

# 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.

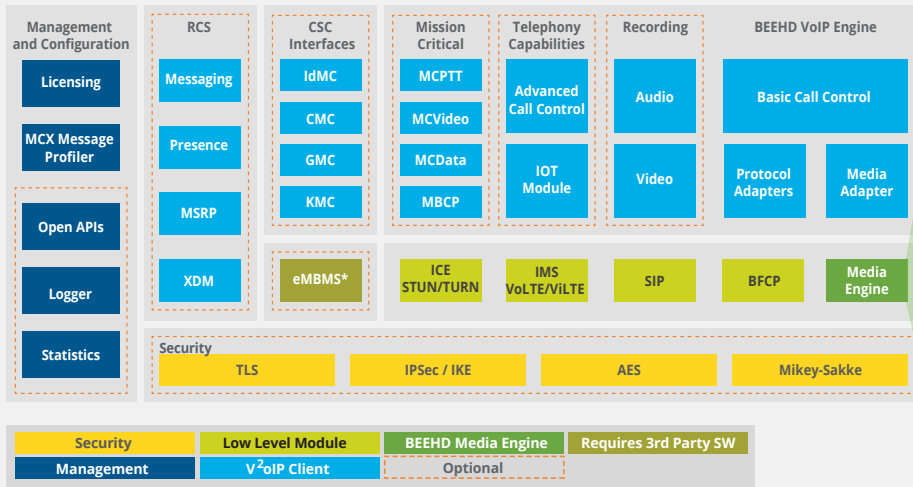
## Highlights

- **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.

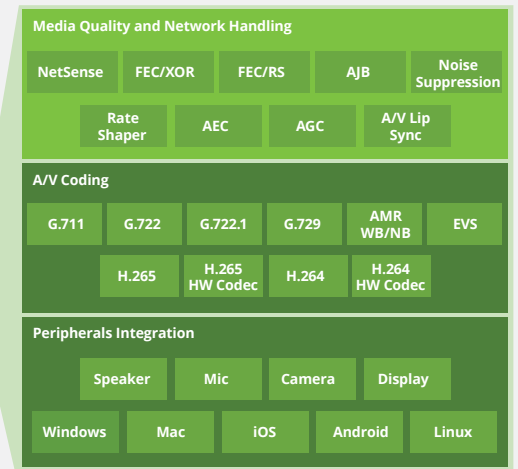
# BEEHD Client Framework for MCC over LTE/5G

