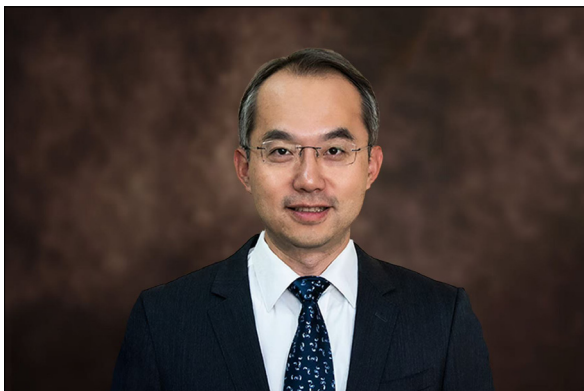


# Leading in the Intelligent Era with Cloud-Network Convergence and Artificial Intelligence

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With the advent of the artificial intelligence (AI) era, China Telecom has embraced a "network + AI + application" foundation, focusing its strategy on catering to customer needs to actively enhance personal and family information services. This approach has yielded notable success in expanding its broadband and mobile user bases. By mid-2024, China Telecom's broadband user base is projected to hit 193 million, featuring a gigabit broadband penetration rate of 27.3% and over 6 million fiber-to-the-room (FTTR) users. Revenues from fixed-line and smart home services are forecasted to reach 64 billion yuan, representing a year-on-year increase of 3.2%. Furthermore, the mobile user count has surged to 417 million, with mobile communication service revenues amounting to 105.2 billion yuan, an annual growth of 3.6%. These statistics not only underscore China Telecom's robust market standing but also highlight its unwavering commitment to fulfil the diverse needs of its users.

**Building New Infrastructure  
Featuring Cloud-Network  
Convergence**

Driven by market demands in the AI era, China Telecom is accelerating the transformation and upgrading of its digital information infrastructure. We continuously enhance our network capabilities and intelligent computing power, further strengthening its competitive edge in the market.

In terms of optical access, China Telecom and Huawei have achieved a ground-breaking milestone by verifying the world's first coexistence standard for GPON/10PON/50GPON. We've successfully established a 10G smart access network, and accomplished 10G application incubation, along with the implementation of 10G scenario. The number of 10G PON ports in the Gigabit optical network has surpassed 9 million, and the coverage rate of Gigabit residential buildings in certain towns in China has exceeded 90%.

Moreover, China Telecom has made significant efforts in optical networks to enhance the infrastructure of intelligent all-optical networks and swiftly established a 400G all-optical high-speed network, resulting in an intelligent and ultra-fast all-optical network with a flat architecture alongside intelligent operation. Additionally, we have developed the world's largest OTN network, covering 97% of cities, 98% of core aggregation nodes, and 95% of integrated access areas in China. Our 5G co-construction and shared base stations for wireless networks has surpassed 1.3 million in China as well.

China Telecom Cloud (Tianyi Cloud) has been in a leading position in the market. Its government public cloud infrastructure remains unmatched, and the exclusive cloud service has ranked first for five consecutive years. Meanwhile, the scale of China Telecom's computing power construction has also reached 21 EFLOPS.

## A New Era of 10G Network for Households

AI applications have imposed heightened demands for bandwidth, latency, and device-cloud collaboration. In response, China Telecom is accelerating the development of 50GPON 10G broadband networks, edge clouds, and

AI computing power, creating a 10G intelligent access network to ensure the end-to-end experience of AI services and provide more diversified applications across various scenarios. In 2024, China Telecom launched the world's first "10G Cloud Broadband Demonstration Community" and "10G Business Convergence Package" in Shanghai and formulated the 2026 Shanghai's All-optical 10 Gigabit City initiative. This ambitious plan aims to achieve comprehensive 10G network coverage across the city, establish 26 10G demonstration communities, facilitate the launch of 10G services, and spearhead the transition of home networks into the 10G era.

China Telecom employs a cloud-network convergence strategy that leverages its advantages in new metropolitan area networks and edge clouds. It has designed a converged edge architecture that maximizes network capabilities, offering high bandwidth and low latency. This enables families to access a wide range of cloud applications and cloud network services through edge clouds, facilitating the transition from traditional broadband to cloud broadband. In Guangdong, China Telecom has developed over 20 edge cloud application scenarios. For instance, when the popular Chinese game "Black Myth: Wukong" emerged recently, China Telecom developed a "gigabit broadband + edge cloud" solution by deploying hardware resources on the edge cloud. This ensures ultra-low latency from the household to the cloud, allowing consumers to enjoy the game using regular computers to connect to the edge cloud.

## Innovative Digital Home Experience

For home networks, China Telecom is committed to enhancing technological advancements and infrastructure development for broadband networks. From dial-up Internet access to ADSL, LAN, and FTTH, we have seamlessly transitioned into the Gigabit FTTR era. In less than two years, the number of users utilizing China Telecom's FTTR services has soared from 230,000 to 8 million. As users enjoy enhanced network service experiences, the value of China Telecom's user base is also on the rise. These FTTR users are projected to generate additional



revenue exceeding 3.4 billion yuan (470 million US dollars).

