SKYPE IS FOR THE BIRDS…

The VoIP market is inundated with new products and more the way.

How do you make a rational choice? Often the product offerings are free, so you might say it doesn't matter. Many are free, but the cost to implement one in your community or organization is not free. In fact it can take many frustrating, costly hours.

This article looks at one aspect— voice quality. Why?

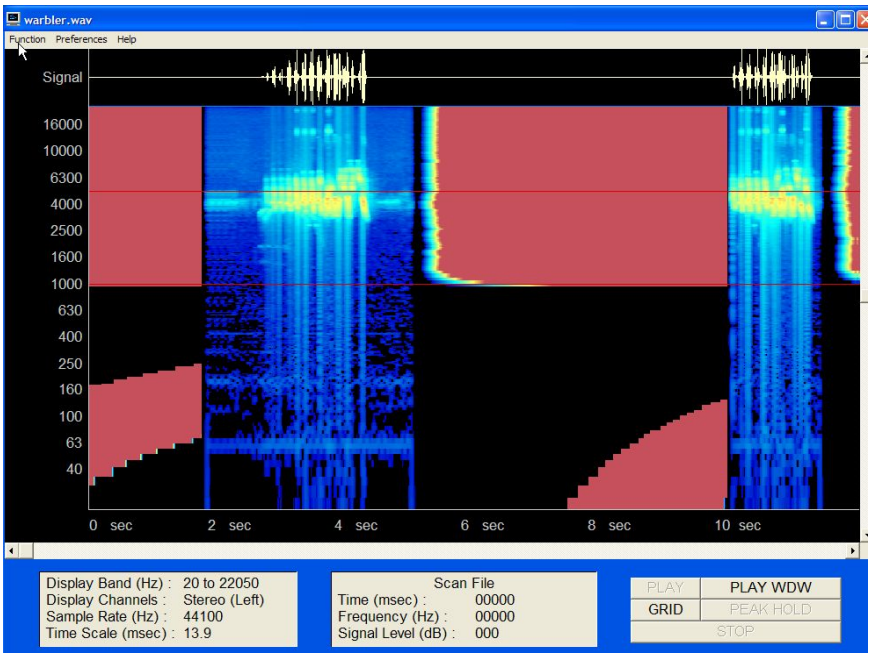
Communication without eye contact and body language is difficult. Communication over the Internet means two out of three of most important variables we need to get our message heard are missing.

So, you might say, don't all VoIP products suffer from that same problem? Yes they do but few offer high quality voice quality.

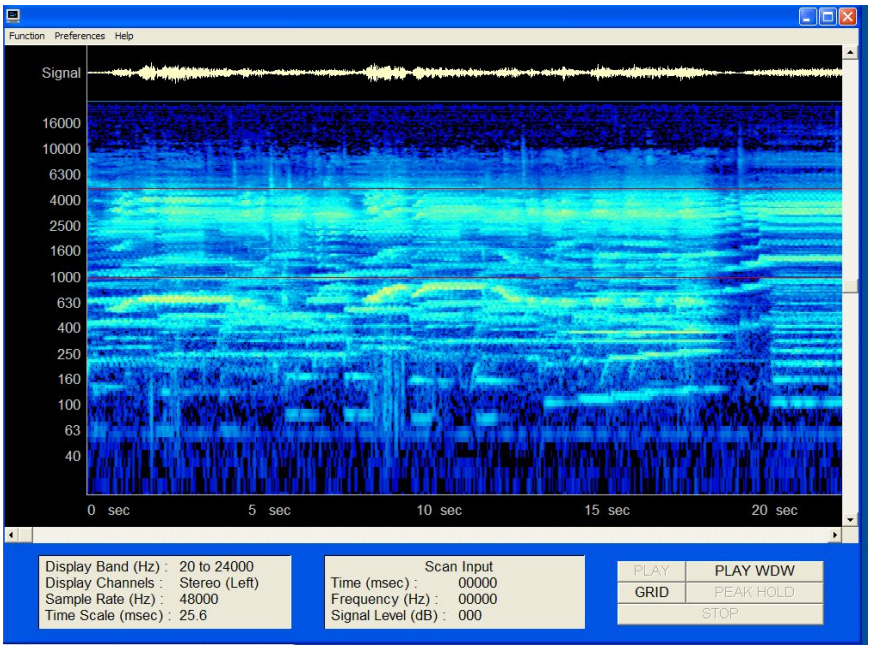
Most offer a narrow spectrum sound channel. They drop the higher frequencies and this means it is harder to distinguish between consonants. Which means more guessing about what was said, more embarrassing moments asking, "*Could you repeat that*?" and more deviations from the topic because someone misconstrued wher the conversation was headed. More energy goes into to understanding so you end up leaving a conference call stressed.

