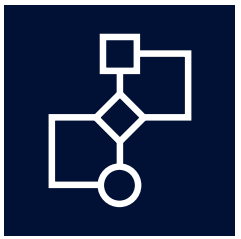
- Nokia Network Services Platform (NSP): (Network Resource Controller–Transport (NRC-T) module, NRC Cross Domain Coordination (NTC-X) module and Network Functions Management for Transport (NFM-T).



Open, automated network control and operations software application suite

Network insight applications utilize streaming telemetry and AI-based thresholding, accessed via open agents and data models, to automate operations and optimize network performance, capacity and resource consumption.

- Nokia WaveSuite Network Insight: Health & Analytics application and Optimizer.

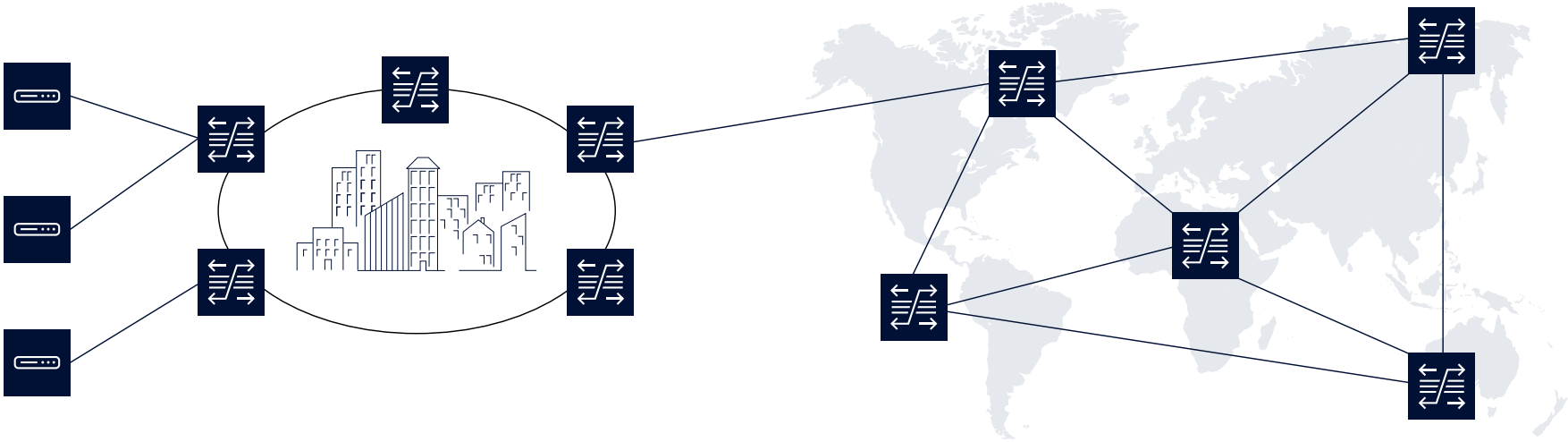


Ecosystem program and professional services

All of the preceding features are complemented by a connected ecosystem program and professional services.

- Nokia WaveHub: A market-oriented ecosystem program that brings together our customers and partners to develop new ways to create value. Rapid API integration is a WavePrime service offered in the WaveHub Lab.
- Nokia WavePrime Professional Services: Value-added, professional open system integration and software customization services that minimize integration risks and accelerate deployments

Case studies



	Communications service provider	Global webscale operator	Webscale operator	Communications service provider	National research and education network
Goal	Build a new end-to-end OTN/WDM network. Introduce open line system architecture.	Build out a regional DWDM network.	Build a 400G DCI network for e-commerce.	Build out a nationwide DCI network.	Expand and upgrade national research network. Introduce partially-disaggregated network architecture.
Need	A cost-efficient, future-ready open optical network.	Scalability, resilience and a compact footprint.	Scalability, agility and third-party controller integration.	Scalability, performance, pay-as-you-grow modularity and streaming telemetry.	High scalability, flexibility, and security.
Nokia solution	1830 PSI-L, 1830 PSI-M, WaveSuite Health & Analytics, NSP	1830 PSI-CL with Optical Multiplex Section Protection (OMSP), 1830 PSI-M.	1830 PSI-CL, 1830 PSI-M.	1830 PSI-M, 1830 open line system.	1830 PSI-L, 1830 PSI-M, NSP, WavePrime Professional Services.

Nokia: Your partner for success

Nokia is ready to help you build an open optical network that creates value.

Our end-to-end Open Optical Networking solution reduces your risks, accelerates your deployments, and delivers value to you and your customers. Our hardware and software building blocks are complemented by value-added critical network knowledge, software applications and control, and integration and deployment services.

Visit our web page to learn more about how our open optical networking solutions can help you get the most from your network.

Ready to talk? Connect with our sales team to find out how to put our open optical solutions to work for you.

Nokia OYJ
Karakaari 7
02610 Espoo
Finland

Document code: 82844319 (Dec) CID210903

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.

For our latest updates, please visit us online www.nokia.com and follow us on Twitter@nokia.