For over 100 years, telephones have grown to become a primary means of communications in both our personal and business lives. Even with all the changes from analog to digital, wireline to mobile and eventually to Voice over IP, one thing has remained consistent – limited audio quality. Why do we have to sound like air traffic controllers when spelling out confirmation codes? “Papa, Alpha, Delta”. This is due to the limitations that the PSTN enforces on traditional analog and digital telephones and the “3.4 kHz sound barrier”.

The adoption of VoIP and broadband networks have given us the opportunity to break through this barrier with a whole new range of wideband and high-quality voice coding algorithms that make communications more efficient, effective and natural.

**HD VoIP** allows carriers to differentiate their services with a much improved audio experience, creating customer loyalty and affinity. Enterprises can differentiate themselves with superior voice quality to their customers, building on their quality branding while improving business efficiency.

AudioCodes, **HD VoIP** solutions and products - the way sound was meant to be heard.
**HD VoIP for Service Providers**

HD VoIP enables the differentiation of your VoIP service offering by giving customers a natural voice experience, permitting them to have increased call durations and extended network usage, all leading to higher Average Revenue per User (ARPU) and lower customer churn.

AudioCodes’ unique HD VoIP transcoding capabilities enable network islands such as Wireline, Mobile and Cable networks to interconnect transparently, resulting in an end-to-end HD VoIP user experience and comprehensive service offering.

**HD VoIP Technology Offering**

AudioCodes HD VoIP technology is embedded in a wide range of feature-rich and scalable products supporting the popular wideband coders including:

- G.722
- G.722.2 (AMR-WB)
- G.729.1
- G.711.1
- Microsoft RTA

In addition, a suite of Enhanced Algorithms and Services enriches the HD VoIP experience:

- Wideband Voice Conferencing
- Wideband Media Transcoding
- Packet Loss Concealment
- Acoustic Echo Cancellation
- Adaptive Jitter Buffers
As HDVoIP significantly improves voice intelligibility and clarity, it enhances worker collaboration and bridges geographical gaps with remote branches. Service-oriented businesses can enjoy higher customer satisfaction and increased productivity.

**Business verticals:**
- Banks and Trading Rooms
- Government
- Army and Homeland Security
- Health and Telemedicine
- Education
- Air Traffic Control
- Travel Agencies

Wideband Technology in VoIP Communications takes advantage of the increased accessibility to broadband networks, providing an enhanced listening experience along with heightened clarity. The traditional Public Switch Telephony Network (PSTN) is limited to 300-3400 Hz for narrowband voice. Voice signals are sampled at a rate of 8 kHz, causing limitations to communication quality and comprehension.

In HDVoIP, wideband telephony refers to transmitting voice signals with bandwidth ranging between 50-7000 Hz and a sampling rate of 16 kHz. This effectively doubles the narrowband voice signal bandwidth and offers the caller “true voice” conversation. Compared to narrowband telephony, wideband contributes a sense of presence, enabling natural and comfortable conversation.
The addition of Wideband Vocoding to AudioCodes’ VoIPerfect™ DSP software, provides enhanced voice quality for VoIP Media Gateways, IP-PBXs, IP Phones, Residential Gateways and ATA products.

Original Equipment Manufacturers (OEMs) and Original Design Manufacturers (ODMs) using the AC49x family of chips and the Tulip AC494 ATA are now able to provide state-of-the-art products for next-generation telephony systems, focusing on high voice quality utilizing the increased bandwidth of broadband networks.

**HD VoIP Enabled Applications**
- Mobile Communications
- Broadband Telephony
- Unified Communications
- Call Centers
- Teleconferencing
- Web Applications
- Voice Recognition
- Broadcasting