

China Telecom's Whole-home WiFi service



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AUTHORS

Longjie Xu

Xinrui Shi

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BRIEF INTRODUCTION

The Whole-home WiFi service is China Telecom's home WiFi network coverage product for home broadband customers. The service offers users a high-speed, full-coverage home WiFi networking solution that can solve problems faced by end users, including slow WiFi speed, poor coverage, difficulties in ensuring the home WiFi terminal devices (such as routers and access points) work well together as a single system (particularly when the devices come from various manufacturers), and difficulties in connecting smart devices to the network.

The service can be used in various scenarios, including in different property types, such as villas and small and large houses, and for various applications, such as video calling, web browsing, virtual reality applications, and online education. The first version of the Whole-home WiFi service was based on Ethernet Passive Optical Network (EPON)/ Gigabit Passive Optical Network (GPON) and WiFi 5 terminal products. China Telecom is now pushing forward the upgrade from Whole-home WiFi to fiber-to-the-room (FTTR) all-optical WiFi service, which is based on 10G EPON/10 Gigabit-capable Passive Optical Network (XG-PON) and WiFi 6/WiFi 6+ terminal products.

China Telecom has accomplished significant success with its Whole-home WiFi service, demonstrating the value that operators can derive by investing in improving in-home network performance, such as increased ARPU. Improvements in home networking performance can also work together with increased investment in the broadband access network.

THE DEVELOPMENT OF CHINA TELECOM'S WHOLE-HOME WIFI SERVICE

THE BUSINESS MODEL DEVELOPMENT

China Telecom has shifted from selling WiFi equipment to offering Whole-home WiFi service subscriptions, which include terminal setup, network and coverage optimization, and other after-sales services. The proportion of monthly subscribers is increasing steadily. By June 2023, 56.2% of new Whole-home WiFi users chose the monthly subscription plan. This helps to build a more sustainable business model for China Telecom's Whole-home WiFi offerings.

THE DEVELOPMENT OF TERMINAL DEVICES

China Telecom is upgrading its Whole-home WiFi devices from WiFi 5 terminals to WiFi 6/ WiFi 6+/FTTR all-optical terminals gradually. Since 2020, China Telecom has been offering WiFi 6 terminals, and the proportion of these terminals has been on the rise. By June 2023, WiFi 6 terminals accounted for 97.3% of the total new terminals deployed that year, which laid a solid foundation for China Telecom's gigabit strategy.

MAIN INVESTMENT FOCUS

China Telecom is pushing forward with the upgrade from Whole-home WiFi to FTTR all-optical WiFi service for several reasons. In terms of constructing gigabit networks, the upgrade can help increase the number of gigabit broadband subscribers and improve user experience with high-speed connectivity and applications for households.

Table 1 provides information on the key devices and technologies involved in this investment to move from Whole-home WiFi to FTTR all-optical WiFi.

TABLE 1

Node Name		Whole-home WiFi		All-optical WiFi	
IHGW	Uplink interface	1G PON		10G PON	
		GPON	EPON	10G-EPON	XG-PON
	Downlink interface	GE	GE	GPON+GE	GPON+GE
AP (Router/ Sub GW)	Uplink interface	GE	GE	GPON+GE	GPON+GE
WiFi		WiFi 5/WiFi 6		WiFi 6+/WiFi 7	

SOURCE: WBBA

MAIN TECHNICAL FEATURES OF THE WHOLE-HOME WIFI SERVICE

1. UNIFIED WIFI MESH PROTOCOL

China Telecom has defined a unified set of WiFi self-organizing protocols based on the common industry mesh protocol, which can be applied to IHGWs and routers. This supports plug-and-play, automatic synchronization of WiFi SSID and secret keys, and automatic networking, which supports full coverage of home wireless networks.

