3GPP TSG CT Meeting #28 **CP-050072**
1st – 3rd June 2005. Quebec, CANADA.

Source: **TSG CT WG1**

Title: **CRs to Rel-6 WI "CS_VSS" for TSs 24.008 and 23.009**

Agenda item: **9.25**

Document for: **APPROVAL**

This document contains 2 **CRs for Rel-6 WI "CS_VSS"**, that have been agreed by TSG CT WG1 meeting #38 and forwarded to TSG CT Plenary meeting #28 for approval.

TDoc #	Tdoc Title	Spec	CR #	Rev	CAT	C_Version	WI	Rel
C1-050740	SETUP Message Enhancement for Voice Video Switching	24.008	937	3	B	6.8.0	CS_VSS	Rel-6
C1-050741	Directed Retry Handover for Bearer Service	23.009	105	1	F	6.0.0	CS_VSS	Rel-6

3GPP TSG-CT1 Meeting #38 **Tdoc C1-050740**
Cancun, Mexico, 25-29 April 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.008** **CR** **937** ⌘**rev** **3** ⌘ Current version: **6.8.0** ⌘

*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 [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	SETUP Message Enhancement for Voice Video Switching
Source:	⌘	Vodafone
Work item code:	⌘	CS_VSS
Date:	⌘	27/01/2005
Category:	⌘	**B**
Release:	⌘	Rel-6

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:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	One solution for continuing a video call when it is no longer possible to provide a bearer for video is for a mobile terminal to re-dial using a voice call. In a similar way, a voice call can be switched to video call in a similar way. This solution is described in SA2 TR 23.903. Redial indication is needed for two reasons: - To allow operators to maintain consistent statistics for average voice call duration. Duration of a voice call made because of redialling for video fallback is likely to be shorter than a call that starts as voice, which will reduce average call duration. It will be impossible to separate out the effect of redial without an indication to the network, so that operators will be unable to determine whether the shorter calls are caused by redial or a network fault. - To allow operators to monitor when redial is used to optimize the network. A new information element (IE) is therefore required in the SETUP message to, indicate that a call is a redial attempt, as a result of switching between video and voice.
Summary of change:	⌘	A new "Redial Attempt" information element is added to the SETUP message in the mobile terminal to network direction.
Consequences if not approved:	⌘	The mobile terminal is unable signal a redial attempt to the core network, and unable to log statistics for voice-video switching. When the option to switch between voice and video calls is available, the average call duration of voice calls is likely to fall. Without this change, operators

	will be unable to separate the effect of video/voice switching, making it impossible to manage average call duration. Also, it will be impossible to monitor the performance of the redial feature, and therefore impossible to make network or mobile terminal changes to optimize its use. The significance of statistics is described in TR 23.903 clause 6.1 as follows: The easy ability to switch between voice and video calls may have an impact on, for example, calculations of 'mean call holding time' if this is calculated from CDRs. As a consequence there may be a need to add extra information onto the CDRs to indicate the reason for release/reason for establishment of a call. In particular, it would be valuable to know the proportion of redial attempts that were successful.

Clauses affected:	⌘	2, 5.2.1, 9.3.23.2, 9.3.23.2.17, 10.5.4.34				
		Y	**N**			
Other specs affected:	⌘	**X**		Other core specifications	⌘	TS 23.009 CR105
			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.

*** FIRST CHANGE ***

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1] Void.

[2] Void.

[2a] 3GPP TR 21.905 "Vocabulary for 3GPP Specifications"

[3] 3GPP TS 22.002: "Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)".

[4] 3GPP TS 22.003: "Teleservices supported by a Public Land Mobile Network (PLMN)".

[5] 3GPP TS 42.009: "Security aspects".

[5a] 3GPP TS 33.102: "3G security; Security architecture".

[6] 3GPP TS 22.011: "Service accessibility".

[7] 3GPP TS 42.017: "Subscriber Identity Modules (SIM); Functional characteristics".

[8] 3GPP TS 22.101: "Service aspects; Service principles".

[8a] 3GPP TS 22.001: "Principles of circuit telecommunication services supported by a Public Land Mobile Network (PLMN)".

[8b] 3GPP TS 23.038: "Alphabets and language-specific information".

[9] 3GPP TS 23.101: "General UMTS Architecture".

[9a] 3GPP TS 23.108: "Mobile radio interface layer 3 specification core network protocols; Stage 2 (structured procedures)".

[10] 3GPP TS 23.003: "Numbering, addressing and identification".

[11] 3GPP TS 43.013: "Discontinuous Reception (DRX) in the GSM system".

[12] 3GPP TS 23.014: "Support of Dual Tone Multi-Frequency (DTMF) signalling".

[12a] ETSI ES 201 235-2, v1.2.1: "Specification of Dual Tone Multi-Frequency (DTMF); Transmitters and Receivers; Part 2: Transmitters".

[13] 3GPP TS 43.020: "Security-related network functions".

[14] 3GPP TS 23.122: "Non-Access-Stratum functions related to Mobile Station (MS) in idle mode".

[15] 3GPP TS 24.002: "GSM-UMTS Public Land Mobile Network (PLMN) access reference configuration".

[16] 3GPP TS 44.003: "Mobile Station - Base Station System (MS - BSS) interface; Channel structures and access capabilities".

[17] 3GPP TS 44.004: "Layer 1; General requirements".

[18] 3GPP TS 44.005: "Data Link (DL) layer; General aspects".

