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3GPP Workshop on TrFO and TFO harmonization N4-000133
Stockholm, Sweden
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Source: **MCC (Franco Settimo)**

franco.settimo@etsi.fr

Title: **Meeting report**

Document for: **Information**

Agenda item	Agenda item title	Tdoc 3GPP N4-00	Title	Source	Result	
1	**Opening and agenda**	**110**	**Proposed agenda**	**N4 Convenor**	Agenda was approved.	
2	**Document allocation**	**111**	**Proposed document allocation**	**N4 Convenor**	Two more agenda items were included, to cope with specific requirements from the delegates in view of a more accurate document allocation.	

3	**Reporting from WGs**				Delegates from each Working group were requested to give a short stauts overview (no written documents available). **S4**: current working assumption is that mobile connections between UMTS mobile and GSM mobile will be TFO. Most likely not all networks will implement all the possible variety of AMR. It is the correct time to harmonise TRFO and TFO issues. **N4**: decided to standardise TrFO for R00. Only the user framing protocol to be chosen was discuused after this decision. Stage 2 document seem to be quite stable form N4 perspective, although contributions are expected from other working groups, S2 in particular. **R3**: ongoing discussions are related to release 99, not yet started for Release 00. User & Control Plane procedures related to the Codec Commands to UE. No solutions for TrFO and TFO but a number of principles were identified: - System wide solution. This needs to be addressed by workshop - Protocol layers independent as much as possible - TrFO & TFO should be aligned, if possible. Seems to be achievable Existing Iu control procedures needs to be reused – light weight as possible Alcatel raised the point of the applicability of the issues to R99, not only to R00, and of the consequent implications on compatibility. If basic decisions arise, they should be implemented already in R99, to avoid further compatibility problems. According to the Chairman, this kind of decisions is strategic, and should be handled by SA and CN plenaries. NTT DoCoMo Europe reminded that S2 agreed to have TrFO as a R00 issue with a June 2000 deadline target.	
4	**Liaison Statements**				None received	

5	**Technical Issues**	**112**	**Scope of TrFO R00**	**NTT DoCoMo**	Reviews the situation of TrFO, proposing that only UMTS-UMTS connection should be a scope of TrFO R00. AMR codecs have been also standardised in ITU-T and companies might be interested in implementing them. The combination of networks should not be an essential issue. When the Chairman proposed to note the document, NTT DoCoMo highlighted that they are proposing an activity phasing to meet the June target. Alcatel did not agree in the artificial exclusion of things that might be achieved for free. Siemens observed that some of the excluded issues by NTT DoCoMo are not so difficult to implement and that phasing does not really add significant advantages. Ericsson asked clarification on UMTS-UMTS calls: according to NTT DoCoMo, intermediate networks are included. Alcatel clarified that in case of direct interconnections with Operators, the issue should be ruled by inter Operator agreement and, consequently, should not be excluded by the study. To avoid confusions, a new term seems necessary for cascading Transcoder Free and Tandem Free operations (**Action Point to S2**): the term TrFO should be applicable only when there is no transcoder involved in the connection. S2 also needs to identify the corresponding scenarios. In summary, the meeting did not agree with the proposed restriction of UMTS-UMTS, but preferred to keep it open to include the UMTS-Fixed and UMTS-GSM interconnections, i.e. the restrictions proposed by NTT DoCoMo were not agreed by the floor.	
		113	**Open issues of TrFO R00**	**NTT DoCoMo**	A list of open issues on TrFO were listed by NTT DoCoMo. When the Chairman proposed to note the document, NTT DoCoMo highlighted that the document is "for Action". Eventually, however, the document was noted. Open issues need to be addressed and allocated to each working group. In particular, it was highlighted that other open issues exist, and that consequently the list needs being completed.	

