3GPP TSG CN Plenary, Meeting #11 ***Tdoc NP-010060***
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Source:	**CN4 Chairman (Yun-Chao.Hu@era.ericsson.se)**
Title:	**Status Report from TSG-CN WG4**
Agenda item:	**6.4**
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1 Introduction

The CN4#06 Meeting has been held 15 – 19 January 2001 in Beijing, China, kindly hosted by Ericsson Sweden and Ericsson China. The meeting was chaired by Yun-Chao Hu (Ericsson) and Teemu Makinen (Nokia) and assisted by Kimmo Kymalainen (MCC). The meeting reviewed **206** documents and produced **43** CRs, **5** LSs and **1** WIs. In addition the meeting approved **32** input documents for the new drafts of the Technical Specifications.

The CN#04 Meeting Report, as documented in Tdoc NP-010061, has been approved by the CN4#07 meeting and is provided for information to the CN Plenary.

Two Joint Meetings have been held in addition to the regular CN4 meeting:

- **Joint Meeting CN3/CN4 #01;**
  The objective of this Joint meeting was to review the documents addressed to the WI CSSPLIT (also known as BICSCN) due to the interaction between the Mc and Nb interfaces. The joint expertise from CN3 and CN4 was proved usefull during the Nb discussions but the other aspects like the stage 2, Nc and most parts of the Mc interface did not benefit from the presence of both WGs.
- **Joint Meeting CN1/CN2/CN3/CN4 #01;**
  The objective of this meeting was to achieve a clearer understanding of the relationships between the Release 5 activities on stage 2 (TS 23.228, 23.218), stage 3 – SIP (Ts 24.228, 24.229) and the Cx interface. Co-ordination of this was required since a number of CN WGs was involved in this area (i.e. CN1, CN2, CN4). The main issue that was requested for clarification was the issue of the service control interface.

  Another aspect that was discussed in the Joint Meeting was the IP Signalling Transport. The CRs submitted to this WI was allocated in different WGs but was very much related to each other.

A CN4 Release 4 Ad Hoc meeting has been taken place on 13-15 February 2001 in Madrid, Spain hosted by Ericsson Spain and Ericsson Sweden. The meeting was chaired by Yun-Chao Hu and assisted by Kimmo Kymalainen. The meeting reviewed **98** Documents and produced **13** CRs, **7** LSs and **19** input documents to new draft TSs. The Meeting Report (i.e. NP-010062) has been approved by CN4#07 and is provided to the TSG CN Plenary for information

The CN4#07 Meeting has been held from 26th of February till 2nd of March 2001, kindly hosted by ETSI in Sophia Antipolis, France. The meeting was chaired by Yun-Chao Hu and Teemu Makinen and assisted by Kimmo Kymalainen. The meeting reviewed **168** documents and produced **55** CRs, **2** LSs, **4** new Technical Specifications and **2** Work Items. The Meeting Report (i.e. NP-010063) has been provided to the TSG CN Plenary for information. This Meeting Report is still for approval on the CN4 Email list. Two Joint Meetings (i.e. CN3/CN4 #02 and CN1/CN2/CN3/CN4 #02) have taken place in addition to the regular CN4 meeting. The Joint Meetings had the same objectives as the Joint Meetings during the CN4#06 meeting. The Joint CN3/CN4 Meeting Report has been documented as Tdoc NP-010064

All the Liaison Statements that have been produced by CN4 are documented within Tdoc NP-010065. Input to the 3GPP Workplan has been provided and is already included within the submitted 3GPP Workplan (see Tdoc NP-010105)

2 Questions for Advice and Decisions

An issue has been raised during our previous CN4#07 meeting regarding coding schemes for the 3GPP Packages for the H.248/Megaco specification. Currently within the 3GPP specification only the binary encoding scheme has been used for the 3GPP specific H.248 Packages while the ITU-T & IETF has specified binary as well text encoding. More details are described in section 4.2

3 Change Requests

The CN4 meeting produced 111 Change Requests that are submitted for ratification. An overview of the CR packages is provided in Table 1.

