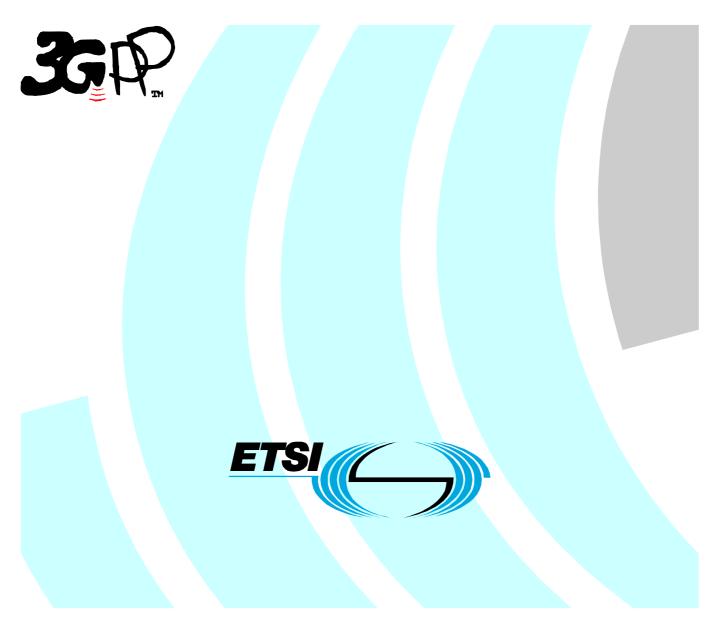# ETSI TS 129 199-3 V6.0.0 (2004-09)

Technical Specification

Universal Mobile Telecommunications System (UMTS); Open Service Access (OSA); Parlay X web services; Part 3: Call notification (3GPP TS 29.199-03 version 6.0.0 Release 6)

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Foreword

This Technical Specification (TS) has been produced by 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 .

Contents

Foreword

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

3GPP acknowledges the contribution of the Parlay X Web Services specifications from The Parlay Group. The Parlay Group is pleased to see 3GPP acknowledge and publish the present document, and the Parlay Group looks forward to working with the 3GPP community to improve future versions of the present document.

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.

Introduction

The present document is part 3 of a multi-part deliverable covering the 3rd Generation Partnership Project; Technical Specification Group Core Network; Open Service Access (OSA); Parlay X Web Services, as identified below:

Part 1:   "Common";

Part 2:   "Third party call";

Part 3:   "Call Notification";

Part 4:   "Short Messaging";

Part 5:   "Multimedia Messaging";

Part 6:   "Payment";

Part 7:   "Account management";

Part 8:   "Terminal Status";

Part 9:   "Terminal location";

Part 10:   "Call handling";

Part 11:   "Audio call";

Part 12:   "Multimedia conference";

Part 13:   "Address list management";

Part 14:   "Presence".

1 Scope

The present document is Part 3 of the Stage 3 Parlay X Web Services specification for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e. the OSA APIs. The concepts and the functional architecture for the OSA are contained in 3GPP TS 23.127 [3]. The requirements for OSA are contained in 3GPP TS 22.127 [2].

The present document specifies the Call Notification Web Service aspects of the interface. All aspects of the Call Notification Web Service are defined here, these being:

- Name spaces.

- Sequence diagrams.

- Data definitions.

- Interface specification plus detailed method descriptions.

- Fault definitions.

- Service policies.

- WSDL Description of the interfaces.

The present document has been defined jointly between 3GPP TSG CN WG5, ETSI TISPAN and The Parlay Group.

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 22.127: "Service Requirement for the Open Services Access (OSA); Stage 1".

[3]   3GPP TS 23.127: "Virtual Home Environment (VHE) / Open Service Access (OSA); Stage 2".

[4]   3GPP TS 22.101: "Service aspects; Service principles".

[5]   W3C Recommendation (2 May 2001): "XML Schema Part 2: Datatypes".

NOTE: Available at http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/.

