NP-040343

Presentation of Specification to TSG or WG

Presentation to:	**TSG CN Plenary Meeting #25**
Document for presentation:	**TS 29.210, Version 1.0.1**
Presented for:	**Information**

Abstract of document:

The TS defines the Gx reference point specifying the charging rule provision procedures between the Traffic Plane Function (TPF) and the Charging Rule Function (CRF)

Changes since last presentation to Meeting #:

The document has not been presented to CN Plenary before.

Outstanding Issues:

- Completion of the Diameter messages (clause 6)   by Dec 04
- Completion of the Diameter AVPs (clause 5.2)   by Dec 04
- Development and completion of the error codes and related procedures   by Dec 04
- Final checking and fulfillment of the stage 2 requirements in TS 23.125   by Dec 04
- Final checking that the textual descriptions are aligned   by Dec 04

Contentious Issues:

-

3GPP TS 29.210 V1.0.1 (2004-08)

Technical Specification

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**GLOBAL SYSTEM FOR
MOBILE COMMUNICATIONS**

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3GPP

Contents

Foreword

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

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 provides the stage 3 specification of the Gx reference point. The functional requirements and the stage 2 specifications of the Gx reference point are contained in 3GPP TS 23.125 [3]. The Gx reference point is for provisioning service data flow based charging rules between the Traffic Plane Function (TPF) and the Charging Rules Function (CRF), also known as Service Data Flow Based Charging Rules Function.

The present document defines:

- the protocol to be used between TPF and CRF over the Gx reference point;

- the information to be exchanged between TPF and CRF over the Gx reference point.

Whenever it is possible the present document specifies the requirements for this protocol by reference to specifications produced by the IETF within the scope of Diameter. Where this is not possible, extensions to Diameter are defined within the present document.

Editor's note: The current text in the present document represents work in progress. It is subject to change when the stage 2 specifications are further defined and analysed. In addition, the Diameter protocol is a working assumption at this point.

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 23.002: "Network architecture".

[3]   3GPP TS 23.125: "Overall high level functionality and architecture impacts of flow based charging; Stage 2".

[4]   IETF RFC 3588: "Diameter Base Protocol".

[5]   IETF RFC 2234: "Augmented BNF for syntax specifications: ABNF".

[6]   3GPP TS 33.210: "3G security; Network Domain Security (NDS); IP network layer security".

[7]   3GPP TS 29.207: "Policy control over Go interface".

[8]   draft-ietf-aaa-diameter-cc-06.txt: "Diameter Credit-Control Application".

[9]   3GPP TS 32.299: "Telecommunication management; Charging management; Diameter charging applications".

[10]   3GPP TS 29.209: "Policy control over Gq interface".

3 Definitions, symbols and abbreviations

Editor's note: This clause is to be aligned with 3GPP TS 23.125.

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1], in 3GPP TS 23.125 [3] and the following apply:

Application Function (AF): element offering applications using IP bearer resources
The AF is capable of communicating with the TPF to transfer dynamic charging rules related information. One example of an AF is the P-CSCF of the IM CN subsystem.

Attribute-Value Pair: See IETF RFC 3588 [4], corresponds to an Information Element in a Diameter message.

PDP Session: unique association of a subscriber with a network access service given by the combination of MSISDN, APN and IP address
A PDP session can consist of one or more PDP contexts (one primary and zero or more secondary)

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply:

AF	Application Function
AVP	Attribute-Value Pair
CCF	Charging Collection Function
CGF	Charging Gateway Function
CRF	Charging Rules Function
CSCF	Call Session Control Function
DCC	Diameter Credit Control
GCID	GPRS Charging ID
ICID	IMS Charging IDentifier
IM	IP Multimedia
IMS	IP Multimedia core network Subsystem
IMSI	International Mobile Subscriber Identity
OCS	Online Charging System
P-CSCF	Proxy-CSCF
PDGw	Packet Data Gateway
PLMN	Public Land Mobile Network
QoS	Quality of Service
SBLP	Service Based Local Policy
S-CSCF	Serving-CSCF
SDF	Service Data Flow
SGSN	Serving GPRS Support Node
SIP	Session Initiation Protocol
TPF	Traffic Plane Function
UE	User Equipment
WAP	Wireless Application Protocol
WLAN	Wireless LAN

4 Gx reference point

Editor's note: This clause is to be further aligned with 3GPP TS 23.125. Some information already introduced within 3GPP TS 23.125 may be replaced in the present document by references, unless they serve to enhance the readability of the present document.

