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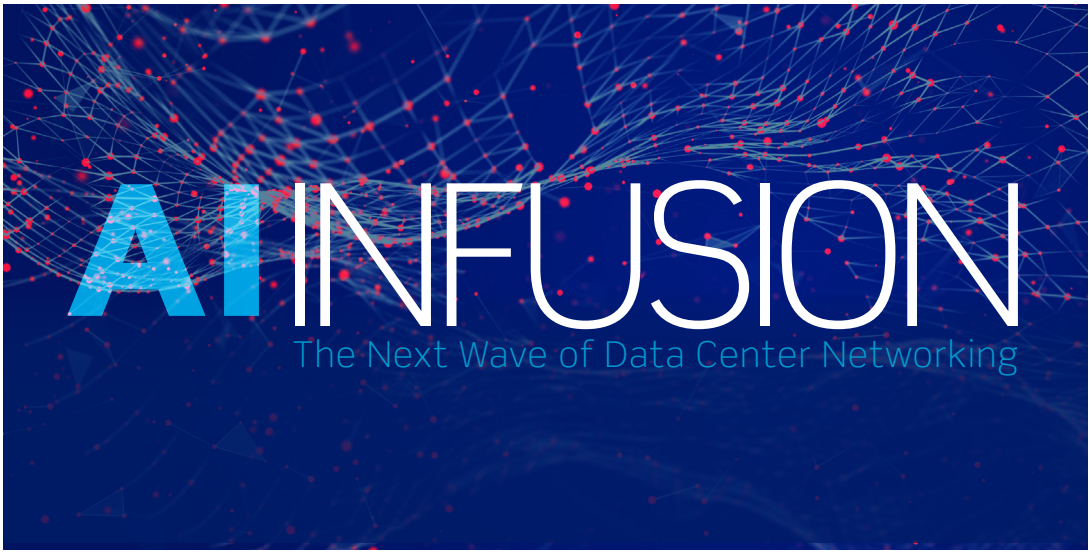

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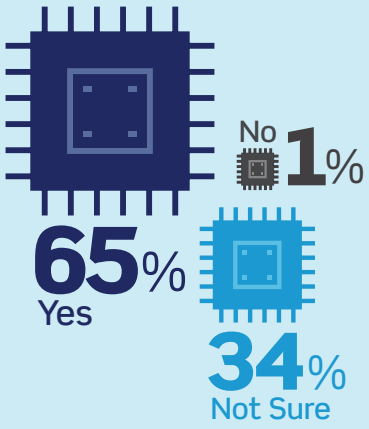
LEVITON POLL

Do you plan on using a structured cabling network architecture in your AI data center project(s)?



From a March 2024 survey of 160 network professionals.

The latest advancements in Artificial Intelligence (AI) are introducing revolutionary new ways to automate our workflows, solve problems, and develop insights on large datasets. However, the large amounts of power and data storage requirements for AI computing creates new power and latency implications in data centers that can affect network infrastructure design.

Applications using AI are expanding every day, driving up demand for compute power in financial, industrial, government, manufacturing, and so many other sectors. AI computing clusters are at the front end of a huge ramp in growth. Industry analysts LightCounting expects a nearly 30% Compound Annual Growth Rate (CAGR) in fiber transceiver sales for AI clusters through 2028. Transceivers for non-AI applications in the data center will see a 9% CAGR — also strong growth — but it pales in comparison to what the AI expansion will bring.

Data Rate and Latency Implications

AI computing calculations are done in parallel and are limited by the slowest calculation. That means that addressing latency and higher data rates in data centers are vital to creating a fast, operational AI cluster. Today, AI computing is dominated by data rates at 400G and above. 400G transceiver adoption took off in 2021, and is forecasted to maintain steady growth, with parallel optics being the most popular.

800G adoption grew rapidly in 2023 through hyperscale data center deployments, aided by the availability of NVIDIA DGX H100 servers that use 800G for compute fabric. We expect to see transceivers delivering 1.6 Terabits to gain momentum by 2026.

