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Technical Specification

**3rd Generation Partnership Project;
Technical Specification Group Core Network and Terminals;
Name identification supplementary services;
Stage 2
(Release 11)**



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Foreword

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

The present document describes name identification supplementary services (stage 2) within the 3GPP system.

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.

1 Scope

The present document gives the stage 2 description of the Name Identification Supplementary Services.

The group of Name Identification Supplementary Services contains the following Supplementary Service:

CNAP - Calling name presentation (clause 4).

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 TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 22.004: "General on Supplementary Services".
- [3] 3GPP TS 23.011: "Technical Realization of Supplementary Services - General Aspects".
- [4] 3GPP TS 23.016: "Subscriber Data Management - Stage 2".
- [5] 3GPP TS 23.081: "Line Identification Supplementary Services - Stage 2".

3 Definitions and Abbreviations

3.1 Definitions

Definition of name identity:

The name identity is made up of the following information unit:

- The name of the mobile subscriber for the purpose of calling name presentation - up to 80 characters of information associated with a specific calling party.

The calling name identity is the name identity of the calling party.

Definition of Presentation Indicator:

In addition to or instead of the name identity, the network may give a Presentation Indicator to the called mobile subscriber of the CNAP service. The following information may be given:

- Presentation Indicator (PI) showing:
 - a) presentation restricted, or
 - b) name unavailable.

Calling Name Information:

The calling name information of the calling party includes either the calling name identity or an indication of privacy or unavailability.

3.2 Abbreviations

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

CNAP Calling Name Presentation.

4 Calling Name Presentation (CNAP)

4.1 Handling of calling name presentation

4.1.1 Originating MSC Activities

The originating MSC may include calling name information in the Setup.

4.1.2 Terminating VMSC Activities

The calling name identity shall be provided by the terminating VMSC to the MS. See Figure 3a/3b for details.

The procedures of the name database query are outside the scope of the present document.

The MSC shall determine the presentation indicator to be sent to the CNAP subscriber's MS by combining the presentation indicator in the calling line information (if available), the presentation indicator in the calling name information (if available) and the presentation indicator in the response from the name database (if applicable). The calling name shall be restricted if either the line or name indicator shows the information is to be restricted (and override category is not applicable). The precise handling depends on the structure of the name database and is therefore outside the scope of the present document. An example is shown in annex A.

If a name database query is not possible, e.g. calling line identity is unavailable, name database is not responding, or the name database response timer expires, then the MSC shall send a presentation indicator of name unavailable to the CNAP subscriber's MS.

A character translation may be required by the terminating MSC since the name characters stored in the name database are not using the GSM default alphabet (name characters passed to the CNAP subscriber's MS use the GSM default alphabet). Display of calling name identity to the subscriber is outside the scope of the present document.

4.1.3 Interrogation

Status check

The mobile subscriber can request the status of the supplementary service and be informed if the service is provided to him/her. This procedure is illustrated in figure 1.

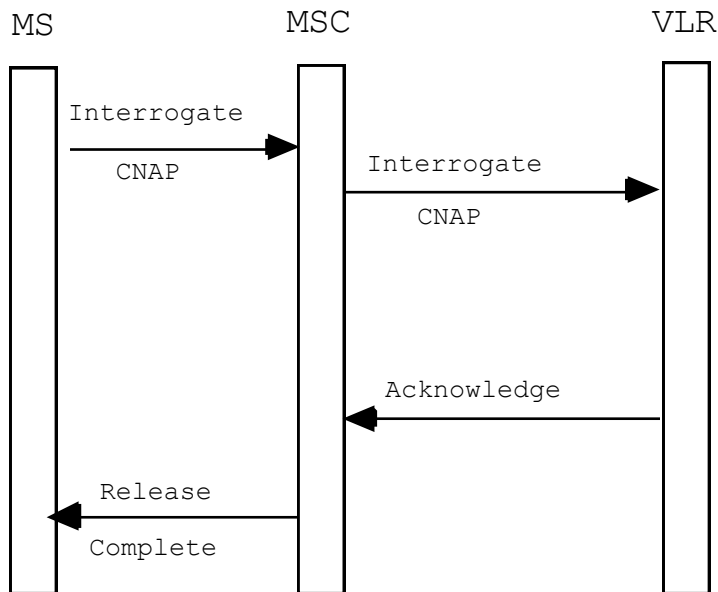


Figure 1: Interrogation of Calling Name Presentation

4.2 Functions and information flows

The following Mobile Additional Functions (MAF) have been identified for the PLMN:

MAF049

Determination of the calling name presentation subscription.

