

ETSI TS 123 084 V14.0.0 (2017-04)



**Digital cellular telecommunications system (Phase 2+) (GSM);
Universal Mobile Telecommunications System (UMTS);
Multi Party (MPTY) supplementary service;
Stage 2
(3GPP TS 23.084 version 14.0.0 Release 14)**



Reference

RTS/TSGC-0423084ve00

Keywords

GSM,UMTS

ETSI

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 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

The present document can be downloaded from:
<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at
<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:
<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2017.
All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.
3GPP™ and **LTE™** are Trade Marks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.
GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

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

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Contents

Intellectual Property Rights	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	4
0 Scope	5
0.1 References	5
0.2 Abbreviations	5
1 Multi Party service (MPTY).....	5
1.1 Functions and information flows.....	5
1.2 Information stored in the HLR	28
1.3 State transition model	28
1.4 Transfer of information from HLR to VLR.....	28
1.5 Information stored in the VLR	28
1.6 Handover	28
1.7 Simultaneous use of Multi Party operations.....	28
Annex A: Change history	29
History	30

Foreword

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

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

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- 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.

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. 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 TR 21.905: "3G Vocabulary".
- [2] 3GPP TS 23.011: "Technical realization of supplementary services - General Aspects".
- [3] 3GPP TS 23.083: "Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 2".
- [4] 3GPP TS 23.018: "Basic Call Handling"

0.2 Abbreviations

In addition to those below, abbreviations used in the present document are listed in 3GPP TR 21.905 [1].

SII2 Service Interaction Indicators Two

1 Multi Party service (MPTY)

1.1 Functions and information flows

The following Mobile Additional Function has been identified for the 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 SDL diagrams for the Multi Party service are shown in figures 1.2 and 1.3.

The procedure Handle_MPTY 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 SDL diagrams show the actions to be taken by the network and the information provided by the network to the users.

Figure 1.x: the procedure Update_Non_Speech_Calls_Status is defined in 3GPP TS 23.018 [4].

The information flow for the MPTY service is shown in figure 1.5.

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 be sent 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 contains only 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 happen only when that remote party is the only remaining party in the MPTY call.

Party A is the subscriber controlling the MPTY call (served 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 MPTY bridge is located in the MSC.

To avoid having two calls on hold at the same time the reception of the retrieve request is supervised by a retriever timer T as defined in 3GPP TS 23.083 [3].

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

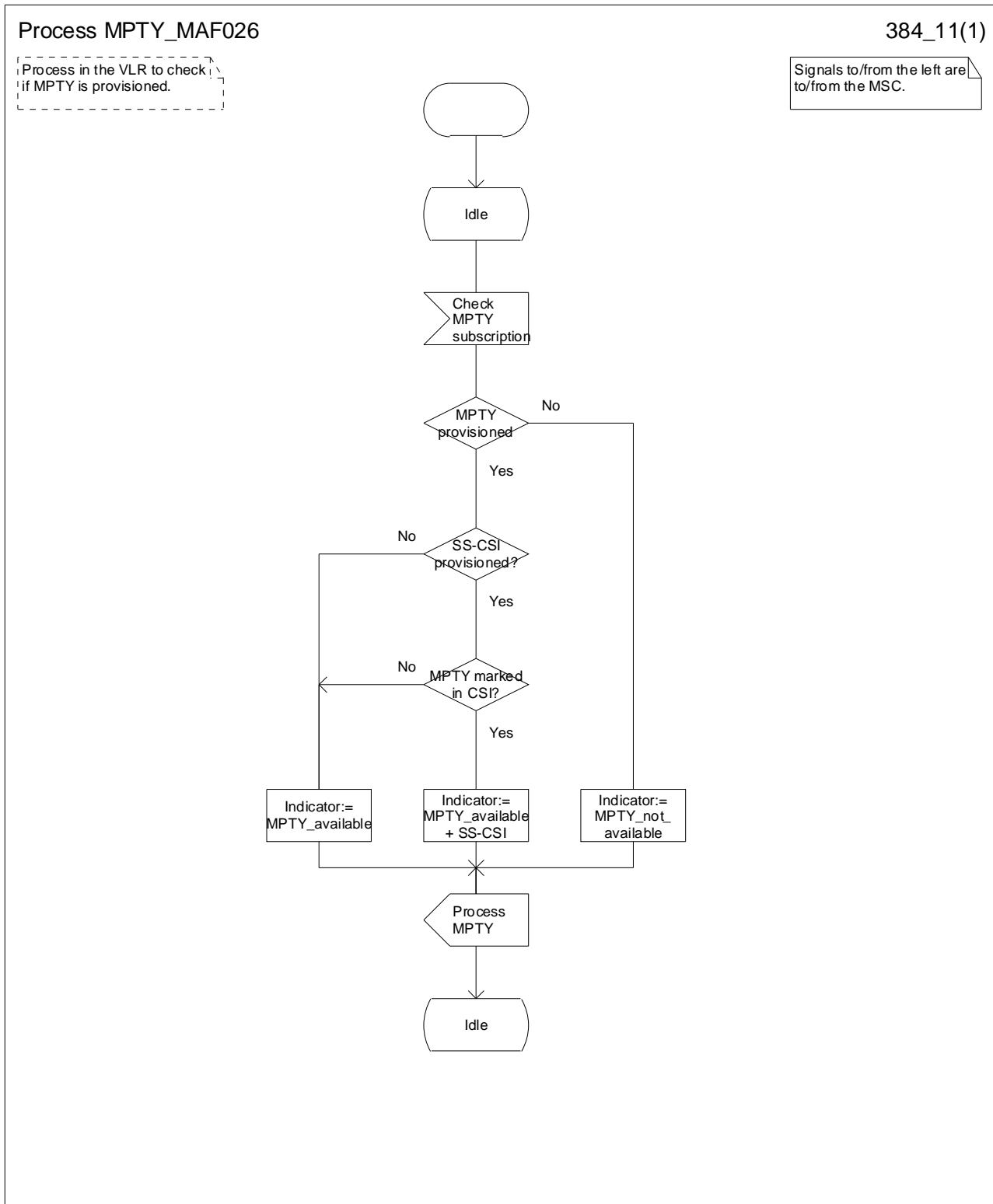


Figure 1.1: MAF026 Multi Party service related authorisations examination (VLR)

