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Technical Specification

**Digital cellular telecommunications system (Phase 2+);
Multi Party (MPTY) supplementary services;
Stage 2
(GSM 03.84 version 7.0.0 Release 1998)**



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ETSI

Postal address

F-06921 Sophia Antipolis Cedex - FRANCE

Office address

650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16
Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Internet

secretariat@etsi.fr
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Foreword

This Technical Specification (TS) has been produced by the Special Mobile Group (SMG).

The present document defines the stage 2 of the Multi Party (MPTY) supplementary services within the digital cellular telecommunications system.

The contents of the present document is subject to continuing work within SMG and may change following formal SMG approval. Should SMG modify the contents of the present document it will be re-released with an identifying change of release date and an increase in version number as follows:

Version 7.x.y

where:

- 7 indicates Release 1998 of GSM Phase 2+
- x the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- y the third digit is incremented when editorial only changes have been incorporated in the specification.

The specification from which the present document has been derived was originally based on CEPT documentation, hence the presentation of the present document may not be entirely in accordance with the ETSI/PNE rules.

0 Scope

The present document gives the stage 2 description of the multi party supplementary services.

Only one multi party supplementary service has been defined, this is the Multi Party (MPTY) service, and is described in clause 1.

0.1 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.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.
- For this Release 1998 document, references to GSM documents are for Release 1998 versions (version 7.x.y).

- [1] GSM 01.04: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".
- [2] GSM 03.11: "Digital cellular telecommunications system (Phase 2+); Technical realization of supplementary services".
- [3] GSM 03.83: "Digital cellular telecommunications system (Phase 2+); Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 2".

0.2 Abbreviations

Abbreviations used in the present document are listed in GSM 01.04.

1 Multi Party service (MPTY)

1.1 Functions and information flows

The following Mobile Additional Function has been identified for Multi Party service:

MAF026

Multi Party service related authorizations examination

The ability of a PLMN component to determine the authorizations relating to Multi Party service. See figure 2.1.

Location: VLR

The overall SDL-diagram of Multi Party service is shown in figure 1.2.

This overall SDL-diagram represents the network as a whole. The overall SDL-diagram shows the status of the service as perceived by the served mobile subscriber, as well as the status as perceived by any of the other parties. Beside this, the overall SDL-diagram shows the actions to be taken by the network and the information provided by the network to the users.

Within the authorization examinations diagram, the messages shown to and from the left are to and from the VLR.

Within the overall SDL diagram, messages to and from the served mobile subscriber are indicated to and from the left, whereas messages to and from remote parties are indicated to and from the right.

The information flow for Multi Party service is shown in figure 1.3.

In the information flow it is assumed that the served subscriber is a mobile subscriber and that the other parties are all fixed ISDN subscribers. For the purposes of the information flow diagrams it is assumed that there are only two remote parties. Where there are more than two remote parties, signals to any party connected to the MPTY bridge shall apply to all other parties connected to the MPTY bridge, except where a single remote party is to be selected for a private communication.

As a consequence of this assumption, after the MPTY is split (to establish a private communication) it only contains one remote party. However, the end state for disconnection of or by that remaining remote party is shown as A-B ACTIVE / MPTY HELD. This is to indicate that the disconnection by a single remote party will not necessarily cause the MPTY call to be released. This will only happen when that remote party is the only remaining party in the MPTY call.

Party A is the subscriber controlling the MPTY call (serviced mobile subscriber). Party B is the first remote party called. Party C is the second remote party called.

Remote parties are disconnected by the generic disconnect/release procedure. Any scenario requiring disconnection of remote parties shown in the SDL diagrams but not explicitly shown in the flow diagrams shall follow the procedure shown in the flow diagrams for similar scenarios.

Functions to be performed by the fixed ISDN (for example hold authorizations examination) are not shown in the information flow; only the functions to be performed by the PLMN are shown.

It is assumed that the Multi Party bridge is located in the MSC.

In the SDL-diagrams a two dimensional state in conjunction with call hold is used: (active,hold request).

- The first dimension is a normal basic call state "active".
- The second dimension is "hold request" (abbreviated hold req) meaning that a request has been made for the hold function.

To avoid having two calls on hold at the same time the reception of the retrieve request is supervised by timer T as defined in GSM 03.83.

Note that while the Multi Party is on hold, the remote parties can continue to communicate with each other.

Process MPTY_MAF026

384_11(1)

Figure 1.1

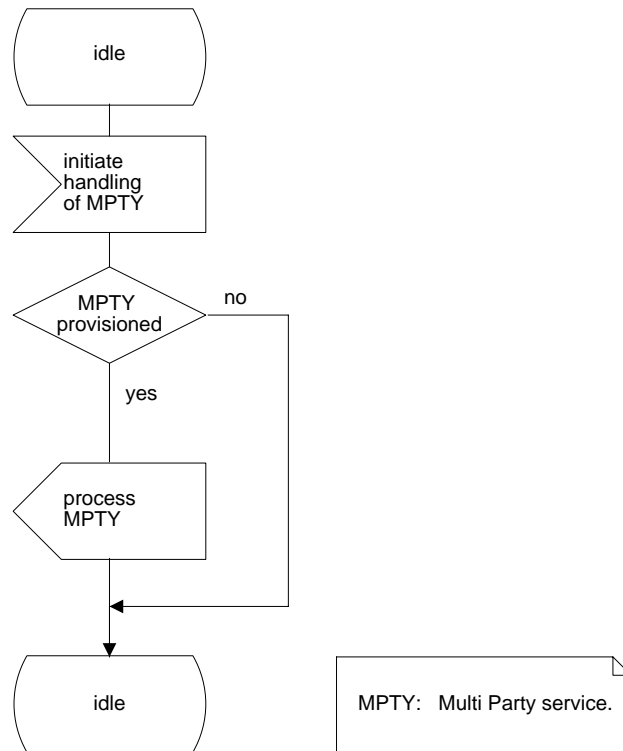
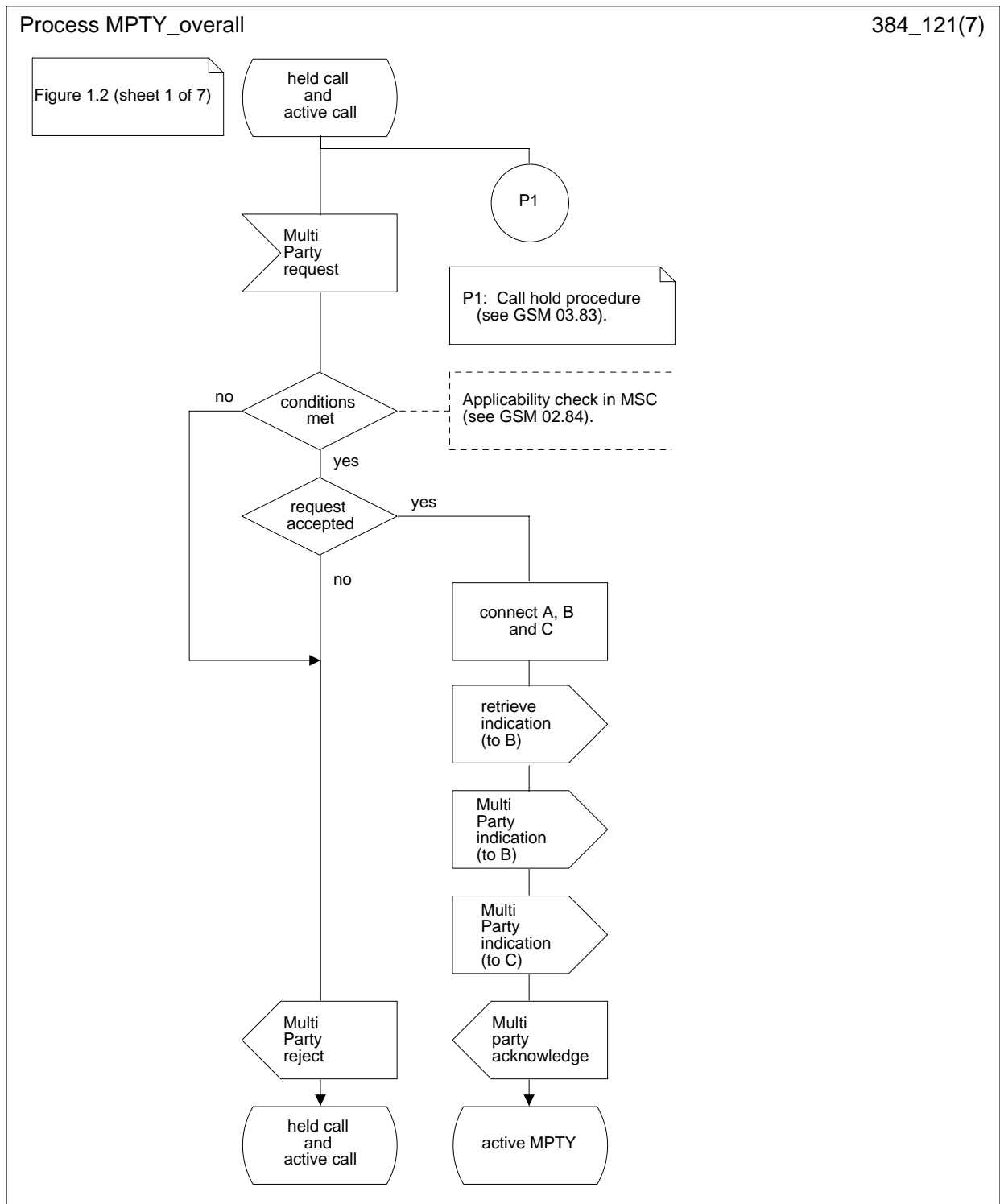