The ability of a PLMN component to determine whether the supplementary service is provisioned for the mobile subscriber. See figure 3a.

Location: VLR.

MAF050

Determination of the calling party name for offering to the called party.

The ability of a PLMN component to determine and to forward the calling name identity and related indications to the called party. See figure 3b.

Location: destination MSC.

The information flow is shown in figure 4.

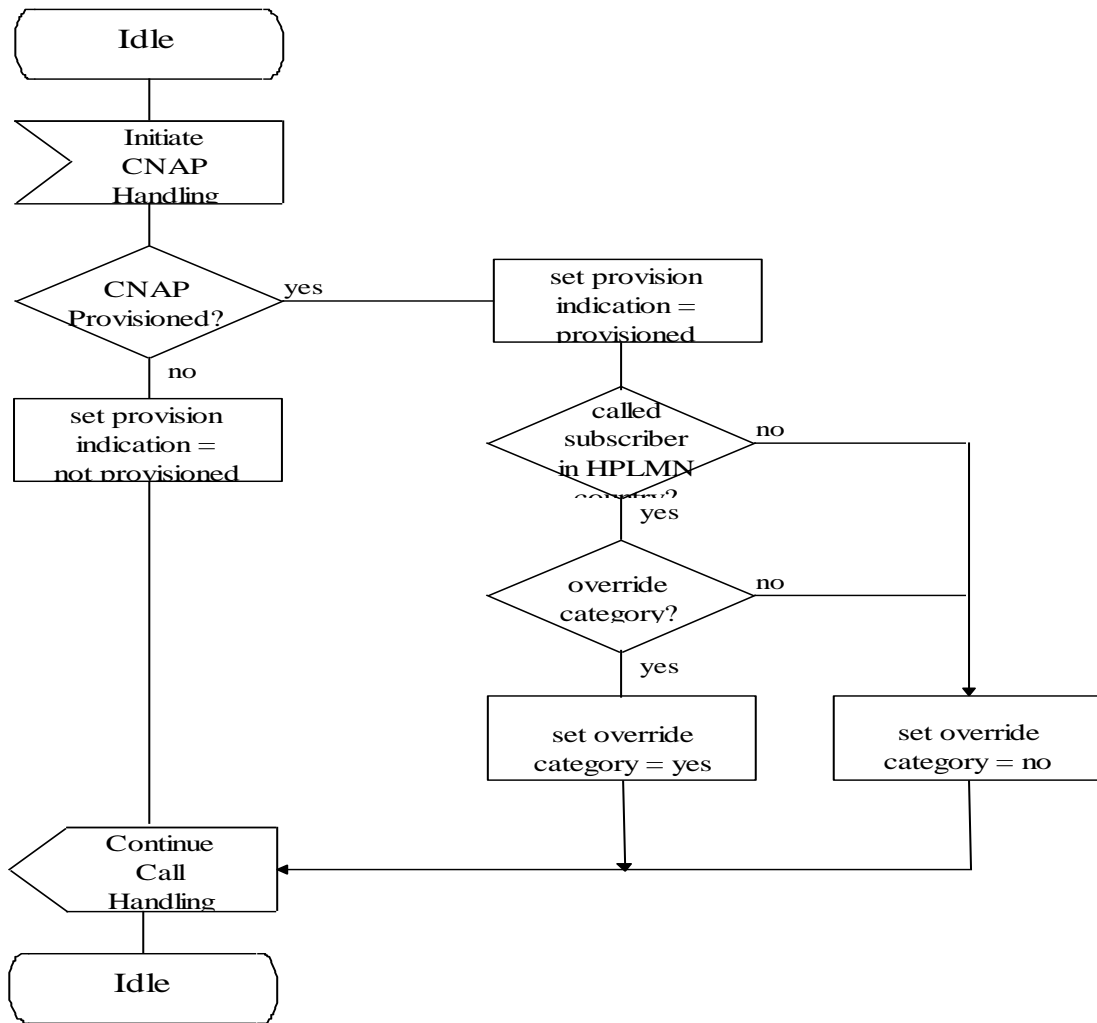


Figure 2: MAF049 Determination of the calling name presentation subscription (VLR)