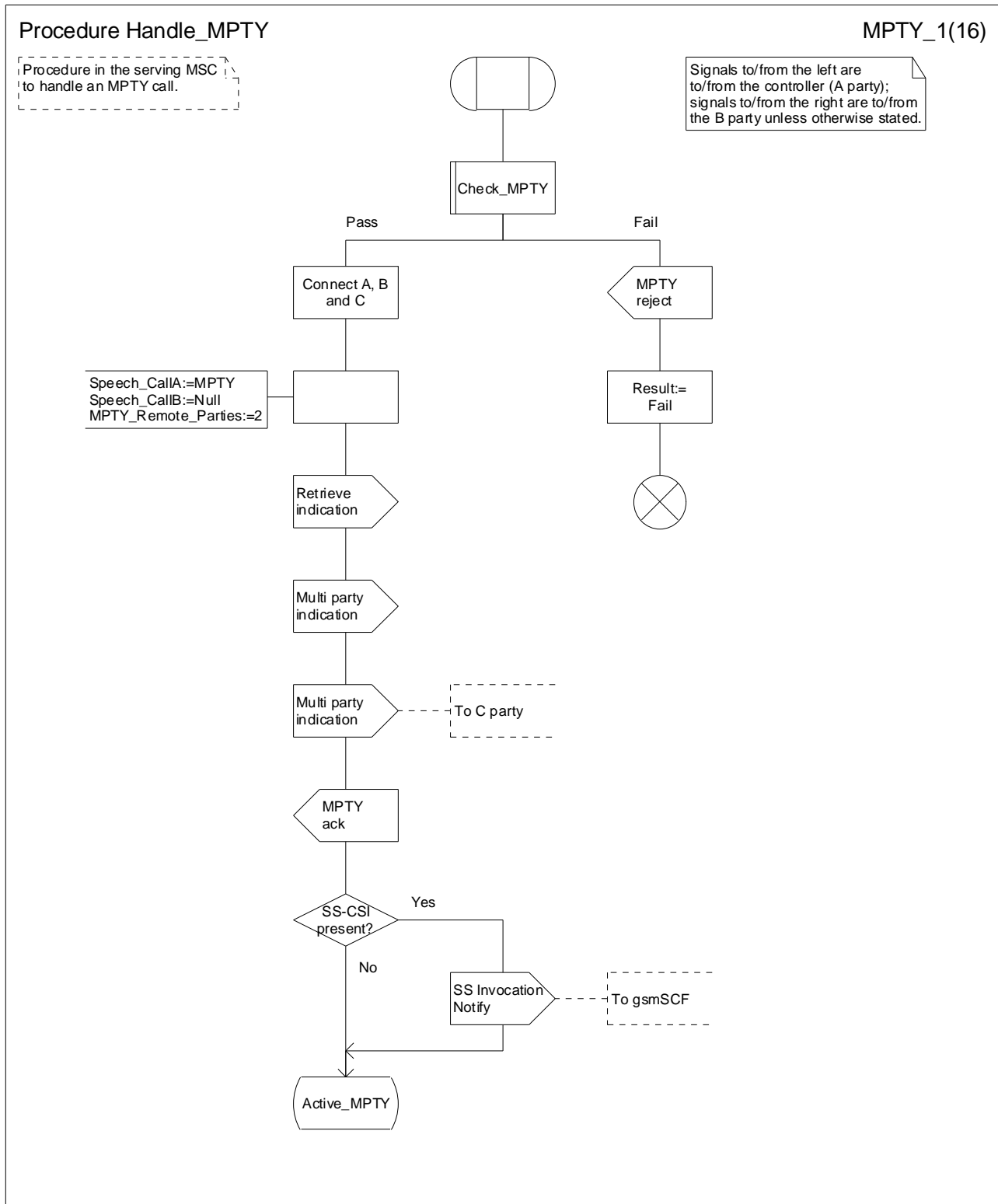


Figure 1.2 (sheet 1 of 16): Procedure Handle_MPTY

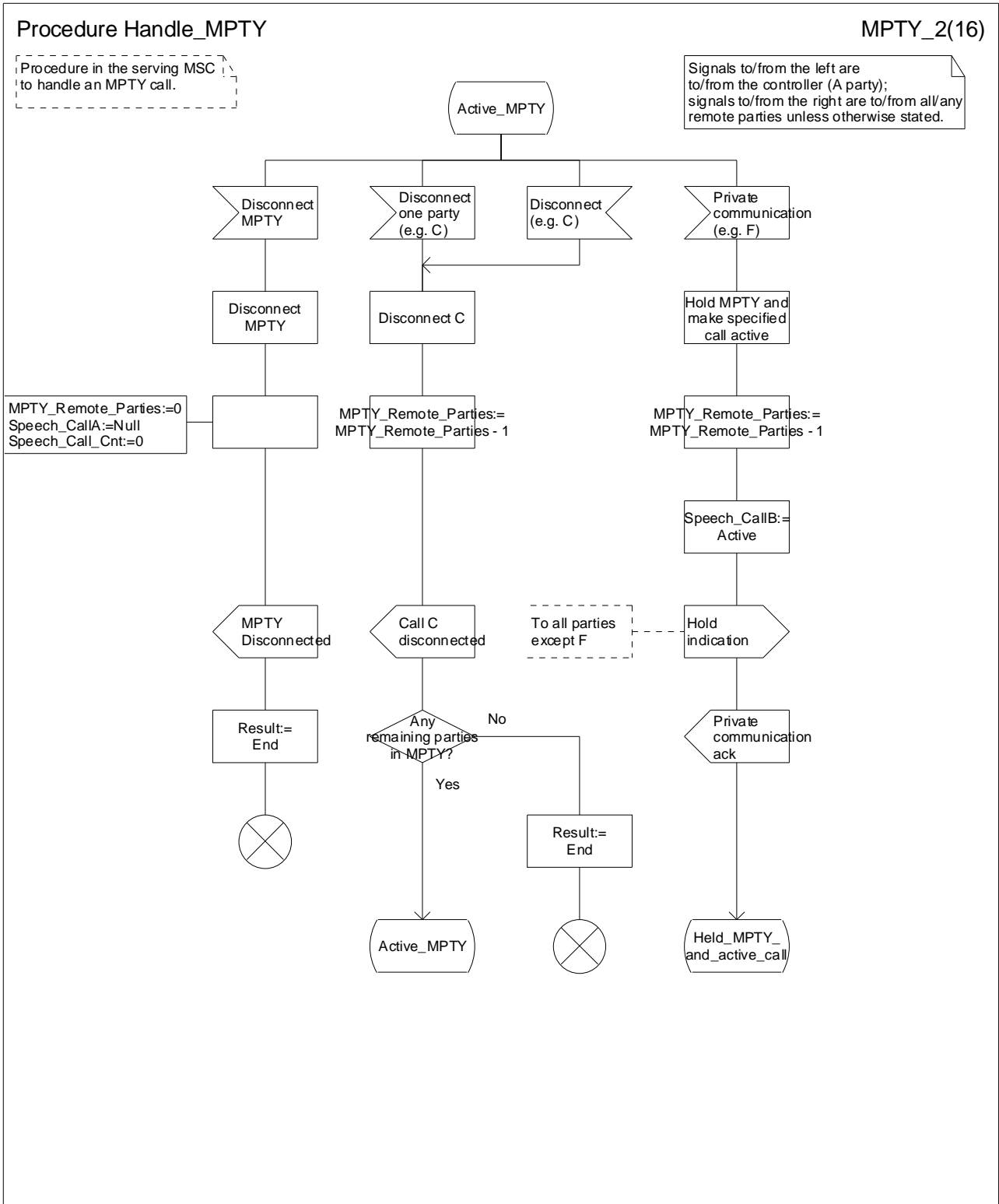


Figure 1.2 (sheet 2 of 16): Procedure Handle_MPTY

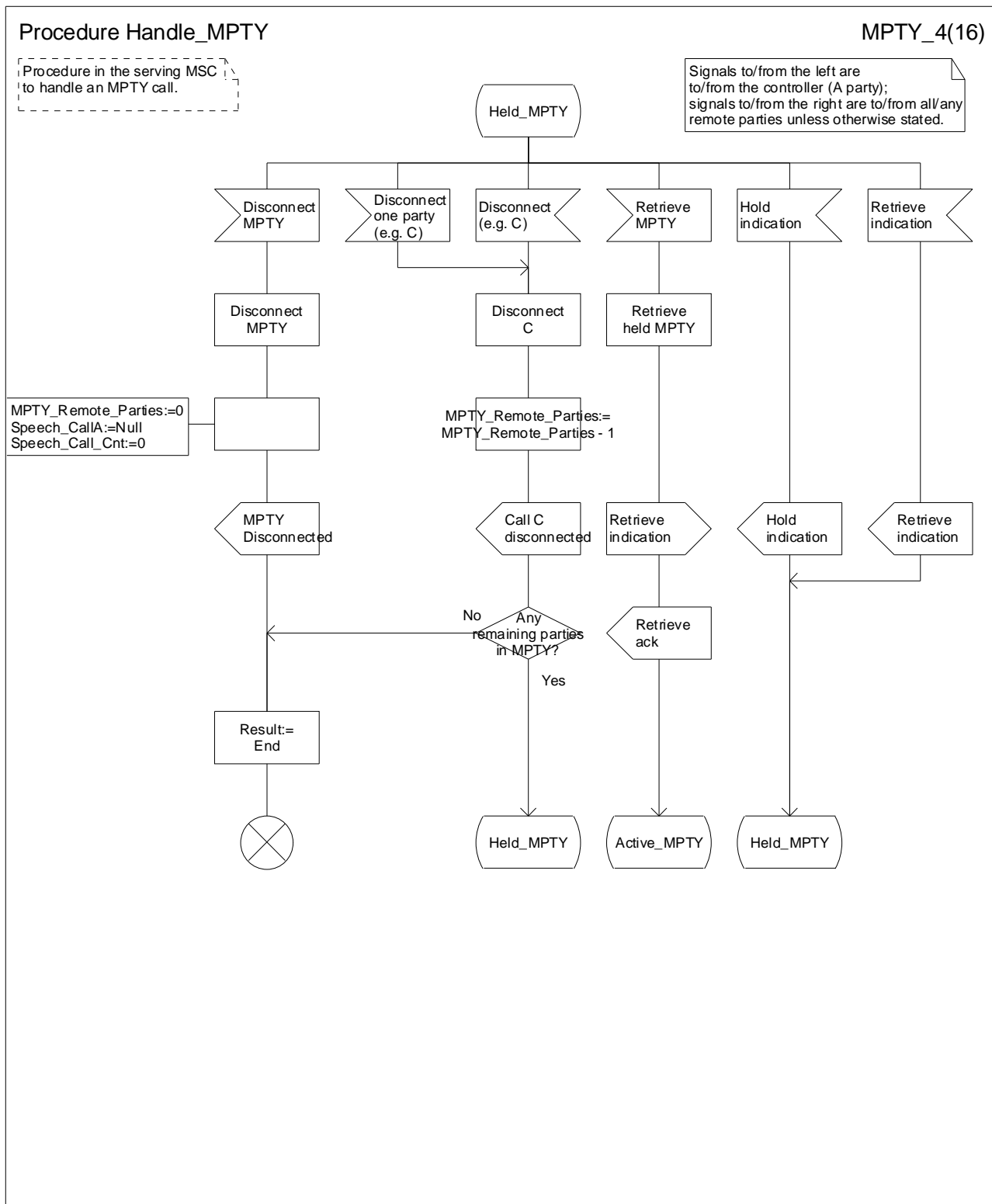


