3GPP TSG CN Plenary Meeting #19 **NP-030072**
12th - 14th March 2003. Birmingham, U.K.

Source: **MCC**

Title: **All LSs sent from CN3 since TSG CN#18 meeting**

Agenda item: **6.3.1**

Document for: **INFORMATION**

Introduction:

This document contains **5 approved** LSs sent from **TSG CN WG3**, and are forwarded to TSG CN Plenary meeting #19 for information only.

Tdoc #	Tdoc Title	LS to	LS cc	Attachment
N3-030142	LS reply to CN4 on Proposed Split Of Work between 29.163 and 29.332	CN4	-	-
N3-030170	Reply LS on "Procedure for specifying UMTS QoS parameters per application"	SA4, RAN2	SA1, SA2, RAN4, T1	-
N3-030184	LS Handling of DTMF in IMS	CN1, SA4	-	N3-030099
N3-030186	LS on Handling of the SDP "inactive" direction attribute.	SA5	CN1	-
N3-030188	LS on "Not allowing token changes for a PDP context"	SA2	SA5, CN1	-

3GPP TSG-CN WG3 Meeting #27 **Tdoc N3-030142**
Dublin, Ireland, 10th - 14th February 2003.

Title:	**LS reply to CN4 on Proposed Split Of Work between 29.163 and 29.332**
Response to:	**LS (N4-0302550) from CN WG4**
Release:	**Rel-6**
Work Item:	
Source:	**CN3**
To:	**CN4**
Cc:	**-**

Contact Person:
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Attachments: none.

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1. Overall Description:

CN3 thank CN4 for their LS on the split of work for the IMS-CS TSs. After a short discussion it was agreed that the work split should follow the same approach as for the 23.205/29.232 specifications as proposed by CN4. CN3 will take this into account when reviewing drafts submitted to this meeting, ensuring that the proposed approach is adopted for revisions and later drafts to 29.163.

2. Actions:

None.

3. Date of Next CN3 Meetings:

CN3_28	**19th - 23rd May 2003**	**San Diego, USA.**

3GPP TSG-CN WG3 Meeting #27 **Tdoc N3-030186**
Dublin, Ireland, 10th - 14th February 2003.

Title: **LS on Handling of the SDP "inactive" direction attribute.**
Release: **Rel-5 / Rel-6**

Source: **CN3**
To: **SA5**
CC: **CN1**

Contact Person:
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1. Overall Description:

CN3 is responsible for implementing the service based local policy at the Go interface between GGSN and P-CSCF(PDF).

Furthermore, in TR 29.962 CN3 is investigating the interworking between non-3GPP compliant SIP clients, which may not support the SIP precondition extension, RFC 3312, and SIP clients within the 3GPP IP multimedia subsystem.

At the Go interface, the "inactive" attribute may impact on the Approval and/or Removal of QoS commit at the PDF.

The handling of the "inactive" attribute with respect to charging and the Go interface may have interdependencies.

2. Actions:

To SA5 group.

ACTION: CN3 kindly asks SA5 to provide information on how the "inactive" attribute is handled with respect to charging in Rel.5 and Rel.6.

3. Date of Next CN3 Meetings:

CN3#28	19th – 23rd May 2003	San Diego, USA.
CN3#29	25th - 29th August 2003	Sophia Antipolis, France.

3GPP TSG-CN WG3 Meeting #27 **Tdoc N3-030099**
Dublin, Ireland, 10th - 14th February 2003.

Source: **Siemens**

Title: **Handling of DTMF**

Agenda item: **10.2**

Document for: **Discussion and Approval**

Introduction

This contribution discusses the handling of DTMF in the IM-MGW and MGCF.
It provides some suggestions how the hardware requirements for the IM-MGW could be reduced. Parts of those suggestions would have to be implemented in TS 24.229 of CN1 and TS 26.235 of SA4, but an agreement in CN3 on this issue is desirable before involving these groups.