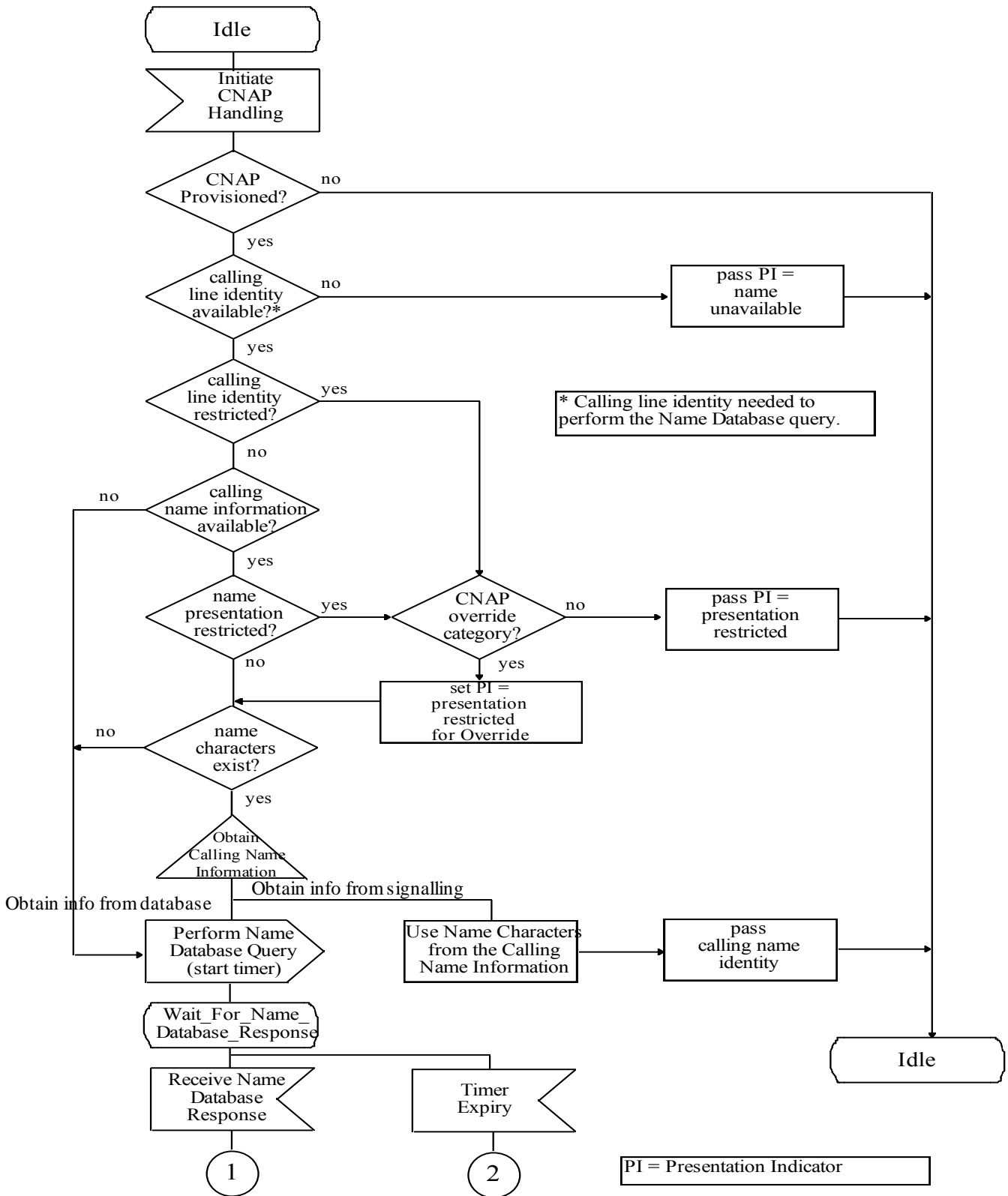


Figure 3a: MAF050(CNAP) Determination of the information for offering to the called party (Sheet 1)