4.1 Overview

The Gx reference point is used for provisioning service data flow based charging rules. The reference point is located between the Traffic Plane Function (TPF) and the Charging Rules Function (CRF), also known as Service Data Flow Based Charging Rules Function. The stage 2 level requirements for the Gx reference point are defined in 3GPP TS 23.125 [3].

4.2 Charging Rules

Charging rules determine how service data flows are identified and charged. The TPF shall apply charging rules by evaluating received packets against service data flow filters. When a packet is matched against a service data flow filter, the packet matching process for that packet is complete, and the charging rule for that filter shall be applied.

Charging rules in this regard may be:

- Pre-defined and active within the TPF (e.g. default rules that are statically configured within the TPF).

- Pre-defined within the TPF but not active (e.g. static charging rules that are activated dynamically via provisioning over the Gx reference point).

- Partially pre-defined within the TPF dynamically activated and completed by the CRF (e.g. dynamic charging rules for example for IMS service data flows, where the service data flow filter is dynamically identified for a pre-defined charging rule).

Editor's Note: The development of this option and its associated AVPs need more study.

- Pre-defined within the CRF (e.g. static charging rules that are provisioned dynamically over the Gx reference point).

- Dynamically defined and activated by the CRF (e.g. dynamic charging rules for example for IMS peer to peer service data flows, where both the service data flow filter and the charging rule are identified dynamically).

NOTE: Whether the charging rule is pre-defined or dynamically defined by the CRF does not impact the procedures at the Gx reference point

- Pre-defined rules within the TPF may be grouped allowing CRF to dynamically activate a set of rules over the Gx reference point.

A dynamically defined charging rule over the Gx reference point shall consist of a charging rule name, charging key (i.e. rating group), service flow filter and other charging parameters. The charging rule name shall be used to reference to a charging rule in the communication between the TPF and the CRF. The service flow filter shall be used to select the traffic for which the charging rule applies. The charging parameters define whether online and offline charging interfaces are used, what is to be metered in offline charging, etc. See the AVPs defined in clause 5.2.

4.3 Functionality of the Gx reference point

Editor's note: The key functionality of the Gx interface is to be defined here.

4.3.1 Initialization and maintenance of connection

The initialization and maintenance of the connection between each interworking CRF and TPF pair is defined by the underlying protocol. Establishment and maintenance of connections between Diameter nodes is described in RFC 3588 [4].

4.3.2   Request for charging rules from the TPF

The TPF shall indicate, via the Gx reference point, a request for charging rules in the following instances.

1) At bearer establishment:

The TPF will supply user identification and those bearer attributes that are necessarily or optionally required (e.g. MSISDN, APN, MCC/MNC where the subscriber is located) to allow the CRF to identify the charging rules to be applied.

2) At bearer modification:

The TPF will supply user identification and those bearer attributes that are necessarily or optionally required (e.g. MSISDN, APN, MCC/MNC where the subscriber is located) within the charging rule request. The bearer attributes that have been modified since the bearer establishment are required items.

3) At provisioning error within the previous charging rule provision:

The TPF re-requests charging rules that could not be interpreted at the previous charging rule provisioning. The TPF will supply the identification of the erroneous charging rules within the charging rule request. The procedure also serves the purpose of error indication.

Editor's Note: The error indication procedure is FFS loop detection being one of the items.

NOTE: For GPRS the same procedures are applied to both primary and secondary PDP contexts.

Editor's Note: The corresponding AVPs transporting the information detailed in this clause is FFS in clause 5. It is FFS whether the underlying application(s) already send them or if they need to be added.

4.3.3   Provision of charging rules from the CRF

The CRF shall indicate, via the Gx reference point, charging rules to be applied at the TPF. This may be:

*   in response to a request for charging rules., i.e. to a request made as described in the preceding section; or

*   unsolicited by the TPF, e.g. in response to information provided to the CRF via the Rx or Ry reference points, or in response to an internal trigger within the CRF.

For each request from the TPF and upon the unsolicited provision the CRF shall provision zero or more charging rules. For charging rules to be provisioned the CRF shall provide:

*   References to charging rules statically configured at the TPF and the required actions, e.g. activation of charging rules. This may include additional charging attributes to be included to the statically configured charging rules.