In case you haven't noticed Western Nations in particular have an **aging population**. As you enter your fifties your ability to hear higher frequencies drops. That last thing you need is a voice product that makes that even worse.

Globalization another important trend, also requires high voice quality. A conference call among many people whose mother tongue is not English buts an extra demand on hearing every vowel and consonant.



Warbler. ***Audio Spectrum of the Song of the Chestnut-sided Warbler***
Recorded from Birds of North America V2
http://www.visualizationsoftware.com/gram/example1.html

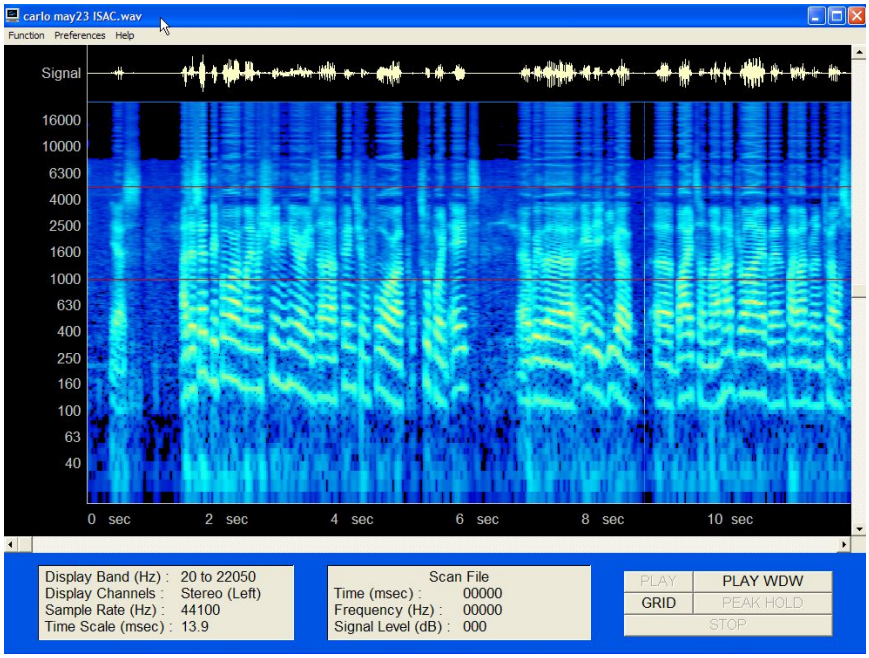


Joan Sutherland, Luciano Pavarotti, Sherrill Milnes - Bella figlia dell'amore - Verdi

phone: 250.368.7034 *e-mail:* bcampbell@thePTcompany.com

The Canary Test

A century ago underground miners took canaries below ground with them. You wouldn't hear the canary's chirp when the oxygen level fell to dangerous levels. You got out of the mine. The same test applies to VoIP products, when you can't hear the canary's chirp it is time to get out of this technology.

