



Converged IP Messaging Requirements

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1. Scope

(Informative)

This document defines the requirements for the Converged IP Messaging (CPM) Enabler.

The aim of the CPM Enabler is to reuse existing and define new reusable building blocks to be able to create a variety of interpersonal, interactive, multimedia communication services that run on top of an IP network. It will be possible for third party Applications to use these capabilities, and these third party Applications also can interact with CPM Users as Participants. The CPM Enabler will provide the functionality to enable CPM based service users to communicate seamlessly with the users of Non-CPM Communication Services such as SMS and MMS.

The CPM Enabler aims to provide the functionality for:

- a consistent user experience across many service domains for all IP networks (mobile, home, Internet worlds) by addressing the service constraints in a bearer-agnostic manner
- interoperability between different service providers, including roaming conditions
- supporting the creation and exchange of charging information
- allowing users to be unaware of the underlying technology used for communication

The CPM Enabler is targeted to build upon the user experiences provided by the following services:

- text and/or multimedia messaging enabled services: e.g. SMS, IMPS, SIMPLE IM, Email, MMS
- voice-enabled services: e.g. PoC, VoIP
- video-enabled service: e.g. Video telephony, webcam, Video streaming

2. References

2.1 Normative References

- [RFC2119] "Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997, URL:<http://www.ietf.org/rfc/rfc2119.txt>

2.2 Informative References

- [OMADICT] "Dictionary for OMA Specifications", Version 2.6, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_6, URL:<http://www.openmobilealliance.org/>
- [OMA Presence] "Presence SIMPLE", Version 1.0, Open Mobile Alliance™, OMA-ERELED-Presence_SIMPLE-V1_0, URL:<http://www.openmobilealliance.org/>
- [OMA XDM] "XML Document Management", Version 1.0, Open Mobile Alliance™, OMA-ERELED-XDM-V1_0, URL:<http://www.openmobilealliance.org/>

3. Terminology and Conventions

3.1 Conventions

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

All sections and appendixes, except “Scope” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

1-1 CPM Conversation	A CPM Conversation where one Participant communicates with another Participant.
1-N CPM Conversation	A CPM Conversation with many Participants and in which all Participants communicate with one another.
Authorized Principal	See [OMADICT].
Charging Correlation	See [OMADICT].
Charging Event	See [OMADICT].
Communication Capabilities	Set of communication means (e.g. text, video...) available to the CPM User.
Content Screening	The act of blocking, allowing or amending content.
Converged Address Book	A set of entries called "contacts" commonly available to any registered device. Each contact entry consists of a set of static and/or dynamic information (e.g. name, address, Presence Subscription information, display name). Entries in the database support various addresses from different addressing schemes.
CPM Ad-hoc Group	A set of CPM Addresses that is temporarily set up (e.g. at communication initiation).
CPM Address	An identifier for a unique Principal that allows participation in CPM Conversations.
CPM Chat Message	Information that is sent to one or more recipients as part of an existing CPM Session. A CPM Chat Message can contain several discrete Media (e.g. text, images, audio-clips, video-clips). Note: CPM Chat Messages and CPM Standalone Messages do not differ regarding the media they can carry. The primary difference is that they are used in different contexts.
CPM Conversation	The exchange of CPM Standalone Messages, CPM File Transfers, and/or CPM Sessions, associated with each other due to common characteristics, between two or more Participants (e.g. CPM Users or Applications).
CPM Conversation History	Stored representation of a CPM Conversation.
CPM File Transfer	The process of transferring one or more files with discrete Media contents between Users, whereby the recipient explicitly has to acknowledge his/her willingness to receive the file(s) before any data is transferred.
CPM File Transfer History	Stored representation of a CPM File Transfer.
CPM Group	A CPM Pre-defined Group or a CPM Ad-hoc Group.
CPM Group Membership Rules	A set of policies and attributes for controlling the CPM Group Session participation, which defines the allowed actions of Participants during the CPM Group Session.
CPM Group Session	A CPM Session established for a CPM Group.
CPM Message	A CPM Chat Message or a CPM Standalone Message.
CPM Pre-defined Group	A container for a predefined set (possibly empty) of Principals, group information (e.g. subject), and CPM Group Membership Rules. A CPM Pre-defined Group is a Principal identified via a single persistent CPM Address.
CPM Session	A real-time interaction between two or more Participants during which a combination of CPM Chat Messages and/or continuous Media may be exchanged.

CPM Session History	Stored representation of the content exchanged during a CPM Session.
CPM Session Invitation	A request sent by a Principal (the inviter) to one or more other Principals (the invitee(s)). This request can be sent either to establish a CPM Session between the inviter and the invitee(s) or to solicit the invitee(s) to join an existing CPM Session.
CPM Standalone Message	Information that is sent to one or more recipients as a standalone entity. A CPM Standalone Message can contain several discrete Media (e.g. text, images, audio-clips, video-clips). Note: CPM Chat Messages and CPM Standalone Messages do not differ regarding the media they can carry. The primary difference is that they are used in different contexts.
CPM System	An implementation of the CPM Enabler, together with other individual system elements (e.g. other Enablers, interworking functions and interfaces).
Deferred CPM Message	A CPM Standalone Message that is temporarily stored in the network until the intended recipient becomes available or decides what needs to be done with the message or until the CPM Message expires. Note: The concept of a Deferred CPM Message is an extension of the deferred message concept in [OMA SIMPLE IM].
Immediate Messaging	See [OMADICT].
Malware	Malicious software or message(s) conceived to infiltrate, disrupt, consume resources or damage a computerized system and/or network. A Malware can take on a variety of forms and includes but is not limited to computer viruses, worms, Trojan horses, spyware, adware, and other forms of malicious software or data.
Media	Digital means by which information is packaged. Media may come in different forms, which are referred to as Media Types.
Media Type	See [OMADICT].
Non-CPM Communication Service	A communication service with which the CPM Enabler interworks (e.g. SMS, MMS, Instant Messaging, Push To Talk, email, VoIP, Video-over-IP).
Offline Charging	See [OMADICT].
Online Charging	See [OMADICT].
Participant	See [OMADICT].
Presence Information	See [OMA Presence].
Presence Subscription	See Subscription definition in [OMA Presence].
Principal	See [OMADICT].
Pseudonym	An identifier in a human readable form, associated with a CPM Address, that a user can negotiate for himself. For example, the Pseudonym can be used to participate in CPM Group Sessions anonymously.
Public Chat Room	A CPM Group Session established for a CPM Pre-defined Group that has no fixed list of members.
Unwanted Messaging (spam)	Abuse of electronic messaging services to send (usually in bulk) messages unwanted by the recipient(s), e.g. an e-mail server can be used to propagate unwanted or unrequested messages to any number of end-users (recipients). Unwanted messages are not limited to e-mail and include all forms of messages. In many cases, the originator of the messages attempts to conceal or mislead the recipients as to the origin of the message(s) though it is not always the case.
User Communication Preferences	The preferences that the CPM User sets regarding the way he prefers to communicate.
User Preferences Profile	A set of user settings which controls aspects of how a user perceives and receives services; a user may have several such profiles.
Value Added Service	See [OMADICT].
Value Added Service Provider	See [OMADICT].

3.3 Abbreviations

3GPP	3rd Generation Partnership Project
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3GPP2	3rd Generation Partnership Project 2
CAB	Converged Address Book
CPM	Converged IP Messaging
DRM	Digital Rights Management
IETF	Internet Engineering Task Force
IM	Instant Messaging or Instant Message
IMPS	Instant Message and Presence Service
IMS	IP Multimedia Subsystem
IP	Internet Protocol
MMS	Multimedia Messaging Service
OMA	Open Mobile Alliance
PC	Personal Computer
PDA	Personal Digital Assistant
PLMN	Public Land Mobile Network
PoC	Push-to-talk over Cellular
PSTN	Public Switched Telephone Network
SIMPLE	SIP for Instant Messaging and Presence Leverage Extensions
SIP	Session Initiation Protocol
SMS	Short Message Service
TISPAN	Telecommunications and Internet converged Services and Protocols for Advanced Networking
URI	Uniform Resource Identifier
VAS	Value Added Service
VASP	Value Added Service Provider
VoIP	Voice over IP
XDM	XML Document Management
XML	eXtensible Markup Language

4. Introduction

(Informative)

The CPM Enabler provides common building blocks, by reuse of existing blocks and by defining new ones, to allow for both the consolidation of present and the creation of future interpersonal interactive multimedia communication services which accommodate different user experiences such as deferred and Immediate Messaging, session-based messaging, and half duplex/full duplex conferencing.

CPM supports one-to-one, one-to-many personal communications, and also communication with Applications.

CPM enables the creation of services that allow users to:

- communicate without knowing what network access technology is being used,
- have parallel conversations, each with different Media Types,
- concurrently associate several devices with themselves,
- personalise their services by setting preferences to indicate, for example, which device(s) messages should be sent to,
- store any type of message and Media in the network, and
- seamlessly make the transition from legacy voice, video and messaging services such as MMS and SMS to CPM based services.

The efficient use of resources (e.g. radio bandwidth) by all of CPM's features will be taken into consideration in the design of the CPM Enabler.

The CPM Enabler will provide the following functions:

1. **User Addressing and Multi-device environment (N:M scenario):** Aiming for best user experience in today's heterogeneous world for services, networks and devices, the CPM Enabler supports a multi-addresses and multi-devices environment. Therefore the CPM Enabler supports the following addressing scenarios:
 - Handling of single or multiple addresses on a single device.
 - Handling of single or multiple addresses on multiple devices.
 - Support for receiving different Media Types over different devices on a per user basis.

The above scenarios can be realized with a single or multiple access points. User preferences are a way to provide for address/device/access point selection. The user's capability for device selection in conversation can be controlled via user preferences.

2. **Conversation Handling:** The CPM Enabler supports the following conversation requirements:
 - Immediate and Deferred Messaging (with temporary server storage of CPM Conversation and subsequent delivery; with mailbox storage, notification, and subsequent retrieval).
 - Exchanging files with multimedia contents after explicit recipient authorization (file transfer feature).
 - 1-1, 1-N, and 1-Application CPM Conversation with the selection of any kind of Media (single or multiple).
 - Add or remove Media at the invocation and any time during a CPM Conversation.
 - Add or remove users at the invocation and any time during a CPM Conversation.
 - Start a CPM Conversation by sending a CPM Standalone Message or establishing a CPM Session.
 - Change of user's device during a CPM Conversation without disrupting the conversation.

3. **Presence Support:** The CPM Enabler provides a flexible interaction with the Presence Enabler. While CPM has to provide the needed support for presence, the invocation of the service itself does not require the presence service, and does not mandate an always-on condition for the CPM Users.
4. **Media Support:** CPM supports discrete (text, images, video clip, audio clip, voice clip, binary files) and continuous (e.g. bidirectional voice, streaming video) Media.
5. **Group Communication and Management:** The CPM Enabler supports the invocation of CPM Group Conversation for CPM Pre-defined and Ad-hoc Groups, which can be modified during CPM Conversations.
6. **Interworking with Non-CPM Communication Services:** The CPM Enabler defines interworking with Non-CPM Communication Services.
7. **Network-based Storage:** CPM aims to provide a consistent user experience and it therefore includes a network-based storage for:
 - The user's address books which are independent of user's services.
 - The Media.
 - The CPM Conversation Histories which include stored CPM Standalone Messages, CPM File Transfer Histories and CPM Session Histories (e.g. stored with contact, time, messages, shared Media to allow filtering of histories to user's views).

All these data can be synchronized to all the devices of the CPM User. The storage capabilities are subject to user preferences and service provider policies.

8. **Application Support:** The CPM Enabler supports a generalized interface for VAS to communicate with.

A device may only be able to support a subset of CPM functionalities depending on the device capabilities.

The CPM Enabler will ensure that the user's privacy is protected, by providing a privacy protection level that is at least equivalent to that provided by similar Enablers. The reuse of existing mechanisms will be considered.

The CPM Enabler must be carefully designed to ensure mechanisms efficiently manage push/pull requests while optimizing message throughput with minimal delay for all data exchanges. Similar existing Enablers have been developed with the same constraints (e.g., PoC, SIMPLE IM, Presence and Mobile Email) and thus the same mechanisms will be reused as required.

This document first captures the use cases covered by the CPM Enabler, and then enumerates specific high level technical requirements which derive from these use cases.

This document also defines some new concepts used to describe the use cases enabled by the CPM Enabler and the requirements that the CPM Enabler will satisfy: these concepts are CPM Conversation, CPM Message, CPM Session, CPM Session History, CPM Conversation History (see also 3.2 Definitions).

The CPM Conversation represents the “live” information exchange that Principals can have exploiting the CPM Enabler functionalities, where this information can be associated together by common characteristics. As represented in the Communication Representation portion of Figure 1, a CPM Conversation is constituted by any number of CPM Standalone Messages, CPM File Transfers and CPM Sessions. A CPM Message is information of a discrete nature that can contain several discrete Media (e.g. text, images, audio-clips, video-clips). CPM Messages can be sent within a CPM Session (as a CPM Chat Message) or outside of a CPM Session (as a CPM Standalone Message), where a CPM Session represents a logical connection between two or more Principals established for a finite duration. A CPM File Transfer is a transfer of one or more files with multimedia contents between two Principals, in which the recipient Principal has to explicitly acknowledge the reception of the files before any data of the files is transferred. In a CPM Session, Principals can also exchange continuous Media, that due to the continuous nature of this type of information, need a logical connection (i.e. with a beginning and an end) to be set up and maintained between CPM Principals. An underlying assumption is that a CPM Conversation should only be composed of one CPM Session at a given time. A user could however participate in several CPM Conversations in parallel (each of them containing one CPM Session) but this is not the intent of this diagram to show that functionality.

The Storage Representation portion of Figure 1 pictures a CPM Conversation History. Authorized Principals can capture and store the information that they have been exchanging during a CPM Conversation as a CPM Conversation History in network-based storage provided by a CPM service provider. As such, a CPM Message may become a stored CPM Message, a CPM File Transfer may become a CPM File Transfer History and continuous Media may become stored Media (e.g. voice-clip, video-clip). When stored CPM Chat Messages and stored Media are part of the same CPM Session, they are associated together in network based storage as a CPM Session History. Stated in another manner, a CPM Conversation History can be described as CPM Session Histories, CPM File Transfer Histories and stored CPM Standalone Messages, derived respectively from the CPM Sessions and any CPM File Transfers and CPM Standalone Messages exchanged outside a CPM Session during a CPM Conversation.

Together, the Communication Representation and the Storage Representation portions of Figure 1 capture the concepts of a CPM Conversation and a CPM Conversation History respectively, and the relationship between them.

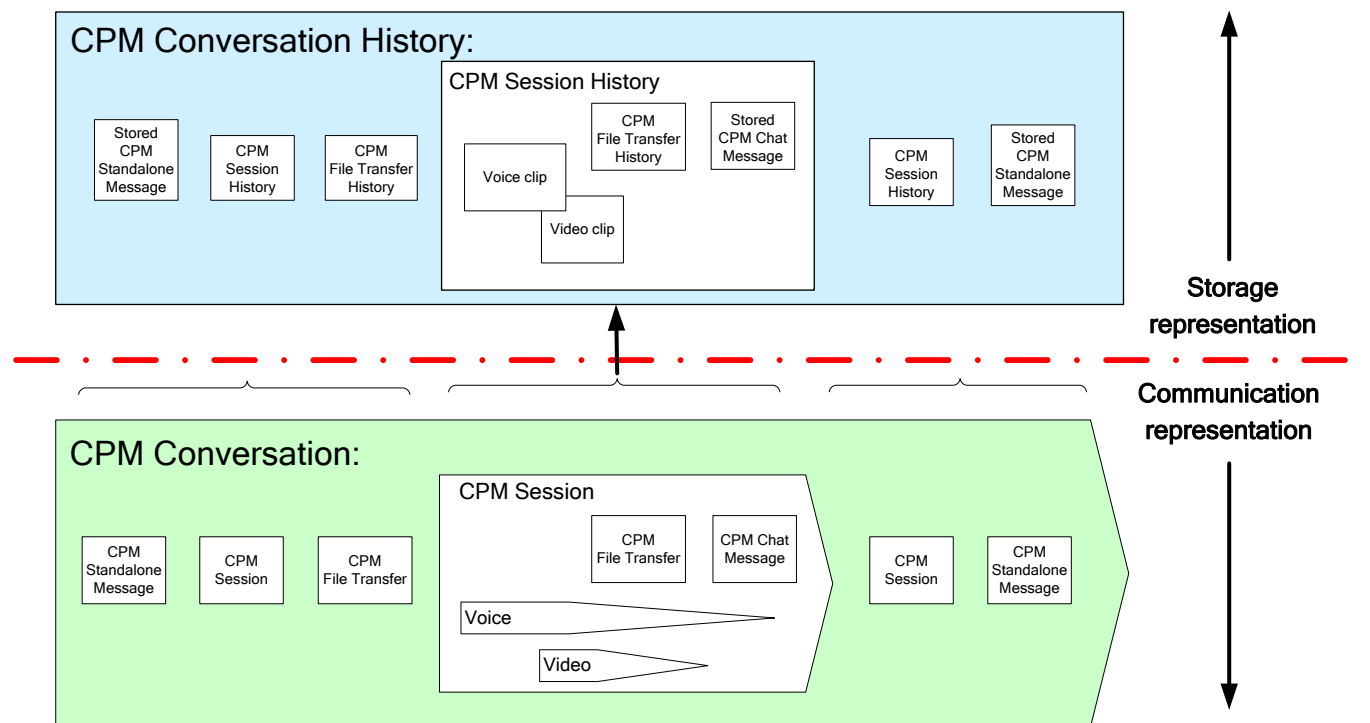


Figure 1: Illustration of the relationship between a CPM Conversation and a CPM Conversation History and depiction of the items they contain

4.1 Version 1.0

The first version of the CPM Enabler covers the requirements marked as CPM V1.0 in the tables in Section 6.

