3GPP TSG#13 RAN/CN/T

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Source:	**Alcatel, Cingular, D2 Mannesmann, Elisa Communications, Ericsson, Nokia, Omnitel, Siemens, TIM, Vodafone Group**
Title:	**Scope of IMS in Release 5**
Agenda item:	**SA:** 7.8. Review of TSG-SA Release 5 status and scheduling
	RAN: Rel-5 and beyond
	CN: Agenda 9.1 (IMS) or item 12
	T: tbd
Document for:	Approval (in RAN, CN, T for information)

Introduction

A major addition to UMTS is the IP Multimedia Subsystem (IMS), giving possibilities for the deployment of IP based multimedia services. However, considering the current status and scope of the complete set of IMS related work items, it does not seem possible to complete the work neither by December 2001 nor by March 2002. To avoid delaying IMS to Release 6 and to secure that a consistent set of IMS features is finalized with high quality within the time frame of Release 5, it is therefore proposed to divide the scope of IMS in two parts (for Release 5 and Release 6 respectively). The proposed features for Release 5 secure the introduction of a basic IMS functionality, enabling at least the deployment of new services such as gaming, mobile VPN, presence, chat and 'shared whiteboard' applications.

The features proposed for Release 5 are listed in table 1 below and the proposed features for Release 6 are listed in table 2 below. The features listed in table 3 are for further study.

The following highlights the main proposal:

- Features such as basic SIP protocol functionality, IMS charging, security for access to IMS service, and addressing are judged crucial for a successful Rel 5 IMS deployment.

- The IMS related features proposed for Release 6 primarily add the support of   requirements such as emergency sessions, some functionality required for interworking with PSTN/ISDN and the user plane optimisations required in GERAN

Proposal

It is proposed that:

- The target date for Rel-5 is March-2002.

- IMS shall be introduced in two consistent phases, with the first phase included in Release 5 and the second phase included in Release 6.

- The prioritizations of the work items in table 1 and table 2 of this contribution are used as a basis for the further work in the 3GPP TSG WGs. A liaison statement should be sent out to all WGs, and WGs are strongly encouraged to progress the essential features of Table 1.

Table 1: Proposed IMS Features for Release 5

This table contains the work items that should be included in Release 5 to guarantee the delivery of a consistent set of IMS features. Work items have been classified either as essential or non-essential:

- Essential: No IMS without this feature. Release 5 should be delayed if this feature is not available.

- Non-essential: Should be included if and only if finalized in time for Release 5.

Ref.	3GPP workplan	Major feature	Sub-feature	Impacted 3GPP group	Comment	Essential	Terminal impact
1.1	1300, 2331	**IMS user plane**	Header compression	RAN2, GERAN		Y	Y
1.2	1278	**SIP compression**		CN1, IETF	There is no specific 3GPP WI or dependency on SIP compression. The ID 1278 points to the main 3GPP SIP protocol stage 3 TS 24.229	Y	Y
1.3	1298	**IMS Security**	Between UE and P-CSCF (access to IMS service)	SA3, CN1, CN4	Security related items are very much dependent on operator and regulator requirements.	Y	Y
1.4	1576		NDS (procedures)	SA3, CN4		N	N
1.5	1586		NDS (automatic key distribution)	SA3, CN4		N	N
1.6	1298, 1576		Integrity (UE - P-CSCF)/	SA3		Y	Y
1.7	-		User authentication (UE - S-CSCF)			Y	Y
1.8	1142	**IMS Charging**	Post- paid	(SA2), SA5	The main feature level IMS charging WI	Y	N
1.9	-		Pre-paid	(SA2), SA5		Y	N
1.10	-		Volume-based charging	(SA2), SA5	Item to be clarified: there is a lack of understanding of operator's requirements	Y	N
1.11	-		Content charging	(SA2), SA5	See above	Y	N
1.12	-		Duration-based charging	(SA2), SA5	See above	Y	N
1.13	-		Correlation between the 3 charging levels	(SA2), SA5	See above	Y	N
1.14	-	**QoS for IMS**	1) How to apply "Manyfolks" draft in UMTS environment 2) QoS coordination of UMTS bearers and bearer in UE and GGSN when applicable 3) Indication from UE to GGSN that a UMTS bearer is used only for IM signalling (charging/filtering purpose) Note: Go related requirements are listed under (reference 3.18)	SA2	For possible specific QoS for IMS signalling, see references 3.13 , 3.14 This may be the same as the feature level WI ID 2556 but the scope may be somewhat different?	Y	Y
1.15	1281, 1282	**Terminal**	List of terminal capabilities	SA2, CN1, T2,	"The structure of data that can be signalled"	N	Y

