How AI Is Shaping a New Era of Connectivity

NVIDIA GTC showcases key AI-driven technologies that help telecoms transform operations and build efficient, fast 5G networks.

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From metaverse digital twins powering predictive maintenance and network performance optimization to new telco business models born of 5G and edge services, AI applications can drive new operational efficiencies and revenue opportunities across the telecommunications industry.

NVIDIA GTC , a global conference for the era of AI and the metaverse running online March 20-23, will showcase technologies that can help bring such goals to fruition. Register free today to hear from NVIDIA and industry experts on how accelerated computing and AI will shape a new era of connectivity.

Telcos plan to deploy over 17 million 5G microcells and towers worldwide by 2025. This creates the challenge of building, managing and optimizing new infrastructure while maintaining the quality-of-service delivery and maximizing the customer experience.

The metaverse, the 3D evolution of the internet, can help.

HeavyRF, an advanced network digital twin solution by HEAVY.AI, based on the NVIDIA Omniverse platform for building and operating metaverse applications, aims to assist telcos with network planning and operations. The solution now includes geospatial satellite data in addition to demographic and behavioral insights. This will enable telco customers to model network design in a true-to-reality environment for optimal antenna placement and navigate challenging settings.

To learn more about metaverse applications for enterprises, check out Omniverse and digital twin sessions on the GTC catalog .

About 92% of the $1.5 trillion capex investment in the industry, between 2023 and 2030, will go into expanding the coverage and capacity of 5G networks, according to a recent GSMA Mobile Economy report . This will more than quadruple the share of 5G connections worldwide by 2030. 229 telco operators in 87 markets had launched mobile 5G services as of January this year, and 1.5 billion 5G connections are expected by the end of the year.

NVIDIA is collaborating with Fujitsu on a new 5G virtualized radio access network (vRAN) solution to facilitate the shift to open radio access network solutions and accelerate 5G deployments. The solution combines Fujitsu’s virtualized CU (vCU) and virtualized DU (vDU) with the NVIDIA A100X accelerator to support both 5G workloads and edge AI workloads.

Fujitsu is working with NTT Docomo under the 5G Open RAN Ecosystem Experience (OREX) to build flexible, open 5G networks that can deliver high-performance 5G for a wide range of use cases from telcos and enterprises.

Learn more about cloud technologies, AI and software-defined solutions for 5G networks at these GTC sessions:

How Fujitsu and NTT Docomo’s OREX Pave the Way for AI-Enabled OpenRAN

Big Leap in vRAN: Full-Stack Acceleration, Cloud-First, AI and 6G Ready

Building and deploying 5G networks is costly. To monetize new infrastructure, telcos need to create new revenue opportunities with enterprise customers.

Private 5G wireless solutions for industrial and factory applications have great monetization potential, with about half of telcos expecting 10% of enterprise revenue to come from private wireless by 2025.

NVIDIA and Red Hat are making private networks cheaper to build and easier to scale with composable infrastructure that helps streamline use of resources.

To achieve this, Red Hat now supports NVIDIA converged accelerators and the NVIDIA Aerial software development kit for software-defined 5G vRAN and enterprise AI applications. The SDK simplifies building programmable and scalable 5G software, including edge and AI applications that are in demand with enterprise customers. With these capabilities, providers can unlock the full potential of 5G-driven use cases across hybrid and multi-cloud environments to deliver new services.

Hear how industry leaders are delivering enterprise edge AI at these GTC sessions:

Delivering Enterprise AI Services on MEC: Three Perspectives From NTT Group

Unlocking 5G's Potential at the Edge With State-of-the-Art NVIDIA GPUs

AI is powering new offerings for customers, as well as underpinning efficiency gains for internal telecom operations and improved network service. In a recent NVIDIA survey , 60% of telcos said they were expecting to use AI automation to augment human-based operations. Technologies like avatars, generative AI and dynamic routing enable cost efficiencies.

To improve the quality of service, telcos are using AI to analyze terabytes of network data to detect anomalies, enhance security and improve fraud detection. AI-powered predictive maintenance is helping telcos proactively identify and fix issues in their hardware and software before performance is impacted.

Additionally, AI virtual assistants in contact centers are enriching customer service and purchase experiences while supporting human staff.

Learn how AT&T; and Vodafone are using AI for telco operations at these GTC sessions:

The Future of Customer Service: How Speech AI Is Changing the Game

Optimizing Fraud Detection Systems: The Case of Highly Imbalanced Data

The future of telecom networks and services will increasingly be based in the cloud and supported by accelerated computing and AI.

From machine learning to edge computing and advanced software-defined architecture, NVIDIA is collaborating with partners on innovative technologies that will drive superior telecom performance.

Hear more about how NVIDIA and partners are building modern telco networks and a collaborative 5G ecosystem to transform services at GTC , and watch NVIDIA founder and CEO Jensen Huang's keynote address on Tuesday, March 21, at 8 a.m. PT.

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