3GPP TSG-CN Meeting #24 **NP-040240**
2nd – 4th June 2004. Seoul, Korea.

Source: **TSG CN WG3**

Title: **CRs to Rel-5 on Work Item "E2EQoS"**

Agenda item: **8.5**

Document for: **APPROVAL**

Introduction:

This document contains 3 CRs Rel-5 on Work Item "E2EQoS" that have been agreed by TSG CN WG3, and are forwarded to TSG CN Plenary for approval.

WG_tdoc	Spec	CR	R	Cat	Title	Rel	C_Ver
N3-040398	29.207	126	2	F	DRQ Sub-code	Rel-5	5.7.0
N3-040399	29.207	130	2	F	PDP context modification without binding information	Rel-5	5.7.0
N3-040395	29.208	070	3	F	Media component removal flow	Rel-5	5.7.0

3GPP TSG-CN WG3 Meeting #32 **N3-040395**
Zagreb, Croatia, 10th - 14th May 2004.

CR-Form-v7

CHANGE REQUEST

⌘ **29.208** **CR** **070** ⌘ **rev** **3** ⌘ Current version: **5.7.0** ⌘

*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 ☒

Title:	⌘	Media Component removal callflow
Source:	⌘	TSG_CN WG3
Work item code:	⌘	E2EQoS
Date:	⌘	30/04/2004
Category:	⌘	**F**
Release:	⌘	REL-5

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:

2	*(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)*

Reason for change:	⌘	TS 29.207 states in Clause 5.2.1.3: "Additionally, when a media component which is bound to a PDP context is removed from a SIP session and the UE has not performed the corresponding modification or deactivation of the PDP context within an operator specific time the PDF shall revoke the authorisation for the set of IP flows of the media components on that PDP context." However, in TS 29.208 only closing of gates is described for media component removal.
Summary of change:	⌘	Add flow for media comnponent removal with authorization revokation
Consequences if not approved:	⌘	Contradicting specifications

