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Contents

Foreword

This European Telecommunication Standard (ETS) has been produced by the Business TeleCommunications (BTC) Technical Committee of the European Telecommunications Standards Institute (ETSI).

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1 Scope

This European Telecommunication Standard (ETS) describes the stage 1 of the Cordless Terminal Mobility (CTM) call handling Additional Network Features (ANF) for Private Integrated Services Networks (PISNs). It comprises two related but distinct service descriptions, Incoming CTM Call Handling Additional Network Feature (ANF-CTMI) and Outgoing CTM Call Handling Additional Network Feature (ANF-CTMO). Stage one is an overall service description from the user's point of view, but does not deal with the details of the human interface itself, see CCITT Recommendation I.130 [5].

ANF-CTMI directs incoming calls to a CTM user within a PISN regardless of the CTM user's geographical location within the PISN, provided the CTM user's location is known.

ANF-CTMO detects an outgoing call or request for a supplementary service from a CTM user and establishes it as a basic call or signalling connection, respectively, regardless of the user's geographical location within the PISN. It also provides the CTM user's service profile for use by outgoing call control, or alternatively passes the call to the CTM user's home location for processing.

This ETS contains the stage 1 specification of the CTM call handling ANFs. ANF specifications are produced in three stages according to the method described in ETS 300 387 [4].

The purpose of the stage 1 specification is to guide and constrain the work at stage 2 and stage 3. Where the text indicates the status of a requirement (i.e. as strict command or prohibition or as authorisation leaving freedom as a capability or possibility) this is reflected in the text of the relevant stage 2 and stage 3 standards.

Conformance to this ETS is met by conforming to the stage three standards with the field of application appropriate to the equipment being implemented. Therefore, no method of testing is provided for this ETS.

2 Normative references

This ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] ETS 300 171 (1992): "Private Telecommunication Network (PTN); Specification, functional models and information flows; Control aspects of circuit mode basic services".

[2] ETS 300 415 (1995): "Private Telecommunication Network (PTN); Terms and definitions".

[3] ISO/IEC 11579-1 (1994): "Information Technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Part 1: Reference configurations for PISN exchanges (PINX)".

[4] ETS 300 387 (1994): "Private Telecommunication Network (PTN); Method for the specification of basic and supplementary services".

[5] CCITT Recommendation I.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".

[6] ITU-T Recommendation I.210 (1993): "Principles of telecommunication services supported by an ISDN and the means to describe them".

[7] ITU-T Recommendation Z.100 (1993): "Specification and description language (SDL)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the following definitions apply:

Additional Network Feature (ANF): See ETS 300 415 [2].

call; basic call: See ETS 300 171 [1].

Cordless Terminal Mobility (CTM): The ability of a cordless terminal to be in continuous motion whilst accessing and using the telecommunications services offered by the PISN as well as the capability of the network to keep track of the location of the cordless terminal within the coverage area of the radio system used.

CTM user: A PISN user whose calls are processed by either or both of the CTMI and CTMO ANFs.

destination number: The PISN number of the original called user.

incoming CTM call: A call where the called user is a CTM user.

location registration: The process whereby the position of a cordless terminal is determined at the level of one location area and the process of updating the position of this cordless terminal in one or more databases.

outgoing CTM call: A call originated by a CTM user.

Private Integrated Services Network (PISN): See ISO/IEC 11579-1 [3].

PISN number: See ETS 300 415 [2].

PISN user: A user of the network layer services provided by a PISN.

service profile: The specific collection of PISN services and service options which a PISN user can utilize.

signalling connection: A means of conveying supplementary service requests, independent of a basic call.

supplementary service: See ITU-T Recommendation I.210 [6].