Table 1 Agreed CN4 CRs submitted for ratification

NP-010066	*7.2*	*CRs for R99 WI "Camel Phase 3"*
NP-010067	*7.3*	*Security*
NP-010068	*7.6*	*TEI*
NP-010069	*7.13*	*GPRS 97*
NP-010070	*7.13*	*GPRS*
NP-010071	*7.14*	*GTP Enhancement*
NP-010072	*7.14*	*GTP Enhancement*
NP-010073	*7.14*	*GTP Enhancement*
NP-010074	*7.15*	*Handover*
NP-010075	*7.17*	*Location Services*
NP-010076	*7.17*	*Location Services*
NP-010077	*7.19*	*Multicall*
NP-010078	*8.1*	*MAP over IP according to SIGTRAN*
NP-010084	*8.10*	*TrFO*
NP-010085	*8.12*	*Location Services*
NP-010086	*8.14*	*Enhanced HE control of security*
NP-010087	*8.16*	*ODB Enhancement*
NP-010088	*8.16*	*TEI*

3.1 Release 99 and earlier

3.1.1 CAMEL Phase 3

The SS-CSI has been corrected for CAMEL Phase 3 within the information flows between the HLR and VLR. In addition also some duplicated parameters within the SS-CSI has been removed. Furthermore, EXPORT definitions has been extended with LsaIdentity and GeographicalInformation. Finally some corrections has been applied to the D-CSI. The CAMEL Phase 3 CR Pack has been documented in Tdoc NP-010066. **A number of the CRs are linked to CRs related to TS 23.078 and 29.078.**

3.1.2 Security

During inter-MSC Handover the MSC-A needs to know which security algorithm is applied by MSC-B. This fact is corrected within this CR Pack as documented in Tdoc NP-010067.

3.1.3 TEI

Two CRs has been agreed by CN4 that aligns the cause mapping between TS 25.413 and TS 08.08. These CRs are depending on approval. The CR Pack is within Tdoc NP-010068. **These CRs are linked to CRs submitted to 23.009 and 29.010.**

3.1.4 GPRS

GPRS R'97
The user error ("Roaming not Allowed") that is returned if the HLR is not reachable is not correct in the case that the MS tries to register in an SGSN when a GPRS roaming agreement has not been set up between the operators. The user error is corrected to Unknown HLR and this user error is correctly mapped to the GMM cause code. In addiiton to these corrections the Obtain Authentication Parameter in the SGSN has been extended by the error cause Unknown HLR if the SGSN cannot address the subscribers HLR. The CR Pack is within Tdoc NP-010069. **These CRs are linked to CRs against TS 03.60 and 23.060.**

GPRS R'99
A mis-implemented CR on the APN identified has been corrected. A clarification has been added on the End User Address handling for PDP type PPP. The CR pack is documented in Tdoc NP-010070.

3.1.5 GTP Enhancement

GTP Release 97
A clarification has been added that no padding nibble would be used between MCC and MNC if MNC is 2 digits long. The CR pack is documented in Tdoc NP-010071.

GTP Release 98
A reconfiguration of the IEs in the Create PDP Context Request message has been introduced in order to make it in ascending order. The CR pack is documented in Tdoc NP-010072.

GTP Release 99
A number of CRs has been submitted to correct various errors within the specification, such reordening of IEs, Error Handling and Indicators, Uplink TEID Data I information element added to PDP Context and sequence numbering. The CR pack is documented in Tdoc NP-010073. **2 CRs (CR 29.060-155R4 and 186R1) are linked to CRs on TS 23.060.**

3.1.6 Handover

The Target RNC Id was missing in the description of the intersystem MSC Handover procedures. This has been included in the specifications TS 29.002 and 29.010. The CR pack is documented in Tdoc NP-010074. **The CRs are linked to the stage 2 CR on TS 23.009.**

3.1.7 Location Services

LCS R'98
The LocationSvcEnquiryContext contains two operations: ProvideSubscriberLocation (GMLC-> MSC) and SubscriberLocationReport (MSC->GMLC). Currently 09.02 allows this AC to be initiated by GMLC although also the MSC shall be able to initiate this AC. The "notification to MS User" subscription data has been added to the call related LCS provacy class to align the stage 2 and stage 3 documentation. The CR pack has been documented in Tdoc NP-010075.

