

# Deploying a VoLTE network – what we learnt

Deploying VoLTE networks is complicated.

So much so that the Vice President of China Mobile Group, Mr Liu Aili is quoted as saying:

**“VoLTE network deployment is one of the most difficult projects ever, the implementation complexity and workload is unparalleled in history”**



What drove Mr Liu to say this? Is it that VoLTE is ultra complicated? In our experience the rollout of VoLTE in an LTE network is complicated. It is not that VoLTE signalling is insanely complicated, it has some clear differences from what has come from before, the complications are more subtle and when you step back from it more obvious.

So VoLTE signalling is different? Fundamentally its SIP signalling so no change there. The major difference is that on setting up a VoLTE call it pre-allocates the media bandwidth on the 4G network. Calls made on 2G, 3G, PSTN and VoIP calls do not. So when making calls between these disparate networks there is interworking to be done. And here is where complexity starts to creep in. The interworking will be slightly different depending on whether its between VoLTE <-> 3G, PSTN <-> VoLTE etc. The operator we worked with had interconnects with 26 other operators. That's a lot of testing to insure everything works and we haven't even got to the handsets yet.



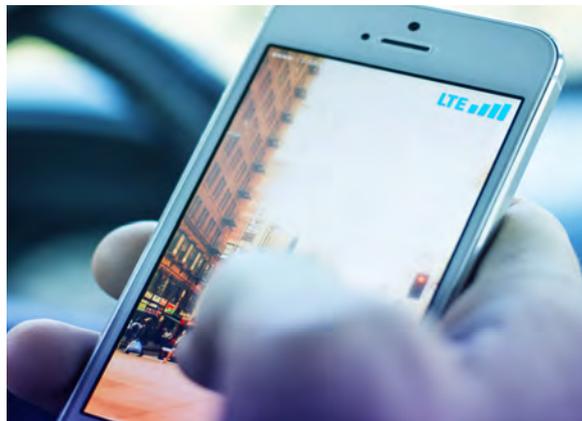
But hang-on the IMS core, where all this complexity is handled, has a mountain of 3GPP specs, 50+ in-fact totalling 9000+ pages. That's true enough but the spec for VoLTE devices is 30 pages, a mere pamphlet in comparison.

Anybody working with leading / bleeding edge technology knows that version 1.0 of a new tech gizmo is to be avoided. Wait until at least version 2.4 before you commit.

So you have a multitude of handset vendors delivering new VoLTE devices that they have developed against what can best be described as a "loose" specification. This leads to different interpretations and therefore implementations. Bugs and errors creep in but you also enter a closed loop between handset vendor, operator and network equipment vendor as to who has interpreted the specification correctly and whose responsibility it is to release a patch and when. New handsets and OS upgrades to existing handsets had to be tested for backward compatibility. Often different signalling logic was implemented for different versions of the same handset.

The operator we worked with had a cool softphone app that subscribers without a VoLTE handset could download to their existing phone, tablet etc. This worked using "standard" SIP but introduced a new variable for interconnect, softphone <-> VoLTE device, softphone <-> 3G device, etc. Any new services that the operator wanted to deliver has now to be tested across a whole array of devices.

Hopefully you can see a pattern emerging here and how project complexity quickly spiralled. Number of disparate network types x number of different networks x number of different handset devices x number of handset versions x delivery of new services across all supported platforms.



None of the items mentioned here are insurmountable and the majority of them are solved by good program and project management.

The way we helped our client roll out their VoLTE network was of course to supply the best in class signalling technology and access to our R&D team. But on a more practical note and to help manage the project complexity we also provided a lab to deliver:

- Comprehensive test facilities
- Rapid testing of new features across all devices / apps
- Regression testing on new device / app versions
- Rapid turn around on support issues
- Managed rollout of new features



Our client, the Smile Groups, VoLTE network is successfully up and running today across 3 x African countries and we look forward to rolling out new services and features with them over the years to come.

**Simon Dinnage**  
Business Development Director at Squire Technologies



If you are interested to read further please see PR release here <http://www.squire-technologies.co.uk/news/2015> and more technical details here <http://squire-technologies.co.uk/solutions/voice-over-lte> or contact us at...

**EMAIL** [enquiries@squire-technologies.com](mailto:enquiries@squire-technologies.com) | **CALL** +44 (0)1305 757314



**Squire Technologies**  
[www.squire-technologies.com](http://www.squire-technologies.com)

Author  
Email

Simon Dinnage  
[enquiries@squire-technologies.com](mailto:enquiries@squire-technologies.com)