Optical network automation use cases

Achieve better business outcomes
with proven automation solutions
that are easy to deploy

NOKIA

Fast-track your network automation strategy

Looking to accelerate the automation of your network but lacking the resources to do it in the timeframes you need?
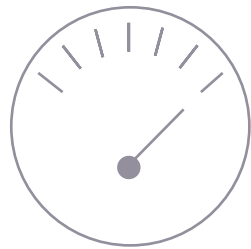
Read this ebook to discover how our proven use cases can help you realize your automation strategy and achieve your desired business outcomes.

Network automation is top of mind for network operators

Today's competitive environment requires you to react faster to new demands and get maximum value from your optical network. But as networks become more complex, it's getting tougher to reduce operating costs and increase agility.
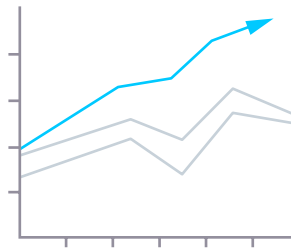
Automation helps you create a new kind of network that is more responsive, efficient and reliable – and simpler to operate. With technologies such as model-driven mediation, intent-based networking and baseline analytics, your multi-vendor networks can self-configure, optimize their performance in real time and recover from failure events.
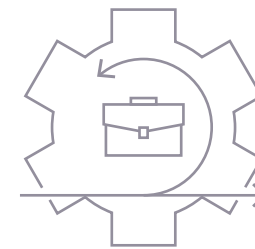
What do you get with automation?

Faster service deployment
Get services into your customers' hands faster to grow revenue and create a differentiated customer experience.
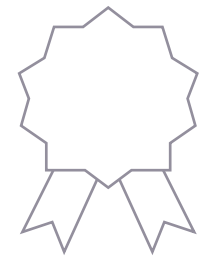
Increased operational efficiency
Reduce the cost of repetitive tasks and make complex operations simple.

Greater agility
Rapidly deploy network updates and respond more quickly to changing demands.

Higher quality
Reduce human errors and system outages and deliver consistent, predictable outcomes.

No one said automation would be easy

Automation isn't just about purchasing a tool.

It's about delivering projects that lead to better business outcomes.

Automation is meant to reduce network complexity. But it can be difficult to implement.

Choosing the right automation solution is an essential first step. You also need specialized skills that will help you integrate the solution into your network environment and use it efficiently and effectively. These skills are rare and expensive to acquire, especially in the area of machine learning in the fields of data science and AI.

Business and technical consulting are also critical to a successful automation journey. You need a thorough plan that provides answers to critical questions right from the beginning:
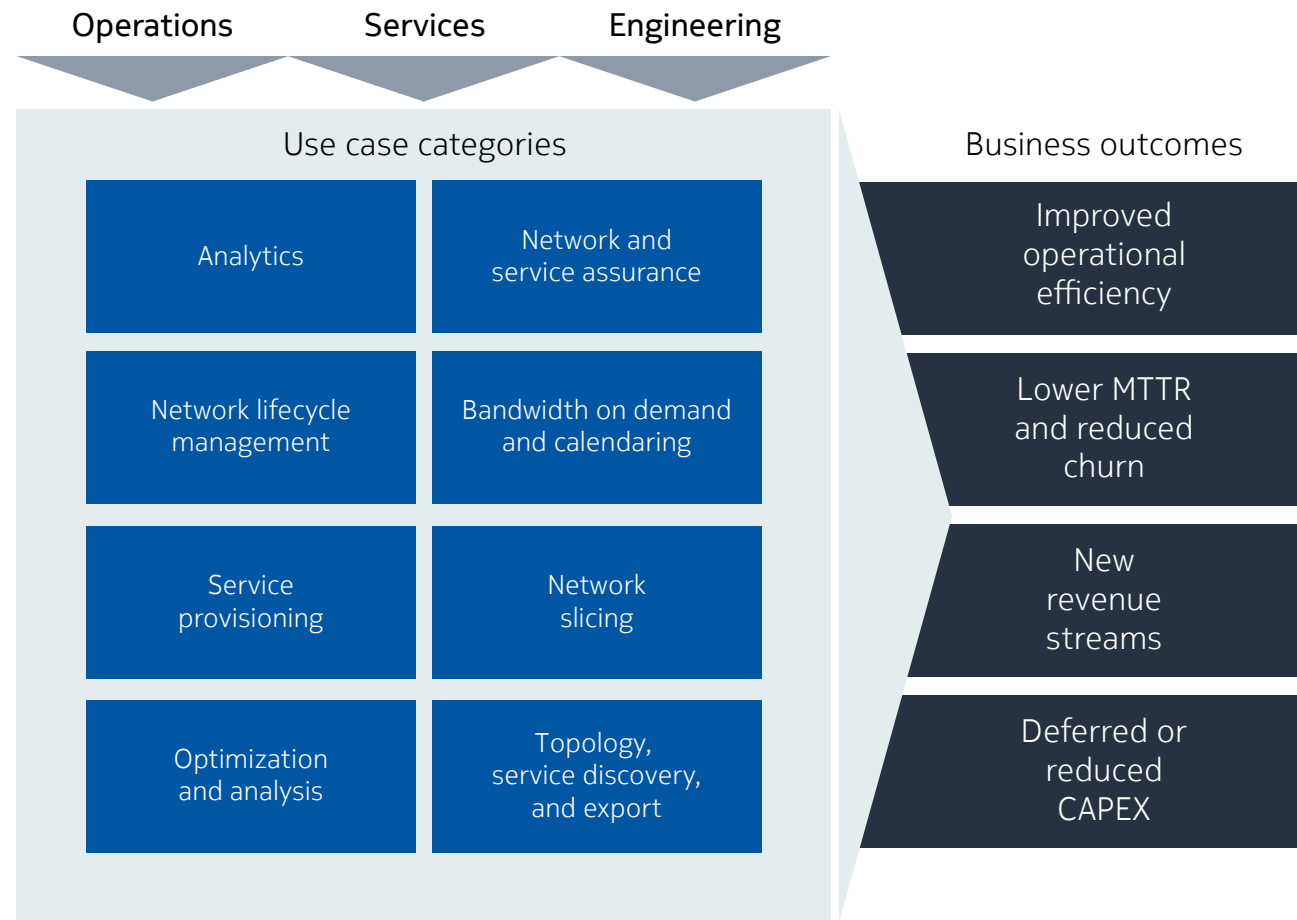
- Where should we start?