		capabilities	Sending terminal capabilities to NW during registration	CN5, RAN2(?)			
1.16		**IMS Local services**	Advertisement and access of local services Provides the local serving network services for roaming users.	SA2, CN1		N	Y
1.17	1290	**Addressing**	SIP and tel URI	SA2, CN4		Y	Y
1.18	-		Address Translation Relates to where and how address conversion from E.165 to SIP URI is carried out	SA2, CN4		Y	
1.19	-	**Terminals**	UICC storage of IMS data	T	ISIM is a UICC application outside USIM.	Y	Y
1.20	2529		Terminal made up of TE and MT	SA1, T2, SA3	What is the realistic completion date for TE and MT specification?	N	Y
1.21	2233, 1673	**Definition of the interfaces Gm (UE – CSCF), Mg (CSCF-MGCF), Mw (CSCF-CSCF)**	Basic SIP session and registration	CN1 + **IETF**	ID 2233 is the WI for all CN1 IMS work	Y	Y
1.22	1280		Support of Advanced feature (redirect, CLIP, CLIR etc) SIP SS and relationship to Mg, Mw and Cx	CN1+ **IETF**	This seems to mean all the SS features.	N	Y
1.23	2233,1673	**ISC (S-CSCF – AS)**	Basic SIP session and registration	CN1	ID 2233 is the WI for all CN1 IMS work	Y	N
1.24	1280		Advanced session features (e.g. redirect)	CN1		N	N
1.25	1286	**Cx (CSCF - HSS)**	+definition of subscriber data in HSS	CN4 (depends on DIAMETER)		Y	N
1.26	1286	**Dx (CSCF – SLF)**		CN4		N	N
1.27	-	**IPV6 requirements[1]**	Terminal support for IPv6	IETF	Work on Draft RFC on IPv6 cellular host is initiated.	Y	Y
1.28	1844	**Terminal conformance test**	For essential features	T1		Y	Y
1.29	-		For non-essential features	T1		N	Y

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[1] List all IPV6 features that an IMS terminal shall support

Table 2: Proposed IMS Features for Release 6

This table contains the IMS related work items that should be deferred to 3GPP Release 6.

Ref.	3GPP workplan	Major feature	Sub-feature	Impacted 3GPP group	Comment	Terminal impact
2.1	2330	**IMS user plane**	UEP in GERAN	GERAN	ID 2330 is feature level WI GERAN support for IMS	Y
2.2	-		Rate Adaptation in GERAN	GERAN		Y
2.3	-		Header Removal in GERAN	GERAN		Y
2.4	-		Specific codec negotiations in GERAN	GERAN		Y
2.5	1298, 1576	**IMS Security**	Confidentiality (optional)	SA3		Y
2.6	1653	**Emergency sessions on IMS**	Registered user with USIM	SA2, CN1		Y
2.7	2527		Unregistered user or without USIM	SA2, CN1	ID 2527 is feature level WI on IMS emergency calls without UICC/USIM	Y
2.8	-	**MRF**	Sr (?^{2}) interface (MRF – AS)	SA2, CNx		N
2.9	-	**Inter-working for IMS**	BGCF and its interfaces to CSCF, MGCF, BGCF (Mi, Mj, Mk)	CN1		N
2.10	-		SIP - BICC	CN3		N
2.11	2048		With SIP (non IMS) networks (Mm reference point)	CN1, CN3		N
2.12	1294		With H323 networks (Mm reference point)	CN1, CN3		N
2.13	-		With other access networks than UTRAN/GERAN	SA2, CN1		Y
2.14	1142 with copy in 1303	**OAM for IMS**	There is an existing FS on UE management in Rel-5 (- 35000) and this, if accepted, will cause terminal impact	SA5	ID 1142 is feature level WI charging for OAM&P Item must be refined. It is related to the configuration/fault management for HSS, CSCF, etc. There is a lack of requirements. Delay of work is accepted, as a release can not be postponed due to OAM incomplete.	N
2.15	-	**Sh (HSS-AS)**		CN4		N
2.16	1844	**Terminal conformance test**	For features in this table	T1		Y

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^{2} If any

Table 3: Remaining IMS Features

This section contains the IMS related work items whose prioritization is for further study.