5. CPM 1.0 Release Description (Informative)

The CPM Enabler provides common building blocks, by reuse of existing blocks and by defining new ones, to allow for both the consolidation of present and the creation of future interpersonal interactive multimedia communication services which accommodate different user experiences such as deferred and Immediate Messaging, session-based messaging, and half duplex/full duplex conferencing.

As CPM is architected as an extensible, phased framework, not all of the following items are supported in this release. More detail on this release can be found in the next subsection.

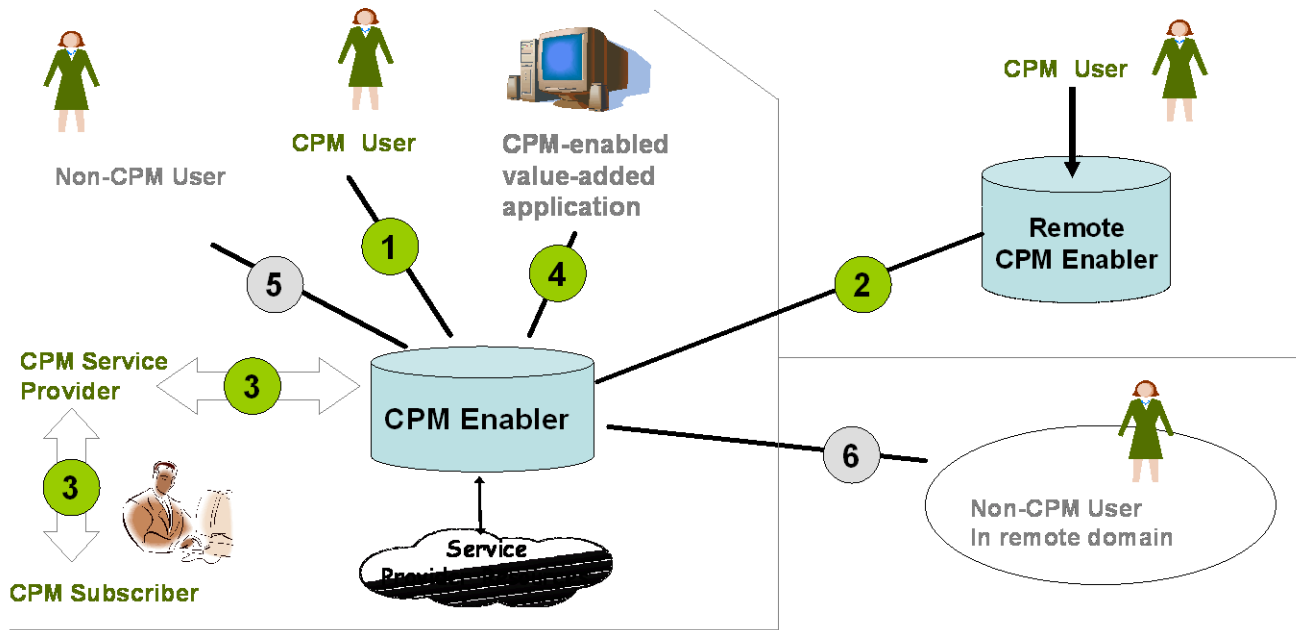
CPM supports one-to-one and one-to-many personal communications.

CPM enables the creation of services that allow users to:

- communicate without knowing what network access technology is being used,
- have parallel conversations,
- concurrently associate several devices with themselves,
- personalise their services by setting preferences to indicate, for example, which device(s) messages should be sent to,
- store any type of message and Media in the network, and
- seamlessly make the transition from legacy voice, video and messaging services such as MMS and SMS to CPM based services by providing interworking between CPM and these legacy services.

The efficient use of resources (e.g. radio bandwidth) by all of CPM's features will be taken into consideration in the design of the CPM Enabler.

The following figure shows the actors and their roles for the CPM Enabler.



- 1** CPM User - using CPM enabled communication services in his home domain
- 2** Remote CPM User - using CPM-enabled communication services between different CPM-enabled domains
- 3** Service provider offering CPM-enabled services to its subscribers

- 4** Value-added application - using CPM enabled communication services over open interface
- 5** Non-CPM User - using communication services with CPM Users utilizing CPM Enabler's interworking functions
- 6** Remote Non-CPM User - using communication services with CPM Users utilizing CPM Enabler's interworking functions between domains

Figure 2: The CPM Enabler – Actors and Roles

6. Requirements (Normative)

6.1 High-Level Functional Requirements

Label	Description	Enabler Release
CPM-HLF-001	The CPM Enabler SHALL allow an integrated user experience centred around CPM Conversations.	CPM V1.0
CPM-HLF-002a	The CPM Enabler SHALL provide the CPM User with a mechanism to set preferences based on: <ul style="list-style-type: none"> • his addresses • his devices • the message type • the Media Types 	CPM V1.0
CPM-HLF-002b	The CPM Enabler SHALL provide the CPM User with a mechanism to set preferences based on: <ul style="list-style-type: none"> • the message priority 	Future
CPM-HLF-003	The CPM Enabler SHALL allow the inclusion of URI schemes in a CPM Message.	CPM V1.0
CPM-HLF-004	The CPM Enabler SHALL allow the CPM User to initiate a CPM Conversation using a CPM Address.	CPM V1.0
CPM-HLF-005	The CPM Enabler SHALL allow the CPM User to initiate a CPM Conversation with a non-CPM User using an appropriate address.	CPM V1.0
CPM-HLF-006	The CPM Enabler SHALL allow the CPM User to assign a subject to a CPM Standalone Message or a CPM Session Invitation.	CPM V1.0
CPM-HLF-007	The CPM Enabler SHALL support the indication that the CPM Message is of a sensitive nature. The CPM recipient user may treat the CPM Message accordingly (e.g., not forward it).	CPM V1.0
CPM-HLF-008	The CPM Enabler SHALL support the use of priority indications.	CPM V1.0
CPM-HLF-009	The CPM Enabler SHALL allow an Authorized Principal to request that its identity is not disclosed to the recipient of the CPM Standalone Messages, CPM File Transfers and CPM Sessions initiated by it, if allowed by service provider policies.	CPM V1.0
CPM-HLF-010a	The CPM Enabler SHALL allow a CPM User sending a CPM Standalone Message, to specify one reply-to CPM Address.	CPM V1.0
CPM-HLF-010b	The CPM Enabler SHALL allow a CPM User sending a CPM Standalone Message, to specify more than one reply-to CPM Address.	Future
CPM-HLF-011	The CPM Enabler SHALL support identification of the source CPM Address of received CPM Standalone Messages, CPM File Transfers and CPM Session Invitations.	CPM V1.0
CPM-HLF-012	The CPM Enabler SHALL be able to reject a CPM Standalone Message, a CPM File Transfer or a CPM Session Invitation based on the recipient user's preferences, e.g. originator address (blacklist), undisclosed sender identity, or message type/content.	CPM V1.0
CPM-HLF-013	The CPM User SHALL be able to set and manage his preferences within multiple User Preferences Profiles. User Preferences Profiles may be created according to different scenarios, such as Home, Office, Travel, Sleep, Meeting etc.	CPM V1.0
CPM-HLF-014a	For each of his devices, the CPM User SHALL be able to indicate one of the multiple User Preferences Profiles as the active profile, even if the profile was created using a different device.	CPM V1.0
CPM-HLF-014b	The CPM User SHALL be able to indicate one of the multiple User Preferences Profiles as the active profile for address and device combinations.	Future

CPM-HLF-015	<p>The CPM Enabler SHALL allow the CPM User to set his User Communication Preferences.</p> <p>Examples of scope of settings:</p> <ul style="list-style-type: none"> • Settings applying to all the devices that he chooses • Individual settings per device • Per contact or category of contacts <p>The settings can be grouped inside the User Preferences Profiles.</p>	CPM V1.0
CPM-HLF-016	The CPM Enabler SHALL be able to expose a CPM User's Communication Capabilities to other Principals based on user preferences (e.g. to his contacts in the CPM User's address book).	Future
CPM-HLF-017	<p>The CPM Enabler SHALL be able to provide an Authorized Principal with the Communication Capabilities information for his contacts. This information MAY be obtained on a per subscription or on a per request basis (e.g. when initiating a CPM Session or a CPM Conversation).</p> <p>If Communication Capabilities are available, the Communication Capabilities MAY be made available to the CPM User's address books.</p>	Future
CPM-HLF-018	<p>The CPM Enabler SHALL be able to provide an Authorized Principal with the User Communication Preferences for his contacts. This information MAY be obtained on a per subscription or on a per request basis (e.g. when initiating a CPM Session or a CPM Conversation).</p> <p>If User Communication Preferences are available, the User Communication Preferences MAY be made available to the CPM User's address books.</p>	Future
CPM-HLF-019	The CPM Enabler SHALL be able to expose to other Principals (e.g. his contacts in the CPM User's address book) a CPM User's preferred communication means. A user's preferred communication means are based on his User Communication Preferences and his Communication Capabilities.	Future
CPM-HLF-020	<p>The CPM Enabler SHALL be able to provide an Authorized Principal with the preferred communication means that his contacts expose. This information MAY be obtained on a per subscription or on a per request basis (e.g. when initiating a CPM Session or a CPM Conversation).</p> <p>If the preferred communication means of a CPM User's contact are available, the data MAY be made available to the CPM User's address books.</p>	Future
CPM-HLF-021	The CPM Enabler SHALL be allowed to send a CPM Standalone Message or initiate a CPM Session on behalf of a user (e.g. for scheduled conferencing).	Future
CPM-HLF-022	The CPM User SHALL be able to request, on a per-message basis, to be notified of delivery or non-delivery of CPM Standalone Messages he/she has sent towards the recipient(s) independent of whether the recipient(s) are CPM Users or Non-CPM Users.	CPM V1.0
CPM-HLF-023	The CPM User SHALL be able to request to be notified when a CPM Standalone Message he/she sent is read by the recipient(s).	CPM V1.0
CPM-HLF-024a	The CPM Enabler SHALL send a delivery notification to the CPM Standalone Message originator, on a per-recipient basis, if requested by the CPM Standalone Message originator.	CPM V1.0
CPM-HLF-024b	The CPM Enabler SHALL send a read report to the CPM Standalone Message originator, on a per-recipient basis, if requested by the CPM Message originator and authorized by the CPM Message recipient.	CPM V1.0

CPM-HLF-025	The CPM Enabler SHALL support CPM Conversations between a CPM User and at least: <ul style="list-style-type: none"> • SMS users • MMS users • IMPS users • SIMPLE IM users • POC users • Email users • PSTN/PLMN voice users • PSTN/PLMN video users within the capabilities of the Non-CPM Communication Services.	CPM V1.0
CPM-HLF-026	The CPM Enabler SHALL allow the CPM User to use any type of connectivity, subject to service provider policies and the capabilities of the CPM enabled-network (e.g. to access his/her network-based storage).	Deleted
CPM-HLF-027	The CPM Enabler SHALL provide an interface that would allow, under the control of the service provider, CPM functionality to be accessible by an Application.	Future

Table 1: High-Level Functional Requirements

6.1.1 Conversation

Label	Description	Enabler Release
	Stand-alone Messaging:	
CPM-CONV-002	The CPM Enabler SHALL handle an incoming CPM Standalone Message that is to be delivered to a CPM User in accordance with user preferences, registration status and/or service provider policies. The following message handling mechanisms are available: <ul style="list-style-type: none"> • Deliver the CPM Standalone Message to the CPM User's client(s) • Discard the CPM Standalone Message while providing a notification to the sender based on service provider policies and sender's preferences • Defer the CPM Standalone Message • Store the CPM Standalone Message in the network-based storage • Deliver the CPM Standalone Message via a Non-CPM Communication Service, via interworking • Ask the CPM User dynamically which one of the above options should be applied Note: For the last option it could also be that the CPM User's device decides on behalf of the CPM User.	CPM V1.0
CPM-CONV-001	The CPM Enabler SHALL be able to deliver CPM Standalone Messages in immediate mode if the recipient is available and his preferences allow it.	CPM V1.0
CPM-CONV-003	The CPM Enabler SHALL defer CPM Standalone Message delivery according to service provider policies (e.g. hold for specific time period, hold only a certain number of messages) and based on user's preferences.	Deleted
CPM-CONV-004a	The CPM Enabler SHALL be able to support removal of content from a CPM Message based on the recipient's preferences, Communication Capabilities, and/or service provider's policies.	Future
CPM-CONV-004b	The CPM Enabler SHALL be able to support the content adaptation for a CPM Message based on device capabilities and service provider's policies.	Future
CPM-CONV-004c	The CPM Enabler SHALL be able to support content adaptation for a CPM Message based on the recipient's preferences.	Future

CPM-CONV-005	The CPM Enabler SHALL be able to re-direct an incoming CPM Standalone Message to any address based on the user defined preference/settings, Communication Capabilities, and service provider policies, relating to Media Types and/or content adaptation.	CPM V1.0
CPM-CONV-006	The CPM Enabler SHOULD allow CPM User to set preferences for storing the CPM Messages based on the Media forms (e.g. store text and voice messages but delete video messages or streams).	CPM V1.0
CPM-CONV-007	A Deferred CPM Message SHALL either be automatically delivered when the CPM User is available, or the CPM User SHALL be notified for possible retrieval by the CPM User.	Deleted
CPM-CONV-008	The CPM Enabler SHALL support the CPM User's request to be reminded about Deferred CPM Message(s), subject to service provider policy.	Deleted
CPM-CONV-009	In case of notification of an available CPM Standalone Message sent to the CPM User's device, the CPM Enabler SHALL allow the CPM User to retrieve all or part of the CPM Standalone Message.	CPM V1.0
CPM-CONV-010	The CPM Enabler SHALL provide mechanisms so that a CPM User can view CPM Messages in the order they are sent by another CPM User.	CPM V1.0
File Transfers:		
CPM-CONV-044	The CPM Enabler SHALL allow a Principal to propose the initiation of a CPM File Transfer.	CPM V1.0
CPM-CONV-045	The CPM Enabler SHALL allow a Principal to accept or reject a CPM File Transfer prior to the actual transfer of the file(s)	CPM V1.0
CPM Sessions:		
CPM-CONV-011	The CPM Enabler MAY support allowing/disallowing the sending of particular Media Types (discrete Media, continuous Media, or both) by individual Participants.	CPM V1.0
CPM-CONV-012	The CPM Enabler SHALL allow a Principal to invite another Principal to start or join a CPM Session by sending a CPM Session Invitation, if allowed by service provider policies.	CPM V1.0
CPM-CONV-013	The CPM Enabler SHALL allow a Principal to accept or reject a CPM Session Invitation he/she received (except for the case covered by CPM-CONV-14 below).	CPM V1.0
CPM-CONV-014	The CPM Enabler SHALL be able, where applicable (e.g. not for full-duplex voice) and upon the terminating service provider policies, to accept a CPM Session Invitation without prompting the invited user for confirmation.	Future
CPM-CONV-015	The CPM Enabler SHALL ensure that the sender of a CPM Session Invitation receives an indication that the CPM Session Invitation was accepted without prompting the invited user for confirmation.	Future
CPM-CONV-016	The CPM Enabler SHALL be able to associate a validity period with a CPM Session Invitation.	CPM V1.0
CPM-CONV-017	The CPM Enabler SHALL leverage the capabilities (when available) of the underlying IP network to manage validity periods associated with a CPM Session Invitation, including notifying the originating and recipient CPM Users about the outcome of the CPM Session Invitation.	CPM V1.0
CPM-CONV-018	The CPM Enabler SHALL allow CPM User to initiate a CPM Session with selected Media.	CPM V1.0
CPM-CONV-019	The CPM Enabler SHALL allow a CPM User to join or rejoin an ongoing CPM Group Session if the set of CPM Group Membership Rules for the CPM Group are satisfied (e.g. excluding banned users).	CPM V1.0
CPM-CONV-020	The CPM Enabler SHALL provide a mechanism to invite/remove/ban Participants to/from the ongoing CPM Group Session based on the CPM Group Membership Rules (e.g. limitation to conference initiator only).	CPM V1.0