Figure 1.2 (sheet 4 of 16): Procedure Handle_MPTY

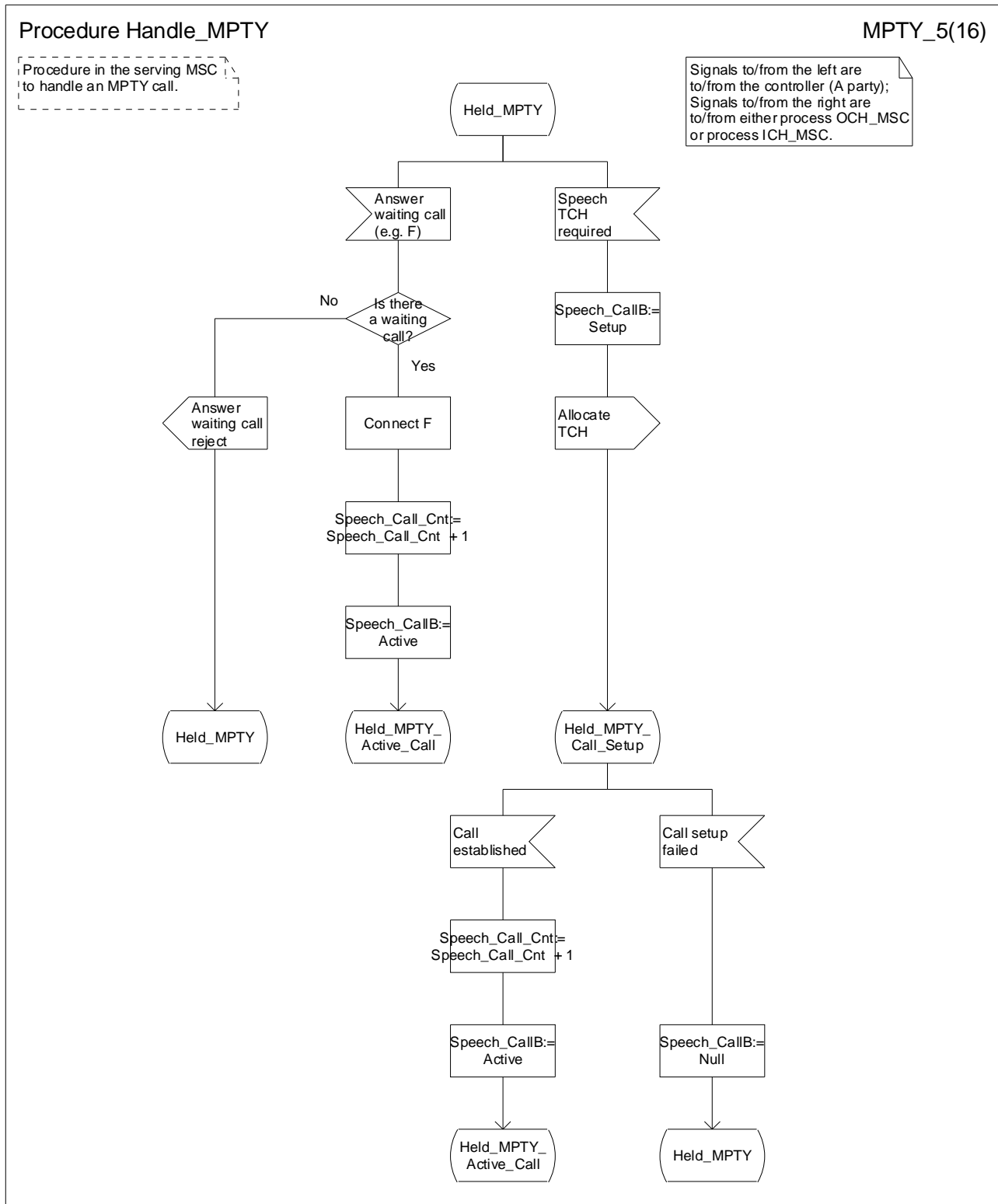


Figure 1.2 (sheet 5 of 16): Procedure Handle_MPTY

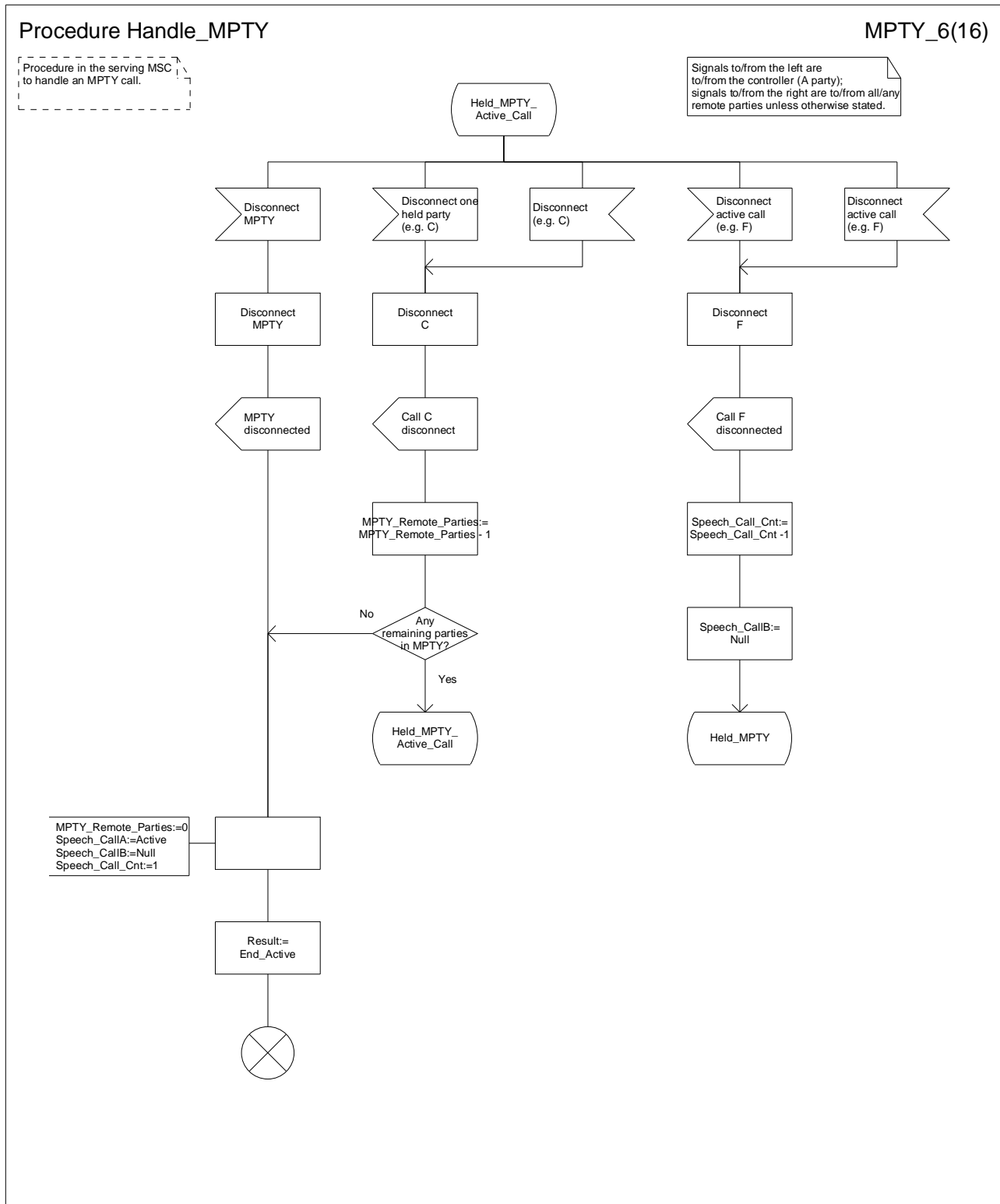


Figure 1.2 (sheet 6 of 16): Procedure Handle_MPTY

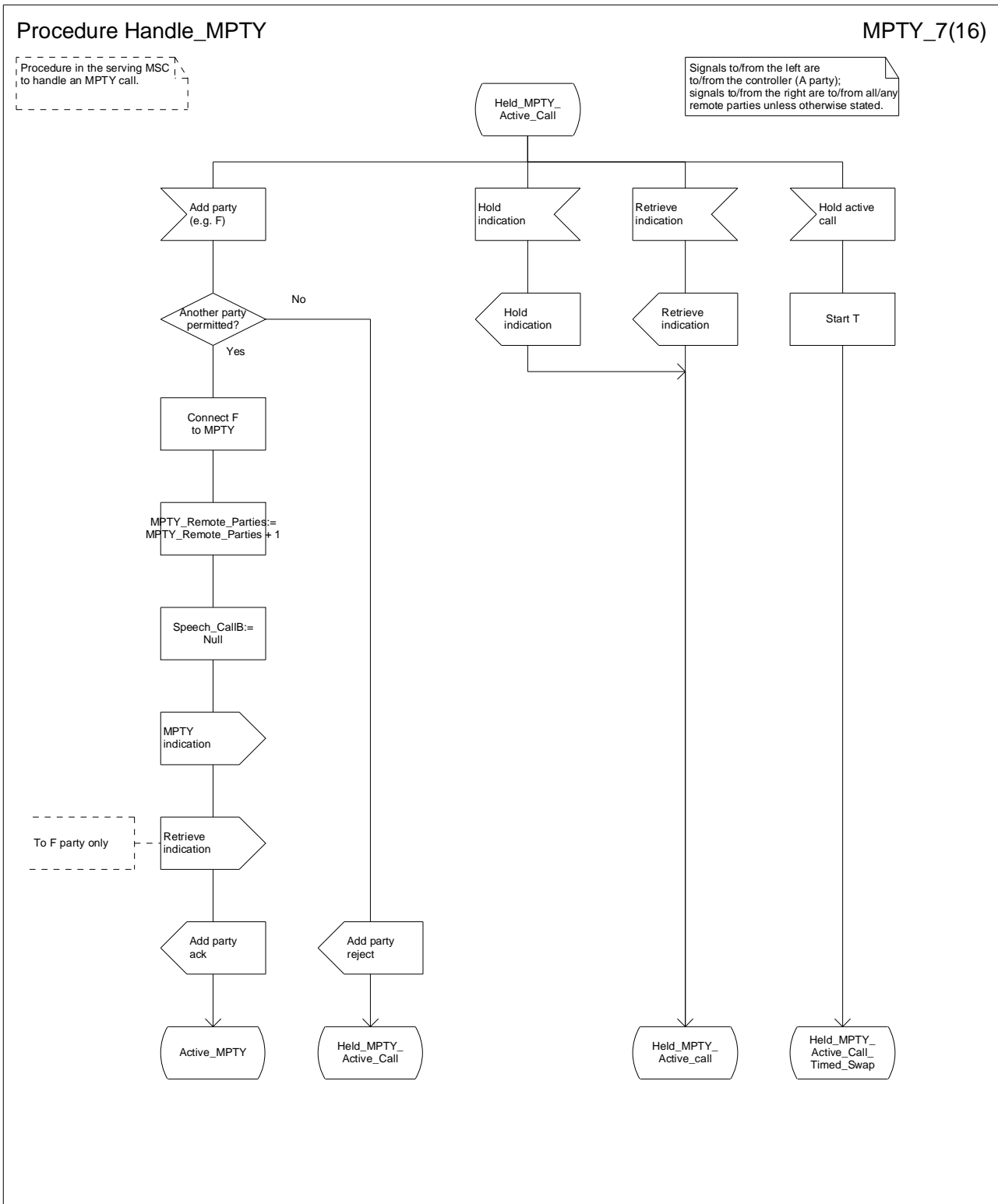