LCS R'99
The procedure of Retrieve Current Location (VLR) has been corrected for an error within the SDL diagrams. Currently the term SAI is defined twice in 23.003 and the use of the word “uniquely” in the second definition is misleading. Furthermore, the usage of multiple service areas per cell is not well defined or supported in the UTRAN protocols, so the flexibility implied by the definition is limited. In addition, one of the references to 25.413 should be to 25.401 and the reference to “Release 99” is not future-proof. The resulting CR Pack is within Tdoc NP-010076. **The 23.003 CR is linked to CRs on TS 25.413, 25.423 and 25.419.**

3.1.8 Multi Call

RAB-id is specified in 25.413 and there the size is BIT STRING (SIZE (8)). That means that the maximum number of RAB-id's is 255 instead of 256. The multicall bearer information is conditional parameter but the conditions for the use are missing. The resulting CR Pack is documented in Tdoc NP-010077.

3.2 Release 4

3.2.1 Evolutions of the transport in the CN

Reference to the new TS 29.202 (IP Signalling Transport) is added in order to describe how MAP can be transported over SS7 signalling networks. The resulting CR Pack is documented in Tdoc NP-010078. **No other CRs are linked to this CR. The coversheet needs to be corrected.**

3.2.2 Transcoder-Free Operation (TrFO)

The current TS 23.153 has been alligned with the current status of the BICC CS-2 procedures, mainly in the area of Codec Modification procedures. Furthermore, certain aspects, such as Interaction with CCBS, establishment of additional Calls, inter-MSC SRNS Relocation and Iu Initialisation. Furthermore some textual improvement has been added to the document. The resulting CR Pack is documented within Tdoc NP-010084.

3.2.3 Location Service Enhancements

This CR Pack introduces the LCS for the PS domain. The approach taken is to enhance the Supplementary Service protocol to add the support for LCS within the PS domain. The subscription data management has been enhanced to include the support for LCS for the PS domain based on the LCS stage 2 documentation. The MS presence notification has been added to re-initiate the Location Retrieval procedure when it was failed previously due to MS unreachable. Finally, a maximum of 40 LCS clients has been introduced. In this way the future enhancements and private extensions has been considered. The resulting CR Pack is documented within Tdoc NP-010085. **Two CRs are depending on the approval of other CRs, one on CR to TS 24.007 and another on the LCS stage 2 document TS 23.071**

3.2.4 Security Enhancements

CN4 decided to include the type of the requesting node in a request for authentication sets, based on requirements from SA3. The resulting CR Pack is documented within Tdoc NP-010086. **The CR is linked to the stage 2 CR to TS 33.102**

The MAP Application level security has been already introduced within the TS 29.002. However, from the latest LS from SA3 the network domain security has been postponed to at least Release 5. Therefore, CN4 will submit a CR to the CN Plenary #12 to remove this security feature from the R4 29.002.

3.2.5 Any otherR00 WI

Operator Determined Barring for PS Domain

The ODB Enhancements have been introduced to the service stage 2 description, the subscriber data management and the protocol. The resulting CR Pack has been introduced in Tdoc NP-010087.

Linked CRs to stage 1 and stage 2 specifications are missing on coversheet. This relationship needs to be reflected on the CR coversheet

Technical Enhancements and Improvements

A number of modifications has been applied to Multi Party Call, Explicit Call Transfer and Call Waiting procedures. The resulting CR Pack has been introduced in Tdoc NP-010088

4 Technical Specifications

Four new Technical Specifications have been agreed by CN4 and are submitted to the CN Plenary for approval (see Table 2).

