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Defining the 5G-Advanced Era with Relentless Innovation

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China Mobile Zhejiang

Exploring Ultra-Fast Uplink for 5G-A x AI Innovation

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Exploring Personalized Services with AI Phone and Premium Service Package

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Pathways for Driving Growth

Since the founding of GSMA in 1987, the telecoms industry has experienced rapid growth. These days, though, the industry is in a state of technology oversupply. Basic consumer needs are already met in major markets, and revenue growth is stagnating. Industry development is stable, but carriers are facing challenges to new growth. Telecoms players are making every effort to explore opportunities for growth and the pathways to get there. So I'd like to take this chance to share several observations, along with four potential pathways for driving growth.

Ramp Up for Changes and Meet New Demands with High Growth Potential

The telecoms market is a fairly mature market, but it's not without change. Change is everywhere these days. One feasible pathway for growth is to ramp up for new developments in user needs, building and optimizing networks to provide the right products and services that address these ever-changing needs – especially those with high growth potential. I'll give you two examples.

The first is related to delivery riders and ride-hailing drivers. On a global scale, they are a new, fast-growing group of mobile network users. There were 30 million professional riders in 2020, and 70 million in 2024. This number is estimated to reach 160 million in 2030, accounting for about 5% of the global workforce. These riders bring a lot of convenience to our lives. For carriers, they are also a new, fast-growing segment of high-value users. Food delivery riders need to call their customers when they complete delivery or when any issues occur. So their minutes of usage, or MOU, is four times that of an average user. In China, the monthly MOU of food delivery riders is 800 minutes. They also tend to spend their downtime watching online videos, so the amount of data they use – their DOU – is twice that of an average user. This means their ARPU is 1.6 times higher.

Another example is livestreamers. It's a new profession that has emerged with the rapid rise of mobile Internet. The world has seen sharp growth in the number of professional livestreamers, up from 10 million in 2022 to 50 million in 2024. By 2030, there will be an estimated 130 million livestreamers, making up about 4% of the global workforce. Livestreamers are a gateway to new, interesting things around the world – and they also share some wonderful little things in daily life. They too are a new, fast-growing segment of high-value users for carriers. Strong networks are a must-have for livestreamers. Their DOU is five times that of an average user. In China, livestreamers use as much as 100 GB of data each month, so they generate four times more ARPU compared to an average user.

There are also other new user groups, like esports gamers. New devices like smart glasses and smart toys. And new emerging behaviors, like working on high-speed trains and watching TV shows on the subway. These changes are unfolding rapidly and leading to new demands. For example, demand for diverse services in different locations, demands that are unpredictable, and demand for real-time and ubiquitous connectivity. If we look at the global market, it's clear that these demands promise high growth potential, and carriers who've met these needs are growing fast. Carriers who haven't ramped up for these needs yet might find it more challenging to achieve new growth.

Boost HD Video Supply and Consumption Through Coordinated Effort Across the Ecosystem

Short-form video is taking flight all over the world. Video makes up about 50% of mobile traffic. But there are still some unresolved challenges related to the supply and consumption of high-definition video. For one thing, some consumers switch to smaller and cheaper data plans if they can't use up their existing data. For another, there is no guaranteed supply of HD video.

The value of HD video is clear. For consumers, it means a better viewing experience. For OTT players, it leads to a higher conversion rate. For carriers, a 1080p video generates five times more traffic than its 360p counterpart. Suppose a user watches 50 hours of 1080p video in a month, they will consume roughly 31.5 GB of data. In China, the average DOU was 18.2 GB in 2024. So there's huge potential out there.

There is also a major gap in HD video consumption. Data from tier-1 cities in China shows that 1080p and higher-definition video accounts for only 22% of total mobile video traffic. There are several causes for this gap. Prices of outbound Internet bandwidth are a bit too high for OTT content providers, so they'll reduce bit rates during peak hours in order to keep their costs down. For carriers, their B2B business is a key avenue for growth, so if they dropped prices for outbound bandwidth, they'd see a drop in their B2B revenue too. Device-wise, playing HD video is power-intensive, and video apps automatically reduce bit rates once a user's battery falls below 30%.

Addressing these multi-faceted challenges requires coordinated effort across the ecosystem. Carriers need to set reasonable prices for outbound Internet bandwidth and encourage OTT players to increase their supply of HD video. This will boost HD video consumption and help carriers grow their total net revenue. I also believe carriers can benefit by encouraging OTT content providers to provide all videos in 1080p without sacrificing revenue from outbound traffic. Carriers can take a look at how much traffic consumers use and how much it drives up DOU, and then measure the costs against the benefits to see what works. OTT content providers need to increase HD video supply and improve user experience to achieve a higher conversion rate. At the same time, network equipment vendors need to keep innovating to improve network capabilities and reduce unit bandwidth costs. And device vendors need to ensure better device experience. They can do this by reducing the power consumption of video apps and prolonging overall battery life.

Bring 5G to Every Car for New Growth in Intelligent Connected Vehicles

Bringing 5G to every car is something that both car owners and carriers hope for, but that's not necessarily the case for the carmakers themselves. This is part of the reason why 5G-connected vehicles will only account for an estimated 30% of all cars sold in China in 2025. Carmakers are unwilling to connect cars with 5G, mainly because of the high costs associated with 5G IPR and the high price of T-Boxes. It's our hope that GSMA can play a role in addressing this challenge. It will take a whole-of-industry approach to keep 5G IPR costs for cars within a reasonable range. Healthy competition between carriers is another key consideration for the market of 5G-connected vehicles. If the price for connecting a vehicle is too low, then the market will be reduced to low margins for everyone. I'd like to share two thoughts about this:

- Both the car and its cockpit need connectivity, but their connections should be separate to account for disparate needs and business models. In terms of cockpit connectivity, the industry can employ B2C business models and leverage the smartphone ecosystem. Consumers should have the freedom to decide the type of connectivity they want and buy their own data plans. In terms of the car's T-Box connectivity, the industry can employ B2B business models where carmakers decide the type of connectivity.

- When driving autonomously, cars must be able to independently sense their surroundings and make decisions without relying on networks.

Bring FTTR to Micro and Small Businesses to Make the Most of Opportunities in AI

The value of Fiber to the Room (FTTR) is already proven in the high-end segment of the home broadband market, where FTTR has effectively boosted ARPU and revenue. In 2025, there is an estimated 75 million FTTR users in China, and 500,000 in other countries. This means there's still massive growth potential. With FTTR, it's possible for carriers to bring fiber broadband to micro and small businesses, too. All you need is one main fiber cable, a few optical splitters, and sub FTTR terminals for up to 128 rooms. An FTTR solution like this is a good fit for street shops and other micro and small businesses. Right now, these businesses face a range of challenges, such as poor Wi-Fi experience for customers and employees, no guarantee for critical applications (like those for cashiers), a limited number of connections for devices, and lack of O&M support for network faults. This kind of FTTR solution can provide full Wi-Fi coverage over high-speed, low-latency, stable networks. There are more than 500 million micro and small businesses worldwide. Serving these businesses with FTTR will also unlock new growth opportunities for carriers.

These are four potential pathways that we believe carriers can explore to drive growth. Of course, every carrier is different. Their markets are different, their business environments are different – and so is their competitive landscape. So the pathways to growth are different too. Huawei is always ready and willing to work together with carriers, helping them explore opportunities unique to them and carve out the right pathways to long-term, sustainable growth.

By **Eric Xu**
Deputy Chairman, Rotating Chairman, Huawei

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Zain Kuwait: Defining the 5G-Advanced Era with Relentless Innovation

Zain Kuwait, a regional telecom service leader, launched commercial 5G-A in June this year, becoming one of the first carriers globally to commercialize 5G-A. In the early days of 5G, the company seized the opportunity to upgrade from 4G to 5G, significantly extending its strategic lead. The company is now accelerating 5G-A deployment in a bid to remain at the forefront of network deployment and experience monetization.

By Nawaf Al-Gharabally,
CEO, Zain Kuwait

In June 2025, Zain commercially launched 5G-Advanced (5G-A) across Kuwait and signaled confidence in the network by enabling a complimentary one-month activation for customers to experience the uplift firsthand. This move came on the heels of an official announcement by Kuwait's regulator CITRA, activating 5G-A in the country. This is a critical step in building robust digital infrastructure for the nation's future.

By spearheading 5G-A deployment, Zain has reinforced its role as Kuwait's leading digital innovator, placing the nation among the first worldwide to offer this cutting-edge technology. Such forward-looking initiatives reflect Zain's strategic vision to push the boundaries of connectivity and deliver value through continuous innovation.

> In an AI-driven era, the ultra-low latency and high reliability of 5G-A will be critical for real-time applications such as cloud gaming, high-definition video calls, connected vehicles, and AI-powered services. By delivering faster response times and greater capacity, Zain's network can elevate user experiences in these domains to unprecedented levels.

Zain has a solid track record of championing next-generation technologies. The company's early investment in 5G laid a strong foundation for its current leadership in the 5G-Advanced era. Building on that foundation, Zain crafted a unified strategy to transform its award-winning 5G network into 5G-A in line with Kuwait's national digital agenda. From upgrading infrastructure to cultivating a mature 5G-A ecosystem, every initiative has been aimed at maintaining Zain's edge in an increasingly competitive landscape.

Crucially, Zain's culture of continuous innovation and its unified company-wide strategy have been key to sustaining market leadership. The organization prides itself on anticipating customer needs — especially as demand rises for high-performance services in the AI era — and capitalizing quickly on emerging opportunities. This foresight has translated into tangible advantages in brand strength and value creation, as Zain consistently sets the pace for quality in network services.

A 5G-Advanced Roadmap Built to Stay Ahead

Zain Kuwait's early move on 5G proved prescient. As one of the world's first operators to roll out 5G, the company launched Kuwait and the GCC's first commercial 5G network in 2019. Zain converted sustained investment into wide coverage and superior performance from day one, reinforcing its market leadership.

Zain's head start in 5G has also translated into business gains. When average revenue per user (ARPU) was sliding toward the end of the 4G era, Zain's timely introduction of 5G and new service packages helped reverse the trend, stabilizing ARPU and boosting the company's financial performance.

As a result of concerted efforts by regional operators, the Middle East became the first region in the world to enjoy contiguous commercial 5G-Advanced coverage across multiple countries in 2025. Gulf carriers, including Zain Kuwait, have collectively maintained a position at the global forefront of 5G-A deployment.

Within Zain Kuwait, a clear and unified strategy has been key to staying ahead. From technical teams on the ground to top management, the entire organization has been aligned to sustain leadership into the 5G-A era. This means continually enhancing network infrastructure, developing innovative services, and ensuring that 5G-A rollouts translate into superior experiences for customers. This holistic approach underlines Zain's commitment to creating value for both the company and its customers in the 5G-A age.

In early 2024, Zain achieved a groundbreaking 10 Gbps throughput during a first-of-its-kind 5G-A trial on its live network, becoming the first operator in Kuwait to reach this milestone. Conducted with global partner Huawei under the supervision of Kuwait's regulator CITRA, the trial demonstrated Zain's readiness for the next phase of mobile technology (sometimes dubbed 5.5G). This achievement attracted widespread regional and global attention and aligned with the nation's New Kuwait 2025 vision, further solidifying Zain's reputation as a first-mover in innovation.

In April 2025, Zain's network excellence was validated by Ookla® Speedtest®, which honored the company with Speedtest Awards in five categories based on its Q3–Q4 2024 results. Zain swept the titles of Fastest Mobile Network, Best 5G Gaming Experience, Best 5G Video Experience, Best Mobile Network, and Fastest 5G after outperforming all competitors in hundreds of thousands of consumer-initiated tests across Kuwait. This clean sweep made Zain the first (and so far, only) company in the country to win five Speedtest awards

in a single year, cementing its position at the pinnacle of network performance. It also highlights Zain's commitment to investing in cutting-edge technologies and delivering the digital experiences customers demand.

What makes these accolades especially rewarding is that they reflect real customer experiences. The Speedtest awards are based on user-initiated speed tests, which are an emphatic vote of confidence from the public. This triumph is not an endpoint, but a launchpad; a stepping stone toward the next-generation era that Zain is already gearing up for as it continues to stay ahead of the curve.

Pioneering Commerical 5G-A Launch and Experience Monetization

Launched in mid-2025, Zain's commercial 5G-Advanced network now covers most of Kuwait. To celebrate the rollout, Zain offered a 30-day free trial of 5G-A service to eligible postpaid customers starting June 30, allowing users to experience the network's ultra-fast speeds and next-level capabilities firsthand.

Equipped with significantly enhanced uplink and downlink capacity, 5G-Advanced supports data-intensive applications for smart cities, Internet of Things (IoT) deployments, and immersive digital experiences powered by AI. Industry experts increasingly view robust uplink connectivity as crucial for trends like high-quality livestreaming and advanced AI-driven services. In line with these developments, Zain is exploring ways to leverage 5G-A's greater throughput and intelligent network management to deliver differentiated service tiers tailored to diverse customer needs. This approach marks a shift from the traditional traffic-based plans to experience-based offerings – a concept known as experience monetization that leading operators globally (notably in China) are already pursuing to sustain growth.

Zain's "Live Your Wonderful" marketing campaign similarly focuses on the human side of technology. Its centerpiece TV commercial takes viewers on an emotional journey through simple everyday moments that become extraordinary when

shared with loved ones via Zain's advanced connectivity. The campaign emphasizes that technology is not solely about speed or specs, but about its ability to bring people closer together and empower them to live their most wonderful moments. By appealing to emotion and shared human experiences, Zain is strengthening its connection with customers and conveying the real-world benefits of 5G-A beyond technical metrics.

Digital Future: Supporting More Abundant Applications

For Zain, the commercial launch of 5G-A is a milestone, but it's far from the final destination. The company views this achievement as merely the first step toward a new era of user experience in the age of AI. Going forward, Zain plans to collaborate closely with industry partners to explore a richer array of 5G-A use cases and introduce more diverse services (such as 5G New Calling for next-gen voice/video and immersive cloud gaming) that can unlock fresh revenue streams through superior customer experiences.

As Kuwait's flagship digital innovator – in fact, the Middle East's first mobile operator founded in 1983 – Zain has a strong reputation in its home market. The introduction of 5G-Advanced is poised to further cement Zain's market leadership, especially among premium customers who demand the very best in connectivity. In an AI-driven era, the ultra-low latency and high reliability of 5G-A will be critical for real-time applications such as cloud gaming, high-definition video calls, connected vehicles, and AI-powered services. By delivering faster response times and greater capacity, Zain's network can elevate user experiences in these domains to unprecedented levels.

Moreover, 5G-A-ready capabilities like multi-band carrier aggregation allow 5G-A to manage spectrum resources more intelligently. The result is less network congestion even in high-density environments and the ability to offer tiered, differentiated services to meet diverse user requirements.

Zain's 5G-A launch is not just a corporate milestone, but a boost to Kuwait's national digital transformation journey. By helping make Kuwait one of the first nations to embrace 5G-Advanced, Zain is reinforcing the country's leadership in high-performance digital infrastructure and unlocking new opportunities to accelerate smart services and IoT innovation. This outcome directly supports Kuwait Vision 2035, which prioritizes robust connectivity as a foundation for a diversified, knowledge-based economy. Zain has worked hand-in-hand with government stakeholders like the Communication and Information Technology Regulatory Authority (CITRA) to ensure that its network advancements align with these national objectives. Zain has always viewed itself as a strategic partner in Kuwait's progress, a role it continues to fulfill by driving connectivity that empowers society.