Figure 1.1: MAF026 Multi Party service related authorisations examination (VLR)



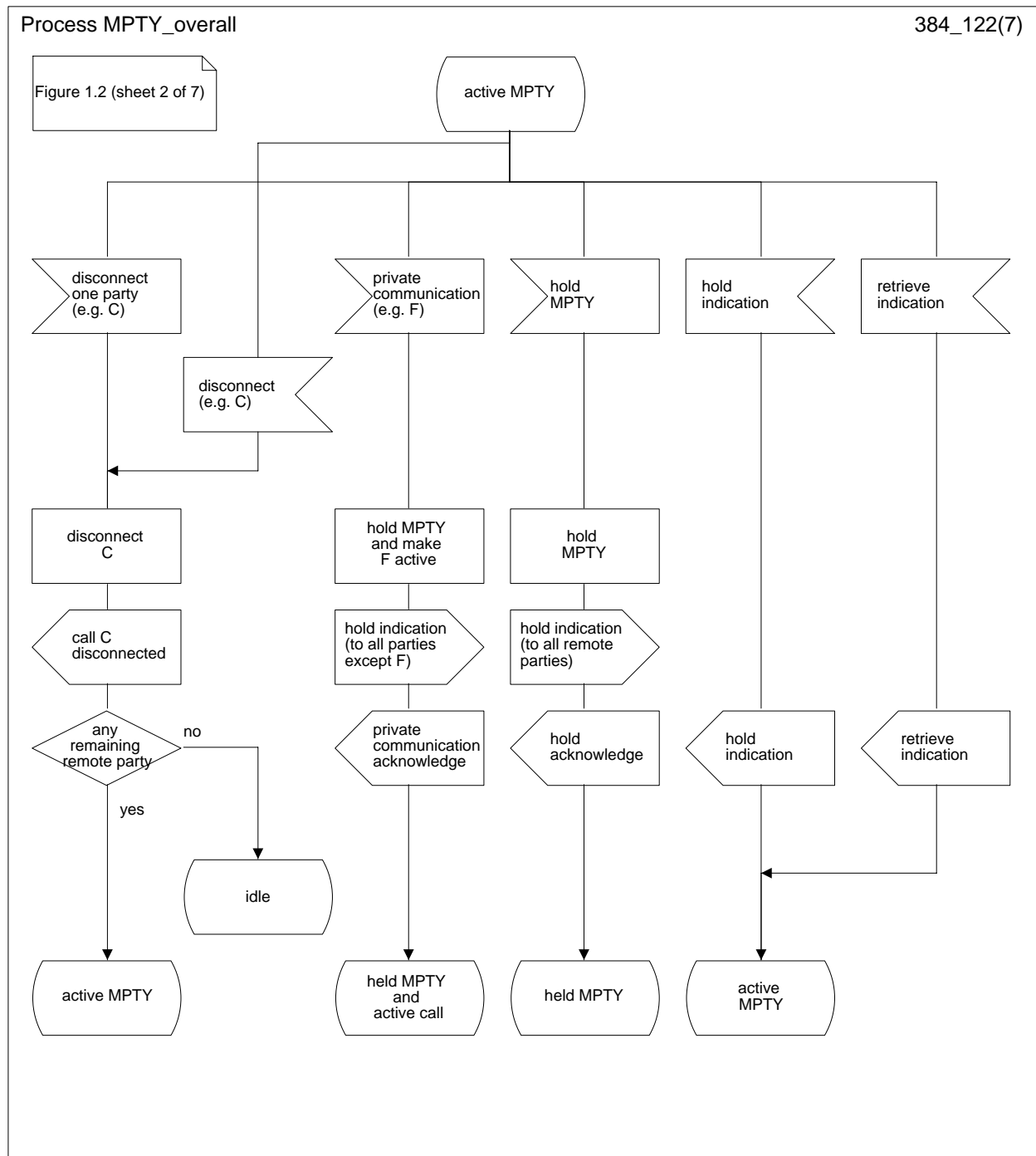
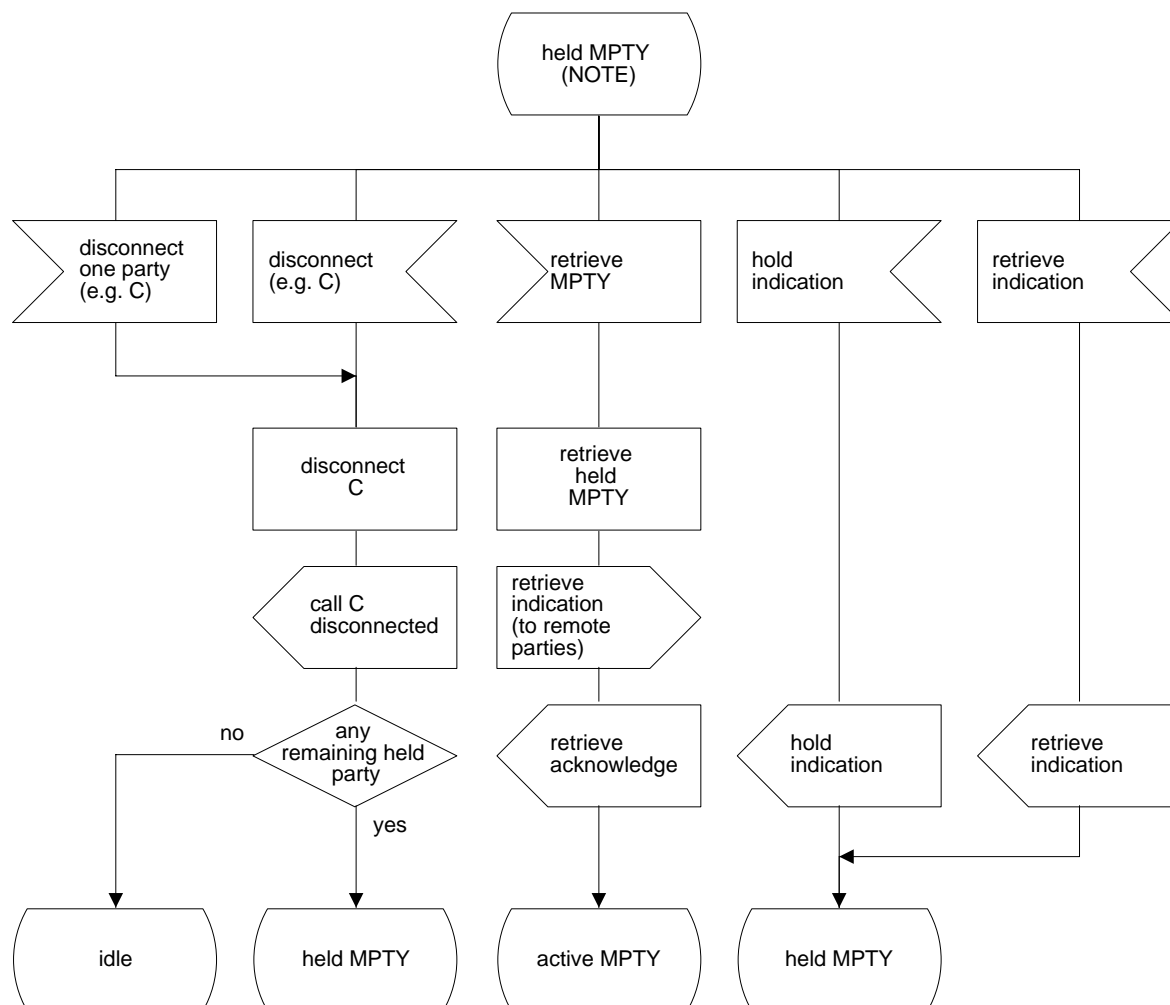