Figure 1.2 (sheet 7 of 16): Procedure Handle_MPTY



Figure 1.2 (sheet 8 of 16): Procedure Handle_MPTY

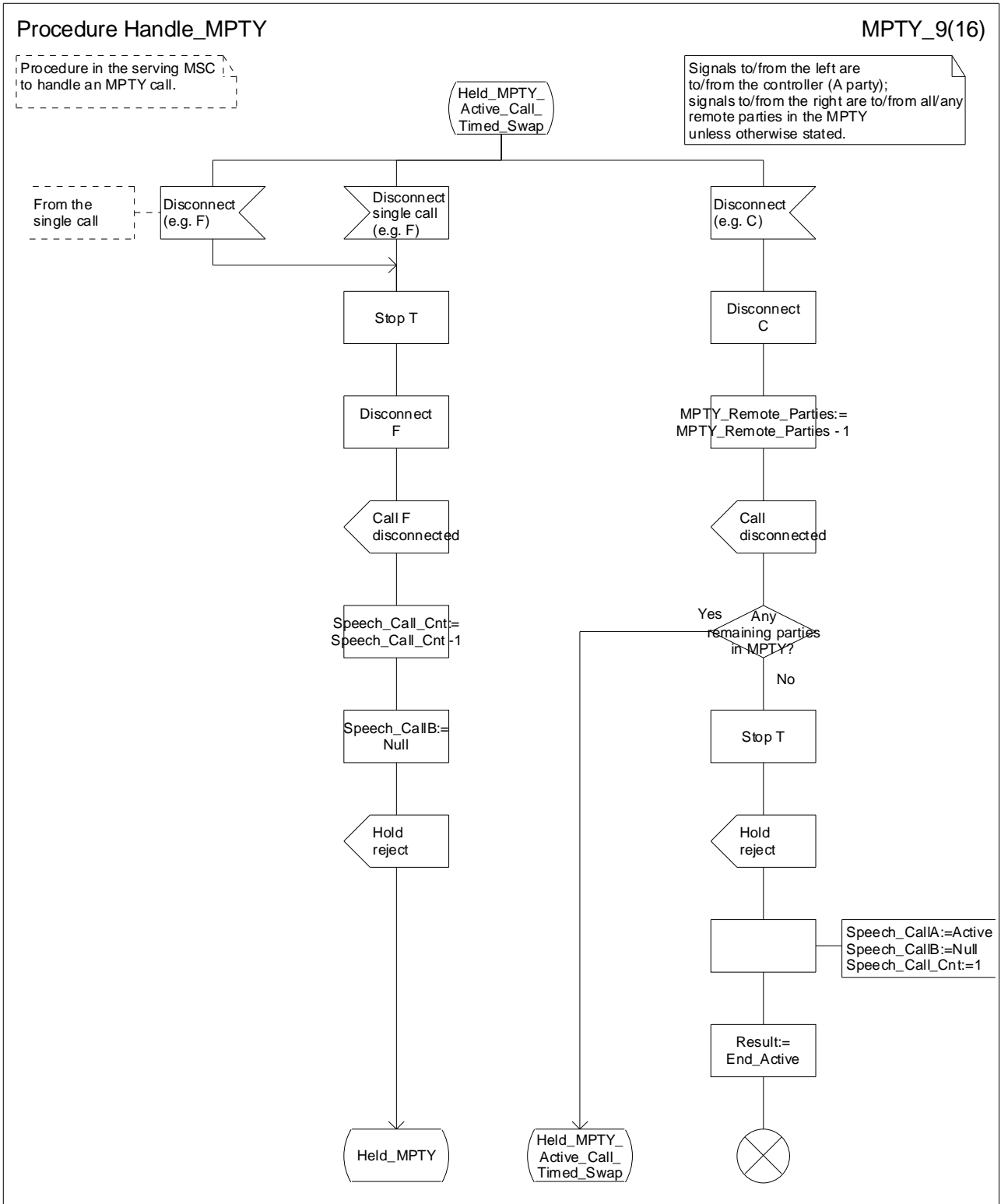


Figure 1.2 (sheet 9 of 16): Procedure Handle_MPTY

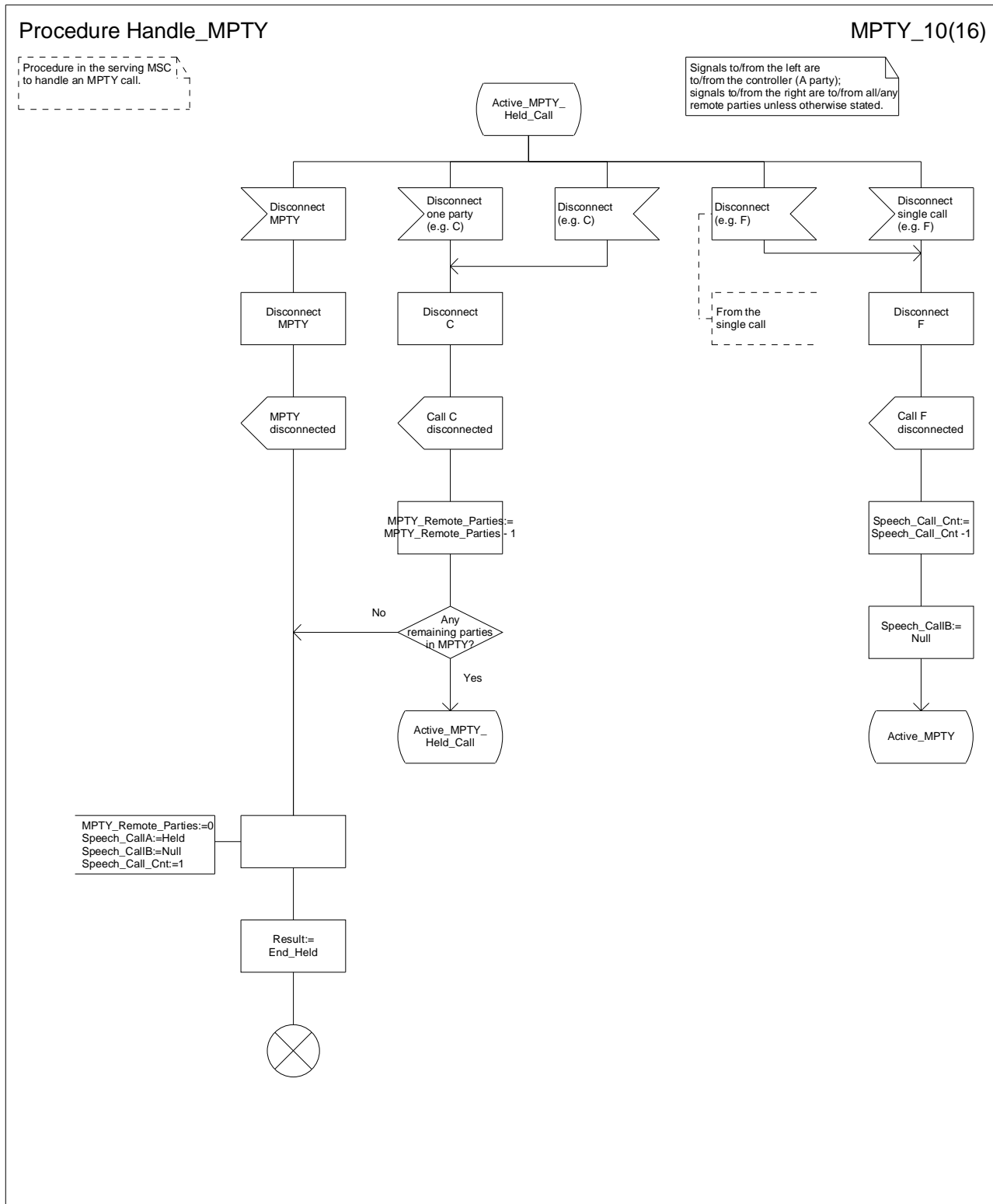