All of these efforts tie into Zain Group's recently announced 4WARD strategy, which emphasizes continuity, acceleration, collaboration, and digital innovation. By strengthening collaboration with global technology leaders and leveraging its international expertise, Zain is aligning 5G-Advanced with both national priorities and long-term industry trends. At Zain, we have strengthened our collaboration with global technology partners and used our international expertise to adapt 5G-Advanced in line with national priorities. We are proud to play a vital role in a transformation that will benefit individuals, businesses, and society at large. In championing 5G-Advanced and beyond, Zain Kuwait is not only monetizing new experiences, but helping shape a digitally empowered future for the nation and its people.

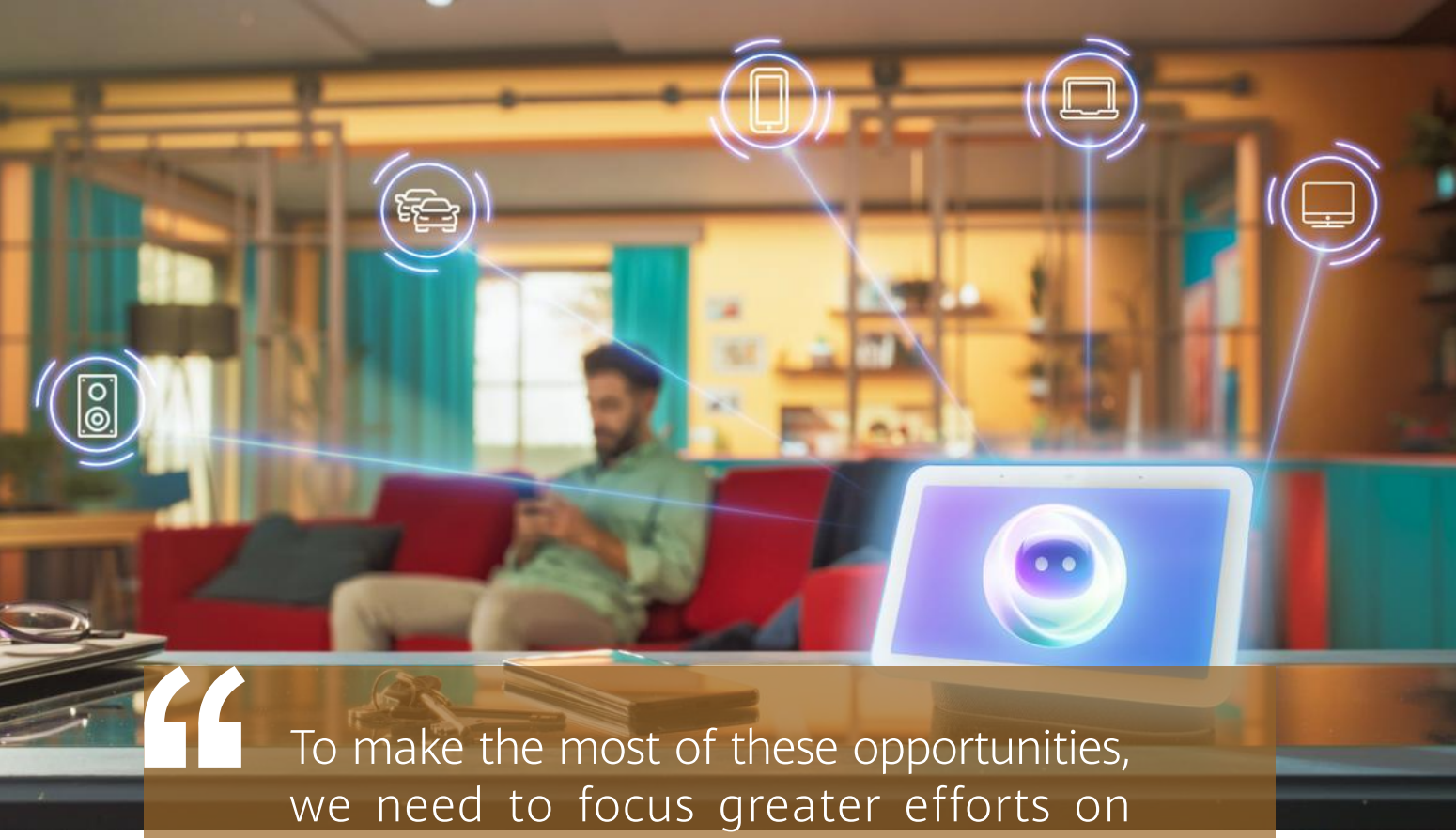
Unleashing New Growth with AI

By Li Peng,
Corporate Senior Vice President, President of ICT Sales & Service, Huawei

Over the past year, the AI industry has made incredible breakthroughs in techniques and capabilities like deep thinking, chain of thought, multimodal integration, and general-purpose AI agents. We're also seeing more in-depth application of AI in a broader range of scenarios, stimulating new demand and new forms of services. This is a critical turning point for the ICT industry, one where new growth opportunities abound.

In the consumer market, on-device AI agents will present the greatest growth opportunities for the ICT industry over the next 5–10 years. From AI-powered smartphones and AI-native hardware, to progress in model development and human-machine interaction, it's easier than ever to integrate AI agents into real-world applications. In 2025, China already has more mainstream Internet applications with embedded AI agents than the total number of lightweight mini programs that exist across all ecosystems. Moving forward, AI agents are expected to replace traditional apps, ushering in a new wave of transformation in online services.

AI agents can acquire, coordinate, and distribute data between edge devices and the cloud at speeds and depths we've never seen before. And they can invoke a wide range



> To make the most of these opportunities, we need to focus greater efforts on five key areas: providing greater uplink bandwidth, cultivating diverse device ecosystems, providing multimodal communications services, developing differentiated IoT capabilities, and diversifying business models. These are crucial for driving new innovation in mobile broadband and striking a healthy balance between business and infrastructure development.

of applications to process that data in a holistic way, providing a cohesive set of services across every device, including smartphones, wearables, tablets, TVs, and in-vehicle displays. At the same time, with advancements in multimodal interaction, AI agents will be able to recognize external environments, user intent, and emotion to engage with users in a truly personalized, natural, and real-time way.

These advancements in AI are already stimulating new demand, fundamentally transforming traditional network traffic models. Communications between people and AI agents, and between AI agents themselves, are giving rise to more continuous exchange of data, higher-frequency interactions, and increased background traffic. And together these will generate enormous amounts of traffic – far more than per-

son-to-person communications. This is an opportunity. Carriers in China are already integrating intelligent services with data packages to maximize value from basic connectivity. On top of that, they are also boosting traffic revenue from the growing number of on-device agents entering the market. For users like business professionals, knowledge workers, and trend followers, carriers can integrate traditional communications services with intelligent applications like AI translation, Q&A, and ringback tones. This can help carriers increase ARPU by about 20%. In addition, mobile AI services can help us handle all sorts of complex tasks in our work and daily lives. And they come in many forms. AI robots, for instance, can interact with people in many new ways – whether it be voice, gestures, or even emotions – solving problems, providing information, and even offering companionship. Services like this can help carriers elevate their brand proposition, maximize returns from high-bandwidth and low-latency connectivity, and increase their ARPU by 50% to 250%.

As digitalization and intelligence gain momentum in all industries, there are incredible opportunities for 5G applications in many auxiliary and core production activities.

5G is already being used in more than 80 major economic sectors – a solid step forward for B2B applications. It's now the driving force behind an astounding breadth of auxiliary production activities, both supporting digitalization and laying the groundwork for greater intelligence. 2025 marks the sixth year of 5G commercialization in China, with the release of 5G-A paving the way for a new phase in 5G application. In Shanghai, 5G-A now covers 80% of Shentong Metro lines, delivering peak speeds of up to three Gbps. This network boasts much lower latency, providing an enhanced, more consistent experience for people on the go. 5G-A is also providing incredible value in the mining industry. Inner Mongolia's Yimin Mine is the world's first open-pit mine powered by 5G-A. Their network ensures stable 500 Mbps uplink and ultra-low 20 ms latency to support nonstop, around-the-clock operations of more than 100 autonomous mining trucks. The environment is safer for workers, and the mine's productivity has gone up by leaps and bounds.

Advancements in foundation models and AI agents are also driving demand for higher-level intelligent solutions across industries. By 2030, over 80 million new intelligent connected vehicles are expected to hit the roads every year, and nearly three billion AI robots will be integrated into all aspects of life, work, and production.

For smart vehicles in particular, complex corner cases are a major bottleneck for L3 and L4 autonomous driving. But with more advanced networks, carriers can help carmakers overcome these challenges. By providing stable, high-speed mobile connectivity, carriers can support greater synergy between vehicles and the cloud across a wide range of corner cases, allowing for a safer, more efficient travel experience.

As "parking spot to parking spot" becomes a standard feature for smart vehicles, demand for cloud-based training and edge inference will also surge. By 2028, there will be over 200 million vehicles at L2 or higher levels. This will create demand for approximately 360 EFLOPS of computing power – roughly the output of more than 200 new AI computing centers.

As for onboard experience, carriers also have the opportunity to integrate AI assistants with over one billion in-vehicle displays. These assistants can provide more natural interactivity, entertainment, and vehicle-to-home controls, enriching user experience both at home and on the road. And by extension, they will open the doors to new value streams for carriers. Outside of the consumer space, closer integration between AI and IoT technologies will also be crucial for smart manufacturing. These technologies help resolve challenges with data acquisition, stable time-series synchronization, and command distribution in dangerous, difficult, and dirty ("3D") scenarios, promoting the deployment and alignment of intelligent solutions across all scenarios and processes.

We're about to cross a major tipping point in 5G-A and AI convergence, where carriers can assure – and monetize – user experience across multiple factors.

Whether it be AI agents, autonomous vehicles, or intuitive human-machine interaction, innovations in AI and intelligent services are driving demand for higher network performance across a number of factors, including uplink speed, latency, positioning accuracy, and IoT density. The enhanced capabilities of 5G-A networks are uniquely positioned to meet these demands, allowing carriers to go beyond monetizing traffic and start monetizing experience itself.

To make the most of these opportunities, we need to focus

greater efforts on five key areas: providing greater uplink bandwidth, cultivating diverse device ecosystems, providing multimodal communications services, developing differentiated IoT capabilities, and diversifying business models. These are crucial for driving new innovation in mobile broadband and striking a healthy balance between business and infrastructure development.

In terms of business development, carriers can leverage AI agents and a guaranteed network experience to provide custom AI services for a variety of different scenarios, including those for individuals, homes, transportation, and industries. By delivering value that is readily accessible, tangible, sustainable, and buzzworthy, they can elevate their brands and offer an entirely unique value proposition. This also sets the stage for a broader range of channels and business models for customer acquisition, including exclusive premium experience, attractive service upgrades, and more robust community marketing. Together, these can help carriers maximize the value of their networks and more effectively monetize experience.

On the infrastructure development front, this will require reshaping networks to be more AI-centric. AI-centric networks feature deterministic access, elastic scheduling, and lossless WAN, helping deliver on-demand, reliable connections across cloud, edge, and devices. For wireless networks in particular, AI can enable intelligent configuration of air interface resources. Through seamless coordination between uplink and downlink, indoor and outdoor environments, as well as hotspots and the edge, carriers can ensure optimal network coverage and capacity, while providing a truly tailored experience for different types of users.

A journey of a thousand miles begins with a single step. As the ICT industry enters the age of AI, Huawei is ready and willing to work hand-in-hand with carriers and partners around the world. Together, we can tap the full potential of AI agents, take network infrastructure to new heights, and unleash incredible new business growth.

Embracing the Era of Cross-Device, Cross-Scenario AI Agents

In the near future, AI agents will be commonplace. They will work across devices and scenarios, and interact with each other, leading a new era defined by interconnected AI agents. The rapid adoption of AI agents is supplementing human-resource shortages, pushing human capability boundaries, and making life better and easier. China Unicom is a trailblazer in this regard.

By Xu Wenwei,
Vice President,
China Unicom Online Information Technology

On May 16, 2025, China Unicom launched Tone, an all-scenario smart home robot, and a consumer-oriented AI agent at a product launch themed "Connected Future and Smart Living". This AI agent for diverse applications soon achieved positive market performance.

This launch signified a digital revolution for home services as AI agents play an increasingly meaningful role in life and work. AI agents are rapidly evolving to cover more devices and more applications, from mobile phones and home devices to intelligent connected vehicles. The expanded application of AI is already a crystal-clear trend.

Technologies and industries are evolving at an ever faster pace, and AI is being deeply integrated into 5G-A networks to inject momentum into the digital economy. As a key contributor to China's digital economy strategy, China Unicom is dedicated to helping digitalize China and make it a cyber power in line with the country's 14th Five-Year Plan for digital economic development. To achieve this, we have imple-

mented our integrated innovation strategy by expanding our main business in networks for communications, computing, and intelligence.

AI is enabling consumer services. Riding this wave, we have used computing-network integration and widespread AI application to develop a range of personalized, cloud-based AI products. These include the AI Cloud Phone, AI Cloud PC, smart home robot Tone, Unicom Cloud Disk, and Unicom Housekeeper.

AI Cloud Phone: A Gateway to Personal AI Services

China Unicom launched the AI Cloud Phone during a major sporting event in early 2025. This is a virtual device running on the cloud. Users can easily access cloud-based storage, apps, computing power, and other capabilities from devices like phones and tablets. We enable cross-device coordination of application data by integrating China Unicom Cloud, the Yuanjing Model, and our 5G-A network. This ensures a consistent application experience for users anytime, anywhere, on any device. The Tone AI assistant is a new personal AI service gateway designed for our AI Cloud Phone users.

The AI Cloud Phone is a product we expended much effort to develop. In just six months since its launch, we have gained 4 million users and counting. This shows how much our users trust our products.

But this is just the beginning. We are keeping up efforts to upgrade, improve, and enrich this product. It will continue to become smarter and easier to use to meet the needs of more users and win more trust.

Regarding "smartness", the AI Cloud Phone has a built-in AI assistant powered by multiple AI models. The assistant can help users automatically control applications to do things like order food, buy coffee, or book a ride or flight, all with just a few words. The AI Cloud Phone can help office workers edit meeting materials and record meeting minutes in real time. It can also do things like create personalized study plans for students and provide gamers with smart gaming companionship. In short, it offers comprehensive personal AI assistant services to address user needs for entertainment, travel, work, education, and more.

We are also constantly making upgrades to improve it.. The AI Cloud Phone has integrated a wealth of ecosystems for gaming and entertainment, with user experience constantly being improved. For gamers, our AI Cloud Phone platform is the industry's first to support Unreal Engine 5, and it supports 60 fps, 2K UHD output. All large games can be installed and played on the platform almost instantly. Gamers can enjoy the premium gaming experience they get from a flagship phone at the cost of just a cup of coffee per month. Ultra-low power consumption and flexible storage are also features gamers can enjoy on our AI Cloud Phone.

We will continue to introduce quality features and ecosystem applications from third parties to create a quality app market for our AI Cloud Phone service. Phones, tablets, TVs, smart glasses, and other devices will be able to display the

same cloud phone. This means an AI assistant is always on hand to serve our users on different devices from the cloud.

Tone: A Gateway to AI Home Applications

China Unicom launched the smart home robot Tone in May 2025. This product is an AI home application gateway designed, developed, and operated independently by China Unicom. The first batch of ten applications are already available on Tone, including video calling, video/audio entertainment, cloud albums, cloud home security, cloud gaming, and cloud fitness. All these applications support voice control, so users can just talk instead of tapping. You just say "Hi Tone", and it will respond to all kinds of service requests.