Figure 1.2 (sheet 2 of 7): Overall SDL diagram of Multi Party service

Process MPTY_overall

384_123(7)

Figure 1.2 (sheet 3 of 7)



NOTE: It is also possible to initiate a new call or process a call waiting request from this state (see GSM 03.83). In either case, this is likely to result in a 'held MPTY and active call'.

Figure 1.2 (sheet 3 of 7): Overall SDL diagram of Multi Party service

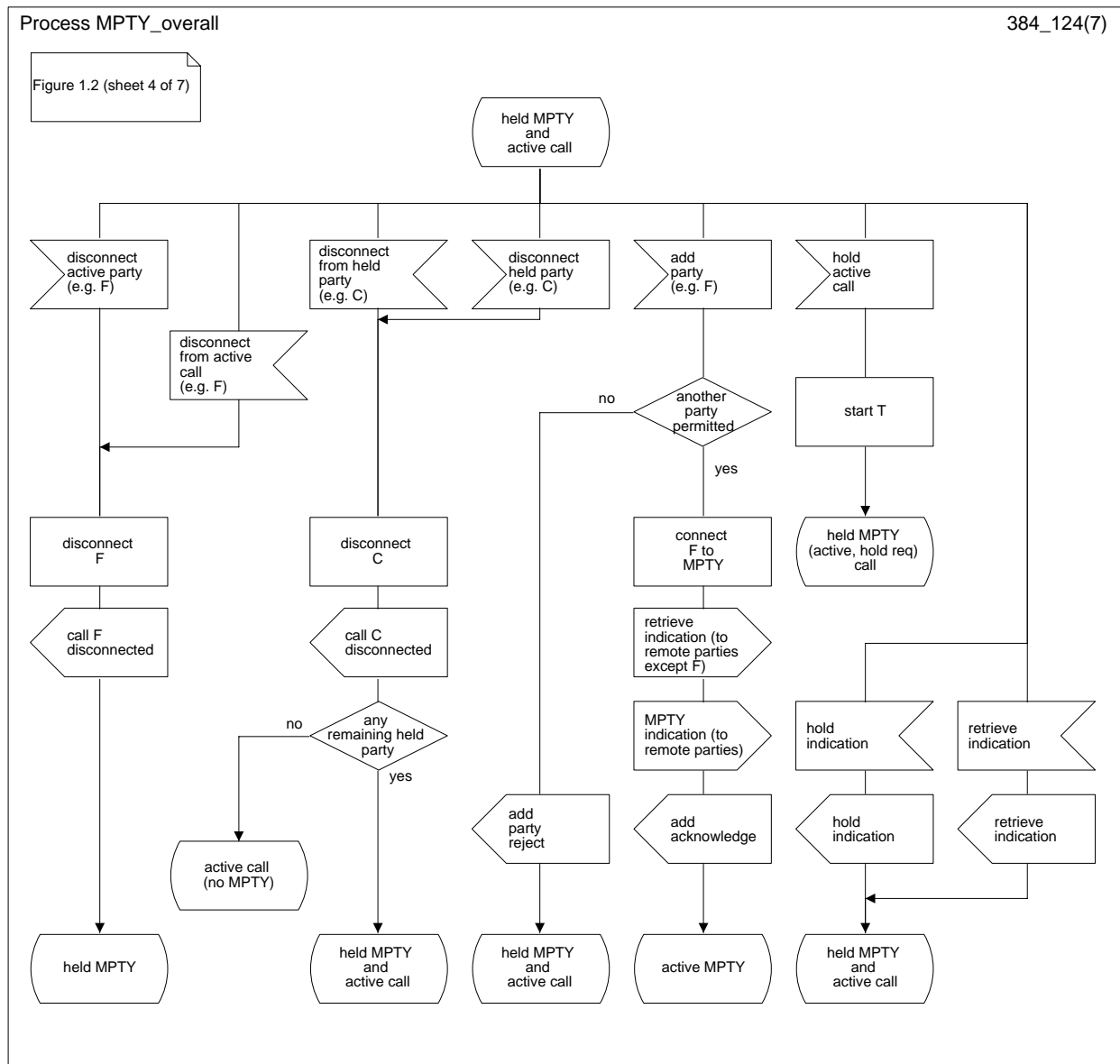


Figure 1.2 (sheet 4 of 7): Overall SDL diagram of Multi Party service

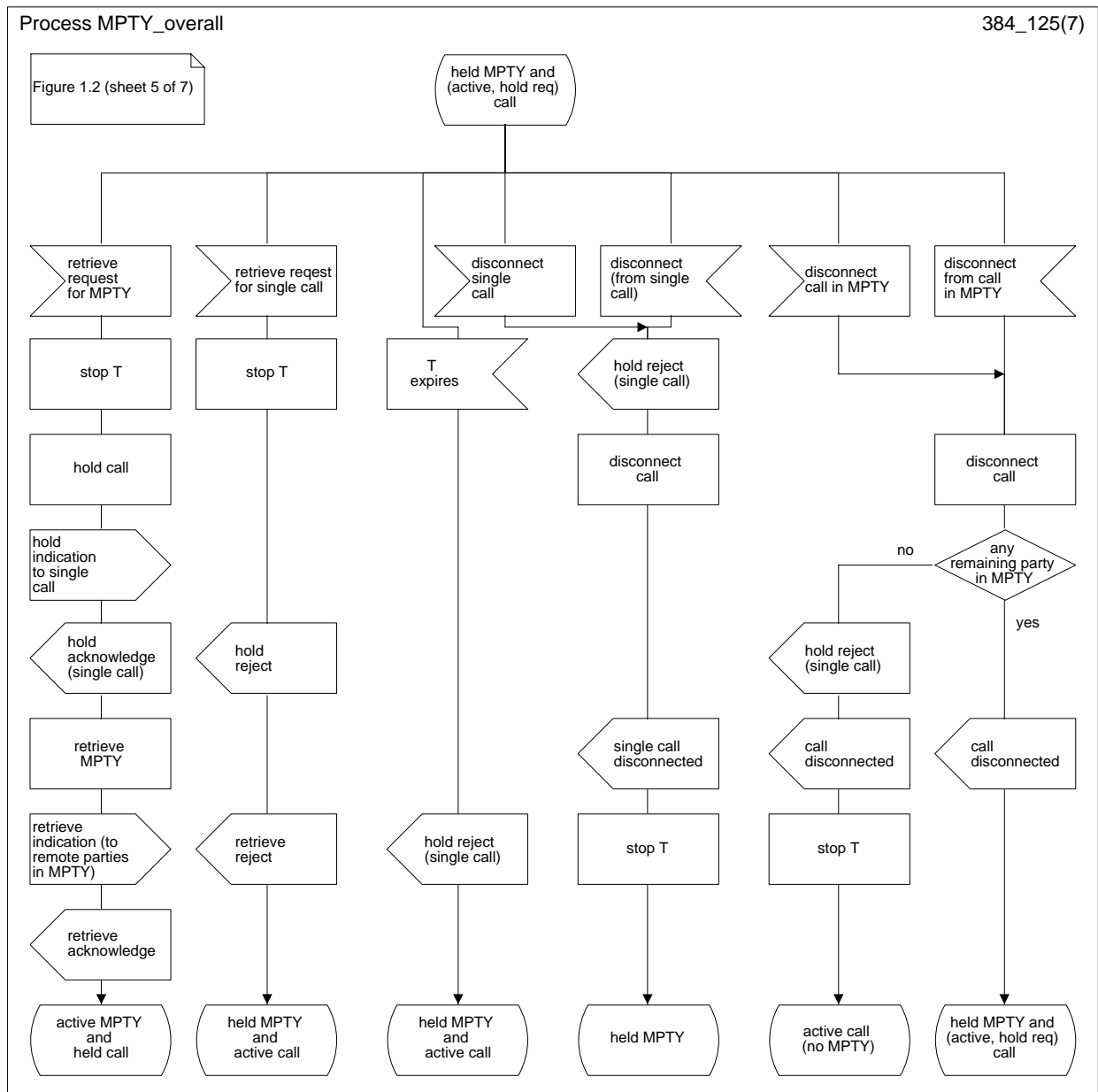