Figure 1.2 (sheet 10 of 16): Procedure Handle_MPTY

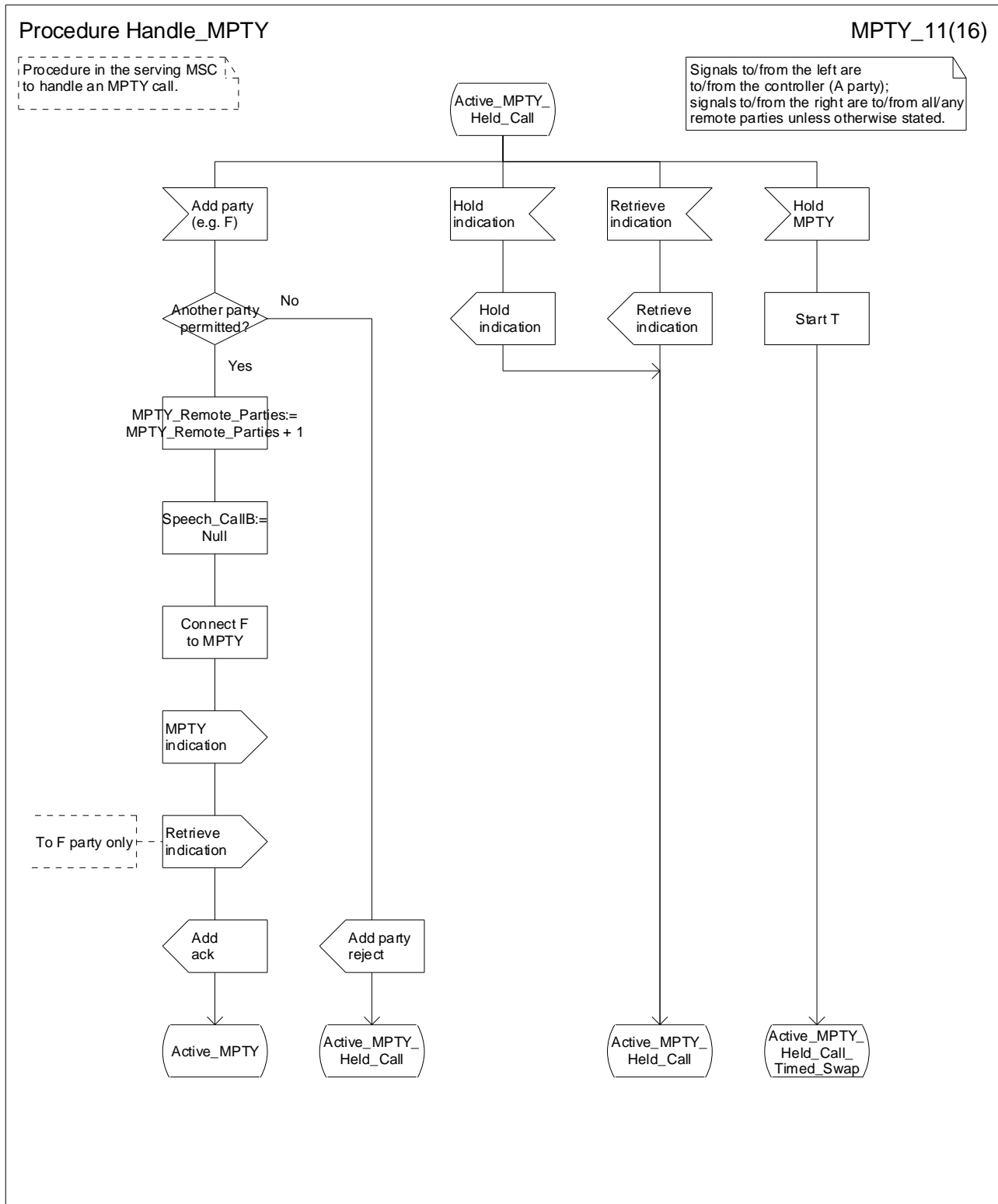


Figure 1.2 (sheet 11 of 16): Procedure Handle_MPTY

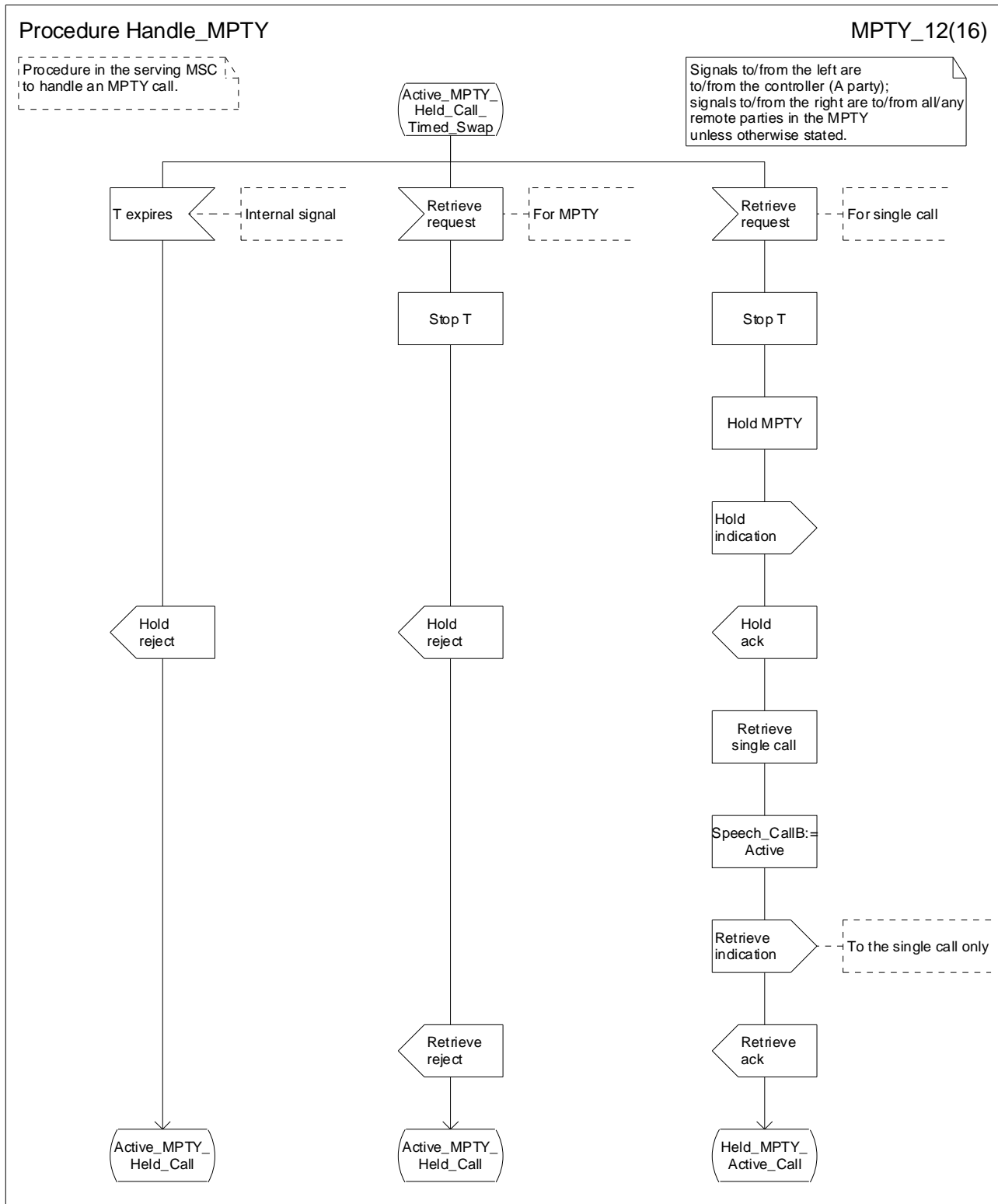


Figure 1.2 (sheet 12 of 16): Procedure Handle_MPTY