[19] 3GPP TS 44.006: "Mobile Station - Base Station System (MS - BSS) interface; Data Link (DL) layer specification".

[19a] 3GPP TS 25.321: "Medium Access Control (MAC) protocol specification".

[19b] 3GPP TS 25.322: "Radio Link Control (RLC) protocol specification".

[19c] 3GPP TS 25.413: "UTRAN Iu interface RANAP signalling".

[20] 3GPP TS 24.007: "Mobile radio interface signalling layer 3; General aspects".

[21] 3GPP TS 24.010: "Mobile radio interface layer 3; Supplementary services specification; General aspects".

[22] 3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

[23] 3GPP TS 24.012: "Short Message Service Cell Broadcast (SMSCB) support on the mobile radio interface".

[23a] 3GPP TS 44.071: "Location Services (LCS); Mobile radio interface layer 3 specification."

[23b] 3GPP TS 44.031 "Location Services LCS); Mobile Station (MS) - Serving Mobile Location Centre (SMLC); Radio Resource LCS Protocol (RRLP)".

[23c] 3GPP TS 25.331: "Radio Resource Control (RRC) protocol specification"

[24] 3GPP TS 24.080: "Mobile radio Layer 3 supplementary service specification; Formats and coding".

[25] 3GPP TS 24.081: "Line identification supplementary services; Stage 3".

[26] 3GPP TS 24.082: "Call Forwarding (CF) supplementary services; Stage 3".

[27] 3GPP TS 24.083: "Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 3".

[28] 3GPP TS 24.084: "MultiParty (MPTY) supplementary services; Stage 3".

[29] 3GPP TS 24.085: "Closed User Group (CUG) supplementary services; Stage 3".

[30] 3GPP TS 24.086: "Advice of Charge (AoC) supplementary services; Stage 3".

[31] 3GPP TS 24.088: "Call Barring (CB) supplementary services; Stage 3".

[32] 3GPP TS 45.002: "Multiplexing and multiple access on the radio path".

[33] 3GPP TS 45.005: "Radio transmission and reception".

[34] 3GPP TS 45.008: "Radio subsystem link control".

[35] 3GPP TS 45.010: "Radio subsystem synchronization".

[36] 3GPP TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

[36a] 3GPP TS 27.060: "Mobile Station (MS) supporting Packet Switched Services ".

[37] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[38] 3GPP TS 29.007: "General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

[39] 3GPP TS 51.010: "Mobile Station (MS) conformance specification".

[40] 3GPP TS 51.021: "GSM radio aspects base station system equipment specification".

[41] ISO/IEC 646 (1991): "Information technology - ISO 7-bit coded character set for information interchange".

[42] ISO/IEC 6429: "Information technology - Control functions for coded character sets".

[43] ISO 8348 (1987): "Information technology -- Open Systems Interconnection -- Network Service Definition".

[44] ITU-T Recommendation E.163: "Numbering plan for the international telephone service".

[45] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[46] ITU-T Recommendation E.212: "The international identification plan for mobile terminals and mobile users".

[47] ITU-T Recommendation F.69 (1993): "The international telex service - Service and operational provisions of telex destination codes and telex network identification codes".

[48] ITU-T Recommendation I.330: "ISDN numbering and addressing principles".

[49] ITU-T Recommendation I.440 (1989): "ISDN user-network interface data link layer - General aspects".

[50] ITU-T Recommendation I.450 (1989): "ISDN user-network interface layer 3 General aspects".

[51] ITU-T Recommendation I.500 (1993): "General structure of the ISDN interworking recommendations".

[52] ITU-T Recommendation T.50: "International Reference Alphabet (IRA) (Formerly International Alphabet No. 5 or IA5) - Information technology - 7-bit coded character set for information interchange".

[53] ITU Recommendation Q.931: ISDN user-network interface layer 3 specification for basic control".

[54] ITU-T Recommendation V.21: "300 bits per second duplex modem standardized for use in the general switched telephone network".

[55] ITU-T Recommendation V.22: "1200 bits per second duplex modem standardized for use in the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[56] ITU-T Recommendation V.22bis: "2400 bits per second duplex modem using the frequency division technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[57] Void.

[58] ITU-T Recommendation V.26ter: "2400 bits per second duplex modem using the echo cancellation technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[59] ITU-T Recommendation V.32: "A family of 2-wire, duplex modems operating at data signalling rates of up to 9600 bit/s for use on the general switched telephone network and on leased telephone-type circuits".

[60] ITU-T Recommendation V.110: "Support by an ISDN of data terminal equipments with V-Series type interfaces".

[61] ITU-T Recommendation V.120: "Support by an ISDN of data terminal equipment with V-Series type interfaces with provision for statistical multiplexing".

[62] ITU-T Recommendation X.21: "Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for synchronous operation on public data networks".

[63] Void.

[64] Void.

[65] ITU-T Recommendation X.30: "Support of X.21, X.21 bis and X.20 bis based Data Terminal Equipments (DTEs) by an Integrated Services Digital Network (ISDN)".

[66] ITU-T Recommendation X.31: "Support of packet mode terminal equipment by an ISDN".

[67] Void.

[68] Void.

[69] ITU-T Recommendation X.121: "International numbering plan for public data networks".

[70] ETSI ETS 300 102-1: "Integrated Services Digital Network (ISDN); User-network interface layer 3; Specifications for basic call control".

[71] ETSI ETS 300 102-2: "Integrated Services Digital Network (ISDN); User-network interface layer 3; Specifications for basic call control; Specification Description Language (SDL) diagrams".