We launched this product because we want to create an all-purpose AI product that understands users and can think. That's why during its design and development, we took into account the needs of different families, different family members, and different home settings.

For example, the voice control and video call features of Tone are very useful for elderly users who have trouble using complex electronic devices. They may not know how to video call their children. Even if they do, the small screen of a mobile phone can be unclear. Now, with Tone on the TV, elderly users can make a video call simply by saying a few words. This makes phone use easier and displays clearer.

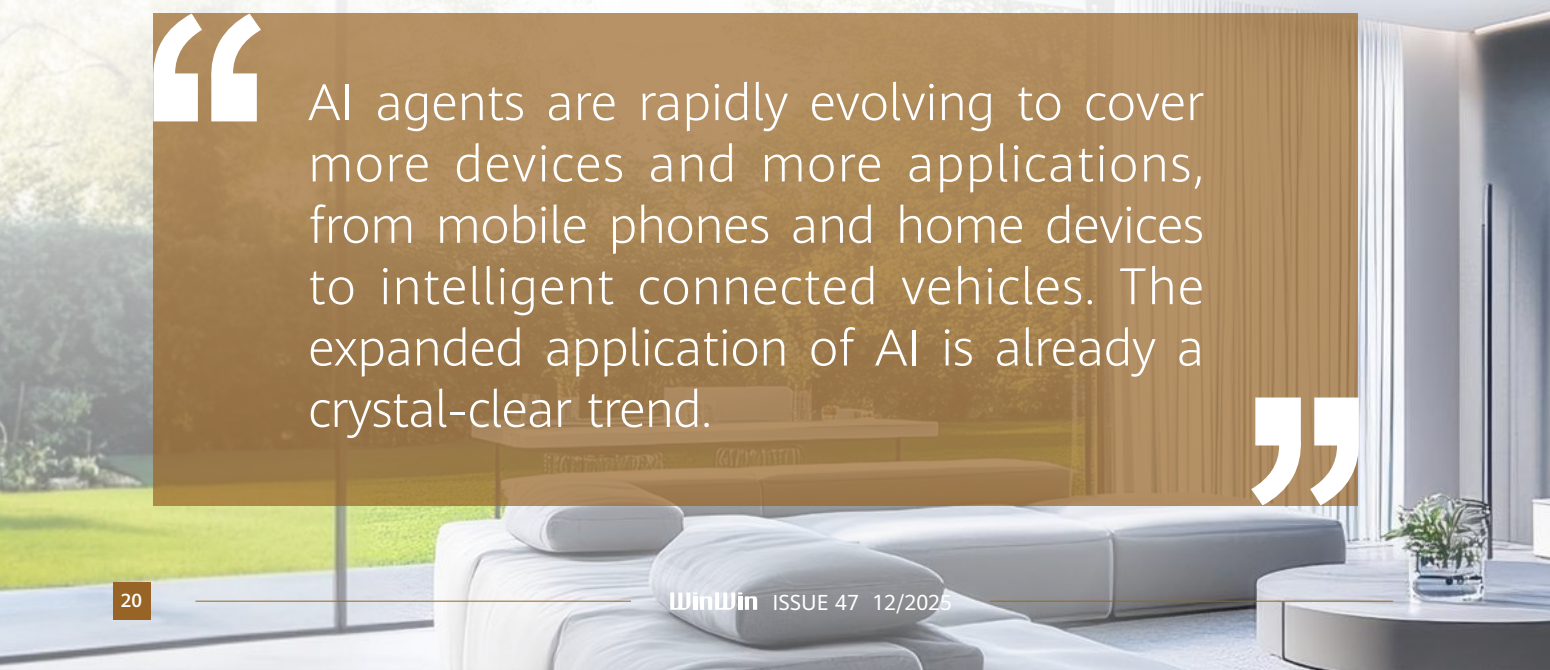
Another example is the AI fitness feature of Tone. In this fast-paced modern world, many people want to go to the gym but can't fit gym sessions into their busy work schedules. Now with Tone, you can exercise at home whenever you're free. Using its camera and computing power, Tone can accurately identify points on the human body to help users fix their form. It is like having a personal trainer in your home. There is yet another example. Tone has a built-in AI agent that can quickly and accurately answer questions children ask and create study plans for them. This makes Tone an ideal private tutor.

Since Tone was released in May, we have been quickly iterating and upgrading its software. In the next version, it will have even greater natural language interaction capabilities resembling human conversation.

For AI fitness and cloud gaming, we will introduce more ecosystem partners to enrich content. Also, an automatic graphical-user-interface (GUI) operation feature is already available on our AI Cloud Phone. That means users can invoke features and apps by saying a few words. We also plan to bring this function to Tone. It will be able to remember user preferences to feel more personal and be more useful.

New AI Experience: Accurately Grasping Market and User Needs

China Unicom has been able to deliver the new AI-enabled product experiences for two reasons. Technology-wise, we



> AI agents are rapidly evolving to cover more devices and more applications, from mobile phones and home devices to intelligent connected vehicles. The expanded application of AI is already a crystal-clear trend.

have used innovation that integrates 5G-A's capabilities with AI; and market-wise, we have gained accurate insights into user needs.

5G-A has taken network capabilities to new heights, with network speed and latency improved by up to 10 times. More importantly, AI is increasingly powering networks, meaning networks can now be used to meet more diverse user needs, offer personalized services, and create differentiated user experience.

AI is evolving at an ever-faster pace and is making its way into all sorts of life and work settings. AI technologies like large language models are increasingly capable in awareness and inference, and AI is increasingly used in devices, homes, vehicles, and more settings. In the telecom industry, AI is also rapidly reshaping services, network infrastructure, and operations to make them more intelligent.

China Unicom is committed to driving integrated technological innovation, with Tone the smart home robot and Tone the AI agent being good examples. We keep a close eye on cutting-edge technologies in the industry and collaborate with partners in research, development, and innovation.

We also pay special attention to the diverse needs of different user groups, such as the communications product needs of users of different age groups. Against the backdrop of an aging population and diversifying family structures, China Unicom is innovating to explore the possibilities in the convergence of 5G-A and AI to address issues like the digital divide.

We have more for the integration of AI and next-generation network technology, such as the integration of AI and FTTR whole-home optical broadband. For individual users, we have 5G-A + AI Cloud Phone. For home users, we have FTTR + Tone, the smart home robot. These services not only provide users with more reliable and personalized AI application experiences, but share resources like computing power and storage across all users to improve resource utilization and affordability. With these new technologies, we are enabling smart living.

China Unicom is implementing its long-term integrated innovation strategy to ride the AI wave. We will continue to use our computing-network capabilities, data resources, and AI models to create more quality applications that will serve as gateways to AI services. We are dedicated to using innovative computing-network integration to fulfill people's needs and aspirations for a better life.

Exploring Personalized Services with AI Phone and Premium Service Package

The implementation of 5G-A × AI applications is a common challenge in the communications industry. As the saying goes, all roads lead to Rome, and players in this industry have spared no effort in exploring the roads to 5G-A × AI monetization. These include mobile devices, AI offerings, and privilege packages that integrate connectivity and AI services. No matter the road we take, we all strive to meet increasingly diverse consumer needs and explore cross-scenario opportunities. After exploring multiple scenarios, China Mobile Guangdong decided to launch integrated privilege packages for consumers, with an AI-powered phone as the focus and gateway.

By China Mobile Guangdong

On August 6, 2025, in Guangzhou, China Mobile Guangdong and Huawei jointly launched the first GoTone AI Phone and an enhanced AI premium service package specifically bundled with this device. The phone represents the latest endeavor in industry-leading communications services for the mobile AI era. Supported by more intelligent and advanced technologies, communication services are moving away from standardized services towards differentiation to provide users with personalized service experiences.

The GoTone AI Phone provides an easily-accessible gateway to diversified intelligent experiences through the minus one screen. The AI Phone also comes equipped with the Lingxi 2.0 AI assistant, a transferable vanity number, dedicated one-on-one customer service, service assurance when using high-speed rail, satellite communications, and Quantum Secure Messaging.

The GoTone AI Phone also integrates multiple cutting-edge

technologies and offers exclusive privileges, all while reflecting three breakthroughs that are underpinned by the integration of 5G-A and AI: speed, intelligence, and security. A continuation of the premium GoTone brand, the AI Phone is dedicated to providing personalized, convenient, and efficient AI services.

5G-A and AI Integration: Enabling Superior Intelligent Communication Experiences

China Mobile Guangdong provides innovative communication services powered by multiple new technologies to deliver superior experience. The carrier is a leader in delivering differentiated 5G-A experiences and continues to explore diverse service scenarios, including live streaming, high-speed rail, and venues. China Mobile Guangdong has helped upgrade the network covering venues for a major sporting event held in. Thanks to the advanced 5G-A network, users will enjoy 3–5 times faster connectivity, significantly cutting waiting times when downloading large files or streaming high-definition videos.

For example, the high-speed rail 5G-A acceleration service included in the premium service package is powered by an intelligent, differentiated-experience-assurance solution based on the 5G-A core network. This solution features Network Data Analytics Function (NWDAF)-based network intelligence and flexible frequency selection, and targeted priority-based assurance for multiple commonly-used apps. This results in differentiated, personalized experiences for users when traveling on high-speed trains.

The GoTone AI phone also supports BeiDou satellite communication, ensuring emergency communication for users in areas without cellular coverage. The phone also provides exclusive communication services powered by cutting-edge encryption technology. One such service is Quantum Secure Messaging, which features end-to-end encryption during the sending and receiving of messages. Users can opt for "burn after reading", and can enjoy privacy protection through anti-eavesdropping, anti-sneak-shot, and anti-positioning features.

There is no question that AI is transforming the way we communicate. The AI Calling service, powered by a calling

AI agent, offers AI Transcript, AI Chat Companion, and AI Translation services to create value beyond communication. The powerful AI Transcript service can automatically extract to-do items from conversations, ensuring important information is never missed. In addition, the AI Chat Companion can offer up interesting topics and interactivity during calls. Furthermore, AI Translation, which is integrated into the call system, supports almost instant translation between Chinese and English with just a single tap. This is perfect for scenarios likes international travel and foreign trade meetings.

The Lingxi AI agent takes personal assistant services to another level. It talks to users like friends to provide emotional companionship, while providing targeted entertainment recommendations and travel planning services.

Targeting High-end Users: From Standardized Services to Personalized Services

The GoTone AI Phone and AI premium service package are intended for high-end users. Driven by the evolution of 5G-A

> With the convergence of 5G-A and AI, the GoTone AI Phone is more than just a device, acting as a comprehensive solution for personal intelligent services. It is a solid step in the carrier's AI+ Action Plan and efforts to empower families with AI. China Mobile Guangdong is using the device to fulfill its commitment to meeting user demands for better and more intelligent living.

and the current AI wave, demands for communication services are growing increasingly diverse. From a business perspective, this represents China Mobile Guangdong's exploration in transforming from traffic monetization to multi-factor experience monetization.

The exploration of experience monetization is conducted first in order to more accurately address personalized user needs. Many untapped high-end demands still exist in the communication market, meaning huge addressable market potential. Business professionals who frequently travel typically have great demand for both efficiency and privacy. Meanwhile, a cohort-specific wiz who relies on socialization tends to value their identity labels and social clout. Something that can show their unique taste and status often brings them greater attention and recognition in their social circle. Many high-end users are also the primary breadwinners who shoulder family responsibilities and are keenly aware of risk protection and efficiency management. They are therefore constantly concerned about family health, financial security, and other trivial day-to-day matters. They yearn for a comprehensive support system that enables them to face life's

unexpected events with greater confidence and ease.

Diverse needs are also reflected in different scenarios. Business travel, high-speed rail, venues, and live streaming are all examples of specific scenarios that must be addressed with differentiated service options. Furthermore, the advent of the AI era has caused new application scenarios to emerge, such as demand for AI-agent-powered communication. This also creates some specific requirements for communication networks.

Experience monetization means shared success made possible by ecosystem partners working closely together, and the GoTone AI Phone is the result of multi-party collaboration. At the technology level, Huawei and China Mobile Guangdong jointly explored innovative 5G-A solutions and used technologies such as flexible spectrum access and uplink multi-carrier aggregation to customize differentiated network experience for VIP users. In terms of product innovation, 5G-A and AI capabilities have been integrated into the GoTone AI Phone while the Lingxi AI agent collaborates with hardware to provide easily-accessible AI services. In terms of services and privileges, the carrier has collaborated with key stakeholders such as airports and hospitals.

Conclusion: Exploring and Innovating for a Better Future

With the convergence of 5G-A and AI, the GoTone AI Phone is more than just a device, acting as a comprehensive solution for personal intelligent services. It is a solid step in the carrier's AI+ Action Plan and efforts to empower families with AI. China Mobile Guangdong is using the device to fulfill its commitment to meeting user demands for better and more intelligent living.

China Mobile Guangdong's exploration in 5G-A and AI convergence covers diverse scenarios, such as travel, entertainment, and venues. In support of this, more intelligent network elements (NEs) across the core network and stronger network capabilities have enabled the carrier to provide personalized experience that meets increasingly diverse service needs. Guangdong Mobile has announced plans to upgrade 2,500 of its stores and service centers to the next generation, which will include 1,000 5G-A 10 gigabit experience centers. In these stores, users will be able to experience the latest apps and services with speed tests, glasses-free 3D, cloud phones, and more.

In the mobile AI era, communication service needs will become increasingly personalized, and more capable and intelligent networks will mean we can provide users with more diverse services. We are also moving towards an era of cross-device and cross-scenario AI agents, in which communication experiences will diversify even further. China Mobile Guangdong will continue exploring and innovating to maintain its position as a global leader in this exciting age.

The Defining Moments in User Experience: the Key to Monetization and Accelerated 5G-A Business Success

By James Chen,
President of Carrier Business, Huawei

5G-Advanced (5G-A) has now been in commercial use for one full year. The advantages it has in bandwidth, latency, and connectivity capacities over 5G are starting to become evident in applications. In China, 5G-A is powering hubs of innovation by making intelligent connectivity of everything possible in the areas it covers. More than 300 cities in China now have 5G-A coverage, serving over 10 million 5G-A users. 5G-A is not only providing users with unparalleled high-speed experiences, but enabling the intelligent upgrade of industries.

Smart lifestyles: In November 2024, China Unicom Beijing built a world-leading 5G-A ultra-high-density network in the Beijing Workers' Stadium. The stadium's 10 Gbps speeds allow up to 68,000 people at a time to stream HD video simultaneously.

Intelligent transportation: China Mobile Shanghai's 5G-A network now covers both roads and subways, unlocking a public/private network system that specifically meets the city's metro system requirements. It's giving riders high-

> There is no single perfect way to pursue experience monetization. Best practices can be identified only through continuous exploration and improvement in real-world business cases, but the esteemed "digital prophet" Kevin Kelly has already said, "We are just at the beginning of the beginning." 5G-A experience monetization has only just begun. Huawei stands ready and excited to work with carriers and industry partners to inspire more of these impactful moments in the user journey and accelerate 5G-A business success.

speed connections while making metro operations more secure and intelligent.

Intelligent production: Gree, an air-conditioner manufacturer in China's Guangdong province, has also built an intelligent lights-out factory using 5G-A, which has improved their production efficiency by 86% and shortened their product delivery cycle by 60%.

5G-A applications are emerging across China as it brings value to a host of new scenarios. However, 5G-A is far more than a tech upgrade.

Behind Every Value Upgrade is a Brand System Rebuild

The industry's leap from 5G to 5G-A has symbolized an upgrade, not only in technology, but also in the value created by network connectivity. Time and again, enterprises have realized that to achieve a value upgrade and concrete business benefits, they must also undergo a significant rebranding.