In digital home scenarios, China Telecom leverages the capabilities of All-Optical Network 2.0, FTTR, and cloud-network convergence to achieve AI+ upgrades across four major digital platforms: digital home, device-cloud collaboration, smart community, and digital village, while comprehensively upgrading its digital home products.

Regarding home applications, China Telecom aims to enrich home scenarios by upgrading "AI + Products" to elevate users' smart home lifestyles. Firstly, China Telecom will advance the upgrade of "AI + Home Networking" through network AI model capabilities, achieving automatic tuning and roaming while offering high-speed, intelligent, seamless coverage, safe, reliable, and high-quality network experience. Secondly, it will upgrade the "AI+Tianyi HD" using the Telechat large model to deliver a natural, engaging, and personalized interactive experience. Thirdly, "AI+ Home Security" will be upgraded through device-cloud collaborative AI capabilities. Moreover, we will push forward the development of "AI + Family Health" utilizing a general large model. Lastly, we will upgrade the "AI + Xiaoyi Smart Home app" to better serve over 200 million users.

For families, China Telecom has updated the two major home and Internet security scenarios. The AI-powered video door lock boasts advanced stranger and delivery recognition algorithms, providing real-time and accurate "homecoming reminders for the elderly and children" while effectively monitoring strangers to ensure family safety. This system is a pioneering achievement in the industry, providing comprehensive, secured Internet access across all devices and applications. Also, it dynamically updates the AI anti-fraud strategies and analyses

and identifies malicious URLs and abnormal access behaviours, thereby creating a safe and green Internet environment for the elderly and children.

In response to community needs, China Telecom leverages its smart community platform to offer a variety of smart community applications, such as street cloud and community cloud for government, property, and residents. These applications focus on scenarios including community governance, security, smart property, smart access, and 15-minute living circles. They aim to connect urban governance with smart homes to achieve refined governance and flexible property management, enhance residents' lives, and improve urban governance.

China Telecom leverages AI technology to empower Yijia Health (a smart health brand) in the healthcare sector, utilizing an industry-leading medical model to offer users with real-time AI consultation services and ensuring 24/7 access to private doctors for families. Additionally, by integrating health monitoring devices and adopting advanced AI models, China Telecom conducts intelligent analyses of user health data, location data, lifestyle, and more, while synchronizing health status among users, children, medical service organizations, and others to achieve a seamless service loop for home healthcare. In rural areas, healthcare devices and smart speakers has incorporated AI applications, such as AI Guardian and AI Consultation, to cater to the elderly. This integration links daily health monitoring data of villagers to the village committee and local physicians, facilitating prompt caregiving services.

China Telecom has developed a comprehensive rural AI visual communication application by integrating AI and visual communication in rural areas. This initiative targets governance scenarios related to water, waste management, and fire safety, employing AI alarm systems to prevent drowning, littering, and fire hazards, effectively protecting the lives and property of villagers.

For agricultural production, the Tianyi Shilian Farming Solution has been introduced. Leveraging Tianyi Shilian and IoT sensing devices, this solution employs AI functionalities, including regional intrusion monitoring, to supervise water temperature and quality in fish and shrimp

ponds. Additionally, it automatically adjusts production equipment and aids in preventing theft and illegal fishing, thereby safeguarding agricultural yields.

In terms of device-cloud collaboration, China Telecom enhances the capabilities of home networking and gigabit broadband by creating dual entry points on both the device and cloud sides, thereby enriching application scenarios. On the device side, a combination of a "small-model + digital home robot" forms an AI entrance that provides an interactive experience with visual, sound, hearing, and lighting. Meanwhile, the cloud side features a cloud AI entrance developed through "large models and edge cloud services" to deliver intelligent services for cloud protection, cloud living, and cloud work.

## Create a Better Digital Life Together

China Telecom has developed the "Beautiful Home" dig-

ital life system based on cloud-network convergence and digital platforms. This system focuses on five key areas: safety, health, entertainment, low carbon, and intelligence, aiming to create a beautiful home for users in the AI era. Additionally, China Telecom continues to enhance its capabilities and services by horizontally connecting innovative communities and digital rural systems. By integrating home-community and home-rural initiatives, China Telecom ensures that the general public can live and work peacefully and happily, revitalizing rural areas while maintaining safe and orderly urban management.

Looking ahead, China Telecom remains committed to drive technological innovation, fostering industrial integration, and embracing open collaboration. We eagerly seek partnerships with all stakeholders to explore cutting-edge communication technologies and their application scenarios, establish a digital household ecosystem, share mutually beneficial outcomes, and jointly forge a brighter future together.



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