3.2 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

ANF-xxx	"xxx" Additional Network Feature
CCBS	Call Completion to Busy Subscriber
CCNR	Call Completion on No Reply
CD	Call Deflection
CFB	Call Forwarding Busy
CFNR	Call Forwarding on No Reply
CFU	Call Forwarding Unconditional
CI	Call Intrusion
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
CNIP	Calling Name Identification Presentation
CNIR	Calling Name Identification Restriction
CO	Call Offer
COLP	Connected Line Identification Presentation
CONP	Connected Name Identification Presentation
CT	Call Transfer

CTLR	Cordless Terminal Location Registration
CTM	Cordless Terminal Mobility
CTMI	Incoming CTM Call Handling
CTMO	Outgoing CTM Call Handling
CTSP	Transfer of Service Profile
DND	Do Not Disturb
DNDO	Do Not Disturb Override
PISN	Private Integrated Services Network
PR	Path Replacement
SDL	Specification and Description Language
SS-xxx	"xxx" Supplementary Service

4 ANF-CTMI

4.1 Description

4.1.1 General description

ANF-CTMI enables calls to be directed to a CTM user within the PISN. As there is no predetermined access for the connection of a CTM user to the PISN, the directing of such calls requires that information regarding the location of the user is available.

4.1.2 Qualifications on applicability to telecommunication services

This ANF is applicable to all circuit mode basic services as defined in ETS 300 171 [1].

4.2 Procedures

4.2.1 Provision and withdrawal

Not applicable.

4.2.2 Normal procedures

4.2.2.1 Activation, deactivation, registration and interrogation

ANF-CTMI shall be permanently activated.

Registration and interrogation are not applicable to this ANF.

4.2.2.2 Invocation and operation

For each CTM user, information shall be maintained relating to the location of the CTM user within the PISN.

ANF-CTMI shall be invoked for an incoming call when analysis of the destination number indicates that the called user is a CTM user. Once invoked, ANF-CTMI shall route the call to the CTM user using the destination number to determine the address of the PISN access currently in use by the CTM user.

Further processing of the call shall follow normal basic call procedures.

4.2.3 Exceptional procedures

4.2.3.1 Activation, deactivation, registration and interrogation

Not applicable.

4.2.3.2 Invocation and operation

If the PISN is unable to complete an incoming call to a CTM user, an indication that the call was unsuccessful shall be sent to the calling user. Normal basic call failure procedures shall be used.

4.3 Interactions with other supplementary services and ANFs

The interactions given in subclauses 4.3.1 to 4.3.12 shall apply.

4.3.1 Number identification services (SS-CLIP, SS-COLP, SS-CLIR)

No interaction.

NOTE: Regardless of any other arrangements for alternative identification of a CTM user within the PISN, the only meaningful number to be used by SS-COLP is the CTM user's PISN number.

4.3.2 Name identification services (SS-CNIP, SS-CONP, SS-CNIR)

No interaction.

4.3.3 Call diversion services

4.3.3.1 Call Forwarding Unconditional (SS-CFU)

If the CTM user subscribes to SS-CFU and SS-CFU is active, the invocation of SS-CFU shall take precedence over the directing of calls to the CTM user.

4.3.3.2 Call Forwarding Busy (SS-CFB)

No interaction.

4.3.3.3 Call Forwarding on No Reply (SS-CFNR)

No interaction.

4.3.4 Call Transfer (SS-CT)

No interaction.

4.3.5 Path Replacement (ANF-PR)

No interaction.

4.3.6 Call completion services (SS-CCBS, SS-CCNR)

No interaction.

4.3.7 Do not disturb services (SS-DND, SS-DNDO)

No interaction.

4.3.8 Call Offer (SS-CO)

No interaction.

4.3.9 Call Intrusion (SS-CI)

No interaction.

4.3.10 Incoming CTM Call Handling (ANF-CTMI)

Not applicable.

4.3.11 Outgoing CTM Call Handling (ANF-CTMO)

No interaction.

4.3.12 CTM location handling

4.3.12.1 Cordless Terminal Location Registration (SS-CTLR)

An incoming call to a CTM user may be rejected if it occurs while SS-CTLR is invoked or if the CTM user is in the deregistered state.

4.3.12.2 Transfer of Service Profile (ANF-CTSP)

ANF-CTSP may be invoked by ANF-CTMI if insufficient service profile information is available to process an incoming call to a CTM user.

4.4 Interworking considerations

No specific requirements.

4.5 Overall SDL diagram

Figure 1 shows an overall SDL diagram (according to ITU-T Recommendation Z.100 [7]) of ANF-CTMI. Input/output symbols represent stimuli from/to basic call control.