Current Status in Standards

Transport in IMS

According to TS 24.229, DTMF shall be transported within the IMS as a user-plane media flow. The RTP payload specified in RFC 2833 shall be applied.

RFC 2833 defines two RTP payload formats:

- Mime-type "telephone-event" features a logical description ("tone x"). All implementations supporting this format shall support events 0-15 ("0"-"9", "*", "#", "A"-"D"). Additional supported events may be expressed by optional parameters (that can be included in SDP in an "fmtp" line).
- Mime-type "audio" features a physical description ("frequency y")

3GPP specifications do not specify which of these formats shall be applied.

Signalling in IMS

Before DTMF can be used, a suitable media flow must be negotiated via SIP/SDP.

According to TS 24.229, Section 6.1, bullet 7, *"The UE shall include the DTMF media format at the end of the "m=" media descriptor in the SDP for audio media flows that support both audio codec and DTMF payloads in RTP packets as described in RFC 2833"*.

E.g. SDP offer from UE to MGCF:

```
m=audio 3456 RTP/AVP 97 98
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:98 telephone-event
```

An MGCF supporting DTMF would send the same SDP as answer to the UE, since it is not able to determine if the UE wishes to send voice or DTMF.

```
m=audio 5432 RTP/AVP 97 98
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=rtpmap:98 telephone-event
```

The IM-MGW needs to be prepared to receive either AMR-encoded voice or DTMF PDUs on the same UDP port 5432. The RTP payload type distinguishes the PDUs, and DTMF and speech can be received simultaneously.

The suggested SDP negotiation is well suited to be performed at session set-up (initial INVITE), since it allows sending DTMF at any time during the call without additional signalling. Since an DTMF capable UE has no means to determine at session set-up time is DTMF will be used for a given call, it probably will always negotiate DTMF encoding together with speech encoding for a conversational audio media flow.

Transport on PSTN side

In BICC networks, DTMF is transported either out-of-band, or as tones in speech encoding (which is different to the encodings defined in RFC 2833) within the user plane.

In ISUP networks, DTMF is transported as tones in speech encoding within the user plane.

Thus, the IM-MGW must either provide some kind of transcoding to interwork DTMF (if DTMF is transported in-band at the PSTN side), or pass/receive DTMF to/from the MGCF.

Discussion

Reduction of payload options

It is not specified by 3GPP, which of the mime types defined in RFC 2833 ("telephone-event" or "tone"), as well as possible additional options for the media type shall be supported. Consequently, the IM-MGW may need to support both media type and all options. It is desirable to reduce the range of possibilities to simplify the implementation at the IM-MGW.

The "telephone-event" mime type with the default events is well suited for the processing of DTMF at the IM-MGW, as it interacts well with the signalling at the Mn interface (for out-of-band DTMF in BICC networks), as well as with tone generators or detectors (for in-band signalling at the PSTN side). The "telephone-event" mime type also seems to be well suited for the handling of DTMF in the UE. For DTMF, the default events of the "telephone-event" mime type are sufficient.

It is therefore suggested to ask SA4 to recommend the usage of the "telephone-event" mime type with default events for DTMF in TS 26.235.

For mobile originating DTMF, the UE selects the media type to be applied. It is suggested to ask CN1 to recommend that the UE uses the "telephone-event" mime type with the default events.

For DTMF terminating in the IM CN subsystem, the MGCF may select the media type and options in the SDP offer. It is suggested to state in TS 29.163 that the MGCF shall use the "telephone-event" without optional parameters in an SDP offer for DTMF terminating in the IM CN subsystem.

Reduction of hardware requirements at IM-MGW

As outlined above, the current statements in TS 24.229 make it probable that an IM-MGW has to be capable to handle DTMF at any instance during a mobile terminating call for a high percentage of calls. This may require dedicated hardware to be reserved during the entire call.