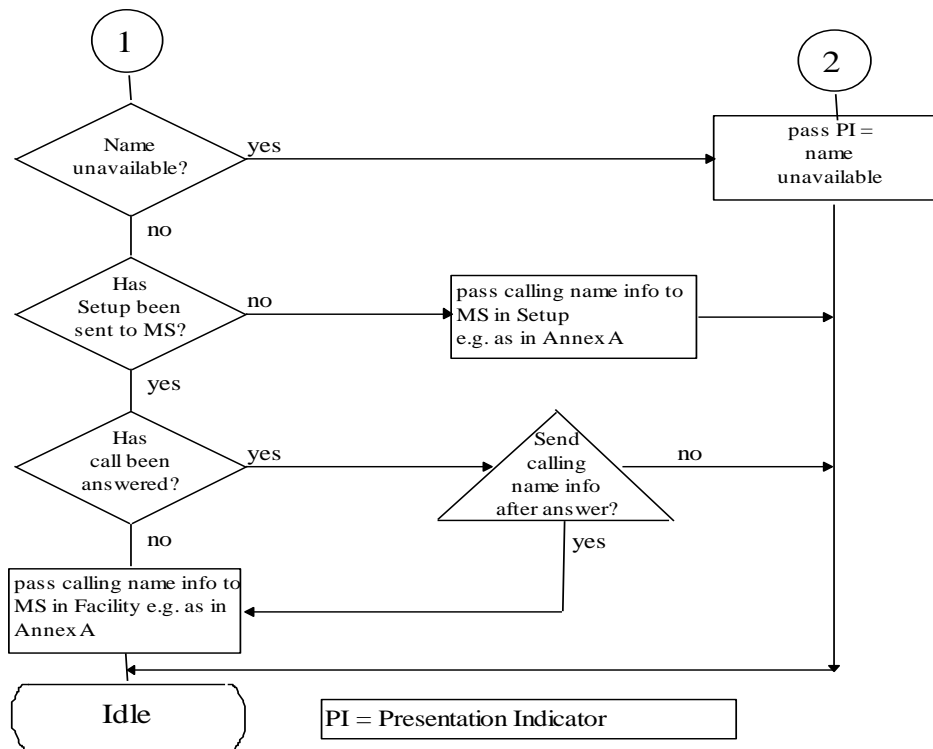


Figure 3b: MAF050(CNAP) Determination of the information for offering to the called party (Sheet 2)