*   References to charging rules previously notified by the CRF to the TPF and the required actions,
    e.g. modification of charging rules.

*   'Fully formed' charging rules and the required actions, e.g. installation of a CRF constructed charging rules.

*   A mixture of the above.

To activate a predefined charging rule at the TPF, charging rule name shall be used as a reference to the predefined charging rule. To activate a group of predefined charging rules within the TPF (e.g. gold users or gaming services) charging rule base name shall be used as a reference to the group of predefined charging rules. Similar methods shall be used for removing active charging rules from a bearer session. See the AVPs definition in clause 5.2.

To include additional charging attributes to partially pre-defined charging rule or to provision a CRF defined charging rule, charging rule definition shall be used. If a charging rule with the same charging rule name already exists at the TPF, the charging rule definition shall update the current definition. If the existing charging rule already has charging attributes also included in the new charging rule definition, the existing attributes shall be overwritten. Any charging attribute in the existing charging rule not included in the new charging rule definition shall remain valid. All attributes of a charging rule may also be overwritten by removing and installing the charging rule within a single message.

4.3.4 Indication of bearer termination (from TPF to CRF)

The TPF indicates to the CRF, via the Gx reference point, that a bearer is terminated. The bearer termination indication identifies the bearer being removed.

5. Gx Protocol

5.1 Protocol support

The Gx reference point shall be based on Diameter as specified in RFC 3588 [4] and Diameter Credit Control Application (draft-ietf-aaa-diameter-cc-06.txt) [8] except as modified by the defined Gx specific procedures and AVPs. Unless otherwise specified, the procedures (including error handling and unrecognized information handling) are unmodified. In addition to the AVPs defined within the clause 5.2, the Diameter AVPs and Diameter messages from the Diameter base application (RFC 3588 [4]) and DCC are reused as specified in clause 6.

With regard to the Diameter protocol defined over the Gx reference point, the CRF acts as a Diameter server, in the sense that it is the network element that handles charging rule requests for a particular realm. The TPF acts as the Diameter Client, in the sense that it is the network element requesting charging rules.

5.2 Gx specific AVPs

Editor's note: The Gx reference point specific AVPs that are supported by all Diameter implementations that conform to this specification are to be defined here in clauses.

Editor's note: Alignment to and re-use of the existing and currently developed 3GPP Diameter AVPs should later be considered, especially those specified in 3GPP TS 29.209 and 3GPP TS 29.061.

Table 5.2 describes the Diameter AVPs that are either defined for the Gx reference point or used to transport Gx specific information, their AVP Code values, types, possible flag values and whether or not the AVP may be encrypted. The Vendor-Id header of all AVPs defined in the present document shall be set to 3GPP (10415). The AVPs re-used within the Gx reference point shall use their respective AVP Codes.

Table 5.2: Gx specific Diameter AVPs

Attribute Name	AVP Code	Clause defined	Value Type (note 2)	AVP Flag rules (note 1)				
				Must	May	Should not	Must not	May Encr.
Charging-Rule-Request		5.2.1	-	M,V	P			
Charging-Rule-Install		5.2.2	Grouped	M,V	P			
Charging-Rule-Remove		5.2.3	Grouped	M,V	P			
Charging-Rule-Definition		5.2.4	Grouped	M,V	P			
Charging-Key		5.2.5	UTF8String	M,V	P			
Charging-Rule-Base-Name		5.2.6	OctetString	M,V	P			
Charging-Rule-Name		5.2.7	OctetString	M,V	P			
Flow-Description	4	5.2.8	IPFilterRule	M,V	P			
Methering-Method		5.2.9	Enumerated	M,V	P			
Offline		5.2.10	Enumerated	M,V	P			
Online		5.2.11	Enumerated	M,V	P			
NOTE 1: The AVP header bit denoted as 'M', indicates whether support of the AVP is required. The AVP header bit denoted as 'V', indicates whether the optional Vendor-ID field is present in the AVP header. For further details, see RFC 3588 [4].								
NOTE 2: The value types are defined in RFC 3588 [4].								

Editor's note: The table above is to be updated. The re-used AVPs not defined in this specification should be introduced within a separate table.