Those hardware requirements could be considerably reduced, if the IM-MGW could be notified via out-of-band signalling prior to the sending of DTMF. This is possible if the UE uses a re-INVITE or UPDATE during the session to set up a DTMF media flow only when required.

A typical DTMF usage pattern does not require voice to be transmitted together with DTMF in the same direction, while voice in the opposite direction is frequently encountered (e.g. for user guidance). Assuming this usage pattern would remove the requirement to receive DTMF and voice simultaneously, possibly allowing additional hardware savings at the IM-MGW.

Assuming this usage pattern would also reduce the requirements for the UE. Although DTMF terminating in the UE is hardly to be expected (and will probably not be supported in most implementations), the SDP offer-answer exchange currently suggested by CN1 (see above) allows mobile terminating DTMF to be sent.

Suitable media flows for mobile originating DTMF may be established by the following SDP within a Re-INVITE or UPDATE:

E.g. SDP offer from UE to MGCF:

```
m=audio 3456 RTP/AVP 97            ! existing media flow
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=recvonly
m=audio 3458 RTP/AVP 98
a=rtpmap:98 telephone-event
a=sendonly
```

SDP answer MGCF to UE.

```
m=audio 2456 RTP/AVP 97
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=sendonly
m=audio 2458 RTP/AVP 98
a=rtpmap:98 telephone-event
a=recvonly
```

If the user resumes speaking or does not enter DTMF for some time, the DTMF media flow way again be deactivated and the speech media flow be me bi-directional with another re-INVITE or UPDATE:

E.g. SDP offer from UE to MGCF:

```
m=audio 3456 RTP/AVP 97            ! existing media flow
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=sendrecv
m=audio 0 RTP/AVP 98
```

SDP answer MGCF to UE.

```
m=audio 2456 RTP/AVP 97
a=rtpmap:97 AMR
a=fmtp:97 mode-set=0,2,5,7; maxframes=2
a=sendrecv
m=audio 0 RTP/AVP 98
```

Summary of Suggestions

It is suggested to

- propose to SA4 to recommend the usage of the “telephone-event” mime type with default events for DTMF in TS 26.235.
- propose to CN1 to recommend that the UE uses “telephone-event” mime type with the default events for mobile originating DTMF.
- propose to CN1 to recommend that the UE uses a re-INVITE or UPDATE to set up an DTMF media flow only when required as described above.
- send an LS to CN1 and SA4 with the present contribution attached.
- state in TS 29.163 that the MGCF shall use the “telephone-event” without optional parameters in an SDP offer for mobile terminating DTMF

3GPP TSG-CN WG3 Meeting #27 **Tdoc N3-030184**
Dublin, Ireland, 10th - 14th February 2003.

Title: **LS Handling of DTMF in IMS**
Release: **Rel-6**

Source: **CN3**
To: **SA4, CN1**

Contact Person:
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Attachments: N3-030099 **[Handling of DTMF]**

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1. Overall Description:

TSG CN3 is responsible for the specification of the IM-MGW and MGCF and investigated the handling of DTMF in these network entities.

CN3 feels that it is desirable to limit the implementation effort for, and processing load in, these network entities.

CN3 agreed that it is desirable to implement the following principles in the appropriate 3GPP specifications:

1. Only the support of the MIME type "telephone event" with default events should be recommended. The support of additional events for this MIME type and MIME type "audio" also defined in RFC 2833 is not required within the 3GPP IMS.
2. For DTMF originating in the IMS, it is desirable that the MGCF is notified with an appropriate SDP offer for "telephone event" DTMF encoding immediately before the DTMF is being sent to avoid that the MGW permanently reserves dedicated hardware to handle DTMF for all outgoing calls.
3. The support of DTMF terminating in the IMS is not required at the IM-MGW.

More details can be found in the attached discussion document. The suggestions in this document were agreed by CN3.

2. Actions:

To SA4 group.

