

BEEHD Client Framework for Mission Critical Communications over LTE/5G

In the last decade, LTE mobile networks have evolved to become the next-generation technology for Mission Critical Communication infrastructure, substituting legacy technologies based on narrowband such as P25 and TETRA, which support mainly audio services. The new technology and standards use the benefits embedded in wideband networks by offering stronger usage of live mobile video and audio, multicasting and broadcasting capabilities, location, situational awareness, dispatching and more.

Softil's BEEHD is a cross-platform client SDK, designed for chipset vendors, device manufacturers, system integrators, application developers and service providers looking to accelerate the development of IP-based Voice and Video over LTE (VoLTE and ViLTE) for mission-critical applications.

The BEEHD has intuitive and flexible APIs that developers can use to quickly implement applications while meeting the requirements of mission critical communications, focusing on first responders such as remote medical assistance, search and rescue, firefighting and law enforcement personnel, as well as any other authority that benefits from real-time situational awareness.

Advanced MC-LTE Capabilities

- **Voice and Video:** Calls over IP and LTE
- **Push-to-Talk (MCPTT):** Broadcasting live audio to members of a specific group, in accordance with MCPTT
- **Push-to-Video (MCVideo):** Instant sharing of first-responder video streams to members of a specific group
- **High Quality Audio and Video:** Ensuring the ability of emergency response team members to clearly see the scene and understand the speaker in real time
- **Instant Messaging and Chat (MCData):** Group messages to recipients

- **Presence:** Providing online data on the availability of first responder group members
- **Management Interfaces:** Identity Management Client, Configuration Management Client, Group Management Client, Key Management Client

Softil's BEEHD developer solution for Mission Critical Communications includes compliancy with 3GPP and IETF Standards, support of GSMA's VoLTE, interworking with IP Multimedia Subsystems (IMS), scalability, and security features required by mission-critical standardization.

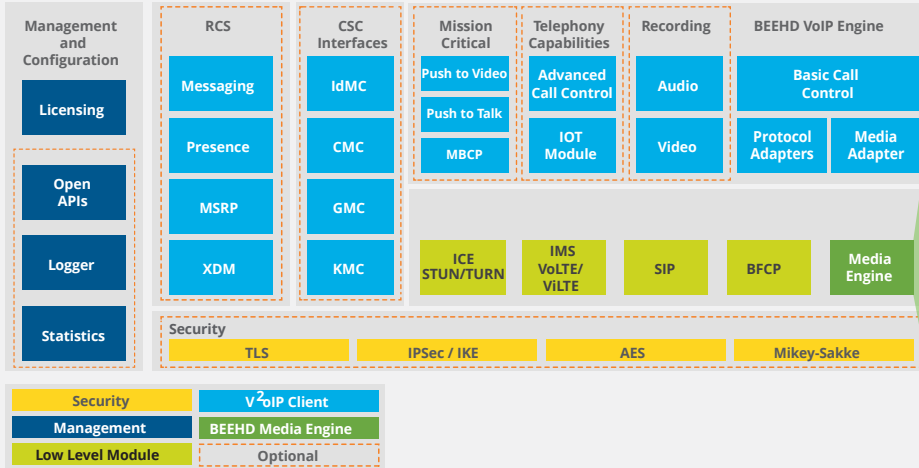
Highlights

- **Ready-to-use, Multi-platform Client Engine:** Consolidated framework for signaling, call control and media handling.
- **Shortest Time to Market:** Reduces development, integration, and testing efforts.
- **Guaranteed High Quality of Experience:** Utilizes advanced algorithms to ensure superb video quality even in harsh network conditions.
- **Interoperability:** Standard based and tested.
- **Integration with Hardware:** Provides an optimized solution for many chipsets and seamless integration with peripherals.
- **Operating Systems:** Supports Android, iOS, Windows, Linux and Mac OS X.

