

# Nokia Optical LAN

Accelerate productivity and reduce costs with a Smart Warehouse built on a fast, resilient, future-proof communications network

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# Communication breakdown

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Effective communications are vital for effective warehouse operations. Yet many warehouse communication networks are holding back operations when they should be enhancing them. There are four important challenges where your communications network can make a difference.

## Time is Money

Unrelenting pressure to save time and increase productivity

## Kill Complexity

Services spread across multiple networks create inefficiencies

## Go Green

Challenge to demonstrate sustainable business practices

## Protect & Secure

Increasing need for highly secure networks



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# Creating the Smart Warehouse

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The warehouse of the future has a fast, efficient communications network providing bullet-proof connectivity to everything and everyone. The enhanced connectivity enables the productivity increases and cost efficiencies that deliver the sustainable growth and competitiveness that warehouse operators need.

- Internet of Things connectivity of inventory, vehicles, people, and equipment.
- Robotic, guided and automated handling and movement.
- Augmented reality vision picking systems.
- Real-time, anytime, anywhere access to warehouse management system information.



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# Nokia Optical LAN for the Smart Warehouse

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Nokia Optical LAN is the most advanced warehouse local area network technology available. It is built on Gigabit Passive Optical Network (GPON)—the technology that brings high-speed broadband to millions of homes and businesses worldwide.

## Support massive high-speed connectivity, today and in the future

With an Optical LAN delivering gigabit, multi gigabit and even 10 gigabit speeds to wireless access points, mobile computers, forklifts, scanning tools, label printers, cameras, digital signage and more, every warehouse worker is better equipped to process the continuously increasing volume of information that must be managed quickly and efficiently every day.

## Save precious warehousing space

Nokia Optical LAN infrastructure requires fewer racks, LAN switches, and patch panels than a traditional LAN. No more telecom equipment closets every 100 meters; no more extra power supplies for equipment rooms: and no more air-conditioning, special cable channels for CAT5/6 cabling and other support requirements. The floor space freed up can be used more productively for revenue generating activities

## Simplify management and maintenance.

The Nokia Optical LAN provides substantial savings on management and maintenance costs because all warehouse communications and information systems are integrated onto

one infrastructure that can be managed from a single, central location. Fewer IT staff resources are needed to keep the network up and running and maintenance is easier because there are fewer active electronics on site.

As a result, Nokia Optical LAN generates huge savings on capital expenditure, as well as reductions in daily operating expenditure from lower energy consumption and reduced maintenance.

**50%**

Lower total cost of ownership

**99.999%**

Availability

**Military Grade**

Encryption

**90%**

Smaller equipment footprint

**1**

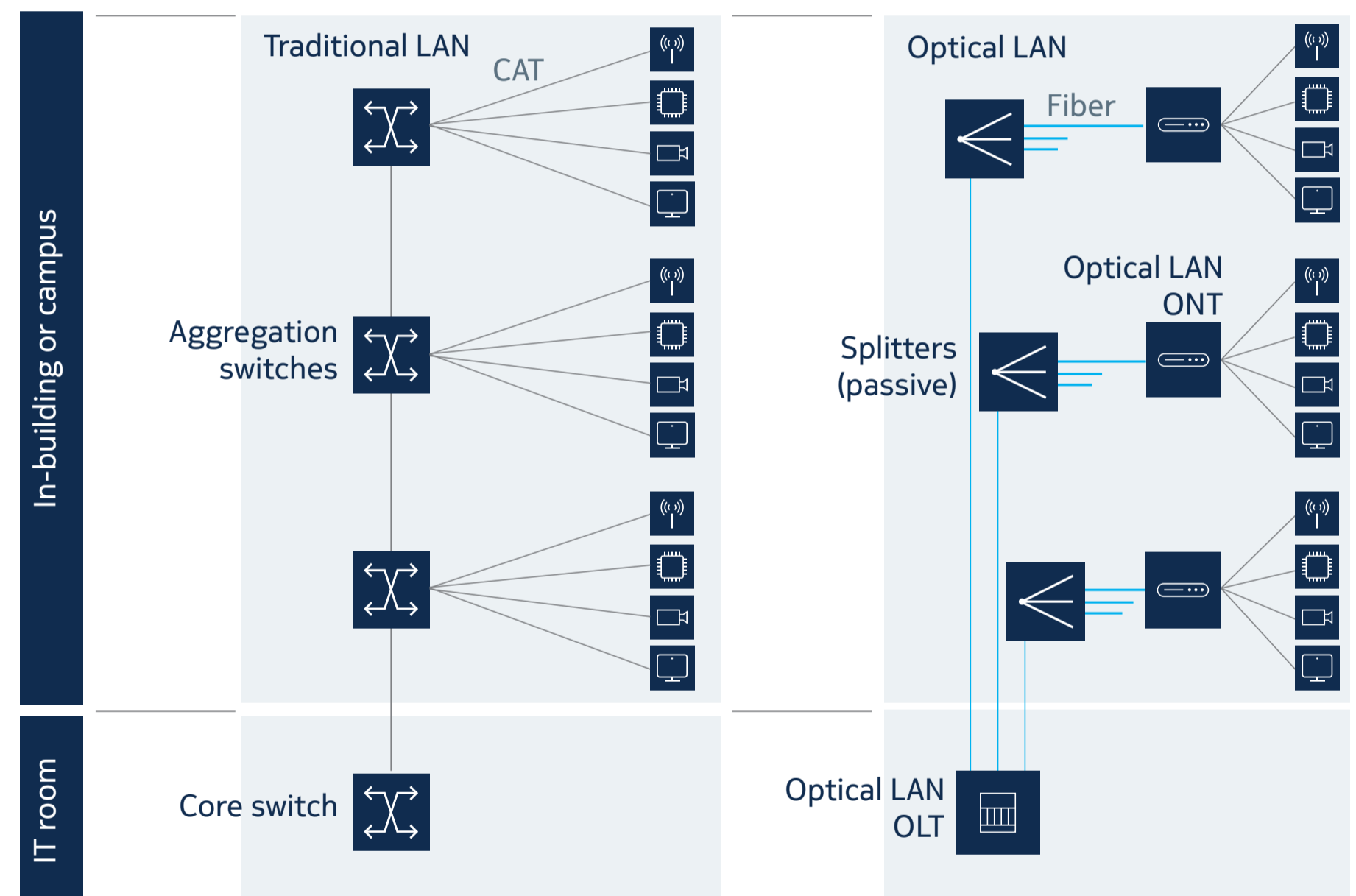
Single network for all services and devices