ACTION: CN3 kindly asks SA4 to consider incorporating the suggestion 1 above in their appropriate specifications, e.g. TS 26.235, and to inform CN3 it they agree with the suggestion.

To CN1 group.

ACTION: CN3 kindly asks CN1 to consider incorporating the above suggestions in their appropriate specifications, e.g. TS 24.229, and to inform CN3 it they agree with the suggestions.

3. Date of Next CN3 Meetings:

CN3#28	19th – 23rd May 2003	San Diego, USA.
CN3#29	25th - 29th August 2003	Sophia Antipolis, France.

3GPP TSG-CN WG3#27 **Tdoc N3-030170**
Dublin, Eire, 10th - 14th February 2003.

Title:	**Reply LS on "Procedure for specifying UMTS QoS parameters per application"**
Response to:	**LS (N3-030019 / S4-020719) on Final response to LS on "Procedure for specifying UMTS QoS parameters per application" from SA4**
Release:	**Rel-5**
Source:	**CN3**
To:	**SA4, RAN2**
Cc:	**SA1, SA2, RAN4, T1**

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1. Overall Description:

CN3 thanks SA4 for the new and updated information for conversational multimedia application provided in the LS S4-020719 (N3-030019).

Some of the information contained in the Annex B of TS 26.236 ("Mapping of SDP parameters to UMTS QoS parameters") after the CR1rev2 (SA4-020718) has been detected as unclear or even incorrect. CN3 is sending this LS to point out those items.

Although this is only an informative annex, it is likely that this mapping will be taken as standard or, at least, as a strong guidance by operators and vendors and could be expected to be used in field configurations and IOT testing. Therefore we consider important the clarification of the following points:

1. Traffic handling priority (THP) is only applicable for interactive class, and the annex B exclusively refers to conversational class. Therefore, that parameter should be removed from the tables shown.

2. Allocation/Retention priority is said to have the value of “subscribed traffic handling priority”. THP is not applicable for conversational class. Allocation/Retention should be set to “subscribed A/R priority”.

3. Transfer delay. It is not clear if this parameter is referring to the end-to-end delay or only to the UMTS bearer. We believe that the transfer delay is referring only to the UMTS bearer and in that case 100ms is enough and a correct value, but this should be clarified to avoid confusion.

2. Actions:

To SA4 group.

ACTION: CN3 kindly asks SA4 group to check the issues mentioned above and correct them if appropriate.

3. Date of Next CN3 Meetings:

CN3_28	19th –23rd May 2003	San Diego, USA.

3GPP TSG-CN WG3#27 **Tdoc N3-030188**
Dublin, Eire, 10th - 14th February 2003.

Title: **LS on "Relationship between IMS sessions and a PDP context"**
Response to: **S2-021311rev3/ N3-020461**
Release: **Rel-5**

Source: **CN3**
To: **SA2**
Cc: **SA5, CN1**

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Attachments: None

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1. Overall Description:

In a previous LS from SA2 (S2-021311rev3/ N3-020461) CN3 was informed about a CR to TS23.228 introducing the following text: "*It is assumed that media components from different IMS sessions are not carried within the same PDP context."*
CN3's interpretation of this is that a PDP context that has been used by an IMS session subject to SBLP cannot be reused by other IMS sessions. This has been a working assumption in CN3 during the specification of the Go interface for Rel-5. This restriction has allowed some simplifications, e.g. in the related mechanism for charging correlation.

Note:
The Go interface protocol is prepared to handle media flows from multiple IMS sessions per PDP context, should that become a requirement in future releases. However, all procedures for this functionality are not completed for Rel-5. This was aimed to be aligned with the above mentioned LS from SA2.

2. Actions:

To SA2 group: CN3 kindly asks SA2 group to confirm that the above working assumption on disallowing the reuse of a PDP context holds for IMS Rel-5.

3. Date of Next CN3 Meetings:

CN3_28	19th –23rd May 2003	San Diego, USA