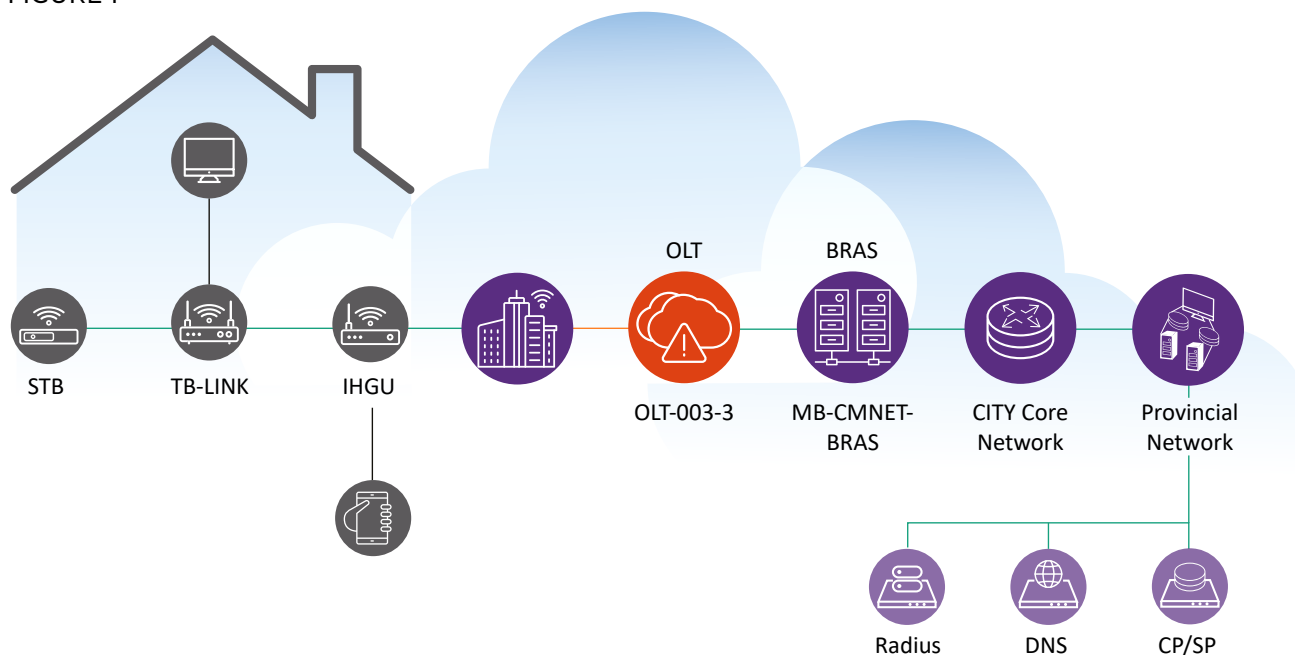
2. UNIFIED TERMINAL E-OS INTELLIGENT FRAMEWORK AND CLOUD MANAGEMENT PLATFORM

China Telecom has defined a unified e-OS intelligent framework for intelligent home gateways, routers, and other networking terminals. China Telecom has developed a unified SDK and sent it to partners for integration. The unified e-OS intelligent framework shields the differences in hardware and software from different terminal vendors, uniformly encapsulates the open capabilities of gateways and routers, and greatly reduces the development work of terminal vendors. This shortens the time required by terminal vendors to ensure compatibility with China Telecom's Whole-home WiFi protocol and management platform.

3. UNIFIED CLOUD PLATFORM

In addition to terminal management capabilities, the platform has end-to-end broadband quality detection and real-time fault diagnosis capabilities.

FIGURE 1



SOURCE: WBBA

4. UNIFIED O&M SYSTEM:

China Telecom's Whole-home WiFi and wired broadband services have a unified installation and maintenance team, as well as fault warranty and customer service systems, which ensures the high quality and sustainability of the service.

RESULTS OF THE BROADBAND INVESTMENT

CHINA TELECOM'S WHOLE-HOME WIFI SERVICE HAS ACHIEVED SIGNIFICANT RESULTS

1) By June 2023, the number of users for the Whole-home WiFi service had exceeded 130 million, generating a cumulative revenue of CNY 14.5 billion. In the same month, the penetration rate reached 59.5% of China Telecom's home broadband subscriber base (or more than 100 million subscribers), and the cumulative number of terminals deployed reached 82.71 million, including 54.75 million WiFi-6 terminals, which is an industry-leading level.

2) The Whole-home WiFi service improved the experience of broadband users effectively, promoted business areas, such as the smart home, increased the penetration rate of Gigabit broadband, and contributed to the improvement of broadband ARPU. By June 2023, the gigabit broadband business penetration rate in China Telecom's total broadband base has reached 20.3%. This indicated an increase of 3.5 percentage points in comparison to the end of 2022, when the figure was at 16.8%. The growth has helped to boost China Telecom's wired broadband integrated ARPU to CNY 48.2, with a year-on-year (YoY) increase of 2.1%.

3) The Whole-home WiFi service has facilitated the rapid upgrade of optical network technologies from GPON/EPON to 10G-EPON and XG-PON, the replacement of Ethernet cables with fiber optics, and the upgrade of home networking terminal products from WiFi 5/WiFi 6 to WiFi 6+/WiFi 7.

APPENDIX

FURTHER READING

[ChinaTelecom retrieved April 8,2024](#)

["All-optical broadband allows families to enjoy Gigabit "freedom of Internet speed," Xinhuanet \(retrieved April 8, 2024\)](#)

[New Express, "China Telecom's all-optical WiFi allows Foshan citizens to enjoy a faster and more stable new digital life," Sina \(retrieved April 8, 2024\)](#)

[Manufacturer feed, "China Telecom's "Whole House WiFi Service" Upgrades Wi-Fi 6 Router to Lead New Changes in the Era," C114 \(retrieved April 8, 2024\)](#)



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