



Making Voice Calls More Engaging

China Mobile's new service can add rich visual content to conventional voice calls

Highlights

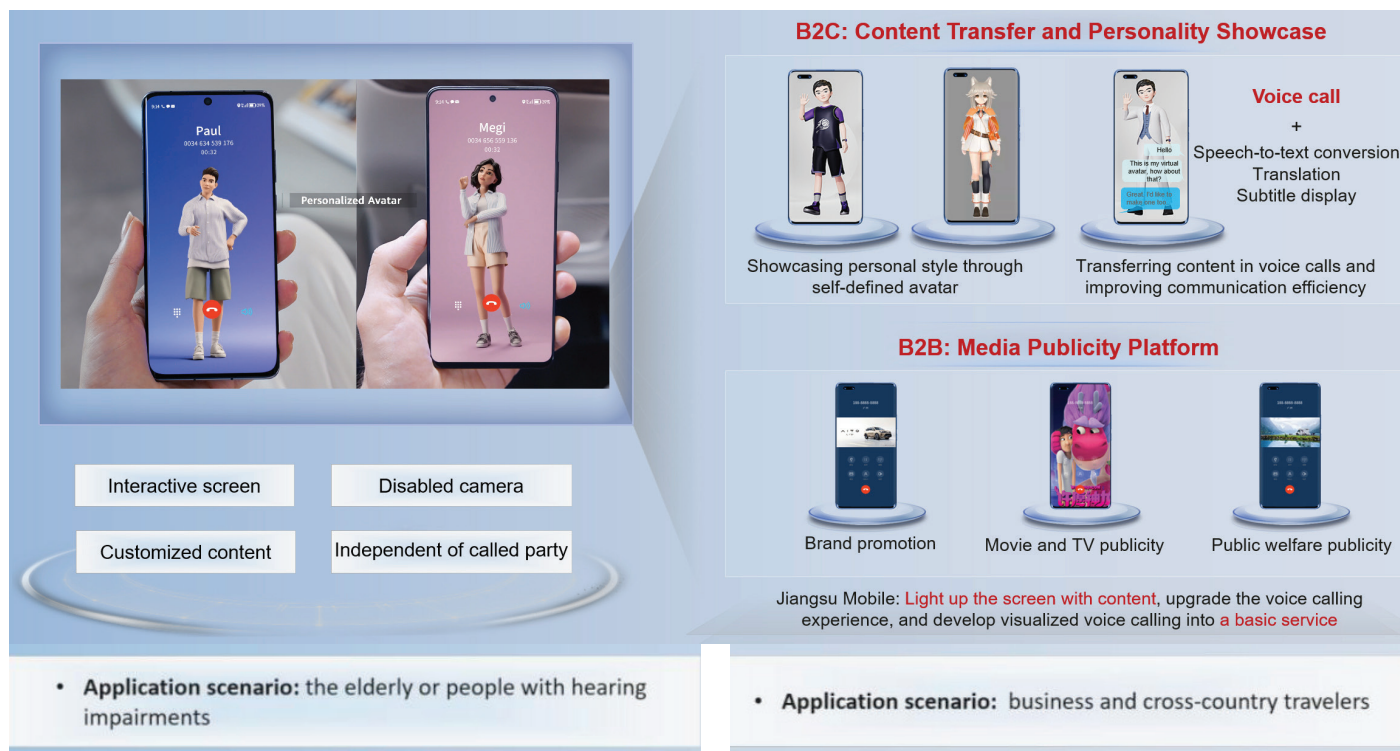
- China Mobile plans to make visualised voice calling available nationwide by the end of 2023
- The service enables transmission of a video or animation during a voice call
- Businesses could use the feature to promote offers and share information
- Moving from voice-only to content services will create more value for operators and users
- The new functionality is underpinned by Huawei's cloud-native New Calling platform

Although video calling is now commonplace, many people still prefer to make voice calls, particularly with new contacts. To protect their privacy, a consumer may not want to switch their camera on when speaking to a business or a public agency, for example. Or they may feel embarrassed making a video call in a public place, such as a train or a park.

