Voice Quality Testing

Trillium News

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Trillium is pleased to announce that it now has the capability to conduct voice quality testing using the Perceptual Evaluation of Speech Quality (PESQ) system in accordance with ITU-T Rec. P.862 (narrow band) and P.862.2 (wide band) standards. Modern Digital Telecommunications networks can introduce elements such as bad coding, error-prone channels and voice activity detection that can result in the degradation of the "end to end" signal. This degradation may not be reliably measured by conventional engineering metrics. PESQ provides an objective measure of the level of degradation by using a system of algorithms that predict the results of subjective listening tests on telephony connections.

The result derived from comparing the reference and degraded signals yields a PESQ quality score which can be used with confidence to assess receiver-end speech quality as well as the effect of individual elements such as codecs.

PESQ analysis allows data and voice system managers to objectively evaluate and quantify the voice quality of voice-band communications such that they can make objective decisions on codecs deployed, data priorities and data rates to maximise and maintain a high Quality of Service. PESQ uses a psycho-acoustical mathematical modelling algorithm to analyze the pre-recorded and post transmitted signals, yielding a PESQ value which is a measure of the connection quality on a numeric scale ranging from 1 to 5. A value of 2 or less indicates unacceptable, poor quality voice while a value of 5 indicates excellent quality. In practice values around 4.2 are the best that can be achieved on real digital networks using G.711 codecs. Many speech codecs exist and are used in a wide variety of applications. Careful selection of appropriate speech codecs is necessary to match system requirements. Co-dependent to the codecs is the configuration of the data channels and the quality of service which voice data packets are provided. Trillium's PESQ system uses pre-recorded voice tracks as the test stimulus for VoIP voice channel measurements. Along with this Trillium can also provide conversions between PESQ scores and the popular MOS scores in accordance with ITU-T P.862.1. Trillium can assist clients by providing an objective measurement of voice quality performance on their networks, helping to identify which elements of the network are contributing to voice quality degradation and determine the appropriate network configuration to achieve optimum results.