[72] ISO/IEC 10646: "Information technology -- Universal Multiple-Octet Coded Character Set (UCS)".

[73] 3GPP TS 22.060: "General Packet Radio Service (GPRS); Service Description; Stage 1".

[74] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service Description; Stage 2".

[75] 3GPP TS 43.064: "General Packet Radio Service (GPRS); Overall description of the GPRS radio interface; Stage 2".

[76] 3GPP TS 44.060: "General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control/Medium Access Control (RLC/MAC) protocol".

[77] IETF RFC 1034: "Domain names - concepts and facilities".

[78] 3GPP TS 44.065: "Mobile Station (MS) - Serving GPRS Support Node (SGSN); Subnetwork Dependent Convergence Protocol (SNDCP)".

[78a] 3GPP TS 44.064: "Mobile Station - Serving GPRS Support Node (MS-SGSN) Logical Link Control (LLC) Layer Specification".

[79] ITU Recommendation I.460: "Multiplexing, rate adaption and support of existing interfaces".

[80] 3GPP TS 26.111: "Codec for Circuit Switched Multimedia Telephony Service; Modifications to H.324".

[81] 3GPP TS 23.107: "Quality of Service (QoS) concept and architecture".

[82] 3GPP TS 43.022: "Functions related to Mobile Station (MS) in idle mode and group receive mode".

[83] 3GPP TS 26.103: "Speech Codec List for GSM and UMTS".

[84] 3GPP TS 44.018: "Mobile radio interface layer 3 specification, Radio Resource Control Protocol".

[85] 3GPP TS 48.008: "Mobile-services Switching Centre – Base Station System (MSC – BSS) interface; layer 3 specification".

[86] 3GPP TS 48.018: "General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN); BSS GPRS Protocol (BSSGP)".

[87] 3GPP TS 43.055: "Dual Transfer Mode (DTM); Stage 2".

[88] 3GPP TS 23.067: "enhanced Multi-Level Precedence and Pre-emption service (eMLPP); Stage 2".

[88a] 3GPP TS 23.093: "Technical realization of Completion of Calls to Busy Subscriber (CCBS); Stage 2".

[89] 3GPP TS 22.042: "Network Identity and Time Zone (NITZ), Stage 1".

[90] 3GPP TS 23.040: "Technical realization of Short Message Service (SMS)".

[91] 3GPP TS 44.056: "GSM Cordless Telephony System (CTS), (Phase 1) CTS Radio Interface Layer 3 Specification".

[92] 3GPP TS 23.226: "Global Text Telephony; Stage 2 "

[93] 3GPP TS 26.226: "Cellular Text Telephone Modem (CTM), General Description "

[94] 3GPP TS 23.236: "Intra Domain Connection of RAN Nodes to Multiple CN Nodes"

[95] 3GPP TS 24.229: "IP Multimedia Call Control Protocol based on SIP and SDP"

[96] 3GPP TS 23.205: "Bearer-independent circuit-switched core network; Stage 2".

[97] 3GPP TS 23.172: "UDI/RDI Fallback and Service Modification; Stage 2".

[98] 3GPP TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode"

[99] RFC 3513 (April 2003): "Internet Protocol Version 6 (IPv6) Addressing Architecture".

[100] 3GPP TS 29.207: "Policy control over Go interface".

[101] 3GPP TS 21.111: "USIM and IC card requirements".

[102] RFC 1661 (July 1994): "The Point-to-Point Protocol (PPP)".

[103] RFC 3232 (January 2002): "Assigned Numbers: RFC 1700 is Replaced by an On-line Database".

[104] 3GPP TS 23.034: "High Speed Circuit Switched Data (HSCSD) – Stage 2".

[105] 3GPP TS 23.271: "Functional stage 2 description of LCS".

[106] 3GPP TS 23.246: "Multimedia Broadcast/Multicast Service (MBMS); Architecture and Functional Description".

[107] RFC 3376 (October 2002): "Internet Group Management Protocol, Version 3".

[108] RFC 2710 (October 1999): "Multicast Listener Discovery (MLD) for IPv6".

[109] 3GPP TS 23.251: "Network Sharing; Architecture and Functional Description".

[110] 3GPP TS 25.346: “Introduction of the Multimedia Broadcast Multicast Service (MBMS) in the Radio Access Network”

[111] 3GPP TS 44.118: "Radio Resource Control (RRC) protocol; Iu mode".

[112] 3GPP TS 31.102: "Characteristics of the USIM Application".

[113] 3GPP TS 43.129: "Packet-switched handover for GERAN A/Gb mode; Stage 2".

[114] 3GPP TR 23.903: " Redial solution for voice-video switching".

*** SECOND CHANGE ***

5.2.1 Mobile originating call establishment

The call control entity of the mobile station initiates establishment of a CC connection by requesting the MM sublayer to establish a mobile originating MM connection and entering the "MM connection pending" state. There are two kinds of a mobile originating call: basic call and emergency call. The request to establish an MM connection shall contain a parameter to specify whether the call is a basic or an emergency call. This information may lead to specific qualities of services to be provided by the MM sublayers. Timer T303 is started when the CM SERVICE REQUEST message is sent.

For mobile stations supporting eMLPP basic calls may optionally have an associated priority level as defined in 3GPP TS 23.067 [88]. This information may also lead to specified qualities of service to be provided by the MM sublayers.

While being in the "MM connection pending" state, the call entity of the mobile station may cancel the call prior to sending the first call control message according to the rules given in subclause 4.5.1.7.