CPM-CONV-021a	The CPM Enabler SHALL provide an Authorized Principal with information about the Participants of a CPM Group Session (e.g., new Participant joins, Participant leaves, list of current Participants, which Participants are blocked by the Authorized Principal, CPM Session ends), when the Authorized Principal is a current Participant.	CPM V1.0
CPM-CONV-021b	The CPM Enabler SHALL provide an Authorized Principal with information about the Participants of a CPM Group Session (e.g., new Participant joins, Participant leaves, list of current Participants, CPM Session ends), when the Authorized Principal is not a current Participant.	Future
CPM-CONV-022	The CPM Enabler SHALL allow for participation in a CPM Group Session using a Pseudonym depending on the CPM Group and service provider's policy.	CPM V1.0
CPM-CONV-023	The CPM Enabler SHOULD allow a CPM User to negotiate and use a unique Pseudonym when requesting to join anonymously in a CPM Group Session depending on the CPM Group and service provider's policy. For example, the negotiation process may reject forbidden or sensitive words.	CPM V1.0
CPM-CONV-024	The CPM Enabler SHOULD provide a mechanism for a CPM User to allow CPM Users to contact each other using Pseudonyms assigned to them for a CPM Group Session.	Deleted
CPM-CONV-025	The CPM Enabler MAY provide the CPM User with a mechanism to renegotiate his/her Pseudonym during a CPM Group Session, subject to service provider policies. For example, the renegotiation process may reject forbidden sensitive words.	Future
CPM-CONV-026	The CPM Enabler MAY allow an Authorized Principal to join a CPM Session in a "hidden mode"; that is, his/her presence in the communication and identity are not to be disclosed to other Participants, subject to service provider policies.	Future
CPM-CONV-027	The CPM Enabler SHALL ensure that a Principal who has joined a CPM Session in "hidden mode" becomes a non-hidden Participant prior to sending CPM Messages and/or continuous Media from that Principal to the CPM Session.	Future
CPM-CONV-028	The CPM Enabler SHALL allow a CPM User to get information (e.g. Participants, related Media) on the CPM Sessions (including CPM Group Sessions) he/she is currently participating in.	Future
CPM-CONV-029	The CPM Enabler SHALL allow a CPM User to get information (e.g. a list) of the available Public Chat Rooms.	Future
CPM-CONV-030	The CPM Enabler SHALL allow the CPM User to send a CPM Chat Message during a CPM Session.	CPM V1.0
CPM-CONV-046	The CPM Enabler SHALL allow the CPM User to perform a CPM File Transfer inside a CPM Session.	Future
CPM-CONV-031	The CPM Enabler SHALL allow a CPM User to dynamically add/modify/remove continuous Media during a CPM Session, according to group and service provider policies.	CPM V1.0
CPM-CONV-032	The CPM Enabler SHALL allow the CPM User to accept/reject a request to add/modify/delete continuous Media to a CPM Session received from the other Participant. In case of "accept", the CPM Session SHALL be modified accordingly. In case of "reject", the CPM Session SHALL be kept unchanged.	CPM V1.0

CPM-CONV-033	<p>The CPM Enabler SHALL allow the CPM User to accept/reject a request to add/modify/delete continuous Media to a CPM Group Session received from the other Participants.</p> <p>The CPM Session SHALL be modified based on the group and provider's policies, e.g.:</p> <ul style="list-style-type: none"> • CPM Session is only modified if all Participants accepted the request (group policy). • CPM Session is only modified to those Participants who accepted the request. 	CPM V1.0
CPM-CONV-034	<p>The CPM Enabler SHOULD allow the CPM User to automatically accept/reject a request to add/modify/delete continuous Media to a CPM Group Session received from the other Participants based on the Communication Capabilities and user preferences.</p> <p>In this case, the CPM Session is only modified to those Participants who accepted the request.</p>	Future
CPM-CONV-035	<p>A CPM Enabler MAY allow a CPM User to set a preference for the delivery mechanism in case he is not available (e.g. not registered in the home network) for receiving a CPM Session:</p> <ul style="list-style-type: none"> • Reject the CPM Session • Establish the CPM Session via a Non-CPM Communication Service, via interworking 	CPM V1.0
CPM-CONV-036	<p>The CPM Enabler SHALL enable an Authorized Principal (e.g. conference centre recording facility) to store the CPM Session History for his participation in a given CPM Session, and on request, subsequently provide this CPM Session History to another Authorized Principal (e.g. an Authorized Principal who joins the CPM Session halfway through).</p>	Future
CPM Conversation (general)		
CPM-CONV-037	<p>The CPM Enabler SHALL allow a CPM User to initiate CPM Conversations independently of the status and availability of the user's Presence Information.</p>	CPM V1.0
CPM-CONV-038	<p>The CPM Enabler SHALL support 1-1 and 1-N CPM Conversations.</p>	CPM V1.0
CPM-CONV-039	<p>The CPM Enabler SHALL allow the CPM User to handle several CPM Conversations in parallel according to Communication Capabilities and service provider policies.</p>	CPM V1.0
CPM-CONV-040	<p>The CPM Enabler SHALL provide the means to recognize CPM Standalone Messages, CPM File Transfers and CPM Sessions as part of a CPM Conversation.</p>	CPM V1.0
CPM-CONV-041	<p>The CPM Enabler SHOULD allow the presentation of CPM Standalone Messages, CPM File Transfers and CPM Sessions belonging to the same CPM Conversation in a conversational view in the CPM-enabled device according to the user's preferences.</p>	CPM V1.0
CPM-CONV-042	<p>The CPM Enabler SHALL provide for the storage of the CPM Standalone Messages, CPM File Transfers and CPM Sessions belonging to the same CPM Conversation into a CPM Conversation History on behalf of a Participant, limited to those elements associated with the CPM Conversation sent or received by that Participant.</p>	CPM V1.0
CPM-CONV-043	<p>The CPM Enabler SHOULD be able to present the stored CPM Standalone Messages, CPM File Transfers and CPM Session Histories belonging to a CPM Conversation History in a threaded view according to the user's preferences.</p> <p>NOTE: This is the storage representation of the concept defined in CPM-CONV-041.</p>	CPM V1.0

Table 2: High-Level Functional Requirements – Conversation Items

6.1.2 Management of Deferred CPM Messages

Label	Description	Enabler Release
CPM-DEF-004	The CPM Enabler SHALL handle deferred CPM Standalone Messages according to service provider policies, registration status and the recipient's preferences.	CPM V1.0
CPM-DEF-005	A Deferred CPM Message SHALL either be automatically delivered when the CPM User is available, or the CPM User SHALL be notified for possible retrieval by the CPM User.	CPM V1.0
CPM-DEF-006	The CPM Enabler SHALL support the CPM User's request to be reminded about Deferred CPM Message(s), subject to service provider policy.	Future
CPM-DEF-001	The CPM Enabler MAY allow the originating user to associate an expiry time to a CPM Standalone Message.	CPM V1.0
CPM-DEF-002	The CPM Enabler SHALL allow the service provider to override the expiry time associated with a CPM Standalone Message, set by the originating user (e.g. reduce to a shorter time).	CPM V1.0
CPM-DEF-003a	When the expiry time associated with a Deferred CPM Message is reached the CPM Enabler SHALL take one of the following actions according to user preferences and/or service provider's policy: <ul style="list-style-type: none"> Discard the CPM Standalone Message Store the CPM Standalone Message in the network-based storage 	CPM V1.0
CPM-DEF-003b	When the expiry time associated with a Deferred CPM Message is reached the CPM Enabler SHALL be able to take the following action according to user preferences and/or service provider's policy: <ul style="list-style-type: none"> Extend the expiry time of the CPM Standalone Message 	Future

Table 3: High-Level Functional Requirements – Management of Deferred CPM Messages Items

6.1.3 CPM Group Handling

Label	Description	Enabler Release
CPM-GRP-001	The CPM Enabler SHOULD allow an Authorized Principal to set or update values for parameters like group information and the CPM Group Membership Rules for a CPM Pre-defined Group.	CPM V1.0
CPM-GRP-002	The CPM Enabler SHALL apply the set of CPM Group Membership Rules (if any) to a CPM Group Session.	CPM V1.0
CPM-GRP-003	The CPM Enabler MAY allow an Authorized Principal to search for CPM Group Sessions based on given criteria about the CPM Group Session.	Future
CPM-GRP-004	The CPM Enabler MAY allow an Authorized Principal to view all or a subset of the CPM Group information (e.g. CPM Group Membership Rules, list of Participants, etc.) based on service provider policies.	CPM V1.0
CPM-GRP-005	The CPM Enabler MAY allow an Authorized Principal to create a CPM Pre-defined Group on behalf of another Principal and transfer ownership rights over the group to that Principal.	Future
CPM-GRP-006	The CPM Enabler MAY allow the following continuous Media specific floor control: <ul style="list-style-type: none"> Media burst control based on the group's policies. 	Future
CPM-GRP-007	The CPM Enabler MAY allow an Authorized Principal with a mechanism to ask for notifications of changes to the CPM Group Membership Rules of the groups he/she is part of, according to service provider's policy.	Future

CPM-GRP-008	The CPM Enabler MAY provide a mechanism to send information about a CPM Pre-defined Group to CPM Group members, e.g. for purposes to advertise a newly created group.	CPM V1.0
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Table 4: High-Level Functional Requirements – CPM Group Handling Items

6.1.4 Presence

Label	Description	Enabler Release
CPM-PRS-001	If Presence Information is available, the CPM Enabler SHALL be able to use that information to enhance the CPM user experience.	Future
CPM-PRS-002	The CPM Enabler MAY support a set of CPM-specific presence parameters on behalf of the CPM Users that derive from different Communication Capabilities (e.g. video-busy).	Future
CPM-PRS-003	The CPM Enabler SHALL allow a CPM User to indicate the contacts whose presence should be watched, on a per User Preferences Profile basis.	Deleted from CPM V1.0 and transferred to CAB V1.0*

* Footnote: the CAB Enabler development is independent and this requirement may change within the CAB RD.

Table 5: High-Level Functional Requirements – Presence Items

6.1.5 Media Support

Label	Description	Enabler Release
CPM-MED-001	The CPM Enabler SHALL support discrete and continuous Media of at least the following kinds: <ul style="list-style-type: none"> • Text • Images • Binary files • Audio • Video 	CPM V1.0
CPM-MED-002	The CPM Enabler SHALL allow the sender of a CPM Message to indicate that a piece of discrete Media (e.g. audio clip or video clip) sent as part of the CPM Message is to be played immediately and automatically upon reception at the recipient end, if supported and enabled by the recipient user.	CPM V1.0
CPM-MED-003	The CPM Enabler SHALL allow an inviting CPM User to indicate a set of offered Media Types at the start of a CPM Session based on the Communication Capabilities of his/her device, user preferences, and service provider policies.	CPM V1.0
CPM-MED-004	The CPM Enabler SHALL allow an inviting CPM User to indicate which offered Media Types are the preferred Media Types in a CPM Session Invitation.	Future
CPM-MED-005	The CPM Enabler SHALL support negotiation of Media Types.	CPM V1.0
CPM-MED-006	The CPM Enabler SHALL support a request from a sending Application not to perform content adaptation.	Future
CPM-MED-007	The CPM Enabler SHALL support the simultaneous exchange of multiple continuous Media and/or CPM Chat Messages in the same CPM Session.	CPM V1.0

CPM-MED-008	If two or more continuous Media are simultaneously exchanged in the same CPM Session, or if there is more than one CPM Conversation containing continuous Media in parallel, the CPM Enabler SHOULD provide the means to filter the continuous Media based on the user's preferences (e.g. session priority, listen to one voice/audio stream only), Communication Capabilities, and service provider's policy.	Future
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Table 6: High-Level Functional Requirements – Media Support Items

6.1.6 Network-based Storage

Label	Description	Enabler Release
CPM-STOR-001	The CPM Enabler SHALL allow CPM User to delete a stored CPM Message, CPM File Transfer History, CPM Session History, CPM Conversation History or Media locally on one of his registered devices and keep the stored item in the network-based storage for later retrieval.	CPM V1.0
CPM-STOR-002	The CPM Enabler SHALL allow CPM Users to suppress automatic synchronization of locally-deleted CPM related content.	Deleted
CPM-STOR-003	The CPM Enabler SHALL be able to store <ul style="list-style-type: none"> • CPM Messages • CPM File Transfers as CPM File Transfer Histories • CPM Sessions as CPM Session Histories • CPM Conversations as CPM Conversation Histories • Media in the user's network-based storage according to the user's preferences and/or service provider's policy.	CPM V1.0
CPM-STOR-004	The CPM Enabler SHALL allow the CPM User to set preferences (e.g. enable/disable, filtering criteria) whether to automatically store CPM Messages, CPM File Transfers, CPM Sessions, CPM Conversations and Media (e.g., when CPM Messages are received and sent) in his/her network-based storage.	CPM V1.0
CPM-STOR-005	The CPM Enabler SHALL allow the CPM User to manually store CPM Messages, CPM File Transfers, CPM Sessions, CPM Conversations and Media from a CPM-enabled device to his/her network-based storage.	CPM V1.0
CPM-STOR-006	The CPM Enabler SHALL provide a CPM User with a mechanism to activate and deactivate on demand the storing of a CPM Session to his/her network-based storage during this CPM Session.	Future
CPM-STOR-007	The CPM Enabler SHALL allow an Authorized Principal to use Media independently of the CPM Messages, CPM File Transfers or CPM Session Histories they were attached to.	CPM V1.0
CPM-STOR-008	The CPM Enabler SHALL support access (select, view, retrieve, etc.) to all <ul style="list-style-type: none"> • CPM Messages • CPM File Transfers as CPM File Transfer Histories • CPM Sessions as CPM Session Histories • CPM Conversations as CPM Conversation Histories • Media stored in the user's network-based storage from any of the user's capable devices.	CPM V1.0