- How much will it cost?

- How long will it take?

Take the complexity out of network automation

Our WavePrime professional services team has built a collection of pre-integrated use cases that can help you quickly introduce a broad set of automation capabilities into your optical network.

The collection covers all key aspects of the network services lifecycle, including equipment configuration, service fulfillment and provisioning, network assurance and optimization. With our proven use cases, you can reduce risk, speed up implementation and ensure predictable results.

Operations **Services** **Engineering**

Use case categories

Analytics	Network and service assurance
Network lifecycle management	Bandwidth on demand and calendaring
Service provisioning	Network slicing
Optimization and analysis	Topology, service discovery, and export

Business outcomes

- Improved operational efficiency
- Lower MTTR and reduced churn
- New revenue streams
- Deferred or reduced CAPEX

Automation solutions that are ready to go today

We implement our use cases using products from our optical networks portfolio, along with products from our partners. Our WavePrime professional services team pulls everything together with general and customized workflows and software artifacts such as network adapters and digital methods of procedure.

The results are ready-to-go automation solutions and expertise that will help you use your chosen network equipment to realize your automation strategy and get the business outcomes you want.

Discover our optical portfolio

Nokia optical systems

Application-optimized equipment that lets you build programmable, high-performance, massively scalable and secure optical networks.

WaveSuite

Open applications that help you grow revenue, automate service delivery and operations so you can get more value from your network and reduce its total cost of ownership (TCO).
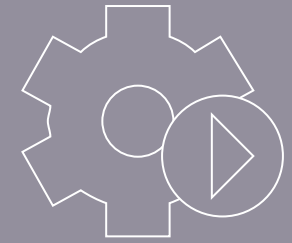
WaveHub

An ecosystem of innovators that collaborates to develop new use cases to extract value from optical networks and lower operating costs. WaveHub also includes a virtual lab environment that you can spin up on demand to accelerate use case deployment and reap the benefits of automation faster.

WavePrime

A global team of professional services experts that can work with you to build an optical network that will protect and grow your business. They can help you extract value from multivendor optical networks and lower operating costs.

Operations use cases

Topology and service discovery and export

Get ready to maximize your network ROI

Your network assets are critical to your business. Overinvesting in these assets can erode your return on investment (ROI). Underinvestment can slow your business growth and market response time. Assets that are nearing the end of life can put your business at risk if you don't have the right contingencies. These are complex problems, and putting plans in place to address them can take months.

Our topology and service delivery and export use cases give you access to your network data so you can support open networking initiatives that maximize your network ROI.

Components

- WaveSuite advanced network operations and control software
- Multivendor optical adapters for hierarchical controllers or OSS inventory systems
- WavePrime software customization

Network lifecycle management

Use automation to continuously scale your network for success

Your customers want new services that can deliver better experiences and higher performance. This means continuing to invest in network equipment.

Our network lifecycle management use cases simplify network scaling with efficient automation that optimizes network resources for all key phases of network provisioning and change, including:
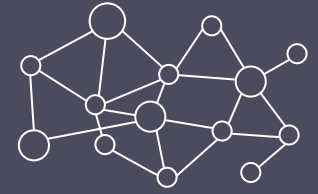
- Initial network planning and commissioning
- Adding new network elements and capabilities
- Network reconfiguration
- Software and network element upgrades

With our use cases, you can stay a step ahead of service demands and ensure that you always get the most from your network CAPEX investment.

Components

- WaveSuite advanced network operations and control software
- Multivendor optical adapters for hierarchical controllers or OSS inventory systems
- WavePrime software customization

Network services use cases

Service provisioning

Unleash your network's potential by gaining the ability to adapt and respond to customer needs on demand

Rapid service provisioning creates a customer experience that sets you apart from the competition. If you can provide services to customers faster, you can help ensure their success as well as your own.