The mobile station supporting multicall that is initiating an emergency call shall release one or more existing call to ensure the emergency call can be established if the multicall supported information stored in the mobile station described in subclauses 5.2.1.2 and 5.2.2.1 indicates the network does not support multicall and some ongoing calls exists.

Having entered the "MM connection pending" state, upon MM connection establishment, the call control entity of the mobile station sends a setup message to its peer entity. This setup message is

- a SETUP message, if the call to be established is a basic call, and
- an EMERGENCY SETUP message, if the call to be established is an emergency call.

The mobile station then enters the "call initiated" state. Timer T303 is not stopped.

The setup message shall contain all the information required by the network to process the call. In particular, the SETUP message shall contain the called party address information.

If the mobile station supports multicall, it shall include the Stream Identifier (SI) information element. For the first call i.e. when there are no other ongoing calls the SI value shall be 1.

For speech calls the mobile station shall indicate all codecs that it supports for UTRAN in the *Supported Codec List* information element. Codecs for GERAN shall be indicated in the *Bearer Capability* information element, if this information element is included. Additionally, if the mobile station supports codecs for GERAN and UTRAN, it shall indicate the codecs for GERAN also in the *Supported Codec List* information element.

If the call is a redial attempt to switch from speech to multimedia or vice-versa, the SETUP message shall include the Redial information element.

NOTE: Redial attempt is defined in 3GPP TR 23.903: "Redial solution for voice-video switching"[114].

If timer T303 elapses in the "MM connection pending" state, the MM connection in progress shall be aborted and the user shall be informed about the rejection of the call.

** THIRD CHANGE **

9.3.23.2 Setup (mobile originating call establishment)

This message is sent from the mobile station to the network to initiate a mobile originating call establishment.

See table 9.70a/3GPP TS 24.008.

Message type: SETUP

Significance: global

Direction: mobile station to network

Table 9.70a/3GPP TS 24.008: SETUP message content (mobile station to network direction)

IEI	Information element	Type/Reference	Presence	Format	Length
	Call control protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2
	Setup message type	Message type 10.4	M	V	1
D-	BC repeat indicator	Repeat indicator 10.5.4.22	C	TV	1
04	Bearer capability 1	Bearer capability 10.5.4.5	M	TLV	3-16
04	Bearer capability 2	Bearer capability 10.5.4.5	O	TLV	3-16
1C	Facility(simple recall alignment)	Facility 10.5.4.15	O	TLV	2-
5D	Calling party sub-address	Calling party subaddr. 10.5.4.10	O	TLV	2-23
5E	Called party BCD number	Called party BCD num. 10.5.4.7	M	TLV	3-43
6D	Called party sub-address	Called party subaddr. 10.5.4.8	O	TLV	2-23
D-	LLC repeat indicator	Repeat indicator 10.5.4.22	O	TV	1
7C	Low layer compatibility I	Low layer comp. 10.5.4.18	O	TLV	2-18
7C	Low layer compatibility II	Low layer comp. 10.5.4.18	O	TLV	2-18
D-	HLC repeat indicator	Repeat indicator 10.5.4.22	O	TV	1
7D	High layer compatibility i	High layer comp. 10.5.4.16	O	TLV	2-5
7D	High layer compatibility ii	High layer comp. 10.5.4.16	O	TLV	2-5
7E	User-user	User-user 10.5.4.25	O	TLV	3-35
7F	SS version	SS version indicator 10.5.4.24	O	TLV	2-3
A1	CLIR suppression	CLIR suppression 10.5.4.11a	C	T	1
A2	CLIR invocation	CLIR invocation 10.5.4.11b	C	T	1
15	CC capabilities	Call Control Capabilities 10.5.4.5a	O	TLV	4
1D	Facility $(CCBS)$ (advanced recall alignment)	Facility 10.5.4.15	O	TLV	2-?
1B	Facility (recall alignment Not essential) $(CCBS)$	Facility 10.5.4.15	O	TLV	2-?
2D	Stream Identifier	Stream Identifier 10.5.4.28	O	TLV	3
40	Supported Codecs	Supported Codec List 10.5.4.32	O	TLV	5-n
A3	Redial	Redial 10.5.4.34	O	T	1

9.3.23.2.1 BC repeat indicator

The *BC repeat indicator* information element is included if and only if *bearer capability 1* IE and *bearer capability 2* IE are both present in the message.

9.3.23.2.2 Facility

The information element may be included for functional operation of supplementary services.

Three different codings of this IE exist, for further details see 3GPP TS 24.010.

9.3.23.2.3 LLC repeat indicator

The *LLC repeat indicator* information element is included if and only if both following conditions hold:

- The *BC repeat indicator* IE is contained in the message.
- The *low layer compatibility I* IE is contained in the message.

If included, the *LLC repeat indicator* shall specify the same repeat indication as the *BC repeat indicator* IE.

9.3.23.2.4 Low layer compatibility I

The information element is included in the MS-to-network direction when the calling MS wants to pass low layer compatibility information to the called user.

9.3.23.2.5 Low layer compatibility II

Included if and only if the *LLC repeat indicator* information element is contained in the message.

9.3.23.2.6 HLC repeat indicator

The *HLC repeat indicator* information element is included if and only if both following conditions hold:

- The *BC repeat indicator* IE is contained in the message.
- The *high layer compatibility i* IE is contained in the message.

