

Smarter Phones, Stronger Networks Needed: Meeting AI's Growing Demands

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Every year, our phones get sleeker, faster, and smarter. But while the devices in our hands keep evolving, the telecom networks that support them often go unnoticed. Behind the scenes, something big is happening—an AI-driven shift that's transforming not just our phones but the entire wireless infrastructure they depend on.

The AI arms race for cloud computational power is not just confined to Global Processing Units (GPUs) and training large-language models (LLMs) that have driven sweeping investment in programs from the likes of Microsoft, Google, and Meta. Global telecom companies are looking to expand digital wireless capacity. After years of rapid growth for mobile data capacity, growth demand has slowed in recent years.¹ So far, the sale of AI enabled iPhones sold by Apple have failed to impress.² But for global telecom networks, the need to build out sufficient digital wireless capacity to support ever smarter and faster cellphones appears to have met an inflection point.³ Forecasts indicate that AI traffic will significantly alter global network demand.

The shift from central processing units (CPUs) to graphics processing units (GPUs) in computer hardware is driven by the need to process vast amounts of data quickly and efficiently. Unlike CPUs, which handle tasks sequentially, GPUs excel at parallel processing, allowing AI models to train faster and scale more effectively. This transition is critical as AI workloads grow increasingly complex, requiring hardware capable of meeting ever-greater computational demands.

¹ Source: Fierce Network, J. Madden, "Data Demand is Slowing, but AI Will Spike Uplink Data," August 28, 2024.

² Source: The Economist, "AI Will Not Fix Apple's Sluggish iPhone Sales Any Time Soon," September 10, 2024.

³ Source: Source: Ericsson, "Impact of GenAI on Mobile Network Traffic,"

Mobile AI demand will not only increase with sales of AI enabled smartphones, the rapidly expanding capacity of generative AI (GenAI) and AI assistants will also grow demand for mobile digital capacity.⁴ In recent years, much of the new demand for mobile digital video connectivity was limited to video traffic.⁵ But increasingly powerful generative AI assistants will replace simple text-only AI applications like ChatGPT.⁶ New GenAI assistants “are used for multi-media tasks, including audio, image, and video generation. They are highly effective at capturing long range dependencies and are particularly powerful for multi-media tasks such as text-to-image,” according to networking and telecommunications giant Ericsson.⁷ The promise of AI to deliver personalized and specialist services, data, and advertising could account for the largest AI-driven demand for data capacity in an indirect manner. (See figure below).

Simply upgrading existing 4G towers may not be enough to accommodate the increased demand for wireless digital capacity in the coming years.⁸ The explosion in data created by the increased use of AI is another reason why telecom firms around the world are continuing to invest in so-called 5G stand alone mobile networks.⁹ Stand-alone 5G networks have higher capacity and speed than upgraded or hybrid networks built for 4G spectrum.¹⁰ Global telecom companies are looking to expand their wide-area-network (WAN) capabilities to integrate public and private local-area-networks (LANs) as well as hyper-scalers cloud facilities like those being built by Amazon, Google, and Microsoft.¹¹ Enterprise AI demand for network access is also forecast to grow rapidly over the coming decade. (See figure below).

⁴ Source: Ericsson, “Impact of GenAI on Mobile Network Traffic,” 2024. See also Nokia, “Global Network Traffic Report,” 2023.

⁵ Source: Fierce Network, J. Madden, “Data Demand is Slowing, but AI Will Spike Uplink Data,” August 28, 2024.

⁶ Source: BBC, M. Wall, “How Mobile Phone Networks Are Embracing AI,” June 19, 2024.

⁷ Source: Ericsson, “Impact of GenAI on Mobile Network Traffic,” 2024.

⁸ Source: BBC, M. Wall, “How Mobile Phone Networks Are Embracing AI,” June 19, 2024.

⁹ Ibid.

¹⁰ Ibid.

¹¹ Source: Nokia, “Global Network Traffic Report,” 2023.