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AI Infusion: The Next Wave of Data Center Networking

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What type of connections support these speeds?

Today, 400G networks predominantly use 8-fiber MPO connectors or LC connectors, and these same connectors are used with 800G. Also, at these rates, multimode interfaces are increasingly using angled physical contact (APC) connectors, as the APC endface geometry improves reflectance and return loss performance.

Additionally, 16-fiber MPO connectivity has emerged as an appealing option for AI networks. The MPO-16 was introduced for 400G transceivers, but will likely become more prevalent with 800G and above transceivers. While using 8 fiber pairs for communication, the 16-fiber connector interface has a unique offset key, shifted to the side.

Leviton has a full suite of products available to support AI-enabled networks.
Our product portfolio includes multimode fiber APC assemblies, 16-fiber MPO-based connectivity, and OPT-X™ Unity Ultra Low Loss Global Systems. Leviton provides expertise in data center design, rack elevation, and layout optimization to support AI applications effectively for today and tomorrow.

Learn how structured cabling will facilitate AI clusters.
WATCH OUR WEBINAR ON-DEMAND

Use of AI in the data center can improve efficiency operations.

Network Solutions Achieves Carbon Neutrality

Leviton takes sustainability responsibilities seriously, and we're actively investing in carbon reduction initiatives that are important in the fight against climate change. We're excited to announce the Network Solutions business unit has achieved carbon neutrality. The carbon neutral status was completed with the global sustainability consultancy Sphera, and is inclusive of Scope 1, Scope 2, and selected Scope 3 emissions.

Leviton and Sphera employed a three-step process to measure, reduce, and offset to attain carbon neutrality. Through analysis, we collectively identified areas of improvement, then went on to reduce carbon emissions by 55% since our baseline year 2021, mainly through investment. This included the transition to clean energy providers that power some of our largest manufacturing facilities, to investing in on-site solar power at our Glenrothes, Scotland facility.

Lastly, Leviton invested in clean, energy-focused carbon offset projects. These were obtained through reputable companies in regions where we operate. Network Solutions achieved carbon neutrality well ahead of our 2025 goal and makes a big step toward Leviton's overall goal of business-wide carbon neutrality by 2030.

Removing Plastic Waste
In addition, Leviton's Glenrothes, Scotland manufacturing facility achieved PAS 510:2021 verification. This means the facility successfully meets requirements for the handling and management of "plastic pellets," preventing harmful leakage into the environment throughout the supply chain. Plastic pellets, flakes, and powders pose a significant threat to the environment and can wreak havoc on local wildlife, carrying severe toxins across our oceans and into the food chain.

This verification is yet another step in Leviton's commitment to sustainable practices The Glenrothes facility was the first data communications manufacturer in Europe to achieve carbon neutrality, setting the standard in 2011.

Learn more about Leviton's commitment to sustainability at **Leviton.com/sustainability**

The Right Network Foundation with ULAN™

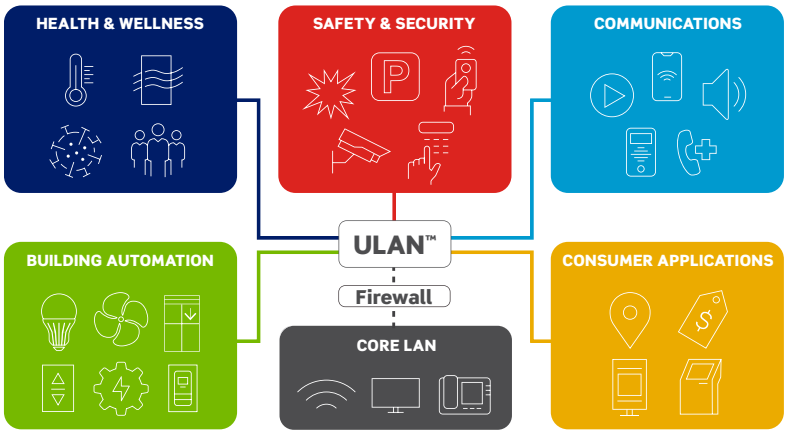
Investments, public and private, are flowing into the smart building market. The Climate Smart Buildings Initiative (CSBI) of 2022, will bring in "over $8 billion of private sector investment by 2030" to modernize federal buildings throughout the government. The Inflation Reduction Act of 2022 also has incentives and investments for buildings to manage their energy use. The urgency to create efficient smart buildings has ultimately led to the smart building market being projected to grow from $117 billion in 2024 to $568 billion by 2032*.

