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Zasebno omrežje z integriranimi storitvami (PISN) - Mobilnost brezvrvičnega terminala (CTM) - Storitve obdelave lokacij - Funkcijske zmogljivosti in informacijski pretoki

Private Integrated Services Network (PISN); Cordless Terminal Mobility (CTM); Location handling services; Functional capabilities and information flows

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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 two of the location handling services for Private Integrated Services Networks (PISNs) which provide Cordless Terminal Mobility (CTM) user mobility capability.

The Cordless Terminal Location Registration Supplementary Service (SS-CTLR) enables a CTM user to register at, or deregister from, the current location within the PISN. The ability to register at different locations in the PISN at different times enables the CTM user to maintain the provided services (including the ability to make and receive calls) at different access points. Deregistration is used to inform the PISN that the CTM user is temporarily unable to make use of the provided services (including the receipt of incoming calls).

The Transfer of Service Profile Additional Network Feature (ANF-CTSP) enables different parts of the PISN to transfer or access service profiles, thereby allowing CTM users to maintain their service profiles when changing location within the PISN.

Supplementary service specifications are produced in three stages according to the method specified in ETS 300 387 [3]. Stage 2 identifies the functional entities involved in the feature and the information flows between them.

The purpose of the stage 2 specification is to guide and constrain the work on signalling protocols at stage 3, while fulfilling the requirements of stage 1. Stage 1 and stage 3 are defined in separate standards.

This ETS applies to CTM only within a single PISN. The specification of information flows between the PISN and cordless terminals is beyond the scope of this ETS.

Conformance to this ETS is met by conforming to a stage 3 standard which fulfils the requirements of this ETS that are relevant to the equipment for which the stage 3 standard applies. Therefore, no method of testing is provided for this ETS.

2 Normative references

This ETS incorporates by dated or 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 only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

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

[2] 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)".

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

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

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

[6] ISO/IEC 11571 (1994): "Information technology - Telecommunications and information exchange between systems - Numbering and Sub-addressing in Private Integrated Services Network".

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 [1].

authentication: See ETS 300 415 [1].

Cordless Terminal Mobility (CTM): The ability of a cordless terminal to be in continuous motion whilst accessing and using the telecommunication 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 information: The information for a CTM user managed by a VDB.

CTM user: The user of Supplementary Service "Cordless Terminal Location Registration" (SS-CTLR).

directory PINX: A PINX which provides a mapping function to a CTM user's PISN number from another type of identity indicating the same CTM user.

fixed part: A physical grouping of some or all of the fixed component parts of mobile radio system. These would include one or more radio equipments attached to an antenna system. It could also include common control functions and interfaces to the PINX.

Home Data Base (HDB): See ETS 300 415 [1].

home PINX: The PINX which has direct access to the HDB entry for a particular CTM user.

Location Area (LA): The coverage area in which a cordless terminal may receive and make calls as a result of a single location registration.

Network Assigned Identity (NAI): A temporary identity assigned by the PISN to a CTM user. This identity comprises:

- a PISN number sufficient to identify the PINX assigning the NAI; and
- a local identity valid while the user is registered.

Private Integrated ServicesNetwork (PISN): See ISO/IEC 11579-1 [2].

Private Integrated Services Network Exchange (PINX): See ISO/IEC 11579-1 [2].

PISN number: See ISO/IEC 11571 [6].

PISN user: The 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.

supplementary service: See ITU-T Recommendation I.210 [4].

Visitor Area (VA): See ETS 300 415 [1].

Visitor Data Base (VDB): See ETS 300 415 [1].

visitor PINX: The PINX which is serving a CTM user in a visitor area.

3.2 Abbreviations

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

ANF-xxx	"xxx" Additional Network Feature
CTLR	Cordless Terminal Location Registration
CTM	Cordless Terminal Mobility
CTSP	Transfer of Service Profile
FE	Functional Entity
FEA	Functional Entity Action
FP	Fixed Part
HDB	Home Data Base
LA	Location Area
NAI	Network Assigned Identity
PINX	Private Integrated Services Network Exchange
PISN	Private Integrated Services Network
SDL	Specification and Description Language
SP	Service Profile
SS-xxx	"xxx" Supplementary Service
VA	Visitor Area
VDB	Visitor Data Base

4 SS-CTLR

4.1 Description

SS-CTLR makes the location of a CTM user known to the PISN. By updating location information in the PISN, incoming calls can be routed to a CTM user, and the CTM user can access the PISN services from the current location area. SS-CTLR also enables a CTM user to inform the PISN that the current location area is no longer to be used to make and receive calls.

The network may allow the CTM user to perform location registration using a permanent identifier. Alternatively, for security reasons, a procedure supporting the use of temporary identifiers may be used.

SS-CTLR may cause the invocation of ANF-CTSP in order to provide a consistent service to a CTM user independent of the CTM user's location area.

SS-CTLR may use an authentication procedure in order to validate the identity provided by the CTM user to the PISN before completing the location registration.

4.2 Functional model

4.2.1 Functional model description

The functional model for SS-CTLR shall be as shown in figure 1.

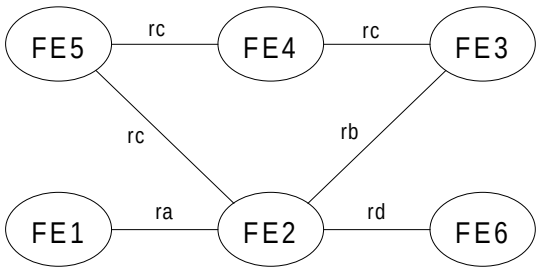

Figure 1: Functional model for SS-CTLR

The functional model for SS-CTLR shall comprise the following Functional Entities (FEs):

FE1: Served user agent;
FE2: VDB function control;
FE3: HDB function control;
FE4: Old VDB function control;
FE5: Old served user agent;
FE6: Identification mapping entity.

The following functional relationships shall exist between these FEs:

ra: between FE1 and FE2;
rb: between FE2 and FE3;
rc: between FE3 and FE4, between FE4 and FE5 and between FE2 and FE5;
rd: between FE2 and FE6.

4.2.2 Description of functional entities

4.2.2.1 Served user agent, FE1

This FE detects the request for location registration and deregistration procedures.

NOTE: The possible information transfer on the radio interface causing FE1 to invoke SS-CTLR is out of scope for this ETS.

4.2.2.2 VDB function control, FE2

This FE is responsible for the maintenance of CTM information while the CTM user is registered at the visited location by inserting an entry in the VDB when the CTM user first registers in the visitor area, updating the entry when the CTM user registers to a location area within the same visitor area, and deleting the entry when the CTM user deregisters.

4.2.2.3 HDB function control, FE3

This FE registers the new visitor area of the CTM user and requests the deletion of location information at the old visited location.

4.2.2.4 Old VDB function control, FE4

This FE is the VDB function control at the previous visited location and is responsible for the deletion of location information that is no longer required.

4.2.2.5 Old served user agent, FE5

This FE is the served user agent at the previously visited location and is responsible for the release of resources that are no longer required.

4.2.2.6 Identification mapping entity, FE6

This FE converts an identity supplied by the CTM user for location registration to the CTM user's PISN number.

4.2.3 Relationship with basic service

All information flows are independent of basic call flows.

4.3 Information flows

4.3.1 Information flow sequences

A stage 3 standard shall be capable of providing the information flows shown in this subclause. It can specify further information flows, e.g. to deal with additional exceptional conditions.