

VoLTE: The Mobile Operator Value Proposition

Voice Remains a Killer App that Can't Be Ignored

Although Long Term Evolution (LTE) is best known for multi-megabit speeds, voice remains a killer app. In fact, operators that launch LTE with voice support (called VoLTE) can expect twice as much average revenue per user (ARPU) as rivals that offer LTE as a data-only service, according to a recent study by Heavy Reading and Wireless 20/20, two analyst firms.

“Heavy Reading recommends that 4G operators include an IP services platform to enable value-added voice, video communications and multimedia messaging services and monetize the full potential of any 4G network,” says Berge Ayvazian, Heavy Reading senior consultant.

And there's more. For example, in 2013, when far more LTE networks will be in commercial service, voice will still be 61 percent of all mobile service revenue, according to the GSMA. That means it's going to be a long time – probably never – before voice becomes a market opportunity small enough that LTE operators can afford to ignore it.

Besides risking a 50 percent ARPU loss, data-only LTE networks also are far more vulnerable to over-the-top (OTT) voice providers such as Google and Skype. Put simply, if LTE operators don't provide their customers with voice, someone else will.

In fact, once OTT providers have established a relationship with those customers, they're well-positioned to upsell them on video and other services, further marginalizing the LTE operator. It's a complex issue facing mobile operators as they look for options to move forward. Launching VoLTE has presented some challenges, but there are other options emerging.

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Top VoLTE Options

| | CSFB IWF | MSC TAS | Mobile TAS (MMTEL) |
|-------------------|--|---|--|
| Solution Overview | <p>Enables deployment of SMS over SGs and CSFB through a centralised gateway</p> <p>Eliminates dependency of multi-vendor MSC upgrade costs and complexity</p> | <p>Provides bridge between IMS and legacy CS domains</p> <p>Legacy parity achieved without customization</p> | <p>Deployed to provide MMTelApp Server (TAS) Integral IM-SSF Mobility Server</p> |
| Value Proposition | <p>Eliminates costs to upgrade legacy MSC</p> <p>Enables immediate preservation of voice and SMS revenue</p> | <p>Rapid time to market to support VoLTE devices</p> <p>Buys time to upgrade Services infrastructure and BSS/OSS for MMTel deployment</p> | <p>Rich services including video, multi-device delivery and wholesale</p> |

Are CSFB and MMTel Viable Options?

For LTE operators, the good news is that for the past several years, the industry has been hard at work developing technologies that enable LTE networks to support voice on their own.

One standard is Circuit Switch Fall Back (CSFB), which uses a circuit-switched mobile switching center (MSC) both for voice calls and MSC-based services. To originate a voice call using CSFB, the handset in the LTE location registration area must first 'fall back' to 2G/3G.

CSFB is a potential fit for markets where LTE coverage is spotty or where operators haven't deployed another option for voice over LTE (VoLTE). For operators, a key benefit of CSFB is that it re-uses interconnects, roaming agreements and charging and settlement processes, so it can be implemented relatively quickly and cost-effectively. The GSMA also requires CSFB for incoming roamers from 3GPP operators.

Another option is multimedia telephony (MMTel), which combines VoIP and managed quality of service (QoS) over an LTE data connection. MMTel requires an IP multimedia subsystem (IMS) core and a new telephony application server (TAS) to also deliver new multimedia services such as video calling for revenue enhancement. MMTel-based VoLTE is designed for wide-area coverage and is ideal for greenfield operators.

CSFB and MMTel also have drawbacks. For example, CSFB forces operators to increase spending on their legacy core, with mandatory changes to their MSCs

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and supporting GPRS service nodes (SGSNs) – and in some cases, new MSCs.

CSFB also requires significant re-engineering and ongoing process changes due to operational complexities of mapping.

Finally, CSFB compromises the customer experience. For example, roaming retry results in significant call setup delay.

Some of MMTel’s drawbacks are due to operators deploying MSC-platform-specific features that aren’t defined in the MMTEL standard. So to maintain service parity, operators would have to spend more money to recreate those features on the new platform or start fresh with new capabilities.

MMTel also creates operational complexity because it doesn’t address intelligent network (IN) services such as customized applications for mobile networks enhanced logic (CAMEL) forcing operators to upgrade their IN system to accommodate the session initiation protocol (SIP) call model.