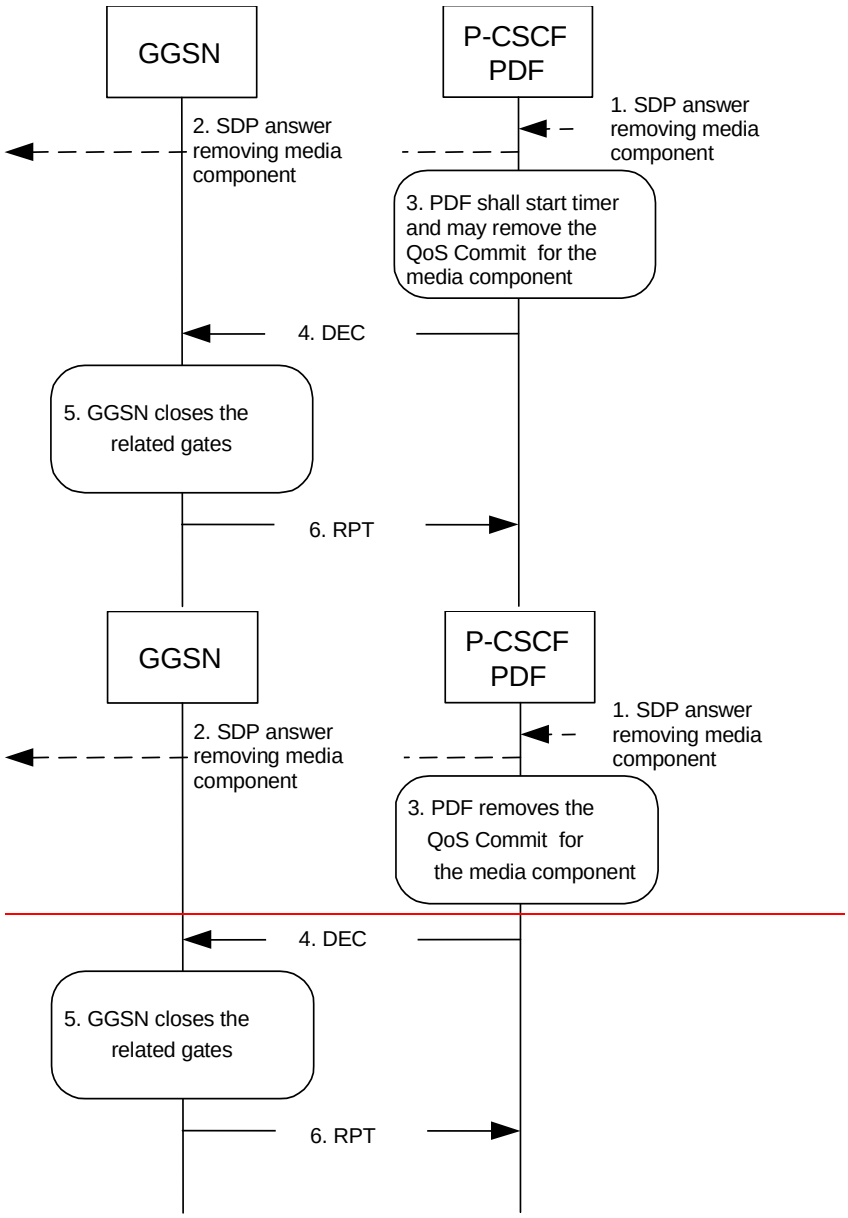
Clauses affected:	⌘	6.2.2, 6.3

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	

6.2.2 Removal of QoS commit at media component ~~remove~~removal

Figure 6.2.2 presents the "Removal of QoS commit" procedure at media component remove~~e~~al ~~to~~ for both the Mobile Originating (MO) side and the Mobile Terminating (MT) side. The removal of QoS commit is optional. In addition, the procedure in Clause 6.3.1 applies in this situation after timer expiry.



1. P-CSCF receives an SDP answer removing media component.
2. P-CSCF forwards the SDP answer removing media component.
3. PDF shall start timer and may remove~~s~~ the QoS commit for the related IP flow(s) of the media component. After timer expiry, Figure 6.3.1 applies starting with step 4.
4. PDF sends a COPS DEC message to the GGSN to close the related 'gate(s)'.
5. GGSN receives the COPS DEC message and closes the 'gate(s)'.
6. GGSN sends a COPS RPT message back to the PDF.

