



What Is MCPTT

An Introduction

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Introduction

The phrase “mission-critical push-to-talk” or “mission-critical PTT” refers to a PTT product functionality that meets the requirements of public safety mission-critical voice communication, which include high availability/reliability, low latency, support for group calls and 1:1 calls, talker identification, device-to-device direct communications, emergency calling, clear audio quality, etc. The term “MCPTT” is now typically used to refer to 3GPP’s “Mission Critical Push to Talk (MCPTT) over LTE” standard, which is part of 3GPP Release 13, finalized in March 2016. This is how the term is used in this paper. Phrases like “MCPTT service” and “MCPTT solution” are used to refer to a service or solution that complies with 3GPP’s MCPTT standard.

Benefits of MCPTT Service over LTE

While commercial LTE networks have been originally driven by the needs of consumers and business users, the evolving MCPTT standard allows public safety agencies to leverage LTE technological advancements for mission-critical communications. MCPTT service over LTE offers numerous advantages, including the following:

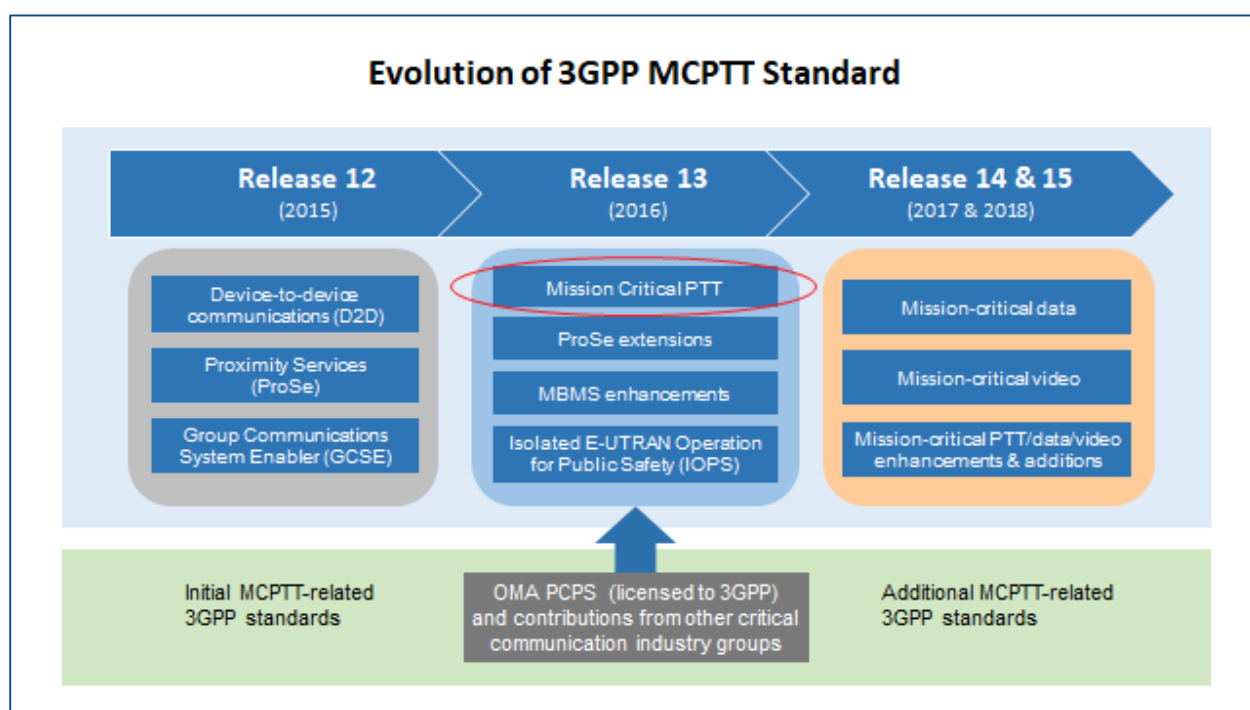
- Mobile broadband capabilities
- A single device for all mobile voice and broadband data applications
- Integration of situational awareness and other public safety applications designed for LTE and devices running smartphone operating systems
- Cost savings/economy of scale
- Nationwide network coverage
- Capacity scalability
- Cross-agency interoperability
- Thriving ecosystem

