

**Network Aspects (NA);
Universal Personal Telecommunication (UPT)
UPT Phase 2:
Network Functionalities for Feature Interaction**



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ETSI Secretariat

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

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c= fr; a=atlas; p=etsi; s=secretariat

Internet

secretariat@etsi.fr
<http://www.etsi.fr>

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Foreword

This ETSI Guide (EG) has been produced by ETSI Technical Committee Network Aspects (NA).

Introduction

Universal Personal Telecommunications (UPT) should be offered across several networks. This objective raises the issue of interactions. These interactions stem from UPT (supplementary) service features interfering with optional services and features offered on the underlying network (e.g. Integrated Services Digital Network (ISDN)). The methodology for identifying network functionality's for feature interaction, given in ETR 064 [2], will be adopted. In particular the following steps of the proposed methodology will be considered:

- identification of the UPT service phase 2 features;
- identification of the features and supplementary services of the serving network;
- analysis and mapping of the above features;
- identification of the feature interaction issues;
- identification of possible solution.

In the present document, the focus is on identifying and describing interactions, and estimating whether any measure would be desirable.

1 Scope

The present document gives a description of the issues and required functionalities concerning feature interaction between the features of the UPT service phase 2 and the features and supplementary services of the supporting network.

2 References

- [1] CCITT Recommendation I.250 (1988): "Definition of supplementary services".
 - [2] ETR 064: "Universal Personal Telecommunication (UPT); Requirement on feature interaction and network functionalities".
 - [3] ETR 055-07: "Universal Personal Telecommunication (UPT); The service concept; Part 7: User procedures and user states".
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3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ABD	ABbreviated Dialling
ADR	Alternative Destination Routing
CAD	Control of Activation and Deactivation
CCC	Credit Card Calling
CD	Call Distribution
CLI	Calling Line Identification
CPM	Custom Profile Management
CRA	Customize Recorded Announcements
CRL	CRedit Limit floor
ESP	Escape for Special Processing
FAC	Flexible Allocation of Charges
FOC	Follow-On Calling
ISDN	Integrated Services Digital Network
LGS	Language Selection
LIM	Call Limiter
LOG	call LOGging
MAS	MASs Calling
MCR	Multiple Call Restriction
ODC	Origin Dependent Control
ODR	Origin Dependent Routing
OUP	Originating User Prompter
PCI	Presentation of Charging Information
PDD	PreDefined Destinations
PLD	Provider's Limitation on Destination
PRM	PReMium rate
QUE	call QUEing
RTI	Real Time Information
SCO	service Specific Calls Only
SLD	Subscriber's Limitation on Destination
SPD	SPEED Dialling
STAT	STATistical information
TDC	Time Dependent Control
TDR	Time Dependent Routing
UAN	Universal Access Number
UPT	Universal Personal Telecommunications
VCC	Virtual Card Calling

4 UPT service phase 2 features

The features of the UPT service phase 2 are given in ETR 055-07 [3].

5 Features and supplementary services of supporting networks

The considered features and supplementary services are specified by ETSI STC NA1 (NA 10011 and NA 10014).

6 Feature interaction issues and solutions

This clause deals with the interactions between the UPT service features and the features and supplementary services of the serving network.

In this clause the most recent NA1 (ISDN) services are listed, with their possible impact on UPT.

6.1 New services interaction

Universal Access Number (UAN) -- allows the service subscriber having one or more installations to be reachable from all or part of the country with one universal access number.

Implications for UPT:

- assumption on outcall: a UPT user should be able to make an outcall to every desired destination, including UAN. From a processing viewpoint this assumption means dual triggering: first the UPT process (authentication, etc.) and next the UAN process (possibly involving Origin Dependent Routing (ODR)). The network should be able to support this.
- assumption on incall: a registration at a UAN may not be likely; however, it may make sense in certain cases. Consequence: the UPT service should not attempt to prohibit this possibility. An individual UPT service provider may apply a blacklist mechanism to prevent certain numbers from being registered for incalls.

Conclusion: no measures required.

Credit Card Calling (CCC) -- charges the user automatically to the subscriber's account for any outgoing call made with a card reading terminal.

Implications for UPT:

- assume that a UPT client wants to use a pay phone that functions only if a card is inserted. In that case the access to the UPT service, if not free, will be charged to the credit card. The remaining costs will be charged to the UPT account.

Conclusion: no measures required.

Virtual Card Calling (VCC) -- "Calling Card" outcall facility.

Implications for UPT:

- see CCC.

PRemiUm rate (PRM) -- value added services provided by the service subscriber.