One example is Haier. In 2006, Haier launched Casarte, a higher-end brand focused on consumer appliances. Casarte has already established itself as a leader in China's high-end home appliance segment. But given the fast-paced modern lifestyles of residents in China, Casarte is delivering more than just appliances. It has positioned itself as an enabler of better living. It delivers both new experiences and emotional satisfaction. This is reflected by the brand's slogan: "Casarte Life, Reserved for the Beloved".

This success case has important takeaways for companies in the telecom sector too. Appealing to emotional expectations, especially as a company providing offerings that are seen as unexciting "basic life services", has proven to be surprisingly effective. Can carriers replicate the success of Haier's Casarte? The answer is "Yes". Some carriers are already moving quickly to do this. For example, China Mobile has

taken the lead by launching a GoTone brand upgrade that provides their VIP users with five additional privileges, including 5G-A services. Singapore's Singtel has also launched their 5G+ Master plan, which delivers a four-fold boost to user experience, and Kuwait's Zain will soon launch a similar Ultra 5G plan.

Creating the Defining Moments in User Experience to Offer the Most Value

Right now, the consumer world is undergoing a major shift. Users no longer pay only for functionality. Emotional value and impactful experiences have become important factors in purchasing. What moves their hearts will make the sale. Impactful moments of experience have essentially become an emotional value point in the user journey. 5G-A is taking user experience to new levels, so it is creating new opportunities for carriers to create impactful moments in the user journey. This will allow them to drive business growth through emotional value.

Defining Moment 1: Providing Easily Accessible Options

Users increasingly have requirements for their mobile plans that are completely separate from traditional traffic requirements. For example, users livestreaming at a concert need instant network speed acceleration as soon as their feed becomes choppy. If the carrier can immediately perceive this user need and then push an acceleration package, they enable the user to experience instant relief, gratitude, and excitement. It gives not only the carrier, but also the user, an instant win. This kind of readily served-up service is very likely to impress users, who often will waste no time subscribing to the acceleration package on spot. With the new package, the user's network speed instantly increases, and the stutter in their stream completely disappears. In concert scenarios, users with designated packages can also have preferential access to the 5G-A network. This gives users guaranteed experience even when there is intense network congestion. This assurance makes high-end users feel safe and secure, meeting their high emotional needs.

China Mobile has started to launch such scenario-specific packages in its benchmark provinces. China Mobile Shanghai has become its first branch to release scenario-based packages in China for subway coverage, gaming, and business travel. China Mobile Tianjin has also launched a Click-to-Share service, which allows its users to share their benefits with friends, creating a brand new C2C business model. By identifying service scenarios, carriers can further optimize user experience to provide services that meet actual user requirements. Similar to the acceleration package pushed at concerts, this service model creates impactful moments in the user journey by providing more easily accessible options.

So, how can this business model transformation be realized? Carriers can first integrate the data in their operations support system (OSS) and business support system (BSS), and then use foundation models to accurately identify new user requirements. In addition, carriers can leverage multiple channels, such as online, offline, and third-party channels, to reach more users in real time. They can also simplify user subscription modes by creating a unified portal, where users can subscribe to a service and immediately use the service without switching between interfaces. Together, these improvements will greatly improve service purchase conversion rates.

Defining Moment 2: Creating a Sense of VIP Identity

Users subscribing to the 5G-A package of China Mobile Shanghai can see the "China Mobile GoTone" VIP logo displayed at the upper left corner of their smartphones. This customized UI design, called UE Logo 1.0, has been shown to create a sense of connection between the users and the carrier similar to when users use the First Class cabin service on an airplane. This is the second impactful moment we've identified in the user journey: When using a premium service, the user can enjoy a sense of identity that distinguishes themselves from other users, in addition to receiving the higher network speeds.

China Mobile Shanghai's UE Logo 2.0, the upgraded UI, has continued to improve user experience, and, more importantly, the static VIP logo is also serving as a service subscription entry for users. This new entry-point in the UI lets users access new subscription services easily, which allows them to further accelerate their network speeds with just a tap. How-

ever, this experience upgrade necessitates further network and device upgrading. 5G-A networks need to be further enhanced to improve the logo display rate on smartphones. On the device side, vendors will also need to accelerate adaptation to support display on devices.

Defining Moment 3: Delivering the Experience Users Expect

VIP users expect more than instant moments of satisfaction. They also deeply care about a consistent, satisfactory experience. For example, many people have to take a call when traveling on a high-speed train. Especially if it's a business call, they can be easily stressed, and become emotionally invested in their network connectivity. In the past, users would often experience intense anxiety, because they would worry about poor network connections. Choppy connections affect important meetings. Now though, 5G-A is able to provide the level of quality connectivity that can support these calls on high-speed railways. With the large-scale commercial use of 5G-A, carriers in China have built a hierarchy of experience differentiation, with 5G-A package subscribers receiving up to 3 Gbps connection speeds.

The next step to this idea though, of course, is deterministic experience for VIP users in all scenarios at all times, even when the network is busy or congested. A "golden pipe" solution can be used to preferentially schedule VIP users to dedicated channels. This certainty of resources ensures the certainty of user experience. This feature ensures VIP user experience during peak hours and meets users' broadest and most demanding experience expectations.

Defining Moment 4: Delivering Exclusive Benefits for Exclusive Users

Personalized benefits can make users feel valued, and help them establish a deeper emotional connection with the brand. For example, I often need to travel abroad. The 5G-A package provided by my carrier contains an international roaming traffic package and voice package, which means I have a greater sense of security when abroad. I enjoy these services and feel significantly more loyal to my carrier's 5G-A service brand because of this. Nowadays, consumers have increasingly high demands for smart lifestyles. Carriers can provide advanced smart services as differentiated benefits in their own featured applications.

Another example is the ability to upgrade New Calling to AI calls, which can support synchronous translation and AI-as-

sisted chatting. On top of that, it also supports AI call assistants capable of multi-modal understanding and application scheduling. Cloud phones can be upgraded to provide cross-screen, cross-device, and cross-scenario personal assistants, building an all-scenario AI portal. These kinds of exclusive products and benefits are becoming a symbol of identity and belonging recognized by the user circle. For example, China Mobile Shanghai customizes a dedicated product for the 200,000 fans of the Shanghai Shenhua Football Club. The product comes with exclusive logo display on the fans' smartphones, as well as exclusive benefits such as club activities, football videos, and season package discounts. The carrier is using this method to deliver both emotional value and social networking value to the user circle.

Defining the Target 5G-A Network for Experience Differentiation

To make 5G-A a real business success, we need to provide services that meet user expectations for differentiated experiences and emotional value. A 5G-A differentiated experience target network system will be necessary for any carrier hoping to do this.

The target network system would need three core features: First, perceivable ubiquitous downlink. From gigabit peak rate to scenario-based gigabit experience, carriers need to ensure differentiated experience for VIP users in all scenarios.

Second, large uplink for ubiquitous AI. Deterministic uplink rates and ultra-low latency are needed to support real-time interaction for diverse services such as gaming and AI.

Finally, multi-dimensional connections for industries. 5G-A's low latency, multi-purpose network capabilities, and lightweight connections are crucial in multiple industrial scenarios. This includes ground to low-altitude coverage, active and passive IoT, and advanced communication and object sensing.

There is no single perfect way to pursue experience monetization. Best practices can be identified only through continuous exploration and improvement in real-world business cases, but the esteemed "digital prophet" Kevin Kelly has already said, "We are just at the beginning of the beginning." 5G-A experience monetization has only just begun. Huawei stands ready and excited to work with carriers and industry partners to inspire more of these impactful moments in the user journey and accelerate 5G-A business success.

China Mobile Zhejiang: Exploring Ultra-Fast Uplink for 5G-A × AI Innovation

The AI era has brought about a paradigm shift in network traffic, impacting demands for network services and the evolution of the network architecture. The network traffic paradigm has been a focus of discussion in the industry for some time, and the rapid evolution of AI has presented challenges to reaching any clear conclusions. Recently, high uplink, and the diverse application scenarios it enables, such as live streaming and AI, have become the industry's new focus. With Hangzhou, the provincial capital of Zhejiang, holding the edge in AI development, China Mobile Zhejiang, together with Huawei, is now at the forefront of high uplink exploration.

By Lu Cheng,
Deputy General Manager, China Mobile Zhejiang

In April 2025, China Mobile launched its 5G-A × AI Innovation initiative in Hangzhou, China. The company announced plans to build a new 5G-A capability system and launched the 5G-A × AI Innovation Center for comprehensive digital and intelligent enablement. This initiative makes significant progress in network capabilities. It centers around AI empowerment, all-scenario enablement, augmented network, and accelerated evolution. The high uplink network capability is particularly noteworthy.

Over the past year, high uplink has attracted increasing industry attention. This is because the advent of the AI era is changing the architectural requirements of network traffic. Increasingly diverse demands for applications like livestreaming and AI services present challenges to the traditional communication model in which downlink far outweighs uplink. The province of Zhejiang has one of the most developed e-commerce and livestreaming sectors in China and is home to some of the country's top AI companies. This puts China Mobile Zhejiang in a strong position to lead the exploration of 5G-A × AI innovation through high uplink. F-Band/A-Band supplementary uplink (F/A

> High uplink has attracted increasing industry attention. This is because the advent of the AI era is changing the architectural requirements of network traffic. Increasingly diverse demands for applications like livestreaming and AI services present challenges to the traditional communication model in which downlink far outweighs uplink.

SUL) technology, which has clear advantages in coverage and networking scale, became the first high-uplink technology to be verified in the provincial capital of Hangzhou.

Looking ahead, China Mobile Zhejiang will focus on transforming networks, ecosystems, and user experiences by creating 5G-A × AI showcases. The carrier plans to use these showcases to explore key network capabilities such as ultra-high uplink and consistent low latency, and enable innovations for products like embodied AI. China Mobile Zhejiang aims to pioneer explorations and constantly innovate to help grow the digital economy in Zhejiang and the country at large.

China Mobile Zhejiang: Enabling Live E-commerce and AI Development

Zhejiang has a thriving digital economy and rapidly evolving economic models enabled by digital and intelligent transformation. By early 2025, there were over 100,000 livestreaming businesses running in Zhejiang. One out of every 244 people in Hangzhou is a streamer. More and more AI-related startups have emerged in the city, including the six top innovative startups, led by DeepSeek. The emerging technological innovations in the city have had significant global impact.

The AI agent and embodied AI services driven by the digital economy and innovative enterprises have raised the bar for emerging technologies like 5G-A and AI. This is the context in which China Mobile Zhejiang has taken the lead to explore SUL network capabilities.

The emergence of the new requirements can be attributed to the paradigm shift in network traffic demands. In traditional communication networks, while point-to-point communication demands exist, the main model is still traffic generation by general users accessing specific websites or services. Downlink far outweighs uplink in the matching network architecture. For example, in the 5G TDD frame structure, downlink slots eclipse uplink slots by a ratio of 3:7.

However, this paradigm is shifting in the AI era. Uplink and

downlink capabilities are now equally important, in B2C, B2H, and B2B markets alike. Many applications require networks with high-uplink capabilities, for example, consumer high-definition video uploads and interactions with AI apps, data exchanges on smart home devices, and enterprise remote control and high-definition industrial video backhaul.

For mobile AI applications, human-like interaction requires clear visibility and fast responses. 160 ms uplink latency and ubiquitous 20 Mbps bandwidth are needed to ensure a good interactive user experience with AI devices. However, for an excellent experience, 50 ms uplink latency and ubiquitous 64 Mbps bandwidth are required.

There is an industry consensus that upgraded interactivity with mobile AI will require higher uplink. Some believe that the increasing adoption of mobile AI will generate demands for 20 Mbps uplink anytime, anywhere, far exceeding what 5G can deliver. Now with 5G-Advanced (5G-A), a significant change in network capabilities is the uplink. This will herald a new era in mobile communications characterized by 10 Gbps downlink and 1 Gbps uplink. High uplink will be able to address users' application-specific needs in the AI era and transform network experience.

Verifying the SUL High Uplink Capability

Spectrum, new technologies, and device adaptation are needed to unlock the potential of the high uplink capability and boost the digital economy.

China Mobile Zhejiang is a 5G-Advanced Dual-chain Integration Demonstration Base designated by the China Mobile Group. Overseen by the Group, China Mobile Zhejiang works with China Mobile Group Design Institute, China Mobile Research Institute, and industry partners like Huawei to pioneer 5G-A innovation and at-scale 5G-A commercialization. In collaboration with Huawei, China Mobile Zhejiang has implemented the industry's first F/A SUL large-scale antenna array AAU base station solution, which works with the existing 4.9 GHz equipment. China Mobile Hangzhou deployed the solution for contiguous networking across sites.

F/A SUL technology is innovative in its dynamic aggregation of the F Band and A Band with the 4.9 GHz band to enable a 1 Gbps peak uplink rate. Compared with using legacy frequency bands, this improves coverage significantly and increases the uplink speeds perceived by users at the edge by eight times. Here is the technical logic behind these numbers: The 4.9 GHz band acts as the main channel for traffic, while the F Band and A Band expand coverage and greatly increase uplink bandwidth. These frequency bands seamlessly work together through an intelligent dynamic scheduling algorithm. In addition, the "retired" 4G F-/A-Band equipment is upgraded into 5G-A base stations, which not only reduces energy consumption per site by 25%, but breathes new life into the legacy bands and equipment.

On the Huawei Mate X6 mobile phone used for the pi-

lot test, the uplink performance using the 4.9 GHz + F/A SUL solution was 52% to 115% higher than on just the 4.9 GHz band, with 20 Mbps uplink recorded at the edge. This verified the end-to-end solution capability of F/A SUL and served as an important reference for subsequent commercial deployment plans. In the next phase, the carrier will test the performance through road tests and in interference settings.

High uplink capabilities powered by technologies like F/A SUL have enormous economic potential. It is predicted that by 2028, F/A SUL technology will enable an ICT consumption market worth over CNY1 trillion. The intelligent automotive industry will be able to reduce labor costs by 20% with the help of cloud-enabled devices. Smart factories will be able to reduce O&M labor costs by 35% through the use of video monitoring and AI-enabled diagnosis. The live e-commerce industry will be supercharged by 8K co-streaming technology.

Continued Exploration for Leadership in 5G-A × AI Innovation

The emergence of high uplink technologies like F/A SUL marks a key step for innovative 5G-A × AI networks. The changes enabled by F/A SUL will create a new paradigm of close collaboration between humans and AI-powered machines. The upgrade from 5G to 5G-A will accelerate an AI-driven transformation featuring deep integration between 5G-A and AI. This will enable autonomous network optimization and intelligent applications, and unlock a multiplier effect created by connectivity + intelligent technology.

China Mobile Zhejiang has made phased achievements in innovation in and mutual enablement between 5G-A and AI. The carrier will focus on transforming networks, ecosystems, and user experiences by creating 5G-A × AI showcases in Hangzhou and beyond. It plans to explore key network capabilities such as ultra-high uplink and consistent low latency, and enable innovations for products like embodied AI.

For 5G-A innovation, China Mobile Zhejiang has established two demonstration areas in Hangzhou (West Lake and Qianjiang New City) for contiguous three-component carrier (3CC) aggregation networking. The 5G-A network offers a 5 Gbps peak downlink rate and tiered network services for GoTone package users. China Mobile Zhejiang has also achieved contiguous 5G reduced capability (RedCap) coverage starting from towns and villages. This supports the development and adoption of 5G modules in IoT, IoV, wearables, and more fields. In addition, the carrier helped Bull Group set up automated high-precision stocktaking and positioning by equipping the company's molds with China Mobile's proprietary passive IoT tags.