[6]   3GPP TS 29.199-1: "Open Service Access (OSA); Parlay X Web Services; Part 1: Common".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 29.199-1 [6] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TS 29.199-1 [6] apply.

4 Detailed service description

Currently, in order to determine the handling of a subscriber initiated call in telecommunication networks we have to write applications using specific protocols to access Call Control functions provided by network elements. This approach requires a high degree of network expertise. We can also use the OSA gateway approach, invoking standard interfaces to gain access to call control capabilities, but these interfaces are usually perceived to be quite complex by application IT developers. Developers must have advanced telecommunication skills to use Call Control OSA interfaces.

In this clause we will describe a Parlay X Web Service, Call Notification, for handling calls initiated by a subscriber in the network. A (third party) application determines how the call should be treated. The overall scope of this Web Service is to provide simple functions to application developers to determine how a call should be treated. Using the Web Services, application developers can perform simple handling of network-initiated calls without specific Telco knowledge.

Examples of usage include the following.

Incoming call handling: A subscriber receives a call while he is logged-on to the Internet. Since this occupies his telephone connection, he is regarded as busy by the network. The subscriber has an application that is invoked when somebody tries to call him while he is busy. The application provides the subscriber with a list of choices on how to handle the call (e.g. route the call to voicemail, redirect the call to a secretary, reject the call). Based on the response of the subscriber the call is handled in the network. Alternatively, the call is re-routed or released depending on the preferences of the subscriber and some context information (e.g. based on the status or location of the subscriber).

Service numbers: An application is triggered whenever a certain service number is dialled. This number is used to connect the caller to one of the maintenance personnel. The application redirects the call to the appropriate maintenance person based on, e.g. calling party number, time, location and availability of the maintenance personnel.

SMS notification of missed calls: An application offers the subscriber the possibility to be notified via SMS whenever he misses a call. The application registers to be notified when calls to its subscribers encounter busy, no-answer or not-reachable. The application does not influence the call treatment, but sends an SMS containing the calling party number, the time and reason why the call was missed.

5 Namespaces

The Call Notification interface uses the namespace:

www.csapi.org/wsdl/parlayx/call_notification/v2_0

The data types are defined in the namespace:

www.csapi.org/schema/parlayx/call_notification/v2_0

The 'xsd' namespace is used in the present document to refer to the XML Schema data types defined in XML Schema [5], The use of the name 'xsd' is not semantically significant.

6 Sequence diagrams

6.1 SMS notification of a missed call

Showing the use of the CallNotification and SendSms services, an SMS is sent to a person who misses a call (no answer). This sequence assumes that the provisioning of the call notification has occurred independently.

Figure 1

7 XML Schema data type definition

7.1 ActionValues enumeration

The **ActionValues** data type is an enumeration with the following values.

Enumeration	Description
Route	Request to (re-)route the call to the address indicated with routingAddress.
Continue	Request to continue the call without any changes. This will result in normal handling of the event in the network.
EndCall	Request to end the call. This will result in termination of the call. The callingParty will receive a tone or announcement.

7.2 Action structure

The **Action** data type is a structure containing the following parameters.

Element name	Element type	Description
ActionToPerform	ActionValues	Indicates the action as described below
RoutingAddress	xsd:anyURI	The address to be used in case the action indicates 'Route'
Charging	common:ChargingInformation	Charge to apply to this call

8 Web Service interface definition

8.1 Interface: CallDirection

This subclause describes an initial set of capabilities in terms of message invocations, parameters and data types. The message-based invocations are:

- handleBusy.

- handleNotReachable.

- handleNoAnswer.

- handleCalledNumber.

These messages are initiated by the Call Notification Web Service (running in a Parlay X Gateway) and invoke an application Web Service(s), as a result of activity in the network. The result of the invocation of a handle<Event> operation is used as an indication on how the call should be handled in the network. The application can not keep control over the call after handling the event; every event handling is a separate occurrence.

Note that because the results of the invocations of the application Web Service(s) determine call handling in the network, the names of the methods are prefixed with 'handle', rather than 'notify'. The prefix 'notify' would imply a more asynchronous behaviour, whereas 'handle' shows the synchronous nature of these invocations.