## Modular Architecture:

### Framework



### Media Engine



## Product Specifications

<b>Mission Critical</b>	<ul style="list-style-type: none"> <li>VoLTE IR.92 and ViLTE IR.94</li> <li>MCVideo</li> <li>MCDData</li> </ul>	<ul style="list-style-type: none"> <li>MCPTT</li> <li>One-to-many Audio and Video</li> <li>FRMCS</li> </ul>	<ul style="list-style-type: none"> <li>eMBMS</li> <li>LTE-R</li> </ul>
<b>Signaling Protocols</b>	<ul style="list-style-type: none"> <li>SIP (RFC 3261)</li> <li>IMS/VoLTE/ViLTE SIP</li> </ul>	<ul style="list-style-type: none"> <li>HTTP/HTTPS</li> <li>Presence and IM: SIMPLE</li> </ul>	<ul style="list-style-type: none"> <li>FW/NAT Traversal: ICE, STUN TURN</li> <li>MBCP Floor Control</li> </ul>
<b>MC Management Interfaces</b>	<ul style="list-style-type: none"> <li>CSC-1 - IdMC - Identity Management Client</li> <li>CSC-2 - GMC - Group Management Client</li> </ul>	<ul style="list-style-type: none"> <li>CSC-4 - CMC - Configuration Management Client</li> <li>CSC-8 - KMC - Key Management Client</li> </ul>	
<b>Operating Systems</b>	<ul style="list-style-type: none"> <li>Android (software codecs)</li> <li>iOS (software codecs)</li> </ul>	<ul style="list-style-type: none"> <li>Windows</li> <li>Mac OS/X</li> </ul>	<ul style="list-style-type: none"> <li>Linux</li> </ul>
<b>Hardware Codec Acceleration</b>	<ul style="list-style-type: none"> <li>Qualcomm Snapdragon</li> <li>Samsung Exynos</li> </ul>	<ul style="list-style-type: none"> <li>Intel Atom</li> <li>Texas Instruments</li> </ul>	<ul style="list-style-type: none"> <li>NVIDIA</li> <li>MediaTek</li> </ul>
<b>Management</b>	<ul style="list-style-type: none"> <li>Configuration and provisioning logger</li> <li>RESTful Open APIs</li> </ul>	<ul style="list-style-type: none"> <li>Call history</li> <li>SIP server-less operation</li> </ul>	<ul style="list-style-type: none"> <li>Contact list management</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>AES-128 and AES-256</li> <li>TLS</li> </ul>	<ul style="list-style-type: none"> <li>IPsec</li> <li>S RTP</li> </ul>	<ul style="list-style-type: none"> <li>Mikey-Sakke</li> <li>IKE</li> </ul>
<b>Voice and Video Call Types and Services</b>	<ul style="list-style-type: none"> <li>Group Call (ad-hoc, pre-established)</li> <li>Emergency and Immediate Peril Calls</li> <li>Early Media</li> </ul>	<ul style="list-style-type: none"> <li>Push to Talk, Push to Video</li> <li>Private Call</li> <li>Ambient Viewing</li> </ul>	<ul style="list-style-type: none"> <li>1-to-1, 1-to-Many</li> <li>Group Chat</li> <li>Hold, Mute, Transfer, Forward</li> </ul>
<b>Quality</b>	<ul style="list-style-type: none"> <li>Reed Solomon FEC (Forward Error Correction)</li> <li>Automatic Gain Control (AGC)</li> </ul>	<ul style="list-style-type: none"> <li>NetSense™ bandwidth estimation and adaptation technology</li> <li>Audio Echo Cancellation (AEC)</li> </ul>	<ul style="list-style-type: none"> <li>Noise Suppression (NS)</li> <li>Audio Packet Loss Concealment (PLC)</li> </ul>
<b>Audio</b>	<ul style="list-style-type: none"> <li>G.711, G.722, G.722.1, G.729</li> </ul>	<ul style="list-style-type: none"> <li>AMR WB, AMR NB, EVS</li> </ul>	<ul style="list-style-type: none"> <li>Audio Recording</li> </ul>
<b>Video</b>	<ul style="list-style-type: none"> <li>H.264 AVC, H.264 High Profile</li> <li>H.265</li> <li>BFCP</li> </ul>	<ul style="list-style-type: none"> <li>Resolution: CIF/VGA/SVGA/720p/1080p</li> <li>External H.264 camera support</li> <li>Capture snapshot to JPEG file</li> </ul>	<ul style="list-style-type: none"> <li>Text overlay</li> <li>Video recording</li> <li>Frame rate: up to 30fps</li> </ul>
<b>Interoperability</b>	<ul style="list-style-type: none"> <li>Interoperable with all major vendors and MC systems</li> </ul>		
<b>RCS – Rich Communication Suite</b>	<ul style="list-style-type: none"> <li>Option based Capability exchange</li> <li>Stand Alone Messaging</li> <li>CPM, CPIM based Instant Messaging</li> <li>IM large message mode (MSRP)</li> </ul>	<ul style="list-style-type: none"> <li>Multiple recipients (multi 1-1 IM)</li> <li>Store &amp; Forward</li> <li>HTTP/HTTPS Provisioning</li> <li>Integrated Messaging Inbox, including SMS and MMS</li> </ul>	<ul style="list-style-type: none"> <li>Voice and Video Calls</li> <li>SIMPLE presence</li> <li>File Transfer</li> <li>XDM</li> </ul>

For more information, contact Softil at [info@softil.com](mailto:info@softil.com)

© 2021 Softil, Ltd. All of the company names and/or brand names and/or product names and/or logos referred to in this document, including the name "Softil" and its logo device, are either registered trademarks or trademarks pending registration in accordance with relevant national laws. All rights reserved. Specifications subject to change without notice.

Rev. C | 04/21

