

Lumen launches Private Connectivity Fabric, reaches \$5B in AI-related sales

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Introduction

In August, Lumen Technologies Inc. disclosed an impressive \$5 billion in sales for Private Connectivity Fabric, a new product that allows customers to operate private networks on the vendor's fiber footprint. Additionally, Lumen says it is in active discussions with customers for another \$7 billion in sales. The interested customers are primarily hyperscalers — cloud operators, social media giants and the like — whose primary motivation is to secure the connectivity needed for the massive AI-related datacenter buildouts they have planned. The company's announcement closely followed a partnership signed with Microsoft Corp. to help it expand its network, again with AI cited as the reason.

The Take

Lumen has cause to celebrate, but its victory is just the first phase of a longer competitive race. The \$5 billion will arrive over the course of years, and some of it will fund the network expansion required to feed hyperscaler demand. The vendor projects that it will double its intercity network — in terms of total miles — over the next five years. The Microsoft partnership is significant as a tangible example of AI success, but it also could spur competitors to push harder for their share of hyperscaler AI demand.

Connectivity is Lumen's natural route into AI considering its role as a tier 1 network provider and a global internet backbone operator. Moreover, Lumen has a culture that grasps the importance of breaking from telecom's traditional sales motions, which are clunky compared with the speed of software-driven, cloud-native infrastructure. This manifested itself in last year's launch of its Network-as-a-Service products. That said, the vendor is shadowed by technological debt, having never fully integrated the multiple global networks it acquired when known as CenturyLink. New CEO Kate Johnson has steered Lumen toward completing that network integration, addressing areas such as order management and billing systems.

Context

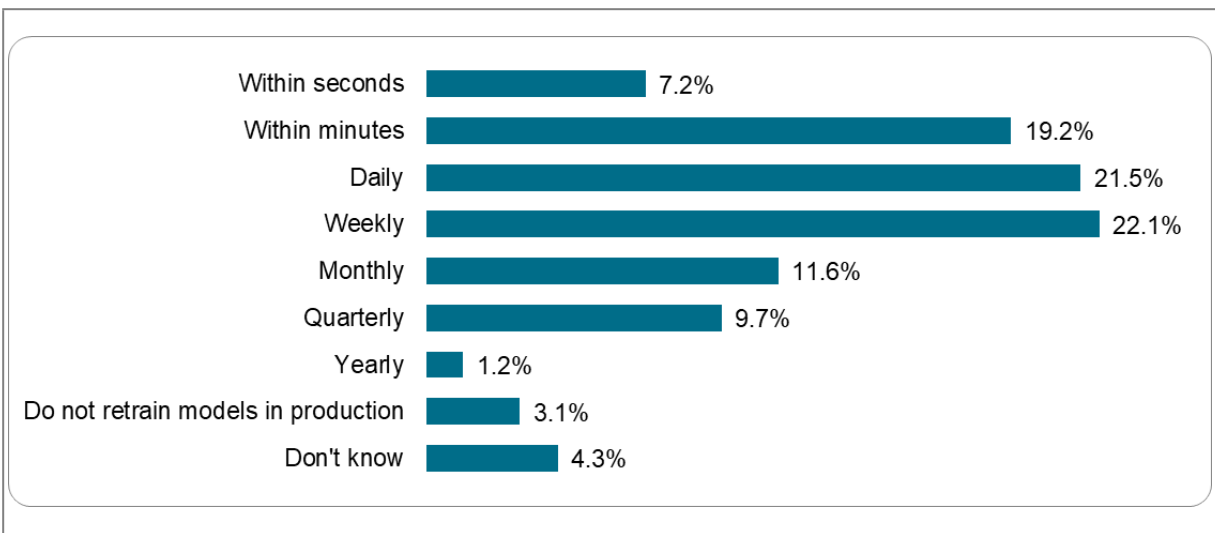
The company's executive leadership has transitioned during the past two years to emphasize IT and software experience. Johnson, previously at Microsoft, took the helm in 2022. Dave Ward, formerly of Cisco Systems Inc. and Juniper Networks Inc. and recent CEO of PacketFabric, joined as chief technology officer earlier this year, followed by new Chief Marketing Officer Ryan Asdourian, another Microsoft alumnus. Johnson has undertaken the long-delayed work of unifying Lumen's networks, including its 24 order management systems and 17 billing systems. At the same time, the vendor is investing in forward-looking services such as the product category it calls Network-as-a-Service — Private Connectivity Fiber is another of these forward-looking initiatives.

Technology

PCF is a manifestation of Network-as-a-Service, the collective brand for Lumen's on-demand, automated offerings. Such capabilities are a hallmark of cloud computing but were slow to reach networking, especially in the realm of communication services. Customers can use PCF to operate customized networks on the company's fiber footprint, as well as can combine a broad range of Lumen services such as dedicated fiber, wavelength capabilities and Ethernet. Having Lumen itself manage the network is an option as well. PCF is applicable to enterprises and datacenter owners, but initial interest has come primarily from hyperscale cloud operators engaging in aggressive AI buildouts.