CPM-STOR-009	<p>The CPM Enabler SHALL, according to the user's preferences (e.g. filtering criteria, enable/disable automatic synchronization) and/or the service provider's policy, support the synchronization of :</p> <ul style="list-style-type: none"> the stored CPM Messages, CPM File Transfer Histories or CPM Session Histories the CPM Conversation Histories the Media the list of stored CPM Messages, CPM File Transfer Histories and/or CPM Session Histories and/or Media <p>between the local storage of the CPM User's device(s) and CPM User's network-based storage.</p>	CPM V1.0
CPM-STOR-010	<p>The CPM Enabler SHALL allow the CPM User to forward CPM Messages, CPM File Transfer Histories and CPM Session Histories stored in his/her network-based storage (without downloading them to his/her device).</p>	CPM V1.0
CPM-STOR-011	<p>The CPM Enabler SHALL allow the CPM User to download all or part of a CPM Message that is stored in his network-based storage to his/her device.</p>	CPM V1.0
CPM-STOR-012	<p>The CPM Enabler SHALL allow the CPM User to download Media that is stored in his network-based storage to his/her device.</p>	CPM V1.0
CPM-STOR-013	<p>The CPM Enabler SHALL allow the CPM User to download a preview (e.g. a thumbnail) of Media stored in his network-based storage.</p>	CPM V1.0
CPM-STOR-014	<p>The CPM Enabler SHALL allow the management (e.g. creation, renaming, deletion, moving, copying) of folders in a CPM User's network-based storage by an Authorized Principal.</p>	CPM V1.0
CPM-STOR-015	<p>The CPM Enabler SHALL allow an Authorized Principal to</p> <ul style="list-style-type: none"> move between folders add to folders copy between/within folders delete rename list with a filter based on some specific criteria (e.g. recipient, originator, date, stored in a specific folder...) <p>the following items residing in a CPM User's network-based storage:</p> <ul style="list-style-type: none"> CPM Conversation Histories stored CPM Messages CPM File Transfer Histories CPM Session Histories Media 	CPM V1.0
CPM-STOR-016	<p>The CPM Enabler SHALL allow the CPM User to select:</p> <ul style="list-style-type: none"> stored CPM Messages, stored CPM File Transfer Histories or CPM Session Histories, and/or CPM Conversation Histories Media <p>from his network-based storage (without downloading them to his device) and/or from his device's storage and add them to a CPM Message. When the CPM User subsequently requests for the CPM Message to be sent, the CPM Enabler SHALL be able incorporate into the CPM Message, the selected data from the CPM User's network-based storage (without downloading them to the sender's CPM User's device), according to user's preferences and/or service provider's policy.</p>	CPM V1.0

CPM-STOR-017	The CPM Enabler SHALL be able to store incoming CPM Messages and attached Media in the network-based storage, and allow the CPM User to receive CPM Messages without the Media by including a link to access this Media in the network-based storage, based on user's preferences and service provider's policies.	CPM V1.0
CPM-STOR-018	The CPM Enabler SHOULD support a search function to allow an Authorized Principal to search in an efficient manner in the network-based storage for Media, stored CPM Messages, CPM Session Histories or CPM Conversation Histories residing in storage space to which he has permission for access.	CPM V1.0
CPM-STOR-019	The CPM Enabler SHALL allow an Authorized Principal to give permission to <ul style="list-style-type: none"> • A limited set of Principals (whitelist) • To everybody to access specific items (Media, CPM Conversation Histories, CPM Messages, CPM File Transfer Histories and CPM Session Histories), or to access and/or write in folders in his/her network-based storage.	CPM V1.0
CPM-STOR-020	The CPM Enabler SHALL allow an Authorized Principal to give permission over specific items (Media, CPM Conversation Histories, CPM Messages, CPM File Transfer Histories, CPM Session Histories, folders) either at the time of storage of these items to his/her network-based storage or at a later time.	Future
CPM-STOR-021	The CPM Enabler SHALL allow an Authorized Principal to modify or revoke the permissions associated with specific items (Media, CPM Conversation Histories, CPM Messages, CPM File Transfer Histories, CPM Session Histories, folders) in his/her network-based storage.	CPM V1.0
CPM-STOR-022	The CPM Enabler SHALL allow an Authorized Principal to set a deadline after which a sharing permission to specific items (Media, CPM Conversation Histories, CPM Messages, CPM File Transfer Histories, CPM Session Histories, folders) in his/her network-based storage will be revoked automatically.	Future
CPM-STOR-023	The CPM Enabler SHALL allow an Authorized Principal to specify which permission attributes (e.g. read/write access, access deadline, list of Principals who have access permission) associated to specific items (Media, CPM Conversation Histories, CPM Messages, CPM File Transfer Histories, CPM Session Histories, folders) in the network-based storage can be shown to other Principals.	Future
CPM-STOR-024	The CPM Enabler SHALL be able, upon the request of a CPM User who owns a network-based storage, to inform another Principal by notification that he/she has been given/modified/revoked permission to specific items (Media, CPM Conversation Histories, CPM Messages, CPM File Transfer Histories, CPM Session Histories, folders) in his/her network-based storage.	Future
CPM-STOR-025a	The CPM Enabler SHALL be able to record actions being performed on a Principal's network-based storage. Actions Example: uploaded/modified/removed some specific items (Media, CPM Conversation Histories, CPM Messages, CPM File Transfer Histories, CPM Session Histories).	Future
CPM-STOR-025b	The CPM Enabler SHALL be able to notify an Authorized Principal about actions being performed on the Principal's network-based storage.	Future
CPM-STOR-026	The CPM Enabler SHALL allow an Authorized Principal to access specific items (Media, CPM Conversation Histories, CPM Messages, CPM File Transfer Histories, CPM Session Histories) and folders (including the items stored therein) in another user's network-based storage for which the Principal has access permission.	CPM V1.0

CPM-STOR-027	The CPM Enabler SHALL allow an Authorized Principal to upload specific items (Media, CPM Conversation Histories, CPM Messages, CPM File Transfer Histories, CPM Session Histories) to folders in a CPM User's network-based storage for which the Principal has write permission.	CPM V1.0
CPM-STOR-028	When a user's network-based storage quota is close to being exceeded or has been exceeded, the CPM Enabler SHALL be able to send an overflow notification to that user, based on service provider policies.	Future
CPM-STOR-029	The CPM Enabler SHALL be able to delete items (Media, CPM Conversation Histories, CPM Messages, CPM File Transfer Histories, CPM Session Histories) from a user's network-based storage according to service provider's policy (e.g. CPM Messages older than 'x' days).	Future
CPM-STOR-030	The CPM Enabler SHALL allow a CPM User to request to be notified about specific item(s) in the user's network-based storage before they are going to be deleted as a result of the service provider's policy.	Future
CPM-STOR-031	When a CPM User requested to be notified about specific item(s) in the user's network-based storage before they are going to be deleted, the CPM Enabler SHALL be able to send the corresponding notification to that user, based on service provider's policy.	Future
CPM-STOR-032	The CPM Enabler SHALL allow an Authorized Principal to manage (e.g. include in a CPM Message, delete from network-based storage, forward, upload to the network-based storage from the client, download from the network-based storage to the client) CPM Conversation Histories belonging to a CPM User either as a whole, or partially, i.e. one or more CPM Messages, CPM File Transfer Histories or CPM Session Histories.	Future

Table 7: High-Level Functional Requirements – Network-based Storage Items

6.1.7 Multi-devices Environment

Label	Description	Enabler Release
CPM-MLD-001	The CPM Enabler SHALL be able to deliver either the entire CPM Standalone Message or a notification of an available CPM Standalone Message to all or a subset of the devices of the CPM User based on message characteristics, Communication Capabilities, user preferences and/or service provider's policy.	CPM V1.0
CPM-MLD-002	The CPM Enabler SHALL be able to deliver continuous Media to all or a subset of the devices with which the CPM User is registered based on Media characteristics, Communication Capabilities, user preferences and/or service provider's policy.	Future
CPM-MLD-003a	The CPM Enabler SHALL send a delivery notification and/or a read report to the device of the CPM User that originated the CPM Standalone Message that asked for the delivery notification and/or read report.	Future
CPM-MLD-003b	The CPM Enabler SHALL send delivery notification and/or read reports to all or a subset of the other devices of the CPM User dependent upon the user preferences and/or service provider's policy.	CPM V1.0
CPM-MLD-004	A CPM User that requested to be notified of the delivery of a CPM Message he/she sent to a recipient having multiple devices SHALL receive exactly one delivery notification after the CPM Message has been delivered to at least one of the devices of the recipient.	CPM V1.0
CPM-MLD-005	A CPM User that requested a read report for a CPM Standalone Message he/she sent to a recipient having multiple devices SHALL receive exactly one read report after the CPM Standalone Message has been read on at least one of the devices of the recipient.	CPM V1.0

CPM-MLD-019	The CPM Enabler SHALL be able to deliver a CPM File Transfer request to all or a subset of the devices of the CPM User dependent upon the user's preferences, device capabilities and/or service provider's policy.	CPM V1.0
CPM-MLD-020	When the CPM User has accepted the CPM File Transfer on one of his/her devices, the outstanding CPM File Transfer requests on the other devices SHALL be cancelled.	CPM V1.0
CPM-MLD-021	The CPM Enabler SHALL be able to, when the CPM User has accepted the CPM File Transfer on one of his/her devices, based on CPM User settings and service provider's policy, keep the outstanding CPM File Transfer requests pending on the other devices left pending until acceptance, rejection, or expiration (instead of cancelling these outstanding CPM File Transfer requests immediately).	Future
CPM-MLD-006	The CPM Enabler SHALL be able to deliver a CPM Session Invitation to all or a subset of the devices of the CPM User dependent upon the user's preferences, device capabilities and/or service provider's policy.	CPM V1.0
CPM-MLD-007a	When the CPM User has accepted the CPM Session Invitation on one of his/her devices, the outstanding CPM Session Invitations on the other devices SHALL be cancelled.	CPM V1.0
CPM-MLD-007b	The CPM Enabler SHALL be able to, when the CPM User has accepted the CPM Session Invitation on one of his/her devices, based on CPM User settings and service provider's policy, keep the outstanding CPM Session Invitations pending on the other devices left pending until acceptance, rejection, or expiration (instead of cancelling these outstanding CPM Session Invitations immediately).	Future
CPM-MLD-008a	When the CPM User has rejected the CPM Session Invitation on one of his/her devices, the outstanding CPM Session Invitations on the other devices SHALL be cancelled.	CPM V1.0
CPM-MLD-008b	The CPM Enabler SHALL be able to, when the CPM User has rejected the CPM Session Invitation on one of his/her devices, based on CPM User settings and service provider's policy, keep the outstanding CPM Session Invitations pending on the other devices until acceptance, rejection, or expiration (instead of cancelling these outstanding CPM Session Invitations immediately).	Future
CPM-MLD-009	The CPM Enabler SHALL allow the CPM User to switch a CPM Session from one device to another device with minimal interruption of the CPM Session.	Future
CPM-MLD-010	When a CPM User requests to switch a CPM Session from one device to another one, the CPM Enabler SHALL allow CPM User to have the CPM Session History or part of it (based upon user's preferences and/or the service provider's policy) displayed on the new device.	Future
CPM-MLD-011	The CPM Enabler SHALL allow the CPM User to use multiple devices for a single CPM Conversation.	CPM V1.0
CPM-MLD-012	The CPM Enabler SHALL allow a CPM User to choose which of his/her devices SHALL be used for the added/modified continuous Media within the current CPM Session.	Future
CPM-MLD-013	The CPM Enabler SHALL provide CPM User with a mechanism to retrieve, from one of his/her devices, a list of his/her registered devices bound with all of his/her registered CPM Addresses.	Future
CPM-MLD-014	For each of his registered CPM Addresses, the CPM Enabler SHALL provide the CPM User with the following information per registered device bound to that CPM Address: <ul style="list-style-type: none"> • the capabilities of the device • the list of current CPM Sessions together with associated Media 	Future

CPM-MLD-015	The CPM Enabler SHALL provide the CPM User with a mechanism to define an identifier (i.e. a human readable name) for each of his/her devices.	CPM V1.0
CPM-MLD-016	The CPM Enabler SHALL keep all CPM Conversation Histories, a subset of the CPM Conversation Histories, or a subset of stored CPM Messages / CPM File Transfer Histories / CPM Session Histories, the whole folder hierarchy (where CPM Messages, CPM File Transfer Histories, CPM Session Histories and/or CPM Conversation Histories are stored) or a subset of the folder hierarchy up-to-date on all of the end-user's devices, irrespective of on which device these messages are created (e.g. drafts) and/or received, depending on service provider's policy and/or end-user preferences and filtering-rules.	CPM V1.0
CPM-MLD-017	The CPM Enabler SHALL keep all stored CPM Messages-states (e.g. "read-indications", "reply-indications", "delivery notifications", "read reports", etc) up-to-date on all of the end-user's devices, irrespective of on which device changes to these CPM Messages-states occur, depending on service provider's policy and/or end-user preferences and filtering-rules.	CPM V1.0
CPM-MLD-018	The CPM Enabler SHALL allow a CPM User to have a single CPM Address concurrently associated with multiple CPM-enabled devices according to service provider's policy.	CPM V1.0

Table 8: High-Level Functional Requirements – Multi-devices Environment Items

6.1.8 Support of Multiple CPM Addresses

Label	Description	Enabler Release
CPM-MAD-001	The CPM Enabler SHALL allow a CPM User to bind several CPM Addresses to a single CPM-enabled device according to service provider's policy.	CPM V1.0
CPM-MAD-002	The CPM Enabler SHALL allow a CPM User to use multiple CPM Addresses in parallel.	Future
CPM-MAD-003	The CPM Enabler SHALL be able to provide each CPM Address with a distinct network-based storage (e.g. storage of Media).	Future
CPM-MAD-004	The CPM Enabler SHALL allow a CPM User to have a common set of preference settings for all or a subset of his/her CPM Addresses.	Future
CPM-MAD-005	The CPM Enabler SHALL support replying to CPM Messages by using the CPM Address that the original CPM Message was received on.	CPM V1.0
CPM-MAD-006	The CPM Enabler SHALL allow a CPM User to have a common network-based storage (e.g. storage of Media) for all or a subset of his/her CPM Addresses.	Future

Table 9: High-Level Functional Requirements – Multiple CPM Addresses Items

6.1.9 Converged Address Book

Label	Description	Enabler Release
CPM-CAB-001	The CPM Enabler SHALL provide a network based address book for the CPM User.	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-002	The CAB SHALL provide the CPM User with all available information which may enable him to invoke any kind of CPM Conversation.	Deleted from CPM V1.0 and transferred to CAB V1.0*

CPM-CAB-003	<p>The CAB SHALL include contact information such as:</p> <ul style="list-style-type: none"> • Full name • Display name • Addresses (e.g. CPM Address, email address, phone number, SIP address, home address) • Basic personal data (e.g. birth date, description, gender, height) • Extended personal data (e.g. areas of expertise, avatars data, hobbies, interests, photo or video data, title) • Web resources (e.g. homepage url, weblog url, publications url) • Organisational data (e.g. business category, department name, job title, alternative contact or agent) 	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-004	The CAB SHALL be able to combine information coming from the personal profile published by the CPM User's contacts with the information that the CPM User customizes about these contacts.	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-005	The CAB MAY include as a part of the contact information, the information required for Presence Subscription.	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-006	The CPM User MAY be able to select different groups of contacts or single contacts in his/her address book and indicate the values of presence attributes to be exposed to those contacts.	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-007	The CPM Enabler SHALL allow the CPM User to add/change/delete contacts information in his address book e.g. display name, picture.	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-008	The CPM Enabler SHALL allow the CPM User to manage (e.g. add/change/delete) his own personal contact information and to share it (either completely or partially) with other authorized users.	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-009	The CPM Enabler SHALL allow the CPM User to set up individual authorisation rules for sharing his own personal contact information on a per-user or a per CPM Group basis.	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-010	The CPM Enabler SHALL allow the CPM User to request to be notified whenever a contact changes his own personal contact information.	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-011	The CAB SHALL, according to the user's preferences and/or service provider's policy, be able to either automatically or by request keep up to date all address books (e.g. addition, deletion, modification of contacts or groups of contacts, address book structure) in all CPM enabled registered devices bound with the associated registered CPM Address(es).	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-012	The CAB SHALL, according to the user's preferences and/or service provider's policy, be able to either automatically or by request keep all CPM enabled registered devices bound with the associated registered CPM Address(es) up to date with information required for Presence Subscription, User Communication Preferences, and Communication Capabilities.	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-013	The CAB SHOULD provide the CPM User with the ability to organize his contacts into different categories of contacts (e.g. family, friends, colleagues).	Deleted from CPM V1.0 and transferred to CAB V1.0*

CPM-CAB-014	The CPM User SHALL be able to give selective access and modification rights for his CAB to an Authorized Principal.	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-015	The CAB SHALL provide at least one address book per CPM User.	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-016	The CAB MAY support one address book per CPM Address of the CPM User.	Deleted from CPM V1.0 and transferred to CAB V1.0*
CPM-CAB-017	If information about the CPM User 's CAB is available, the CPM Enabler SHALL be able to use that information to enhance the CPM user experience.	Future

* Footnote: the CAB Enabler development is independent and this requirement may change within the CAB RD.

