Huawei's VoLTE Pro solution is designed to help MNOs to deliver enhanced voice services in the 5G era

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The Mobile World Congress (MWC) is usually held in Barcelona in February , but was held in Shanghai in February 2021 because of the COVID-19 pandemic. Huawei used the event to host several webinars to launch products and make other announcements. One such webinar, the voice-over-LTE (VoLTE) Pro Summit, featured industry experts who highlighted the challenges that mobile network operators (MNOs) face with voice services.

The industry understands that the VoLTE solution is far more efficient than circuit-switched voice technology, and MNOs must deliver it in the 5G standalone (SA) era, yet few MNOs have deployed VoLTE on their networks. Huawei announced its VoLTE Pro solution during the Summit, which is designed to enable MNOs to create network efficiencies and support their roadmap to 5G SA architecture.

MNOs that do not deploy VoLTE risk jeopardising their 5G investments

Voice services are strategic for MNOs, but retail voice revenue has fallen in the last 5–7 years in most countries. Increasing smartphone penetration and the growing adoption of data services and over-the-top (OTT) applications (such as Facebook Messenger, WeChat and WhatsApp) have resulted in the substitution of legacy voice calls with IP-based messaging and calling. Regulators have also started to reduce mobile termination rates (MTRs), thereby further reducing revenue from incoming calls that originate from another network. We forecast that voice revenue will decline in the next 5 years to 2024, at a CAGR of –7% in emerging Asia–Pacific (EMAP), –6% in North America (NA) and –3% in Western Europe (WE).

However, VoLTE deployments have been both complex and costly for MNOs. In the past, a lack of low-cost VoLTE handsets has also been a significant barrier in many countries. For these reasons, less than 30% of MNOs worldwide have launched VoLTE services, although in some emerging markets, this figure falls to 10%. The availability of entry-level VoLTE handsets for USD15 will help to remove this particular barrier.

MNOs must nevertheless continue to invest in next-generation voice technologies such as VoLTE, despite the challenges. VoLTE will enable MNOs to provide a better quality of service (QoS) compared to that of OTT players, and it will improve spectrum efficiency and opportunities to refarm for more efficient networks. Furthermore, VoLTE networks are necessary for MNOs that want to plan to shut down legacy 2G and 3G network and prepare for their 5G SA migration.

MNOs must continue to revaluate the efficiency of their networks and ensure that they deliver services cost effectively

MNOs' finances are challenging yet they must deliver good customer experience and roll out new services. In order to achieve this, they must retire legacy hardware. A single-RAN solution can help MNOs to reduce capex

and opex by between 30% and 35%, and enable them to improve their ability to manage spectrum between new and legacy mobile technologies. VoLTE services can use spectrum more efficiently than legacy circuit-switched voice services. In addition, MNOs must ensure that VoLTE services, including VoLTE roaming, are enabled before they shut down legacy networks or migrate to 5G SA networks.

If VoLTE is not implemented, MNOs can use a circuit-switched fallback (CSFB) mechanism during the call set-up procedure to migrate devices from 4G networks to 3G (or 2G) networks. The user would experience some delay as the change in the radio access technology (RAT) takes place. Furthermore, the QoS for any active data session would be reduced in a 4G-to-3G handover. The data session is completely halted if the handover is from 4G-to-2G.

The 4G evolved packet core (EPC) is still used in the first phase of 5G deployments (the non-standalone (NSA) mode), so voice calls are established using either VoLTE or CSFB. However, a VoLTE implementation is a necessity in the 5G SA mode because CSFB to legacy networks does not exist.

Moreover, unless VoLTE roaming is implemented between the home network and the visiting network, a traveller, even one with a 4G VoLTE-enabled handset, must rely on CSFB and use legacy networks for all incoming and outgoing voice calls. However, implementing VoLTE roaming is complex and fewer than 50 MNOs (out of about 800) have implemented it, but it is a step that they must take before they shut down their legacy networks.

VoLTE will enable MNOs to be successful in the new voice era, but ecosystem collaboration is needed

Huawei asserts that its VoLTE Pro solution will deliver three key benefits:

- enhanced customer experience
- increased efficiency of network utilisation
- an evolution path towards 5G voice services in the SA era.

The VoLTE Pro solution can get telemetry from inactive VoLTE handsets to enable services in those devices. This will help MNOs to increase the pace at which they can migrate customers to VoLTE. The underlying platform is the Huawei Single Voice Core, a converged cloud-native solution that will enable MNOs to deliver voice services using all four mobile technology generations. The platform will also deliver fixed-line voice services, benefiting converged service providers.

Huawei understands that MNOs must deliver value-added services beyond simple voice communications in order to meet customer demands and deliver features that compete with those of the OTT service providers, such as sending and receiving data files during a call. Chinese operators introduced VoLTE-based video calling ringtones, a service that has attracted up to 140 million consumers since its launch in 2018 and generated over USD400 million in 2020. This service will enable MNOs to enter new value chains and develop new revenue-generating solutions, such as short videos. Huawei plans to take its VoLTE Pro solution a step further with its 5G New Calling feature, which it announced during the Summit.

The vendor proposes to use its 5G New Calling feature to add capabilities beyond HD voice and video calls. Working with some of its customers, including the Chinese operators, Huawei plans to develop: advanced features, such as better caller identification, which will enhance B2C and B2B2C use cases; visual menus to enhance interactive voice response (IVR) menus to deliver a better and richer user experience; and tools to improve the interactive services necessary for remote medical diagnosis.

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Industry stakeholders will need to collaborate to ensure that these use cases are delivered quickly and efficiently. Some of the multimedia features will benefit from access to new device resources, such as additional data channels. For this, industry bodies, such as 3GPP and the GSMA should deliver the necessary standards, while the device ecosystem must deliver solutions that enable the value chain to mature quickly.

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