Ref.	3GPP workplan	Major feature	Sub-feature	Impacted 3GPP group	Comment	Terminal impact
3.1	1300, 2335	**IMS user plane**	UEP in UTRAN	(SA2), RAN2/3	ID 2335 is GERAN radio access bearer design for IMS	Y
3.2	-		Rate adaptation in UTRAN	RAN2/3		
3.3	1299	**Interception for IMS**	(of SIP signaling) WI 1299 = Lawful interception	SA3	This may become a regulatory requirement. One solution would be to rely on existing GPRS solutions being traceable and only adding the interception of SIP / SDP signalling.	N
3.4	-	**MRF**	For bearer level announcements	SA2		N
3.5	-		For Conference	SA2		N
3.6	-		Mr Interface (MRF – CSCF)	SA2,CN1		N
3.7	-	**Inter-working for IMS**	With GSTN (for voice only services)	CN1, CN4 (Mm)		N
3.8	1305		how to route an incoming call/session: towards CS or PS domain	(SA2), CN1, CN4(Mm)	ID 1305 is Roaming between IMS and CS domain networks (roaming support within and between network types)	N
3.9			IMS user roaming in a CS domain			N
3.10			SIP – ISUP	CN3		N
3.11	2556	**QoS for IMS**	End to End at SIP/SDP session level End-to-end negotiation of QoS parameters on a per-session basis, with respect to the subscription profile, network policies, invoked service/application	SA2, CN1	ID 2556 is feature level WI E2EQoS for PS domain including IMS	Y
3.12	2556		End-to-end bearer establishment corresponding to the QoS requirements negotiated and agreed in session/service layers during session setup (see 9.1)	SA2, CN3	ID 2556 is feature level WI E2EQoS for PS domain including IMS	Y
3.13	-		Transport of IMS signaling on top of PS domain (for UTRAN)	SA2, RAN2/3,	Implies possible specific QoS for IMS signalling (signalling RAB).	Y
3.14	-		Transport of IMS signaling on top of PS domain (for GERAN)	SA2, GERAN	Implies possible specific QoS for IMS signalling (signalling RAB).	Y
3.15	1281, 1282	**Terminal capabilities**	Notification mechanism 1281 = Multimedia capabilities 1282 = Terminal capabilities Both with comment e.g. CC capabilities,		In the 3GPP project plan both 1281 and 1282 look like indication and negotiation mechanisms (in SDP perhaps?) with no position to which services are	Y

			MS CM, etc. So both WIs look like intention to define a mechanism to notify the terminal capabilities to the network (and maybe to negotiate about which ones are used on a per connection basis) The main WID NP-010143 does not define any goals in this area.		supported. "the signalling procedure" CN1 should define the scope of the WI	
3.16	1732	**IMS Number / Name Portability**	Name Portability of Sip URL	SA2, CN4	Requirements on name and domain portability are unclear/undefined.	N
3.17	1732		Number Portability: Interactions with MSISDN number portability	SA2, CN4		N
3.18	2556	**Go (P-CSCF [PCF]– GGSN)**	Authorizing bearers related to IM sessions	CN3	ID 2556 is feature level WI E2EQoS for PS domain including IMS checking the authorization token linked to a IM session, notification of session release	Y
3.19	2556		Notification of Radio bearer loss			N
3.20	2556		Authorizing the destination via set up of the packet classifier in the GGSN		The gate in the GGSN for the prevention of the use of the bearer until the session is completed and ensuring that the bearer is used to communicate only with an authorized peer.	N
3.21	2556		Authorizing the QoS parameters via mapping of the SDP to IP & UMTS QoS Parameters			N
3.22	2556		P-CSCF to tear down the PDP context/GPRS bearer			N
3.23	1310	**OSA for IMS**		CN5		N
3.24	1286	**IM-SSF and CAP**		CN2	Translation mechanism + where are the data for IM-SSF	N
3.25	2048	**IPV6 requirements**	IPV4/IPV6 interworking	SA2, CN3	This considers only IPV4/IPV6 interworking at IMS level (i.e. not on PS domain connectivity level) ID 2048 is CN3 WT interworking between IMS and IP.	N