5.2.1 Charging-Rule-Request AVP

Editor's note: the need of this AVP needs to be evaluated after the underlying application(s) have been identified. Based on that, the information may have been transferred as part of the normal application(s) behaviour.

5.2.2 Charging-Rule-Install AVP

The Charging-Rule-Install AVP (AVP code TBD) is of type Grouped, and it is used for installing charging rules for a bearer session as instructed from the CRF to the TPF. Charging-Rule-Name AVP is a reference for a specific charging rule entirely pre-configured at the TPF. The Charging-Rule-Base-Name AVP is a reference for a group of charging rules entirely pre-configured at the TPF. The Charging-Rule-Definition AVP is used for installing charging rules where parts or entire charging rule is provisioned over the Gx interface.

AVP Format:

```
Charging-Rule-Install ::= < AVP Header: TBD >
                         *[ Charging-Rule-Definition ]
                         *[ Charging-Rule-Name ]
                         *[ Charging-Rule-Base-Name ]
                         *[ AVP ]
```

5.2.3 Charging-Rule-Remove AVP

The Charging-Rule-Remove AVP (AVP code TBD) is of type Grouped, and it is used for removing charging rules from a bearer session. Charging-Rule-Name AVP is a reference for a specific charging rule at the TPF to be removed. The Charging-Rule-Base-Name AVP is a reference for a group of charging rules at the TPF to be removed.

AVP Format:

```
Charging-Rule-Remove ::= < AVP Header: TBD >
                        *[ Charging-Rule-Name ]
                        *[ Charging-Rule-Base-Name ]
                        *[ AVP ]
```

5.2.4 Charging-Rule-Definition AVP

The Charging-Rule-Definition AVP (AVP code x) is of type Grouped, and it defines the charging rule for a service flow sent by the CRF to the TPF. The Charging-Rule-Name AVP uniquely identifies the charging rule within the bearer session and it is used to reference to a charging rule in communication between the TPF and the CRF. The Flow-Description AVP(s) determines the traffic that belongs to the service flow.

AVP Format:

```
Charging-Rule-Definition ::= < AVP Header: TBD >
                            { Charging-Rule-Name }
                            [ Rating-Group ]
                           *[ Flow-Description ]
                            [ Online ]
                            [ Offline ]
                            [ Metering-Method ]
                           *[ AVP ]
```

5.2.5 Rating-Group AVP

The Rating-Group AVP is of type Unsigned32, and it contains an identifier of a rating group for a service flow as defined in draft-ietf-aaa-diameter-cc-06.txt [8].

5.2.6 Charging-Rule-Base-Name AVP

The Charging-Rule-Base-Name AVP (AVP code TBD) is of type OctetString, and it indicates the name of a pre-defined group of charging rules residing at the TPF.

5.2.7 Charging-Rule-Name AVP

The Charging-Rule-Name AVP (AVP code TBD) is of type OctetString, and it uniquely identifies a charging rule within the bearer session.

5.2.8 Flow-Description AVP

The Flow-Description AVP (AVP code 4) is of type IPFilterRule, and defines a packet filter for an IP flow as defined in 3GPP TS 29.209 [10].

Editor's Note: Whether the restrictions in 3GPP TS 29.209 for the IPFilterRule suitable for Gx is FFS, particularly the requirement that for direction "out" an IPv4 destination IP address or the 64 kbits network prefix of an IPv6 destination IP address should not be wildcarded.

5.2.9 Metering-Method AVP

The Metering-Method AVP (AVP code x) is of type Enumerated, and it defines what parameters should be metered for offline charging. The following values are defined:

DURATION (0)

This value shall be used to indicate that the duration of the service flow should be metered.

VOLUME (1)

This value shall be used to indicate that volume of the service flow traffic should be metered.

DURATION_VOLUME (2)

This value shall be used to indicate that the duration and the volume of the service flow traffic should be metered.

5.2.10 Offline AVP

The Offline AVP (AVP code x) is of type Enumerated, and it defines whether the offline charging interface from the TPF for the associated charging rule should be enabled. The absence of this AVP indicates that the default configuration should be used. The following values are defined:

DISABLE_OFFLINE (0)

This value shall be used to indicate that the offline charging interface for the associated charging rule should be disabled.

ENABLE_OFFLINE (1)

This value shall be used to indicate that the offline charging interface for the associated charging rule should be enabled.

