

Making sure VoLTE works is not just about delivering a service. It's crucial to the future of service providers, writes Peter Heikenborn

No half measures for reliable VoLTE rollout



Peter Heikenborn: To ensure the reliable rollout, seamless performance and smooth operation of VoLTE, CSPs must have access to test solutions that can deliver the all-round performance necessary to achieve this

Despite the growing momentum behind VoLTE deployments, communication service providers recognise the significant challenges they represent — perhaps CSP's greatest single technical and operational challenge.

There are several reasons for this. First, it's just plain complicated. VoLTE has been a long time in the making and requires the supporting infrastructure of an IP Multimedia Subsystem (IMS), or something that at least delivers most of the capabilities of an IMS. This means that there are layers of additional complexity that must be considered.

Second, VoLTE cannot exist in isolation. It must co-exist with voice services available in legacy networks, such as 2G and 3G.

As a result, a complex parallel capability, single radio voice call control (SRVCC) must enable seamless handover between LTE and legacy network infrastructure. Without this, each VoLTE service would exist only as an island; calls would fail as users move out of the LTE domain and CSPs would not be able to offer a seamless service that would have any value.

Third, users roaming to a new network that does not support VoLTE must be able to make calls as normal. Users should be aware of the promised benefits — but they should not have an adverse experience when they move beyond coverage or to another country.

The issue of seamless service is of profound importance. As all-IP LTE networks were not designed with a native voice service, and as VoLTE is effectively an add-on, CSPs have to get VoLTE deployments right from the outset. If they don't, other providers can step in to offer voice services over the LTE infrastructure CSPs have deployed at such expense.

The failure to deliver VoLTE successfully represents an existential threat to CSPs: without a reliable, seamless voice service, LTE operators will simply offer networks to access services delivered by other providers.

Fourth, the launch of a dedicated voice service will also bring Voice over WiFi (VoWiFi) and Video over LTE (ViLTE) as complementary solutions. Thus, VoLTE is a gateway to a whole host of new service capabilities, models and new modalities of communication, incorporating context, dynamic switching from voice to video and back again, and others that have yet to be foreseen.

Finally, CSPs need not only to deliver an attractive, reliable and seamless VoLTE service to the user, they must satisfy legislative requirements, such as lawful intercept and emergency services. Failure to do so has significant consequences in terms of penalties from national regulators.

How then, can a CSP deploy VoLTE and ensure that these challenges are overcome? And, as VoLTE must also encompass the additional capabilities of VoWiFi and ViLTE, how can CSPs ensure that they maintain service performance as the service is itself enhanced?

The answer lies in testing. Test, test and test again. A relentless drive for validation, stress testing and troubleshooting is a fundamental requirement for the success of any VoLTE deployment. VoLTE is of such importance that there isn't going to be a second chance to get it right. It has to be done correctly, first time and every time.

This means that CSPs need test solutions that can be used at every stage of the life cycle of their VoLTE, VoWiFi and ViLTE deployments. This starts with the verification of systems that are procured from their vendors. Interoperability across the new interfaces defined by VoLTE standards and between solutions from different providers is crucial.

CSPs must simulate individual user sessions. User devices can be simulated in sophisticated equipment that can generate both signalling and media plane traffic, to ensure consistent end-to-end performance. The resulting call flows can be examined at various points across the network to verify compliance with relevant standards and interworking.

High-volume stress testing must also complement individual test cases and scenarios, which can include mass call or session generation. During this process, compliance with regulatory requirements, such as public safety and lawful intercept can also be validated.

Similarly, as VoLTE promises higher quality service, it is also essential to validate session quality, for both voice and video, achieved through the use of PESQ/POLQA and PEVQ algorithms.

As CSPs extend VoLTE and incorporate VoWiFi and ViLTE, they must be able to perform the same conformance, validation, functional and operational testing for these newer capabilities.

When services are live, CSPs need the capability to rapidly troubleshoot any problems that might emerge. They must be able to identify, replicate and analyse specific issues that may span multiple network elements.

Getting VoLTE, VoWiFi and ViLTE right first time cuts to the heart of what CSPs can offer their customers in the future. The reliable rollout, seamless performance and smooth operation of VoLTE are absolutely critical. There can be no half measures. To ensure this success, CSPs must have access to test solutions that can deliver the all-round performance necessary to achieve this. ■

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