5.1	**Architectural Issues**	**121**	**Proposed R00 requirements for the User Plane protocol**	**Alcatel**	For discussion and decision. The contribution highlights the need to apply the ITU-T I.366.3 protocol to the User Plane in the Core Network protocol. It is proposed to introduce the listed requirements in 3G TS 23.821. Also proposed to add the following requirements: • The User Plane protocol interworking with other networks, if needed (e.g. no TrFO possible), shall be performed at the border of the PLMN. • The same User Plane protocol shall work on top of AAL2 transport and IP transport as well. • It is the working assumption that Iu User Plane protocol shall be selected to transport speech and CS data services on the Iu interface and within the Core Network (up to the border of the PLMN if TrFO is not possible or up to the remote RNC if TrFO is possible). Ericsson found the contribution interesting, although concerned that implementation might be expensive. Alcatel observed that in normal operations the N point of the user plane is at the end of the Core network, in other situations it is in the Visited MSC. User plan framing can be decoupled from the Core network protocols. This assumption was agreed by the floor. Evolution of solutions needs to be considered as well. Ericsson mentioned that Iu Framing protocol needs to be on top of RTP. They also mentioned that BICC supports the IP. Cost issue was raised and it was stated that Framing on top of RTP is as well costly. Siemens seconded Alcatel as well as DoCoMo and NortelNetworks. Ericsson questioned the correctness of the architecture. First MGW needs to address the codec issue. Due to TrFO Break the first MGW needs to be the end-point. RANAP procedures need to allocate the bearer and therefore the initialisation needs to be addressed. Coupling of U and C Planes. Functional differentiation. Different set of requirements. Siemens mentioned that RNC – RNC interaction to argue for framing protocol in the CN. Advantage of BICC on top of RTP is already an ongoing activity within IEEE.	

		114	**User plane protocol used in the CN**	**NTT DoCoMo**	Requirements for User plane protocol are contained in the document. NTT DoCoMo proposes that Iu User Plane protocol, which is defined as TS 23.415, is used as the User plane protocol between serving networks at least in UMTS-to-UMTS case, and that it is transferred transparently between serving RNCs. Frame Quality Classification indicator seemed to be a mandatory requirement, even if it requires further work on layer 2 of UTRAN, which transports the information. An LS to R2 will be drafted by Ericsson (Martin). Ericsson believes that time alignment between the RNC and the node where transcoding is performed, although not listed in the document, is also a requirement. It was agreed that we need to address the issue of different codecs supported by the Core Network. Considerations on single or multiple user plane protocols needs also to be addressed (**Action Point to N4**) as well as Cascading of different user planes in the Core Network (Alcatel).	
		127	**Framing protocols in TrFO scenarios**	**Ericsson**	The Tdoc proposes to select transport specific solutions for CN interfaces and to define proper interworking between Iu framing and the transport specific solutions, if required. It is also suggested to make DTMF outband in BICC CS2. Support to use Iu framing protocol was given by many companies, and this could be the working assumption. As a second priority, assuming ATM based Core Network, I.366 seemed acceptable as a protocol between Core Networks. For IP networks, no assumption is made for the time being. It was noted that a Work Item needs to be consequently created.	
5.2	**TrFO Break Issues**	**116**	**TrFO break and return to TrFO**	**NTT DoCoMo**	A list of open issues is listed in the document. Ericsson observed that the separation of call control and bearer control was not analysed thoroughly. The list was agreed but WG responsibility was not enough accurate and it was proposed to postpone it.	

		122	**Procedure to be used for TrFO break**	**Alcatel**	The document proposes to adopt the working assumption that TrFO break (e.g. during a UMTS-GSM handover) is solved by an in-band solution. This in-band solution means an evolution of the Iu UP in order to be able to re-negotiate the Iu UP parameters when inserting a new transcoding equipment in a TrFO communication. Delegates agreed in principle with the proposal, but details need further discussion. Nokia observed that length and duration of the break, as disturbance to normal service, need to be specified. R3 needs to be mandated with the detailed work but N1 and N4 need to guide R3 by specifying requirements.	
		125	**Procedure for TrFO break (in band vs out of band)**	**NTT DoCoMo**	The document proposes to select the out of band approach as a solution of TrFO break. Ericsson observed that addition of signalling to handover is clearly a problem, and that the proposed solution, furthermore, implies a lot of work.	
		126	**TrFo Break**	**Ericsson**	The contribution addresses the architecture that should be standardised for R00 and its handling for TrFO Break. A change to the architecture seems to be the solution proposed by Ericsson. RFCI parameters should be available at the serving Media Gateway or MSC: requirement expressed during the meeting. N1 and N4 shall decide (and inform R3) on the need for termination and where to terminate, if additional capabilities are required. If the Iu interface is terminated at serving MGw or MSC, then CN is responsible for the solutions.	
		118	**TrFO and basic cs-relocation**	**Siemens**	The document gives a collection of thoughts and ideas to the *TrFO & SRNS Relocation* theme, asking for comments and further proposals. Delegates were encouraged to look at the proposal in more detail. The document was noted.	