Figure 1.2 (sheet 5 of 7): Overall SDL diagram of Multi Party service

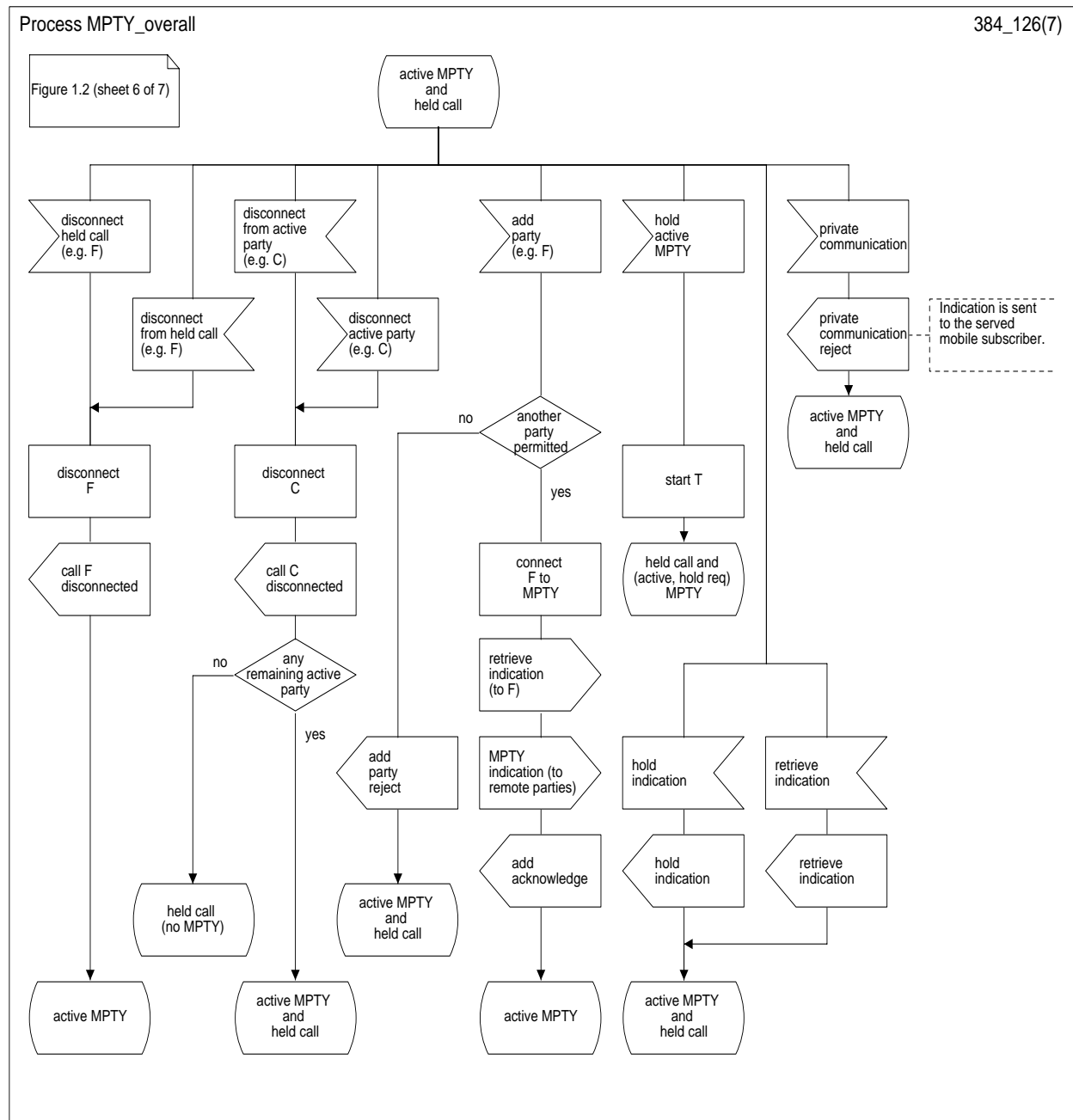


Figure 1.2 (sheet 6 of 7): Overall SDL diagram of Multi Party service

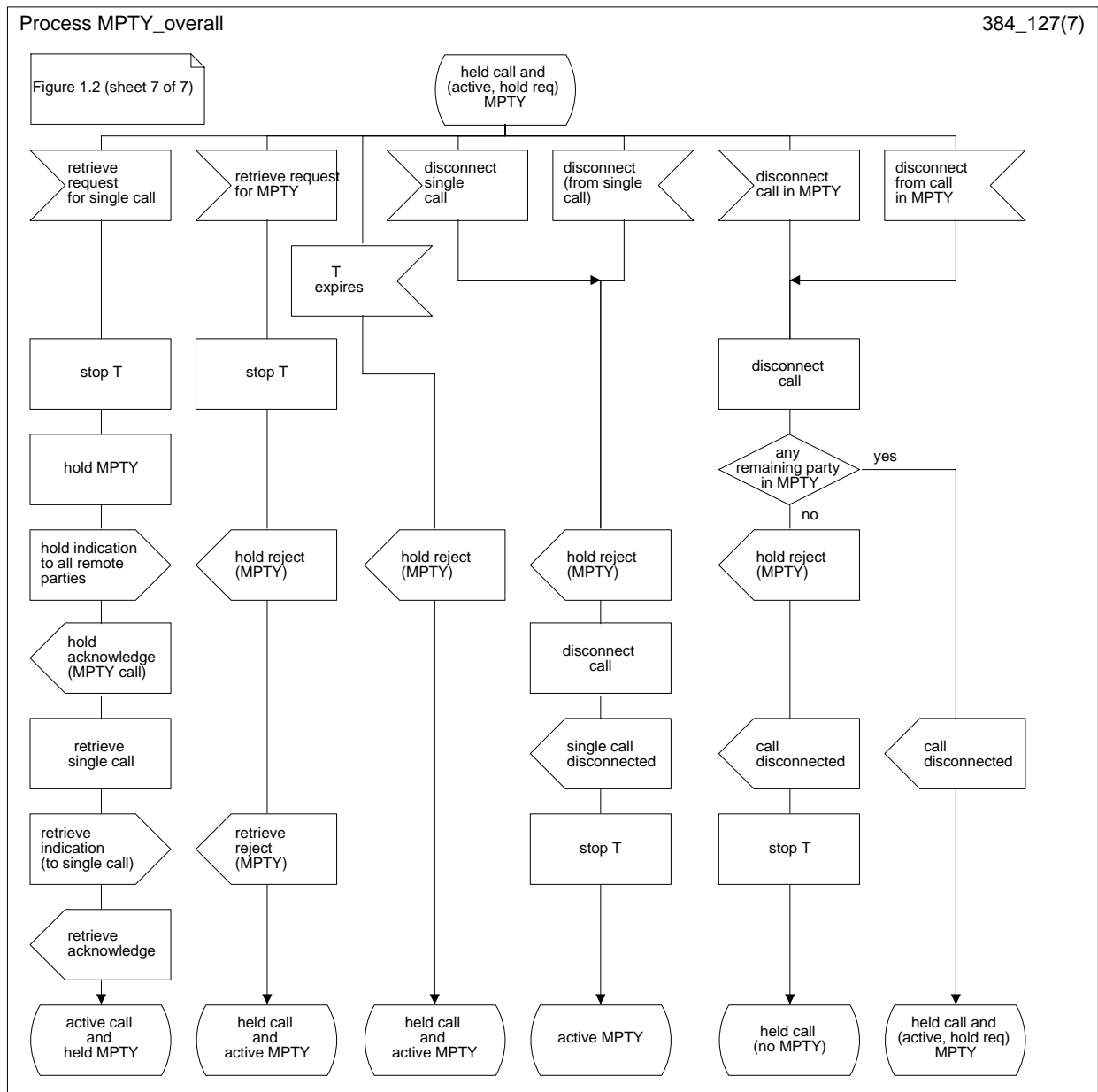
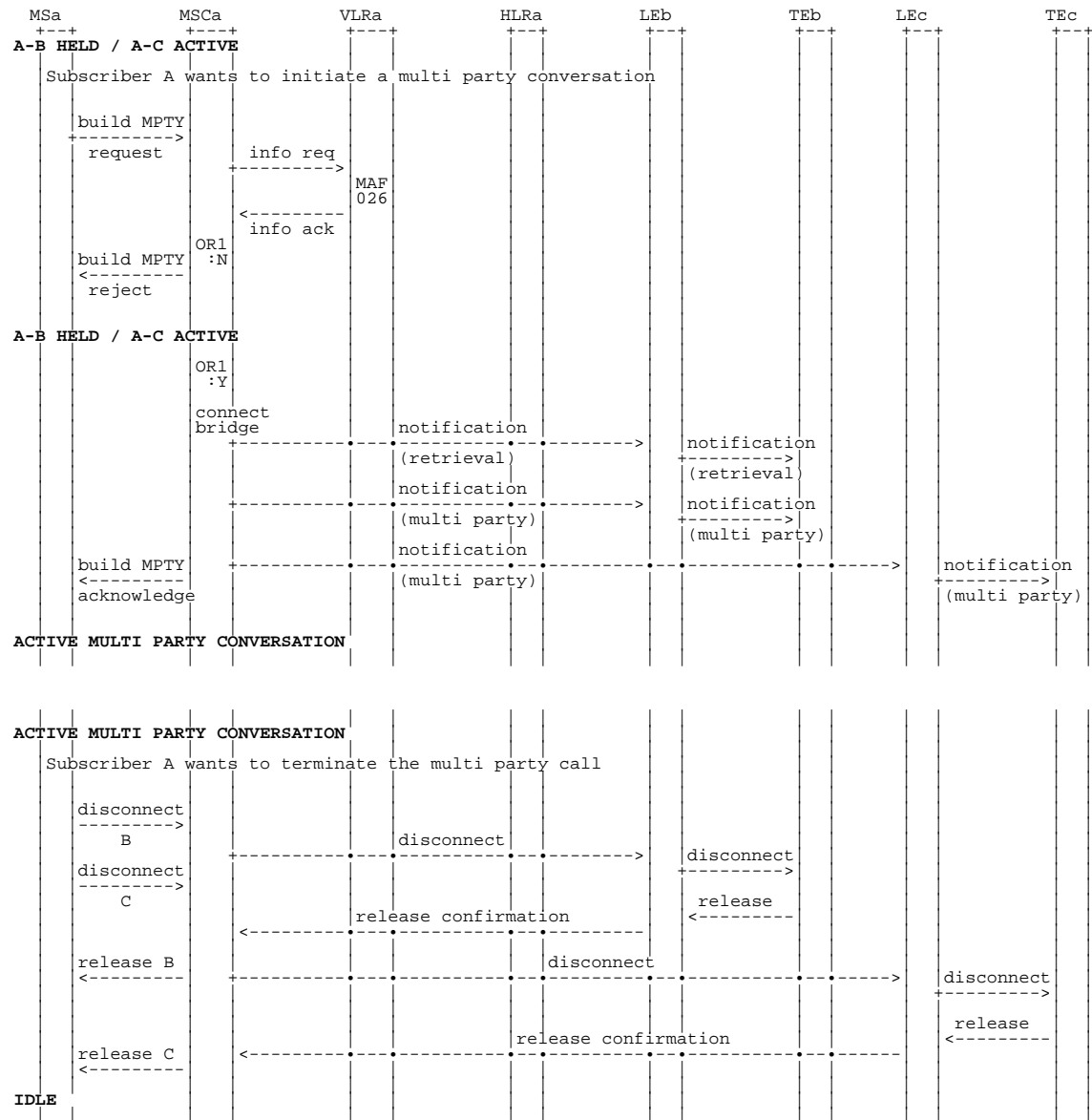