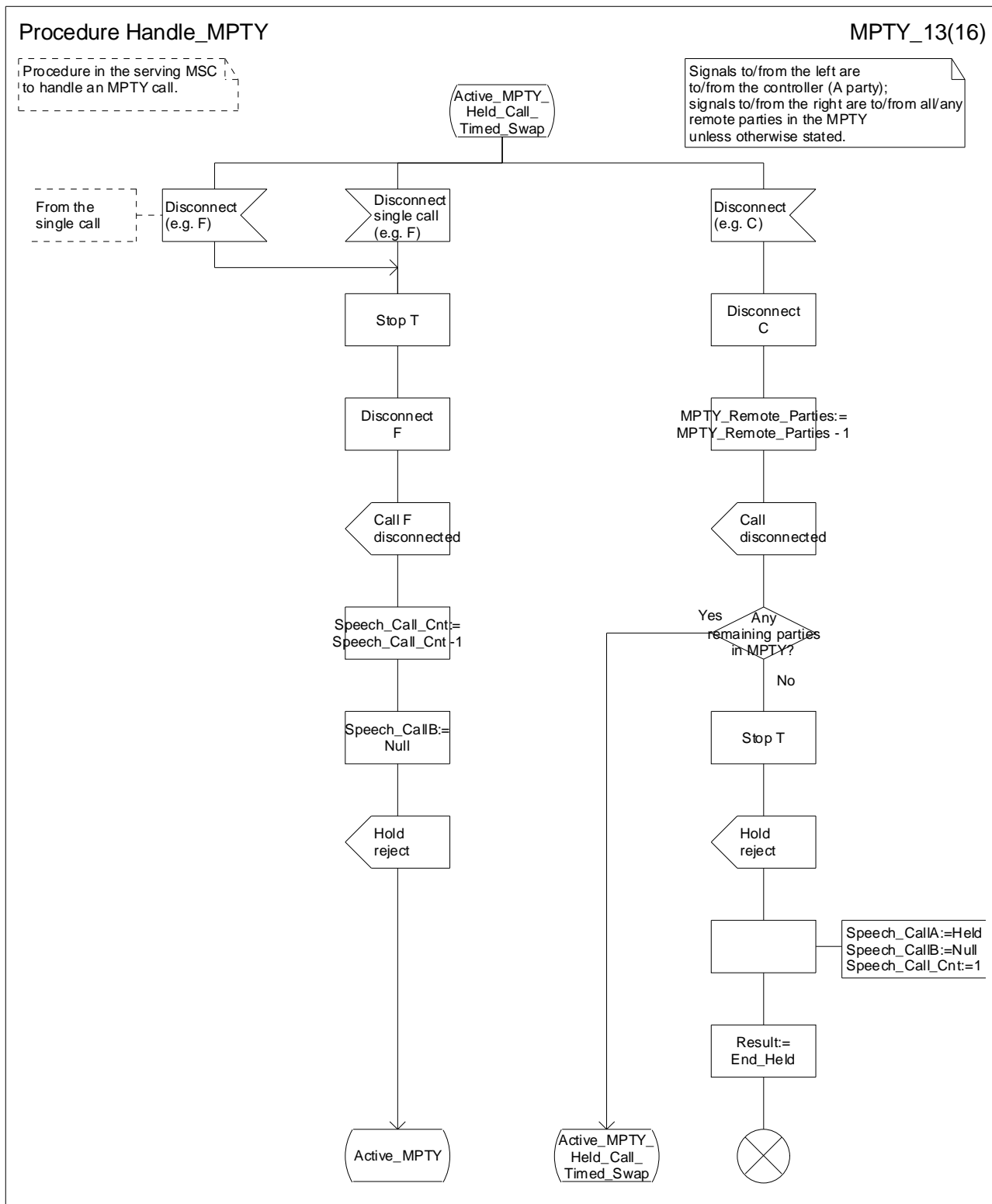


Figure 1.2 (sheet 13 of 16): Procedure Handle_MPTY

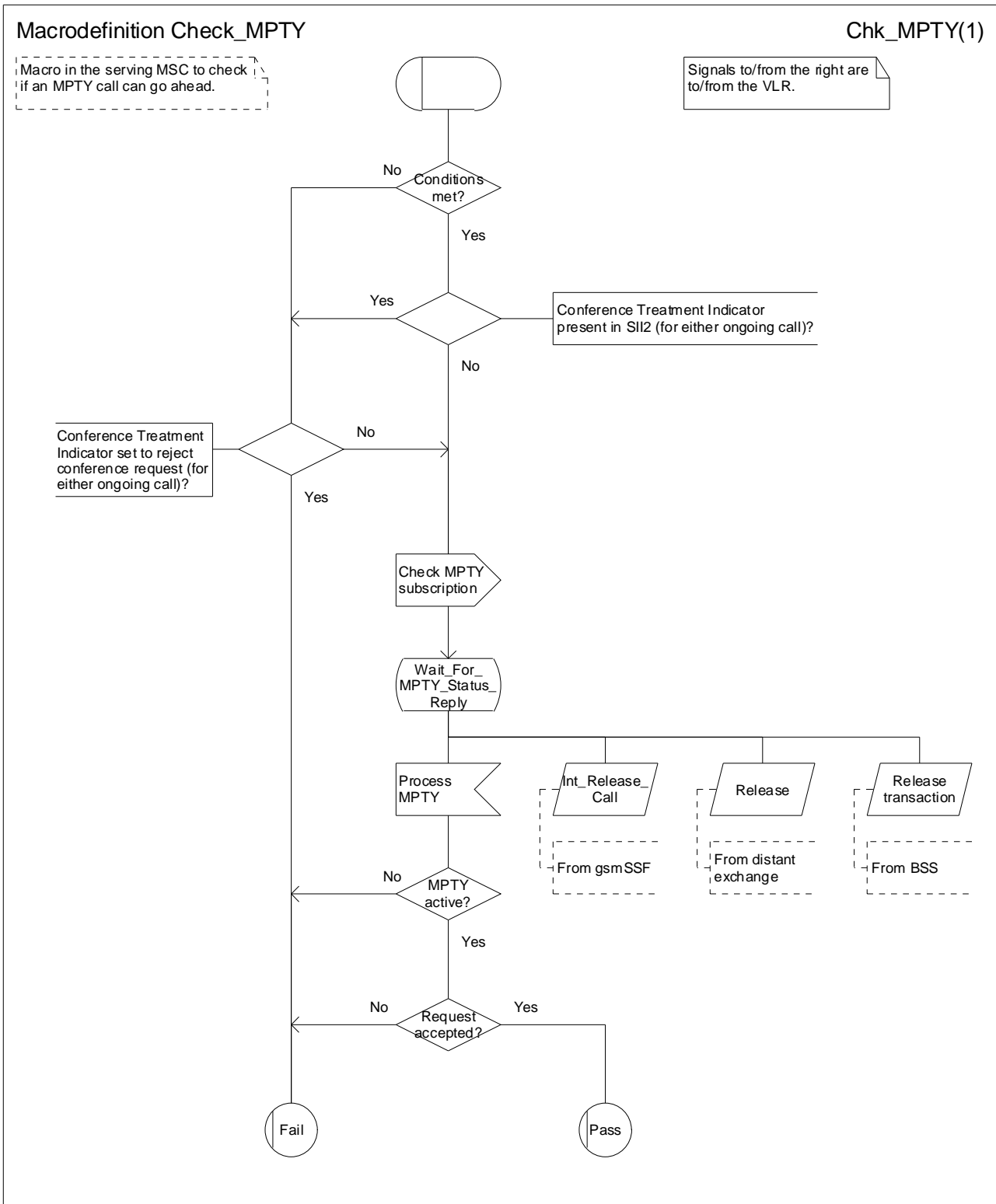


Figure 1.3: Macro Check_MPTY

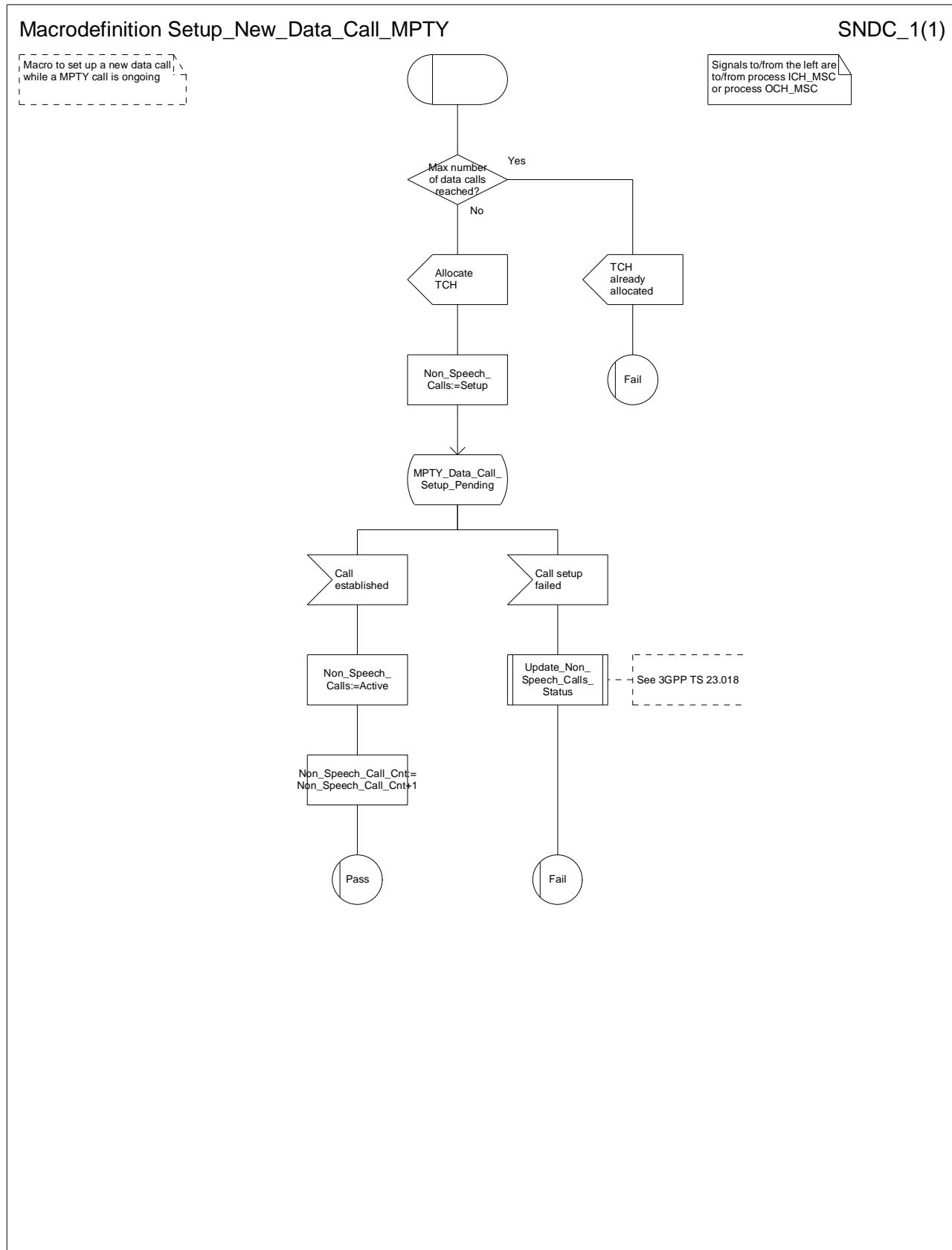
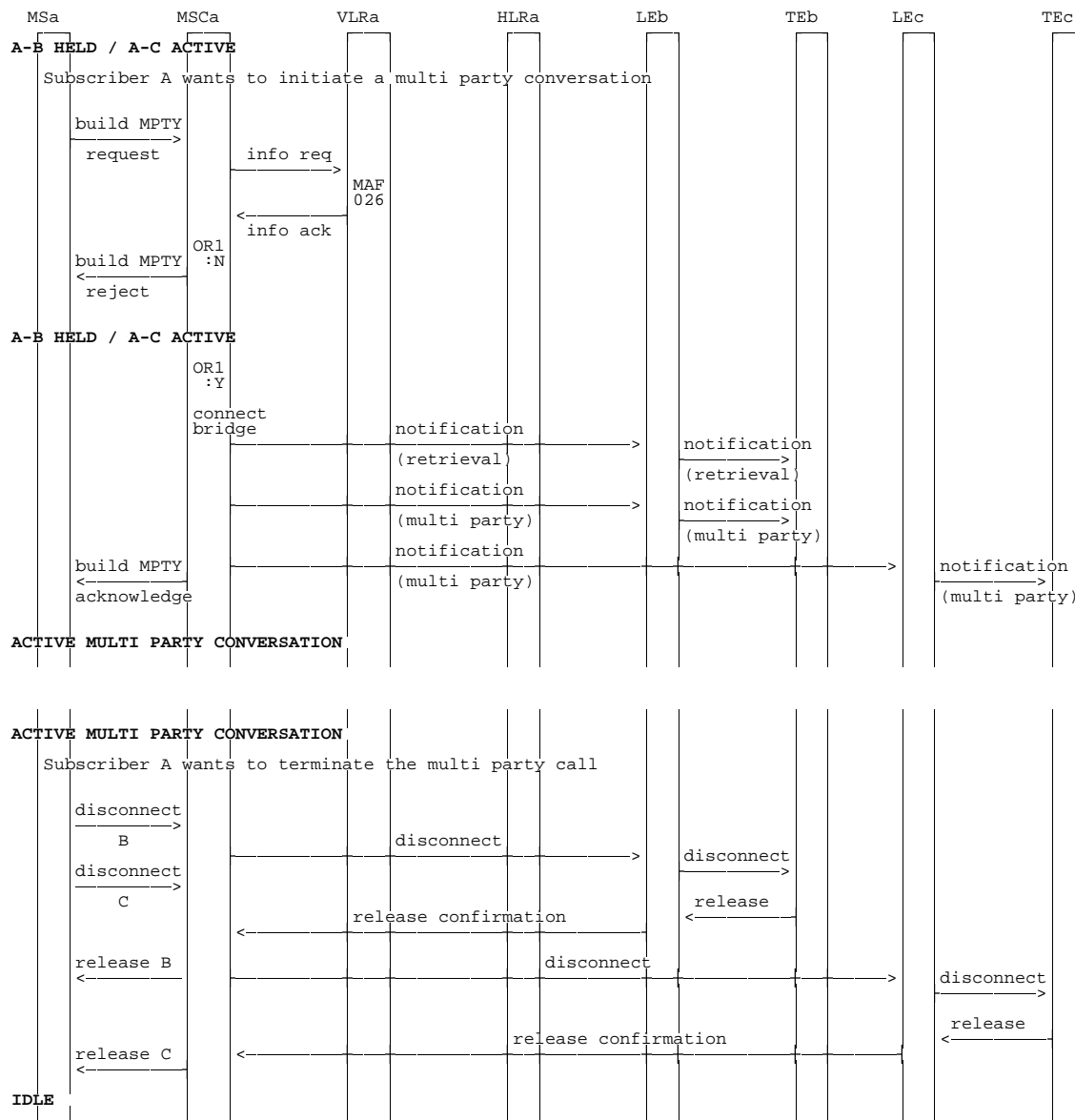


