



NEWS RELEASE

Lumen is Redefining Networking for the AI and Quantum Eras

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Lumen advances intelligent networking with Emerald AI, The Ohio State University, and Fortinet to address AI energy demands and prepare for the quantum future

DENVER--(BUSINESS WIRE)-- **Lumen Technologies** (Nasdaq: LUMN) today announced three new initiatives using intelligent networking to address AI energy challenges, future quantum connectivity, and emerging security threats. As enterprises' AI and quantum ambition begin to outgrow traditional networks, Lumen is turning its network into an active platform for innovation—combining fiber connectivity scale, programmable control, software intelligence, and a connected ecosystem of partners to help enable the next generation of computing.

Lumen and Emerald AI are evaluating a smarter way to route workloads.

- With **Emerald AI**, Lumen's intelligent network enables AI

workloads to automatically shift to alternate locations based on power availability, cost, and other factors.

- Lumen is investing in research at **The Ohio State University** to explore how its fiber infrastructure could support quantum connectivity over distances.
- Lumen is also preparing to introduce quantum-resistant security capabilities through its **Fortinet** -based Secure Access Service Edge (SASE) solution to help enterprises protect sensitive information against future quantum threats.

"The network must do more than just connect. It must help solve the defining challenges of our time," said Kate Johnson, CEO of Lumen. "We're innovating our network to help AI computing adapt to available energy, lay the foundation for a connected quantum future, and prepare enterprises for continuous and emerging security threats. These are distinct challenges that demand a network built for what's next."

Making Networks Part of the AI Energy Solution

AI's explosive growth is creating an urgent power challenge. Limited power capacity could constrain AI expansion, increase costs, and reduce infrastructure flexibility and resilience. Dynamically moving workloads to where electricity is available could help organizations make better use of existing energy resources, manage costs, and scale AI without waiting for new power capacity to come online. Gartner® predicts that “by 2030, data center power limits will force 75% of I&O leaders to mandate energy-aware AI workload placement.” *

By integrating Emerald AI's energy intelligence platform with Lumen's programmable network and edge locations, the companies are working together on capabilities to automatically shift AI computing among locations based on energy availability, while accounting for network performance, latency, security, and cost. This first-of-its-kind effort for both companies will expand Emerald AI's power-aware technology beyond the data center and into network routing. The companies are exploring a pilot using Lumen's edge and network infrastructure to test the approach.

“The network has traditionally connected computing resources wherever they happen to be. We're exploring how to turn that equation around, making the network an active part of how and where computing happens,” said Jim Fowler, chief technology and product officer at Lumen.

“Power is a critical bottleneck to AI growth, and flexible AI data centers could unlock up to 100 gigawatts of capacity on the existing U.S. grid while being good grid citizens—helping keep electricity affordable and the power system reliable,” said Dr. Varun Sivaram, founder and CEO, Emerald AI. “Our collaboration with Lumen brings that opportunity to AI inference. By combining our Emerald Conductor platform with Lumen's programmable fiber network, we're developing energy-aware routing that can move inference requests to locations with available power while keeping latency low and performance high. This is designed to give data centers a way to ease demand during rare periods of grid stress while continuing to serve their customers, helping AI grow alongside the communities that power it.”

Exploring How Fiber Could Connect the Quantum Future

Lumen is also tackling one of the biggest hurdles for distributed quantum computing—connecting quantum computers over long distances. Unlike conventional data, quantum information cannot simply be copied or amplified using traditional networking equipment, so new optical networking technologies are needed to distribute fragile quantum signals.

Lumen's investment supports Ohio State's quantum research, which builds on federal and state funding to advance quantum information science and engineering using deployed optical fiber. The research will help inform how Lumen's extensive fiber infrastructure could support quantum networking in the future.

The research focuses on two quantum areas:

- **Long-range networking:** Investigating the optical technologies needed to link geographically distributed quantum systems.
- **Distributed sensing:** Studying how quantum technologies could improve geophysical monitoring and identify conditions affecting network performance.

Preparing Today's Networks for Tomorrow's Security Challenges

As quantum computers become more powerful, they could eventually break widely used encryption methods. This creates a “harvest now, decrypt later” risk, where information stolen today could be decrypted years from now.

To address emerging quantum-enabled threats, Lumen plans to bring **Fortinet post-quantum cryptography (PQC) capabilities**, available in FortiOS, to its SASE solution. Lumen leverages FortiGate technology as the foundation of its SASE solution, with initial PQC availability in November 2026, and general availability planned for January 2027.

The enhancement is designed to strengthen enterprise communications against those emerging risks, while Lumen helps organizations identify encryption vulnerabilities and transition toward quantum-resistant security.

*Gartner, Inc, AI Infrastructure Guide for Power-Constrained Data Centers, Daniel Bowers, Enrique Castera, June 27, 2026

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About Lumen Technologies

Lumen is unleashing the world's AI potential. As the trusted network for AI, we ignite business growth by connecting people, data, and applications — quickly, securely, and effortlessly. Lumen's physical infrastructure, programmable network, and connected ecosystem give enterprises a simpler way to move data from virtually anywhere to anywhere in real-time to support their AI needs. Together, Lumen's owned fiber backbone and cloud-native control plane provide a differentiated platform for connecting, securing, and operating modern enterprise environments at global scale. From metro connectivity and long-haul data transport to cloud networking, security services, digital platform capabilities, and connectivity orchestration, Lumen meets customers' needs today and as they build for tomorrow. Lumen and Lumen Technologies are registered trademarks of Lumen Technologies, Inc. in the United States.

Forward-Looking Statement

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, including statements regarding Lumen's plans, expectations and objectives concerning energy-aware networking and its collaboration with Emerald AI; quantum networking technologies and research with The Ohio State University; post-quantum cryptography and other quantum-resistant security capabilities, including their expected availability; and the potential capabilities, benefits and uses of these and other Lumen technologies and initiatives. These statements are based on current expectations and are subject to risks and uncertainties that could cause actual results to differ materially, including the risks described in Lumen's most recent Annual Report on Form 10-K and Quarterly Reports on Form 10-Q and other filings with the U.S. Securities and Exchange Commission. Lumen undertakes no, and expressly disclaims any, obligation to update these statements.

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