Table 10: High-Level Functional Requirements – Converged Address Book Requirements

6.1.10 Applications

Label	Description	Enabler Release
CPM-VAS-001	The CPM Enabler SHALL allow any CPM Conversation between Applications (including those provided by VASPs) and other Principals regardless of: <ul style="list-style-type: none"> the content of the CPM Message (text or multimedia) the desired user experience (e.g. immediate or deferred delivery) the number of recipients the messaging technologies supported by end user's device whether the intended recipient is a CPM User or not 	Future
CPM-VAS-002	The CPM Enabler SHALL provide an interface to Applications (including those provided by VASPs) that supports at least the functionalities provided by existing interfaces (e.g. MM7 between third party Applications and MMS Relay/Server, SMPP between third party Applications and SMS-SC).	Future
CPM-VAS-003	The CPM Enabler SHALL be able to receive CPM Standalone Messages / CPM File Transfers / CPM Session Invitations intended for a VASP from the different non-CPM messaging platforms, in case that the users have sent them from a non CPM-capable device. The CPM Enabler SHALL subsequently forward the CPM Standalone Messages / CPM File Transfers / CPM Session Invitations to the intended VASP.	Future
CPM-VAS-004	The CPM Enabler SHALL support the originator of a CPM Standalone Message, a CPM File Transfer or a CPM Session Invitation to indicate, in that CPM Standalone Message or CPM Session Invitation, the source VAS Application in the CPM-enabled originating entity (device or VASP).	Future
CPM-VAS-005	The CPM Enabler SHALL support the originator of a CPM Standalone Message, a CPM File Transfer or a CPM Session Invitation to indicate, in that CPM Standalone Message or CPM Session Invitation, the target VAS Application in the CPM-enabled receiving entity (device or VASP).	Future

CPM-VAS-006	<p>The CPM Enabler SHALL support generating and sending of event notification with relevant information (e.g. user causing the event, type of event, ...) back to the Application so that the Application may take suitable service logic decisions.</p> <p>Examples of event classes:</p> <ul style="list-style-type: none"> • a Participant joining/leaving a communication, including in a hidden mode • the registration/de-registration of a device with a CPM service • the modification of a session (Media addition, switching to another device, ...) • an access to messages or Media in the network-storage, a change in access rights over Media or storage • content adaptation of a message • attempts of unidentified and/or unauthenticated Principals to use a CPM service 	Future
CPM-VAS-007	<p>The CPM Enabler SHALL allow the event notification to be set and activated</p> <ul style="list-style-type: none"> • on a per user or on a per Application basis • based on time (e.g. for scheduled event) 	Future
CPM-VAS-008	<p>The CPM Enabler SHALL allow an Application with appropriate rights to send a CPM Standalone Message, perform a CPM File Transfer or initiate a CPM Session on behalf of a CPM User (e.g. for scheduled conferencing or when the recipient(s) become(s) available).</p>	Future
CPM-VAS-009	<p>The CPM Enabler SHALL allow an Application with appropriate rights to exercise control over a CPM Conversation including but not limited to starting/stopping a CPM Session (e.g. for time-bound conferencing Applications), listing/searching ongoing CPM Sessions & associated Participants, replaying the recent history of a CPM Conversation (e.g. in case of device switching), adding/removing Participants to a CPM Session (e.g. for a moderated chat room).</p>	Future
CPM-VAS-010	<p>The CPM Enabler SHALL allow an Application with appropriate rights to use moderation functions over Media usage (e.g. for a conferencing Application where only the authorized speaker might be allowed to send his video stream to the CPM Session Participants).</p>	Future
CPM-VAS-011	<p>The CPM Enabler SHALL allow an Application with appropriate rights to use Media handling functions such as adding/removing Media (continuous) to/from a CPM Session, Media redirection (e.g. indicate that a video shall be sent to a specified end point), Media splitting (audio vs. video, ...)</p>	Future
CPM-VAS-012a	<p>The CPM Enabler SHALL allow a CPM service provider to enable/disable access by an Application and/or VASP to the CPM Enabler.</p>	Future
CPM-VAS-012b	<p>The CPM Enabler SHALL allow a CPM service provider to select on a per Application and/or VASP basis which specific CPM Enabler features will be accessible to Applications.</p>	Future
CPM-VAS-013	<p>The CPM Enabler SHALL be able to provide anonymity for the CPM User when communicating with an Application.</p>	Future

Table 11: High-Level Functional Requirements – Applications Items

6.1.11 Lawful Interception

NOTE: The capability to intercept CPM telecommunications traffic and related information is always implemented in accordance with national or regional (e.g. European Union) laws or technical regulations applicable to the service provider. Nothing in this specification, including the definitions, is intended to supplant such applicable laws or regulations.

Label	Description	Enabler Release
CPM-LI-001	The CPM Enabler SHALL support capabilities to allow lawful interception.	CPM V1.0
CPM-LI-002	Available and applicable underlying network (e.g., SIP/IP Core) capabilities SHOULD be used to support lawful interception requirements as much as possible (e.g. use 3GPP lawful interception in case of 3GPP IMS and/or other national or regional technical specifications).	CPM V1.0

Table 12: High-Level Functional Requirements – Lawful Interception Items

6.1.12 Interworking

Label	Description	Enabler Release
CPM-IWF-001	The CPM Enabler SHALL support interworking with Non-CPM Communication Services without requiring changes to them.	CPM V1.0
CPM-IWF-002	The CPM Enabler SHALL allow a CPM User to send a CPM Message from a CPM-enabled device to a non-CPM User.	CPM V1.0
CPM-IWF-003	The CPM Enabler SHALL allow a CPM User to receive a message from a non-CPM User.	CPM V1.0
CPM-IWF-004	The CPM Enabler SHALL be able to send messages using an appropriate non-CPM communication technology in case that the intended recipient is not a CPM User or is not available for receiving CPM Messages.	CPM V1.0
CPM-IWF-005	The CPM Enabler SHALL allow a CPM User to attempt to send a continuous Media from a CPM-enabled device to a non-CPM User or to a CPM User who is not available for receiving continuous Media. If the continuous Media cannot be sent, the sender SHALL be notified.	CPM V1.0
CPM-IWF-006	The CPM Enabler SHALL allow a CPM User to receive a continuous Media to a CPM-enabled device from a non-CPM User.	CPM V1.0
CPM-IWF-020	The CPM Enabler SHALL allow a CPM User to perform a CPM File Transfer from a CPM-enabled device to a non-CPM User.	CPM V1.0
CPM-IWF-021	The CPM Enabler SHALL be able to convert a CPM File Transfer towards the appropriate format for the target Non-CPM Communication Service, and accept a response to that file transfer while performing interworking towards a Non-CPM Communication Service that does support file transfer.	CPM V1.0
CPM-IWF-022	When interworking towards a Non-CPM Communication Service that does not support file transfer, depending on user preferences and service provider policies, the CPM Enabler SHALL be able to: <ul style="list-style-type: none"> Accept the CPM File Transfer on behalf of a non-CPM User and convert the transferred file into a message. Reject the CPM File Transfer 	CPM V1.0
CPM-IWF-007	The CPM Enabler SHALL be able to convert a CPM Session Invitation towards the appropriate format for the target messaging service, and accept a response to that converted invitation while performing interworking towards a Non-CPM Communication Service that does support sessions and invitations.	CPM V1.0
CPM-IWF-008	When interworking towards a Non-CPM Communication Service that does not support sessions or invitations, depending on user preferences and service provider policies, the CPM Enabler SHALL be able to: <ul style="list-style-type: none"> Accept a CPM Session Invitation on behalf of a non-CPM User Reject the CPM Session Invitation Convert a CPM Session Invitation towards an inviting message, and accept a response from the non-CPM User to the inviting message 	CPM V1.0
CPM-IWF-009	The CPM Enabler SHALL be able to convey to a CPM User an invitation request from a Non-CPM Communication Service, and convey the corresponding invitation response back to the non-CPM user.	CPM V1.0

CPM-IWF-010	When a CPM User exchanges messages with a non-CPM User, the CPM Enabler SHOULD be able to identify CPM Messages associated with a CPM Conversation so that they can be displayed in a conversational view in the CPM User's device if required by the CPM User's preferences.	CPM V1.0
CPM-IWF-011	The CPM Enabler SHOULD be able to provide the necessary information to Non-CPM Communication Services so that a Non-CPM Communication Service user can view messages in the order they are sent by the CPM User.	CPM V1.0
CPM-IWF-012	The CPM Enabler SHOULD be able to use any information provided and supported by a Non-CPM Communication Service to ensure that a CPM User can view messages in the order they are sent by the non-CPM User.	CPM V1.0
CPM-IWF-013	When provided with presence support, a CPM User MAY be able to subscribe to Presence Information of a user that uses a Non-CPM Communication Service that supports Presence Information exchange.	Future
CPM-IWF-014	For a CPM User provided with presence support, it MAY be possible to make available Presence Information of that CPM User towards Non-CPM Communication Service that supports Presence Information exchange.	Future
CPM-IWF-015	When provided with presence support, a CPM User MAY be provided with information generated by the CPM Enabler about users of a Non-CPM Communication Service that does not support Presence Information exchange (e.g. indication of "non-CPM service").	Future
CPM-IWF-016	The CPM Enabler SHALL preserve the request of an originator to not disclose its identity while interworking with a Non-CPM Communication Service.	CPM V1.0
CPM-IWF-017	The CPM Enabler SHALL refrain from interworking with a Non-CPM Communication Service when the originator requested to not disclose its identity and the interworking cannot guarantee this.	CPM V1.0
CPM-IWF-018	The CPM Enabler SHOULD preserve sensitivity indications when interworking.	CPM V1.0
CPM-IWF-019	The CPM Enabler SHOULD preserve priority indications when interworking.	CPM V1.0

Table 13: High-Level Functional Requirements – Interworking Items

6.1.13 Security

Label	Description	Enabler Release
CPM-SEC-001	The CPM Enabler SHALL provide a Principal with at least the same security level as is provided with the existing messaging services (e.g. SMS, MMS, SIMPLE IM, POC, VoIP).	CPM V1.0
CPM-SEC-002	The CPM Enabler SHALL allow a CPM service to provide CPM Users with Content Screening based on user preferences and service provider policies.	Future
CPM-SEC-003	The CPM Enabler SHOULD allow a CPM service to protect CPM Users against Unwanted Messaging, according to the user's preferences and service provider policies.	Future
CPM-SEC-004	The CPM Enabler MAY allow a CPM service to protect CPM Users against Malware, according to the user's preferences and service provider policies.	Future
CPM-SEC-005	Unauthorized Principals SHALL be denied access to the functions of the CPM Enabler.	CPM V1.0
CPM-SEC-006	It SHALL be possible to preserve the integrity and confidentiality of communication between a CPM Client and CPM network based functionality.	CPM V1.0
CPM-SEC-007	The CPM Enabler SHALL NOT enable the circumvention of applicable DRM mechanisms (e.g. when a user gives permission to access Media in his/her network-based storage).	CPM V1.0

Table 14: High-Level Functional Requirements – Security Items

6.1.13.1 Authentication

Label	Description	Enabler Release
CPM-AUC-001	A CPM Enabler SHALL support a Principal to be authenticated by the CPM service provider domain.	CPM V1.0
CPM-AUC-002	The CPM Enabler SHALL support a Principal to authenticate the CPM service provider domain.	CPM V1.0
CPM-AUC-003	The CPM Enabler MAY leverage the authentication capabilities of the underlying IP network to authenticate a Principal.	CPM V1.0
CPM-AUC-004	The CPM Enabler MAY leverage the authentication capabilities of the underlying IP network to allow a Principal to authenticate the service provider domain.	CPM V1.0

Table 15: High-Level Functional Requirements – Authentication Items

6.1.13.2 Authorization

Label	Description	Enabler Release
CPM-AUT-001	The CPM Enabler SHALL verify, if applicable by the service provider's policy, whether a Principal is authorized to perform the action(s) it requested.	CPM V1.0

Table 16: High-Level Functional Requirements – Authorization Items

6.1.13.3 Data Integrity

None.

6.1.13.4 Confidentiality

None.

6.1.14 Charging

Label	Description	Enabler Release
CPM-CHA-001	The CPM Enabler SHALL support the creation of Charging Events needed for different charging models, e.g. charging for individual events, charging for sessions, charging based on service subscriptions, and to facilitate Charging Correlation.	Future
CPM-CHA-002	The CPM Enabler SHALL support Online Charging.	Future
CPM-CHA-003	The CPM Enabler SHOULD support Offline Charging.	Future

Table 17: High-Level Functional Requirements – Charging Items

6.1.15 Administration and Configuration

None.

6.1.16 Usability

Label	Description	Enabler Release
CPM-USA-010	A CPM User SHALL be able to define a display name for himself.	CPM V1.0
CPM-USA-011	The CPM Enabler SHALL convey an originator's display name to the target user(s).	CPM V1.0

CPM-USA-001	The CPM Enabler SHALL be able to present to the recipient CPM User, the display name of the sender as in the recipient's address book, or a combination of the display name and other information (e.g. company name) from the recipient's address book, instead of the display name included in the originating address information. Note: if the sender has requested not to disclose his identity then this requirement does not apply.	CPM V1.0
CPM-USA-002	The CPM Enabler SHALL allow the CPM User to initiate communication using URI Schemes contained in CPM Messages.	CPM V1.0
CPM-USA-003	The CPM Enabler SHALL allow a CPM User to switch on/off notifications, subject to service provider's policy on which notifications can be switched on/off by this feature.	CPM V1.0
CPM-USA-004	The CPM Enabler SHALL ensure that a CPM User does not have to know or select the communication technology that will be used for sending a CPM Message to a non-CPM User.	CPM V1.0
CPM-USA-005	The CPM Enabler SHALL ensure that a CPM User does not have to know or select the communication technology that will be used for sending a continuous Media to a non-CPM User.	CPM V1.0
CPM-USA-009	The CPM Enabler SHALL ensure that a CPM User does not have to know or select the communication technology that will be used for a CPM File Transfer.	CPM V1.0
CPM-USA-006	The CPM Enabler SHALL ensure that a CPM User does not have to know or select the communication technology that will be used for sending a CPM Session Invitation to a non-CPM User.	CPM V1.0
CPM-USA-007	The CPM Enabler SHALL ensure that a CPM User does not have to know the communication technology used by the non-CPM User to send an invitation request.	CPM V1.0
CPM-USA-008	A CPM User SHALL be able to initiate CPM Conversations using his/her address book with selected contacts.	CPM V1.0

Table 18: High-Level Functional Requirements – Usability Items

6.1.17 Interoperability

Label	Description	Enabler Release
CPM-IOP-001	The CPM Enabler SHALL support CPM Conversations between Principals from different CPM service providers.	CPM V1.0

Table 19: High-Level Functional Requirements – Interoperability Items

6.1.18 Privacy

None.

6.2 Overall System Requirements

Label	Description	Enabler Release
CPM-OSR-001	Recognizing the existence of current standards-based communication services (messaging, telephony, etc), the CPM Enabler SHOULD re-use as appropriate (e.g. through reference) relevant parts of the associated supporting specifications from OMA, 3GPP, 3GPP2, IETF, TISPAN, etc.	CPM V1.0

Table 20: High-Level System Requirements

Appendix A. Change History

(Informative)

A.1 Approved Version 1.0 History

Reference	Date	Description
OMA-RD-CPM-V1_0-20120612-A	12 Jun 2012	Status changed to Approved by TP: OMA-TP-2012-0221R01-INP_CPM_V1_0_ERP_for_Final_Approval

Appendix B. Use Cases (Informative)

B.1 Multiple Service Converged IP Messaging

B.1.1 Short Description

Joe and Sally are two friends who are able to communicate using Converged IP Messaging in a seamless way. The use case shows presence, text, video, picture and voice communications being used together to give Joe and Sally a good communications experience while they are remote from each other.

B.1.2 Actors

Joe is a CPM User based in England.

Sally is a CPM User based in Japan.

B.1.2.1 Actor Specific Issues

Joe wants to be able to communicate with Sally using any CPM facility to give the richest communications experience possible.

B.1.2.2 Actor Specific Benefits

Joe and Sally can both take advantage of sophisticated CPM facilities.

B.1.3 Pre-conditions

Joe and Sally have subscribed to each other's Presence Information.

Joe and Sally have both subscribed to the CPM service on their respective networks.

CPM interconnection is provided between the network used by Joe and that used by Sally.