In smart retail, the carrier's 5G-A-based offering for unattended stores was adopted by over 200 retail stores soon after its launch in Zhejiang province, helping increase average daily turnover per store by more than CNY400. This is expected to drive the deployment of nearly 30,000 smart cameras within the year. In the low-altitude economy, the carrier helped deploy China's first 5G-A and AI-powered drone inspection platform in Daishan County, Zhoushan. This platform is powered by a proprietary large visual model that has improved algorithm fine-tuning efficiency by 10 times. More than 20 dedicated inspection routes have been created for agricultural and environmental protection departments in the county, and 360,000 intelligent analysis sessions have been conducted for fish cage detection and vessel detection. In embodied AI, China Mobile Zhejiang's smart robot Xiaotian, powered by the carrier's integrated 5G-A communication-computing-intelligence capabilities and the advanced algorithms of a large visual model, have been applied to business cases like government services, showroom presentation, and live e-commerce.

F/A SUL technology addresses the pressing needs of AI applications for uplink speeds and lays a solid foundation for the future intelligent world. High uplink technologies are continuing to evolve and become more widely adopted, and 5G-A and AI are being increasingly integrated. These give us confidence that a brilliant chapter of the AI era will unfold faster to make our world better and more intelligent.

Embracing Experience Differentiation and Monetization with 5G-A x AI

Football fan experience is a typical kind of scenario-specific experience and also a key target of experience monetization by carriers worldwide. In the AI era, personalized experiences are possible thanks to networks capable of supporting differentiated and intelligent services. China Mobile Tianjin has explored network services that provide personalized experiences for sports fans, thus creating great individual emotional value. While technologies, business models, and ecosystems are all crucial, marketing towards consumers is essential to implementation.

By China Mobile Tianjin

In the evolution from 2G to 4G over the past 30 years, each generation of mobile communication technology improved user experience through significant increases in speed and bandwidth. However, carriers have always stuck to a "connectivity + traffic" business model. The evolution from 5G to 5G-Advanced (5G-A) has enabled much more advanced technical features, such as 10 Gbps downlink, 1 Gbps uplink, 100 billion connections, and native intelligence, as well as a business model shift from traffic monetization to experience monetization. This is enabling carriers to transform into information service providers. The integration of 5G-A and AI is creating new carrier revenue streams through experience monetization, not only by enabling guaranteed services, but by offering differentiated user experiences in specific scenarios.

In March 2024, China Mobile announced its industry-shaking plans to launch 5G-A networks in 100 cities and accelerate the development and commercialization of 5G-A services. Tianjin was one of the first cities where commercial 5G-A was launched. China Mobile Tianjin released multiple 5G-A booster packages for specific scenarios like event venues and metro stations. By offering superior user experience and flexible payment models, these packages have greatly improved user loyalty and average revenue per user (ARPU), while expanding the B2B2C ecosystem.

In the previous age of communications, user packages were based on data traffic and call durations. In the 5G-A era, carriers face the new challenge of selling "experience as a service" to users. This is like a shift from selling tap water

to selling personalized drinks, like specialty coffee, tailored to specific user needs. Users will pay a premium for a better experience only when they feel they're getting value for money. China Mobile Tianjin's exploration of experience monetization started with the launch of a venue booster add-on package and a metro-exclusive package, before rapidly evolving into diversified services integrating 5G-A and AI capabilities. This move aims to meet the increasingly diverse and personalized user needs in the mobile AI era.

The China-first 5G-A × AI Venue Booster Package for Football Fans

On May 11, 2025, during the Chinese Super League, we launched the 5G-A × AI Venue Booster Package for football fans, the first of its kind in China, at Tianjin's TEDA Soccer Stadium, providing users with premium experience in the following four dimensions:

1. Speed: Tests on the Booster Package at the TEDA Soccer Stadium, between Wudadao and Minyuan Stadium, and at the Olympic Center demonstrated 2 times faster uplink and 1.8 times faster downlink than ordinary packages. Football fans can now share match videos with ease and interact with others in real time with zero lag.

2. Stability: Using AI-powered radio technology, we can be aware of user service experience almost in real time (in just milliseconds) and dynamically schedule network resources. This lets us open exclusive channels for Booster Package users, for whom prioritized bandwidth is allocated. These users can enjoy a smooth lag-free experience when uploading HD videos or playing online games with large numbers of other gamers.

3. Exclusiveness: The "Go Tianjin Tigers 5G-A" logo can be displayed on the Booster Package users' phones. This helps fans express their group identity and sense of collective pride by converting user-centered technology into emotional resonance.

4. Sharing: We created a C2C experience privilege transfer service beyond the B2C model used with traditional packages, allowing users to share their experience packages with their friends and family. This enables a networking ecosystem, which makes superior user experience the main driver of brand communication and an impetus for word-of-mouth promotion.

Football fans are a vertical user segment who are willing to pay a premium, which means good user experience can catch on quickly for them. During the Chinese Super League season, a popular football KOL endorsed the Venue Booster Package and made the package's photo areas the most popular spots in the stadium by following back his followers. During the season matches, China Mobile Tianjin launched a dedicated network optimization solution to ensure superior experience for a total of over 20,000 football fans onsite with downlink speeds of over 1.2 Gbps. HD live streaming accounted for over 90% of the total traffic. Traffic on match days peaked at 200 GB/hour, and the traffic carried by base stations at the TEDA Stadium increased 30-fold compared to ordinary days. This stimulated traffic flows, enabling experience monetization.

5G-A × AI Metro Booster Experience Package: From Reactive to Proactive Services

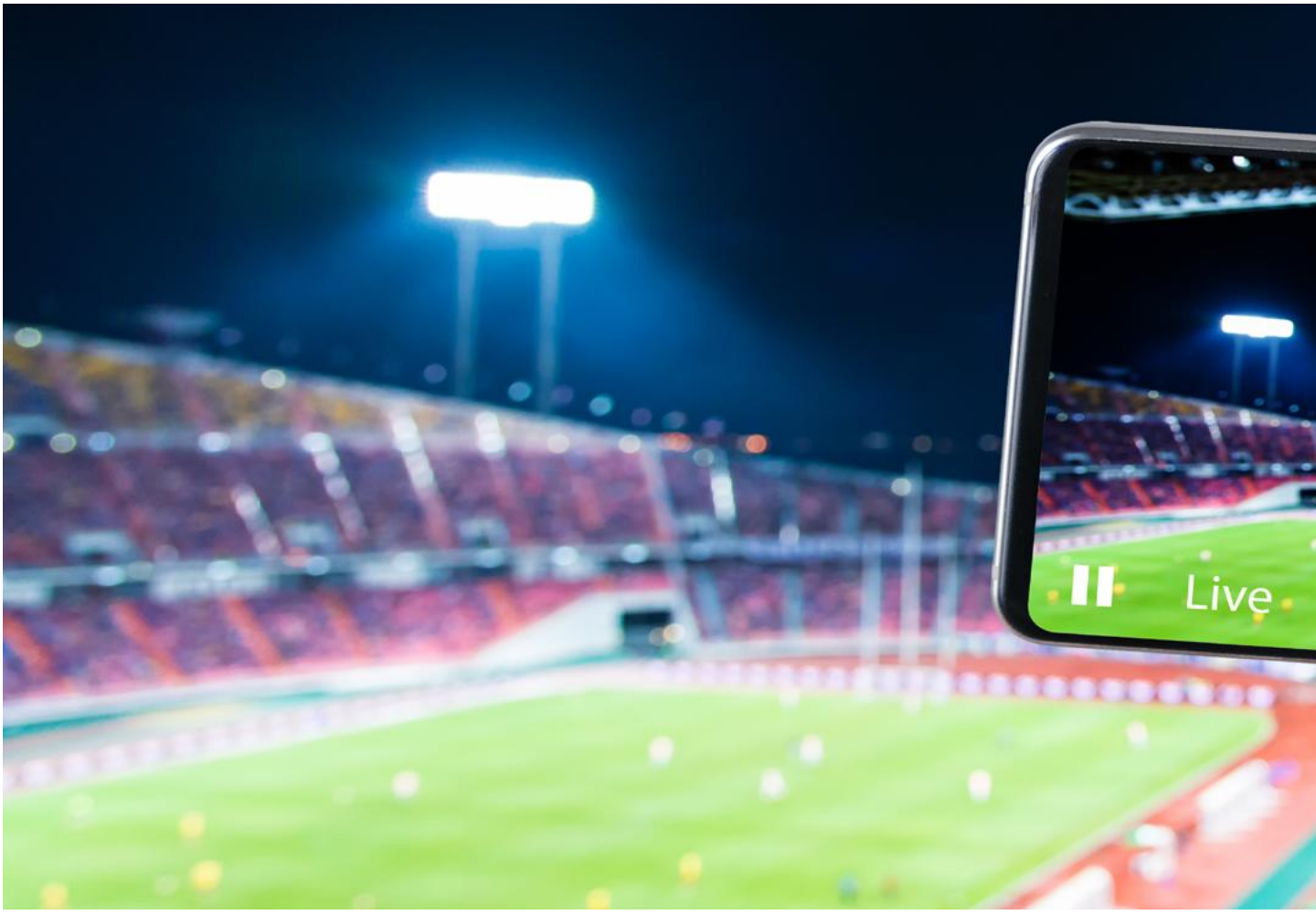
We deployed and provisioned 5G-A 3-Component Carrier Aggregation (3CC) networks at Tianjin Railway Station and along subway lines 1, 2, and 3. These networks provide 3 times higher spectral efficiency, 1.6 Gbps peak speeds, and 60% lower latency. In addition, we launched the 5G-A Metro Booster Experience Package, which offers prioritized network speed assurance services in specified areas with up to 3 Gbps downlink and up to 200 Mbps uplink. The package also provides dedicated network booster privileges for video, gaming, and chatting apps, with the services provisioned immediately after subscription. With this package, users on packed high-speed trains and subway trains no longer suffer from lag when gaming or streaming video.

We have also pioneered the application of AI models to network optimization at major hubs. Our AI scheduling system powered by smartboards can accurately identify service needs almost in real time and schedule network resources in milliseconds. With service awareness based on smart network optimization, our system can now proactively identify and resolve urgent network demands and service conflicts, and provide users with a smooth network experience like at home. The Metro Booster Experience Package

also supports the transfer of privileges, so users can share the experience with family and friends. This package has garnered over 74,000 users over the past six months.

Differentiated Experience Assurance and Multi-Metric Charging: The Cornerstones of Experience Monetization

Carriers must first develop experience monetization capabilities before trying to establish user willingness to pay a premium for personalized experiences. How can carriers implement experience monetization? We have used the combination of the network data analytics function (NWDAF) and wireless smartboards to create a capability model for tiered experience assurance comprising experience identification, prediction, scheduling, verification, optimization, and evaluation. This solution combines user-specific analysis on the core network and real-time resource scheduling on the radio network to create a closed loop for E2E service assurance. This makes it possible to guarantee service experience for specific users and thus monetize user experience. In addition, a RAT/frequency selection priority (RFSP) solution dynamically configures policies to guide devices to select the optimal frequency band and improve the scheduling priority. Smartboards are used to provide assurance for specific services, such as short videos and uplink live streaming. For such clearly differentiated experience, users are willing to pay a premium. Through the design of multiple charging metrics like rate, latency, and number of connections, differentiated experiences have become quantifiable and priceable offerings for experience monetization.



Reshaping the Ecosystem: From Telecom Carriers to Information Service Providers

Experience monetization is not only the result of technological upgrades, but a necessary move for carriers as they try to reposition themselves as value creators in the digital economy. Looking ahead, we will introduce differentiated services for more settings, beyond event venues and metro systems, such as e-sports, live streaming, delivery drivers, connected vehicles, and AI-powered industry applications (AItoX), as part of our experience monetization. Driven by this 5G-A × AI strategy, we are enabling a profound transformation in the communications industry. As we transform ourselves from telecom carriers to information service providers, we are looking to gain a premium by ensuring and enhancing users' digital living experience. This will be one of the most profound business model transformations in the century-long history of the communications industry.

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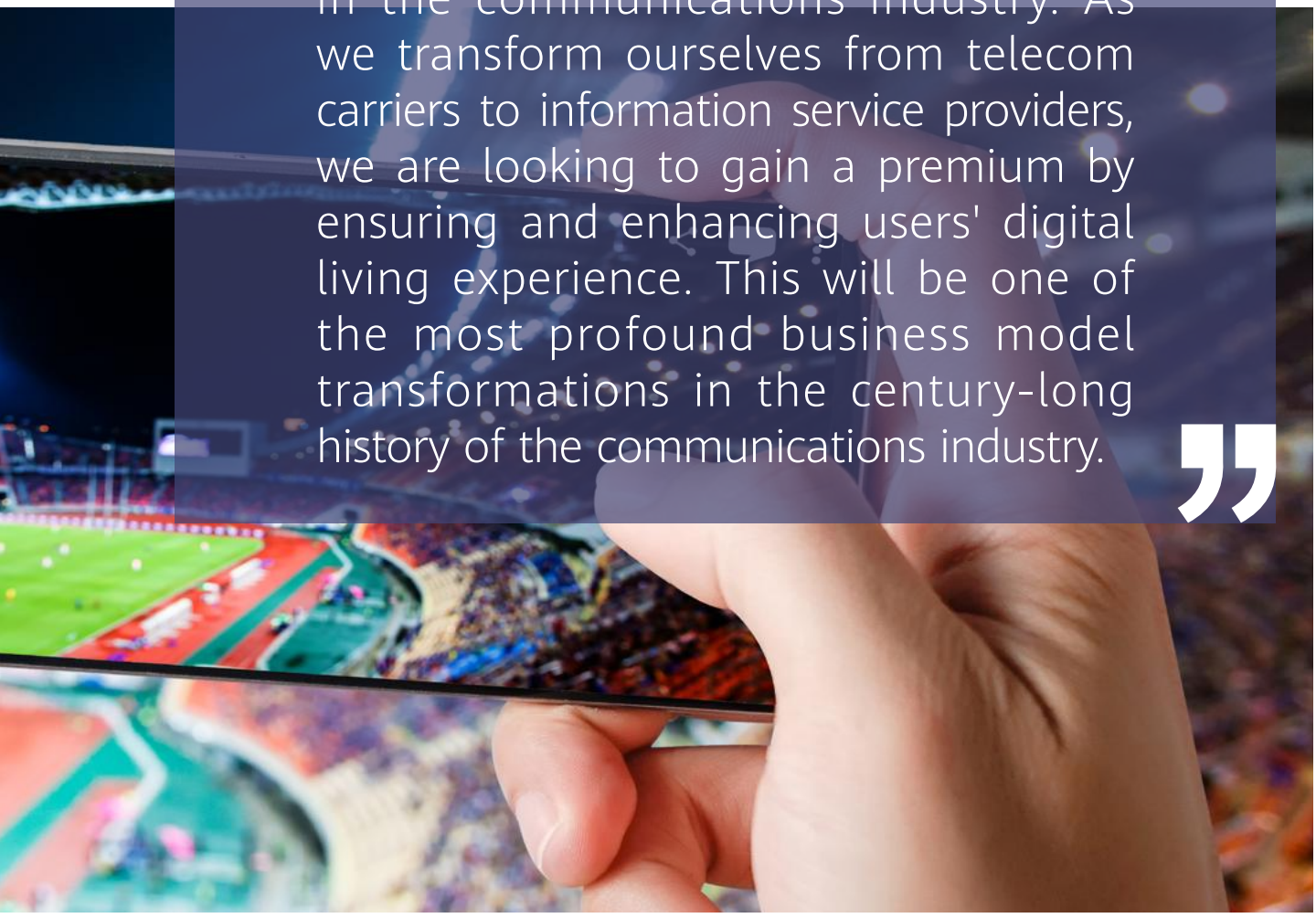


China Mobile Henan: Exploring the Path to Business Success with 5G-A

By China Mobile Henan

China Mobile's journey over the years has been an evolution from a 2G follower to a 3G challenger, a 4G contender, and finally a 5G leader. Today, we are running the world's largest commercial 5G network. We are committed to innovating to ensure not only extensive connectivity, but advanced network capabilities.