The criteria for which the application Web Service(s) should be invoked, such as type of events (busy, answer, etc.), a URI to the Web Service and triggered addresses should be provisioned by the operator in an off-line process.

8.1.1 Operation: HandleBusy

The invocation of **handleBusy** requests the application to inform the gateway how to handle the call between two addresses, the **callingParty** and the **calledParty**, where the **calledParty** is busy when the call is received. The application returns the **action**, which directs the gateway to perform one of the following actions:

- "Continue", resulting in normal handling of the busy event in the network, e.g. playing of a busy tone to the **callingParty.**

- "EndCall", resulting in the call being terminated; the exact tone or announcement that will be played to the **callingParty** is operator-specific.

- "Route", resulting in the call being re-routed to a **calledParty** specified by the application.

Optionally, in the **action** parameter, the application can also indicate the charging information.

8.1.1.1 Input message: handleBusyRequest

Part name	Part type	Description
CallingParty	xsd:anyURI	It contains the address of the caller
CalledParty	xsd:anyURI	It contains the address of the called party. This party is busy

8.1.1.2 Output message: handleBusyResponse

Part name	Part type	Description
Action	Action	It indicates the action to be performed by the gateway

8.1.1.3 Referenced faults

None.

8.1.2 Operation: HandleNotReachable

The invocation of **handleNotReachable** requests the application to inform the gateway how to handle the call between two addresses, the **callingParty** and the **calledParty**, where the **calledParty** is not reachable when the call is received. The application returns the **action**, which directs the gateway to perform one of the following actions:

- "Continue", resulting in normal handling of the 'not reachable' event in the network, e.g. playing of a busy tone to the **callingParty.**

- "EndCall", resulting in the call being terminated; the exact tone or announcement that will be played to the **callingParty** is operator-specific.

- "Route", resulting in the call being re-routed to a **calledParty** specified by the application.

Optionally, in the **action** parameter, the application can also indicate the charging information.

8.1.2.1 Input message: handleNotReachableRequest

Part name	Part type	Description
CallingParty	xsd:anyURI	It contains the address of the caller
CalledParty	xsd:anyURI	It contains the address of the called party. This party is not reachable

8.1.2.2 Output message: handleNotReachableResponse

Part name	Part type	Description
Action	Action	It indicates the action to be performed by the gateway

8.1.2.3 Referenced faults

None.

8.1.3 Operation: HandleNoAnswer

The invocation of **handleNoAnswer** requests the application to inform the gateway how to handle the call between two addresses, the **callingParty** and the **calledParty**, where the **calledParty** does not answer the received call. The application returns the **action**, which directs the gateway to perform one of the following actions:

- "Continue", resulting in normal handling of the 'no answer' event in the network, e.g. playing of a busy tone to the **callingParty.**

- "EndCall", resulting in the call being terminated; the exact tone or announcement that will be played to the **callingParty** is operator-specific.

- "Route", resulting in the call being re-routed to a **calledParty** specified by the application.

Optionally, in the **action** parameter, the application can also indicate the charging information.

8.1.3.1 Input message: handleNoAnswerRequest

Part name	Part type	Description
CallingParty	xsd:anyURI	It contains the address of the caller
CalledParty	xsd:anyURI	It contains the address of the called party. This party does not answer the call

8.1.3.2 Output message: handleNoAnswerResponse

Part name	Part type	Description
Action	Action	It indicates the action to be performed by the gateway

8.1.3.3 Referenced faults

None.

8.1.4 Operation: HandleCalledNumber

The invocation of **handleCalledNumber** requests the application to inform the gateway how to handle the call between two addresses, the **callingParty** and the **calledParty**. The method is invoked when the **callingParty** tries to call the **calledParty**, but before the network routes the call to the **calledParty**. For example, the **calledParty** does not have to refer to a real end user, i.e., it could be a service number. The application returns the **action**, which directs the gateway to perform one of the following actions:

- "Continue", resulting in normal handling in the network, i.e. the call will be routed to the **calledParty** number, as originally dialled.