What makes smart buildings efficient is the network infrastructure that connects the disparate systems within the building and to the grid. In the past, building automation systems often operated in silos; they weren't always interoperable, and they ran on proprietary stand-alone networks.

Today, these building systems are managed natively over IP-enabled platforms based on Ethernet connectivity, while legacy operational technology systems are being adapted to run on the Ethernet network. Ethernet is the common language within the core local area network (LAN) — for devices such as workstations, WAPs, and VoIP phones. In smart buildings, more utility applications such as HVAC, lighting, security systems, and energy management systems are becoming Ethernet enabled, converging onto the LAN.

Organizations are seeing the efficiency and cost-savings benefits of converging once-disparate building systems onto their IP networks. At the same time, some of these utility applications joining the network consume higher power and bandwidth. The stress and strain on the network caused by connecting so many new utility devices (IoT) can cause the network to become sluggish and adversely affect the user experience. Additionally, as smart buildings are connected in Grid-interactive Efficient Buildings (GEB), it will be crucial for these systems to communicate with one another to distribute energy use efficiently and flexibly across generation and storage centers.

To simplify management, improve security, and alleviate network stress in smart buildings, Leviton recommends the network infrastructure connecting core LAN applications and utility applications become physically separated in telecommunications rooms or closets. This creates a utility LAN, or what Leviton calls the ULAN.



The ULAN is designed to support the many building functions that can make up a smart building. These building functions include health and wellness initiatives, security systems, AV and communications systems, building automation, and consumer applications such as digital signage and customer kiosks. Learn more at **Leviton.com/ulan**.

*Fortune Business Insights

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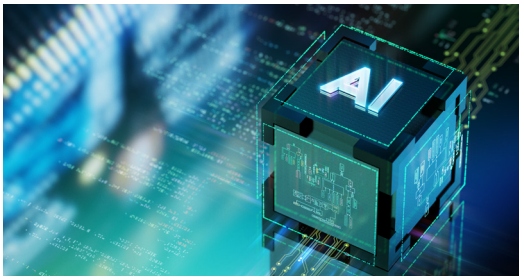
NEWS YOU CAN USE

INDUSTRY

In February, TIA authorized the publication of the **ANSI-TIA-942-C Data Center Telecommunications Infrastructure Standard.** This will replace the current version "B" standard. Among the numerous changes, TIA-942-C incorporates addendum language addressing edge data centers; recognizes single twisted-pair cable for horizontal cabling; recommends two optical fibers for horizontal and backbone cabling; and requires two Cat 6A or higher cabling for wireless access point where balance twisted-pair cabling is used.



Crehan Research predicts that **800 GbE switches will surpass 20 million ports** in annual shipments within four years, making it the fastest ever data center Ethernet switch speed ramp. The company points to generative AI computing as the key driver behind the coming surge in 800 GbE adoption.

YESTERDAY'S NEWS

1984 – 40 years ago, ceramic ferrules were introduced on connectors that were precise enough to work for single-mode fiber. Kyocera introduced the ferrules on the NEC D4 connector, and ST and SC connector were introduced with them soon after.

Questions? Comments? Ideas?

We want to hear from you!
Email: **crosstalk@leviton.com**