When China Mobile announced the world's first launch of 5G-Advanced (5G-A) services in March 2024, Henan Province had eight 5G-A pioneer pilot cities. In the provincial capital Zhengzhou, China Mobile Henan collaborated with China Mobile Research Institute and Huawei to deploy intelligent 5G-A base stations in contiguous areas and the first commercial 5G-A core network. This laid the groundwork for nationwide 5G-A deployment at scale and created opportunities for experience monetization through high-value GoTone package users.

China Mobile Henan plans to deploy 19,000 5G-A cells across the province, and aims to set up a 5G-A 3-component carrier aggregation (3CC) contiguous coverage demonstration zone within the Fourth Ring Road in Zhengzhou and deliver coverage for key scenarios in other cities. We have commercially deployed an intelligent control plane for 5G-A core networks in 18 cities, and upgraded 28,000 sites with wireless AI smartboards. Now, users can experience these 5G-A upgrades: faster download speeds (up to 3 to 5 times that of 5G), more consistent service assurance, and smoother HD video and live streaming.

> China Mobile Henan has created an innovative business model by launching the world's first 5G-A-capability-based Try &Buy precision marketing solution. This has enabled truly personalized services and launched a new era of telecom services in which users can try before deciding to subscribe.

Unleashing the Business Value of 5G-A with Productized Network Capabilities

China Mobile Henan is exploring ways to commercialize 5G-A to convert its leading technical capabilities into definable, measurable, and perceptible products that can generate value in a self-reinforcing cycle. This year, we launched 5G-A premium packages, 5G-A scenario-specific packages, and upgrade-to-5G-A policies to deliver differentiated network assurance services. That means premium networks, services, privileges, and applications for mid-range and high-end users. We have also shifted from a voice- and traffic-based sales model to an experience-based one—a transformation from traffic monetization to experience monetization.

Innovative Business Models with Unique Try & Buy Precision Marketing

China Mobile Henan has created an innovative business model by launching the world's first 5G-A-capability-based

Try &Buy precision marketing solution. This has enabled truly personalized services and launched a new era of telecom services in which users can try before deciding to subscribe. We have launched projects to explore core network AI technologies and use differentiated network experience technologies, big data analytics, and advanced AI algorithms to intelligently identify different user needs. This helps us provide network acceleration and experience assurance for specific users through dynamic policies. Every user can enjoy network services tailored to their needs.

We have built an intelligent operations platform based on service digital twin technology. The platform supports location-based precision marketing and poor-QoE-based real-time marketing, and sends free trial invitations to targeted users. At the end of the free trials, users receive a service assurance report that visually displays user experience. With this new approach, users no longer need to move around to find stronger signals. Instead, network assurance services proactively reach targeted users. This approach commercializes 5G-A capabilities faster by moving beyond the traditional prepaid model and accurately responding to customer needs for stronger network performance. This model won the ICT China first prize at PTEXPO 2025, marking the transition of 5G-A from technology verification to in-depth commercial application.

Better User Experience for High-Value Scenarios: Innovative Try & Buy Marketing

Scenario 1: 5G-A + event venue for better viewer experience

Professional football matches are popular throughout China, and the network connectivity needs of tens of thousands of viewers in stadiums exert massive pressure on carriers. China Mobile Henan has deployed a 3CC network, network data analytics function (NWDAF), and wireless AI technology at the Hanghai Stadium in Zhengzhou to enable full coverage and end-to-end network assurance.

- The 3CC network aggregates three component carriers to provide high bandwidth and low latency. The network delivers 2 Gbps peak downlink and 150 Mbps peak uplink, ensuring stutter-free live streaming and short video sharing while also meeting user demand for high speeds.
- With NWDAF in the core network, we can monitor the network status in real time. When abnormal fluctuations in 5G-A user experience are detected, the VIP assurance channel feature is automatically enabled, prioritizing network resources for these affected users.
- Wireless AI technology enables dedicated acceleration for high-priority applications like social networking, short videos, and live streaming. Downlink latency is automatically optimized and uplink rate needs are predicted to ensure that users can share moments from a match without delay.
- The Try & Buy precision marketing model proactively reaches users. When target users enter the Hanghai Stadium, big-data-triggered invitations for free 5G-A trials are sent to them immediately. During the free trial, an exclusive UE logo that says "China Mobile | Henan Football Club" is displayed in the upper left corner of the phone screen, while the system is constantly aware of the trial users' network experience. When the trial ends, an assessment report is automatically generated and sent to the user, specifying information like the dedicated network assurance duration, number of assurance times, and speed improvement ranges. These reports give users an intuitive sense of the experience improvements from the network upgrades. Users can order these scenario-specific packages directly through the exclusive links in SMS messages sent to them. This creates a seamless Try & Buy experience.

Scenario 2: 5G-A + transportation hub for easier travel

At the packed Zhengzhou East railway station, ensuring smooth file transmission and video streaming was a challenge. China Mobile Henan deployed high-quality 5G-A here to provide users with dedicated-channel acceleration services that deliver a premium user experience. 5G-A can deliver consistent connection speeds even during peak hours to ensure smooth file transmission and entertainment for users.

Scenario 3: 5G-A + tourist site for a revitalized historic site

The Youhua Factory Creative Park in Zhengzhou is a popular tourist destination where old red-brick factory buildings were renovated with a modern design. The place is often packed with visitors at night, many of whom are live streamers. This means high requirements for network performance. China Mobile Henan designed a load sharing

and inter-cell interference coordination solution for the six network cells in the park. Wireless AI smartboards have improved connection speeds by 80% for users, and service transmission latency has been reduced by 50%. Now, visitors can enjoy stutter-free and stable connectivity when they watch short videos, post on social media, or live stream their visits. 5G-A has connected historical attractions with modern lifestyles by helping turn the old factory into a viral destination.

From Reactive Marketing to Closed-Loop Experience Management: Driving 5G-A Monetization

China Mobile Henan has addressed the most pressing user needs in key scenarios like major event venues, transportation hubs, and tourist destinations. We have implemented a Try & Buy marketing model to reach target users more accurately. User surveys show that 98% of 5G-A users have experienced improvements, with app-specific acceleration services and the UE Logo feature having the highest satisfaction rates. Backend network data show that the average speed of key services like live streaming has more than doubled. By December 23, 2025, the carrier had topped the China Mobile Group in 5G-A Premium Package sales. The number of medium- and high-value users with upgraded packages has also increased significantly to enable continued revenue growth.

Experience Monetization 2.0: New Service Gateway with Dynamic Interactivity

Moving ahead, China Mobile Henan will continue deploying 5G-A at scale across the province while kicking off an experience monetization 2.0 plan by promoting the UE Logo 2.0 solution, a native dynamically interactive service gateway on mobile phones. This is an integrated solution that streamlines devices, radio networks, core networks, and IT operations to deliver productized network capabilities, visualized services, and intelligent marketing. The solution will offer users services that are perceptible and easy to use, and deliver new experiences. This is part of our efforts to explore experience-driven monetization models, create a national benchmark for experience monetization, and inject momentum into the digital transformation of Henan.

China Mobile: Advancing 5G-A Experience Monetization with Intelligent Core Network

China Mobile has pioneered the NWDAF-based network intelligent control plane, developing end-to-end closed-loop control capabilities for data collection, training, and inference. The AI-driven transformation of the core network is ongoing, and the NWDAF-based network intelligent control plane is simply the first step. Moving forward, networks will continue evolving to become increasingly agile, autonomous, and intelligent.

By Duan Xiaodong,
Vice President, China Mobile Research Institute

As communication service demands become increasingly diverse and personalized, more and more carriers are adopting differentiated experience monetization, heightening focus on the intelligent transformation of core networks. Simply put, in the mobile AI era, communication networks are evolving from transmission pipes to intelligent hubs. In recent years, China Mobile has been exploring core network capability innovation in a bid to support emerging paradigm shifts like 5G-A experience monetization.

Efforts to Lay the Foundation for Intelligent Core Network

Driven by the current wave of AI, the entire telecom industry is going intelligent. Core networks are crucial to this transfor-

> In the mobile AI era, communication networks are evolving from transmission pipes to intelligent hubs. In recent years, China Mobile has been exploring core network capability innovation in a bid to support emerging paradigm shifts like 5G-A experience monetization.

mation, as they determine the overall network architecture and serve as the foundation for carriers' business models. China Mobile is advancing core network intelligence through technology innovation, standardization, and industry collaboration as it looks to create a world-leading technology ecosystem.

In terms of technology innovation, we have pioneered the Network Data Analytics Function (NWDAF)-based network intelligent control plane, thus developing end-to-end closed-loop control capabilities for data collection, training, and inference. Regarding standardization, we have led multiple key projects covering core network intelligence, initiated numerous 3GPP and ITU projects, and contributed to the improvement of intelligent control plane specifications. In terms of industry collaboration, we have established close partnerships with carriers, mainstream equipment suppliers, and research institutions both domestically and abroad. We frequently communicate about technology and share our experience through industry organizations like the GSMA to foster a global ecosystem for intelligent core networks.

Growing the User Base with Differentiated 5G-A Experience

China Mobile has gone all out to advance its "AI+" action plan, and intelligent core networks are a key part of this. Since 2024, China Mobile has taken the lead in launching a tiered network assurance solution in seven provinces, completed large-scale pilots on live networks, and used an NWDAF-based overall network intelligence framework to provide customers with better, more advanced services. For example, we provide experience assurance for over 30 mainstream services, such as live streaming, gaming, and videos, to improve user experience tailored to different user groups.

We have also introduced a customized UE logo service to increase our service visibility.

As part of our efforts to improve value-based experience with the 5G-A core network, we have launched service packages designed for different users, services, and scenarios, including both select packages for business and optional acceleration packages for different services, so that we can accurately meet users' personalized needs. These packages are expected to be commercially available across all our networks this year and capture more than 10 million users.

Synergy as the Key to Experience Differentiation and Monetization

China Mobile is upgrading its flagship offering GoTone to bring it into the experience-monetization era. This requires efforts in four key areas: definable packages, supportive networks, user reachability, and perceptible assurance. These four areas are so closely interlocked that experience monetization is impossible without any one of them.

Definable packages: It currently takes a long time to launch packages. However, through the intelligent upgrade of the core network, it will be possible to more flexibly and quickly bring packages to the market so as to meet diverse user needs.

Supportive networks: With the deployment of NWDAF and intelligent User Plane Function (UPF), as well as end-to-end collaboration between the core network and wireless network, the core network "brain" can generate policies and execute them through the network to provide users with differentiated experiences.

User reachability: With NWDAF, user groups in specific scenarios, such as high-speed rail passengers and concert audiences, can be identified in real time, and messages about temporary packages can be pushed to them to help meet their immediate needs.

Perceptible assurance: Users should be able to intuitively perceive service upgrades after payment. For example, the UE Logo clearly informs users that they are being provided with network assurance. Huawei and China Mobile are currently working together on the interactive UE Logo 2.0. Users will be able to tap on this logo to directly access the package subscription page.

Through efforts in these four areas, Huawei will work with partners to upgrade experience monetization from 1.0 to 2.0, offering consumers higher-quality network services and more personalized experience.

Creating AI Agents by Integrating AI, Computing and Sensing

AI-driven transformation of the core network has already begun, as we pursue the development of the next-generation network. The NWDAF-based network intelligent control plane is only the first step in this process. Networks will continue evolving to become increasingly agile, autonomous, and intelligent. The industry has now entered a new stage in which the focus of innovation is shifting to 6G. China Mobile Research Institute is advancing its overarching plan towards 6G, while also examining how to use network AI agents to power core networks with intelligence in three main steps. The first step is to support AI agents with networks and make the shift from connectivity for everything to connectivity for AI agents. This will enable traffic access, user control, and security management for AI agents. The second step is to reshape the network architecture using AI agents, thereby enabling the core network to directly provide services to users. The carrier-grade Model Context Protocol (MCP) can turn core network capabilities into tools, allowing users to easily implement flexible network scheduling and enable services. China Mobile's Bixing AI agent platform has made the core network open to AI agents. The third step is to allow different AI agents to autonomously coordinate NEs across the core network so they can work with each other to address issues. This proposition has been discussed and tested at 3GPP as a direction for disruptive technology evolution oriented towards AI.

By achieving AI-agent communication through constant iteration, AI technology will be integrated into the core network to provide higher-quality services for users, while fostering a sustainable ecosystem. This won't be achieved overnight, and requires the long-term collaborative efforts across the industry. We look forward to working more closely with industry partners to create a bright future in which AI and core networks will interact and integrate.

China Mobile Henan: Autonomous Network Exploration from Vision to Action

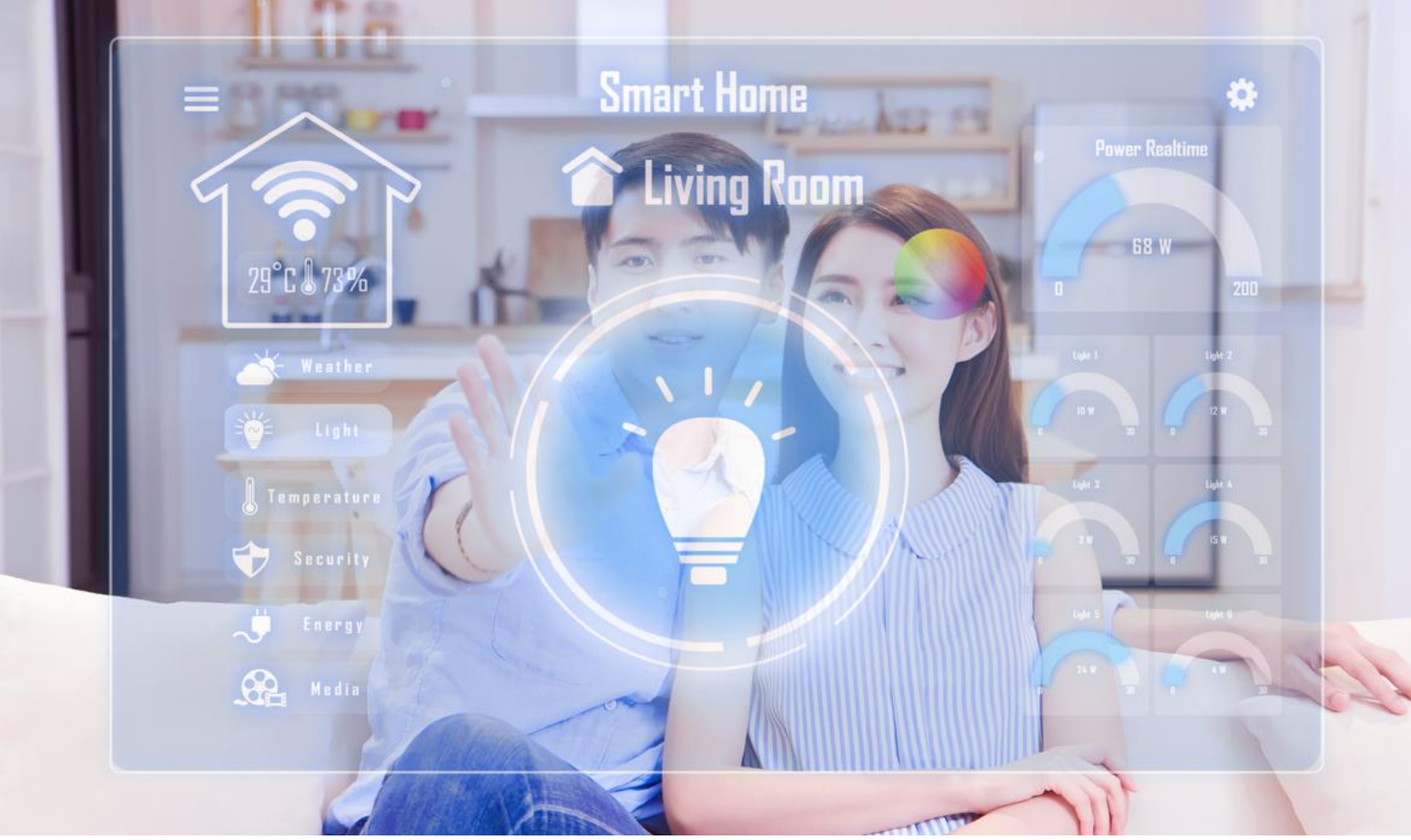
In the AI era, autonomous networks (ANs) represent the way forward for communications. Centered on AI agents, autonomous networks can help carriers enhance operations, reduce costs, and create growth opportunities. Autonomous networks are rapidly advancing in a number of areas, such as network elements (NEs), and China Mobile Henan is pioneering evolution towards AN L4.