Figure 1.2 (sheet 7 of 7): Overall SDL diagram of Multi Party service



OR1: Multi party call acceptable
Y: Yes N: No

Figure 1.3 (sheet 1 of 7): Information flow for Multi Party service

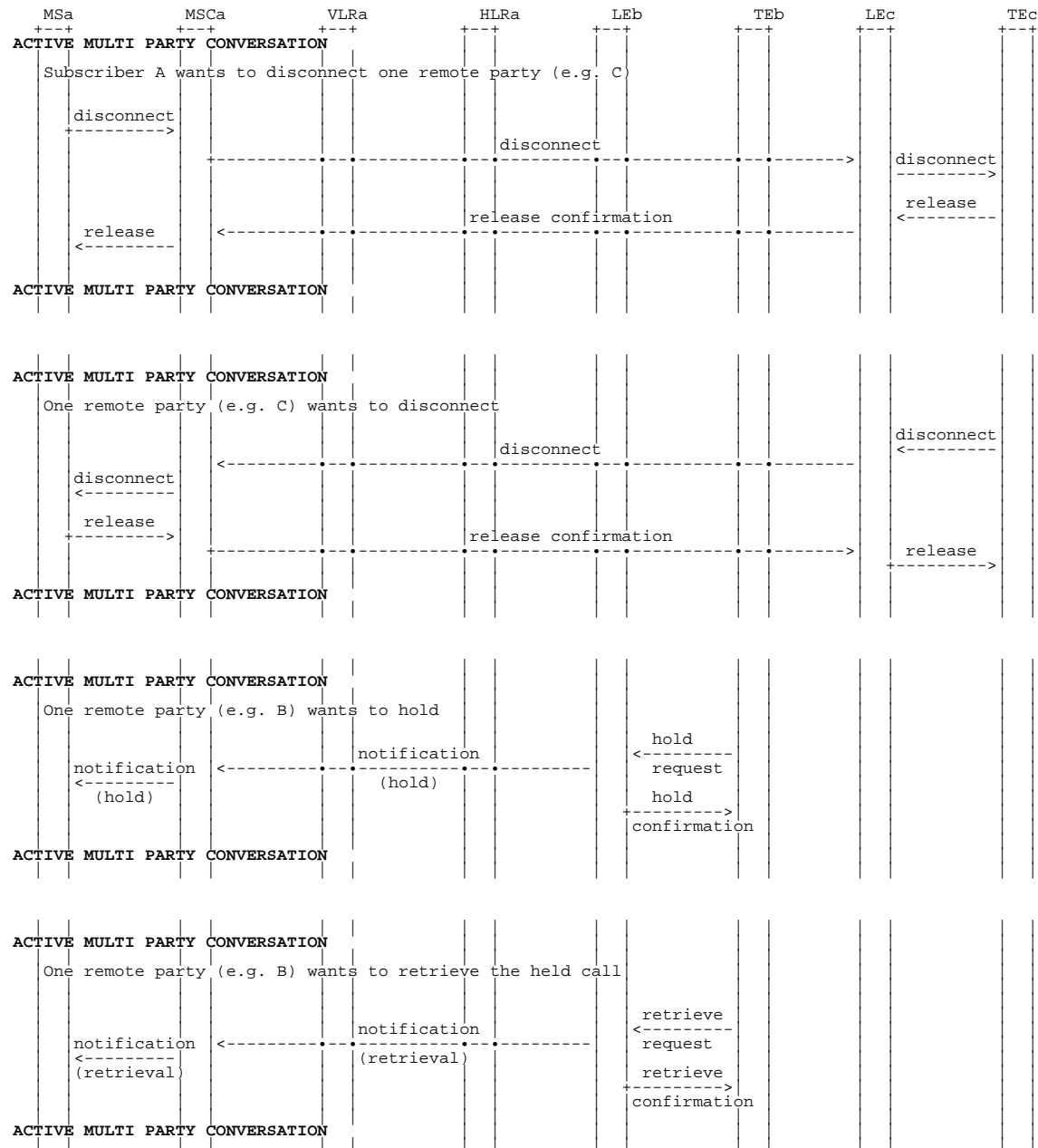


Figure 1.3 (sheet 2 of 7): Information flow for Multi Party service