Other Options

The costs, time to market and operational complexity of CSFB and MMTel are among the reasons y operators and vendors are focusing on other VoLTE options. The three main options are:

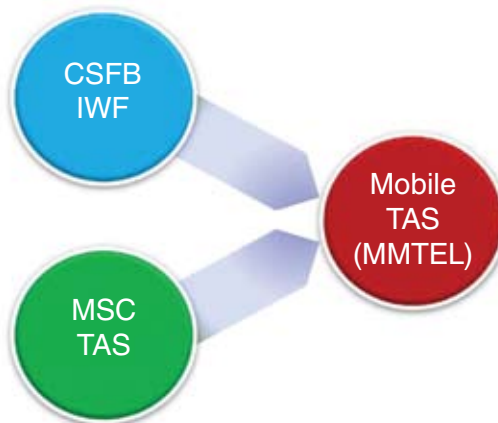
- ◆ CSFB Interworking Function (CSFB IWF) enables the operator’s existing CS infrastructure to serve LTE subscribers over the CS domain. The CSFB IWF facilitates the rapid deployment of LTE with CSFB by eliminating the need for MSC upgrades and reducing or eliminating the operational complexities discussed earlier.

- ◆ MSC TAS enables the existing CS infrastructure to support VoLTE subscribers over an IP domain. The MSC TAS provides service parity for VoLTE devices – including MSC and IN services – by allowing VoLTE/IMS users to get service from the legacy MSCs. VoLTE services can be rapidly launched with the

Competing Options

Rapid launch to support CSFB devices, without upgrading MSC

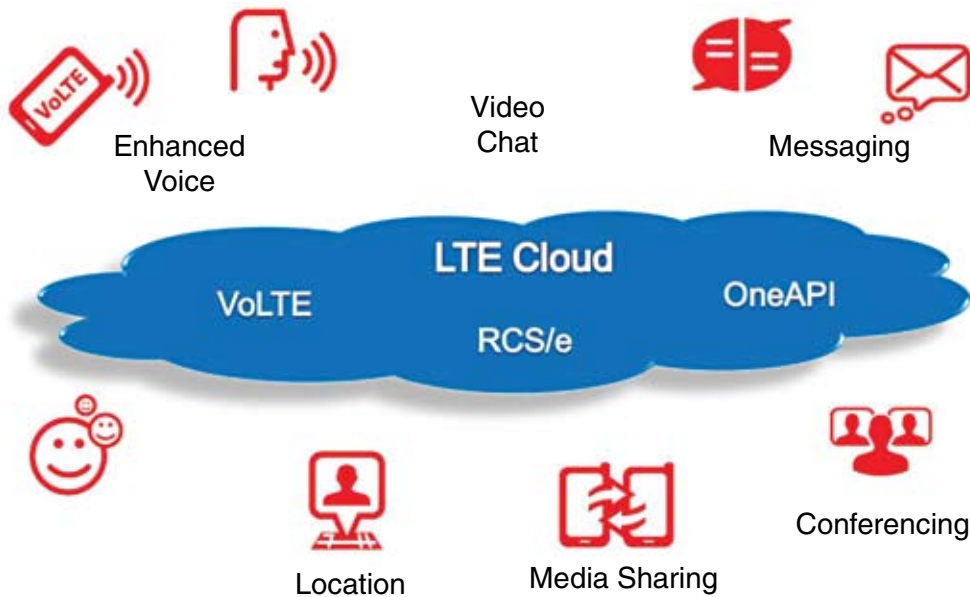
Rapid launch to support VoLTE devices, leveraging MSC services in a standard IMS environment



Full service parity, IN support and Video services in an all-IMS environment

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The future mobile broadband ecosystem has many moving pieces

early LTE devices providing time to market and time to deploy MMTel without losing subscribers to OTT players.

◆ Mobile TAS/MMTel is an all-IP option that uses an IP multimedia service switching function (IM-SSF) to preserve IN services while enabling new services such as video. The MMTel is an IP-based TAS that enables operators to offer all services in the IMS domain. It’s the only solution that supports IN triggers to preserve critical services and has an integrated mobility server that supports single radio voice call continuity (SR-VCC) handover. The multi-interface platform and flexible service logic also enable easy network integration.

The good news for operators is that they can implement these three options today and on a single, common platform. The advantage of this architecture is that the platform adapts as the service evolves, simplifying the network transformation. The operator’s evolutionary path and timeline are then based on factors such as their coverage strategy, device availability, deployment costs and competitive dynamics prevalent in the marketplace.

The bottom line is that LTE operators must move quickly to enable voice services and there are options available today that are cost effective and easy to deploy. There is no reason to hesitate.

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