By Fan Peiquan,
Deputy General Manager, China Mobile Henan

As the global communications industry strides towards an era of autonomous networks (ANs), an industry consensus is taking shape. The AN community increased from 7 members in 2019, to 75 members in 2024. 18 carriers have launched AN L4 strategies, and nine organizations are collaborating to promote AN standardization. Autonomous networks are already essential in reshaping the industry landscape.

China Mobile Henan has kept pace with the strategy of China Mobile Group by pioneering transitions towards AN L4.

China Mobile Group outlined an AN blueprint through its "three-zero and three-self" vision (offering users zero-wait, zero-failure, and zero-contact experience, and developing self-configuration, self-healing, and self-optimization capabilities for network operations and maintenance (O&M)). In



response, we established two demonstration zones in Henan to showcase network productization and intelligent network maintenance. These value-driven and process-based efforts center on the use of intelligent capabilities and data, allowing us to blaze a trail for improving productivity with ANs in the province.

In terms of the monetization of network capabilities, we have provided innovative products like the Lifestyle Benefits Package and Scenario-specific Experience Package by taking advantage of decoupled network capabilities and an open ecosystem. This has resulted in the delivery of intelligent services over networks that are adapted to user needs. In terms of intelligent network maintenance, we have undertaken several AN L4 pilot projects for high-value scenarios as part of China Mobile's Golden Touch Initiative. Through these efforts, we have delved deep into untapped market segments, and made our AN vision a reality.

Strategic Anchor: Moving Towards AN L4

China Mobile Henan has long been aware of AN's disruptive potential in the communications industry. We were one of China Mobile's first provincial arms to explore AN L4, doing so before the industry consensus had fully formed.

We have worked in line with the group's "three-zero and three-self" AN vision, and followed the guidance of the "four elements + one closed loop" framework (four elements: objectives, service architecture, capability architecture, and rating criteria; a closed loop from gap analysis and solution design to development & deployment and result assessment). We have also made AN development our strategic priority, and established a development path that is oriented towards value creation for customers and driven by digital and intelligent technology all of which start with reshaping processes. As such, we are committed to creating a leading AN benchmark for both the group and the industry. In line with the group's objective to move faster towards AN L4, China Mobile Henan has formulated a phased and priority-based AN development plan, taking into account our large network scale, diverse user needs, and complex application scenarios. This plan outlines the following steps: consolidate AN L3 in 2024 by verifying key technologies and setting up benchmark use cases; comprehensively tackle challenges in 2025 to achieve AN L4 in high-value scenarios; and adopt AN L4

across the entire network within two or three years for an extensive improvement in quality, efficiency, and benefits.

To date, China Mobile Henan has made solid progress in the nine target AN L4 scenarios, as the Group ramps up efforts to accelerate evolution towards AN L4. Two of our solutions have been recognized as excellent cases by the Group.

In addition, our potential FTTR customer marketing campaign was included in the Autonomous Network Innovation Collaboration Manual, supporting the implementation of the Group AN strategy with solid work results.

Diving into Scenarios: Pioneering Localized Business Practices

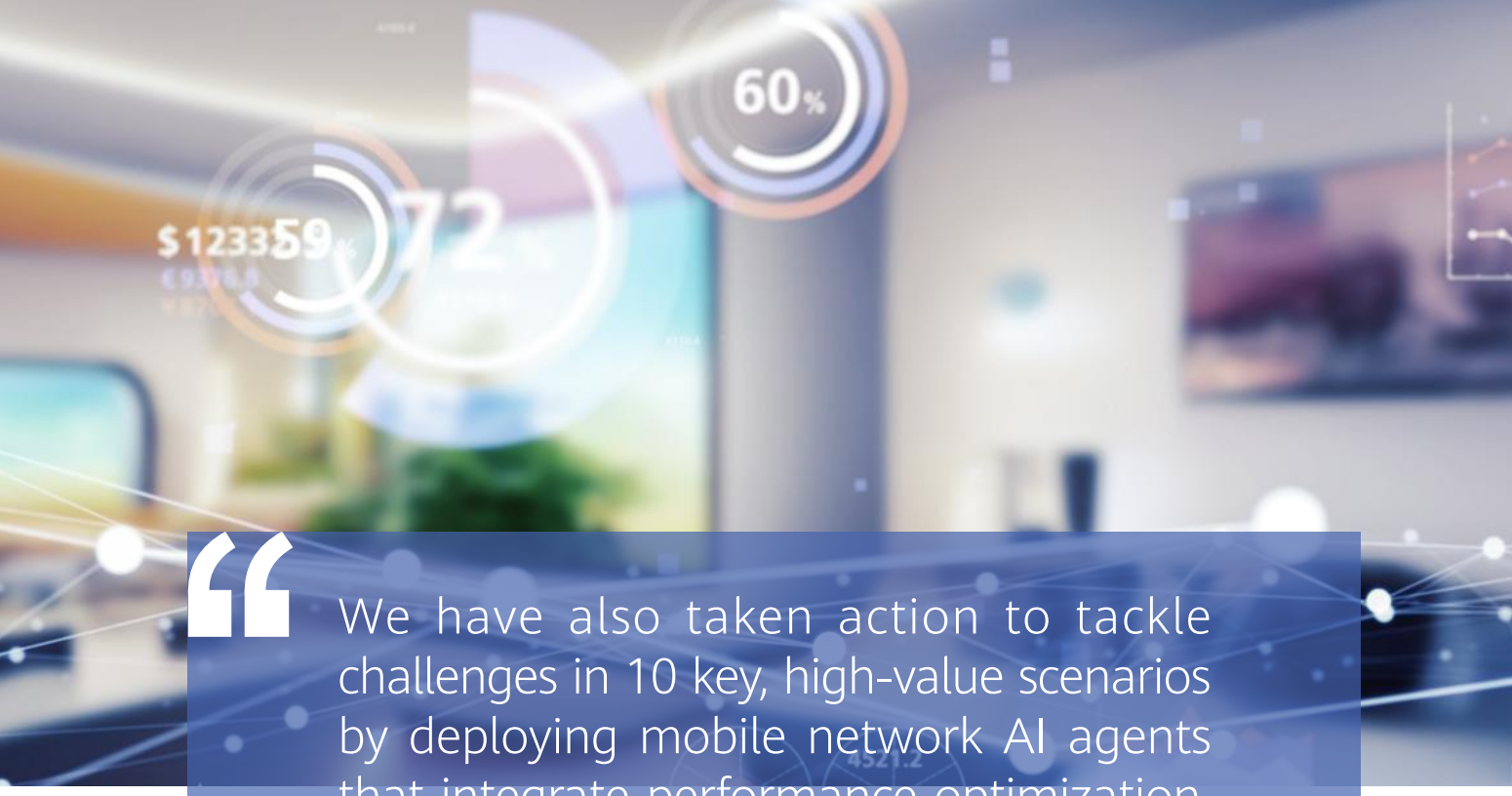
As a pioneer in AN construction, China Mobile Henan has proactively undertaken multiple key pilot tasks as part of the group's Golden Touch Initiative. We have created benchmark scenarios, such as IP network change monitoring, and offered them as a reference for application across the country. We focused on key scenarios such as home broadband, mobile networks, and O&M, and introduced three types of services (Henan Smart Home, Mobile Network Experience, and Intelligent Network Maintenance) to transform strategy into business benefits. Through these efforts, we used technological innovation to improve both user experience and operational efficiency.

Henan Smart Home: Reshaping the home broadband experience

Home broadband services are the primary user gateway to autonomous networks. In the city of Shangqiu, China Mobile Henan has established its first Group-leading AN business pilot for its home broadband services. Through this pilot, we have created a system that targets improved O&M efficiency, enhanced experience, and value-based monetization, in a bid to transform home broadband from a basic pipe into a smart gateway.

In pursuit of improved O&M efficiency, we moved away from a reactive O&M model featuring complaint-triggered ticket dispatch. This led us to the creation of a home broadband digital twin platform that integrates AI outbound calls, an installation and maintenance app, and a poor-QoE model to realize a closed-loop process involving fault prediction, ticket dispatch, problem fixing, and verification.

Additionally, with the intelligent scheduling of installation and maintenance resources, we have been able to shorten



> We have also taken action to tackle challenges in 10 key, high-value scenarios by deploying mobile network AI agents that integrate performance optimization, traffic prediction, and self-healing capabilities, thereby enabling automatic parameter tuning and dynamic resource scheduling.

on-site service times by 45%. Automatic dialing tests and checks are also performed upon the completion of a work order, decreasing complaints per 10,000 users from 55 to 41.

For enhanced experience, we have conducted scenario-based experience optimization that aims to deliver superior user experience. We address different user home layouts by offering upgrades to FTTR and a Mesh + Wi-Fi 7 networking solution, thereby enabling seamless gigabit access. We have also established service assurance channels for high-value services like online courses and online gaming, to reduce frozen frames and ensure lag-free experiences. In addition, we offer smart user care triggered by user profiles to recommend network optimization and value-added services, enabling networks to proactively adapt to users' everyday needs.

In terms of value-based monetization, we have worked to drive the second curve of home broadband growth. We identify high-value users through five-dimensional profiles, increasing FTTR conversion rate from 0.4% to over 5%.

Mobile Network Experience: Breakthrough in Scenario-based 5G

Henan province has some of the most sophisticated traffic conditions and one of the largest populations of anywhere in China. This means rigorous requirements for mobile networks in scenarios like high-speed rail and university campuses. China Mobile Henan therefore utilizes advanced hardware and algorithms to ensure 5G delivers not only wide coverage, but superior experience.

In high-speed rail, we have worked alongside Huawei to de-

ploy smartboards, digital antennas, and edge clouds to create a dedicated network assurance system. This system improves user experience through beamforming and dynamic frequency selection technologies, stimulating data traffic increases of 5%-7%. It also intelligently prioritizes services to ensure that users of 5G booster packages can view short videos in HD over 99% of the time, with an FTP rate of up to 179.2 Mbps. It also uses fault topology visualization to predict link risks and reduce resolution times from hours to minutes, providing users with zero-interruption travel.

We have also taken action to tackle challenges in 10 key, high-value scenarios by deploying mobile network AI agents that integrate performance optimization, traffic prediction, and self-healing capabilities, thereby enabling automatic parameter tuning and dynamic resource scheduling. Furthermore, we have developed policies adapted to meet different needs, such as ensuring online courses and dormitory coverage in colleges and universities, supporting live streaming and larger customer capacity at commercial complexes, and ensuring live streaming and full coverage at tourist attractions. Pilot data shows that we have stimulated traffic increases in key scenarios by 6%, increased downlink rates by 40%, and reduced base station power consumption by 10%, thereby laying the foundation for future replication across the province.

Intelligent Network O&M: Intelligent O&M Transformation

Slow fault rectification, risky network changes, and high costs are all major pain points in network O&M. To address these, we have employed digital twin and telecom foundation model technologies to develop AI agents to handle fault rectification and network changes. This has realized a transition from labor-intensive O&M to AI-driven O&M.

AI agent for fault rectification: To overcome challenges regarding inefficient O&M, we have created a network element (NE) digital twin model that maps network topologies, equipment, and traffic in real time. This allows us to locate any fault within 10 minutes of it occurring. The AI agent is also able to automatically rectify faults without manual intervention.

AI agent for network changes: To cope with risks that relate to more than 3,000 changes in our IP network per year, we have created an AI agent for IP network changes, enabling end-to-end configuration changes. Changes are verified in the digital twin environment before being applied to the live network, meaning the review time can be cut from days to just hours. Additionally, 60% of key change monitoring processes are automated, which has enabled our networks to run securely for 1,300 days so far.

China Mobile Henan has been exploring autonomous networks in a range of areas from home broadband experience upgrade and scenario-based mobile network experience breakthroughs all the way to an O&M efficiency revolution. We have driven the application of advanced technology by tackling challenges in specific scenarios, thereby contributing to China Mobile's AN strategy. We have also fully demonstrated the value of autonomous networks in our local operations, cementing our position as the leader in intelligent transformation.

Exloring Commercially-Verified Development Paths

Looking ahead, China Mobile Henan will dive deeper into more scenarios. By the end of 2025, we plan to replicate our piloted Henan Smart Home service across the province, secure a strong mobile network experience across all 10 key scenarios, and apply L4 intelligent network O&M capabilities at scale. These moves will allow us to create greater value with autonomous networks, realize the Group AN vision, and inject momentum into the intelligent transformation of the communications industry.

Driving Net5.5G Innovation to Meet Surging Demand for AI

As AI booms, it is becoming increasingly crucial to adapt network architectures to new demands for intelligence. How can this be achieved? Net5.5G may be the key. China Unicom is iteratively upgrading its networks to provide computing network products and services that support efficient access to computing and lossless computing-power interconnection; achieve efficient and lossless data transmission; and deliver innovative AI-powered services.

By Tang Xiongyan,
Vice President and Chief Scientist,
China Unicom Research Institute

The evolution of AI models like ChatGPT and DeepSeek has led to a surge in demand for computing and data transmission. Research by the Gaogong Industry Research Institute (GGII) predicts that global general computing power will reach 3.3 ZFLOPS (FP32) by 2030 and the demand for AI computing power will reach 864 ZFLOPS (FP16).

As AI booms, it is increasingly crucial to adapt network architectures to new demands for intelligence. How can we achieve this? Net5.5G may be the key. Net5.5G will shape a next-generation network architecture featuring high-throughput transmission, deterministic experience, and intelligent scheduling.

Carriers will help restructure the DNA of the Internet by playing a key role in building these next-generation networks. China Unicom is iteratively upgrading its networks to pro-

> As AI model technology quickly evolves, China Unicom will step up research on new IP technologies, work with partners like Huawei to accelerate innovation in AI WAN solutions, collaborate with more partners to develop AINet, and build ultra-high transmission capacity. With strong support from networks, connectivity for computing will become simpler and data transmission and access to computing power will be more secure.

vide computing network products and services that support efficient access to computing and lossless computing power interconnection; achieve efficient and lossless data transmission; and deliver innovative services powered by AI.

