Ciena Publishes Report Analyzing the Impact of AI, DCI, and Cloud Evolution on Wave Services Demand

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Global wave services market grows as 39 new hyperscaler data centers are expected before the end of 2025

HANOVER, Md.--(BUSINESS WIRE)--Jun. 10, 2025-- Ciena (NYSE: CIEN) has compiled a new report on wavelength services – the first of its kind – that explores the key drivers of the need for high-speed connectivity. The report examines the critical role of wave services in enabling the expansion of interconnected data centers driven by Artificial Intelligence (AI), the growing importance of low latency and data sovereignty for AI workloads, and the build-out of terrestrial and critical submarine network infrastructure. It also highlights the pivotal role of managed optical fiber network (MOFN) business models to expand high-speed connectivity into new geographies and markets.

This press release features multimedia. View the full release here: https://www.businesswire.com/news/home/20250610301030/en/

Source: Vertical Systems Group, "Wavelength Circuits by Geographic Scope" and "Retail vs. Wholesale Wavelength Circuits," May 2025

“As cloud providers scale data center networks to address AI performance requirements, wave services must also evolve in terms of capacity, coverage, latency, and route diversity,” said Mark Bieberich, Vice President of Portfolio Marketing, Ciena. “Demand for wave services is growing steadily worldwide, as data center network expansion requires increasingly high-capacity interconnection among various types of network operators and end users.”

Wave Services Circuits Grow

The total wave services circuits market in the U.S. grew nearly eight percent in 2024 and is projected to grow steadily through 2029, based on research from Vertical Systems Group. It observed an increasing use of wave services for cloud on-ramps, which is demonstrated by the metro geographical scope (41%) along with the dominance of retail customers (58%).

The report states that, from 2024 to 2029, growth in 400G circuits is set to soar, while 100G circuits will see a steady rise, and 10G circuits will experience modest growth.

Wave services are the foundation of most high-capacity networks, particularly when connectivity to or between data centers is involved. High bandwidth, protocol transparency, and low latency are some of their fundamental characteristics. Wave services can either act as end services or support higher-layer services. Based on Dense Wavelength Division Multiplexing (DWDM) technology, they enable massive data-transmission bandwidth over a fiber pair. Currently, wave services are dominated by 100G and 400G connections. There is still a high volume of 10G services deployed, but they are being upgraded to 100G at a steady pace.

Submarine cable growth

In addition, Ciena’s report looks at the growth of submarine cables. It highlights that a record 161,100 kilometers of submarine cables are planned to become ready for service (RFS) in 2025, dwarfing the previous high of 121,000 kilometers becoming RFS back in 2001.

“With infrastructure expanding rapidly and resource constraints increasingly shaping growth, anticipating demand has never been more important,” Bieberich added. “Network operators providing wave services can seize this moment by proactively routing new submarine cables to emerging data centers and innovating to address these challenges. Differentiation through greater route diversity, low-latency connectivity, and compelling managed services is key to staying ahead.”

The report provides a thorough analysis of the current industry landscape, evaluating key trends and identifying factors poised to influence the market in the coming years. The report’s forecasting illuminates the path forward, enabling stakeholders to effectively strategize and maintain a competitive edge in their fields. Read the full Wave Services report here.

About Ciena

Ciena is the global leader in high-speed connectivity. We build the world’s most adaptive networks to support exponential growth in bandwidth demand. By harnessing the power of our networking systems, components, automation software, and services, Ciena revolutionizes data transmission and network management. With unparalleled expertise and innovation, we empower our customers, partners, and communities to thrive in the AI era. For updates on Ciena, follow us on LinkedIn and X, or visit the Ciena Insights webpage and Ciena website.

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