3GPP TSG CT Meeting #28 **CP-0500048**
1st – 3rd June 2005. Quebec, CANADA.

Source: **CT3**

Title: **CRs to Rel-6 related to Auth-Application-Id on Work Item "Rx Reference point specification for flow based charging"**

Agenda item: **9.25**

Document for: **APPROVAL**

Introduction:

This document contains 1 CR to Rel-6 on Work Item "Rx Reference point specification for flow based charging" that have been agreed by TSG CT WG3, and are forwarded to TSG CT Plenary for approval.

WG_tdoc	Spec	CR	R	Cat	Title	Rel	C_Ver	Work Item
C3-050386	29.211	006	1	F	Rx Auth-Application-Id AVP use	Rel-6	6.0.0	CH-FBC

3GPP TSG-CT WG3 Meeting #36
Cancun, Mexico. 25th - 29th April 2005.

Tdoc ⌘C3-050386

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.211** **CR** **006** ⌘**rev** **1** [o4] ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Rx Auth-Application-Id AVP use
Source:	⌘	Ericsson, Nortel Networks
Work item code:	⌘	CH-FBC
Date:	⌘	26/04/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*
Rel-7 *(Release 7)*

Reason for change: ⌘

In the target specification it is said that Rx should have a specific Application Id in order to univocally identify it. But there is no specification of how this specific application id is included in the message.

The following facts occur:

- The standard way of using vendor specific application ids is using the "Vendor-Specific-Application-Id" AVP.
- Diameter Base Application states that only one Application Id AVP can be used at the same time.
- The commands used in this protocol have the "Auth.Application-Id" AVP as a mandatory AVP,
- According to IETF politics, the standard Diameter command should have their mandatory parameters unmodified and always being included in the message.
- According to standard Diameter extensions, it is only feasible to add optional parameters to the already defined parameters if the command code is not changed. These optional parameters could be added in all the applications that use a particular standard command.
- Auth-Application-Id and Vendor-Specific-Application-Id share the same numbering space.

The conclusion is that it is not feasible to follow the standard way of including the Vendor Specific Application Id. Therefore a specific way of using the application Id should be stated without breaking the main rules set up by IETF.

Summary of change:	⌘	{ Auth-Application-Id } is used to include the Rx application id value in order to keep the standard command code unchanged. It is also explicitely said that capabilities negotiation will use the Vendor-Specific-Application-Id following the normal procedure. Also Auth-Application-Id AVP is removed from those commands that do not include it in their original specification within the IETF.
Consequences if not approved:	⌘	It is not explained where to include the Rx application id.

Clauses affected:	⌘	7.1, 7.1.1			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

********** FIRST MODIFIED SECTION **********

7.1 Protocol Support

The Rx reference point shall be based on Gq protocol as specified in 3GPP TS 29.209 [4]. Most of the ~~the~~ AVPs from the Gq protocol are reused as specified in sub-clause 7.2.

Editor's note: The new application id needs to be allocated for Rx Protocol from IANA.

The Rx application is defined as an IETF vendor specific Diameter application, where the vendor is 3GPP. The vendor identifier assigned by IANA to 3GPP (http://www.iana.org/assignments/enterprise-numbers) is 10415.

Due to the definition of the commands used in Rx protocol, there is no possibility to skip the Auth-Application-Id AVP and use the Vendor-Specific-Application-Id AVP instead. Therefore the Rx application identification shall be included in the Auth-Application-Id AVP.

With regard to the Diameter protocol defined over the Rx reference point, the CRF acts as a Diameter server, in the sense that it is the network element that handles Charging Rule control for a particular realm. The AF acts as the Diameter Client, in the sense that is the network element requesting FBC control in the bearer path network resources.

The support of Diameter agents between the CRF and the AF, is optional for the IMS, where the Rx is intra operator i.e. for GPRS: TPF, CRF and P-CSCF are all in the same network.

********** NEXT MODIFIED SECTION **********

7.1.1 Advertising application support

The AF and the CRF shall advertise the support of the Rx specific 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 as specified in RFC 3588 [4], i.e. as part of the Vendor-Specific-Application-Id AVP. The Capabilities-Exchange-Request and Capabilities-Exchange-Answer commands are specified in the Diameter Base Protocol.

********** NEXT MODIFIED SECTION **********

7.3.4 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 AF 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 ]
                 [ Experimental-Result ]
                *[ Media-Component-Description ]
                *[ Flow-Grouping ]
                 [ Origin-State-Id ]
                 [ Error-Message ]
                 [ Error-Reporting-Host ]
                *[ Failed-AVP ]
                *[ Proxy-Info ]
                *[ AVP ]
```

********** NEXT MODIFIED SECTION **********

7.3.6 Session-Termination-Answer (STA) command

The STA command, indicated by the Command-Code field set to 275 and the 'R' bit cleared in the Command Flags field, is sent by the CRF to the AF in response to the STR command.

Message Format:

```
<ST-Answer>  ::= < Diameter Header: 275, PXY >
                 < Session-Id >
                 { Origin-Host }
                 { Origin-Realm }
                 ~~{ Auth-Application-Id }~~
                 [ Result-Code ]
                 [ Experimental-Result ]
                 [ Error-Message ]
                 [ Error-Reporting-Host ]
                *[ Failed-AVP ]
                 [ Origin-State-Id ]
                *[ Redirect-Host ]
                 [ Redirect-Host-Usage ]
                 [ Redirect-Max-Cache-Time ]
                *[ Proxy-Info ]
                 [ AVP ]
```

********** END OF MODIFIED SECTIONS **********