EXPERT OPINION

End-to-end network visibility is key to VoLTE success

When it comes to implementing VoLTE, it's a game of achieving certainty and reliability from uncertain and often unreliable parts – and that's just the beginning. Mark Slinger explains how CSPs are overcoming complexities in the implementation and long term management of VoLTE.

The author, **Mark Slinger**, is head of product at SysMech

There is no denying that VoLTE will offer new possibilities for high-definition, high-capacity communications and open the door to new revenue streams through combined offerings of rich communication services like video voicemail and instant messaging alongside voice.

However, communications service providers (CSPs) are finding that rollouts are, in a real setting much harder than lab trials, with voice (over IP) quality susceptible to service performance degradation as different vendors and multiple technologies come together. Voice service quality over an IP bearer is much more susceptible to problems and delays on the network, and it's essential that CSPs are able to identify the root cause of performance degradation in real-time. It's just one of many reasons CSPs are looking for high quality end-to-end solutions to facilitate and manage VoLTE.

The method is in the management

Although VoLTE has been a hot topic within the telecoms industry, roll-outs have not been as rapid as expected. This is due to a number of reasons, including previously immature technology, insufficient ▶

network coverage, lack of VoLTE supporting handsets and the complexities associated with the management of VoLTE. Putting the network components in place, launching VoLTE enabled devices and packaging up the offering can actually seem quite simple in comparison to the reality of managing the service on a day-to-day basis. In our experience whilst developing the Zen Unified Service Assurance software, we have found this to be one of the largest unforeseen stumbling blocks seen by CSPs when it comes to giving VoLTE the green light.

Traditionally, operational departments across the network have worked in silos, using separate software solutions to manage the radio network, transmission, core and application services. With VoLTE this approach is no longer acceptable, as it does not provide the complete view of the network that is so desperately needed. This is causing delays in VoLTE rollouts for numerous operators across the globe; although the foundations have been laid, if they can't see the service performance then it will be difficult to launch with any confidence. And with expectations already being set for HD voice quality, a premature launch could be detrimental to customer experience.

An end-to-end solution overcomes this major hurdle by providing the complete visibility needed, whilst also allowing CSPs to plug in new technologies and vendors as and when available. This gives CSPs real-time visibility of the network, as well as facilitating the cross-departmental management of VoLTE by providing network operations, network optimisation and customer care with access to the same data, in real-time.

The long-term implications

End-to-end visibility is not only important with regards to initial roll-out, but it is also a long-term implication for VoLTE: As the service expands, new equipment components will be added across the network and annual upgrades are likely to be seen for all technologies. The VoLTE management system must be rapid to respond to this, adapting to upgrades in a matter of hours rather than weeks, giving operational teams everything they need to manage the network and service in real-time.

And of course in an ideal world, LTE coverage would spread wide enough to enable VoLTE-to-VoLTE calls entirely through LTE technology from the off. However in reality, LTE rollouts are still expanding, so fallback to 3G and 2G, and hence the circuit switched voice service, is inevitable for the foreseeable future. The complex service path through multiple technologies, including LTE, UMTS and GSM requires comprehensive management. And of course to add to this, CSPs also need visibility of the end-to-end service path through every single element of the network, regardless of the technology, because any one of these could be causing degradation to the voice over IP quality of service.

Real-time customer experience management

CSPs need to be able to deal with at least eNodeB, PGW, SGW, MME, PCRF, CSCF, HSS, and IMS (see Acronym Buster) data sources. They need to be able to correlate and understand the customer impact of each element in near real-time, in a highly complex environment.

To achieve this level of network intelligence, an end-to-end service assurance application is essential. This type of application allows operators to continuously collect data from an infinite number of network equipment types and vendors, and visualise it in one unified system. With one customer we have seen more than 30 different equipment types covering RAN, transmission, core and the IMS. An end-to-end system allows CSPs to visualise the service as a whole and to identify what elements are underperforming, where an error has occurred and its impact on traffic, dropped connections and inevitably, the customer experience.

Intelligent automation

Another reason why having end-to-end service capability is so important to VoLTE success is that it allows mobile network operators to introduce more intelligent automation into their network management. As budgets tighten and expectations heighten, it is essential CSPs find ways to improve productivity, without increasing headcount. CSPs already handle many hundreds of thousands of network alarms, data breaches and KPIs on a daily basis and VoLTE will dramatically increase this number. With the amount of information coming from VoLTE, CSPs need assistance to make the correct decisions when trying to understand the root cause of an issue. When network and service performance faults occur, there is a tendency for many different types of connected elements to issue a multitude of alarms. This exacerbates the problem, making it even more difficult for the CSP to identify the real underlying cause. An intelligent end-to-end solution will allow users to identify the real root cause from the mass of surrounding noise.

It is clear to see that VoLTE rollouts are not as easy as simply turning on a switch, and that they are accompanied by a whole host of obstacles and challenges that must be overcome. In an industry that is becoming more and more competitive, with less investment across the board, intelligent solutions must be used to ensure the success of VoLTE. An end-to-end service assurance solution should be at the top of the list for operators that truly want to reap the benefits of VoLTE. SysMech's Zen Unified Service Assurance software provides network operators with an end-to-end view of the entire network, service and customer impact, and offers advanced functionality for root cause analysis, analytics and intelligent automation with network feedback loops, proving priceless to operators currently managing complex multi-technology networks that need to support next generation services.

ACRONYM BUSTER:

eNodeB – Evolved Node B

PGW – Packet data network Gateway

SGW – Serving Gateway

MME – Mobility Management Gateway

PCRF – Policy and Charging Rules Function

CSCF – Call Session Control Function

HSS – Home Subscriber Server

IMS – IP Multimedia System

www.sysmech.co.uk