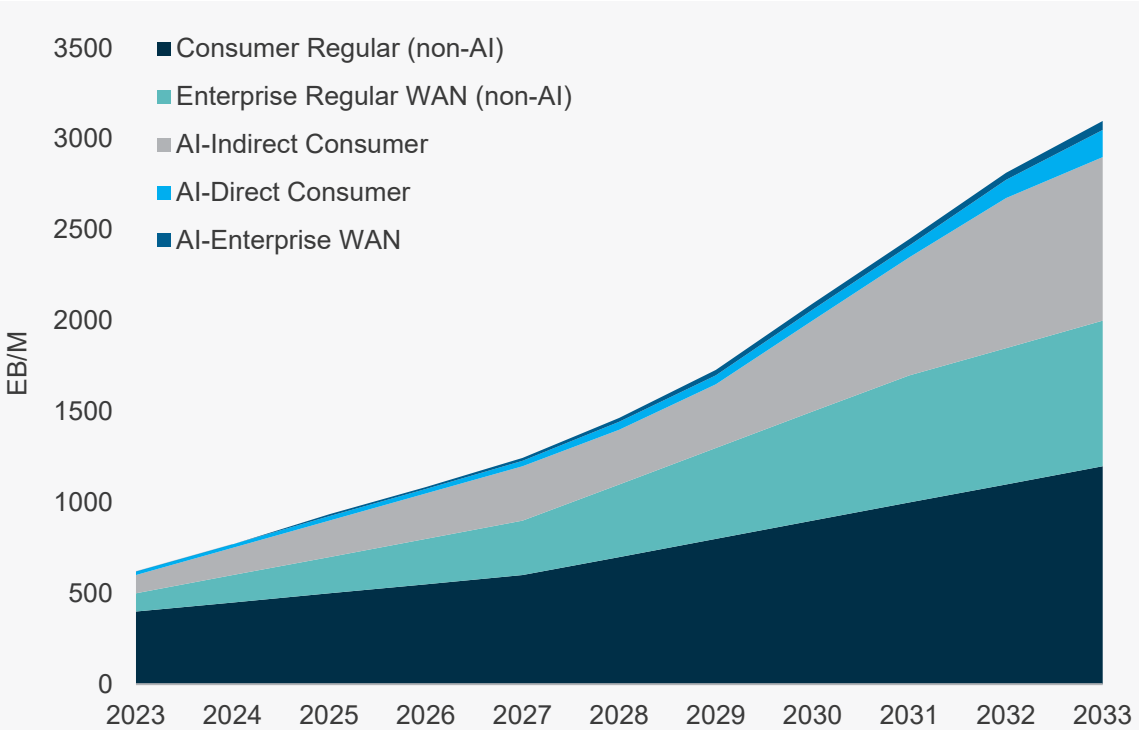


FIGURE
Global AI Wide Area Network (WAN) Demand Growth 2023 – 2033 (EB/M)

Source: Nokia, “Global Network Traffic Report,” 2023. Wide Area Network (WANs) connect small local area networks (LANs) that include cellular service providers, public and private cellular towers and cloud storage facilities. Wireless communications depend on WANs infrastructure. EB/month is a measure of digital information storage per month where EB is an exabyte of data or one billion gigabytes.

At the Mobile World Congress in Barcelona in June 2024, telecom companies forecast that, “AI won’t be able to reach its full potential until the roll out of 6G wireless capacity in 2028,” reports the BBC.¹² The shifts in demand for network capacity are pushing telecom companies to anticipate future demand for critical network upgrades over the coming years.¹³

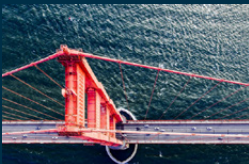
¹² Source: BBC, M. Wall, “How Mobile Phone Networks Are Embracing AI,” June 19, 2024.

¹³ Source: Ericsson, “Impact of GenAI on Mobile Network Traffic,” 2024. See also Nokia, “Global Network Traffic Report,” 2023.

The surge in AI-driven demand is ushering in a new era for digital infrastructure. With increasingly sophisticated generative AI applications and AI-enabled devices poised to reshape how we consume and create content, companies are preparing for a future of exponential data growth. This has the potential to present a host of unique investment opportunities. Upgrading existing networks won't suffice—stand-alone 5G networks and, eventually, 6G capabilities will be necessary to meet the demands of AI-enabled multimedia and enterprise connectivity.

As the digital infrastructure landscape evolves, those investing in next-generation network technology and AI-driven solutions are well-positioned to capitalize on this transformative growth trend. While there are risks with any emerging technologies, the coming decade has potential to present significant opportunities for forward-thinking investors willing to support the buildout of the backbone for the AI-powered future.

To learn more about investing in private infrastructure, better understand the diverse investment sectors within infrastructure, or to dive deeper into the growing importance of digital infrastructure please visit the [Insights](#) section of our [website](#) or click the links here to learn more.



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