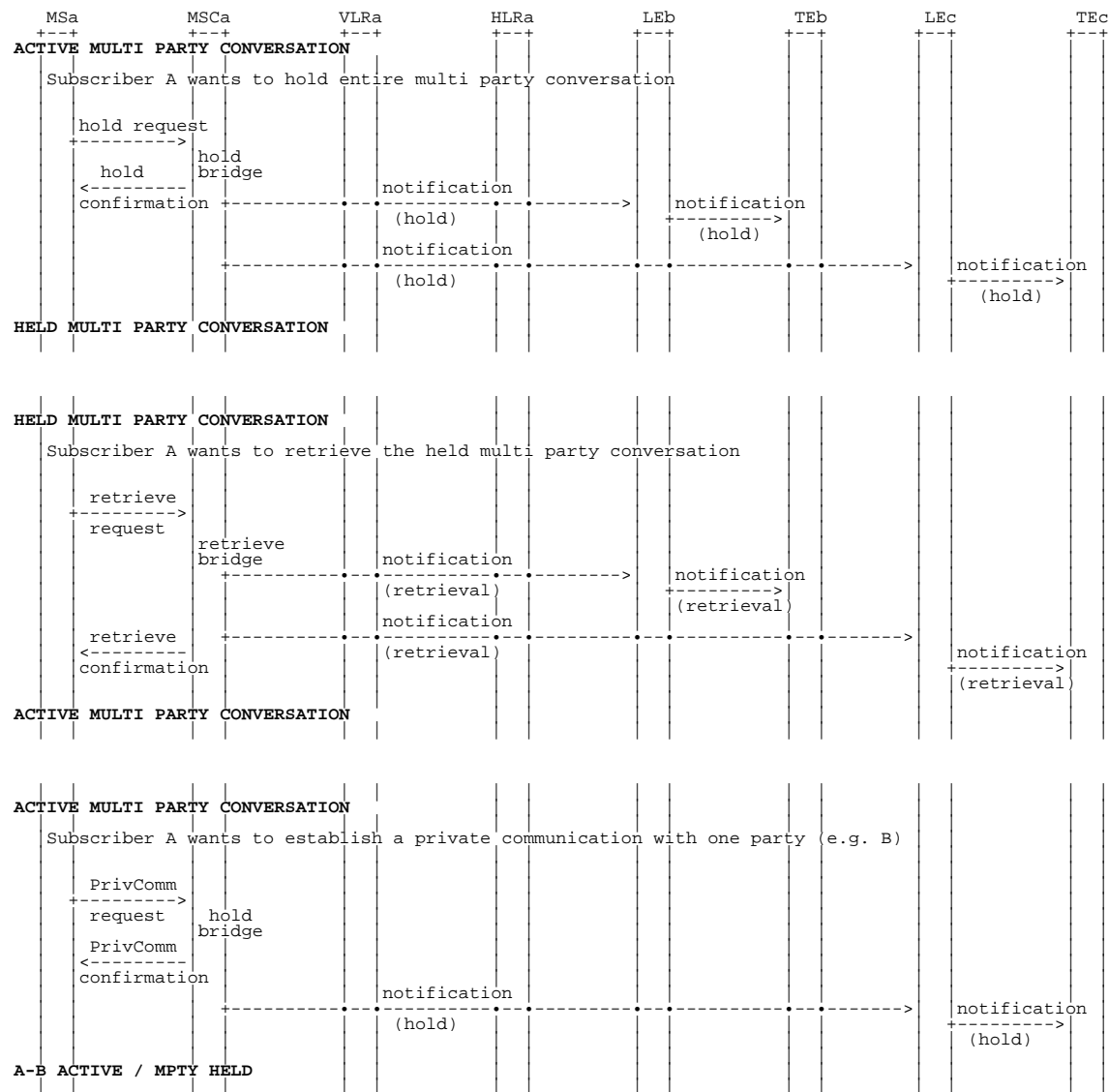


Figure 1.3 (sheet 3 of 7): Information flow for Multi Party service

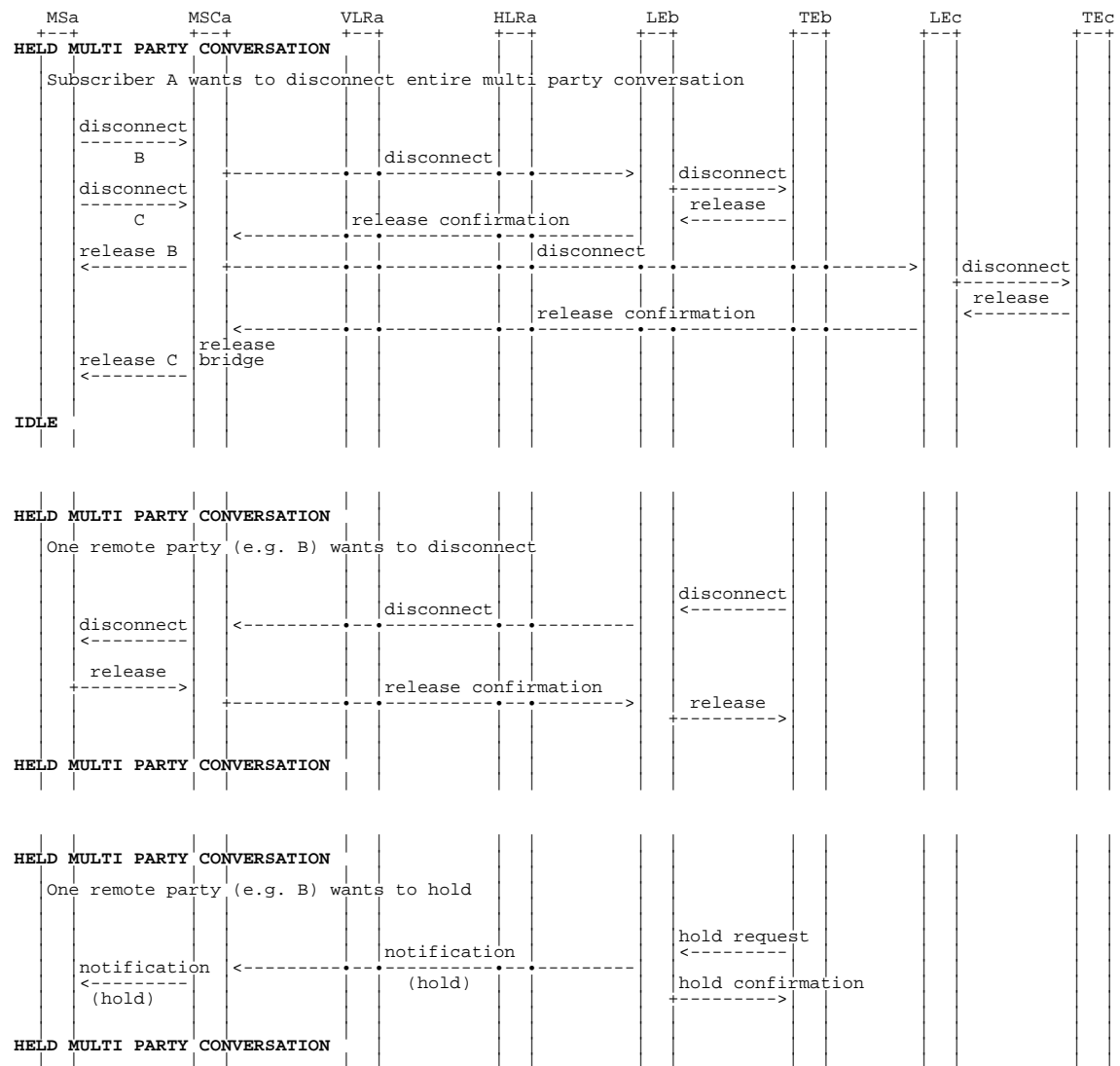


Figure 1.3 (sheet 4 of 7): Information flow for Multi Party service

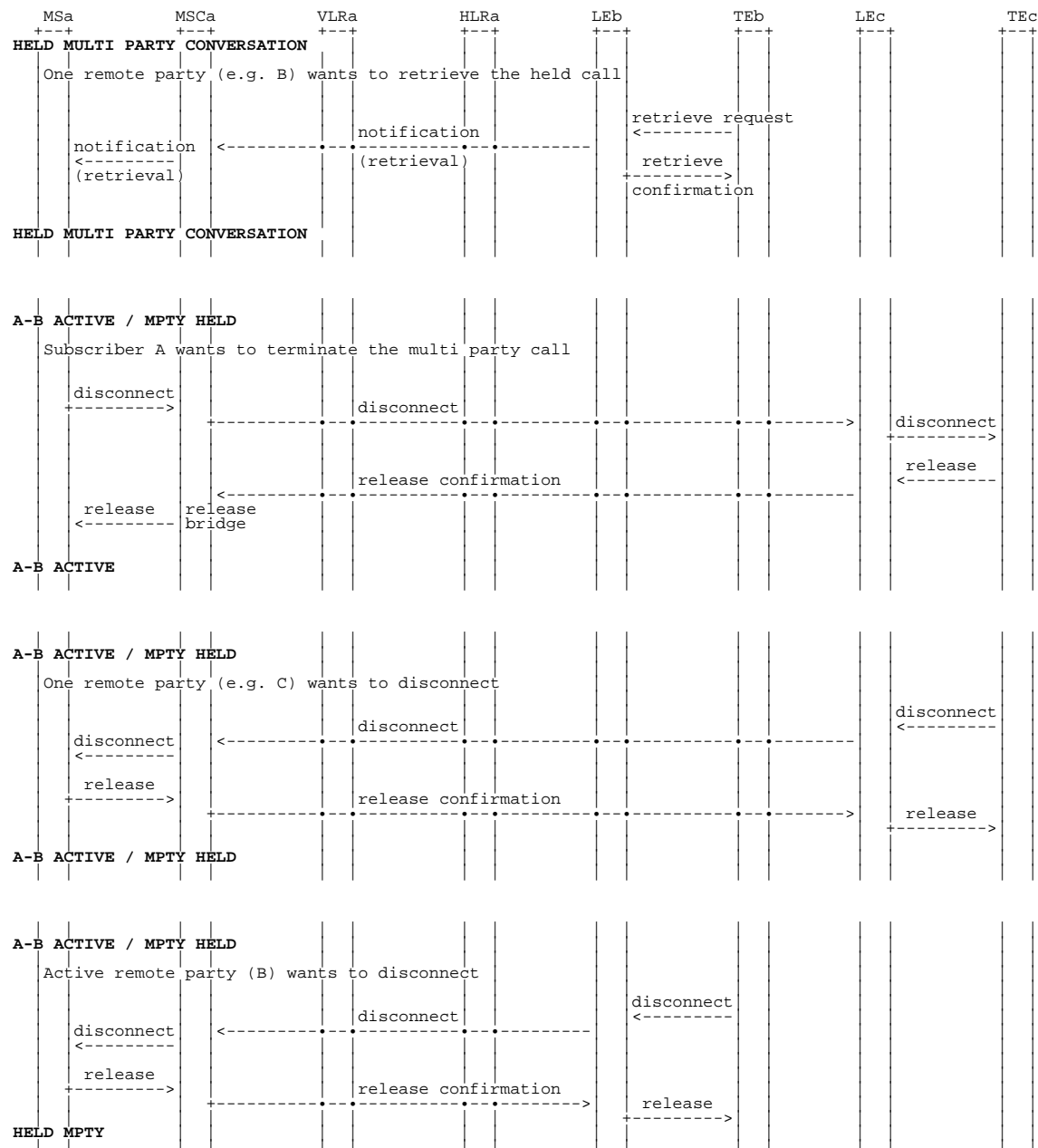
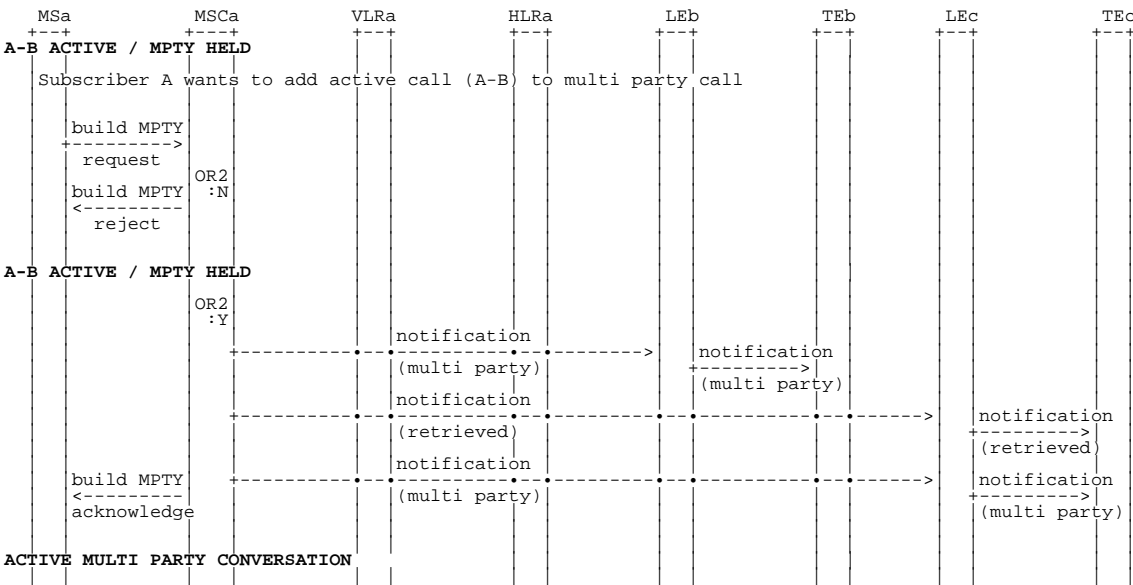