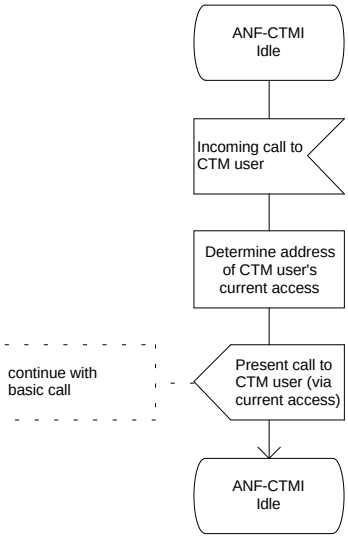

Figure 1: ANF-CTMI, overall SDL diagram

5 ANF-CTMO

5.1 Description

5.1.1 General description

ANF-CTMO permits the PISN to verify the identity of a CTM user when it initiates a call or a supplementary service request from its current visited location. ANF-CTMO also provides access to the CTM user's service profile for use by outgoing call control, or alternatively, passes the call to the CTM user's home location for processing.

5.1.2 Qualifications on applicability to telecommunication services

This ANF is applicable to all circuit mode basic services as defined in ETS 300 171 [1].

5.2 Procedures

5.2.1 Provision and withdrawal

Not applicable.

5.2.2 Normal procedures

5.2.2.1 Activation, deactivation, registration and interrogation

ANF-CTMO shall be permanently activated.

Registration and interrogation are not applicable to this ANF.

5.2.2.2 Invocation and operation

ANF-CTMO is an extension of basic call control which replaces certain procedures that basic call control is unable to perform satisfactorily for CTM users. It may be invoked when a call request or a request for a supplementary service is recognised as being initiated by a CTM user.

NOTE 1: The PISN need not invoke ANF-CTMO on all outgoing calls. Examples of when it might not be invoked are:

- when applying a fixed service profile to all CTM users;
- when allowing outgoing CTM calls without prior location registration.

If ANF-CTMO is invoked, the PISN shall verify that the CTM user is registered as a visiting user, and if so, set the originating number to the complete PISN number of the CTM user, unless it is already that.

NOTE 2: Positive identification does not guarantee that the CTM user's identity is actually the one claimed to be; this additional validation would be part of supplementary service Authentication.

ANF-CTMO shall then make the CTM user's service profile available for use by outgoing call control, with further call establishment following normal basic call procedures. Alternatively, the call may be processed at the CTM user's home location.

5.2.3 Exceptional procedures

5.2.3.1 Activation, deactivation, registration and interrogation

Not applicable.

5.2.3.2 Invocation and operation

The PISN may reject the call request with an appropriate failure indication for any of the following reasons:

- no originating number provided;
- the indicated CTM user is not registered at that location area.

Furthermore, all restrictions and exceptional procedures for basic call establishment shall apply.

5.3 Interactions with other supplementary services and ANFs

The interactions given in subclauses 5.3.1 to 5.3.12 shall apply.

5.3.1 Number identification services (SS-CLIP, SS-COLP, SS-CLIR)

No interaction.

5.3.2 Name identification services (SS-CNIP, SS-CONP, SS-CNIR)

No interaction.

5.3.3 Call diversion services

5.3.3.1 Call Forwarding Unconditional (SS-CFU)

No interaction.

5.3.3.2 Call Forwarding Busy (SS-CFB)

No interaction.

5.3.3.3 Call Forwarding on No Reply (SS-CFNR)

No interaction.

5.3.4 Call Transfer (SS-CT)

No interaction.

5.3.5 Path Replacement (ANF-PR)

No interaction.

5.3.6 Call completion services (SS-CCBS, SS-CCNR)

No interaction.

5.3.7 Do not disturb services (SS-DND, SS-DNDO)

No interaction.

5.3.8 Call Offer (SS-CO)

No interaction.

5.3.9 Call Intrusion (SS-CI)

No interaction.

5.3.10 Incoming CTM Call Handling (ANF-CTMI)

No interaction.

5.3.11 Outgoing CTM Call Handling (ANF-CTMO)

Not applicable.