Our service provisioning use cases include solutions for automating the provisioning of Layer 1 wavelength services. They provide support for customizable service definitions, service-level agreement (SLA) constraints (e.g., capacity, availability, latency), service-aware connection establishment, single-step provisioning and an intent-driven northbound interface (NBI).

With our use cases, you can process new customer orders in minutes instead of days, adapt to customers' changing needs, increase customer loyalty, grow revenue and lower network TCO.

Components
- WaveSuite advanced network operations and control software
- Multivendor optical adapters for hierarchical controllers or OSS inventory systems
- WavePrime software customization

Bandwidth on demand and calendaring

Give your customers more flexible connectivity services

Bandwidth demands can evolve quickly. Your customers need the ability to scale up capacity as new opportunities arise. By providing flexible connectivity services to customers on demand, you can help ensure their success as well as your own.

Our bandwidth-on-demand (BoD) and calendaring use cases use an automation framework to enable dynamic BoD and bandwidth resizing connectivity services and related reports. They can also enable you to support scheduled service activations and deactivations.

With these use cases, you can take advantage of automation to accelerate service fulfillment and offer flexible new connectivity services that grow revenue and lower network TCO.

Components
- WaveSuite advanced network operations and control software
- WaveSuite Service Enablement
- Multivendor optical adapters for hierarchical controllers or OSS inventory systems
- Partner software for service quotes and contracts
- WavePrime software customization

Network services use cases

Network slicing

Offer new revenue-generating services, including support for B2B2X models

Optical network slicing can support mobile services and enable new B2B2X service revenue opportunities.

Our network slicing use cases include optical network hard slicing and optical NaaS solutions that support spectrum sharing for long-haul and subsea routes, calendared wavelength services and new B2B2X services. These solutions are ideal for addressing customers that need an optical network but don't want to own and operate one.

Components

- WaveSuite advanced network operations and control software
- WaveSuite Service Enablement
- Multivendor optical adapters for hierarchical controllers or OSS inventory systems
- Partner software for service quotes and contracts
- WavePrime software customization

Network and service assurance

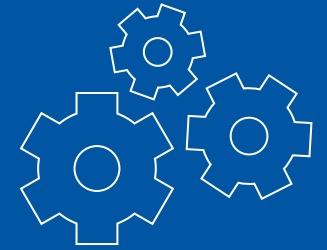### Protect your customers from network degradation

Your customers count on your network to provide reliable, consistent performance. Our network and service assurance use cases help you deliver on your SLA commitments, protect your network revenue and minimize disruptions by enabling automation for:

- Network and service supervision with alarm management and correlation
- Network diagnostics, localization procedures, and reactive and proactive troubleshooting methods
- Maintenance intervals support – analysis and execution of steps
- Customizable reports to support these capabilities

Components

- WaveSuite advanced network operations and control software
- Multivendor optical adapters for hierarchical controllers or OSS inventory systems
- WavePrime software customization

Engineering use cases

Analytics

Use data to extract maximum value from your network

Unleash the power of optical network analytics with prediction, trending, forecasting, pattern matching and correlation capabilities that help you maximize network performance and lower network TCO.

Our analytics use cases leverage built-in Nokia Bell Labs data science expertise to enable you to identify and mitigate problems by using data from a variety of sources (e.g., equipment, wavelengths, external network factors and SLAs) to power predictions, closed-loop optimization, diagnostics and recommendations. They also support aging analysis for network equipment.

Components
- WaveSuite advanced network operations and control software
- WaveSuite Health and Analytics
- Multivendor optical adapters for hierarchical controllers or OSS inventory systems
- WavePrime software customization

Optimization and analysis

Get the most from your network by optimizing it for maximum performance and efficiency

Reduce network TCO and prepare your network for dynamic service demands. Our optimization and analysis use cases let you address all elements of network optimization so you can achieve the best possible network performance. They enable you to:
- Increase network capacity by deploying wavelengths with beginning-of-life (BoL) margins and adapting them as end-of-life (EoL) conditions develop over time
- Run what-if simulations with algorithms that let you perform rapid off-line network analysis using a variety of metrics, including failures, new capacity and wavelength spectrum utilization
- Keep your network in the best possible state with patented algorithms that optimize network resource usage
- Optimize your network with workflows that automate and simplify complex management tasks to make them more efficient and less error prone

Components
- WaveSuite advanced network operations and control software
- Multivendor optical adapters for hierarchical controllers or OSS inventory systems
- WavePrime software customization

Let us help you

The next wave of 5G, cloud and IoT applications will depend on optical services that can provide secure, reliable, high-performance and low-latency connectivity on demand. We're ready to help you win the race to power these applications. With our proven use cases and optical network solutions, you can support automation that accelerates service delivery, reduces network TCO and improves business outcomes.

Visit our optical networks page to find out more about how we can help you turn your network into a fully automated, consumable platform that creates maximum value for you and your customers.

NOKIA

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.