

A transition to VoMBB, including VoLTE, to result in a 21% reduction in carriers needed to transport voice traffic



Monica Paolini
Senza Fili Consulting

Despite the attention that market growth in mobile data has attracted, voice remains the core revenue-generating service for most wireless operators and, together with texting, the most profitable one. Yet, voice services are undergoing a major transformation. Voice traffic is rapidly evolving from circuit-switched (CS) voice in 2G and 3G networks to carrier-grade voice over mobile broadband (VoMBB, including VoLTE, VoHSPA, and VoWi-Fi) using packet-switched (PS) voice transport in HSPA, LTE, and Wi-Fi networks.

The transition away from CS voice is certain to happen because LTE supports PS only. The move to VoMBB will enable mobile operators to use wireless interfaces that are more spectrally efficient and eventually remove their dependency on legacy networks. In turn, this will allow them to decommission 2G and 3G networks, and refarm the spectrum to upgrade their legacy networks to LTE.

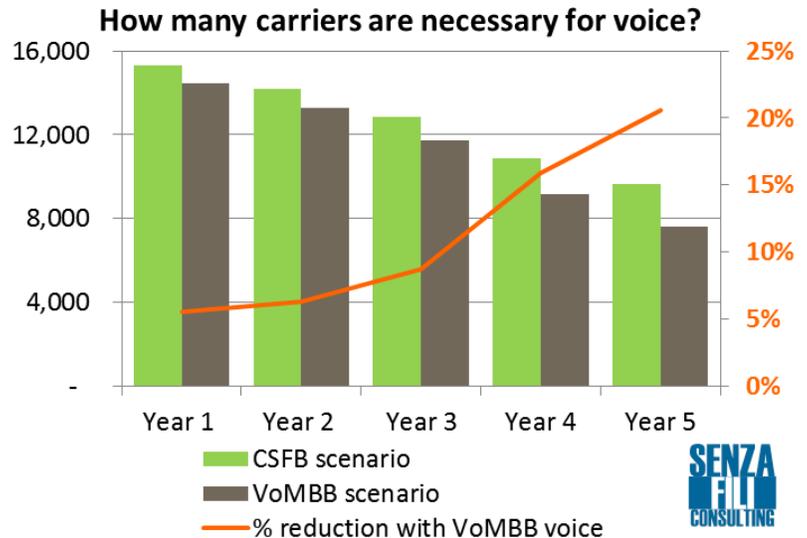
A forthcoming white paper by Senza Fili for [Mavenir Systems](#), reveals the detailed cost implications of a transition to VoMBB voice in HSPA, LTE and Wi-Fi networks that will free 2G and 3G capacity for data, and will enable future plans for spectrum refarming.

Key results

- A 21% reduction in carriers (i.e., a sectors in base station) needed to transport voice traffic
- A 63% reduction in per-subscriber costs, projected to be \$1.80 per subscriber per month in a North American scenario, as the operator capitalizes on the benefits of LTE increased capacity, of a wider subscriber base using LTE and the efficiency benefits of VoMBB
- An additional cost reduction of \$0.60 per subscriber per month, after fully refarming 2G and 3G spectrum

Drivers. Analysis of the cost and capacity advantages of adopting VoMBB over a circuit-switched fall-back (CSFB) solution shows that mobile operators stand to gain from a transition as this allows them to fully leverage:

- The higher spectral efficiency of HSPA and LTE for voice traffic
- The technological advances in VoMBB transport
- A reduction of the inefficiency of OTT VoIP traffic
- The lower cost of delivering voice traffic over Wi-Fi networks.



Benefits. The benefits of VoMBB accrue on multiple dimensions:

- By moving voice traffic to HSPA and LTE, operators need fewer 2G and 3G carriers for voice traffic. This frees up precious capacity in today’s most intensely used and congested networks. Increasing capacity for data access in these networks is especially valuable at a time when operators want to focus new deployment efforts on HSPA and LTE but still need to accommodate what is becoming legacy traffic. The short-term need for this additional capacity and cost savings indicates that a rapid transition to VoLTE and VoHSPA is preferable to a delayed transition timed to long-term spectrum refarming plans.
- OTT VoIP requires more network resources than operator-managed VoMBB. This suggests that mobile operators would be better off if they transported what currently is OTT VoIP traffic as VoMBB – i.e., if they were able to optimize its transport – simply because it would cost less. This has implications for new models for charging for voice services and, possibly, for the development of new relationships between mobile operators and OTT application developers.
- The increasing availability and use of Wi-Fi networks can provide voice offload as well as data offload. As long as mobile operators have visibility into the quality of the subscriber Wi-Fi connection (through a hotspot, a residential access point, or an enterprise network), they can decide which voice traffic can be routed through Wi-Fi while preserving – or improving – the quality of experience. While not all voice traffic can be routed through Wi-Fi (e.g., Wi-Fi is not suitable for high-mobility scenarios or the Wi-Fi network may be congested), cost savings can be gained by encouraging subscribers to use Wi-Fi networks for voice.

If you would like to receive a copy of the paper when published, please send a request to marketing@mavenir.com

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