B.1.4 Post-conditions

Joe and Sally can exchange messages, pictures and voice clips with each other.

Joe and Sally can talk to each other or be on a video call.

B.1.5 Normal Flow

1. Joe is travelling on a train in England and opens his mobile device.
2. He looks at his address book and notices that Sally is online and available. He hasn't communicated with Sally in a while and sends a message to ask if she is busy.
3. Sally replies that it is great to hear from Joe, that she is in Japan, and asks what he is up to these days.
4. Joe sends a picture of his latest project, a barn conversion.
5. Sally then asks if Joe can talk now.
6. Joe says yes, so Sally invites Joe to a voice call.
7. They chat for a while but then the train goes into a tunnel and the signal is lost.
8. Sally sends a message to Joe to tell him to let her know when he is out of the tunnel. She will be busy doing something away from her phone but nearby, so she asks him to send a message containing a voice clip to update her.
9. When Joe's train exits the tunnel he receives Sally's message and then records a voice clip and sends it to Sally.

10. Sally has set her phone to immediately play received voice clips, so the voice clip is immediately played over Sally's device; she returns to her phone and invites Joe to a video call to show him the night lights in Japan.
11. Joe accepts the invitation and is able to see Tokyo at night. Sally is able to see the green fields going past Joe.

B.1.6 Alternative Flow

None.

B.1.7 Operational and Quality of Experience Requirements

Joe and Sally both experience the communications in real time. There are no significant delays to any part of the service.

B.2 Multi-devices and Dynamic Session Modification

B.2.1 Short Description

A CPM User can have multiple devices in his/her environment and each device has its own capabilities. This use case describes how a Service based on the Converged IP Messaging Enabler can be offered when the CPM User has several devices to ensure a consistent and seamless user experience across them.

B.2.2 Actors

Alice is a CPM User that uses the Converged IP Messaging service on several devices.

Bob is a CPM User that uses the Converged IP Messaging service on several devices.

B.2.2.1 Actor Specific Issues

Alice is at home and has three CPM devices, all of them are registered to the CPM service: a mobile phone, a fixed phone and a laptop. Alice's preferences state that she wants to be notified of new messages and CPM Session Invitations on the devices on which she is registered, in this use case on all her three devices. Alice wants to switch her CPM Session from one CPM device to another.

Bob is on holidays and also has three devices all of them registered with the CPM System: a mobile phone, a PDA and a laptop. Bob wants to share with Alice some photos of his holidays and sends her a message with these pictures. Bob wants to modify his on-going CPM Sessions by adding new Media.

The CPM System notifies Alice of new messages on all devices. The message is displayed on the device chosen by Alice. The CPM System notifies Alice of new CPM Session Invitations on all devices and then the CPM Session starts on the device(s) chosen by Alice.

B.2.2.2 Actor Specific Benefits

Alice can be notified of new messages on all the devices on which she is registered so she will not miss Bob's message.

Alice can be notified of new CPM Session Invitations on all the devices on which she is registered so she will not miss Bob's invitation.

Alice can switch from one device to another during the CPM Session with Bob to finish her discussion while leaving home.

Bob can modify the on-going CPM Session by adding a new continuous Media and choosing a target device.

B.2.3 Pre-conditions

Alice and Bob are both provisioned to use the CPM service.

Alice and Bob's devices are provisioned on the CPM System and are all registered with the CPM System.

B.2.4 Post-conditions

Alice is able to see Bob's messages on the device she chooses to.

She is able to continue the CPM Session with Bob while switching from a device to another.

Bob is able to modify the ongoing CPM Session, add a new continuous Media and manage the different Media on multiple devices.

B.2.5 Normal Flow

1. Bob just came back from holidays and wants to share some pictures with Alice. To do this, he decides to use his CPM service.
2. Bob accesses the CPM service using his laptop, composes his message adding some text (e.g. a short subject and some body text) and attaching the most beautiful pictures he took, selects Alice from his address book and then sends the message.
3. Bob's CPM System then verifies that Bob has the rights (e.g. if he has enough credit on his account) to submit this message.
4. Bob's CPM System forwards the message to Alice's CPM System.
5. Bob's CPM System stores the message in Bob's network-based storage in the CPM service provider domain. Depending on the message characteristics, the user's preferences and/or the service provider's policy, Bob's CPM System may synchronise all Bob's device sentboxes so that the sent message appears on all Bob's registered devices.
6. Alice's CPM System checks Alice's profile for availability and user's preferences and for the device(s) that should receive the message.
7. Alice's CPM System determines that Alice is available and her three devices are registered with the CPM System.
8. Alice's CPM System sends Bob's message to Alice on the three devices and stores it in Alice's network-based storage in the CPM service provider domain. Depending on the message characteristics, the user's preferences and/or the service provider's policy, for each registered device:
 - The entire message could be sent.
 - Only a notification (with Bob's CPM Address and the subject) could be sent.
 - Nothing is sent.
9. Each of Alice's devices notifies Alice that she has got a new message from Bob.
10. Alice is working on her computer. She opens the message on the computer. As a result, the CPM System synchronizes with Alice's other CPM devices to update the message to show that it was "read". Alice could decide one of the following management options for the message:
 - She could store the message locally on her computer.
 - She could store the message into her network based personal storage.
 - She could delete the message locally (e.g. to preserve limited storage capacity) while retaining the notification and the storage on other devices or in the network.
 - She could delete the message globally from all CPM storage on all devices. The CPM System would then synchronize this deletion with all of her devices.
11. Alice is amazed by Bob's pictures and wants to discuss with him about his holidays. She requests to initiate a CPM Session to have a discussion with him by interacting with the CPM System from her computer.

12. Alice's CPM System then verifies that Alice has the rights (e.g. if she has enough credit on her account) to submit this request.
13. Alice's CPM System forwards the CPM Session Invitation to Bob's CPM System.
14. Bob's CPM System checks Bob's profile for availability and Bob's user preferences and for the CPM device(s) that should receive the request.
15. Bob's CPM System determines that Bob is available and his three devices are registered with the CPM System.
16. Bob's CPM System sends Alice's CPM Session Invitation to Bob on his three devices, depending on the request characteristics, Bob's user preferences and/or the service provider's policy, for each registered CPM device, and whether they could be or could not be notified of the incoming CPM Session Invitation. In this case, Bob is notified on all his devices that Alice sent a CPM Session Invitation.
17. Each of Bob's devices notifies Bob that he has got a CPM Session Invitation from Alice.
18. Bob accepts the CPM Session Invitation on his PDA.
19. Bob is no longer notified on his two devices (the mobile phone and the laptop) regarding the CPM Session Invitation from Alice.
20. Bob and Alice continue their discussion.
21. After a while, Alice has to leave for an appointment but still wants to continue the discussion with Bob.
22. She requests the CPM System to switch the CPM Session from the laptop to another device. She selects the mobile phone from the list of registered devices.
23. She indicates that she would like to have the discussion (i.e. the messages up until Step 10) displayed to her mobile so that she can remember the context of the discussion.
24. Alice's CPM System manages the switching of the CPM Session to the new device and sends the CPM Session History to the mobile.
25. Alice continues the discussion on her mobile phone, and the discussion is displayed on the mobile phone.

B.2.6 Alternative Flow – Dynamic CPM Session Modification (Different Device Order)

21. After a while, Alice has to leave for an appointment but still wants to continue the discussion with Bob.
22. She requests the CPM System to list, on her mobile phone, the on-going CPM Session(s) from her other devices.
23. Alice selects the CPM Session she started with Bob on her computer.
24. She indicates that she would like to have the CPM Session History displayed to her mobile so that she can remember the context of the discussion.
25. Alice's CPM System sends the CPM Session History to Alice's mobile.
26. Alice selects the target CPM Session, the CPM System manages the switching of the existing CPM Session from the laptop to her mobile phone, and Alice continues the discussion on her mobile phone.

B.2.7 Alternative Flow – Dynamic CPM Session Modification (New Media)

21. After a while, Bob would like to talk to Alice directly.
22. Bob is able to display on his PDA information about his ongoing CPM Sessions as well as the Media and devices associated to those CPM Sessions.

23. Bob selects the CPM Session he started with Alice, and requests to add a voice stream to the CPM Session.
24. Bob's PDA sends a request for dynamic session modification to Bob's CPM System.
25. Both (Alice's and Bob's) CPM Systems arrange the addition of a voice stream to the CPM Session, and a request for this additional voice stream is sent to Alice's devices.
26. Alice accepts the incoming voice stream on her laptop.
27. Alice and Bob start to talk to each other and in the meantime they can continue to send each other messages.
28. After a while, Bob would like to share some videos of his holidays with Alice.
29. From his PDA, Bob selects the CPM Session he started with Alice, requests to add a streamed video (he has on his personal area in the CPM service provider domain) to the CPM Session and to display it on his laptop.
30. Bob's PDA sends a request for dynamic session modification to Bob's CPM System.
31. Bob's CPM System forwards the request to Alice's CPM System.
32. Alice's CPM System notifies Alice's laptop of Bob's request to add streamed video to the CPM Session.
33. Alice accepts the request and chooses her laptop as a target for the streamed video that Bob wants to share with her.
34. The Alice's CPM System receives the reply from Alice's laptop and forwards it to Bob's CPM System.
35. Alice and Bob start to share the streamed video that Bob took in Sydney on their laptops while continuing their discussion on respectively her laptop and his PDA.

B.2.8 Alternative Flow – Dynamic CPM Session Modification (Forward to Laptop)

Alice has only one device (her mobile handset) enabled for CPM and she receives a message from Bob with a large jpeg image which is displayed on the device as a thumbnail. Instead of viewing the entire message, Alice forwards the message and attachment to her email account and downloads the entire image and contents as an email from her laptop.

B.2.9 Operational and Quality of Experience Requirements

A user shall be able to receive new messages and new CPM Sessions Invitations on all the devices he/she has registered with the CPM System dependent upon his/her preferences, his/her device(s) capabilities and/or service provider's policy.

A CPM User shall be able to switch from one CPM device to another during a CPM Session and shall be able to retrieve the history of the on going conversation on the new device.

A CPM User shall be able to enrich the conversation, adding new media compatible with the capabilities of the device he switched the conversation on. As an example, the user can add a voice media to an initial text conversation. A CPM User shall be able to modify an ongoing CPM Session by adding new Media.

A CPM User may define his CPM preferences like: receive the notifications only on his mobile phone, receive notifications for messages sent to his business address and only on her computer. He is able to define rules based on his addresses, device(s), messages and Media Types, etc.

B.3 VAS Application Messaging

B.3.1 Short Description

This use case describes a scenario where a VASP exchanges messages with an end user making use of the Converged IP Messaging capabilities.

B.3.2 Actors

Mary

Peter

John

VASP

Converged IP Messaging system

Other non-CPM messaging servers

B.3.2.1 Actor Specific Issues

VASP:

- wants to send a message to one or several end users without the need to know whether the recipient end users have or not a Converged IP Messaging client.
- wants to be able to receive messages from end users using a single protocol independently of the nature of the message and the messaging technology used by the user.
- wants to have at least the same functionality as it had when sending messages to Non-CPM messaging servers.

Mary and Peter want to be able to exchange messages with VASPs after changing their device to a new one with Converged IP Messaging capabilities.

B.3.2.2 Actor Specific Benefits

The VASP is relieved of the burden of managing connections to several messaging servers. Now the VASP may have a single interface with the messaging infrastructure and use a single protocol for message exchange.

B.3.3 Pre-conditions

The VASP is connected to a Converged IP Messaging system.

Mary has a Converged IP Messaging enabled client.

Peter has a Converged IP Messaging enabled client.

John has a client for a Non-CPM Communication Service.

B.3.4 Post-conditions

The messages exchanged by the VASP and the users are correctly received by the intended recipients.

B.3.5 Normal Flow

1. Mary sends a message to a specific VASP making use of the Converged IP Messaging system because she wants to subscribe to a news service.
2. The Converged IP Messaging system receives the message and forwards it to the recipient VASP.
3. The VASP receives the message from the Converged IP Messaging system.
4. The VASP decides then to send a message with the latest news to Mary. Independently of the content of the message (text, multimedia, etc), the VASP submits the message to the Converged IP Messaging system.
5. The Converged IP Messaging system knows that Mary is registered from a Converged IP Messaging client and sends the message to Mary.

6. Mary receives the message at her Converged IP Messaging client.

B.3.6 Alternative Flow (non-CPM services)

1. John sends a message to a specific VASP making use of one of the non-CPM messaging technologies supported by his mobile device because he wants to subscribe to a news service.
2. The corresponding non-CPM messaging server forwards the message to the Converged IP Messaging system.
3. The Converged IP Messaging system forwards the message to the recipient VASP.
4. The VASP receives the message from the Converged IP Messaging system.
5. The VASP decides then to send a message with the latest news to John. Independently of the content of the message (text, multimedia, etc), the VASP submits the message to the Converged IP Messaging system.
6. The Converged IP Messaging system knows that John is not registered with the CPM System and therefore forwards the message to the appropriate non-CPM messaging server.
7. The non-CPM messaging server forwards the message to John.
8. John receives the message at his non-CPM messaging client.

B.3.7 Alternative Flow (Multiple Recipients)

1. The VASP decides to send a message with the latest news to Mary, Peter and John (e.g. because they have subscribed to that specific service). Independently of the content of the message (text, multimedia, etc), the VASP submits the message to the Converged IP Messaging system.
2. The Converged IP Messaging system knows that Mary and Peter are registered from a Converged IP Messaging client whereas John is not registered with the CPM System. Then, the Converged IP Messaging system sends the message to Mary and Peter and forwards it to the appropriate non-CPM messaging server for the delivery to John.
3. Mary and Peter receive the message at their Converged IP Messaging client.
4. The non-CPM messaging server forwards the message to John.
5. John receives the message at his non-CPM messaging client.

B.3.8 Alternative Flow (Multimedia Conference Application)

1. Mary is accessing a VASP-based Multimedia Conference Application and is setting up a conference to start at 5pm and which shall include both Peter & John.
2. The Multimedia Conference Application is using the CPM Enabler Application interface to provision an invitation message to the conference to be sent to Mary, Peter & John at 5pm.
3. From the Multimedia Conference Application, Mary can see that both Peter & John have joined the conference.
4. After the five minutes allocated for the roll call and the introduction of the Participants, the Multimedia Conference Application takes over, mutes the line and plays the introduction video.
5. As soon as the video is over, the Multimedia Conference Application hands over the control of the conference to Mary, who allows, from the Multimedia Conference Application, only text messages incoming from the Participants but herself. The CPM Enabler enforces this moderation of Media.
6. Mary is activating her web-cam from the Multimedia Conference Application; the CPM Enabler adds her video stream to the conference.
7. Peter is losing coverage (due to a tunnel) and drops from the conference. Peter indicated this might happen and would like to be reconnected as soon as he gets coverage. The CPM Enabler notifies the Multimedia Conference

Application that Peter is no longer in the conversation. The Multimedia Conference Application requests from the CPM Enabler to be notified as soon as Peter is available.

8. Peter comes back in coverage and registers again on the CPM Server. The CPM Enabler notifies the Multimedia Conference Application that Peter is available. The Multimedia Conference Application invites Peter to join back into the conference.
9. Once her presentation is finished, Mary, from the Multimedia Conference Application, opens the floor for the Q&A session.
10. During the lifetime of the conference, the Multimedia Conference Application generates a transcript of the conference by tracking questions from the floor and generating an automatic registry of attendance.

B.3.9 Alternative Flow (Application on the User's Device)

1. Mary activates the "Restaurant Finder" VAS Application on her terminal and finds the listing of a restaurant that sounds good.
2. Mary invokes the "Dinner Proposal" option from the "Restaurant Finder" Application menu and composes a dinner proposal to Peter including the restaurant info from the "Restaurant Finder" Application listing.
3. Peter receives the message in his messaging client.
4. Peter replies to Mary that he knows this restaurant, but does not recommend it.
5. Mary receives the reply from Peter while still in the "Restaurant Finder" Application, and continues to search for another eatery. Finding another spot, she sends a new dinner proposal to Peter.
6. Peter receives the new dinner proposal, examines the restaurant info and agrees to meet. He replies to Mary with a message setting a time.
7. Mary happily receives the message and exits the "Restaurant Finder" Application (after saving the map to the restaurant).