The MCPTT Standard

The MCPTT standardization efforts have been a journey and will continue to be so. From 3GPP’s perspective, its MCPTT efforts officially started with Release 12, achieved a landmark milestone in Release 13, and will continue into Releases 14 and 15. Release 12 includes basic specifications on two important features for public safety communications over LTE: Proximity Services (ProSe) and Group Communications System Enabler (GCSE). Release 13 provides a systematic set of technical specifications of mission-critical voice communication over LTE, including mission-critical push-to-talk, Proximity Services (ProSe) enhancements, Multimedia

Broadcast Multicast Services (MBMS) enhancements, and Isolated E-UTRAN Operation (IOPS). Releases 14 and 15 address mission-critical video and data.

3GPP is not the only standards body defining the MCPTT standard. The commercial-ready baseline specification of MCPTT was actually created by the Open Mobile Alliance (OMA). This baseline specification is called Push to Communicate for Public Safety (PCPS) Version 1.0, and it is based on OMA's Push-to-talk over Cellular (PoC) specifications. OMA's PoC v2 standard was released in 2011. PCPS v1.0 includes PTT requirements, architecture, interfaces and protocol standards for public safety communications. OMA PCPS was licensed to 3GPP to serve as the foundation of MCPTT in Release 13. In addition to OMA, the National Public Safety Telecommunications Council (NPSTC) of the United States, European Telecommunications Standards Institute (ETSI), the Association of Public-Safety Communications Officials (APCO), FirstNet, the UK Home Office, etc., also cooperated with 3GPP on the MCPTT standard.



- **Proximity Services (ProSe):** Enable discovery of mobiles in physical proximity and optimized device-to-device communications. ProSe consists of two main elements: network-assisted discovery of users in close physical proximity and the facilitation of direct communication between such users with, or without, supervision from the network. Basic ProSe discovery was addressed in 3GPP Release 12, whereas Release 13 provides further ProSe enhancements related to discovery and device-to-device communications (including group communication) for public safety use.
- **Group Communications System Enabler (GCSE):** Support the fundamental requirement for efficient and dynamic group communication operations such as one-to-

many calling and dispatch operations.

- **Mission Critical PTT:** Allow users to engage in PTT communications over LTE in demanding mission-critical environments. Specifications address call types, floor control, priority, preemption, performance, group management, off-network use, security, interworking with non-LTE PTT systems, etc.
- **Multimedia Broadcast Multicast Services (MBMS):** Enable efficient delivery of broadcast and multicast services for group communications (GCSE), both within a cell and within the core network. MBMS access was made available to applications in Release 12. In Release 13, MBMS enhancements (also called enhanced MBMS or **eMBMS**) include service continuity and greater independence of the application from knowing the service areas defined in the network.
- **Isolated E-UTRAN Operation for Public Safety (IOPS):** Establish a stand-alone mobile LTE MCPTT network to provide local PTT communication and data coverage without backhaul connection to the centralized macro core. IOPS assumes that local EPC function is co-sited with eNodeB.

MCPTT Baseline Solution Available Today

Like the MCPTT standards development efforts, an MCPTT solution can be delivered in phases. Since the OMA PCPS standard provides the commercial-ready baseline for MCPTT service, an existing broadband PTT platform compliant with OMA PCPS provides an operational MCPTT baseline solution today, and that is exactly what is available from Kodiak, a Motorola Solutions Company.

As the broadband PTT industry leader, Kodiak has been a key contributor to the development of OMA PoC and PCPS standards. Today, Kodiak has the largest installed base of standards-compliant broadband PTT subscribers in the world. For more information about Kodiak and its solution, visit kodiakptt.com.