Table 2 CN4 TSs submitted to the TSG CN#11

NP-010079	8.1	*TS 29.202 v. 2.0.0 SS7 Signalling Transport in Core Network; Stage 3*
NP-010081	8.3	*TS 23.205 v. 2.0.0 Bearer Independent CS Core Network; Stage 2*
NP-010082	8.3	*TS 29.232 v. 2.0.0 Media Gateway Controller (MGC) - Media Gateway (MGW) Interface; Stage 3*
NP-010083	8.3	*TS 29.205 v. 2.0.0 Application of Q.1900 Series to Bearer Independent CS Core Network Architecture; Stage 3*

4.1 Evolutions of the transport in the CN

CN4 has developed a new TS 29.202 "SS7 Signalling Transport in Core Network; Stage 3" which addresses the usage of several transport technology for the SS7 signalling, i.e. MTP, ATM and IP. Ragarding the usage of IP Transport, CN4 agreed only to address the M3UA protocol of the Sigtran Framework.

The version of M3UA that is currently included within a normative Annex of TS 29.202 is version 6.0 which will be replaced by a direct reference in section 2 of the main body once the RFC number has been assigned. At this moment the M3UA is under WG Last Call within the IETF Sigtran WG till the 27th of March 2001.

The new TS 29.202 is provided in Tdoc NP-010079 for approval by TSG CN into version 4.0.0.

4.2 Enable bearer independent CS architecture

CN4 has produced three new Technical Specifications, i.e. TS 23.205, TS 29.205 and TS 29.323. TS 23.205 describes the stage 2 of the Bearer Independent CS Core Network, which includes the architecture, Mobile Call Procedures, Handover, (G)MSC-MGW procedures and Interactions with Services and Network Capabilities.

TS 29.232 describes the stage 3 aspects of the (G)MSC-MSC interface (Mc). The stage 3 of the Mc interface is based on the usage of H.248/Megaco but a number 3GPP specific H.248 packages has been added in addition to the standard H.248 and BICC Packages. The 3GPP specific packages are 3G UP, TFO, Call Progress Indicators and CS Data.

The 3GPP packages are binary encoded and the text encoding is intended to be provided to the next CN Plenary #12. However, the majority within CN4 expressed their clear preference to have only one encoding scheme for the 3GPP packages to avoid discrepancies between both encoding schemes. Even a large number of delegations requested to use the already specified encoding scheme (i.e. binary) for the 3GPP Packages. One delegation stated that they would like to add the text encoding to the current binary encoding specification. Even tey made it clear that discrepancies between the binary and text encoding shall be allowed.

One other issue has been raised that the current text encoding can not express the fixed terminations, i.e. based on TDM circuits. It is realised that this needs to be worked outside 3GPP since it is related to the media streams within SDP (i.e. local and remote descriptors).

TS 29.205 describes the applicable ITU-T Recommendations of the Bearer Independent Call Control Recommendation suite. It contains the Call Control, IP Bearer Control and the H.248 BICC Packages.

The TS 23.205, 29.205 and 29.323 are provided as Tdocs NP-010081, NP-010083 and NP-010082 respectively. These Tdocs are intended for approval by TSG CN into version 4.0.0.

5 Work Item Management

Three Work Items have been agreed by CN4 and are submitted to the TSG CN Plenary for approval. The list of Work Items are provided in Table 3.

Within the Joint CN3/CN4 meeting it was agreed to move the GTP responsibility towards CN3. The reason for this is a better work load distribution and also since CN3 is responsible for QoS with association to IPMM. It is expected that this will be the main driver for GTP modifications within Release 5. This arrangement will be re-evaluated during CN4#11 to check if the transfer was the right choice to be done.