B.3.10 Operational and Quality of Experience Requirements

The functionalities of the different existing protocols for message exchanges between VASPs and current messaging platforms (e.g. MM7) should be preserved.

B.4 Multimedia Group Communication

B.4.1 Short Description

This use case describes a scenario where Alice, Bob, David and Carol start planning evening activities over a CPM Group Session, but soon they want to use also other Media for communication. They end up keeping the CPM Group Session open the whole day and sending some funny/entertaining Media to others every now and then. They also invite a new Participant, Ted, to the CPM Group Session.

B.4.2 Actors

The involved actors are:

- Users (or Participants): Alice, Bob, David, Carol and Ted.
- Service provider.

B.4.2.1 Actor Specific Issues

None identified.

B.4.2.2 Actor Specific Benefits

The benefits for the users are:

- Users can flexibly change the Media on an as needed basis during the CPM Group Session.
- Participants of the CPM Group Session can dynamically change.

The benefits for the service provider are:

- Service provider can offer less-limited communication infrastructure to users.
- Service provider is able to provide various kinds of new Applications/services.
- Service provider is able to offer full-duplex Media using infrastructure build on-top of OMA architecture.

B.4.3 Pre-conditions

The required pre-conditions are:

- The users have a subscription from the service provider to allow participation in multimedia CPM Group Session.
- A user is authorised to either initiate a CPM Group Session on ad-hoc basis or create a CPM Pre-defined Group on a server depending on the service provider's offering and device capabilities.
- The users have a terminal capable of negotiating and handling different real-time and non-real-time Media in a CPM Session.
- The users have been given permission (according to access policies) to do the actions required in the use case.

B.4.4 Post-conditions

The required post-conditions are:

- Users can continue the communication until the CPM Group Session ending criteria is met. The CPM Group Session may end e.g. when the initiating user leaves, or at a pre-defined ending time, or when there are less than a pre-defined number of users in the CPM Group Session.
- A CPM Session History is available to users who require it in their network-based storage.

B.4.5 Normal Flow

The normal flow for this use case is:

1. Alice wants to start to plan the evening with her friends Bob, David and Carol.
2. Alice sees from the presence enabled address book that Bob, David and Carol are all available, but David is busy in the meeting. She decides to start a CPM Group Session based only on messages instead of a voice call since David is likely not able to talk.
3. Alice establishes the CPM Group Session with her friends and sends the first message containing text and funny image she selected from the terminal menu.
4. After chatting a while, Bob remembers a nice restaurant and wants to send an image of the restaurant he took last time. He writes a short description about the restaurant and attaches the image to the message.
5. David's meeting ends and he wants to continue the discussion over the voice. He sends a request to add full-duplex voice to the CPM Group Session.

6. Alice, Bob and Carol accept the request to add voice to the CPM Group Session.
7. Carol remembers that Ted should be free in the evening and she sends an invitation to Ted to join the CPM Group Session.
8. Ted accepts the invitation sent by Carol. Ted sees that Bob, David and Alice are also participating in the CPM Group Session.
9. After getting plans for the evening ready, they remove voice from the CPM Group Session, but still keep the CPM Group Session to be able to send messages to each other during the rest of day. Now, the CPM Group Session has five Participants: Alice, Bob, David, Carol and Ted.
10. Alice wants to send others a message with funny video clip she received in the email. Alice has options to send the video as a file or as a video stream. She decides to send the video as a file.
11. The other CPM Group Session Participants receive the file.
12. Later during the day, Carol is walking in the downtown and sees very interesting street performance show. She knows that her friends are interested in seeing it as well. She starts streaming the live video to the Participants of the CPM Group Session. Alice, Bob, David and Ted receive the invitation for to add video to the CPM Group Session from Carol and they accept it.
13. After Carol stops streaming video, the CPM Group Session is kept alive and they continue exchanging messages every now and then.
14. In the evening, Ted wants to get some further instructions about how to find the right restaurants, ask about the weather etc. He decides to add half duplex voice to the ongoing CPM Group Session, since he knows that others might be too busy to respond text messages or to have full-duplex voice call while they are preparing for the evening.
15. Alice, Bob, David and Carol receive an invitation to add half duplex voice to the ongoing CPM Group Session. They all accept the invitation. While preparing for the evening and travelling to the restaurant, they can speak to each others over half duplex voice or send messages.

B.4.6 Alternative Flow

Alternatively, Alice may use a CPM Pre-defined Group for starting to communicate with her friends.

1. Alice selects group "Team X" from the address book and she requests to start a CPM Group Session with the group members of "Team X".

Bob, David and Carol receive an invitation from Alice, but they also see that the invitation is coming from the group "Team X".

All communication methods as in the Normal Flow are available during the CPM Group Session.

Alternatively, Participants of the CPM Group Session may have pre-configured settings and authorisations for CPM Group Sessions. For example, Bob's terminal is a high-speed access capable terminal with a lot of memory and Bob has set his terminal to automatically accept any file transfer request from his friends. He has also set automatic answer for all half-duplex voice requests from his friends.

B.4.7 Operational and Quality of Experience Requirements

- Slow-connection in one of the recipients' terminal should not affect other users.
- Limited capabilities of one of the recipients' terminals should not automatically cause limited capabilities available in the session.
- Easy UI and efficient mechanism in the network to dynamically modify the session parameters (change Media, Participants etc.).

- Easy and possibly automatic terminal configuration for taking the service into use and using the service.
- Ability for the user to see other Participants' availability and willingness for communication.
- Ability for the user to know that the communication is a group session and who are participating.

B.5 Group Communication with Group Rules

B.5.1 Short Description

This use case describes a scenario where a user has created group information before the communication starts. The goal of this use case is to describe how the various rules facilitate group communication by using multiple features provided by the CPM Enabler. The group information is stored in the network and contains generic information about the group, members of group, different kind of rules to be applied e.g. regarding Participants when certain criteria are met, and rules for Media control.

B.5.2 Actors

The involved actors are:

- Owner of group: Alice
- Participants: Alice, Bob, David, Carol, Macy and Ted
- Service provider

B.5.2.1 Actor Specific Issues

None identified.

B.5.2.2 Actor Specific Benefits

The benefits for the owner and/or creator of group are:

- Owner can pre-define group members and CPM Group Membership Rules for group communication.
- Owner can define Media rules, e.g. control for simultaneous streaming Media.
- Owner can re-use the pre-defined group information several times.

The benefits for the Participants are:

- Media control helps Participants to communicate.
- Depending on the group information and access rights, the Participants may have additional information about the group.
- The Participants may get information about the CPM Group Session beforehand.

The benefits for the service provider are:

- Service provider can reduce (real-time) signalling load in air interface when most of the CPM Group Membership Rules and actions can be pre-defined.
- Service provider can offer value for owner e.g. since the owner can store group information at the network.

B.5.3 Pre-conditions

The required pre-conditions are:

- The owner of the group has capabilities and permission to create a group definition.

B.5.4 Post-conditions

The required post-conditions are:

- Participants are able to continue their meeting until the ending criteria is met.
- Any Participant is able to re-join a CPM Group Session depending on the CPM Group Membership Rules and status of the CPM Group Session.
- Additional Participants can be invited depending on the CPM Group Membership Rules and status of the CPM Group Session.

B.5.5 Normal Flow

The normal flow for this use case is:

1. Alice wants to have monthly meetings with her colleagues. She creates a group, lists its members, and defines the subject, the type of the group, the timing, and other useful information. She also sets the CPM Group Membership Rules, and rules for Media control so that all the Participants' video streams are shown, all can speak, but only one can show material at a time.
2. When the meeting start time is met the group members who satisfy the CPM Group Membership Rules will receive invitations for the meeting, and are allowed to join the meeting by accepting the invitation, and selecting Media from offered ones.
3. Alice, Bob and Carol accept the invitation, and can get to know other Participants in the CPM Group Session.
4. When Alice starts her introductory presentation others depending on their Media choice can see her presentation material. All Participants are able to see each others' video streams, and all the Participants are also able to speak during the presentation.
5. Bob knows that Ted wants to join later, so Bob invites Ted when Ted is available for the meeting.
6. Carol thinks that the meeting would be useful also for David, and decides to invite him, but the invitation gets rejected.
7. After Alice's presentation, Alice stops showing her material, and Bob is able to show his material.

B.5.6 Alternative Flow 1 – Designated Owner

Alternatively, the functionality could be the following:

1. A secretary of Alice can create the group on behalf of Alice.
2. The secretary defines the Media rules so that only the speaker's video is shown, or only one Participant is allowed to speak at a time in addition to the host of the meeting. The secretary also sets Alice to be the host and moderator of the meeting.
3. The meeting invitations are sent after Alice has joined in and the meeting start criteria have been met.
4. Ted has the requested participation information and so is able to join in the meeting later whenever he is available for the meeting.
5. Alice wants to send files to other Participants, and needs to change Media offering accordingly during the meeting.

6. After Alice's presentation Alice as a moderator gives the floor to Bob.

B.5.7 Alternative Flow 2 – Pre-defined Group

Alternatively, the functionality could be the following:

1. Alice who is a manager of a department creates group 1 which contains several project members. Some members belong to multiple projects. This group is used for project meeting purpose. She sets CPM Group Membership Rules to invite 'Project A' members to have a meeting.
2. Alice establishes the CPM Group Session with group members who satisfy the defined CPM Group Membership Rules. Accordingly Carol, Ted and Macy who satisfy the CPM Group Membership Rules will receive invitations, and are allowed to join the discussion by accepting the invitation.
3. Carol, Ted and Macy accept the invitation, and can get to know other Participants in the CPM Group Session.
4. Alice starts to discuss the project plan with all the Participants.
5. After the meeting Alice gets second thoughts about who should attend the next project meeting and wants to invite only the software people among the staff members of group 1. Then, she would first create a CPM Group Membership Rule to group 1 and then start a session. The CPM Group Membership Rule evaluation would result in staff members Carol and Macy being invited (Ted is the hardware guy).

B.5.8 Operational and Quality of Experience Requirements

None.

B.6 Network-based Storage

B.6.1 Short Description

The user can have multiple devices and use different type of messaging. This use case describes how converged messaging can ensure a consistent user experience by providing network-based storage for messages and Media.

B.6.2 Actors

Alice: the user that uses the converged messaging service, who shares her stored Media with Claire.

Bob: the user that uses the converged messaging service, who sends pictures and videos of his holidays to Alice.

Claire: the user that uses the converged messaging service.

B.6.2.1 Actor Specific Issues

Alice is at home and is working on her PC (CPM capable device). Alice wants to store CPM Conversation histories (aka store messages and CPM Session Histories) on her network-based storage. She also wants to store videos in her network-based storage. She is able to access this network-based storage to retrieve the messages or Media, and she is able to forward them to Claire.

Bob wants to share with Alice some photos of his holidays and sends her a message with these pictures. He must have a CPM capable device.

Claire has a conversation with Alice within a CPM Session. She must have a CPM capable device.

The CPM System, based on Alice's preferences, stores messages, CPM Session Histories and Media in Alice's network-based storage in the CPM service provider domain.

B.6.2.2 Actor Specific Benefits

Alice can store and access CPM Conversations in a network-based storage in the CPM service provider domain.

Alice can store and access Media in a network-based storage in the CPM service provider domain.

Bob can store and access CPM Conversations in a network-based storage in the CPM service provider domain.

B.6.3 Pre-conditions

Alice, Bob and Claire are both provisioned to use the converged messaging service.

Alice, Bob and Claire's devices are registered with the CPM System.

All users are able to set preferences on how to display Media objects on their devices.

The CPM System knows how to adapt Media objects based on, e.g. device identity, device capabilities.

B.6.4 Post-conditions

Alice is able to retrieve from her network-based storage messages and/or Media she has locally deleted on her PC.

She is able to share with others messages and Media stored in her network-based storage in the CPM service provider domain.

B.6.5 Normal Flow – Messages Storage

1. Bob just came back from holidays and wants to share some pictures with Alice.
2. Bob composes a message adding some text (e.g. a short subject and some body text) and attaching the most beautiful pictures he took, selects Alice from his address book and then sends the message.
3. Bob's CPM System then verifies that Bob has the rights (e.g. if he has enough credit on his account) to submit this message, and forwards the message to Alice's CPM System.
4. Bob has set his preferences so that Bob's CPM System stores the message in the sentbox of Bob's network-based storage in the CPM service provider domain. Bob is able to synchronise any of his devices' sentboxes with his network-based storage's sentbox.
5. Alice's CPM System checks Alice's profile for availability and her user preferences and for the device(s) that should receive the message, and then sends Bob's message to Alice on her PC.
6. Alice has set her preferences so that Alice's CPM System stores Bob's message in Alice's network-based storage in the CPM service provider domain.
7. After reading the message, Alice decides to delete the message locally on her PC.
8. A few days later, Alice discusses with her friend Claire and talks about Bob's holidays. She would like to show Bob's message to Claire.
9. Alice accesses the message Bob sent her a few days ago in her network-based storage in the CPM service provider domain.
10. Alice requests the CPM System to forward Bob's message to Claire directly from her network-based storage. Alice is also able to request the retrieval of Bob's message to have a local copy on her PC.
11. Alice's CPM System forwards the message to Claire's CPM System which then sends it to Claire.
12. Alice and Claire continue their conversation regarding Bob's message.

B.6.6 Alternative Flow – Media Storage

7. Alice is amazed by Bob's pictures and wants to discuss with him about his holidays. She initiates a CPM Session to have a text conversation with him by interacting with the CPM System from her PC.
8. Bob is notified of the incoming request and accepts the CPM Session request.
9. Bob and Alice start their CPM Session.
10. During the conversation, Bob decides to send some videos to Alice.
11. Alice has set her preferences to store the CPM Session History with all the exchanged Media such as Bob's videos in her network-based storage in the CPM service provider domain. The CPM Session History and the videos are stored on Alice's network-based storage.
12. A few days later, Alice is having a text conversation with her friend Claire about Bob's holidays. She would like to send her Bob's videos that are of interest for Claire.
13. Alice accesses the videos in her network-based storage in the CPM service provider domain.
14. Alice requests the CPM System to send the videos to Claire within the current CPM Session. Alice is also able to request the retrieval of these videos to have a local copy on her PC. Alice is also able to request to send to Claire the CPM Session History of her discussion with Bob including the videos.
15. Claire sees the videos and continues the conversation with Alice.
16. Alice wants to show to Claire how Bob got tanned during his holidays. She composes a message and adds a picture of Bob at home she had locally on her computer. Then she accesses Bob's pictures in her network-based storage in the CPM service provider domain to add one of Bob's pictures. She can request the CPM System to download a preview of the pictures stored in her network-based storage to help her choose.
17. Alice requests the CPM System to send the message with both pictures so that Claire is able to compare Bob before and after his holidays.

B.6.7 Alternative Flow – Message Storage Management

1. Alice would like to see the list of messages exchanged with Bob in the last three days.
2. Alice requests the CPM System to display this list of messages stored in her network-based storage in the CPM service provider domain.
3. The CPM System delivers the requested information to Alice's PC which then displays the list of messages with some details about them (e.g. size, date, etc).
4. Alice then requests to create a new folder "Friends". The CPM System creates the folder. The view of Alice's network-based storage is refreshed on her PC to show the new folder in the network-based storage's view.
5. Alice requests to move all Bob's messages that were exchanged within the last three days to the "Friends" folder. The CPM System then moves each message to that folder. The view of Alice's network-based storage is refreshed on her PC to show the new network-based storage organization.
6. Alice requests to open the "Friends" folder. The list of Bob's messages of this folder is then displayed on Alice's PC.
7. Alice selects the first message and requests to delete it. The CPM System then deletes the message. The view of Alice's network-based storage is refreshed on her PC to show the new list of messages included in the "Friends" folder.
8. Alice has the history of her conversation with Claire on her PC. She would like to keep it in her network-based storage.

9. Alice requests the CPM System to store that conversation history in the "Friends" folder of her network-based storage in the CPM service provider domain.
10. The CPM System updates Alice's network-based storage to add the conversation history in the "Friends" folder of Alice's network-based storage.

