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Nota di contenuto	Beyond VoIP Protocols Understanding Voice Technology and Networking Techniques for IP Telephony; Contents; Glossary; List of Abbreviations; 1 Introduction; 1.1 The rebirth of VoIP; 1.2 Why beyond VoIP protocols?; 1.2.1 Selecting a voice coder; 1.2.2 Providing 'toll quality' . . . and more; 1.2.3 Controlling IP quality of service; 1.2.4 Dimensioning the network; 1.2.5 Unleashing the potential of multicast; 1.3 Scope of this book; 1.4 Intended audience; 1.5 Conclusion; 1.6 References; 2 Introduction to Speech-coding Techniques; 2.1 A primer on digital signal processing; 2.1.1 Introduction 2.1.2 Sampling and quantization 2.1.3 The sampling theorem; 2.1.4 Quantization; 2.1.5 ITU G.711 A-law or -law, a basic coder at 64 kbit/s; 2.2 The basic tools of digital signal processing; 2.2.1 Why digital technology simplifies signal processing; 2.2.2 The Z transform and the transfer function; 2.2.3 Linear prediction for speech-coding schemes; 2.3 Overview of speech signals; 2.3.1 Narrow-band and wide-band encoding of audio signals; 2.3.2 Speech production: voiced, unvoiced, and plosive sounds; 2.3.3 A basic LPC vocoder: DOD LPC 10

2.3.4 Auditory perception used for speech and audio bitrate reduction
 2.4 Advanced voice coder algorithms; 2.4.1 Adaptive quantizers. NICAM and ADPCM coders; 2.4.2 Differential predictive quantization; 2.4.3 Long-term prediction for speech signal; 2.4.4 Vector quantization; 2.4.5 Entropy coding; 2.5 Waveform coders. ADPCM ITU-T G.726; 2.5.1 Coder specification . . . from digital test sequences to C code; 2.5.2 Embedded version of the G.726 ADPCM coder G.727; 2.5.3 Wide-band speech coding using a waveform-type coder; 2.6 Hybrids and analysis by synthesis (ABS) speech coders; 2.6.1 Principle
 2.6.2 The GSM full-rate RPE-LTP speech coder (GSM 06.10)
 2.7 Codebook-excited linear predictive (CELP) coders; 2.7.1 ITU-T 8-kbit/s CS-ACELP G.729; 2.7.2 ITU-T G.723.1: dual-rate speech coder for multimedia communications transmitting at 5.3 kbit/s and 6.3 kbit/s; 2.7.3 The low-delay CELP coding scheme: ITU-T G.728; 2.7.4 The AMR and AMR-WB coders; 2.8 Quality of speech coders; 2.8.1 Speech quality assessment; 2.8.2 ACR subjective test, mean opinion score (MOS); 2.8.3 Other methods of assessing speech quality; 2.8.4 Usage of MOS; 2.9 Conclusion on speech-coding techniques and their near future
 2.9.1 The race for low-bitrate coders
 2.9.2 Optimization of source encoding and channel encoding; 2.9.3 The future; 2.10 References; 2.10.1 Articles; 2.10.2 Books; 2.11 Annexes; 2.11.1 Main characteristics of ITU-T standardized speech coders; 2.11.2 Main characteristics of cellular mobile standardized speech coders; 3 Voice Quality; 3.1 Introduction; 3.2 Reference VoIP media path; 3.3 Echo in a telephone network; 3.3.1 Talker echo, listener echo; 3.3.2 Electric echo; 3.3.3 Acoustic echo; 3.3.4 How to limit echo; 3.4 Delay; 3.4.1 Influence of the operating system
 3.4.2 The influence of the jitter buffer policy on delay

Sommario/riassunto

In 1999-2000, VoIP (Voice-over-IP) telephony was one of the most successful buzzwords of the telecom bubble era. However, in 2001-2003, VoIP faced a very tough reality check. Now, manufacturers and service providers are drawing on what they have learnt from past experience in order to prepare to participate in the next major challenge faced by the telecommunications industry. This book offers a comprehensive overview of the issues to solve in order to deploy global revenue-generating effective "multimedia" services. Drawing on extensive research and practical deployment experience i