

Generative AI: New demands driving network innovation



AI is hungry for data

Generative AI and LLMs are transforming businesses, driving innovation, and enabling new possibilities. As the technology grows, so does the volume of data required. Networks need to adapt to keep up.



Public AI

Designed to be used in the public domain by multiple tenants in a shared environment, e.g., ChatGPT, Google Gemini, Claude, Copilot, Perplexity.



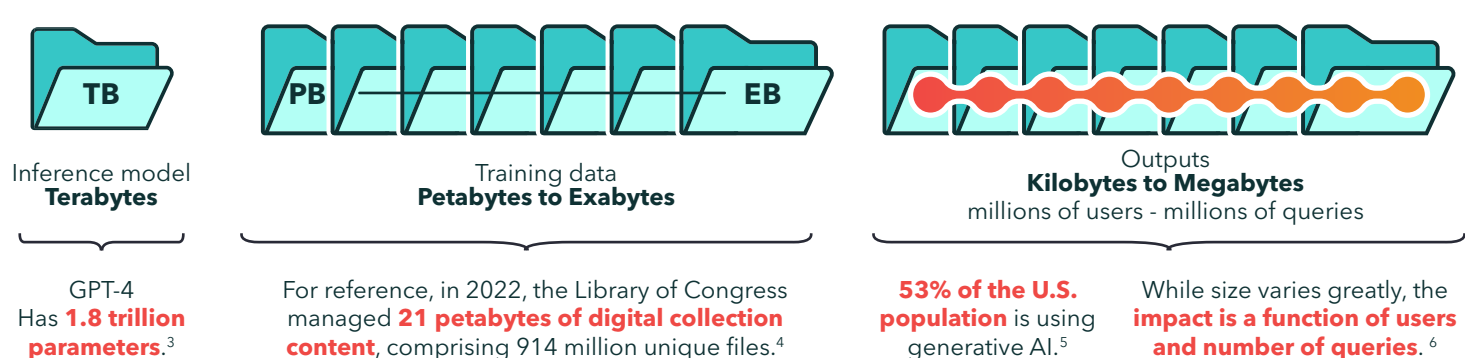
Private AI

For large-scale organizations built and hosted in a private environment for enterprises that want to maximize control and security of their data.

As of 2023, the U.S. was home to nearly **15,000 AI startups**.¹

Walmart generates **2.5 petabytes of data each hour**.²

AI data consumption



And it's getting even bigger

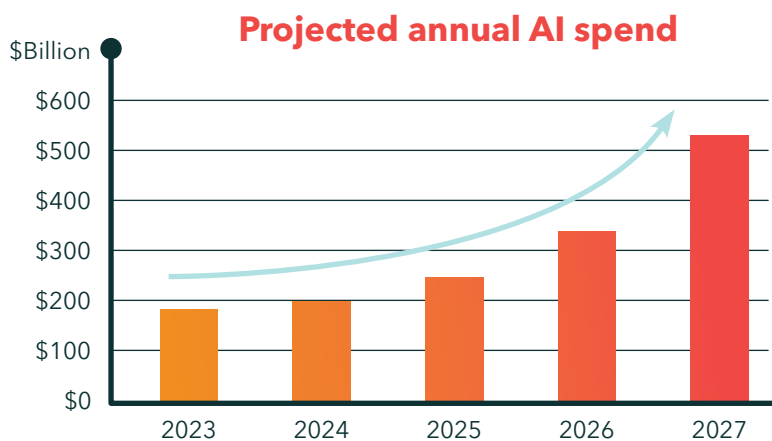
Future AI models will be used in a greater number of use cases, and the data needed to continue refining and training them will continue to grow.

Approximately 329 million terabytes of data is created every day.⁷ Despite that volume, the biggest obstacle for machine learning and AI development is data availability.⁸

Synthetic Data created by AI models is nearly limitless and typically of better quality – extremely useful aspects when it comes to training AI models.

By 2030, it will be possible to train an AI model with up to **162 trillion words** – approximately **38,500 times more** than all the words in Wikipedia.⁹

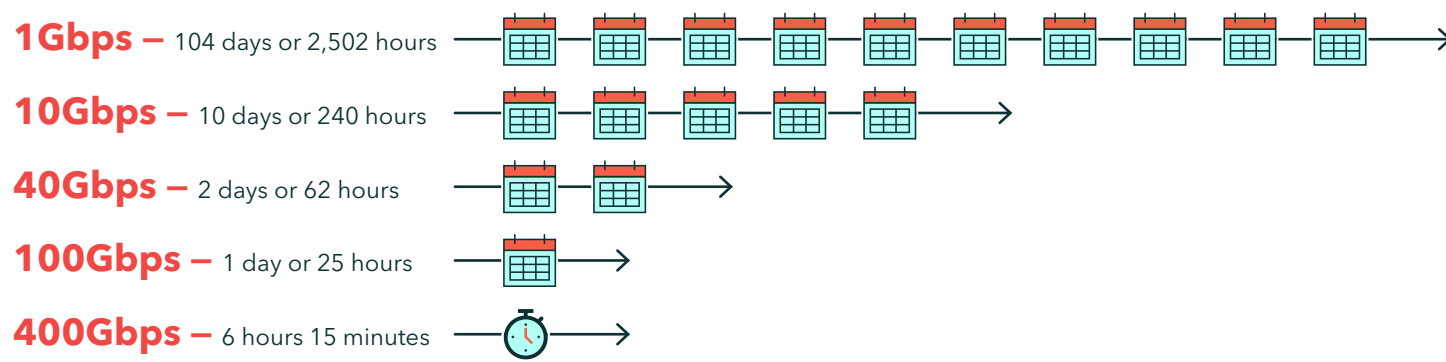
IDC predicts that annual spending on AI – including generative AI – will go from **\$175.9 billion in 2023 to \$509.1 billion in 2027**, a compound annual growth rate (CAGR) of 30.4%.¹⁰



Which is straining networks

AI requires massive amounts of data. Traditional connectivity struggles to match the capacity or speeds required to efficiently feed AI models.

Time required to move 1 petabyte of data



But networks are adapting

When it comes to large unpredictable network transfers, flexibility is the key. Programmable networks able to rapidly scale up and down are key to keeping up with AI's demands.



Flexible Wavelengths

Provision additional capacity on demand as needed.



Network-as-a-Service

Flex capacity up or down according to data usage requirements.



Private Connectivity Fabric

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

1. WorkMind, How Many AI Tools Are There, August 2024
 2. Medium, Data Behind the Large Language Models (LLM), GPT, and Beyond, April 2023
 3. Data Science Central, Here's How Much Data Gets Used by Generative AI Tools for Each Request, November 2023
 4. Library of Congress, FAQ, How Much Digital Content is in the Library of Congress' Collections, 2024
 5. Adobe Blog, The Age of Generative AI, April 2024
 6. Data Science Central, Here's How Much Data Gets Used by Generative AI Tools for Each Request, November 2023
 7. Exploding Topics, Amount of Data Created Daily (2024), June 2024
 8. Spiceworks, Synthetic Data vs Real Data: Is It a Valuable Substitute, April 2023
 9. Unite, How AI is Creating Explosive Demand for Training Data, March 2023
 10. Equinix, Public Cloud vs. Private Cloud for AI, March 2024

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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