Figure 1.3 (sheet 5 of 7): Information flow for Multi Party service



OR2: Extra remote party allowed within maximum number?
Y: Yes N: No

Figure 1.3 (sheet 6 of 7): Information flow for Multi Party service

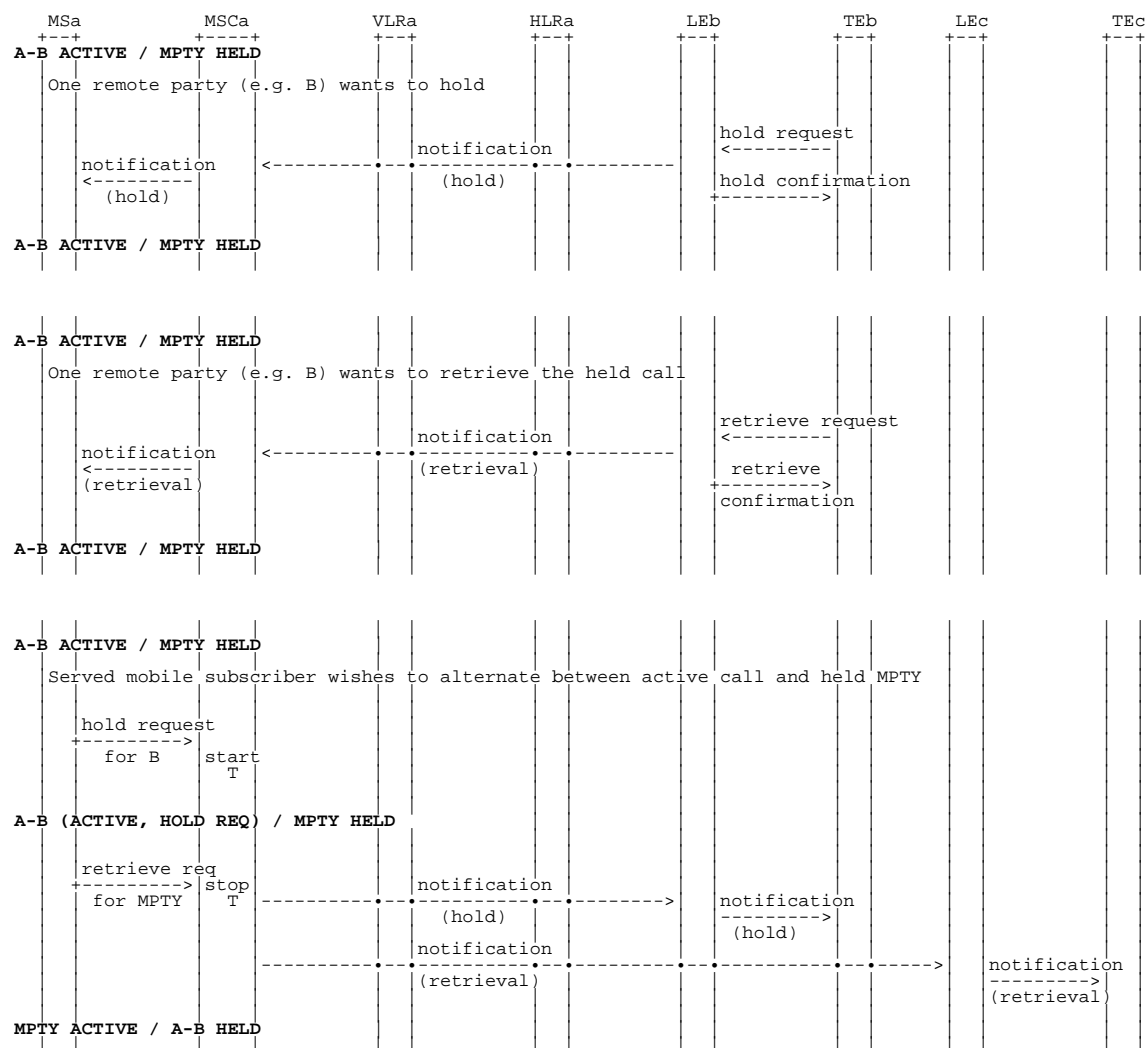


Figure 1.3 (sheet 7 of 7): Information flow for Multi Party service

1.2 Information stored in the HLR

The following logical states are applicable for MPTY (refer to GSM 03.11 for an explanation of the notation):

Provisioning State	Registration State	Activation State	HLR Induction State
(Not Provisioned,	Not Applicable,	Not Active,	Not Induced)
(Provisioned,	Not Applicable,	Active and Operative,	Not Induced)

The HLR shall store the logical state of MPTY (which shall be one of the valid states listed above) on a per subscriber basis.

1.3 State transition model

The following figure shows the successful cases of transition between the applicable logical states of MPTY. The state changes are caused by actions of the service provider.

Note that error cases are not shown in the diagram as they normally do not cause a state change. Additionally, some successful requests may not cause a state change. Hence they are not shown in the diagram.

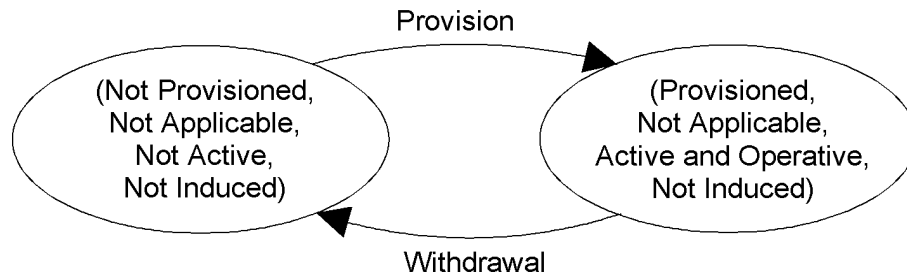


Figure 1.4: State transition model for MPTY

1.4 Transfer of information from HLR to VLR

If the provisioning state for MPTY is "Provisioned" then, when the subscriber registers on a VLR, the HLR shall send that VLR information about the logical state of MPTY.

If the logical state of MPTY is changed while a subscriber is registered on a VLR then the HLR shall inform the VLR of the new logical state of MPTY.

1.5 Information stored in the VLR

For MPTY the VLR shall store the service state information received from the HLR.

1.6 Handover

Handover will have no impact on the control procedures and the operation of the service.

1.7 Simultaneous use of Multi Party operations

The operations BuildMPTY, SplitMPTY, HoldMPTY and RetrieveMPTY interact with each other, and cannot be applied simultaneously. Once the mobile station has initiated one of these operations, it shall not initiate another Multi Party operation until the first operation has been acknowledged by the network, or the MS locally determines (due to timer expiry) that the first operation has failed.

Annex A (informative): Change Request History

Status of Technical Specification GSM 03.84		
Date	Version	Remarks
		No phase 1 version
April 1992	version 4.0.0	TS approved by SMG#02
January 1993	version 4.1.0	CR 03.84-01 rev 1 (category C) approved by SMG#05 CR 03.84-02 (category D) TS frozen for phase 2 by SMG#06 Release July 1993
October 1993	version 4.1.1	TS changed to draft prETS 300 545
January 1994	version 4.2.0	CR 03.84-03 (category F) approved by SMG#09 CR 03.84-04 rev 1 (category F)
April 1994	version 4.3.0	CR 03.84-06 (category F) approved by SMG#10
October 1994	version 4.4.0	CR 03.84-08 rev 1 (category F) approved by SMG#12 CR 03.84-09 rev 1 (category F) CR 03.84-10 rev 2 (category F) TS changed to final draft prETS 300 545
January 1995	version 4.4.1	TS changed to ETS 300 545 First edition July 1996 file converted from word5 to word6
December 1996	version 5.0.0	ETS changed to GTS for release '96
January 1999	version 6.0.0	Release 1997 version
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