5.3	**TrFO/TFO Harmonization**	**119**	**Architectural Requirements on TrFO in a R00 combined GSM/UMTS or GSM-only core network**	**Siemens**	Additions and corrections to 23.821 were proposed in the document. S2 will be asked to consider the additional text, with the changes *should* instead of *shall* and *If* changed into *I/f.*	
		120	**GSM A-Interface connected to UMSC using TFO - TrFO interworking**	**Siemens**	The documents presents a procedure for connecting the GSM BSS to the UMTS R00 core network using the Transcoder Free Operation (TrFO) mode. Alcatel noted that the figures might be refined to better reflect S2 decisions, but this does not influence the text proposal. Requirement n.1 in the conclusions was objected by NTT DoCoMo and was reformulated specifying that only UMTS transcoders with connections with GSM networks shall support also GSM codecs. Requirement n.2 needs further elaboration. In summary, both requirements were sent to e-mail discussion. No agreement on the 40 ms rate. The argument of harmonisation (in favour of 40 ms against 20 ms) did not convince NTT DoCoMo.	
		124	**Open issues for TrFO-TFO harmonisation**	**Ericsson**	The document contains a tutorial on TFO and TrFO and a list of open issues with the consequent recommendations. In particular, it seems realistic that both TFO and TrFO will be finalised in release 2000 for GSM and UMTS. **Action Point MCC**: to attach the document to the meeting report.	
5.4	**Access Sign & BICC**	**115**	**Active Codec Set negotiation and Notification**	**NTT DoCoMo**	No agreement was reached on the proposals contained in the Conclusions and the Annex. To be sent to e-mail discussion. The deadlines for e-mail discussion will be set by the Chairman by the end of the week. **Action point MCC**: to urge ETSI for the creation of a dedicated e-mail exploder	

5.5	**RAN Capabilities**					
5.6	**CN Capabilities**	**128**	**Multiple Access Support**	**Ericsson**		
		117	**How to handle Organisation Identifier**	**NEC**	To be discussed by N4.	
		121	**Proposed R00 requirements for the User Plane protocol**	**Alcatel**		
		127	**Framing protocols in TrFO scenarios**	**Ericsson**		
5.7	**UP version negotiation**	**123**	**Iu User Plane version negotiation for TrFO**	**Alcatel**	To be discussed by R3 and S2	
	Extension of the meeting				The Chairman requested to have an additional meeting, given the amount of documents not yet discussed at 8:00 p.m. The Chairman asked whether it was acceptable to have the next meeting in Japan (NTT DoCoMo and NEC declared to be available to host it). No suitable date for a meeting was agreed. Nokia proposed to have a look at the titles of the documents left and try to allocate them to the working groups: 117 is N4 issue. **Action POint MCC**: to forward it to Rotenburg ; 123 needs an architectural decision with impact on R3: agreed to send it first to R3, then to S2. 129 goes to R3 130 is for R3, R2, N1.	