5.3.12 CTM location handling

5.3.12.1 Cordless Terminal Location Registration (SS-CTLR)

ANF-CTMO may require that SS-CTLR has been invoked for the CTM user at that location.

5.3.12.2 Transfer of Service Profile (ANF-CTSP)

ANF-CTSP may be invoked by ANF-CTMO if insufficient service profile information is available to process an outgoing call from a CTM user.

5.4 Interworking considerations

No specific requirements.

5.5 Overall SDL diagram

Figure 2 shows an overall SDL diagram (according to ITU-T Recommendation Z.100 [7]) of ANF-CTMO. Input/output symbols represent stimuli from/to basic call control.

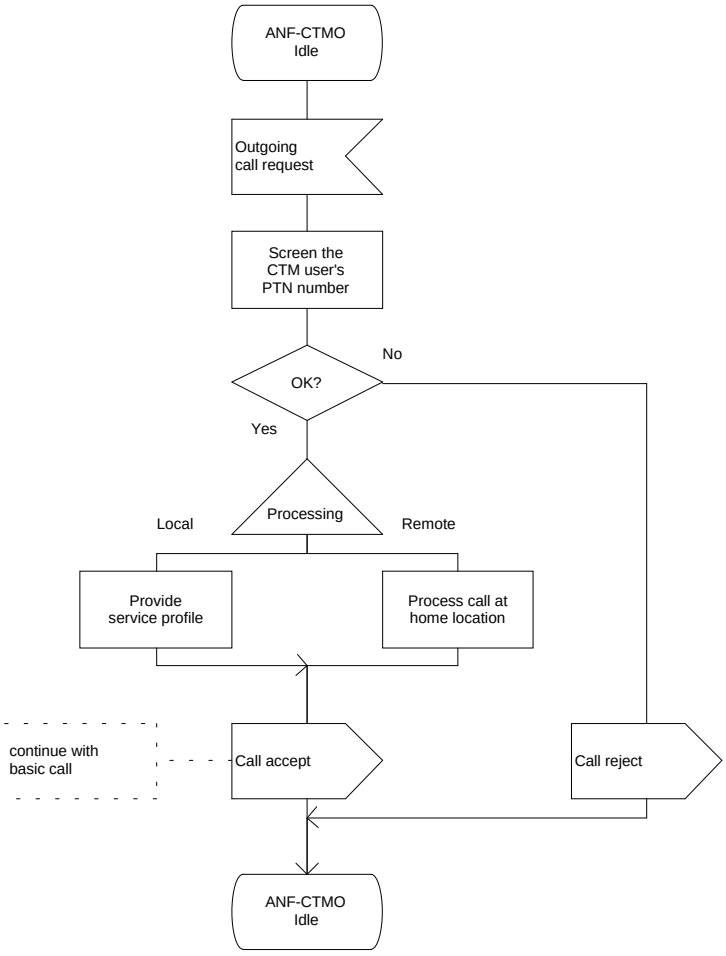

Figure 2: ANF-CTMO, overall SDL diagram

Annex A (informative): Failure indications of ANF-CTMI

Subclause 4.2.3.2 of this ETS states that the calling user shall be informed of the failure of an incoming CTM call, and that basic call procedures shall be used for that purpose.

Globally valid cause values are specified by ITU-T (former CCITT). In the absence of CTM-specific values the different failure reasons can be mapped to existing ITU-T defined cause values (see ITU-T Recommendation Q.850).

The following table lists failure reasons that are regarded specific to CTM calls and the proposed mapping onto a corresponding ITU-T cause value (including the diagnostics field where appropriate).

Table A.1: Mapping of CTMI failure reasons to basic call cause values

Failure reason	Cause value		Diagnostics
CTM user unknown	1	Unallocated (unassigned) number	Permanent
CTM user's location not known	3	No route to destination	Transient
CTM user out of range	18	No user responding	-
CTM user deregistered	20	Subscriber absent	-
Collision with location update	41	Temporary failure	-

The location field should in all these cases be set to "private network serving the remote user".

Annex B (informative): Bibliography

- ITU-T Recommendation Q.850 (1994): "Use of cause and location in the digital subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN user part".

History

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