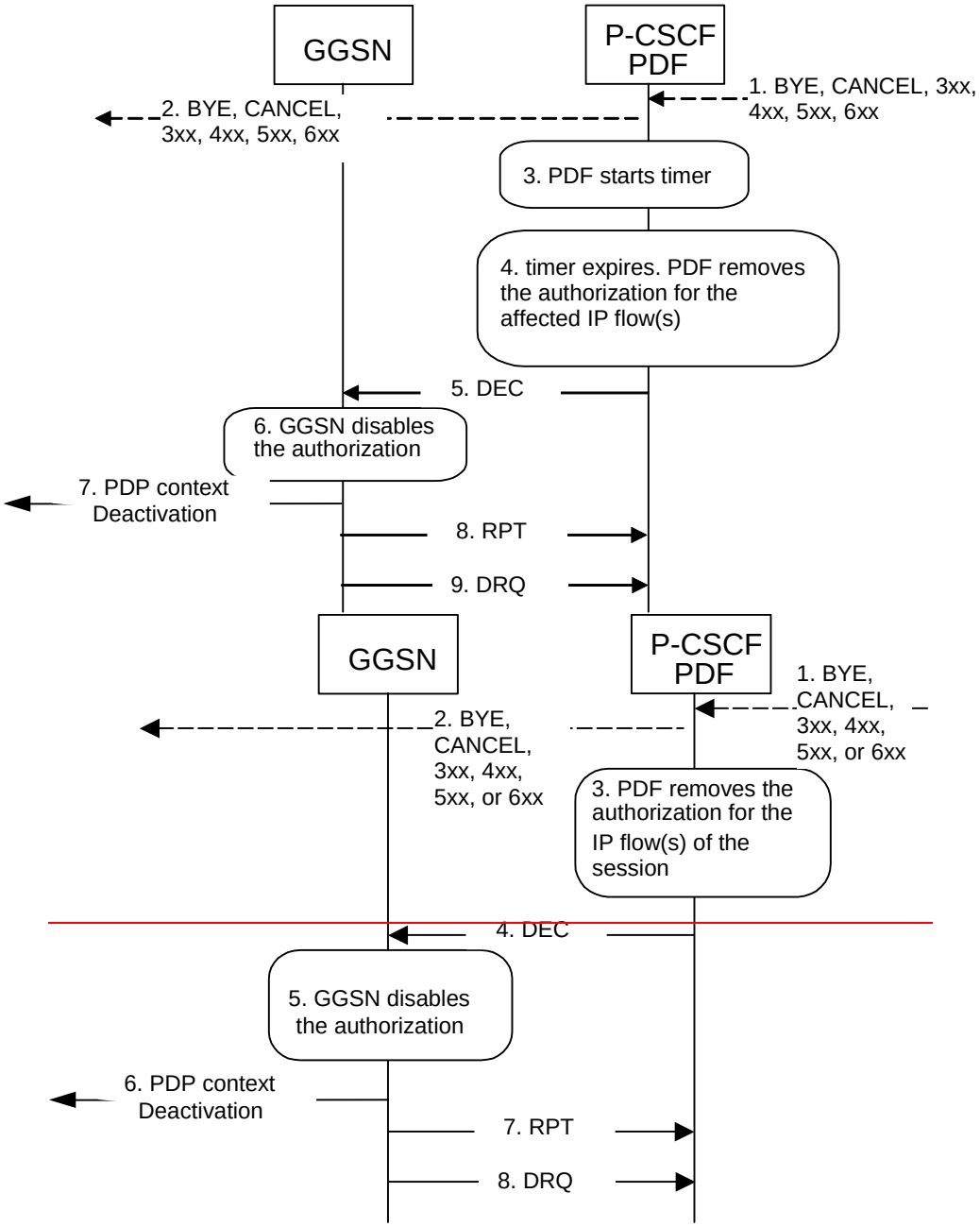
Figure 6.2.2: Removal of QoS commit at media component remove~~e~~al ~~to~~ for both the Mobile Originating (MO) side and the Mobile Terminating (MT) side

6.3 Revoke authorization for GPRS and IP resources

The "Revoke Authorization for GPRS and IP resources" procedure is used e.g. upon session release or upon session redirection or SIP final error response initiated after bearer establishment. The PDF decision of "Revoke Authorization for UMTS and IP Resources" shall be sent as a separate decision to the GGSN corresponding to the previous "Authorize QoS Resources" request.

6.3.1 Mobile initiated session release / Network initiated session release

Figure 6.3.1 presents the "Revoke Authorization for UMTS and IP Resources" at ~~upon~~ Mobile initiated session release ~~/~~ or Network initiated session release t~~o~~ for both the Mobile Originating (MO) side and the Mobile Terminating (MT) side. The session release may be signalled by a SIP BYE message, by a SIP CANCEL request, or any SIP 3xx redirect response, or any 4xx, 5xx, or 6xx SIP final error response. In addition, the revoke authorization for GPRS and IP resources applies after timer expiry at the removal of media component(s) from an IMS session which has not been released.



