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TECHNICAL SPECIFICATION

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Stage 1
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650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00   Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - APE 7112B
Association à but non lucratif enregistrée à la
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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

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x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

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y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

This Technical Specification defines the requirements for the support of IP Multimedia Subsystem (IMS) group management capability. IMS group management capability provides a possibility to manage network based groups. IMS group management allows defining different roles and rights to the members of a group, defining group level information and properties, etc.

The IMS group management is a generic capability that can be utilised together with several different services. Some examples of the services that can use IMS group management are

- Presence service
  Presentity has a control of who is able to see his presence information. The control is carried out via access control lists, which can be managed with IMS group management. Number of presentities can be subscribed via a list of presentities. The list can be managed with IMS group management.

- Chat
  Administrator of the chat is able to control users that are allowed to participate in the chat. The control is carried out via access control lists, which can be managed with IMS group management.

- Messaging
  In messaging the server may be able to distribute the messages to several recipients based on the delivery list. The content of the delivery list can be managed with IMS group management.

The above examples show only very limited set of possibilities where IMS group management can be utilised. The use of IMS group management is not restricted to these

1 Scope

The present document defines the stage one description of the IMS group management. Stage one is the set of requirements which shall be supported for the provision of IMS group management, seen primarily from the subscribers' and service providers' points of view.

The TS includes information applicable to network operator, service provider, terminal and network manufacturer.

Additional functionalities not documented in the TS are considered outside the scope of this TS. Such additional functionality may be on a network-wide basis, nation-wide basis or particular to a group of users. Such additional functionality shall not compromise conformance to the requirements of the IMS group management defined in this specification.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]   3GPP TR21.905: 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Vocabulary for 3GPP Specifications

[2]   3GPP TS 22.141: 3rd Generation Partnership Project;Technical Specification Group Services and System Aspects; Presence Service; Stage 1

[3]   3GPP TS 22.340: 3rd Generation Partnership Project;Technical Specification Group Services and System Aspects; IMS Messaging; Stage 1

Group administrator: Group administrator has the full set of rights for viewing and managing the group identifier, group specific information, service specific group information, member identifiers and group member properties.

Group content: Group content includes the group identifier, the group specific information, the service specific group information, and the list of group member identifiers with the associated group member properties.

Group member: Group member is an entity in the group.Further 3G related definitions are given in 3GPP TR 21.905 [1].

3.2 Abbreviations

IP   Internet Protocol
IMS   IP Multimedia Subsystem

4   IMS group management

4.1   Informative description of group management

This clause has an informative description of the IMS group management and its role in a few service examples. Furthermore, example characteristics of the group will be described to give an overview of a group and its management.

Group as a concept means a group of persons in this context. Groups can be used by group related services such as conference calls, presence service (c.f. 3GPP TS 22.141 [2]) and messaging (c.f. 3GPP TS 22.340 [3]). This description does not cover requirements for group services themselves but only management of the groups that can be utilized by the group related services. The driver for specifying generic group management is twofold: the same group created by user (or service provider) can be used in many services and same group management functions can be utilised independently of the service being used.