B.6.8 Alternative Flow – Media Storage Management

1. Alice would like to see Bob's pictures and videos which are stored in her network-based storage in the CPM service provider domain.
2. Alice requests the CPM System to see the list of pictures and videos stored in the folder "Bob's holidays" of her network-based storage.
3. The CPM System responds to the request from Alice's PC which then displays the list of pictures and videos with some details about these files (e.g. thumbnails, previews, size, date ...).
4. Alice then requests to create two new folders within "Bob's holidays" folder: "pictures" and "videos". The CPM System creates both folders. The view of Alice's network-based storage is refreshed on her PC to show the two new folders in addition to the pictures and videos of the "Bob's holidays" folder.
5. Alice requests to move all pictures to the "pictures" folder and all videos to the "videos" folder. The CPM System then moves each file to the corresponding folder. The view of Alice's network-based storage is refreshed on her PC to show only the two folders included in the "Bob's holidays" folder.
6. Alice requests to open the "pictures" folder. The list of pictures of this folder is then displayed on Alice's PC.
7. Alice selects "picture1.jpg" and requests to delete it. The CPM System then deletes the Media file. The view of Alice's network-based storage is refreshed on her PC to show the new list of pictures included in the "pictures" folder.
8. Alice has some pictures on her PC that she took when she was on holidays with Bob. She would like to save them on her network-based storage.
9. Alice requests the CPM System to store the pictures in the "pictures" folder of "Bob's holidays" folder of her network-based storage in the CPM service provider domain.
10. The CPM System updates Alice's network-based storage to add the pictures in the requested folder of Alice's network-based storage.

B.6.9 Alternative Flow – Media Sharing

1. Alice would like to share with Bob some pictures she has just taken. So she requests to upload the pictures and indicates that she wants to give Bob permission to see them.
2. The CPM System stores the pictures in Alice's network-based storage and notifies Bob that Alice has shared some Media with him.
3. Alice decides to share with Bob the pictures from the last holidays as well. So she accesses her network-based storage, selects the folder "holidays" and requests to give Bob permission to see this folder and its content.
4. The CPM modifies the permissions associated with that folder in Alice's network-based storage and notifies Bob.
5. Bob accesses Alice's network-based storage. He can see the list of Media and folders that Alice has shared with him. He can display or download Alice's pictures.
6. Alice would also like that John shares the pictures he took in the last holidays they spent together. So she accesses her network-based storage, selects the folder "holidays" and requests to give John permission to see and modify this folder.
7. The CPM modifies the permissions associated with that folder in Alice's network-based storage and notifies John.

8. John accesses Alice's network-based storage. He can see the list of Media and folders that Alice has shared with him. He can display or download Alice's pictures as well as upload additional pictures to the "holidays" folder.

B.6.10 Operational and Quality of Experience Requirements

A user shall be able to store any type of messages or CPM Session Histories in a network-based storage in the CPM service provider domain.

A user shall be able to store Media in a network-based storage in the CPM service provider domain.

A user shall be able to search for Media, messages or CPM Session Histories stored in a network-based storage in the CPM service provider domain.

B.7 Seamless Interworking between a CPM User and a Non-CPM Communication Service User

B.7.1 Short Description

This use case describes interworking scenarios between a CPM User and a Non-CPM Communication Service user.

B.7.2 Actors

Mary: A CPM User.

Peter: A non-CPM User.

B.7.2.1 Actor Specific Issues

Mary wants to be able to use the CPM service to interact with (e.g. send/receive messages to/from) other users, without having to know the capabilities of these others' handsets and the messaging technology these others are using.

Peter wants to be able to use the Non-CPM Communication Service to interact with (e.g. receive messages from) others, regardless of the messaging technology these others are using.

Peter should be able to communicate (message exchange) with Mary.

B.7.2.2 Actor Specific Benefits

Mary is able to use the CPM service to interact with (e.g. send/receive messages to/from) people using devices with a messaging client of a Non-CPM Communication Service.

Mary is relieved of the burden of selecting herself the messaging technology that needs to be used.

Mary can access all her received messages from the CPM-enabled device.

Peter is able to use the Non-CPM Communication Service to interact with (e.g. send/receive messages to/from) people using the CPM service.

B.7.3 Pre-conditions

Mary has a device that can access the CPM service.

Peter has a device with a messaging client for a Non-CPM Communication Service.

B.7.4 Post-conditions

Requests or messages sent to Peter by Mary are correctly received by Peter.

Requests or messages sent to Mary by Peter are correctly received by Mary.

B.7.5 Normal Flow – Exchanging Messages

1. Mary decides to send a message to Peter, and composes a message. From the address book she selects Peter to be the recipient and sends the message to the CPM service within Mary's CPM service provider domain.
2. The CPM System in Mary's CPM service provider domain forwards the message to the CPM System in Peter's CPM service provider domain.
3. The CPM System in Peter's CPM service provider domain detects that Peter is not registered with the CPM service, but uses a non-CPM messaging client and therefore forwards the message to the appropriate messaging server handling the Non-CPM Communication Service of Peter's messaging client.
4. The messaging server handling the Non-CPM Communication Service of Peter's messaging client forwards the message to Peter's device.
5. Peter receives the message at his messaging client. Mary can also send multiple messages in a row (e.g. "Hi Peter" and "Are you there?"). Following the same flow as above, Peter receives the messages in the order sent by Mary at his messaging client.
6. After a while, Peter decides to send a message to Mary, and composes a message within his messaging client of the Non-CPM Communication Service. From the address book, he selects Mary to be the recipient. Upon selecting the send option, the messaging client submits the message to the Messaging server associated Peter's messaging client.
7. The messaging server associated with Peter's messaging client forwards the message to its peer that is servicing Mary.
8. Mary's messaging server detects that Mary is able to use the CPM service and therefore forwards the message to the CPM System in Mary's CPM service provider domain.
9. The CPM System in Mary's CPM service provider domain forwards the message to Mary's CPM-enabled device.
10. Mary's CPM-enabled device displays the message to Mary. If Peter's message is a reply to a message sent previously by Mary, Mary's CPM-enabled device detects it and displays the reply message in a threaded view if required by Mary's preferences.
11. Peter can also send multiples messages in a row (e.g. "Hi Mary" and "Are you there?"). Following the same flow as above, Mary receives the messages in the order sent by Peter at her CPM-enabled device.

B.7.6 Alternative Flow – CPM User Sending a CPM Session Invitation

1. Mary decides to send a CPM Session Invitation to Peter, so she selects Peter from the address book and sends the invitation to the CPM System within Mary's CPM service provider domain.
2. The CPM System in Mary's CPM service provider domain forwards the request to the CPM System in Peter's CPM service provider domain.
3. The CPM System in Peter's CPM service provider domain detects that Peter is not registered with the CPM service, but uses a non-CPM messaging client and therefore sends on behalf of Mary an adapted session invitation to the appropriate messaging server handling the Non-CPM Communication Service of Peter's messaging client.
4. The messaging server handling the Non-CPM Communication Service of Peter's messaging client forwards the request to Peter's device.
5. Peter receives the session invitation at his messaging client. Peter accepts the request.
6. Peter's device sends Peter's response to the non-CPM messaging server, which forwards it to the CPM System in Peter's CPM service provider domain.
7. The CPM System in Peter's CPM service provider domain detects that this is a response to an invitation previously sent by Mary and therefore converts it to a CPM response before sending it to Mary's CPM-enabled device through the CPM System in Mary's CPM service provider domain.

8. Mary's CPM-enabled device receives Peter's response and announces it to Mary.

NOTE: If the Non-CPM Communication Service does not support sessions and invitations, the CPM System will auto-accept the CPM invitation on behalf of Peter, deny the session/invitation, or convert the invitation to an inviting message sent to the non-CPM User, based on service provider policies.

B.7.7 Alternative Flow – CPM User Receiving an Invitation

1. Peter decides to start a session with Mary, so he selects Mary from the address book and sends the request to the non-CPM messaging server in Peter's service provider domain.
2. The non-CPM messaging server in Peter's service provider domain forwards the request to the CPM System in Mary's CPM service provider domain.
3. The CPM System in Mary's CPM service provider domain detects that Mary is registered with the CPM service and therefore converts it to a CPM invitation request before sending it to Mary's CPM-enabled device.
4. Mary receives the invitation request at her messaging client. Mary accepts the request.
5. Mary's device sends Mary's response to the CPM System in Mary's CPM service provider domain, which sends an adapted response to the non-CPM messaging system in Peter's service provider domain.
6. The messaging server handling the Non-CPM Communication Service of Peter's messaging client forwards the response to Peter's device.
7. Peter's device receives Mary's response and announces it to Peter.

B.7.8 Operational and Quality of Experience Requirements

A CPM User should not have to select the exact message-delivery technology.

B.8 Multiple CPM Addresses

B.8.1 Short Description

This use case describes how the CPM service allows a user to:

- Have several independent CPM Addresses. For example, a user could have a personal CPM Address and a professional CPM Address.
- Register all his CPM Addresses at the same time on a single CPM-enabled device bound to those CPM Addresses.
- Have an independent environment related to each address (i.e. address book, Media storage, etc.).
- Configure his preference settings on a per-address basis.

B.8.2 Actors

Bob – An end user that uses the CPM service and has subscribed to several CPM Addresses.

Alice (Bob's sister) – An end user that uses the CPM service.

John (Bob's colleague) – An end user that uses the CPM service.

B.8.2.1 Actor Specific Issues

Bob would like to use the CPM services for business and personal purposes. He would like to have two distinct CPM Addresses with different preference settings and network-based storage. However, he would prefer to have only one handset instead of two.

Alice (Bob's sister) would like to send a message to Bob regarding family issue.

John (Bob's colleague) would like to send an urgent message to Bob regarding their current business project.

B.8.2.2 Actor Specific Benefits

Bob is able to use a single handset with two different CPM Addresses and environments. He can also configure both CPM Addresses with different preference settings.

Alice (Bob's sister) can contact Bob on his personal address.

John (Bob's colleague) can contact Bob on his business address.

B.8.3 Pre-conditions

Bob, Alice and John subscribed to the CPM services and have a CPM Client on their handset.

Bob made an agreement with his service provider to get two different CPM Addresses within the same CPM subscription. He has hence two CPM Addresses:

- CPM Address A: a personal address to communicate with his family and friends.
- CPM Address B: a professional address to communicate with his colleagues.

B.8.4 Post-conditions

Bob is able to differentiate messages from colleagues with messages from family or friends. Each CPM Address can be related to a different environment with its own preference settings and address book. A message from a colleague will make the handset ring while a message from his family will make it vibrate.

Alice is able to send a message to Bob regarding family issue without disturbing him.

John is able to send an urgent message to Bob regarding business issue.

B.8.5 Normal Flow

1. Bob switches on his device and since both his personal and business CPM Addresses are bound to that device, it presents two separated and independent environments (two preference setting menus, two contact lists, etc.).
2. He stores his contacts into his address books:
 - He adds family and friends contacts in the address book A.
 - He adds professional contacts in the address book B.
3. Alice is Bob's sister. He then adds her address in his personal address book (A).
4. John is one of Bob's colleagues. He then adds John's address in his corporate address book (B).
5. Bob gives his CPM Address-A to Alice. She stores Bob's entry in her address book as "Bobby".
6. Bob gives his CPM Address-B to John. John hence stores Bob's entry in his address book as "Bob".
7. The day after, Bob is at office and has to attend an important meeting. He still wants to be notified in case a colleague tries to reach him, but he prefers not to disturb the audience with personal issues. Hence, he configures his device this way:

- He invokes the preference setting menu A and sets the incoming message notification to “vibrate” for his personal address book contacts.
 - He invokes the preference setting menu B and sets the incoming message notification to “ring” for his business address book contacts.
8. During the meeting, John sends Bob a message containing a crucial question to ask a particular attendee. Bob hears his device ringing and he is able to know the message comes from a contact listed in address book B. He checks his phone and gets the information.
 9. Alice wants to discuss with Bob regarding their mother’s birthday. She then selects the entry “Bobby” and sends him a message “Did you buy a present for Mummy?” Bob feels his device vibrating and he is aware that a contact listed in address book A sent him a message. He decides to wait for the end of the meeting.
 10. After the meeting, Bob reads Alice’s message and wants to reply. He hence presses the “Reply” button, composes a message “Yes, I did” and selects “Send”. The message is sent using CPM Address-A.
 11. Alice receives the messages and identifies the sender as “Bobby”.

B.8.6 Alternative Flow

None.

B.8.7 Operational and Quality of Experience Requirements

None identified.

B.9 Converged Address Book

B.9.1 Short Description

This use case illustrates how the combination of the CAB enabler and the CPM enabler can simplify the user experience and allow the service provider to build a powerful convergence communication suite.

The CPM user can have multiple devices and would appreciate to have a single address book across all his devices. This use case describes how the combination of converged messaging services offered by CPM Enabler and providing synchronisation of all the information of the address book on all the user's devices provided by CAB Enabler can ensure an improved consistent user experience.

B.9.2 Actors

Alice: a user that uses the converged messaging service, who has several devices.

Bob: a user that uses the converged messaging service, who has several devices.

B.9.2.1 Actor Specific Issues

Alice has three devices: a mobile, a PDA, and a PC. She is on her PC and she wants to contact Bob but she had his contact card only on her PC.

Bob has two devices: a mobile and a PC. He is first connected on his mobile device, then he is connected also on his PC and wants his friends to know what Communication Capabilities are available to contact him at any time based on what is supported by his device(s) and his own preferences.

B.9.2.2 Actor Specific Benefits

Alice can organize her address book on one device, and all the modifications are automatically made available on the other devices. She can access the same information from a new device, or even from a web page in a cyber cafe. She can initiate multimedia conversation with her contacts from any of her devices.

Alice is aware of the Communication Capabilities supported by her contacts and their User Communication Preferences to initiate appropriate communications with them.

Bob is able to suggest to others how they should contact him in different situations.

B.9.3 Pre-conditions

Alice, Bob are both provisioned to use the converged messaging service and the converged address book service.

Alice and Bob's devices are registered with the CPM System and with the CAB Enabler.

B.9.4 Post-conditions

Alice is able to add and update Bob's contact card in her PC, then she is also able to update this Bob's contact card on one device and the modification is automatically reflected in the address book on the other devices, so she can communicate with Bob from any of her devices because she has access to his contact card from everywhere.

B.9.5 Normal Flow

1. Alice is working on her PC. She wants to reorganize her address book.
2. She selects the contact named "Bob" and adds the new version of contact card he sent to her.
3. Once Alice has validated the modification on her PC, the modification is automatically reflected on Alice's other devices.
4. Alice decides to subscribe to Bob's Presence Information from her PC. Based on Alice's subscription request, Bob's presence status is automatically reflected on her PDA and her mobile.
5. Once the subscription is accepted by Bob, Alice is notified of Bob's Presence Information on all of her devices.
6. Alice has a group named "Friends" in her address book. Alice has three contacts in this group: Claire, David and Eric.
7. Alice requests to add Bob to this group.
8. Once Alice has validated the modification on her PC, the modification is automatically reflected in the address book on Alice's other devices.
9. Alice wants to initiate a conversation with her group "Friends". She can see the Communication Capabilities of each member of the group and their User Communication Preferences.
10. So Alice selects the group name "Friends" on her address book and starts a text conversation.
11. At this time of the conversation, Bob is only available on his mobile. Bob then connects also to his PC later on.
12. Alice sees in her address book that the information about her friend "Bobby" has been updated. Bob appears available with capability to receive streamed videos. This information is also automatically updated on Alice's other devices' address books.
13. Alice then decides to share a streamed video with Bob by selecting "Bobby" in her address book under "Friends" group while continuing her conversation with the group.

B.9.6 Alternative Flow

1. Alice purchases a new mobile device which is added to her CPM service subscription.

2. Alice's new device is able to synchronize with Alice's address book data stored on the network.
3. Alice's environment is restored on the new device: static contact information, group definitions, User Communication Preferences, Presence Subscriptions, etc., are recovered on the new device.

B.9.7 Alternative Flow

1. Alice decides to create a work user profile that allows her to request all the incoming messages from her friends to be deferred during the time she is at work.

The combination of CPM and CAB services allows her to select in her user preference profile collection, the group of contacts "friend" and have all communications from these contacts be deferred.

B.9.8 Operational and Quality of Experience Requirements

A user shall be able to know the Communication Capabilities supported by his contacts in his address book.

A user shall be able to add/delete/modify contacts in the address book of one of his devices and the modification is made available on all the other devices.

A user can start a conversation with any of his contacts from any of his devices because he always has access to the same address book which is maintained up to date even if he made some modifications from any of his other devices.