1. A SIP BYE message, a SIP CANCEL request, a SIP 3xx redirect response, or any 4xx, 5xx, or 6xx SIP final error response is received by the P-CSCF.
2. P-CSCF forwards the BYE message, or the SIP 3xx redirect response, a SIP CANCEL request, or any 4xx, 5xx, or 6xx SIP final error response.
3. PDF starts timer.
4. The timer expires but the PDF has not been notified that the affected PDP context(s) have been modified or deactivated. PDF removes the authorisation for the affected IP flow(s) of this session, which it authorized previously.
45. If step 4 occurs, PDF sends COPS DEC message(s) to the GGSN including client handle(s), which identifies the PDP context(s) to be deactivated.
56. GGSN receives the COPS DEC message, and disables the use of the authorized QoS resources.
67. GGSN initiates deactivation of the PDP context(s) used for the IP multimedia session, in case the UE has not done it before.
78. GGSN sends COPS RPT message(s) back to the PDF.
89. GGSN sends COPS DRQ message(s) to the PDF.

Figure 6.3.1: Revoke authorization for GPRS and IP resources - at Mobile initiated session release ~~/~~ or Network initiated session release ~~to~~ for both Mobile Originating (MO) and Mobile termination side

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Zagreb, 10-14 May 2004

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CHANGE REQUEST

⌘ **29.207** **CR** **126** ⌘ **rev** **2** ⌘ Current version: **5.7.0** ⌘

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

Title:	⌘	DRQ Reason code
Source:	⌘	TSG_CN WG3
Work item code:	⌘	E2EQoS
Date:	⌘	10/05/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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:

2	*(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)*

Reason for change:	⌘	The value for Reason code “Tear” and a sub-code has been referred in the specification but the value for the Go specific Sub-code has not been specified.
Summary of change:	⌘	Sub-code removed, and only the Reason code with value 4 “Tear” indicating the “deactivation of the PDP context” is defined.
Consequences if not approved:	⌘	Mismatch and undefined value in the specification.

Clauses affected:	⌘	6.3.2

		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.

6.3.2 Message description

The following messages and events are available on the Go interface (after the initial policy provisioning described in subclause 6.3.1.5):

- Authorisation_Request (REQ) (GGSN→PDF):

  This event allows the GGSN to request authorisation data from the PDF. It contains the following information:

  - Client Handle;
  - Binding Information.

  The R-type = 0x08 for configuration request is used here and M-type = 0x02 create event state is used here.

- Authorisation_Decision (DEC)(PDF→GGSN), contains an INSTALL decision:

  This event provides the GGSN with the relevant authorisation data. The event contains the following information:

  - Client Handle;
  - ICID(s) (only in the initial Authorisation_Decision). Only one ICID is transferred in this Release. The form of the ICID is defined in 3GPP TS 32.225 [21];
  - Unidirectional set (this parameter shall appear once for each direction (uplink and downlink)):
    - Direction indicator;
    - "Authorised QoS";
    - Gate description (this parameter shall appear once for each required gate for this direction):
      - Filter Specification - The information about the authorised IP end points addresses and ports is detailed below. The Filter Specification parameters are:
        - Source IP address;
        - Destination IP address;
        - Source ports;
        - Destination ports;
        - Protocol ID.

          The Source and Destination ports are described with a range consisting of a minimum and maximum value. If only one port is authorised, the minimum value and maximum value of the range are identical.

          A filter specification describing more than one IP flow shall be only used in case of identical Protocol IDs, IP addresses and successive port numbers (e.g. RTP and RTCP IP flow of a media component). Furthermore, the gate status of all IP flows described by this filter specification shall be identical, too.

          The Base and IP Filter definitions from the IETF Framework PIB [15] shall be used in the 3GPP Go PIB to represent the filter specification. Only a subset of the available filter attributes shall be used. The attributes frwkIpFilterDscp, and frwkIpFilterFlowId in the filter description shall have their values set to –1, indicating a "match-all" wildcard condition, in effect a "not used" condition. The attribute frwkBaseFilterNegation shall have its value set to "false" to indicate not using negation, in effect a "not used" condition. The GGSN shall ignore them if they are set otherwise. Wildcarding of filter elements is detailed in Annex B.
      - Gate status (opened/closed)

  The R-type = 0x08 for configuration request is used here and M-type = 0x02 create event state is used here.

