

Choosing the Right Network for the AI Era



AI is outgrowing the network beneath it : three problems can decide whether AI performs or stalls.

The Network Challenges at AI Scale

1 Capacity Constraints

AI-driven traffic is pushing network demand beyond traditional architectures

2 Performance Challenges

AI workloads require consistent, low-latency connectivity at scale

3 Cost & Complexity Pressure

Scaling AI increases network complexity and infrastructure costs.

Where are you in your AI infrastructure journey and how can Lumen help?

Use Case	Customer Profile	Key Challenge	Capacity Needed	Lumen Solution & Business Outcome
 Connect Distributed AI Infrastructure	Enterprises, government agencies, data center operators, and neoclouds scaling AI capacity, bursty, and unpredictable demand	AI accelerated the need for greater data center connectivity, higher bandwidth, and lower latency	400G -5T (up to ~20T on long-haul); scaled in 400G increments	Wavelength Solutions: Rapidly scale AI connectivity with operational simplicity
 Maximize AI Performance	Enterprises, government agencies, data center operators, and neoclouds seeking dedicated connectivity without the need for optical engineering expertise	AI workloads are growing, but organizations don't want the complexity of operating an optical network	> 5T regional and > 20T long haul	Managed Optical Fiber Network (MOFN): Maximize AI performance without managing the network
 Scale Massive AI Growth	Hyperscalers, government agencies, institutions, and other sophisticated customers with high bandwidth needs and optical expertise	AI demands are driving the need for greater network control	>10T, multi-terabit at sustained high hyperscale utilization	Dark Fiber: Own and scale network capacity as AI demand grows
 Build the Backbone for AI Innovation	Hyperscalers, AI innovators, data centers, enterprises and government agencies building a custom, secure and private network	AI demands a scalable architecture that connects data, compute, cloud, and edge	Elastic, multi-terabit across a custom fabric (cloud, edge, data)	Lumen® Private Connectivity FabricSM Create a purpose-built AI-ready network architecture

Transform with a network that's ready.

Choosing the right transport model is critical to balancing performance, scalability, operational complexity, and TCO.

#1 peered global network* · 400G backbone · ~163,000+ on-net buildings · largest ultra-low-loss intercity fiber network in N.A.

Read report

lumen.com · 1-877-453-8353

Sources: Lumen “Choosing the Right Optical Transport for the AI Era” (ACG Research – P. Fetterolf, PhD) & Lumen AI Backbone / Network Investment materials. Cost comparisons are scenario-based; actual results vary by route, distance and usage.

*CAIDA, AS Rank, January 2025