

**3GPP TSG CN Plenary Meeting #12
Stockholm, Sweden, 13th - 15th June 2001**

Tdoc NP-010316

Source: TSG CN WG2
Title: CRs on R99 and Rel-4 Work Item "CAMEL3"
Agenda item: 7.2
Document for: APPROVAL

Introduction:

This document contains 2 CRs on R99 and Rel-4 Work Item "CAMEL3", that have been agreed by TSG CN WG2, and are forwarded to TSG CN Plenary meeting #12 for approval.

| Spec | CR | Rev | Doc-2nd- | Phase | Subject | Cat | Ver_C |
|--------|-----|-----|-----------|-------|--|-----|-------|
| 23.078 | 298 | 1 | N2-010459 | R99 | Inclusion of warning note for the reporting of total duration or volume for GPRS | F | 3.8.0 |
| 23.078 | 303 | | N2-010460 | Rel-4 | Inclusion of warning note for the reporting of total duration or volume for GPRS | A | 4.0.0 |

CHANGE REQUEST

⌘ **23.078 CR** 298 ⌘ rev **1** ⌘ Current version: **3.8.0** ⌘

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title: ⌘ Inclusion of warning note for the reporting of total duration or volume for GPRS

Source: ⌘ CN2

Work item code: ⌘ CAMEL3 **Date:** ⌘ 18 May 2001

Category: ⌘ **F** (essential correction) **Release:** ⌘ R99

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)

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)

Reason for change:⌘

Current Situation

The SCP may request the SGSN to send a charging report when certain data volume or time duration thresholds have been reached. This request is made through the ApplyChargingGPRS CAP operation. The charging report from SGSN to SCP is sent in the ApplyChargingReportGPRS CAP operation.

When the SCP sends this request, the SCP defines the threshold indicating when the charging report shall be sent. The maximum duration after which a report shall be sent is limited to 24 hours. The maximum transmitted data volume after which a report shall be sent is limited to 4 Giga Byte. Both limits are reflected in the ASN.1 definition of the ApplyChargingGPRS CAP operation.

During the development of these GPRS charging operations, it was agreed that a limit of 24 hours for the maximum duration between successive duration-related charging reports was adequate. Likewise, it was agreed that a limit of 4 Giga Bytes for the maximum duration between successive volume-related charging reports was adequate.

It shall be noted that when the present CR mentions "duration" reporting, this may apply to a GPRS Session and to individual PDP Contexts. "Volume" reporting, however, applies to individual PDP Contexts only.

For a description of the ApplyChargingReportGPRS procedure, refer to sect. 11.6 in 29.078.

Problem Description

The description of the ApplyChargingGPRS procedure prescribes that when the SGSN sends a charging report, the SGSN shall report the accumulated volume or

time. That means that, even though the maximum duration between successive volume related charging reports is limited to 4 Giga Bytes, the actual volume that shall be reported by the SGSN may exceed this limit of 4 Giga Byte. Likewise, even though the maximum duration between successive duration related charging reports is limited to 24 hours, the actual duration that shall be reported by the SGSN may exceed this limit of 24 hour.

Service Logic designers can use a Tariff Switch timer for the charging reports in the SGSN. When a tariff switch time is used, the accumulated time and volume to be reported in a GPRS charging report may be limited to 24 hour and 4 Giga Byte respectively.

It follows from the above observations that this issue needs attention.

In the short term, the reporting limits of 24 hour and 4 Giga Byte may not present a problem. In the medium to long term future, it may be desirable to report larger durations and data volumes.

Proposed Solution

Include a warning note in 23.078 to inform Service Logic designers that if no tariff switch timer is used, the maximum duration or volume that may be reported is 24 hour and 4 Giga Byte respectively. The implication of this may be that a Service Logic shall restrict the charging of a Session or PDP Context to the first 24 hour and the first 4 Giga Byte and then allow Session and PDP Context continuation without charging or force terminate the Session or PDP Context after 24 hour or 4 Giga Byte, depending on which one of these occurs first.