Implications for UPT:

- Outcall to a PRM number should be possible in the normal way. Regarding incall, it should generally be prevented that a registration can be made at a PRM number. It is estimated that the UPT service provider is responsible to take care of this requirement in the registration procedure.

Conclusion: consider whether this requirement is to be included in the service description. No interference expected.

6.2 New NA1 optional services/features interaction

Optional features are applicable to ISDN services, in order to enhance or extend these services. Most of the optional features are targeted at the service subscriber.

It is important to analyse the situation that arises when UPT and one or more of the features identified below are used on the same network. By considering these optional features themselves (without the services they are supposed to enrich) in combination with UPT, a "worst case" analysis is attempted.

6.2.1 Restrictive features

Provider's Limitation on Destination (PLD) -- restrict calls to certain destinations. Restrictions imposed by the service provider.

Implications for UPT:

- a UPT user wanting to make a call can be blocked incorrectly, (free phone) access to the UPT service should be provided.
- when calling an UPT user, we distinguish three cases:
 - 1) dialling UPT numbers is forbidden;
 - 2) dialling UPT numbers is granted unconditionally;
 - 3) dialling UPT numbers is granted, but the call only succeeds if the registered terminal from the called user is within the set allowed destinations.

Case 2 gives unpredictable charges; the called terminal can be anywhere; case 3 gives unpredictable behaviour towards the caller: sometimes it blocks, sometimes not. This case also requires data transfer (the destination number) from UPT to the used network.

Subscriber's Limitation on Destination (SLD) -- restricts calls to certain destinations.

Implications for UPT:

- see PLD.

Multiple Call Restriction (MCR) -- prevents a calling user from attempting multiple calls in a given time interval to a given destination number. Applicable by the service subscriber.

Implications for UPT:

- none.

CRedit Limit floor (CRL) -- limits the call expenditures in a given time interval or per call on an account number. Credit height determined in prior arrangements with service provider.

Implications for UPT:

- calls by a UPT user are charged to that user (or the UPT subscriber), this is no problem (surely no problem when UPT service reachable by a free phone number);
- the multitude of possible procedures within one UPT call can disturb normal processing (counting) of outgoing calls; one UPT call can consist of multiple actions from the set [registration, profile modification/interrogation, outcall (and -follow on)];
- calls to a UPT user: see PLD.

Time Dependent Control (TDC) -- handling of calls based on time of day, day of week (etc.).

Implications for UPT:

- calls meant to be delivered to registered UPT users shall not be re-routed; in UPT there's a separate supplementary service that facilitates TDC.

Origin Dependent Control (ODC) -- service invocation dependent on origin (geographic area, black list, white list).

Implications for UPT:

- if the ODC service checks on parameters like Calling Line Identification (CLI) or TerminalId, there is no problem; if a check is being made on UserId, with UPT confusion may arise.

Call Limiter (LIM) -- limit number of simultaneous calls to a given destination (or installation).

Implications for UPT:

- none.

6.2.2 User friendly features

Follow-On Calling (FOC) -- is UPT outcall follow on.

Implications for UPT:

- in UPT outcall follow on provides the same function. Care shall be taken that the signalling which accomplishes the UPT follow on will not disrupt the ISDN call handling. In this point of view we take UPT outcall follow on as being made within one ISDN call (to the UPT service provider).

Abbreviated Dialling (ABD) -- use a defined shared list of abbreviated dialling numbers. Calls not subjected to restrictions.

Implications for UPT:

- no interaction expected: this feature is controlled by the UPT subscriber (or the UPT user). After the initial call (from the UPT user) to the UPT service provider, the charging is done accordingly.

SPeed Dialling (SPD) -- use a personal list of abbreviated numbers. Subjected to restrictions.

Implications for UPT:

- see ABD.

PreDefined Destinations (PDD) -- make call to one destination number without being requested for that number.

Implications for UPT:

- (we assume this is type of call is optional that is, this is not some sort of HOT-line feature. It shall be possible to "escape" from this regime to call the UPT service provider. Perhaps by using a card terminal: no card inserted --> HOT-line alike function, valid card inserted --> card calling).

LanGuage Selection (LGS) -- select appropriate prompting language, if applicable.

Implications for UPT:

- no interaction expected.

Presentation of Charging Information (PCI) -- get an indication of the costs involved with the placed call.

Implications for UPT:

- With PCI a clear distinction is to be made to which user it applies: the permanent user or the temporary (UPT) user. In case the terminal is equipped with a display, then the problem still consists of two parts:
 - to have the UPT charging information computed somewhere in the network;
 - to have this data conveyed to the terminal.

- It is assumed that the UPT charges are to be provided by the UPT service provider. Note that for a given call, both the originating and the receiving UPT user may want to be informed on their share.