Furthermore, mobile voice calls are no longer a one-dimensional experience. They are becoming richer and more compelling thanks to recent advances in cellular technology. China Mobile has launched a service in three provinces (Zhejiang, Jiangsu and Guangdong) that enables callers to transmit a pre-recorded video or

animation during a voice call. Consumers can use this capability to share a personalised avatar of themselves, for example, while businesses can provide information or promote a product or service.

Businesses could use this feature to advertise new services and offers, and to provide information, such as delivery instructions, directions or menus, while public agencies can provide health warnings or advice (see graphic). When a subscriber to the visualised voice calling receives a voice call, they have the option to present their avatar to the caller. During the voice call, the operator's network delivers the avatar through a dedicated video channel.



China Mobile is able to offer this functionality thanks to Huawei's cloud-native New Calling platform, which opens the dedicated video channel alongside a voice call. By making it simple to transfer content during a voice call, the platform promises to improve the efficiency and effectiveness of communications. It could also increase consumers' loyalty to telcos' communications services by making voice calls more engaging. As a result, operators will be able to attract more regular users and generate more revenues from businesses looking to interact with potential customers.

Guan Yimin, Deputy General Manager of Jiangsu Mobile (part of China Mobile), describes calling services as "the cornerstone of operators' business", offering indispensable and unique business and social values. "To build reputation and user loyalty, operators need to attach great importance to the calling experience," he says. "5G New Calling ... is a resource platform that integrates connectivity, computing power, and service capability." Jiangsu Mobile plans to build an open calling application ecosystem and utilise the New Calling platform to deliver innovative services that empower vertical sectors.

"These New Calling services greatly improve user experience and allow operators to benefit from video and content instead of one-dimensional phone calls, unleashing the huge potential of the calling market," adds Hugh Wang, the Vice President of CS & IMS domain of Huawei.

The visualised voice calling capability is also designed to address some of the network issues that can make video calls problematic. "Due to the restrictions of uplink bandwidth and video call interconnection between different networks,

operators' calling service is limited to voice and unable to take advantage of features provided by terminals, such as a large screen and HD," says Huawei.

Having run trials of visualised voice calling service for consumers in the three provinces, China Mobile plans to extend the proposition to 14 provinces during the third quarter of 2023, according to Huawei. Once it is launched commercially in the third quarter, visualised voice calling can be employed by paying business users. Huawei says China Mobile plans to launch the service in all 31 provinces by the end of 2023.

As well as charging businesses to use the feature, China Mobile operators intend to charge consumers for transmitting "in-depth customisation content" beyond the standard images and simple customisation that will be freely available with the service. The operator envisions that consumers will want to share personalised and dynamic avatars that reflect events they are attending, such as a music festival or a sports fixture.

One potential charging model is to levy a monthly subscription that would allow the consumer to share a limited number of avatars. Once they have used up that allowance, sharing further avatars would attract an additional charge.

In the future, as the data channel ecosystem matures, the visualised voice calling service will be upgraded to real-time interaction. You can perform touchscreen operations during calls, subscribe to and change virtual images, share, like, and copy virtual images, and enable the industry to further monetize value. There is a broad space for future development.

Building on the growing VoLTE user base

To use the visualised voice calling service, the end customer needs a ViLTE/ViNR-capable device. ViLTE (video over LTE) is an extension of VoLTE (voice over LTE). China Mobile estimates that about 80% of its customers have such a device. Although Apple's iPhones don't yet support telcos' video calling services, Android-based smartphones generally support these capabilities.

Globally, VoLTE penetration is rising rapidly. GSMA Intelligence forecasts that there will be nearly 400 operators offering commercial VoLTE services by the end of 2025. Together, VoLTE and Vo5G will reach more than five billion connections globally by 2025, up from 2.2 billion in 2019, according to GSMA researchers. This will represent nearly 60% of mobile connections (excluding licensed cellular IoT), compared to around 30% in 2019.

