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Aurelis Optical LAN

The next generation enterprise LAN built for longevity, powered by simplicity and trusted for reliability

In today's fast-paced business environment, enterprises are under pressure to move quickly, boost revenue, cut costs, enhance user experiences, and stay ahead of the competition. To do this, they need smarter ways to streamline operations and accelerate innovation. With the growing demand for high-bandwidth services like Wi-Fi 7, cloud, and IoT, the local area network (LAN) must evolve.

Optical LAN is the solution. A gamechanger that offers multi-gigabit speeds, scalability, and efficiency on a future-proof fiber infrastructure. Furthermore, it helps enterprises reduce energy costs, meet green building initiatives and standards, and achieve environmental, social, and governance (ESG) objectives. By embracing an optical LAN, enterprises gain a competitive edge, ensuring their networks are built for long-term success.

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PON: the technology behind optical LAN

Optical LAN is built on Passive Optical Network (PON) technology. PON delivers high-speed connectivity, ranging from 1 Gb/s to 10 Gb/s and 25 Gb/s, and even 50 Gb/s and 100 Gb/s in the future, over a single optical fiber cable.

Optical LAN architecture centralizes network intelligence at the optical switch, allowing all optical modems to be managed from a single point. It uses passive components, such as splitters, between the central switch and remote modems, minimizing the need for active equipment and significantly reducing the risk of hardware failures. Fiber-optic cable extends from the central switch across a building or campus, with splitters and modems positioned where needed to connect users and devices. One fiber-optic cable can support up to 64 optical modems, significantly reducing cabling and complexity.

Enlighten your LAN

Most enterprise LANs today still rely on legacy copper-based infrastructure, which struggles to keep up with the performance and scalability demands of modern services such as Wi-Fi 7, cloud, IoT, high-definition video and other bandwidth hungry services. This setup contributes to increased network complexity and operational costs including overcrowded equipment rooms, dense cabling, and higher power and cooling requirements.

Optical LAN replaces this outdated model with a high-speed connectivity infrastructure that converges all services onto a single network. Despite being a shared network, robust QoS and bandwidth management guarantee reliable, high-performance connectivity for every user and device. This integrated and centralized fiber-based architecture dramatically reduces the amount of physical cabling and hardware, decimates IT space, cuts energy consumption, and minimizes maintenance, making it a smart, green and cost-efficient solution for modern enterprises.

Optical LAN outperforms traditional copper-based LAN in all the key categories:

70%
less cabling

50+
years lifespan

40%
energy savings

50%
lower total cost of ownership

Build tomorrow's LAN, today

Aurelis Optical LAN is Nokia's next-generation fiber-based solution for enterprise LAN, purpose-built to meet the evolving needs of in-building and campus connectivity. Designed for long-term performance, operational efficiency, and reliability, it empowers enterprises to scale with confidence, simplify IT operations, and support sustainability goals—all while staying ahead of future demands.

Futureproof

Aurelis Optical LAN delivers multi-gigabit performance today, 1Gb/s, 10Gb/s, and 25Gb/s, with smooth evolution to 50Gb/s and 100Gb/s in the future. Its scalable architecture adapts to your business growth without the need for disruptive upgrades. Build on a foundation that protects your investment, aligns with innovation cycles, and ensures your network is always ahead of demand.

Simple

Aurelis Optical LAN streamlines deployment and operations with intuitive tools and automation that reduce complexity, cut costs, and accelerate time to value. Built on open standards and APIs, it integrates effortlessly with existing third party solutions. The result is a high-performance, flexible infrastructure that evolves with your business.

Reliable

When it comes to reliability, Aurelis Optical LAN stands out. With six nines (99.9999%) availability, end-to-end Quality of Service (QoS), and robust security, Aurelis Optical LAN ensures your network is always on, always dependable. Whether you're supporting critical applications or latency-sensitive services, you can trust a LAN solution that delivers consistent uptime and peace of mind.

Solution overview

Aurelis Optical LAN comprises the Aurelis MF-2 Optical Switch, a comprehensive range of Aurelis Optical Modems, and the Aurelis Command Center.
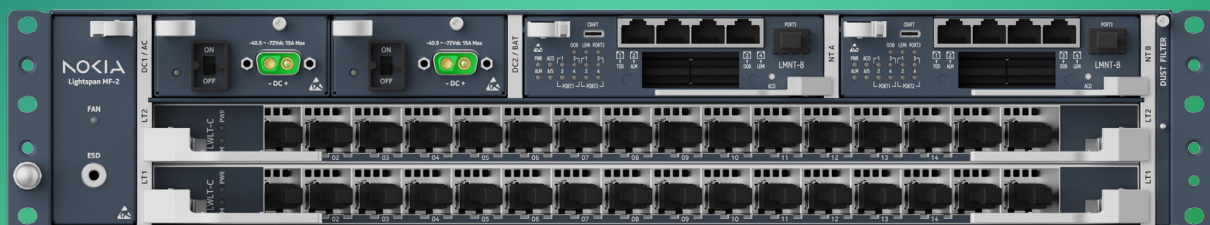
Aurelis MF-2 Optical Switch

The Aurelis MF-2 (MF-2) is a centralized optical switch for the entire LAN, capable of serving from hundreds to thousands of users and devices.