- "EndCall", resulting in the call being terminated; the exact tone or announcement that will be played to the **callingParty** is operator-specific.

- "Route", resulting in the call being re-routed to a **calledParty** specified by the application.

Optionally, in the **action** parameter, the application can also indicate the charging information.

8.1.4.1 Input message: handleCalledNumberRequest

Part name	Part type	Description
CallingParty	xsd:anyURI	It contains the address of the caller
CalledParty	xsd:anyURI	It contains the address of the called party

8.1.4.2 Output message: handleCalledNumberResponse

Part name	Part type	Description
Action	Action	It indicates the action to be performed by the gateway

8.1.4.3 Referenced faults

None.

8.2 Interface: CallNotification

When call events occur in the network, the application may be notified of these events. The application does not have the ability to influence the call, as call processing continues.

Notifications are provided for call attempt, busy, not reachable and no answer events.

8.2.1 Operation: NotifyBusy

A busy notification informs the application that a call between two parties was attempted, but the called party was busy.

8.2.1.1 Input message: NotifyBusyRequest

Part name	Part type	Description
CallingParty	xsd:anyURI	It contains the address of the caller
CalledParty	xsd:anyURI	It contains the address of the called party. This party is busy

8.2.1.2 Output message: NotifyBusyResponse

Part name	Part type	Description
None		

8.2.1.3 Referenced faults

None.

8.2.2 Operation: NotifyNotReachable

A not reachable notification informs the application that a call between two parties was attempted, but the called party was not reachable.

8.2.2.1 Input message: NotifyNotReachableRequest

Part name	Part type	Description
CallingParty	xsd:anyURI	It contains the address of the caller
CalledParty	xsd:anyURI	It contains the address of the called party. This party is not reachable

8.2.2.2 Output message: NotifyNotReachableResponse

Part name	Part type	Description
None		

8.2.2.3 Referenced faults

None.

8.2.3 Operation: NotifyNoAnswer

A no answer notification informs the application that a call between two parties was attempted, but the called party did not answer.

8.2.3.1 Input message: NotifyNoAnswerRequest

Part name	Part type	Description
CallingParty	xsd:anyURI	It contains the address of the caller
CalledParty	xsd:anyURI	It contains the address of the called party. This party did not answer

8.2.3.2 Output message: NotifyNoAnswerResponse

Part name	Part type	Description
None		

8.2.3.3 Referenced faults

None.

8.2.4 Operation: NotifyCalledNumber

A called number notification informs the application that a call between two parties is being attempted.

8.2.4.1 Input message: NotifyCalledNumberRequest

Part name	Part type	Description
CallingParty	xsd:anyURI	It contains the address of the caller
CalledParty	xsd:anyURI	It contains the address of the called party

8.2.4.2 Output message: NotifyCalledNumberResponse

Part name	Part type	Description
None		

8.2.4.3 Referenced faults

None.

9 Fault definitions

No new faults defined for this service.

10 Service policies

No service policies are defined for this service.

Annex A (normative):
WSDL for call notification

The document/literal WSDL representation of this interface specification is compliant to 3GPP TS 29.199-1 [6] and is contained in text files (contained in archive 29199-03-600-doclit.zip) which accompanies the present document.

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Dec 2003	CN_21	NP-030552	--	--	Submitted to CN#22 for Information	1.0.0	

Jan 2004	--	--	--	--	Added The W3C WSDL representation of the APIs specified in the present document is contained in a set of files which accompany the present document:
					     px0326rpcenc.zip
					     px0326rpclit.zip
						1.0.1	

Jun 2004	CN_24	NP-040274	--	--	Split into multi-part specification. 29.199-0n, for n=1,2…9. Submitted to CN#24 for Information	1.0.3	
Sep 2004	CN_25	NP-040360	--	--	Draft v200 submitted to TSG CN#25 for Approval.	2.0.0	6.0.0

History

Document history		
V6.0.0	September 2004	Publication