While New Calling services could be deployed on 4G VoLTE networks, China Mobile is taking advantage of 5G enhancements to the IP multimedia subsystem (IMS) to enrich the user experience. China Mobile and Huawei say they have made a host of improvements in the IMS network architecture and systematically optimised network indicators, such as latency and resolution.

"5G New Calling is now one of China Mobile's strategic products," says Sun Shiwei, Deputy General Manager of Marketing Operations for China Mobile Group. "5G New Calling upgrades the traditional calling services by providing richer media and real-time in-call interaction, which brings a brand new user experience. We will enhance the collaboration with industry partners to accelerate the development of 5G New Calling in 2023."

To enable New Calling, Huawei built a unified media function (UMF), the New Calling platform (NCP), and corresponding operations support systems, on top of IMS (see diagram). Huawei says the UMF provides media rendering and composing capabilities, empowering service innovation.

In September 2022, Jiangsu Mobile, together with the China Mobile Research Institute, Migu, and Huawei, made the first video call based on the New Calling platform. Since then, the partners have used the platform to develop and deploy innovative services, such as visualised voice calling, real-time translation and fun calling (which supports AR-based avatars, and voice/gesture-controlled emojis during video calls).

Differentiating telcos' communications services

Telcos' IMS-based video calling services could have advantages over so-called over-the-top (OTT) alternatives. "OTT applications have several shortcomings such as unstable service quality and complex installation and registration processes," says Huawei. "In contrast, operators provide services based on user numbers, freeing users from complex installation and registration processes. In addition, operators use dedicated channels on IMS to provide services. As such, users can enjoy services with a determined service quality."

For Huawei, the speed of development of its New Calling services will rely on two aspects: the popularity of VoLTE/Vo5G networks and the maturity of the ecosystem, which is comprised of chips, terminals, networks, services and industries. The company says New Calling services would benefit from broad availability of devices that are compatible with 3GPP TS 26.114, which defines a new IMS data channel architecture, and was standardised in March 2020. This architecture overlays a data channel upon existing IMS voice and video channels to meet data apps' requirements in terms of latency, bandwidth, and reliability.

Huawei says some leading operators are promoting this approach, and it expects the first compatible devices to become available during 2023, paving the way for new features. "Basic interaction functions, such as screen sharing and AR marking, will enrich service scenarios and remotely instruct the customer

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Sun Shiwei - Deputy General Manager of Marketing Operations for China Mobile Group



to install the device or rectify faults,” Huawei adds. “This service effectively improves user satisfaction and service efficiency.”

In 2021, China Mobile and Huawei jointly proposed the establishment of the New Calling work group. At the 5G World Congress in August 2021, this work group was formally established and now has more than 10 members, including China Mobile, Huawei, Ericsson, Vivo, Xiaomi, and UNISOC.

In December 2021, 3GPP initiated NG_RTC in R18, which is conducting in-depth research on how to optimise the IMS data channel architecture and deploy IMS media plane as a service. The project clarifies that the media and control planes must be separated and a unified media plane must be adopted in the IMS data channel architecture, thereby simplifying the IMS media network architecture. Also in December 2021, the GSMA released a white paper describing the IMS data channel technology and its industry vision, and proposing requirements for IMS data channel-based communication services.

In May 2023, the GSMA released a permanent reference document, detailing an IMS Profile for the IMS data channel. The document defines a minimum mandatory set of features that user equipment and networks are required to implement to guarantee interoperable, high-quality end-to-end IMS-based communication services.

As the technology is standardised internationally, Huawei is confident its New Calling platform will see adoption from operators around the world. Hugh Wang says an operator in South East Asia has plans to launch visualised voice calling at the end of 2023, following a successful proof-of-concept. Huawei is also in advanced discussions with operators in the Middle East and Latin America about the deployment of New Calling.

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