GSMA

GSMA Services Showcase Live #8

VoLTE implications for network sunsetting

Wednesday 19 April 2023

Question	Answer	Responder
During the presentation, it's mentioned that VoLTE will become the fundamental voice network in the future. I see your point, however, the development of VoLTE is slow in many regions. What do you think is the next step to improve adoption?	There is a need to enable a step change in VoLTE and VoLTE Roaming deployments so as to replace current CS voice/roaming. The biggest obstacle is OEMs blocking VoLTE on "unknown" or "untrusted" networks, I.e. where 1:1 testing has not been performed. There is a need to promote more commonality in IMS parameter settings ("profiles") and to persuade OEMs to initially unlock devices for accredited networks using a known/supported profiles and eventually unlock devices as do Apple currently. GSMA are pushing adoption of NRG defined Profiles #4 & #6 to MNOs and Profile#6 to OEMs. Profile#6 should be the default profile used by OEMs.	**Wayne Cutler, Technical Director, GSMA**
Is GSMA working with the European Emergency Number Association on 2G/3G shutdown wrt to Emg Calls? The EENA are having their annual conference this week & the subject is on their agenda?	Yes, GSMA is coordinating with other industry groups such as EENA, ETSI, 3GPP and ITU-T. The GSMA Chief Engineer (Ian Pannell) is attending the upcoming EENA conference.	**Wayne Cutler, Technical Director, GSMA**
What will be main method to send sms to subscribers roaming abroad in operator "4G only" networks before they have attached to VoLTE? For example to send welcome sms. Will Diameter SGd between home SMSC and foreign MME be main method or is a MSC "light" function still be needed in foreign network to make use of SGs interface towards MME?	I think this depends on the network as to whether SMSoIP or SMSoNAS is deployed. Some MNOs (post 2G/3G sunset) may maintain their MSC to support the SGs interface and legacy signalling to the HPMN. It will be a per-roaming partner and coordinated decision whether SGd will be deployed or legacy interfaces left in situ.	**Wayne Cutler, Technical Director, GSMA**

Has GSMA looked into issues where both 2G and 3G are being retired and the impact on services based on SS7 signaling? This includes UEs requiring a combined attach?	The GSMA Networks Group is carrying out a study on formulate requirements on how UEs with different capabilities are expected to behave in networks that have executed the 2G/3G sunset. This will lead to a new annex in PRD NG.121 and input for the definition of new test cases in PRD TS.11.	**Wayne Cutler, Technical Director, GSMA**
Will VoLTE and VoLTE roaming support also be tracked throughout device lifecycle (being enabled by software updates) in the GSMA device atlas?	This is the intention. However, it is known that device capabilities are difficult to predict and and differ between OEM, specific models of an OEM and even different OS versions of the same model. The device atlas needs to be checked to determine that it goes down to sufficient granularity.	**Wayne Cutler, Technical Director, GSMA**
It's 2023, should we not start only using IPv6? Which VoLTE capable UE's don't support IPv6?	This point was recently discussed in a joint NG/TSG discussion group. For backwards compatibility, IR.92 (VoLTE) was left unchanged and stating that both UE and Network must support both IP versions. However, there are a small number of (older) devices that are IPv4 only and there are also some Networks that are IPv6 only (for scalability reasons and avoiding IP address exhaustion). Discussions are still ongoing regarding whether NG.114 (Vo5GS) should mirror IR.92 or specify only IPv6. It seems likely that the latter will be chosen but this is still not decided.	**Wayne Cutler, Technical Director, GSMA**
In the carriers that have done some 2G or 3G shutdown, what is the main reason for keeping some of these layers? CSFB support? Legacy M2M?	There are significant regional differences: In some regions, for example, Europe, legacy M2M and long-term 2G/3G IoT contracts can be the main reason to keep older, less efficient wireless technologies. While in other countries CSFB support could be more important. Shutting down 2G and 3G networks is part of a multiyear process and every mobile network is different. Thus, both geography, consumer habits and APRU, network operator group shutdown strategy, network architecture, regulatory environment and the structure of existing human and machine connections are relevant to identify the main reasons to keep legacy layers.	**Emanuel Kolta, GSMA intelligence**

| What steps are required to ensure that VoLTE coverage is as good as 2G & 3G voice coverage? | First, you must understand the differences between different technologies. 3G aims to facilitate the transfer of multimedia files, permanent wireless connectivity, and a speed of up to 2 Mbps, that is, up to seven times faster than the standard 2G telephone connection, in addition to offering greater stability and security for the user than 2G, which uses GSM transmission. However, Voice continues analog trunks. For a technology to be labeled as 4G or LTE, the maximum data transmission speeds must be 100 megabits in motion and the big difference is voice, which already travels over data. It is what is called VoLTE, that is, voice over LTE data.
 To answer the question, 4G maintains a highly secure quality of service that allows offering services of any kind at anytime, anywhere, with the lowest possible cost." Thus, VoLTE guarantees the service with the following steps:

 • LTE coverage in the region by the local Operator
 • CORE LTE adhered to the 3gpp specifications.
 • Devices approved with VoLTE in the frequency radiated by the operator. This is super important as the device will need to be "VoLTE Capable" to provide the functionality.
 • Your operator and subscription (including SIM card) must support VoLTE for the device model you are using. The device must be compatible and run the latest software.
 • The phone must run unmodified software as provided by the carrier or manufacturer.
 • VoLTE must be enabled in device settings.

 VoLTE advantages:
 • Quick call setup.
 • High voice quality and background noise reduction.
 • The phone remains on the 4G/LTE network during voice calls. | **Oswaldo Montes Pedraza** |

	- You can use 4G/LTE data services, such as Internet browsing and sharing, while making and receiving calls. - When making calls via LTE, no additional data is consumed, just call minutes. With most carriers, you'll pay for the voice call service, not for the data you use in the call. Previously, 4G was limited to Internet browsing. When it came to calls, the phone automatically switched to 3G or 2G. You may remember that there were a few seconds delay before the recipient's phone would ring. Thanks to VoLTE, that delay is gone. On a 2G or 3G network, calls and data are separated and cannot work simultaneously. For example, during a phone call on a 2G network, incoming text messages at that time will only arrive after the phone call has ended. On a 4G LTE network, both calls and data work in unison, meaning a text will arrive instantly even during a call.	
How can we get access to the VoLTE report mentioned at 15:07?	It is available via: https://data.gsmaintelligence.com/research/research/research-2022/building-on-10-years-of-volte	**Emanuel Kolta, GSMA intelligence**
What is the biggest obstacle to VoLTE roll out?	Undoubtedly device blocking of VoLTE on untrusted networks and device availability in general to smaller MNOs. Also, the industry needs to get away from 1:1 testing which cannot be done anyway due to the sheer numbers of networks needing to deploy VoLTE (circa 500) in conjunction with the number of VoLTE devices (circa 350 per annum), without worrying about roaming.	**Wayne Cutler, Technical Director, GSMA**
What can MNOs do to facilitate VoLTE rollout?	Adopt one of the NRG defined profiles, preferably Profile#4 or Profile#6 and get accredited to demonstrate network compliance with IR.25 which can be conveyed to OEMs.	**Wayne Cutler, Technical Director, GSMA**

What can OEMs do to facilitate VoLTE rollout?	OEMs need to adopt spirit of TS.59 and unlock devices for accredited networks as a first step and leading to adopting "non certified carrier" where VoLTE is allowed for all using P#6 or NSX settings. Open Market Devices need to indicate compliance to IR.25 (Device Test or Self Accreditation) and make themselves known to MNOs who are always looking for devices. In particular, for a lot of markets, there is a need for lower end/cost devices as lower ARPUs etc.	**Wayne Cutler, Technical Director, GSMA**
Any other initiatives that would facilitate VoLTE Roaming ?	It has recently come to the attention of the GSMA that many MNOs do not fill in their QOS settings for VoLTE in IR.21/RAEX database. This inhibits VoLTE Roaming and can cause bearers to be failed to be established. All MNOs should fill in their QOS settings for VoLTE Roaming and are strongly recommended to follow the QOS settings laid out in PRD IR.88 rather than using a bespoke setting.	**Wayne Cutler, Technical Director, GSMA**
How do you provide additional coverage with your partners?	We do it through National Roaming agreements, extending the coverage of our clients to the networks of the other mobile operators in the country in a transparent way to our final user.	**Oswaldo Montes Pedraza**
How has been the collaborative work between Altan and the GSMA?	Collaboration has been very good, the GSMA have accompanied us throughout the commissioning to be able to standardize the configurations of our operator towards the different device manufacturers and thus, ensure proper functioning.	**Oswaldo Montes Pedraza**