Table 3 CN4 WIs submitted to the TSG CN#11

NP-010080	8.3	Work Item Description for Bearer Independent Circuit-Switched Core Network
NP-010089	8.16	Work Item Description for Release 4: ODB (Operator Determined Barring) for Packet Oriented Services
NP-010090	9.7	FS on SS7 signalling transportation in the core network with SCCP-User Adaptation (SUA)

5.1 Evolutions of the transport in the CN

The WI description for a Feasibility Study on SS7 signalling transportation addresses an investigation on the usage of SUA for IP Transport. However, the WI did not receive four supporting companies but CN4 considered the Feasibility Study still necessary for Release 5. Therefore, it is asked the TSG CN Plenary to identify 2 additional companies to have the requested 4 supporting company. Indeed, if no four supporting companies can be identified then the WI description shall be rejected according to the 3GPP procedures.
Tellabs (i.e. Brian Yarger) directly exposed on the CN4 email list and to myself that they would like to be added to the supporting companies list.

5.2 Enable bearer independent CS architecture

The WI description for Bearer Independent Circuit-Switched Core Network has already been approved by the TSG CN Plenary #09 i.e. NP-00xxxx, but it has been modified to reflect the changes that were identified after TSG CN#09, such as Rapporteur, additional new draft TS, etc. This WI description has been reviewed in the Joint CN3/CN4 meeting. The WI description is documented in Tdoc NP-010080 and is submitted for approval by TS CN.

5.3 Operator Determined Barring for PS Domain

The WI description for the ODB for Packet Oriented Services was presented at the TSG CN#10 but was requested to have a more detailed review at CN4. CN4 agreed to the WI description and submits it to the TSG CN for approval. The WI description is documented in NP-010089

6 CN4 Calendar

3GPP N4 Meeting	Date	Place	Host
N4#06 Joint meeting CN3/CN4	15-19 January 2001 16-17 January 2001	Beijing, China	Ericsson China, Ericsson Sweden
N4 Release 4 Ad Hoc	13.15 February 2001	Madrid, Spain	Ericsson
N4#07 Joint meeting CN3/CN4	26 February -2 March 2001 1 March 2000	Sophia Antipolis, France	ETSI
N4 Release 4 Ad Hoc (if needed)	**18-20 April 2001**	**T.B.A.**	**T.B.A.** **(confirmed 4 April)**
N4#08 **Joint Meeting CN3/CN4** **Chairman Election** **Vice Chairman Election**	**14-18 May 2001** **T.B.A.** **15 May 2001** **17 May 2001**	**Puerto Rico, USA**	**The North American Friends of 3GPP**
N4#09	**09-13 July 2001**	**Dresden, Germany**	**Mannesmann**
N4#10	**15-19 October 2001**	**Brighton, UK**	**Vodafone, BT**
N4#11	**26-30 November 2001**	**USA**	**The North American Friends of 3GPP**

7 AOB

CN4 has agreed to use DIAMETER for the Cx interface within the IPMM for all different functionality classes, i.e. subscriber data management, user authentication & authorisation and location management.

8 Acknowledgements

I would like to thank Teemu Mäkinen for his support as the vice-chairmanship of CN4 and chairing of some sessions of CN4 meeting. I would like to thank Kimmo Kymalainen for his excellent support to the N4 community and Teemu and myself specifically.

I would like to thank all the participants for their hard work and sometimes patience. I would like to thank also all the editors who had challenging time constraints to provide the documents.

And at last but not least I would like to thank all the hosts for their excellent arrangements for our meetings and I hope that we can still rely on the volunteership of the hosts for future meetings. Without the co-operation of the hosts the 3GPP CN4 meetings would be less effective and efficient in performing their tasks to deliver the specifications according to time schedule.

Finally, we have noted that Teemu is resigning as vice-chairman due to changes of his function within Nokia. I and I am sure whole CN4 sees him with regret going but we all hope all the best in his new function.

As you can see from the meeting schedule, I have also announced to step down as chairman of CN4. This is due to my changed function in my department at Ericsson.