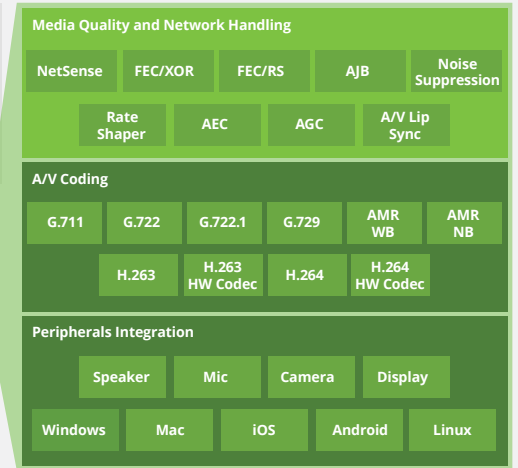
BEEHD Client Framework for MCC over LTE/5G

Modular Architecture:

Framework



Media Engine



Product Specifications

Mission Critical	<ul style="list-style-type: none"> VoLTE IR.92 and ViLTE IR.94 MCVideo MCDATA 	<ul style="list-style-type: none"> MCPTT One-to-many Audio and Video 	<ul style="list-style-type: none"> eMBMS LTE-R
Signaling Protocols	<ul style="list-style-type: none"> SIP (RFC 3261) IMS/VoLTE/ViLTE SIP 	<ul style="list-style-type: none"> HTTP/HTTPS Presence and IM: SIMPLE 	<ul style="list-style-type: none"> FW/NAT Traversal: ICE, STUN TURN MBCP Floor Control
MC Management Interfaces	<ul style="list-style-type: none"> CSC-1 - IdMC - Identity Management Client CSC-2 - GMC - Group Management Client 	<ul style="list-style-type: none"> CSC-4 - CMC - Configuration Management Client CSC-8 - KMC - Key Management Client 	
Operating Systems	<ul style="list-style-type: none"> Android (software codecs) iOS (software codecs) 	<ul style="list-style-type: none"> Windows Mac OS/X 	<ul style="list-style-type: none"> Linux
Hardware Codec Acceleration	<ul style="list-style-type: none"> Qualcomm Snapdragon Samsung Exynos 	<ul style="list-style-type: none"> Intel Atom Texas Instruments 	<ul style="list-style-type: none"> NVIDIA MediaTek
Management	<ul style="list-style-type: none"> Configuration and provisioning logger Open APIs 	<ul style="list-style-type: none"> Call history 	<ul style="list-style-type: none"> Contact list management (in application)
Security	<ul style="list-style-type: none"> AES-128 and AES-256 TLS 	<ul style="list-style-type: none"> IPsec S RTP 	<ul style="list-style-type: none"> Mikey-Sakke IKE
Voice and Video Call Types and Services	<ul style="list-style-type: none"> Group Call (ad-hoc, pre-established) Emergency Call Immediate Peril Call 	<ul style="list-style-type: none"> Push to Talk, Push to Video Private Call Ambient Viewing 	<ul style="list-style-type: none"> 1-to-1, 1-to-Many Group Chat Hold, Mute, Transfer, Forward
Quality	<ul style="list-style-type: none"> Reed Solomon FEC (Forward Error Correction) Automatic Gain Control (AGC) 	<ul style="list-style-type: none"> NetSense™ bandwidth estimation and adaptation technology Audio Echo Cancellation (AEC) 	<ul style="list-style-type: none"> Noise Suppression (NS) Audio Packet Loss Concealment (PLC)
Audio	<ul style="list-style-type: none"> G.711, G.722, G.722.1, G.729 	<ul style="list-style-type: none"> AMR WB, AMR NB 	<ul style="list-style-type: none"> Audio Recording
Video	<ul style="list-style-type: none"> H.264 AVC, H.264 High Profile H.263 BFCP 	<ul style="list-style-type: none"> Resolution: CIF/VGA/SVGA/720p/1080p External H.264 camera support Capture snapshot to JPEG file 	<ul style="list-style-type: none"> Text overlay Video recording Frame rate: up to 30fps
Interoperability	<ul style="list-style-type: none"> Interoperable with all major vendors and MC systems 		
RCS – Rich Communication Suite	<ul style="list-style-type: none"> Option based Capability exchange Stand Alone Messaging CPM, CPIM based Instant Messaging IM large message mode (MSRP) 	<ul style="list-style-type: none"> Multiple recipients (multi 1-1 IM) Store & Forward HTTP/HTTPS Provisioning Integrated Messaging Inbox, including SMS 	<ul style="list-style-type: none"> Voice and Video Calls SIMPLE presence File Transfer XDM

For more information, contact Softil at info@softil.com