In conference call, the control machinery in network would use a group to setup a conference call and distribution of group media. In messaging area, group management could be utilized in chat sessions (Figure 1) and distribution lists (Figure 2). A chat session could be created by joining a group. The message distribution would be handled by the messaging server. The user would send messages to a group and the server would distribute the messages. In the context of presence service, the user could create groups of watchers with the group management features and different presence information would be provided to each of the groups. These are only few examples of possible use of IMS group management and they intend to clarify the scope of group management.
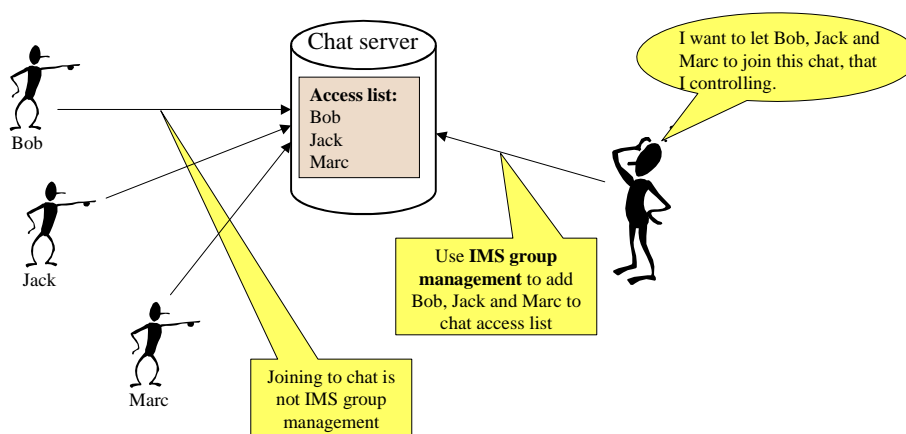

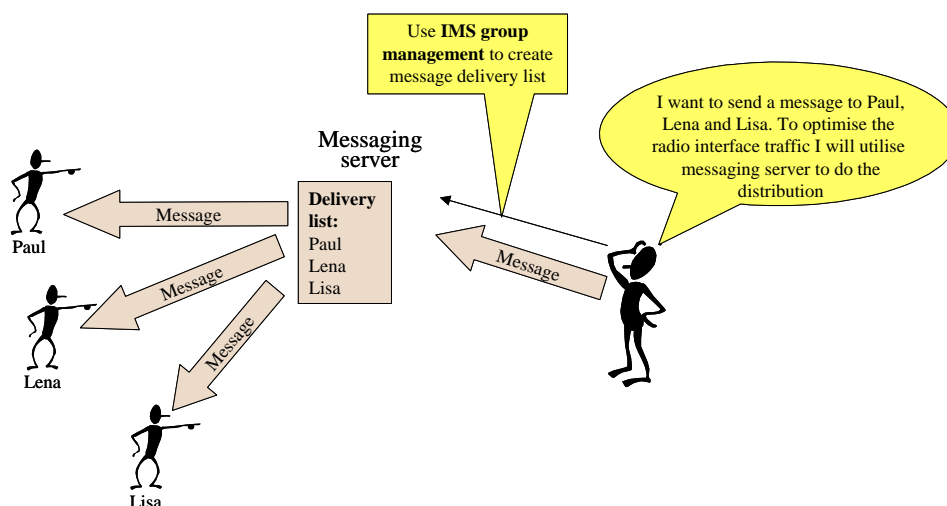**Figure 1. Example: groups in context of chat service**

Figure 2. Example: group used as a message delivery list

How the group is used within a service is outside the scope of this document and outside the scope of group management. For example, taking part in a chat session, making a conference call and give access to certain attributes of the presence information are all group service specific issues and therefore outside the scope of group management. However, all of them could use groups managed by generic IMS group management.

The IMS group management is a common set of actions that can be taken by the group administrator of a group or the group members. Typically, the group consists of members who may have varying rights for configuring or seeing the group properties.

5 High level requirements

5.1 Group management roles

The IMS group management shall provide the ability for users to create groups that can be utilized in context of different services.

The following roles are identified for IMS Group Management:

   a) group administrator;
   Group administrator shall always have the full set of rights for viewing and managing the group and member properties. Each group shall have at least one group administrator at all times. The group administrator is not a group member by default. The entity creating a group becomes a group administrator.

   b) group member; and
   Group member rights shall be assigned by the one who has rights to do that. Group member can be another group.

   c) others.
   These are services and entities that are external to the group (i.e. not group administrators or members). They may or may not be able to use or access group content depending on the group specific information.

5.2 General requirements

The groups controlled by the IMS group management shall be associated with

   a) a group identifier;
   Each group shall have a globally unique, addressable group identifier, which may be suggested by the group administrator when creating the group. The IMS service provider allocates group identifier. The group identifier is used to refer to a specific group (for example when sending a message, when updating the list of group members…).

b) group specific information; and
Group specific information is divided into two parts

1) group information; and
The group information contains informative text. This could be used for example to describe the type and usage of the group.