For enterprises and hyperscalers alike, networking is a crucial element of AI operations. This holds true not only for the training within a GPU cluster, but also for the network that connects that cluster to data and AIOps users. Already, enterprises running machine learning in production or proof of concept are updating models frequently. Nearly half of respondents to 451 Research's [Voice of the Enterprise: AI & Machine Learning, Infrastructure 2024](#) survey say they send new data to a model at least daily. Large language models, which require large training sets, could have the same issue but on a magnified scale.

Figure 1: For many enterprises, ML training is a continual process



Source: 451 Research's *Voice of the Enterprise: AI & Machine Learning, Infrastructure 2024*.

Q. Considering the average machine-learning model in production, how often do you retrain the model with new data?

Base: ML is in production or proof of concept (n=484).

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Lumen envisions Private Connectivity Fiber as a multicloud product, providing mesh connectivity to on-ramps for multiple public clouds. That mesh, which is still being developed, will rely partly on [ExaSwitch](#), a product that connects customers directly to the vendor's core optical network. Lumen is still in the process of modernizing its datacenters to accommodate NaaS products — 525-plus have been outfitted so far.

The company's US footprint covers a swath of the country's rural areas, and Lumen feels that it has the network to support the growing demand for AI. Internationally, however, the vendor has divested much of its portfolio in recent years, including the sale of its Europe, Middle East and Africa business to Colt Technologies for \$1.8 billion in 2022. While Lumen still operates a global internet backbone, it plans to rely on partners to extend PCF into certain international locations.

Microsoft partnership

Lumen has not yet shared all of the details regarding its \$5 billion in sales for its Private Connectivity Fabric business but does note that it includes part of the Microsoft partnership that had been disclosed weeks earlier. Like other hyperscale operators, Microsoft is rapidly expanding its datacenter footprint to accommodate AI, and the company is using Lumen to correspondingly expand network functionality, emphasizing low latency and the need to move large volumes of data.

The partnership with Microsoft runs both ways — it includes Lumen modernizing workloads and migrating them to Microsoft Azure as well as using products such as the Microsoft Entra suite for identity and access management. Lumen will be installing more than 22,000 route miles of Corning fiber both as an upgrade to existing routes and to establish over 20 new routes. Additionally, the vendor notes that it will more than double its intercity network fiber miles over the next five years.

Competition

In a global sense, Lumen's Private Connectivity Fabric will vie with fiber connectivity services from the major carriers in any given region. Its most direct rivals, however, are US giants AT&T Inc. and Verizon Communications Inc. — all of these players also compete with smaller companies that provide on-demand networking for middle-mile spans.

AT&T, Verizon and other tier 1 carriers worldwide all joined the software-defined networking bandwagon a decade ago, but many used it to improve their internal network operations. Lumen is being more aggressive at putting these software capabilities in the hands of customers, offering a streamlined user experience more akin to that of public clouds. This more modern outlook gives the company a competitive advantage, at least for the moment.

Hyperscalers run their own global fiber backbones that, in a sense, compete with Lumen's. Fiber is an expensive proposition, however, especially when it comes to laying it into the ground — it's no surprise that hyperscalers would be willing to cede that work to a service provider.

Another option for datacenter-to-datacenter connectivity, including cloud facilities on either or both ends, is the interconnection services supplied by leased datacenter operators. Equinix Inc. runs a global fabric connecting nearly all of its datacenters and houses a large number of cloud on-ramps, as does Digital Realty Trust Inc., which relies on partners such as Megaport Ltd. for network connectivity.

One strength of these interconnection services is their cloud neutrality, something the public clouds

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an adjunct to hyperscalers' own networks but also as another neutral option for enterprises' hybrid and multicloud networking, bringing more than 70,000 route miles of 400-gigabit-per-second-enabled network. However, Lumen does not offer colocation at the same scale as the leased datacenter operators.

SWOT Analysis

Strengths	Weaknesses
<p>Lumen grasped the importance of software-driven infrastructure long ago, going back to its CenturyLink days, and is culturally in tune with the idea of cloud-native services. The company's US fiber footprint is substantial and likely reaches some of the less-conventional areas being considered for AI datacenters.</p>	<p>For all of its forward thinking, the vendor's execution historically has been slow. While Lumen's optical backbone still has global reach, it has divested much of its international holdings and will need to rely on partners in some regions, especially as hyperscaler datacenters sprout in more unusual locations.</p>
Opportunities	Threats
<p>Although the hyperscalers run their own fiber networks, this is an expensive proposition and inherently slow to scale. Lumen could position itself as a fiber partner — the "backbone of AI," as CEO Johnson puts it. Other service providers will fight for a share of that business, but Lumen might have a head start, especially in the US.</p>	<p>Technical debt still overshadows Lumen's operations. Addressing this is a necessary cost — in both money and time — that the company has committed to expend. This is not an easy task and could prove a distraction, posing a risk as rivalry for AI connectivity intensifies.</p>

Source: 451 Research.