# AI and network connectivity, are you ready?

It is an understatement to say that AI is transforming the world as we know it. The sheer amount of data that is created, moved, and analyzed is accelerating because of it is hard to comprehend. Organizations use these massive data sets to training large language and generative AI models hosted in the cloud by hyperscalers and/or their own in-house, private AI. Omdia estimates that in 2023, AI-enriched interactions generated 63 exabytes of global network traffic per month, roughly 1/3 of all network traffic That is expected to grow to 1,226 exabytes per month by 2023 -- that's 19x in just 7 years[1].

Given that expected trajectory, a reset in the way we think and deploy network infrastructure to support this powerful capability needs to happen and happen quickly. Companies need creative connectivity solutions to bolster their core digital network capabilities, with the ability to scale quickly and consume capacity on demand, with the ultimate goal of achieving their vision of what AI will do for their business.

## The need for flexibility and scale

Whether accessing AI in the public cloud or building their own in a private cloud, large enterprises are investing heavily in AI deployments in hopes of creating new revenue streams, boosting efficiency, improving productivity, shortening time to market and accelerating delivery for new products and services that are easy for customers to use. That requires coordinating across public, private, and multi-cloud environments without introducing latency to the experience, which invariably frustrates users.

The ability to move the massive amounts of data needed by AI further exposes the challenge that enterprises face on the road towards the digital evolution of their business. Applications and workloads can now comprise multiple petabytes of data. This means their migration over traditional public or even private 1G and 10G connections can take weeks or even months to complete, creating a major limitation to unlocking the data's value.

[1]Omdia, *AI Network Traffic Forecast*, January 2025

## A new approach, fast & flexible connectivity options for AI

In this new AI era, companies are looking for massive scale, as well as elasticity in their core digital network. A 'static' base network will exist for the foreseeable future; however, companies need the ability to quickly scale network capacity short-term to move large datasets without creating contention within their digital infrastructure.

Ultra-high-capacity connectivity of 100G and now 400G Wavelengths is becoming the primary means of interconnecting data center and cloud instances. In a recent case, an automaker needed to upload 10 petabytes of data to the cloud in order to train its internal AI model. We did the math: that equates to nearly 93 days over a 10G connection. For comparison, the same data would only take 56 hours to transmit over a dedicated 400 Gbps connection! When 800 Gbps becomes available, that number will be cut in half.

| | | | |
|---|---|---|---|
| **10 PB** | **93** Days | **9.3** Days | **56** Hours |
| **5 PB** | **46** Days | **4.6** Days | **27.8** Hours |
| **1 PB** | **9** Days | **22.2** Days | **5.6** Hours |
| **100 TB** | **22.2** Hours | **2.2** Hours | **33.4** Minutes |
| Data vs BW | **10** Gbps | **100** Gbps | **400** Gbps |

**All roads lead to organizations needing ultra-high bandwidth network connectivity and the ability to scale up and out quickly. Lumen has three options companies can call on to access network agility:**

### Wavelength Services

In a twist on the traditional approach, Lumen is using SDN and automation to deliver waves faster and at massive scale. This provides companies the necessary private, low latency connectivity to support their base core AI digital infrastructure. There's a reason why the service is the workhorse of all core digital networks.

### Network-as-a-Service

Lumen's on-demand, self-service connectivity portfolio of IP, Ethernet and IP-VPN allows companies to rapidly flex capacity, up to 30 Gbps as data usage requires, while paying only for the bandwidth they need.

### Private Connectivity Fabric

A custom network architecture that meets the high bandwidth, low latency demands of AI.

As AI usage grows, the technology will demand ever larger amounts of data, with the continuous cycle of training & inference. This will require an agile, scalable and fast core digital network to achieve the vision of what is possible. **Is your network ready?**

## Schedule a network consultation
and learn how your organization can harness optical networking to fulfill your digital transformation requirements.

## Get ready for AI with Lumen

The rise of AI is driving a massive demand for data. As companies leverage this powerful technology, they'll need robust and flexible network solutions to handle the ever-increasing data demands. Lumen is committed to supporting this evolution by providing the infrastructure and agility businesses need to thrive in the AI age.

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