5.2.11 Online AVP

The Online AVP (AVP code x) is of type Enumerated, and it defines whether the online charging interface from the TPF for the associated charging rule should be enabled. The absence of this AVP indicates that the default configuration should be used. The following values are defined:

DISABLE_ONLINE (0)

This value shall be used to indicate that the online charging interface for the associated charging rule should be disabled.

ENABLE_ONLINE (1)

This value shall be used to indicate that the online charging interface for the associated charging rule should be enabled.

6 Gx Messages

Gx Messages are carried within the Diameter Application(s) described in the sub-clauses below. These Applications are defined as vendor specific Diameter applications, where the vendor is 3GPP. The vendor identifier assigned by IANA to 3GPP (http://www.iana.org/assignments/enterprise-numbers) is 10415.

The TPF and the CRF shall advertise the support of the 3GPP vendor specific Diameter Application by including the value of the application identifier in the Auth-Application-Id AVP and the value of the 3GPP (10415) in the Vendor-Id AVP of the Capabilities-Exchange-Request and Capabilities-Exchange-Answer commands. The application identifier is allocated to each 3GPP vendor specific Diameter Application by IANA as described in the sub-clauses below. The Capabilities-Exchange-Request and Capabilities-Exchange-Answer commands are specified in the Diameter Base Protocol.

Existing Diameter command codes and AVPs from the Diameter base protocol RFC 2588 [4] and the Diameter Credit Control Application (draft-ietf-aaa-diameter-cc-06.txt) [8] are used with the Gx specific AVPs specified in clause 5.2. The Diameter Credit Control Application AVPs that are re-used are defined in clause 5.x.

In the GPRS case, the association between the PDP sessions and the Diameter Credit Control sessions shall be done in a one-to-one basis (i.e. 1 PDP session = 1 DCC session), and each PDP context (one primary and zero or more secondary PDP contexts) shall map to a Diameter sub-session (i.e. 1 PDP context = 1 DCC sub-session). The release of the last PDP Context shall be indicated by the release of the whole DCC session, whereas release of a single PDP Context, with others remaining, shall be indicated by the release of the sub-session corresponding to that PDP Context.

6.1 Gx Application

Gx reference point shall use Diameter Gx Application as described in this chapter when the CRF functionality is implemented in a standalone device. The Auth-Application-Id for the Gx Application is xxx as allocated by IANA.

Editor's note: The application id needs to be allocated from IANA.

A Gx Application specific Auth-Application-Id is used together with the command code to identify the Gx Application messages.

Editor's Note: The current set of messages is not finally agreed.

Editor's Note: Clause 5.x needs to be updated to include the re-used AVPs from the messages defined below.

6.1.1 CC-Request (CCR) Command

The CCR command, indicated by the Command-Code field set to xxx (IETF suggested value 272) and the 'R' bit set in the Command Flags field, is sent by the TPF to the CRF in order to request charging rules for a bearer. The CCR command is also sent by the TPF to the CRF in order to indicate the termination of the bearer session.

Message Format:

```
<CC-Request> ::= < Diameter Header: xxx (272), REQ, PXY >
                 < Session-Id >
                 { Auth-Application-Id }
                 { Origin-Host }
                 { Origin-Realm }
                 { Destination-Realm }
                 { CC-Request-Type }
                 { CC-Request-Number }
                 [ Destination-Host ]
                 [ CC-Sub-Session-Id ]
                 [ Origin-State-Id ]
                *[ Subscription-Id ]
                 [ Termination-Cause ]
                 [ User-Equipment-Info ]
                 [ 3GPP-GPRS-Negotiated-QoS-Profile ]
                 [ 3GPP-SGSN-MCC-MNC ]
                 [ Called-Station-ID ]
                *[ Proxy-Info ]
                *[ Route-Record ]
                *[ AVP ]
```

6.1.2 CC-Answer (CCA) Command

The CCA command, indicated by the Command-Code field set to xxx (IETF suggested value 272) and the 'R' bit cleared in the Command Flags field, is sent by the CRF to the TPF in response to the CCR command.