- Authorisation_Failure (DEC) (PDF→GGSN), contains an INSTALL and a REMOVE decision:

  This event provides the GGSN with an indication of an authorisation failure, and may carry additional reason details. The event contains the following information:

  - Client Handle;
  - Authorisation failure (including any provided reason information).

  The R-type = 0x08 for configuration request is used here and M-type = 0x04 terminate event state is used here.

- Gate Decision (DEC) (PDF→GGSN), contains an INSTALL decision:

  The Gate Decision indicates to the GGSN the new status of the gate(s) established for a client handle (PDP context). The gate status indicates to the GGSN that the gate shall be opened or closed. Only the gate(s) for which the status is changed are indicated by this event. The event contains the following information:

  - Client Handle;
  - Unidirectional set (this parameter shall appear once for each direction for which gates are being updated (uplink and/or downlink)):
    - Direction indicator;
    - Gate description (this parameter shall appear once for each gate to be modified for this direction) :
      - Filter Specification - The information about the authorised IP end points addresses and ports is detailed below. The Filter Specification parameters are:
        - Source IP address;
        - Destination IP address;
        - Source ports;
        - Destination ports;
        - Protocol ID.

          The Source and Destination ports are described with a range consisting of a minimum and maximum value. If only one port is authorised, the minimum value and maximum value of the range are identical.

          A filter specification describing more than one IP flow shall be only used in case of identical Protocol IDs, IP addresses and successive port numbers (e.g. RTP and RTCP IP flow of a media component). Furthermore, the gate status of all IP flows described by this filter specification shall be identical, too.

          The Base and IP Filter definitions from the IETF Framework PIB [15] shall be used in the 3GPP Go PIB to represent the filter specification. Only a subset of the available filter attributes shall be used. The attributes frwkIpFilterDscp, and frwkIpFilterFlowId in the filter description shall have their values set to –1, indicating a "match-all" wildcard condition, in effect a "not used" condition. The attribute frwkBaseFilterNegation shall have its value set to "false" to indicate not using negation, in effect a "not used" condition. The GGSN shall ignore them if they are set otherwise. Wildcarding of filter elements is detailed in Annex B.
      - Gate status (opened/closed)

NOTE: The opening of the gate may occur at the same time / be part of the authorisation decision event.

The R-type = 0x08 for configuration request is used here and M-type = 0x03 update event state is used here.

- Report (RPT) (GGSN→PDF):

  The GGSN sends a COPS RPT message as a response to a decision (DEC) message back to the PDF reporting that it enforced or not the Authorisation_Decision or the Authorization_Failure_Decision (Authorization_Report) or the Gate_Decision (Gate_Report).

The events contain the following information:

- Client Handle;
- Success / Failure.

In addition, the Authorization_report of the initial Authorisation_Decision includes:

- GCID;
- GGSN address.

- Report of state changes:

The GGSN sends the report of state change message to the PDF reporting that the maximum bit rate for the PDP context is modified to 0 kbps or that the maximum bit rate for the PDP context is changed from 0 kbps.

The event contains the following information:

- Client Handle;
- Maximum bit rate (set to 0 kbps / changed from 0 kbps).

- Delete Request State (DRQ) (GGSN→PDF):

The GGSN informs the PDF via the delete request state message, that the PDP context is deactivated and the request state identified by the client handle is no longer available/relevant at the GGSN, so the corresponding state shall also be removed at the PDF.

The DRQ message includes the reason why the request state was deleted.

The event contains the following information:

- Client Handle;
- Reason code: value 4 "Tear", ~~Sub code:~~ indicating the deactivation of the PDP context.