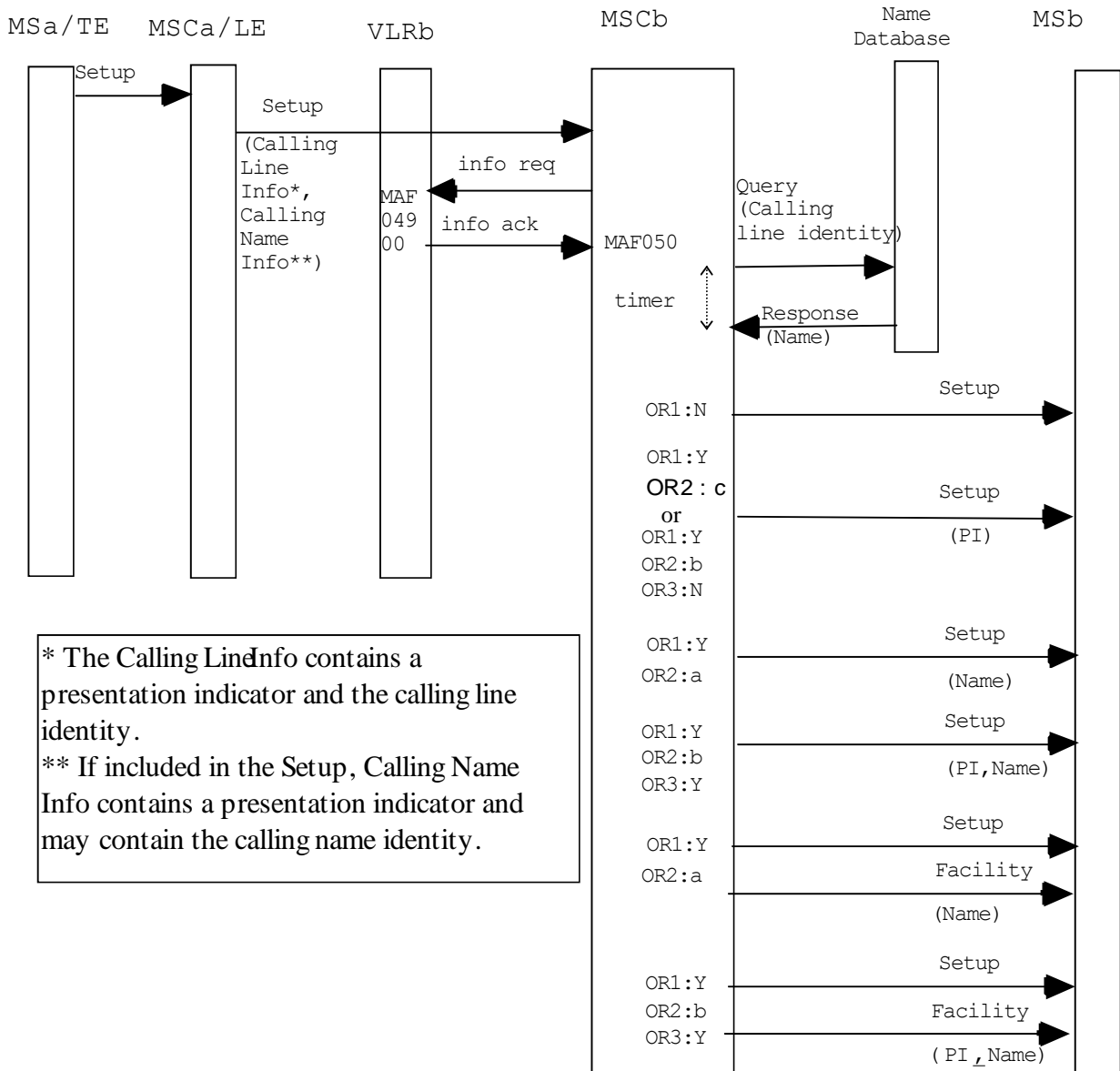


Figure 4: Information Flow For Calling Name Presentation: Mobile Station Or Fixed Terminal To Mobile Station

NOTE: OR1: CNAP provisioned Y: yes
 N: no
 OR2: Calling Name Info a: allowed
 Presentation Indicator Value b: restricted
 c: unavailable
 OR3: Override category Y: yes
 N: no

info: information
 req: request
 ack: acknowledge
 PI: presentation indicator

4.3 Information stored in the HLR

CNAP may have the following logical states (refer to 3GPP TS 23.011 for an explanation of the notation):

| Provision State | Registration State | Activation State | HLR Induced 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 CNAP (which shall be one of the valid state listed above) on a per subscriber basis.

The HLR shall also store the subscription option "override category" on a per subscriber basis. The subscription options are: "Yes" or "No".

4.4 State Transition Model

The following figure shows the successful cases of transition between the applicable logical states of CNAP. 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 change. Additionally, some successful requests may not cause a state change. Hence they are not shown in the diagram.

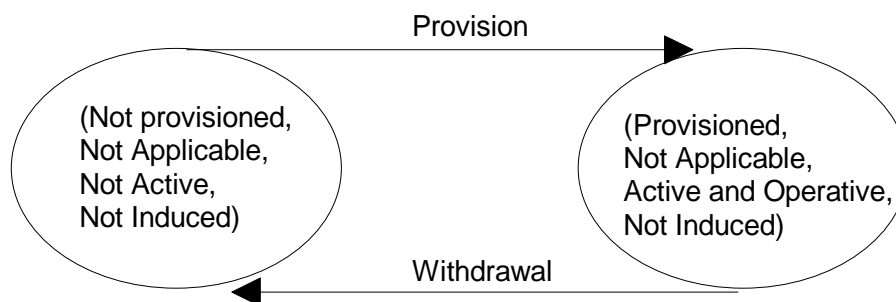


Figure 5: State Transition model for CNAP

4.5 Transfer of information from HLR to VLR

If the provisioning state for CNAP is "provisioned" then, when the subscriber registers on a VLR, the HLR shall send the VLR subscriber information about the logical state of CNAP. Please refer to GSM 03.16 for details related to the handling of supplementary service information between the HLR and VLR.