Figure 1.4: Setup_New_Data_Call_MPTY



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

Figure 1.5 (sheet 1 of 7): Information flow for Multi Party service

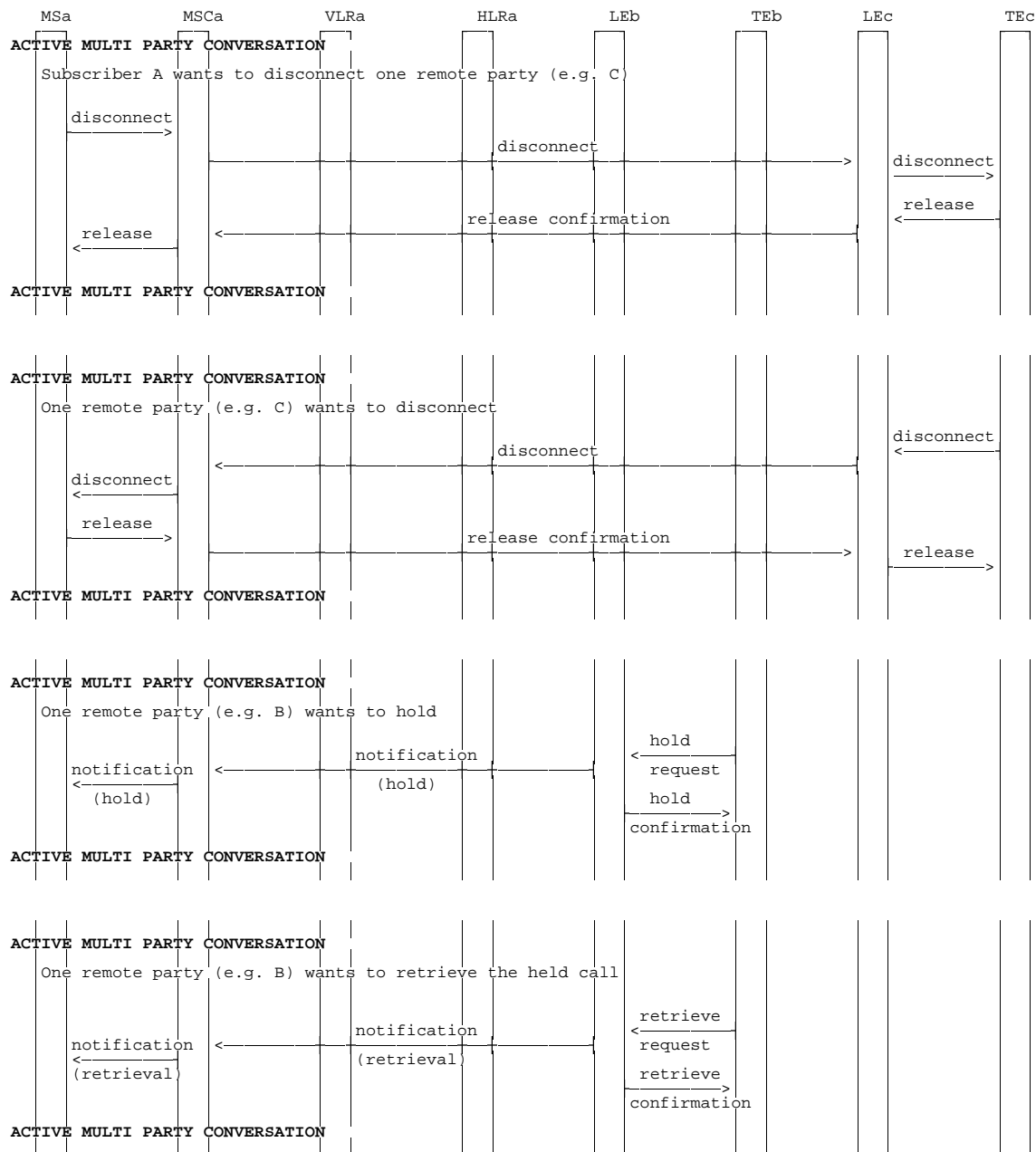


Figure 1.5 (sheet 2 of 7): Information flow for Multi Party service

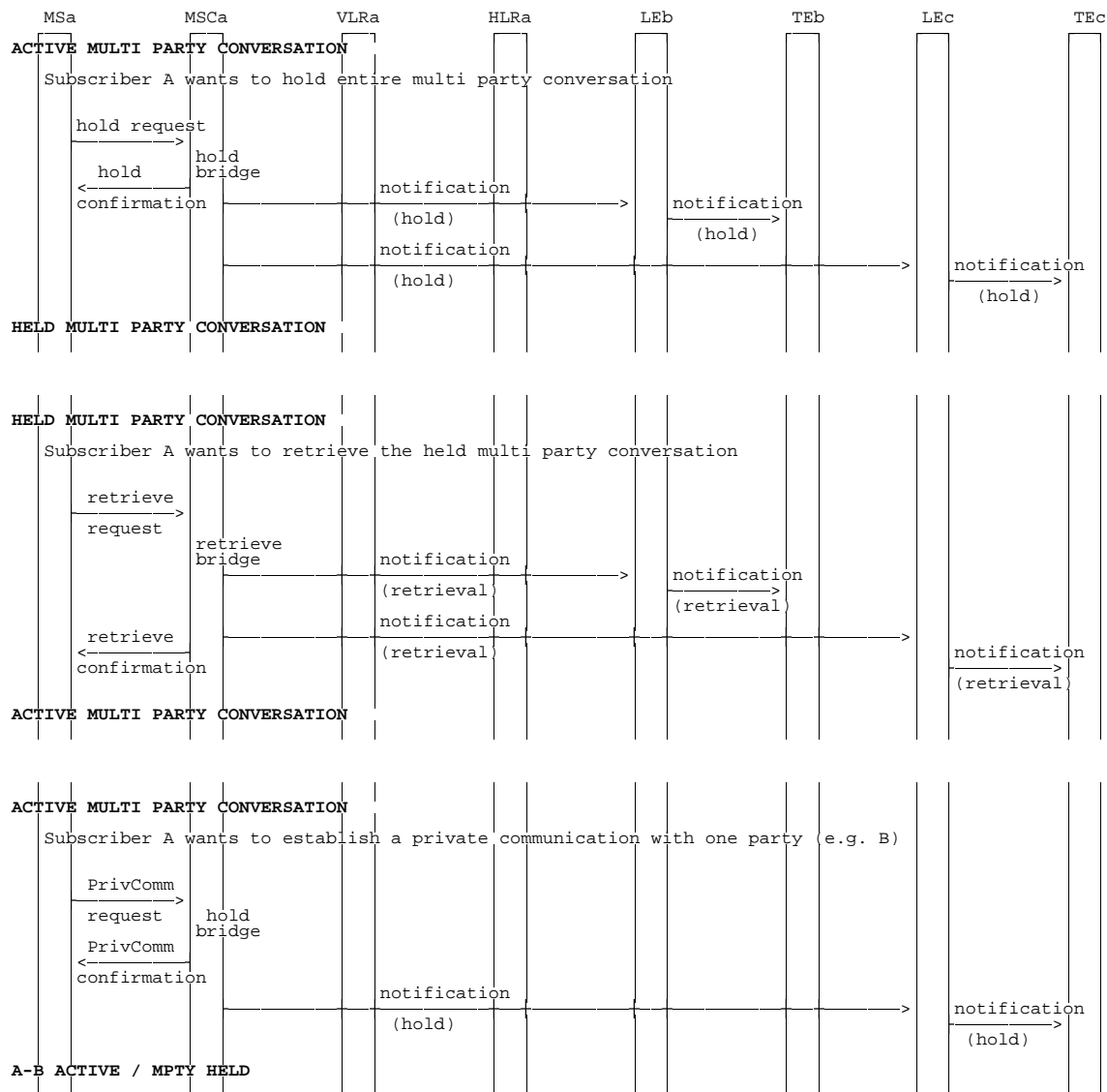


Figure 1.5 (sheet 3 of 7): Information flow for Multi Party service

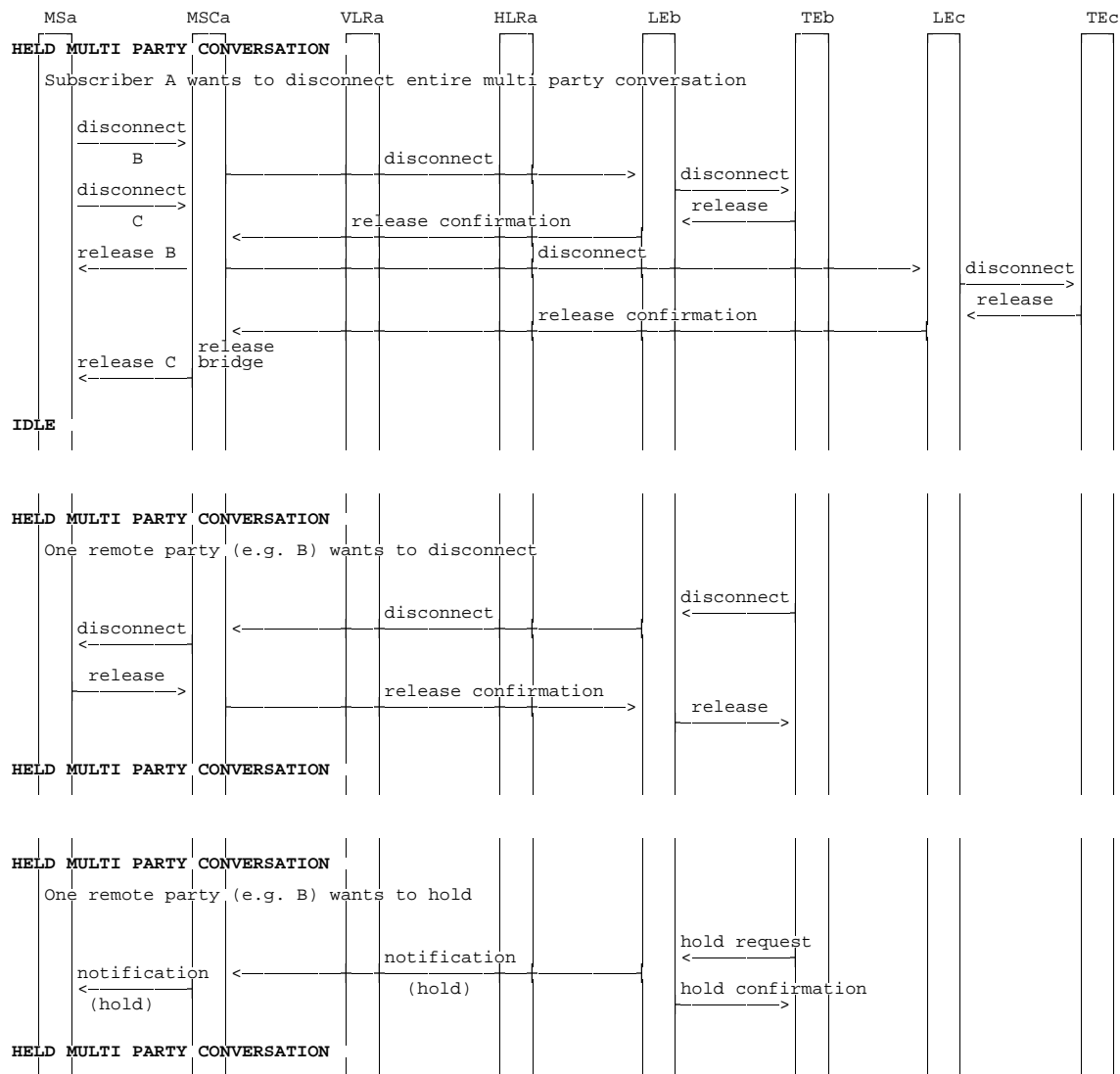


Figure 1.5 (sheet 4 of 7): Information flow for Multi Party service

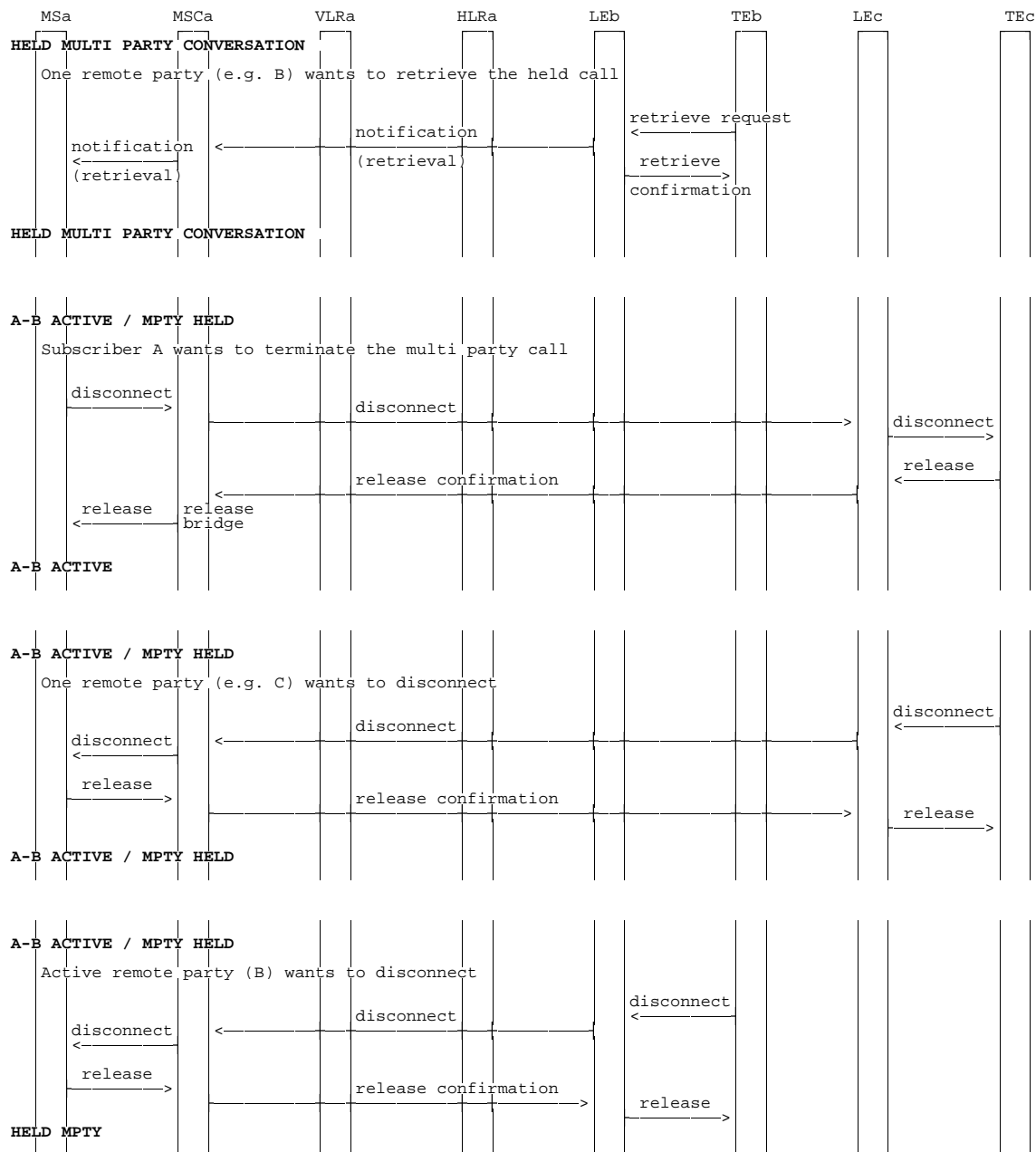
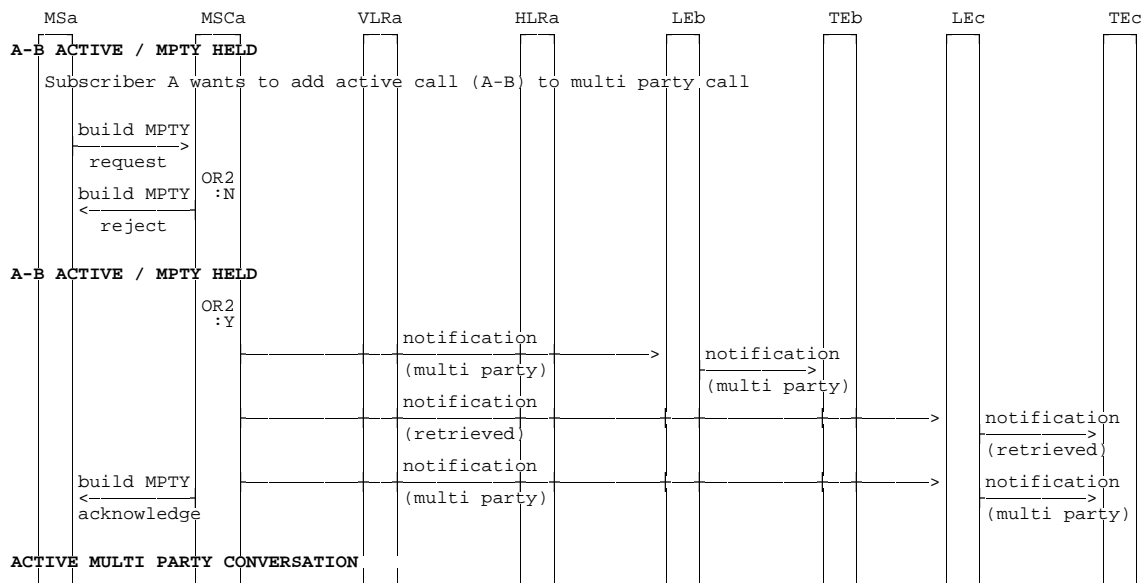


Figure 1.5 (sheet 5 of 7): Information flow for Multi Party service



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

Figure 1.5 (sheet 6 of 7): Information flow for Multi Party service

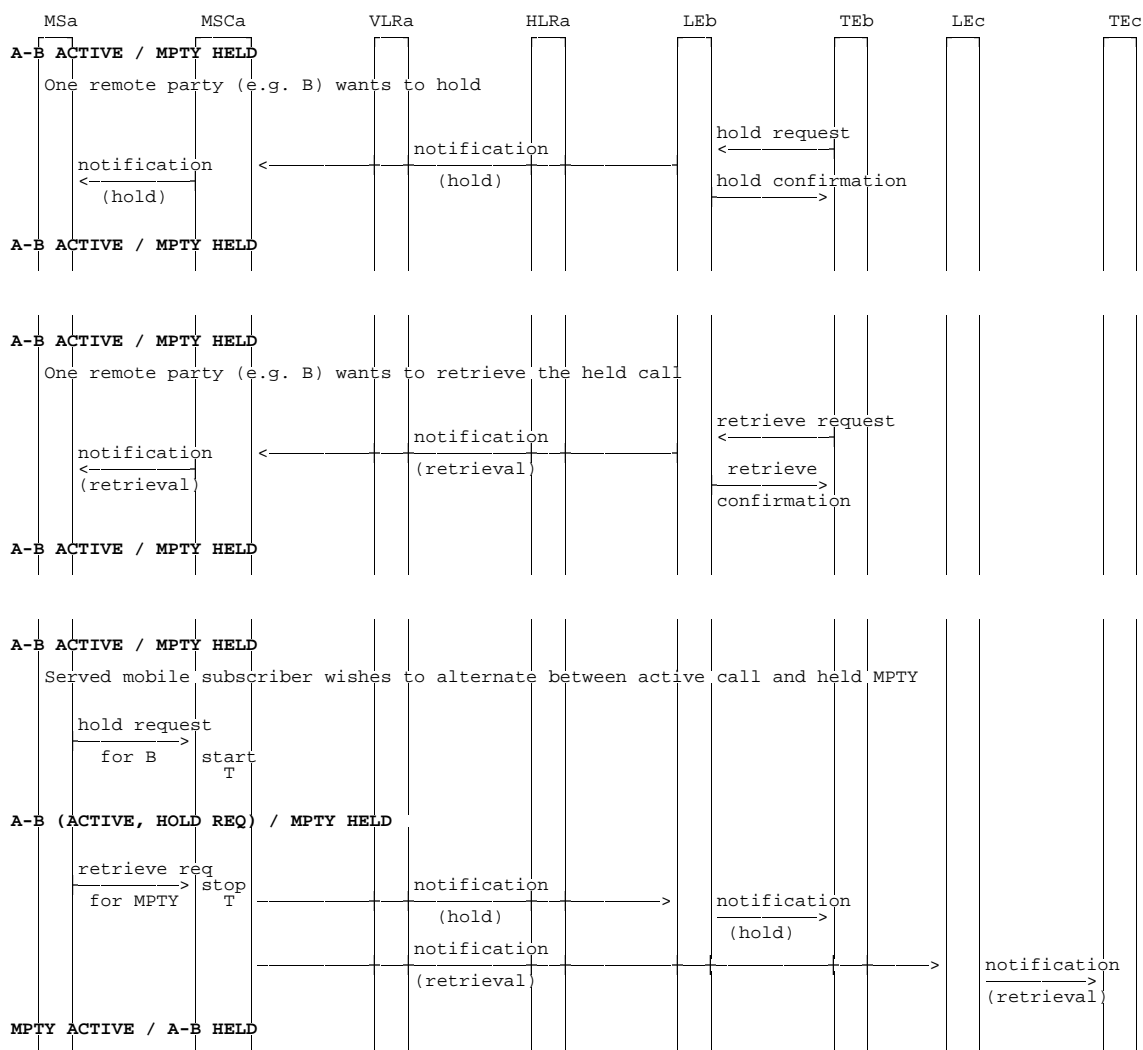


Figure 1.5 (sheet 7 of 7): Information flow for Multi Party service

1.2 Information stored in the HLR

The following logical states are applicable for MPTY (refer to TS 23.011 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.

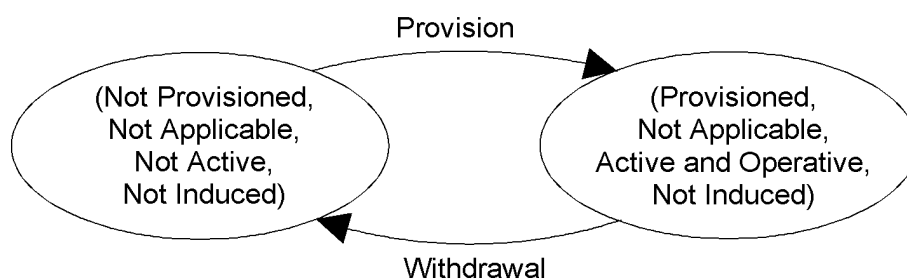


Figure 1.6: State transition model for MPTY

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: Change history