Conclusion:

- PCI for permanent user should not show charges for UPT user;
- PCI when used for the service of the permanent user does not interfere with UPT and it does not help the UPT user;
- for UPT it would be desirable to have its own PCI; significant effort is required to solve this.

6.2.3 Routing features

Origin Dependent Routing (ODR) -- divert incoming calls to different destinations, based on location of call origination.

Implications for UPT:

- The implications are similar to those for UAN.
- Assumption on outcall: a UPT user should be able to make an outcall to every desired destination, including a number having ODR. From a processing viewpoint this assumption means dual triggering: first the UPT process (authentication, etc.) and next the ODR process. The network should be able to support this.
- It is to be clarified whether the need exists for a separate feature that prevents ODR from having effect on a UPT call.
- Assumption on incall: a registration at a number having ODR may not be likely; however, it may make sense in certain cases. Consequence: the UPT service should not attempt to prohibit this possibility. An individual UPT service provider may apply a blacklist mechanism to prevent certain numbers from being registered for incalls.

Conclusion: no measures required.

Time Dependent Routing (TDR) -- divert incoming calls to time dependent destination.

Implications for UPT:

- UPT has an TDR facility itself, this facility shall be able to "overrule" the imposed TDR of the network: an incoming UPT call shall be delivered to the registered terminal. An option could be that the rerouting from the network is NOT overruled (e.g. for an office closed in the weekends). This perhaps is a candidate for inclusion in the UPT profile.

Call Distribution (CD) -- distribute incoming calls by some mechanism (availability of servers, load equalization, etc.).

Implications for UPT:

- (not applicable. Numbers using this optional features should be exempted from UPT incoming call registration?)

Alternative Destination Routing (ADR) on busy/no reply -- reroute to a given alternate number when busy or no reply.

Implications for UPT:

- the ADR optional feature shall not be used when a registered UPT user is being addressed.

call QUEuing (QUE) -- have incoming calls waiting in a line. Length of queue is limited; calling user gets indication of queuing.

Implications for UPT:

- Outcall: an outgoing UPT call may be made to a number with QUE. This has no effect on the UPT service.
- Incall: a UPT user may register at a number having QUE. This fact itself has no effect on the UPT service. If however at that number QUE is combined with a set of agents answering calls, the UPT user should inform the agents on his registration; otherwise a UPT call may get lost.

Conclusion: no measures required.

service Specific Calls Only (SCO) -- reject direct calls to a destination user (calls not "pre processed" by the service).

Implications for UPT:

- it is questionable whether a UPT Registration for incoming calls is useful (or allowed) on terminals using this service.

Originating User Prompter (OUP) -- prompt the user (caller and/or called) to enter additional info to proceed the call.

Implications for UPT:

- see SCO. If allowed, what decides whether to use OUP for the incoming UPT call?

6.2.4 Call flow control features

MASs Calling (MAS) -- enable processing of instantaneous high volume traffic.

Implications for UPT:

- none.

6.2.5 Customization and subscriber command features

Custom Profile Management (CPM) -- (the UPT feature).

Implications for UPT:

- no interaction foreseen for this optional feature sec. But the resulting situation can be confusing (a UPT user who wants to modify his UPT profile perhaps first needs to modify the (ISDN) network profile).

Customize Recorded Announcements (CRA) -- facilitate playing of CRA to calling user. Announcements recorded by Service Provider or (remote) by subscriber.

Implications for UPT:

- this feature is also included in UPT, care shall be taken that no two CRA services are invoked when dealing with an incoming UPT call.

call LOGging (LOG) -- log detailed info, to be obtained from the provider.

Implications for UPT:

- the information system should also be capable of handling UPT specific information (UPT numbers for example).

Statistical information (STAT) -- subscriber obtains statistics from service provider on calls placed to the service.

Implications for UPT:

- see LOG.

Real Time Information (RTI) -- real time STAT service.

Implications for UPT:

- see LOG.

Escape for Special Processing (ESP) -- facilitate the provider with special processing of an incoming call based on time condition, number of incoming calls, etc.

Implications for UPT:

- (UPT not applicable)

Control of Activation and Deactivation (CAD) -- facilitate the subscriber with disabling/enabling capabilities for service use by the user(s).

Implications for UPT:

- no interaction expected.

6.2.6 Charging Features

Flexible Allocation of Charges (FAC) -- enable the subscriber to decide about charging (freephone, split charging, reverse charging, etc.).

Implications for UPT:

- questionable whether UPT is applicable to terminals/lines that are subjected to this optional feature. If applicable, the UPT charging method supersedes the FAC optional feature.

History

Document history		
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