# Choosing Nokia Optical LAN for new installations and upgrades

The cost savings generated by Nokia Optical LAN make it a sound investment for both greenfield installations and upgrades.

By replacing old equipment with a more cost-effective fiber infrastructure, Nokia Optical LAN significantly lowers the overall cost of an upgrade or renovation. Optical fiber is more resilient and supports a smaller bend radius compared to other cabling. It can fit in existing ducts and channels easily and it is inherently resistant to signal and noise interference from other sources, so it can be run almost anywhere. Once installed, existing services and applications can be migrated to the new optical infrastructure easily to enable a single network for all services.

Once the Optical LAN infrastructure is installed, expansion to new warehouse areas can be made by simply extending the fiber and adding an Optical Network Terminal (ONT)—no major cable-runs or additional Ethernet switches/ports are needed.



# Nokia Optical LAN

- **Cost.** Passive optical LAN technology is cheaper to install, operate, maintain, and power than traditional Ethernet LANs
- **Capacity.** Do away with separate networks and run all services—voice, video, data, surveillance, access control, security, Wi-Fi, and more—onto one centrally-managed LAN.
- **Speed.** Combine fixed and wireless access points for ultra-fast connectivity throughout the warehouse.
- **Coverage.** Fiber optical cable is thin, light, strong, flexible and fire-resistant so is easy to install everywhere, and the network easily extended as the warehouse expands.
- **Quality.** Fiber optic cable is resistant to interference while features and bandwidth mechanisms ensure that traffic is managed so that each device gets the bandwidth it needs.
- **Control.** Centralized network control and automation reduce manual intervention and improve efficiency and reliability.
- **Sustainability.** Passive technology requires less power and less cooling, reducing energy bills and carbon footprint.
- **Space.** High-density platform and signals traveling up to 30 km mean less equipment throughout the warehouse, saving up to 90% floorspace.
- **Future-proof.** Optical LAN technology can get a speed and capacity boost without needing to rip and replace cabling or network components.
- **Reliability.** This technology delivers the world's internet connectivity using link protection, logical layer protection, hardware redundancy to achieve 99.999% availability.
- **Security.** Military-grade 128-bit data encryption comes as standard while data in network access points cannot be accessed locally, unlike distributed switches in a traditional LAN.

300+ Optical LAN deployments across the globe, in all industry segments.

Nokia is the market leader in fixed access technologies, providing fiber ultra-broadband solutions to telecom operators, cable operators, governments and enterprises. Operating in over 130 countries, Nokia has shipped over 96+ million Gigabit-capable Passive Optical Network (GPON) ports to over 250 fiber customers worldwide. We power some of the most advanced fiber networks around the world deployed by leading telecom service providers, as well as municipalities, utilities, hospitals, airports, schools, venues, hotels and resorts. We enable our customers to build a competitive advantage, enhance user experiences and accelerate the move to a digital society.

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