If included, the *HLC repeat indicator* shall specify the same repeat indication as the *BC repeat indicator* IE.

9.3.23.2.7 High layer compatibility i

The information element is included when the calling MS wants to pass high layer compatibility information to the called user.

9.3.23.2.8 High layer compatibility ii

Included if and only if the *HLC repeat indicator* information element is contained in the message.

9.3.23.2.9 User-user

The information element is included in the calling mobile station to network direction when the calling mobile station wants to pass user information to the called remote user.

9.3.23.2.10 SS version

This information element shall not be included if the *facility* information element is not present in this message.

This information element shall be included or excluded as defined in 3GPP TS 24.010 [21]. This information element should not be transmitted unless explicitly required by 3GPP TS 24.010.

9.3.23.2.11 CLIR suppression

The information element may be included by the MS (see 3GPP TS 24.081 [25]). If this information element is included the *CLIR invocation* IE shall not be included.

9.3.23.2.12 CLIR invocation

The information element may be included by the MS (see 3GPP TS 24.081). If this information element is included the *CLIR suppression* IE shall not be included.

9.3.23.2.13 CC Capabilities

This information element may be included by the mobile station to indicate its call control capabilities.

9.3.23.2.14 Stream Identifier

This information element shall be included by the mobile station supporting multicall.

9.3.23.2.15 Bearer capability 1 and bearer capability 2

If the mobile station wishes to indicate capability for an altenative call mode, which can be entered throughfallback, this is indicated by adding a *bearer capability information ele*ment (bearer capability) 2 element (see subclause 5.3.6).

9.3.23.2.16 Supported Codecs

This information element shall be included for speech calls, if the mobile station supports UMTS radio access.

9.3.23.2.17 Redial

This information element shall be included if the mobile station is attempting to set up a call to switch from speech to multimedia or vice-versa.

** FOURTH CHANGE **

10.5.4.34 Redial

The purpose of the *Redial* information element is to indicate to the network that a call is the result of a redial attempt to switch from speech to multimedia or vice-versa.

The *Redial* information element is coded as shown in figure 10.5.118e/3GPP TS 24.008

The *Redial* is a type 2 information element with a length of 1 octet.

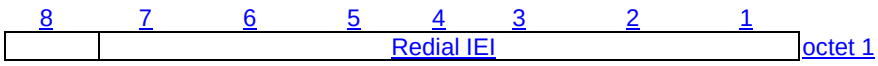

Figure 10.5.118e/3GPP TS 24.008 Redial information element

3GPP TSG-CN1 Meeting #38
Cancun, Mexico, 25-29 April 2005

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CHANGE REQUEST

⌘ **23.009** **CR** **105** ⌘ **rev** **1** ⌘ Current version: **6.0.0** ⌘

*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:	⌘	Directed Retry Handover for Bearer Service
Source:	⌘	Vodafone, Nokia
Work item code:	⌘	CS_VSS
Date:	⌘	27/04/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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:
Ph2 *(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)*
Rel-7 *(Release 7)*

Reason for change: ⌘

22.129 clause 5.2 states, "In order to allow the connection with the negotiated bearer- or teleservice to be established, means shall be defined, which makes it possible for the core network, to recommend to access network to handover the UE to another RAT better suited to support the desired bearer- or teleservice."
Two cases exist that require this behaviour:
- A UE attached to GSM and engaged in a voice call might request to switch to a video call, as described in step number 8) of clause 4.2.1 of TR 23.903 v6.1.0. If GSM is unable to provide a 64 kbit/s bearer, an inter-system handover to UMTS is required.
- A dual mode UE supporting transparent bearer services, e.g. CS multimedia, in UMTS but not in GSM, attached in a GSM radio network can request a multimedia call. Consequently, the network must perform an intersystem handover to make the call setup successful.
Information elements have been added in TS 48.008 clause 3.2.2.75 (Tdoc P-00-195, CR A205) and TS 25.413 clause 9.2.1.41 (Tdoc RP-000695 CR 206) to provide intersystem handover.
23.009 does not currently include the case where handover is necessary due to the inability of GSM to support the requested bearer, or handover to GSM due to network preference.

Summary of change: ⌘

The option for the network to request handover from GSM to UMTS because a bearer was requested that is not supported in GSM is added.
The option for the network to request handover from UMTS to GSM because of network preference is added.

Consequences if not approved:	⌘	UEs capable of switching from a voice to a video call will be unable to do so if attached to GSM. Most/many dual mode UEs supporting CS multimedia are not expected to support it in GSM (where ECSD is required for 64 kbit/s). Without a correction in the specifications a multimedia call is not possible if the UE happens to be attached to GSM. A network will be unable to handover from UMTS to GSM even though this would be better suited to providing the requested bearer service.

Clauses affected:	⌘	14.2, 14.3				
		Y	**N**			
Other specs affected:	⌘	**X**		Other core specifications	⌘	24.008 CR937
			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.

14 Directed retry handover

Editor's Note: [Directed retry in the cases of SRNS relocation is FFS]

14.1 GSM handover

The directed retry procedure allows the network to select the optimum cell for the Mobile Station. The process of directed retry involves the assignment of a Mobile Station to a radio channel on a cell other than the serving cell. This process is triggered by the assignment procedures, as described in 3GPP TS 08.08 [5], and employs internal or external handover procedures as described in clauses 6 and 7. The successful procedure for a directed retry is as shown in figure 40 and as described below.