2) group properties.
Group properties are:

i) group visibility; and
Group visibility defines who are able to see the group identifier when performing a search. The following classes exist:

- only the group administrators; and
- the group administrators and the group members.

ii) group duration.
Once created, a group will exist until either:

- its expiration time; or
- administratively removed.

c) service specific group information.
The service specific group information may give additional information on how the group should be used in the context of a specific service. For example, it may indicate that the group shall be used as an access list in the context of the presence service. Detailed description of the service specific group information is not within the scope of this TS. Possible values can be defined by the terminal manufacturer, operator, service provider, or by other specifications. The service specific group information is transparent to the group management.

5.3   Group member requirements

Requirements for the members are

a) Member identification; and
It shall be possible to identify the members of the group based on the

1) member identifier;
Each single entityshall have a globally unique, addressable identifier(s).

2) group identifier; or
Member can be a another group(s) which is referred with a group identifier(s).

3) commonly known group of entities.
Member can be any entity that has defined characteristics in the identifier field.

b) group member properties.
It shall be possible to associate properties for each group member. Such properties are

1) member rights;
Each member shall be associated with rights. They define which actions the member is allowed to perform.

2) anonymity; and
It shall be possible to hide the member identifier.

3) service specific member information.
The service specific member information may give additional information on member in the context of a specific service. For example, it may indicate the screen name of the member in context of chat service. Detailed description of the service specific member information is not within the scope of this TS. Possible values can be defined by the terminal manufacturer, operator, service provider, or by other specifications. The service specific member information is transparent to the group management.

5.4 Management requirements

The IMS group management shall provide following capabilities to manage groups. The rights associated to the members control the capabilities they are able to perform. These capabilities are:

a) create a group;
   The entity creating a group becomes a group administrator. The administrator shall not become group member by default when creating a group. Further, when creating a group it shall be possible to

   1) define the members of the group;

   2) define group specific information;

   3) define service specific group information; and

   4) define member properties.

b) delete a group;
   It shall be possible to delete a group.

c) add members to a group;
   It shall be possible to add members to a group.

d) get member list of a group;
   It shall be possible to get the list of all members of a group. In case of nested group only the group identifier of the nested group will be provided.

e) remove members from a group;
   It shall be possible to remove members from a group.

f) get group member identification and group member properties;
   It shall be possible to get member identification and group member properties.

g) modify group member properties;
   It shall be possible to modify group member properties within their rights.

h) get group specific information and service specific group information;
   It shall be possible to get group specific information and service specific group information.

i) modify the group specific information and service specific group information;
   It shall be possible to modify all group specific information and service specific group information.

j) simultaneous access from multiple terminals; and
   It shall be possible to manage groups simultaneously from multiple terminals (e.g. via mobile phone and PC).

k) Search.
   It shall be possible for a user to retrieve the group identifiers of all the groups for which he has the group administrator role within his operator's network.

   It shall be possible for a user to retrieve the group identifiers of all the groups for which he has the group member role within his operator's network. If a group is not visible for its group members, then the group identifier will not be revealed to the user.

   In both cases the search criteria shall be a text string. It shall be possible to use wild cards as part of the text string.

It shall be possible for authorised users and applications to use the group content. Some parts of the group content may not be revealed (e.g. group properties…).

5.5 Notification and acknowledgement requirements

The rights associated with the group members and administrator(s) may grant them access to some notification features described below.

It shall be possible for the group members, administrator(s) and authorised users and applications to subscribe to different events concerning the group. When an event occurs the entities interested in that event shall be notified. The notification categories are:

a) change in group specific information;

b) change in service specific group information;

c) change in group members; and
   This includes also the changes in the number of anonymous members.

d) change in group member properties.