Intelligent Computing Planning: Creating Leading Computing Offerings

In the AI era, computing power is the key driver of AI model development and applications. Industries need computing power to be as easily accessible as water and electricity. This is why carriers need to build leading computing products and services that support efficient access to computing and lossless computing power interconnection.

In 2024, China Unicom made significant strides in AI computing center construction and AI computing network innovation.

We have built large AI computing centers in Inner Mongolia, Shanghai, and many other places. In collaboration with industry partners like Huawei, we established the China Unicom AI Computing Alliance to foster collaboration within the computing ecosystem. We also made breakthroughs in AI computing network innovation. In May 2024, China Unicom verified the feasibility of remote direct memory access (RDMA) over a distance of up to 3,000 kilometers, from Shanghai to Ningxia. This has boosted port bandwidth utilization from 20% to 90%. At the end of the year, we successfully implemented the industry's first remote 30 TB sample data training with storage and computing separated from each other across more than 200 kilometers between Hang-

zhou and Jinhua, achieving a training efficiency of over 97%.

At the beginning of this year, we also completed a 300-kilometer distributed collaborative training pilot for AI models at the Lingang AI Computing Center in Shanghai. This pilot demonstrated the feasibility and efficiency of long-distance cross-DC collaborative training technologies for commercial use, which enables a new distributed computing solution for AI model training powered by high-performance networks.

China Unicom Data Network: Empowering Data Circulation

The training of AI models requires massive amounts of data. For example, hundreds of terabytes of data are needed to train a 175-billion-parameter large language model like GPT-3. This requires efficient data flow between nodes.

As an active participant in the Digital China initiative, China Unicom has built an IP transport network for high-throughput transmission, security assurance, and quality services. With this, we have created the China Unicom Data Network (CUDN) solution, which supports efficient, lossless, secure, and trusted data circulation from end to end.

We debuted the CUDN solution at the 7th Digital China Summit in May 2024. The solution focuses on trusted access, connectivity, and supervision to meet data security requirements and facilitate efficient data circulation.

CUDN features not only powerful transmission capabilities, but a system-level approach for ensuring data security. It uses an integrated service system that covers everything from the supply side to the demand side, and from the network layer to the application layer, to ensure integrity, efficiency, reliability, and security in data circulation. CUDN has two features that ensure end-to-end efficient, lossless, secure, and trusted data circulation needed for AI.

The first feature is high-throughput network capabilities. Back in 2023, China Unicom released the White Paper on High-throughput Data Network Architecture and Key Technologies, introducing the concept of high-throughput networks and integrating it into data transmission. The key to this technology is increasing data throughput by enlarging effective bandwidth and boosting the volume of transmitted data per unit bandwidth. This helps transmit massive amounts of data for AI computing services.

This technology uses a task-based approach to meet the elastic bandwidth needs of high-throughput data transmission. It adjusts private line bandwidth based on the time requirements of individual transmission tasks. By employing congestion control and load balancing technologies, the network ensures IP-based, lossless, wide-area transmission. This enables the efficient transmission of terabytes of data, as well as fast and elastic transmission for data flows.

The second feature is security assurance. China Unicom has developed this capability in three ways to create an intelligent "logistics system" for data transmission. First, using an innovative data-driven network solution that synergizes data identifiers and network identifiers, we deliver trustworthy, controllable, and differentiated support for data circulation. Second, application-aware and APN-based differentiated bearing ensures trusted transmission paths for critical data. Third, the APN-based geofence limits the scope of data circulation, while in-band flow measurement enables the monitoring, tracing, and visualization of data circulation paths.

AINet: Innovative Services for AI Models

AI models have taken the world by storm. DeepSeek gained 100 million users in just seven days, and the daily average number of calls to Baidu's Wenxin model increased 33-fold to 1.65 billion in 2024. Carriers are also seizing the opportunities presented by AI models, using AI to provide innovative services. China Unicom has fully integrated the open-source DeepSeek models and has delivered dedicated computing solutions and support environments for the widely used DeepSeek-R1 model.

What is the key to China Unicom's quick adaptation to new service needs? Built on our networks and platforms, AINet has three core capabilities: high throughput, performance, and intelligence.

China Unicom uses its AINet to power computing for ultra-high transmission capacity and to make networks smarter for ubiquitous connectivity.

We have made the AINet solution powerful in three ways.

First, we have built solid computing infrastructure. We have introduced a "1+N+X" framework for AI computing, which includes super AI computing centers for training, integrated training and inference hubs, and localized edge inference nodes.

AINet will provide high-bandwidth data transmission channels for DeepSeek services to meet the transmission speed needs of training and inference. AINet offers a variety of computing and networking products and services for the application of DeepSeek across diverse settings, ensuring a user-friendly experience.

To enable efficient inference services, AINet uses dynamic computing power scheduling to adjust computing resources in real time based on the operational status of DeepSeek-R1 and user needs.

Second, we provide security assurance with our comprehensive data security management system. Measures like encryption, access control, and data backup help safeguard sensitive data during DeepSeek training and applications, which ensures the stability of DeepSeek services.

Third, we have worked with industry partners to strengthen AINet. As AI model technology quickly evolves, China Unicom will step up research on new IP technologies, work with partners like Huawei to accelerate innovation in AI WAN solutions, collaborate with more partners to develop AINet, and build ultra-high transmission capacity. With strong support from networks, connectivity for computing will become simpler and data transmission and access to computing power will be more secure.

Redefining Future Living with 5G-A × AI: From Technology Synergy to Experience Transformation

By Xu Yong,
Journalist, People's Post
and Telecommunications Daily

An AI-powered robot serves tea and pastries in an unmanned restaurant. A robot dog starts doing backflips to make children laugh. A passenger on a high-speed train keeps chatting with their friend on the phone as they speed through a mountain tunnel thanks to 5G-A. These are some of the latest demos at China Mobile's Global Partners Conference exhibition. This year's event was themed "Carbon-Silicon Synergy: Embracing the AI+ Era", and focused on the ongoing fusion of the carbon-based physical world and the silicon-based digital world. The exhibition showcased different ways 5G-A and AI can be integrated, while highlighting how the focus of the telecom industry is also shifting from network construction to experience monetization. For consumers, this shift will be reflected in comprehensive upgrades they will experience in lifestyle services.

Scenario-specific Breakthroughs: The Technologies Driving 5G-A Experience Monetization

5G-A delivers much better technical specifications than previ-

ous generations of connectivity technology, but its true value lies in its ability to address previously unresolved challenges in real-world connectivity scenarios. Liu Yang, the Deputy General Manager of China Mobile's Market Operations Department, shared data on the level of success the carrier has been able to achieve through user experience upgrades. 45 million customers have used China Mobile's 5G-A premium network services, which have delivered two new primary benefits: enhanced service experience and emotional satisfaction. 94% of users have directly reported they received better service experience with the 5G-A premium services. A customizable UE Logo is also displayed on the phone screen when VIP users access these dedicated services, so users are more aware of the actual benefits they are receiving. This has had a significant impact on user satisfaction.

The exhibition hall at the conference had four showcases from Guangdong, Zhejiang, Beijing, and Henan provinces, which showed how successful and easily replicable China Mobile's experience monetization business models have become thanks to emerging technologies.

China Mobile Guangdong, for example, has rolled out a commercial 5G-A High-speed Rail Booster package – the first of its kind in China – which optimizes connectivity services in transportation scenarios. Priced at CNY8.8, this offering includes 2 GB of dedicated data and 24-hour dedicated network acceleration services. It also leverages 5G-A's high speeds and low latency to deliver a consistent 3 Gbps downlink rate and dedicated acceleration for 26 frequently used apps. In real-world tests, users experienced 40% lower latency when playing the popular mobile game Honor of Kings, video calls remained stutter-free even in tunnels with weak signals, and user-perceived speeds were 50% higher than those on a traditional public network. Users can easily subscribe to the service not only by going to the carrier's mobile service center app, but also by scanning a QR code displayed on the back of headrests throughout the train. Service subscribers additionally receive push notifications when they enter a high-speed railway station, and a dedicated high-speed rail VIP logo is displayed on their phone. This helps more accurately target interested users and distinguishes the service from other offerings, turning technological capabilities into user-perceivable benefits that deliver emotional satisfaction.

China Mobile has also used AI to transform 5G-A from a high-speed network to an intelligent hub. An example is the GoTone AI Phone jointly developed by China Mobile Guangdong and Huawei. This is not just a mobile device; it's also a personal intelligent service solution. The phone uses AI algorithms to optimize network connections based on user habits and automatically switch to a private 5G-A network when in places like high-speed trains and stadiums. It also provides five premium high-speed, intelligent, and secure services under the GoTone brand. For example, users are pushed airport VIP services based on their travel plans, and guaranteed prioritized bandwidth while video conferencing. This integration of network capabilities, AI algorithms, and exclusive privileges delivers an intelligent assistant that meets individual needs – moving the focus of technological solutions well beyond just parameter expansion.

In another province, China Mobile Zhejiang is accelerating their network coverage expansion and plans to build 20,000 5G-A sites by the end of 2025 to cover key scenarios like core urban areas and transport hubs. The provincial branch has also worked with Huawei to verify the performance of the FA SUL high uplink technology, which will enable high-quality and large-scale AI development. China Mobile Zhejiang and Huawei have also worked together on experience monetization innovation projects. They used a media relay solution to create a high-quality network that delivers enhanced ultra-HD video experience for users, as well as capabilities like guaranteed bit rate (GBR) and golden pipes to provide guaranteed, differentiated experience for high-end users. China Mobile Zhejiang is the first carrier to explore and verify dynamically interactive logo procedures, which can serve as a gateway where users can quickly obtain connectivity services.

In Beijing, China Mobile's Workers' Stadium Booster package utilizes 5G-A to address dense-crowd scenarios. For just CNY9.9, users can enjoy 10 GB of dedicated data with a 3 Gbps peak rate for four hours. To achieve this, the system analyzes the latency and packet loss rate of users' communication links in real time to boost service access speeds. During major sporting events (with over 10,000 audience members) at the Workers' Stadium, the system also supports instant video uploads. When users have the "China Mobile Guoan VIP" logo displayed on their screen, they are being served with super-strong connectivity. This combination of scenario-based services and value-added privileges improves user loyalty, and provides a unique and replicable connectivity optimization model for major event venues.

China Mobile Henan has also explored and expanded its 5G-A service boundaries. They were the first carrier to verify dynamically interactive logos on live networks, which allows users to quickly access suitable packages and dedicated privileges with just a tap. 5G-A packages are already available to all users in Henan, and the carrier's policy to offer extra privileges and data for upgraded packages lowers the 5G-A threshold for users. China Mobile Henan is expanding 5G-A-based experience monetization using a scenario-based, user-centric approach, covering scenarios from transportation to event venues, offering a unified service gateway, and delivering expanded network coverage.

Technology Collaboration: Digital Productivity with "5G-A × AI" Carbon-Silicon Synergy

The word on everyone's lips at the Partners Conference was "Carbon-Silicon Synergy", as it encapsulates China Mobile's intention to deeply integrate the physical and digital worlds. 5G-A and AI collaboration is a core driver of this synergy, as 5G-A provides high-speed, low-latency, massive-connection digital channels, while AI provides data intelligent capabilities, like awareness, analysis, and decision-making. Together, these technologies turn reactive network responses into proactive service provisioning, which will accelerate digital productivity in many industries.

From a technical perspective, 5G-A's Super Uplink capability is key to connecting the carbon-based and silicon-based worlds. As demonstrated in the event's exhibition area, the Super Uplink speeds determine how efficiently a cloud-based application can sense and react to the physical world. With a 3 Mbps uplink rate, objects can be identified through their shapes and colors. With a 10 Mbps uplink rate (approximately equivalent to 0.8 visual acuity), text can be clearly identified and translated into another language. With a 20 Mbps uplink rate (approximately equivalent to 1.0 visual acuity), large-scale commodity price comparison and on-shelf price calculation become possible. These speeds equate to minimal-latency, high-definition data transmission for real-time monitoring, which is key in a number of emerging

industrial scenarios, such as remote surgery in healthcare and 4K/8K live streaming on consumer devices. This capability enables the digital world to more keenly sense and more quickly respond to the physical world, providing a solid foundation for the application of AI.

Collaboration between 5G-A and AI is already reshaping industries. At the conference's unmanned restaurant demo site, an AI robot was able to receive orders in real time, accurately pick up ingredients, and then cook the requested meals over a 5G-A network that boasted millisecond-level transmission latency. The conference's industrial booth showed how embodied intelligent devices, powered by the massive-connection capability of 5G-A, can interact with thousands of sensors in a factory in real time. AI algorithms are used there to optimize processes in real time and support unmanned, efficient production. As highlighted by the New Infrastructure solution jointly launched by Huawei and China Mobile, a 5G-A network supporting 10x uplink and millisecond-level interactivity acts like an information expressway. These mobile AI advancements will help numerous industries to not just go digital, but go intelligent.

The Future Is Now: A New AI+ Age with Enhanced Experience and Thriving Ecosystems

What struck me most at this conference was not the impressively futuristic technologies themselves, but the genuine feeling I got that the future is already here. The pictures painted for me were simple: stutter-free video streaming on a high-speed train, instant video upload for live streaming, and interactive AI robots. But these are things we see when we suspend our disbelief in movies, not actually in the real world. These seemingly small, but hugely impactful experience upgrades exemplify how 5G-A and AI are collaborating to reshape lifestyles. The jump from 5G to 5G-A is not only a technical breakthrough, but also a breakthrough in service experience. Everyone is used to manually juggling Wi-Fi networks, and moving around to find a stronger signal. But now, networks are proactively providing services based on scenarios and requirements. This marks the beginning of a new era in the communications industry, where user experience is at the core.

At the "AI Innovation for Greater Value" forum held during the event, China Mobile and Huawei jointly announced three major releases: a next-generation smart home device series, the MyLogo innovations & cooperation initiative, and the new 5G-A × AI Super Uplink industry ecosystem initiative. These three releases provide a clear blueprint for digital and intelligent living over the next decade. They aim to create a future supported by three pillars:

1. New hubs for homes, which means a smart device will act as a new interactive gateway to future smart living experiences;
2. New experiences for individuals, meaning scenario-based 5G-A services will integrate quality experience into users' swiping of their phone;
3. New infrastructure supporting industries, meaning the use of the Super Uplink solution will be a cornerstone for the application of AI.

These three pillars, which exemplify the value created by a 5G-A × AI ecosystem, will not only meet user needs for more convenient lives, but pave the way for enabling the upcoming intelligent transformation of industries.

As the digital economy continues to thrive, the value of technology can only be realized when it is integrated with scenarios, users, and industries. Synergy between 5G-A and AI will be the key to breakthroughs in value creation, as it breaks down the barriers between the physical and digital worlds. This synergy makes technology more than a tool. Technology becomes a partner that transforms experience from something users adapt to into something that adapts to user needs. For users, 5G-A's faster connectivity delivers smarter and easier lifestyle services. For industries, 5G-A × AI helps seize digitalization opportunities and unlock new possibilities for productivity transformation.

It will take concerted efforts, though, to create an AI+ future where the carbon-based and silicon-based worlds are connected. As 5G-A covers wider areas and AI algorithms evolve to be more insightful, lives that we could previously only imagine will gradually become reality. And this experience revolution driven by 5G-A and AI is just beginning.

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