If during the assignment phase, as represented by the A-ASSIGNMENT-REQUEST message, a handover becomes necessary, due to either radio conditions or congestion, then the Mobile Station may be handed over to a different cell. When the decision has been made to handover the MS the BSS-A may send an A-ASSIGNMENT-FAILURE message, indicating 'directed retry', before sending the A-HANDOVER-REQUIRED message to MSC-A, indicating 'directed retry'. However BSS-A may alternatively send the A-HANDOVER-REQUIRED message, indicating 'directed retry', without sending the A-ASSIGNMENT-FAILURE message. Other cause values may be used instead of "Directed Retry" in the A-HANDOVER-REQUIRED message, this will allow the MSC to take different actions dependent on the received cause. Upon receipt of the A-HANDOVER-REQUIRED message from BSS-A, then MSC-A shall initiate the handover as described in clauses 6 and 7. No resources shall be cleared in the MSC-A or BSS-A for this connection.

After receipt of the A-HANDOVER-COMPLETE message from BSS-B the assignment procedure shall be considered to be complete and the resources on BSS-A shall be cleared.

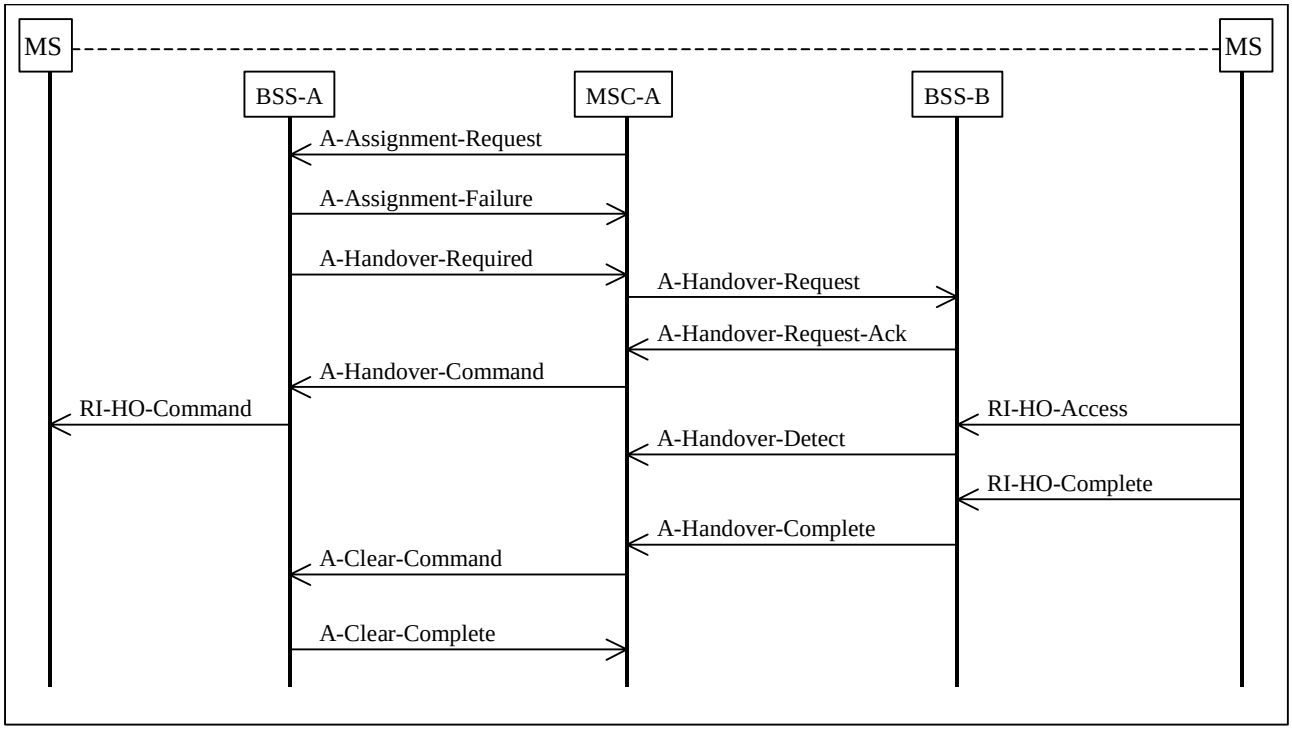

Figure 40: Example of a Directed Retry Intra-MSC Handover Procedure

If a failure occurs during the handover attempt, for example A-HANDOVER-FAILURE returned from BSS-A or BSS-B, then MSC-A will terminate the handover to BSS-B. Under these conditions MSC-A may optionally take one of a number of actions:

i) retry the handover to the same cell;

ii) select the next cell from the list contained in the A-HANDOVER-REQUIRED message and attempt a handover to the new cell;

iii) send an A-HANDOVER-REQUIRED-REJECT to BSS-A, if an A-HANDOVER-COMMAND has not already been sent;

iv) retry the assignment procedure to BSS-A, if the failure message was returned from BSS-A. This option is additional to those for normal handover;

v) Clear the complete call.

The procedures for Inter-MSC handover are also applicable to the directed retry process. If an Inter-MSC handover is necessary then the assignment process should be considered to have completed successfully upon receipt of the A-HO-COMPLETE included in the MAP-SEND-END-SIGNAL request.

14.2 GSM to UMTS handover

The directed retry procedure allows the network to select the optimum cell for the UE/MS. The process of directed retry involves the assignment of a UE/MS to a radio channel on a cell other than the serving cell. This process is triggered by the assignment procedures, as described in 3GPP TS 08.08 [5], and employs internal or external GSM to UMTS handover procedures as described in clauses 6.2.2 and 8.2. The successful procedure for a directed retry in case of an intra-3G_MSC GSM to UMTS handover is as shown in figure 40a and as described below.

