Juphoon

Multimedia Engine

We are dedicated to providing Usable, Simple and Elegant (USE) communication products and solutions.

Designed for Mobile Video Communication

Mobile video communication, more flexible and fun than its wired counterpart, is becoming a popular communication way. However, it is now facing a set of technical challenges including video quality and calling experience on complicated and unreliable networks as well as QoS on different devices, especially on varied Android devices.

Juphoon Multimedia Engine (MME) is a professional and easy-to-use SDK designed for mobile video communication. With many patent and industry-leading technologies, it optimizes voice and video quality on all IP networks, realizing seamless switches between 3G and Wi-Fi during a call and enabling most comfortable video experience over unreliable or even heterogeneous networks. Also, it is capable of automatic adaptation to device capabilities, delivering best possible video experience to end users, no matter what device they use.

HD voice and video
Less data usage
Much smoother
Cloud-based media device management
Reduce deployment cost
Best possible calling experience
on all devices and IP networks

Core Features

## Clear and smooth, even over unreliable and heterogeneous networks

So much industry-leading technology has gone into MME that enables perfect adaptation to bandwidth fluctuation, very effective echo cancelling on every device and most efficient packet loss compensation. End users can enjoy clear and smooth voice and video call, even over unstable and/or heterogeneous wireless networks.


SPo (Sweet Point)

SPo control technology can sense available bandwidth automatically and then adjust bit rate, frame rate and other factors correspondingly to achieve the best possible video quality under different network conditions.

See the right figure for test results of SPo control in the resolution of VGA (640 x 480). You can find that bitrate is changing according to available bandwidth from moment to moment.
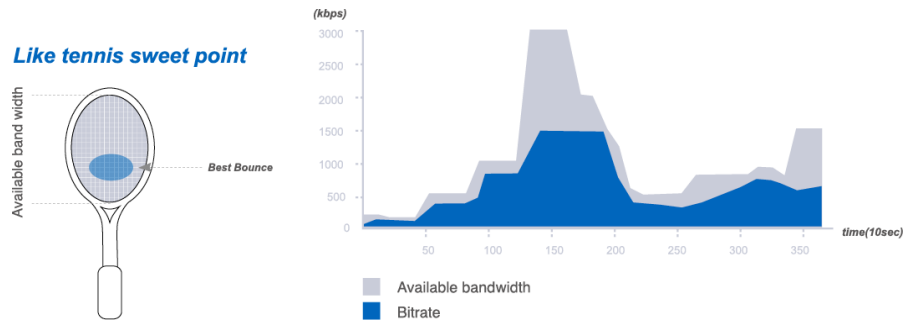
FDE-AEC (Frequency Domain Estimate AEC)

FDE-AEC is designed to resolve echo issues on varied devices, especially on diversified Android devices, helping you deliver high fidelity or much clearer voice experience to every end user.
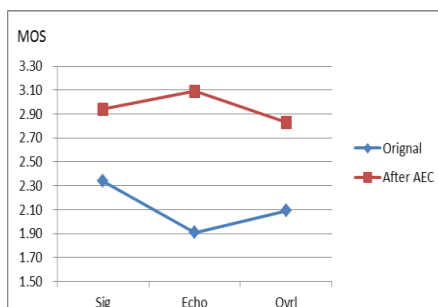

Sig : Signal quality

Echo : AEC quality

Ovrl : Overall quality。

Left figure shows our test results. It is clear that MOS grows obviously after using our AEC module.

Less data usage, but much smoother

Bandwidth efficient mode is applied to reduce (up to 90%) video call data consumption, without a perceived decrease in video quality. Together with SPo control, this technology also brings end users much smoother video experience during low-bandwidth communications.

Other voice&video engine
Data usage

MME
Data usage
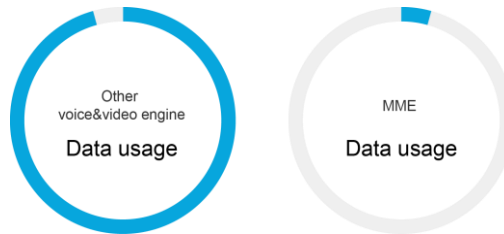
Cloud-based device management, reducing your deployment cost

Media Device Management (MDM) can collect and analyze media processing capabilities of users' devices automatically, then calculate and store optimum parameters for the most comfortable video experience in our cloud library. Data will be shared among MDM users, thus helping you reduce debugging and maintenance costs and speed time to market.