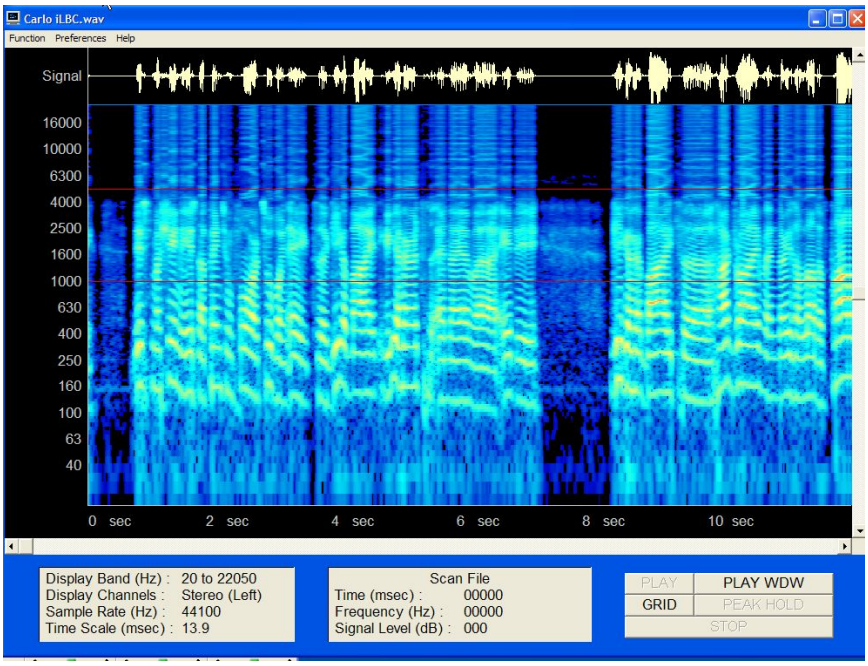


Screen shot #1 shows two chirps from a canary. Notice sound centers around 4500 Hz (black line is 5000).

Screen shot #2 shows the spectrum of a tenor and soprano. The center is around 4000 Hz., but you can see a fair distribution up 10,000 Hz.

So what happens when you play that canary chirp through your favouite VoIP product? Most of it will be filtered out!

Let's looks at some real-time sample conference call voice recordings through Skype. End points: Denmark to Western Canada, latency 200 ms. The message and individual recorded was the same in each case.



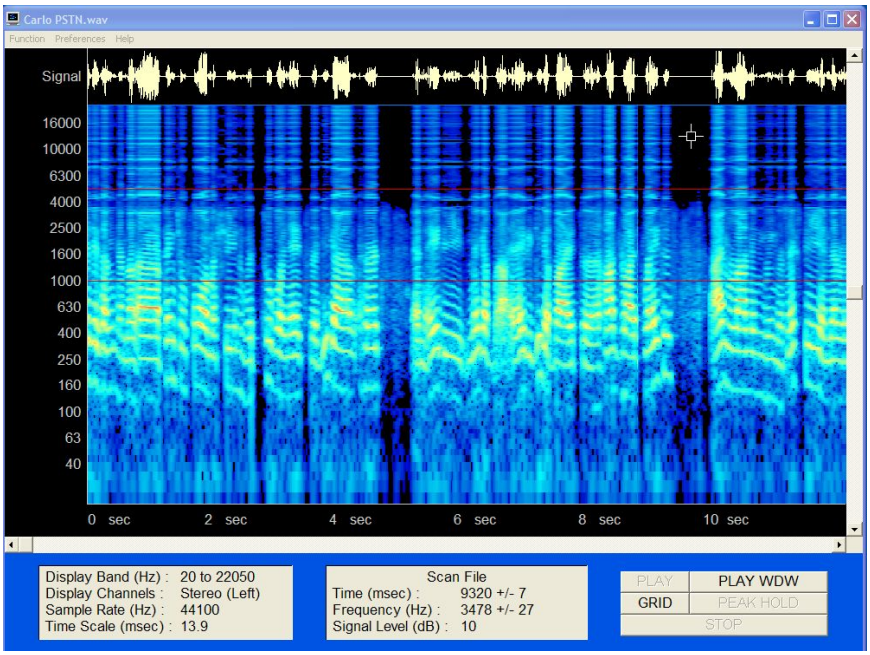
Three different codecs are evaluated—

1. ISAC
2. ILBC
3. G729

The ISAC shows a roll-off just above 5000 Hz

The iLBC shows a roll-off just above 4000 Hz

The G729 shows a roll-off just above 1500 Hz. No canary chirps to hear here!


Carlo PSTN.wav
Function Preferences Help
Signal
16000
10000
6300
4000
2500
1600
1000
630
400
250
160
100
63
40
0 sec
2 sec
4 sec
6 sec
8 sec
10 sec
Display Band (Hz) : 20 to 22050
Display Channels : Stereo (Left)
Sample Rate (Hz) : 44100
Time Scale (msec) : 13.9
Scan File
Time (msec) : 9320 +/- 7
Frequency (Hz) : 3478 +/- 27
Signal Level (dB) : 10
PLAY
PLAY WDW
GRID
PEAK HOLD
STOP