This solution may be acceptable for the 3GPP R99 specifications. It does not affect the CAP protocol and the limit of 24 hour and 4 Giga Byte may not present a problem for commercial GPRS systems that are built in accordance with the 3GPP R99 specifications.

Summary of change:

Include a warning note in clause 6.6.1.2 to inform Service Logic designers about the limit in data volume and duration reporting.

Consequences if not approved:

GPRS pre-paid services may receive incorrect duration and volume information from the SGSN if the total amount of data transmitted in a PDP Context exceeds 4 Giga Byte or if the total duration of a PDP Context or Session exceeds 24 hour.

Clauses affected:

6.6.1.2

Other specs affected:

- Other core specifications ⌘
- Test specifications
- O&M Specifications

Other comments:

***** First Change *****

6.6.1.2 Apply Charging Report GPRS

6.6.1.2.1 Description

This IF is used by the gprsSSF to report to the gsmSCF the information requested in the Apply Charging GPRS IF. In addition, this IF is used to notify the gsmSCF of user initiated change in QoS. Note that there are several possible QoS profiles defined by the combinations of the different QoS attributes as defined in 3GPP TS 23.060 [11]. A PLMN may only support and charge on a limited subset of those QoS. It is recommended that changes in QoS are only reported in Apply Charging Report GPRS for those QoS profiles.

NOTE Service Logic designers shall be aware that the maximum accumulated data volume that may be reported to the gsmSCF through the Apply Charging Report GPRS IF is limited to 4 Giga octet. The maximum accumulated PDP Context duration or Session duration that may be reported to the SCP through the Apply Charging Report GPRS IF is limited to 24 hours.
Refer to the ApplyChargingReportGPRS procedure description in 3GPP TS 29.078 [5] for the reporting of accumulated volume and duration.

6.6.1.2.2 Information Elements

The following information elements are required:

| Information element name | Required | Description |
|--------------------------|----------|---|
| Gprs Reference Number | C | This IE consists of a number assigned by the gprsSSF and a number assigned by the gsmSCF. It is used for TCAP dialogue segmentation. Refer to 3GPP TS 29.078 [5] for the usage of this element. |
| Charging Result | M | This IE contains the charging information for the PDP provided by the gsmSSF. It is a choice between elapsed time and data volume. |
| Quality of Service | C | This IE is described in the table below. |
| Active | M | This IE indicates if the GPRS session or PDP context is still established, or if it has been detached or deactivated. |
| PDP ID | C | This IE identifies the PDP context which the Apply Charging Report is applicable for. If not present the dialogue corresponds to the GPRS session or to one single PDP context. |

M Mandatory (The IE shall always be sent).

C Conditional (The IE shall be sent, if available).

Quality of Service contains the following information element:

| Information element name | Required | Description |
|--------------------------|----------|--|
| Negotiated QoS | C | This IE identifies the QoS which was negotiated between the user, the SGSN and the GGSN, as a result of a 'Modify PDP Conext' request. This IE shall be included only if sending of the Apply Charging Report was triggered by a change in Quality of Service. |

C Conditional (The IE shall be sent, if available).

***** End of Document *****

CHANGE REQUEST

⌘ **23.078 CR** 303 ⌘ rev ⌘ Current version: 4.0.0 ⌘

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title: ⌘ Inclusion of warning note for the reporting of total duration or volume for GPRS

Source: ⌘ CN2

Work item code: ⌘ CAMEL3 **Date:** ⌘ 18 May 2001

Category: ⌘ A **Release:** ⌘ Rel-4

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)

Use one of the following releases:

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- R99 (Release 1999)
- REL-4 (Release 4)
- REL-5 (Release 5)

Reason for change:⌘

Current Situation

The SCP may request the SGSN to send a charging report when certain data volume or time duration thresholds have been reached. This request is made through the ApplyChargingGPRS CAP operation. The charging report from SGSN to SCP is sent in the ApplyChargingReportGPRS CAP operation.

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Problem Description

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Clauses affected: 6.6.1.2

Other specs affected:

- Other core specifications ⌘
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Other comments:

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***** End of Document *****