MDM

Optimized for the best possible real-time video experience on all supported devices

When an end user makes a video call, MME will get media processing capabilities and optimum parameters of the devices from the cloud library and adjust bit rate and frame rate correspondingly, thus optimizing video quality to match users' device capabilities and deliver the most comfortable video experience on every supported device.
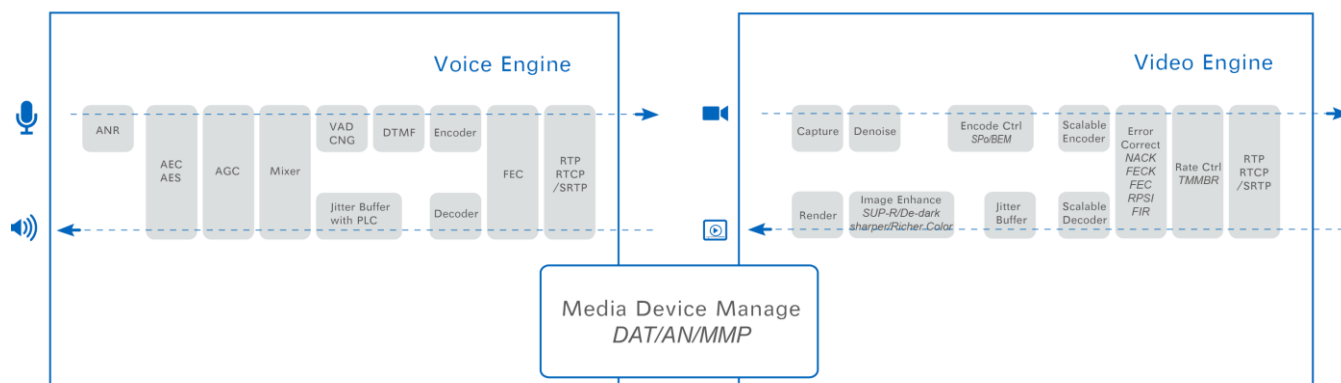

Transfer smaller images to devices with lower resolution and/or performance to achieve smooth experience.
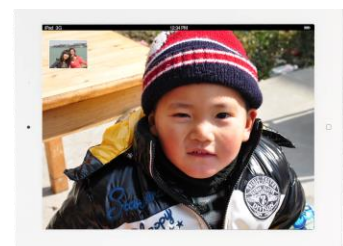
Transfer larger images to capable devices for outstanding HD video experience.

Architecture & Specification

Voice processing	• Codec: G.711(PCMA/PCMU), G.729, G.722, AMR, iLBC, iSAC, Opus • IO device selection and control • DTMF(RFC2833) • Voice Mixing	• File Record and Playback • Speaker and Handset Voice Switch(Smartphone) • Voice Volume(PC only, Smartphone using Device Volume)
Voice enhancement	• Very Fast Adaptive Jitter Buffer • AEC(Acoustic Echo Cancellation) • AGC(Auto Gain Control) • ANS(Auto Noise Suppression) • VAD(Voice Activity Detection)	• CNG(Comfort Noise Generation) • DTX(Discontinuous Transmission) • PLC (Packet Loss Concealment) • FEC, RED, ARS • Data and Quality Statistics
Video processing	• Codec: H.264, H.265, H.263, VP8 • Camera selection and control • Graphic Render	• File Record and Playback • PiP (Picture in Picture)

Video enhancement	• FEC(Forward error correction)
	• RED(Redundancy)
	• RTP ACK/NACK
	• TMMBR/TMMBN
	• RPSI/SLI
	• Data and Quality Statistics
		• SPo(Sweet Point Control)
		  -ARS(Auto bit Rate Sensing)
		  -Framerate Auto Control
		  -Resolution Auto Control
		• FIR(full intral frame request)
		• Color Enhance

Supported OS	• Windows XP, 7 , 8 • Linux • Android 2.3 up to 4.x	• iOS 5.x up to 7.x • Mac OS X
Network protocols	• RTP/RTCP • SRTP(Security RTP)	• RTCP Port Multiplexing • P2P Control for Ethernet
Device management	• DAT(Device Auto Tuning) • DCM(Device Cloud Management)	• AN(Adaptive Negotiation)