If the logical state of CNAP or the override category is changed while a subscriber is registered on a VLR, then the HLR shall inform the VLR of the logical state of CNAP. If the override category is changed and the provisioning state of CNAP is "Provisioned", then the HLR shall inform the VLR about the new override category when the VLR is in the HPLMN country. The HLR may inform the VLR about the new override category when the VLR is outside the HPLMN country.

4.6 Information stored in the VLR

For CNAP, the VLR shall store the service state information and override category received from the HLR. If not received from the HLR (in case of roaming outside the HPLMN country), the override category shall be set to the default value "no".

4.7 Handover

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

Annex A (normative for PCS1900): Calling Name Information Setting to the MS

A name database query is performed using the calling party's line identity as specified in ANSI T1.641 "Calling Name Identification Presentation".

The calling name information, which contains the resulting presentation indicator, as shown in Table 1 is sent to the CNAP subscriber's MS.

Table 1: Determination of Calling Name Information sent to CNAP subscriber's MS

| Presentation Indicator in Calling Name Information | Presentation Indicator in Name Database | Calling Name Information sent to the CNAP subscriber's MS |
|---|---|---|
| Presentation Allowed | Presentation Allowed | Calling Name Identity |
| | Presentation Restricted | |
| | Blocking Toggle | |
| | No Indication | |
| Presentation Restricted | No Database Query performed | Presentation Restricted ¹ |
| Blocking Toggle | Presentation Allowed | Presentation Restricted ¹ |
| | Presentation Restricted | Calling Name Identity |
| | Blocking Toggle | Unavailable ² |
| | No Indication | Unavailable ² |
| No Indication (or No Calling Name Information present) | Presentation Allowed | Calling Name Identity |
| | Presentation Restricted | Presentation Restricted ¹ |
| | Blocking Toggle | Unavailable ² |
| | No Indication | Unavailable ² |

NOTE1: If the override category is set to yes, the MSC shall send the calling name identity and a presentation indicator of presentation restricted to the CNAP subscriber's MS.

NOTE2: These combinations are unexpected: an indication of name unavailable is given.

Annex B (informative): Change history

| Change history | | | | | | |
|----------------|-----------|---------|------|---------|-------------|----------------------------------|
| TSG CN# | Spec | Version | CR | <Phase> | New Version | Subject/Comment |
| Apr 1999 | GSM 03.96 | 6.0.1 | | | | Transferred to 3GPP CN1 |
| CN#03 | 23.096 | | | | 3.0.0 | Approved at CN#03 |
| | 23.096 | 3.0.0 | | R99 | 3.0.1 | References updated from 2G to 3G |
| CN#11 | 23.096 | 3.0.1 | | Rel-4 | 4.0.0 | Release 4 after CN#11 |
| CN#16 | 23.096 | 4.0.0 | | Rel-5 | 5.0.0 | Release 5 after CN#16 |
| CN#26 | 23.096 | 5.0.0 | | Rel-6 | 6.0.0 | Release 6 after CN#26 |
| CT#30 | 23.096 | 6.0.0 | 0001 | Rel-6 | 6.1.0 | Incorrect reference |
| CT#35 | 23.096 | 6.1.0 | | Rel-7 | 7.0.0 | Upgraded unchanged from Rel-6 |
| CT#42 | 23.096 | 7.0.0 | | Rel-8 | 8.0.0 | Upgraded unchanged from Rel-7 |
| CT#46 | 23.096 | 8.0.0 | - | Rel-9 | 9.0.0 | Update to Rel-9 version (MCC) |
| 2011-03 | 23.096 | 9.0.0 | - | Rel-10 | 10.0.0 | Update to Rel-10 version (MCC) |
| 2012-09 | 23.096 | 10.0.0 | - | Rel-11 | 11.0.0 | Update to Rel-11 version (MCC) |