The Growing Importance of HD Voice

By Jim Machi, SVP of Marketing at Dialogic [1]

It’s no surprise that the voice communications industry is growing – especially with the advent of wideband audio, more commonly known as High Definition (HD) Voice. The introduction of HD Voice on mobile networks, which recently launched on numerous commercial mobile networks and many wireline VoIP networks worldwide, allows end-users to experience this new technology firsthand. The demand for HD Voice is expected to be high due to early-adopter mobile users always waiting for the “next best thing,” and the improved experience on landline communications from HD Voice, causing the availability of HD Voice across both mobile and landline networks to accelerate.

Why is HD Voice Important?

Despite the fact that the hot topics in communications industry discussions currently revolve around wireless broadband, LTE, cool new tablets, video usage on smart devices, voice services still play a key role overall. In fact, by the end of 2012, it’s expected that wireless voice services will be 60 percent of wireless service provider revenue, and that by 2015, as the worldwide wireless service revenue approaches one trillion dollars, voice is still expected to generate over 50 percent of that revenue, according to Infonetics Research’s report, “2G/3G/4G (LTE and WiMAX) Services and Subscribers: Voice, SMS/MMS, and Broadband; Biannual Worldwide and Regional Market Size and Forecasts: 2nd Edition.” So, even though voice services are no longer seen as the “next best thing,” voice and therefore, voice quality, is poised to continue to be a critical measure for service provider success.

Implementation Issues and Limitations

Despite the technical advances in voice technology, today’s digital telephony standards are based on 1960s digital circuit technology and 1930s microphone technology. Since traditional telephony is constrained by dated standards,

consumers experience a vast improvement in quality with HD Voice. Until the advent of HD Voice, G.711 was the standard of voice quality, with mobile telephony typically providing even less than G.711 quality. With the wider range of frequency with HD Voice, the limitations of this dated technology are removed.

HD Voice usage has been spreading throughout enterprises, akin to business telephone system's adoption of VoIP technology. Although telephone handsets from Avaya, Cisco, Grandstream, and others support wideband audio and incorporate a variety of higher-quality audio components, many enterprise IP telephony systems operate as islands of VoIP. They connect to calls on the traditional PSTN, which adheres to dated voice standards and operates within the narrow frequency range. As a result, HD Voice is often restricted to internal network connections. In the enterprise, HD Voice would need to be supported by the PBX, phones, and a media server for voice mail, IVR, or contact center solution. And like the enterprise, a network-based media server needs to support HD Voice codecs for the subscriber to have an HD Voice experience, so that the conference servers and other value-added services can also be supported by HD Voice. Because it is likely that two different wideband codecs will be used when trying to connect the service provider and enterprise networks, a gateway or border element would need to be used in order to transcode one codec to another.

In service provider networks, HD Voice services have been fully standardized by the 3GPP since 1998. The service uses the AMR wideband (AMR-WB or G.722.2) codec, which must be supported in handsets, the core network's gateways, and the GSM TRAU units (part of the Base Station Controller) to work effectively.

Benefits and Uses of HD Voice

HD Voice can enhance phone experience in several ways. First and foremost is simply person-to-person calling. HD Voice uses wideband audio connections to more accurately reproduce the human voice, resulting in significantly more natural sounding speech. Some have compared hearing HD Voice to being in the same room with the person on the other end of the line. Many also feel that HD Voice gives them an increased ability to recognize a person's voice and an increased understanding of highly accented speech.

HD Voice also improves communications solutions like voicemail, conferencing, IVR, call logging or contact center adjunct with the phone call. An HD Voice voicemail will be clearer and much easier to understand, making it easier to receive information like addresses or phone numbers. Calling a contact center with HD Voice would yield a higher quality interaction with the emergency service contact center, creating a more seamless conversation, which is important in the event of an emergency.

The use of HD voice could also benefit future innovations. Historically, when new capabilities are produced, new innovative services that did not previously exist tend to follow. In the case of HD Voice, types of innovation in areas such as voice recognition for the masses or improved outbound text to speech to mobile phones could improve from the use of HD Voice.

Future Expectations

Currently, 41 commercial networks in 33 countries support HD Voice on wireless networks, with deployments continuously accelerating. It is expected that as LTE and Voice over LTE (VoLTE) networks roll out, HD Voice will be the primary codec of choice. In view of the VoIP nature of some wireline networks (like cable) and given that hosting will be over VoIP, it might not be long before we can expect a greater widespread wireline deployment. If you would like to talk about the solutions available, please contact me at jim.machi@dialogic.com [2].

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