Here are the key benefits:

*   **Space-efficient and flexible:** the compact, modular 2U switch with dual DC and AC power options is designed to maximize space and provide flexibility, allowing you to choose the best power configuration for your needs

*   **Future-ready performance:** with current support for 10Gb/s and 25Gb/s, and the ability to scale to 50Gb/s and 100Gb/s, this solution ensures that your network can easily evolve alongside your growing business demands

*   **High capacity:** featuring a non-blocking 400G backplane per slot and 80G uplink capacity, this system delivers the high-performance infrastructure required to support demanding services and ensure smooth, uninterrupted operations

*   **High density:** the 16-port multi-PON line card (supporting 1Gb/s, 10Gb/s, and 25Gb/s) and 16-port GPON line card (1Gb/s and 2.5Gb/s), with the ability to connect up to 64 optical modems per port, allow you to handle high user density and future growth—without adding complexity to your network

*   **High reliability:** offering six nines (99.9999%) availability with no single point of failure, this solution guarantees continuous, reliable performance for critical applications, ensuring your network is always online

*   **Built-in redundancy:** redundant power, uplinks, controller and line cards, plus intra/inter-switch protection with sub-second switchover, keep your network up and running, ensuring maximum uptime

*   **Energy efficient:** up to 8 times more energy-efficient than traditional copper-based LAN solutions, this system helps reduce operational costs and supports your organization's sustainability goals

Aurelis MF-2 Optical Switch

Aurelis Optical Modems

Aurelis Optical Modems are designed for enterprise applications and controlled by the Aurelis MF-2 (MF-2) Optical Switch. The optical modems deliver superior services with high bandwidth to every user and device. The wide range of modems meet every use case with variants from 1, 4, 8 and even 24 ports. They can be deployed in a variety of locations and support wired and wireless multi-gigabit connectivity, power over Ethernet (PoE, PoE+ and PoE++), and a selection of user interfaces.

The following Aurelis Optical Modems are available (not exhaustive):

	Type	Uplink	User interface	PoE	Operating temperature	Application
	G-040P-T	GPON	4 x GE	POE+	-5°C TO +45°C	
	G_040P-R	GPON	4 x GE	POE++	-5°C to +45°C	In-wall
	XS-010S-Q	XGS-PON	1 x 10GE	N	-40°C to +85°C	Pluggable
	U-490XP-P	GPON or XGS-PON	8 x GE or 1 x 10GE	POE+	-5°C to +60°C	
	U-080XP-P	GPON or XGS-PON	8 x GE	POE++	-5°C to +60°C	
	U-880XP-P	GPON or XGS-PON	8 x POTS & 8 x GE	POE++	-5°C to +60°C	
	U-00240XP-A	XGS-PON or 25G PON	16 X 2.5GE & 8 x 10GE	POE++	0°C TO +55°C	

Aurelis Command Center

The Aurelis Command Center (CC) is a cloud-based network management system that simplifies LAN configuration and maintenance. With role- and resource-based access controls, it ensures that only authorized users can manage network resources, enhancing security and compliance. Aurelis Command Center provides centralized management, offering a well-designed, user-friendly interface that eliminates the need for complex configuration and programming. Realistic network device floor plans display real-time network status, enabling quick response to issues. Say hello to simple, streamlined, and fast network rollouts with maximum operational efficiency.

The key benefits:

- Effortless setup: with single-click installation and zero-touch optical modem activation, deployment is quick and easy, getting your network up and running in no time

- Seamless operations: automated service provisioning streamlines your processes, reducing manual intervention and ensuring smooth, uninterrupted operations

- Smarter visibility: continuous telemetry provides real-time network insights, enabling faster, more informed decision-making to keep your network performing at its best

- Optimized experience: pre-defined service templates ensure consistency, boost efficiency and deliver an enhanced user experience
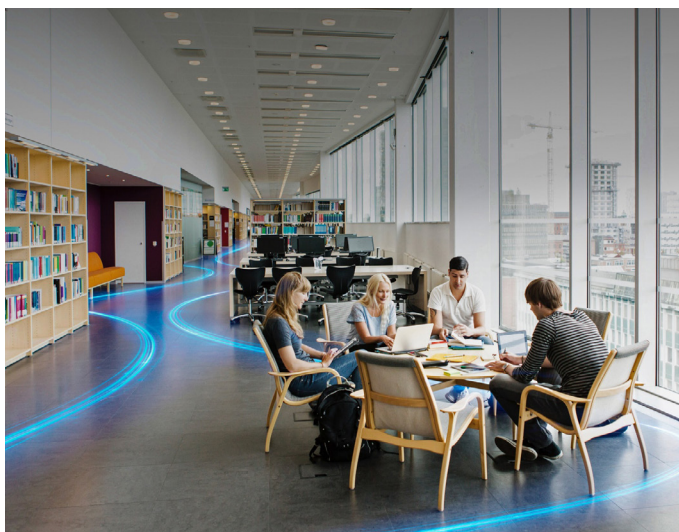
Aurelis Command Center

Nokia's optical LAN solution takes the world to the speed of light

Nokia's optical LAN solution provides unmatched performance across a wide range of industries, including corporate offices, university campuses, hospitals, hotels, warehouses, stadiums, and airports. With over 700 deployments worldwide, it is the trusted choice for businesses seeking a future-proof, simple and reliable LAN solution.

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For more information on how Aurelis Optical LAN can help futureproof, simplify, and enhance the reliability of your in-building and campus connectivity, contact your nearest Nokia partner.

About Nokia

At Nokia, we create technology that helps the world act together.

As a B2B technology innovation leader, we are pioneering networks that sense, think and act by leveraging our work across mobile, fixed and cloud networks. In addition, we create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs.

Service providers, enterprises and partners worldwide trust Nokia to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future.