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A N N E X A

LIST OF PARTICIPANTS

Name	Organisation	Tel.	e-mail
ÅBERG Fredrik	Ericsson	+358 9 299 2650	fredrik.aberg@ericsson.fi
BARUCH Yael	*IAEI*	+972-3-926-8752	Yael.baruch@ecitele.com
BAUER Rolf	Alcatel	+49 711 821 42241	RBauer@alcatel.de
BROOK Richard	Lucent Technologies UK	+ 44 1793 736185	rb39@lucent.com
DANIEL Liz	Lucent Technologies UK	+ 44 1793 883412	lizdaniel@lucent.com
DAVIDIAN Jean-Jacques	DoCoMo Europe	+33156883030	Davidian@docomo.fr
DROPMANN Ulrich	Siemens	+49 89 722 38458	ulrich.dropmann@icn.siemens.de
FENG Jie	3Com Corporation	+1 847 342 6247	jie_feng@3com.com
GRAF Leslie	Ericsson Radio Systems	+61 414 301 468	Leslie.Graf@ericsson.com.au
HELLWIG Karl	Ericsson Eurolab Deutschland	+49 911 5217-300	Karl.Hellwig@EED.Ericsson.Se
HODGES Phil	Ericsson Eurolab Deutschland	+49 1732995856	Phil.hodges@eed.ericsson.se
HU Yun-Chao	Ericsson	+46 8 508 781 53	Yun-Chao.Hu@era.ericsson.se
HURME Vesa	Nokia	+358951165066	vesa.hurme@nokia.com
IGARASHI Daisuke	NTT DoCoMo	+81 468 40 3332	igarashi@nw.yrp.nttdocomo.co.jp
ISRAELSSON Martin	Ericsson	+46 8 7641199	Martin.Israelsson@era.ericsson.se
LALOE Claire	Nortel Networks	+44 1628 434285	claloe@nortelnetworks.com
LANIG Eva Maria	Siemens		eva-maria.lanig@icn.siemens.de
LÄNSISALMI Atte	Nokia	+358407499026	atte.lansisalmi@nokia.com
LEPÄNAHO Henrik	Nokia	+358951165070	Henrik.lepanaho@nokia.com
MAUPIN Alain	Ericsson Radio Systems	+46 8 404 4379	Alain.maupin@era.ericsson.se
PEREZ Bob	Tellabs Operations, Inc.	+1 630 378 6525	Bob.Perez@tellabs.com
SAWADA Masahiro	NTT DoCoMo	+81 468 40 3332	masahiro@nw.yrp.nttdocomo.co.jp

SETTIMO Franco	ETSI	+39 348 999 85 84	franco.settimo@etsi.fr
TANI Naoki	NTT DoCoMo	+81 468 40 3332	tani@nw.yrp.nttdocomo.co.jp
TERRILL Stephen	Ericsson Radio Systems	+46 8 71 97261	Stephen.Terrill@ericsson.com
VESELY Alexander	Siemens		alexander.vesely@siemens.at
WILLARS Per	Ericsson Radio Systems	+46 8 757 3448	Per.willars@era.ericsson.se

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A N N E X B

LIST OF TEMPORARY DOCUMENTS

Tdoc nº 3GPP	Title	Source	Status
N4-000110	Agenda	N4 Convenor	Agreed
N4-000111	Tdoc allocation to agenda items	N4 Convenor	Revised
N4-000112	Scope of TrFO R00	NTT DoCoMo	Conclusions rejected
N4-000113	Open issues of TrFO R00	NTT DoCoMo	
N4-000114	User plane protocol used in the CN	NTT DoCoMo	
N4-000115	Active Codec Set negotiation and Notification	NTT DoCoMo	
N4-000116	TrFO break and return to TrFO	NTT DoCoMo	Postponed
N4-000117	How to handle Organisation Identifier	NEC	To be discussed by N4
N4-000118	TrFO and basic cs-relocation	Siemens	Noted
N4-000119	Architectural Requirements on TrFO in a R00 combined GSM/UMTS or GSM-only core network	Siemens	
N4-000120	GSM A-Interface connected to UMSC using TFO - TrFO interworking	Siemens	
N4-000121	Proposed R00 requirements for the User Plane protocol	Alcatel	
N4-000122	Procedure to be used for TrFO break	Alcatel	Agreed in principle
N4-000123	Iu User Plane version negotiation for TrFO	Alcatel	To be discussed by R3 and S2
N4-000124	Open issues for TrFO-TFO harmonisation	Ericsson	
N4-000125	Procedure for TrFO break (in band vs out of band)	NTT DoCoMo	
N4-000126	TrFO break	Ericsson	
N4-000127	Framing protocols in TrFO scenarios	Ericsson	
N4-000128	Multiple access support	Ericsson	
N4-000129	RAB parameter capability handling	Ericsson	

N4-000130	Down link codec notification	Ericsson	
N4-000131	LS on Transcoder Free Operation (TrFO) and Out of Band transcoder Control (OoBTc) for R99	S2	
N4-000132	R00 Features, Building Blocks and Work Tasks	S2 IGC	