6 Security

The use and access to group content and notification(s) of changes shall be supported in a secure manner. It shall be possible to authenticate and authorise users and applications requesting access to the group content (IMS security and authentication mechanisms may be used). It shall only be possible for the group content and notification(s) of changes to be supplied to the authenticated and authorized users and applications.

The group management shall support measures to detect and prevent attempts to abuse the group content and notification(s) of changes. The integrity of the group content and notification(s) of changes during transfer shall be assured to extent of the network capabilities.

NOTE: In case of non-IMS users using and accessing group content and notification(s) of changes, alternative security mechanisms may be used. Such mechanisms are to be defined by IMS service provider and they are not subject to standardisation. Those mechanisms should ensure the authentication and authorisation of users and applications that access the group content. The mechanisms shall provide integrity and confidentiality during the transport of the group content and notification(s) of changes.

It shall be possible to protect the request of group content and the notification of changes in the group content from attacks (e.g., eavesdropping, tampering, and replay attacks).

7 Charging

Charging for IMS group management shall be based on existing IMS charging mechanisms as appropriate.

IMS group management shall be able to support various charging models, including:

a) pay per transaction;

b) volume based charging;
   Charging may be based on the volume of transferred group content.

c) indirect charging; and
   Group management may be indirectly charged when it is incorporated as part of a service.

d) offline charging and online charging.

Annex A (informative):
Change history

Change history											
TSG SA#	**SA Doc.**	**SA1 Doc**	**Spec**	**CR**	**Rev**	**Rel**	**Cat**	**Subject/Comment**	**Old**	**New**	**Work Item**
			ab.cde					Produced during IMS SWG meeting 8th-12th April, Sophia Antipolis, France		0.0.0	IMSGM
		S1-020751	22.250					Initial content provided to number of clauses and subclauses.	0.0.0	0.1.0	IMSGM
			22.250					Definitions added. Group management roles and Group member roles subclauses added. Major revisions in General requirements, Management requirements and Notification and acknowledgement requirements subclauses.	0.1.0	0.2.0	IMSGM
			22.250					Major revisions in General requirements and Notification and acknowledgement requirements subclauses.	0.2.0	0.3.0	IMSGM
			22.250					Group roles reduced to two, Introduction, Security and Charging requirements added.	0.3.0	0.4.0	IMSGM
	SP-020566		22.250					Presented for information	0.4.0	1.0.0	IMSGM
		S1-022042	22.250					Number of editor's notes removed, visibility and search clarified	1.0.0	1.1.0	IMSGM
12 /12/02	SP-18	SP-020669	22.250					Raised to version 2.0.0 for presentation for approval at SA #18	1.1.0	2.0.0	IMSGM
12 /12/02	SP-18	SP-020669	22.250					Approved at SA #18	2.0.0	6.0.0	IMSGM
12 /06/07	SP-36		22.250					Updated from Rel-6 to Rel-7	6.0.0	7.0.0	
SP-42	-	-				Rel-8		Updated from Rel-7 to Rel-8	7.0.0	8.0.0	
SP-46	-	-	-	-	-	-	-	Updated to Rel-9 by MCC	8.0.0	9.0.0	
2011-03	-	-	-	-	-	-	-	Update to Rel-10 version (MCC)	9.0.0	10.0.0	
2012-09	-	-	-	-	-	-	-	Updated to Rel-11 by MCC	10.0.0	11.0.0	
2014-10								Updated to Rel-12 by MCC	11.0.0	12.0.0	
2015-12	-	-	-	-	-	-	-	Updated to Rel-13 by MCC	12.0.0	13.0.0	
2017-03	-	-	-	-	-	-	-	Updated to Rel-14 by MCC	13.0.0	14.0.0	
2018-06	-	-	-	-	-	-	-	Updated to Rel-15 by MCC	14.0.0	15.0.0	
SA#88e	-	-	-	-	-	-	-	Updated to Rel-16 by MCC	15.0.0	16.0.0	
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History

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