Change history								
TSG CN#	Spec	Old Ver	CR	Rev	Phase	Cat	New Ver	Subject/Comment
Apr 1999	GSM 03.84	6.0.0			R97			Transferred to 3GPP CN1
CN#03	23.084				R99		3.0.0	Approved at CN#03
CN#06	23.084	3.0.0	001		R99		3.1.0	approved at CN#06
CN#09	23.084	3.1.0	002	1	R99	F	3.2.0	SDL refresh
Cn#11		3.2.0					4.0.0	Version increased from R99 to Rel-4 after CN#11.
CN#11	23.084	3.2.0	003	1	Rel-4	C	4.0.0	Enhancement of MPTY SDLs and CAMEL functionality
CN#12	23.084	4.0.0	004	1	Rel-5	C	5.0.0	Handling of MultiCall in MPTY procedure
CN#26	23.084	5.0.0			Rel-6		6.0.0	Release 6 after CN#26
CT#36	23.084	6.0.0			Rel-7		7.0.0	Upgraded unchanged from Rel-6
CT#42	23.084	7.0.0			Rel-8		8.0.0	Upgraded unchanged from Rel-7
CT#46	23.084	8.0.0	-	-	Rel-9		9.0.0	Update to Rel-9 version (MCC)
2011-03	23.084	9.0.0	-	-	Rel-10		10.0.0	Update to Rel-10 version (MCC)
2012-09	23.084	10.0.0	-	-	Rel-11		11.0.0	Update to Rel-11version (MCC)
2014-09	23.084	11.0.0	-	-	Rel-12		12.0.0	Update to Rel-12 version (MCC)
2015-12	23.084	12.0.0	-	-	Rel-13	-	13.0.0	Update to Rel-13 version (MCC)
2017-03	23.084	13.0.0	-	-	Rel-14		14.0.0	Update to Rel-14 version (MCC)

History

Document history		
V14.0.0	April 2017	Publication