Message Format:

```
<CC-Answer> ::=  < Diameter Header: (272), PXY >
                 < Session-Id >
                 { Auth-Application-Id }
                 { Origin-Host }
                 { Origin-Realm }
                 { Result-Code }
                 [ Experimental-Result ]
                 { CC-Request-Type }
                 { CC-Request-Number }
                 [ CC-Sub-Session-Id ]
                 [ Origin-State-Id ]
                *[ Charging-Rule-Remove ]
                *[ Charging-Rule-Install ]
                 [ Error-Message ]
                 [ Error-Reporting-Host ]
                *[ Failed-AVP ]
                *[ Proxy-Info ]
                *[ Route-Record ]
                *[ AVP ]
```

6.1.3 Re-Auth-Request (RAR) Command

The RAR command, indicated by the Command-Code field set to 258 and the 'R' bit set in the Command Flags field, is sent by the CRF to the TPF in order to initiate the provision of unsolicited charging rules for an existing bearer. The RAR command shall be followed by a CCR command from the TPF requesting charging rules for the bearer in question.

Message Format:

```
<RA-Request> ::= < Diameter Header: 258, REQ, PXY >
                 < Session-Id >
                 { Auth-Application-Id }
                 { Origin-Host }
                 { Origin-Realm }
                 { Destination-Realm }
                 { Destination-Host }
                 { Re-Auth-Request-Type }
                 [ CC-Sub-Session-Id ]
                 [ Origin-State-Id ]
                *[ Proxy-Info ]
                *[ Route-Record ]
                *[ AVP]
```

6.1.4 Re-Auth-Answer (RAA) Command

The RAA command, indicated by the Command-Code field set to 258 and the 'R' bit cleared in the Command Flags field, is sent by the TPF to the CRF in response to the RAR command.

Message Format:

```
<RA-Answer> ::=  < Diameter Header: 258, PXY >
                 < Session-Id >
                 { Auth-Application-Id }
                 { Origin-Host }
                 { Origin-Realm }
                 [ Result-Code ]
                 [ CC-Sub-Session-Id ]
                 [ Origin-State-Id ]
                 [ Error-Message ]
                 [ Error-Reporting-Host ]
                *[ Failed-AVP ]
                *[ Proxy-Info ]
                *[ AVP ]
```

6.2 Gx over Gy Application

The Gx reference point shall use Diameter Gx over Gy Application as described in this chapter when the CRF functionality is co-located with the Online Charging System (OCS). The Auth-Application-Id for the Gx over Gy Application is xxx as allocated by IANA.

Editor's note: The application id needs to be allocated from IANA.

A Gx over Gy Application specific Auth-Application-Id is used together with the command code to identify the Gx over Gy Application messages.

The Gx over Gy Application is based on the Diameter Credit Control Application. The Gx specific AVPs are used together with the Gy interface messages. The Gx over Gy Application shall use Gx specific AVPs to fulfil the Gx specific requirements (charging rule provision) and, over the same message, Gy functionalities (credit authorization), as follows:

- When only charging rule provision is required the procedures and message content for Gx Application as specified in clause 6.1 shall apply.

- When only credit authorization is required the procedures and message content for Gy as specified in 3GPP TS 32.299 [9] shall apply.

- When credit authorization and charging rule provision are required simultaneously, these shall be executed with a single CCR-CCA message pair (e.g. credit authorization and request for charging rules) or RAR-RAA message pair (e.g. credit re-authorization request and unsolicited charging rule provisioning). The AVPs defined in Gy interface to satisfy the credit authorization requirements and the Gx specific AVPs shall be both included in the Diameter messages as needed. In any case, the common AVPs shall be included only once within the same message.

6.2.1 Simultaneous charging rule provision and credit authorization

Editor's Note: Specific description needs to be added in this clause.

Annex A (informative): Change history

					Change history		
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
2004-03					Presented to CN3#31bis for information	-	0.0.1
2004-04					Updated to be used as a basis for email work	0.0.1	0.1.0
2004-04					Submitted for email work	0.2.0	0.1.0
2004-05					Submitted for CN3 meeting	0.2.0	0.3.0
2004-05					TS number 29.910 reserved, version for email discussion after CN3#32	0.3.0	0.4.0
2004-08					Erroneous TS number corrected to 29.210. Tdocs N3-040458, N3-040597, N3-040566, N3-040504, N3-040605 are agreed at CN3#33 and incorporated. To be presented to NP#25 for information	0.4.0	1.0.0
2004-08					Editorial Corrctions made by MCC to align with 3GPP drafting rules	1.0.0	1.0.1