If during the assignment phase, as represented by the A-ASSIGNMENT-REQUEST message, a GSM to UMTS handover becomes necessary, due to ~~either~~ radio conditions ~~or~~, congestion or inability to provide the requested bearer service in GSM, then the UE/MS may be handed over to a UMTS cell. If the requested bearer service cannot be provided in GSM, 3G_MSC-A shall indicate in the A-ASSIGNMENT-REQUEST message that handover to UMTS should be performed. When the decision has been made to handover the UE/MS the BSS-A may send an A-ASSIGNMENT-FAILURE message, indicating 'directed retry', before sending the A-HANDOVER-REQUIRED message to 3G_MSC-A, indicating 'directed retry'. However BSS-A may alternatively send the A-HANDOVER-REQUIRED message, indicating 'directed retry', without sending the A-ASSIGNMENT-FAILURE message. Other cause values may be used instead of "Directed Retry" in the A-HANDOVER-REQUIRED message, this will allow the 3G_MSC to take different actions dependent on the received cause. Upon receipt of the A-HANDOVER-REQUIRED message from BSS-A, then 3G_MSC-A shall initiate the GSM to UMTS handover as described in clauses 6.2.2 and 8.2. No resources shall be cleared in the 3G_MSC-A or BSS-A for this connection.

After receipt of the Iu-RELOCATION-COMPLETE message from RNS-B the assignment procedure shall be considered to be complete and the resources on BSS-A shall be cleared.

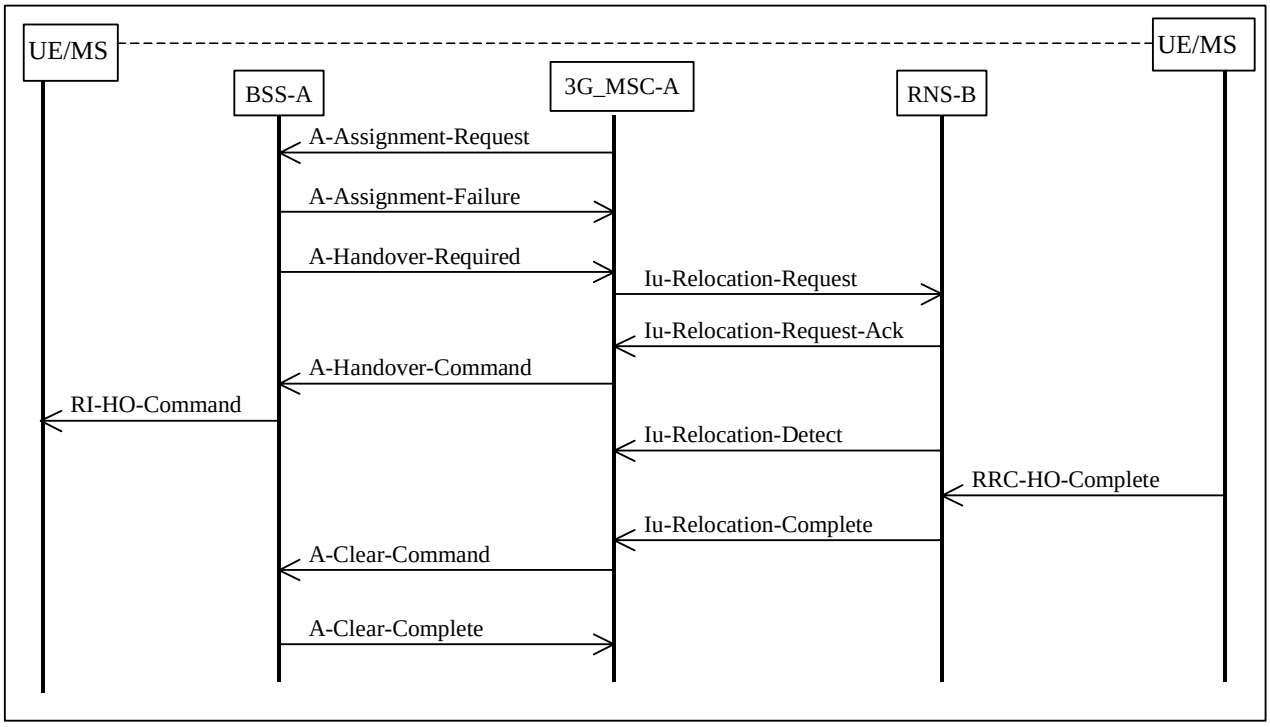

Figure 40a: Example of a Directed Retry Intra-3G_MSC GSM to UMTS Handover Procedure

If a failure occurs during the handover attempt, for example A-HANDOVER-FAILURE returned from BSS-A or Iu-RELOCATION FAILURE from RNS-B then 3G_MSC-A will terminate the GSM to UMTS handover to RNS-B. Under these conditions 3G_MSC-A may optionally take one of a number of actions:

i) send an A-HANDOVER-REQUIRED-REJECT to BSS-A, if an A-HANDOVER-COMMAND has not already been sent;

ii) retry the assignment procedure to BSS-A, if the failure message was returned from BSS-A. This option is additional to those for normal handover;

iii) Clear the complete call.