- Remove_Decision (DEC) (PDF→GGSN):

The PDF uses the Remove_Decision to inform the GGSN that the PDF revokes the authorized resources for the client handle (PDP context). The Remove_Decision is a specific Decision message with the COPS Decision Flags object set to 0x02 ("Request-State" flag) and the Command-Code set to "REMOVE"; see IETF RFC 3084 [8].

The event contains the following information:

- Client Handle.

The R-type = 0x08 for configuration request is used here and M-type = 0x04 terminate event state is used here.

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Zagreb, Croatia, 10th – 14th May, 2004

Tdoc ⌘ N3-040399

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CHANGE REQUEST

⌘ **29.207** **CR** **130** ⌘ **rev** **2** ⌘ Current version: **5.7.0** ⌘

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

Title:	⌘	PDP context modification without binding information
Source:	⌘	TSG_CN WG3
Work item code:	⌘	E2EQoS
Date:	⌘	23/03/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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)*
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Use one of the following releases:

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R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In case of a PDP context modification request to an APN for which the Go interface is enabled, the GGSN shall reject the PDP context modification if no binding information is received and binding information has been previously provided for the PDP context. This functionality is required in general to prevent a modification of a PDP context with binding information to a PDP context without binding information. However, in case of a SGSN initiated PDP context modification (e.g. a modification of the maximum bitrate to 0 kbit/s due to loss of radio coverage) no binding information can be provided. Consequently, the PDP context modification request would not be accepted by the GGSN.
Summary of change:	⌘	We therefore propose to allow a PDP context modification without binding information if binding information has been previously provided for the PDP context.
Consequences if not approved:	⌘	The SGSN initiated PDP context modification would not be accepted by the GGSN. A change of QoS, e.g. a modification of the maximum bitrate to 0 kbit/s, would not be possible. Consequently, this information cannot be forwarded to the PDF and downlink traffic cannot be prevented.

Clauses affected:	⌘	4.3.1.5, Annex D

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	In section 4.3.1.5 the term ‘secondary’ was deleted in front of ‘PDP context modification’ as there is no dedicated modification procedure for a secondary PDP context. In Annex D the description of error code No. 7 “invalid bundling” was updated.

Start of 1st modified section

4.3.1.5 Binding mechanism handling

The binding information is used by the GGSN to identify the correct PDF and subsequently request service-based local policy information from the PDF. The binding information associates a PDP context with one or more media components of an IMS session. The GGSN may receive one or more sets of the binding information during an activation or modification of a secondary PDP context. Each set of binding information consists of an authorisation token and the flow identifier(s) related to the IP flow(s) within the same session

The GGSN shall store the binding information and apply it to correlate events and actions between the PDP context and the service-based local policy.

The GGSN shall determine the IP address of the PDF from the PDF identifier received as part of the Authorization Token. This identifier shall be in the format of a fully qualified domain name. If the GGSN receives multiple sets of binding information in the secondary PDP context activation, the GGSN shall search for the first Authorization Token containing the PDF identifier (Authorization Token is of type AUTH_SESSION and contains AUTH_END _ID) and use that to identify the correct PDF. If none of the tokens included in the binding information are of type AUTH_SESSION, or they do not contain an AUTH_ENT_ID attribute to resolve the PDF address, then the GGSN shall reject the secondary PDP context activation request. The reason for the rejection is indicated to the UE with the error code value "Invalid binding information" (see annex D).

The GGSN shall forward the binding information received from the UE to the PDF. If multiple sets of binding information are received by the GGSN, it shall forward them to the PDF.

If the binding information is successfully modified using the PDP context modification procedure, the GGSN shall replace the old binding information with the new binding information.

When the GGSN receives a secondary PDP context activation request to an APN for which the Go interface is enabled and no binding information is received, the GGSN may either reject the secondary PDP context activation request, or accept it within the limit imposed by a locally stored QoS policy. This local QoS policy shall be operator configurable within the GGSN. If the request is rejected, the reason for the rejection is indicated to the UE with the error code value "Missing binding information" (see annex D).

