

AWS data center fiber optic cable



Overview

Corning gained after Amazon announced a multibillion-dollar agreement for fiber optic infrastructure.

Key Takeaways

AWS operates a global fiber optic network spanning nearly nine million kilometers, connecting data centers with high-speed, low-latency, and highly resilient infrastructure. Global Fiber Infrastructure

AWS's data centers are interconnected through a vast network of terrestrial and subsea fiber optic cables, linking 38 AWS Regions and 120 Availability Zones worldwide. Each data center adds new points of connection, expanding the network by thousands of miles of fiber to bring cloud resources closer to customers and ensure high availability and redundancy. The network is designed with multiple independent pathways to prevent single points of failure, supporting multi-region deployments and AI-intensive workloads.

Subsea and Transatlantic Cables



AWS invests in subsea fiber optic systems to enhance global connectivity. A notable example is the Fastnet transatlantic cable, connecting Maryland, U.S., to County Cork, Ireland. Scheduled for operation in 2028, Fastnet will provide over 320 terabits per second (Tbps) of capacity, enough to stream 12.5 million HD films simultaneously, and includes advanced optical switching for seamless rerouting and future scalability. These subsea cables are strategically placed to provide route diversity, reducing the risk of service disruption and strengthening network resilience.

High-Speed Optical Technologies

AWS employs 400 Gigabit Ethernet (GbE) technologies for most of its network, four times faster than the previous 100 GbE standard. Optical transceivers convert electrical signals to light for transmission over fiber, enabling high-bandwidth, low-latency connections within and between data centers. AWS also integrates hollow-core fiber, which can extend transmission distances by nearly 50% while maintaining low latency, allowing data centers to be spaced farther apart without compromising performance. Multi-core fiber technology further increases data transmission capacity.

Security and Redundancy

AWS fiber networks incorporate multiple layers of security, including physical protection, end-to-end encryption, and network-level TLS for traffic outside AWS control. Redundant pathways and diverse routing ensure that even if one cable or route fails, data can be rerouted seamlessly, maintaining uninterrupted service. The network is continuously monitored and upgraded to meet growing demands from AI, cloud computing, and edge applications.

Summary

AWS's fiber optic infrastructure combines terrestrial and subsea networks, advanced optical technologies, and robust redundancy to deliver high-speed, low-latency, and secure connectivity. Innovations like hollow-core and multi-core fiber enhance performance, while strategic cable placement and transatlantic systems like Fastnet ensure global resilience and scalability for AI and cloud workloads.

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Each new data center brings a new point of connection to the broader AWS network, regularly expanding our

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When you stream a movie, make an online purchase, or use a cloud-based application, your data travels across vast

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Amazon is paying Corning billions of dollars for optical fiber to power and connect its rapidly

The Ultimate Guide to Data Center Fiber Connectivity

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Amazon Enters Agreement With Corning for Optical Fiber for Data Centers

Amazon said it entered a multibillion-dollar agreement with Corning to get optical fiber, cable and connectivity

How AWS is connecting the cloud

"The largest AI data center we have has more than 100,000 links or fiber connections within one building," Rehder

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New strategic agreements include migrating AT&T workloads to AWS, high-capacity fiber connectivity for data centers,

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