The procedures for Inter-3G_MSC GSM to UMTS handover are also applicable to the directed retry process. If an Inter-3G_MSC GSM to UMTS handover is necessary then the assignment process should be considered to have completed successfully upon receipt of the A-HO-COMPLETE included in the MAP-SEND-END-SIGNAL request.

14.3 UMTS to GSM handover

The directed retry procedure allows the network to select the optimum cell for the UE/MS. The process of directed retry involves the assignment of a UE/MS to a radio channel on a cell other than the serving cell. This process is triggered by the assignment procedures, as described in 3GPP TS 25.413 [1], and employs UMTS to GSM handover procedures as described in clauses 6.2.1 and 8.1. The successful procedure for a directed retry in case of an intra-3G_MSC UMTS to GSM handover is as shown in figure 40b and as described below.

If during the assignment phase, as represented by the Iu-RAB-ASSIGNMENT-REQUEST message, a UMTS to GSM handover becomes necessary, due to either radio conditions ~~or~~, congestion or network preference, then the UE/MS may be handed over to a GSM cell. If the handover to GSM is required due to network preference, 3G_MSC-A shall indicate in the Iu-RAB-ASSIGNMENT-REQUEST message that handover to GSM should be performed. When the decision has been made to handover the UE/MS the RNS-A shall send an Iu-RAB-ASSIGNMENT-RESPONSE message, indicating 'directed retry', before sending the Iu-RELOCATION-REQUIRED message to 3G_MSC-A, indicating 'directed retry'. Other cause values may be used instead of "Directed Retry" in the Iu-RELOCATION-REQUIRED message, this will allow the 3G_MSC to take different actions dependent on the received cause. Upon receipt of the Iu-RELOCATION-REQUIRED message from RNS-A, then 3G_MSC-A shall initiate the UMTS to GSM handover as described in clauses 6.2.1 and 8.1. No resources shall be cleared in the 3G_MSC-A or RNS-A for this connection.

After receipt of the A-HANDOVER-COMPLETE message from BSS-B the assignment procedure shall be considered to be complete and the resources on RNS-A shall be cleared.

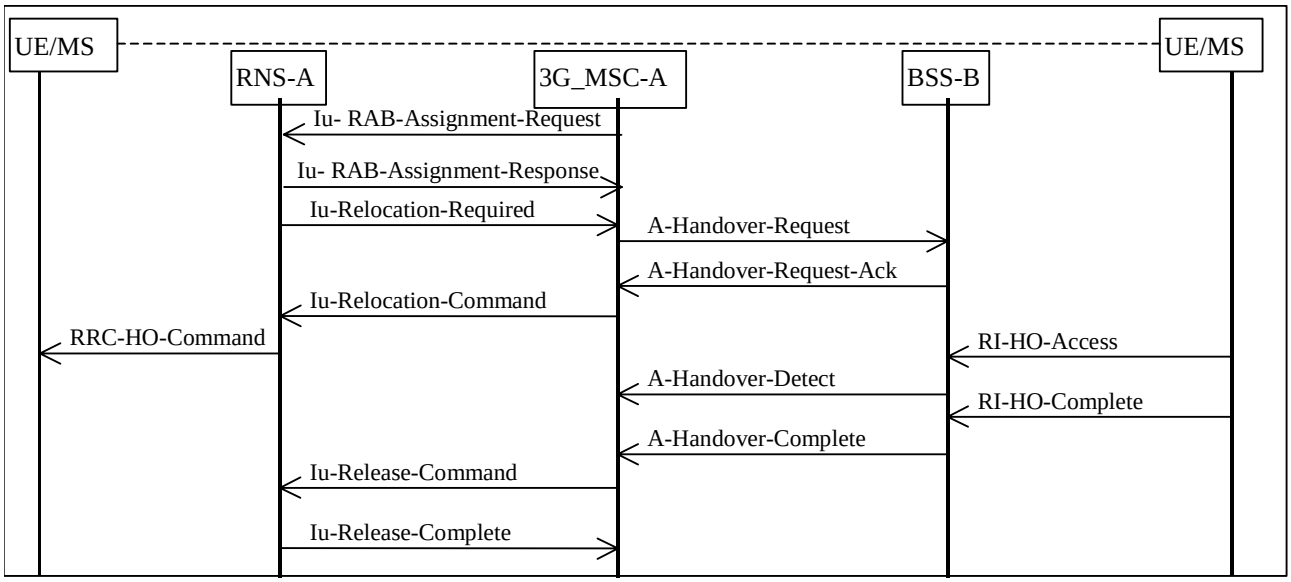

Figure 40b: Example of a Directed Retry Intra-3G_MSC UMTS to GSM Handover Procedure

If a failure occurs during the handover attempt, for example Iu-RELOCATION FAILURE returned from RNS-A or A-HANDOVER-FAILURE from BSS-B then 3G_MSC-A will terminate the UMTS to GSM handover to BSS-B. Under these conditions 3G_MSC-A may optionally take one of a number of actions:

i) send an Iu-RELOCATION-PREPARATION FAILURE to RNS-A, if an Iu-RELOCATION-COMMAND has not already been sent;

ii) retry the assignment procedure to RNS-A, if the failure message was returned from RNS-A. This option is additional to those for normal handover;

iii) Clear the complete call.

The procedures for Inter-3G_MSC UMTS to GSM handover are also applicable to the directed retry process. If an Inter-3G_MSC UMTS to GSM handover is necessary then the assignment process should be considered to have completed successfully upon receipt of the A-HO-COMPLETE included in the MAP-SEND-END-SIGNAL request.