When the GGSN receives a ~~secondary~~ PDP context modification request for a secondary PDP context to an APN for which the Go interface is enabled, and no binding information is received (e.g. due to a SGSN initiated PDP context modification of maximum bitrate to 0 kbit/s), the GGSN shall ~~reject~~ accept the ~~secondary~~ PDP context modification if binding information has been previously provided for the PDP context. SBLP still applies for this PDP context. If a request for service-based local policy information from the PDF is necessary, the GGSN shall use the stored binding information of this PDP context. If no binding information has previously been received, the GGSN may either reject the ~~secondary~~ PDP context modification request, or accept it within the limit imposed by a locally stored QoS policy. This local QoS policy shall be operator configurable within the GGSN. If the request is rejected, the reason for the rejection is indicated to the UE with the error code value "Missing binding information" (see annex D).

When binding information is received, the GGSN shall ignore any UE supplied TFT, and filters in that TFT shall not be installed in the packet processing table.

The GGSN shall reject a secondary PDP context activation or PDP context modification request with the error code "Binding information not allowed" (see annex D) in the following cases:

- The Go interface is disabled and the GGSN receives a Create PDP Context Request or Update PDP Context Request message that includes binding information.
- The GGSN receives a Create PDP Context Request or Update PDP Context Request message that includes both binding information and the IM CN Subsystem Signalling Flag.
- The GGSN receives an Update PDP Context Request message that includes binding information to modify a previously non-authorized PDP context.

End of 1st modified section

Start of 2nd modified section

Annex D (normative): Go interface related error code values for the PDP context handling

The following error codes are used to indicate Go interface related errors from the GGSN to the UE. The error codes listed below are transferred to the UE in the Protocol Configuration Options information element as defined in 3GPP TS 24.008 [12]:

> The error code values transported in the container contents field shall be the binary representations of the error code numbers listed below.
>
> In all the cases listed below a common GTP cause code, "User authentication failed", see 3GPP TS 29 060 [20], shall be used in the response message.

Error code No. 1 "Authorization failure of the request"

This error code indicates that the secondary PDP context activation or PDP context modification request is rejected because the authorizing entity is unable to provide an authorization decision for the binding information.

Error code No. 2 "Missing binding information"

This error code indicates that the secondary PDP context activation ~~or PDP context modification~~ request is rejected because the binding information was not included in the request although required.

Error code No. 3 "Invalid binding information"

This error code indicates that the secondary PDP context activation or PDP context modification request is rejected because the authorizing entity could not be resolved from the binding information.

Error code No. 4 "Binding information not allowed"

This error code indicates that the secondary PDP context activation or PDP context modification request is rejected because the Go interface is disabled or not supported in the GGSN and hence binding information is not allowed. The error code may also indicate that the PDP context modification is rejected because binding information is not allowed for modification of previously non-authorised PDP context or that the binding information is not allowed when the PDP context is indicated to be used for IMS signaling.

Error code No.5 "Authorizing entity temporarily unavailable"

This error code indicates that the secondary PDP context activation or PDP context modification request is rejected because the authorizing entity indicated by the binding information is temporarily unavailable.

Error code No. 6 "No corresponding session"

This error code indicates that the secondary PDP context activation request is rejected because the authorizing entity cannot associate the Authorisation token of binding information with any ongoing session or binding information contains invalid flow identifier(s).The error code also indicates that the PDP context modification request is rejected by the authorizing entity because the authorization token has changed or the binding information contains invalid flow identifier(s).

Error code No. 7 "Invalid bundling"

This error code indicates that the secondary PDP context activation or PDP context modification request is rejected because the authorizing entity doesn't allow the grouping of the flow identifiers ~~contained in the PDP context activation request to be carried~~ in the ~~requested~~ same PDP Context.

End of 2nd modified section