

Echo Cancellation in Telephony

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Abstract: Both wireless and long distance landline networks must contend with a variety of different factors that can adversely degrade the quality of voice communications. Network delays can cause echo and other distortions. In the wireless network, acoustic echo, background noise, and other additional disruptions must be dealt with in order to assure voice quality. Voice quality has traditionally been influenced by impairments resulting from the analog nature of older equipment installed in terrestrial networks and the relatively low grade sound quality resulting from speech compression techniques used in digital wireless networks. Although these impairments are gradually being eliminated by the introduction of new technologies, electrical and acoustic echo still remain possible sources to degrade voice signal quality.

This paper discusses the properties of acoustic echo and electrical echo (hybrid echo) in order to explain why different techniques are needed to control and eliminate each type of signal degradation. In addition, for some non-voice applications, superior echo canceller technology is considered to improve overall network quality.