Technical Specification Group Services and System Aspects **TSGS#11(01) 0063**
Meeting #11, Palm Springs, CA, USA, 19-22 March 2001

Source:	**SA1**
Title:	**CR to 22.228 on IMS to PSTN/ISDN interworking for basic voice calls only**
Document for:	**Approval**
Agenda Item:	**7.1.3**

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New
22.228	001		Rel-5	IMS to PSTN/ISDN interworking for basic voice calls only	C	5.0.0	5.1.0

CR-Form-v3

CHANGE REQUEST

| ⌘ | **22.228** | CR | **001** | ⌘ | rev | **-** | ⌘ | Current version: | **5.0.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☒

Title: ⌘	IMS to PSTN/ISDN interworking for basic voice calls only	
Source: ⌘	SA1	
	IMS	***Date:*** ⌘ 9th February 2001
Category: ⌘ **C**		***Release:*** ⌘ REL-5

Use <u>one</u> of the following categories:
F *(essential 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 <u>one</u> of the following releases:
2   (GSM Phase 2)
R96   (Release 1996)
R97   (Release 1997)
R98   (Release 1998)
R99   (Release 1999)
REL-4   (Release 4)
REL-5   (Release 5)

Reason for change: ⌘	To follow SA plenary recommendations as expressed in TSGS#10(00)0696 section 2.
Summary of change: ⌘	Interworking between IMS and PSTN/ISDN is required for basic voice calls only.
Consequences if not approved: ⌘	Non-alignment with SA plenary recommendations to focus the IM subsystem upon the provision of new services.

Clauses affected: ⌘	5, 7
Other specs affected: ⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ 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/3G_Specs/CRs.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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this TS the following definitions apply:

Basic Voice Call: A Basic Voice Call (BVC) is a call that conveys only a speech component. The definition of the BVC pertains only to the boundary between the IMS and the CS/PSTN. If more than one IMS party is involved in a communication with a PSTN party/parties, the communication between the IMS parties shall not be adversely impacted by the presence of a PSTN party. Please note that this boundary may still be subject to regulatory requirements associated with communications with the PSTN including, but not limited to, lawful interception of voice calls and number portability.

IM CN subsystem: (IP Multimedia CN subsystem) comprises of all CN elements for the provision of IP multimedia applications over IP multimedia sessions

IP multimedia application: an application that handles one or more media simultaneously such as speech, audio, video and data (e.g. chat text, shared whiteboard) in a synchronised way from the user's point of view. A multimedia application may involve multiple parties, multiple connections, and the addition or deletion of resources within a single IP multimedia session. A user may invoke concurrent IP multimedia applications in an IP multimedia session.

IP multimedia service: an IP multimedia service is the user experience provided by one or more IP multimedia applications.

IP multimedia session: an IP multimedia session is a set of multimedia senders and receivers and the data streams flowing from senders to receivers. IP multimedia sessions are supported by the IP multimedia CN Subsystem and are enabled by IP connectivity bearers (e.g. GPRS as a bearer). A user may invoke concurrent IP multimedia sessions.

Local service: services which are provided by a current serving (home or visited) network.

3.2 Abbreviations

For the purposes of this TS the following abbreviations apply;

API	Application Programming Interface
BVC	Basic Voice Call
CAMEL	Customised Application for Mobile Enhanced Logic
CN	Core Network
CS	Circuit Switched
GPRS	General Packet Radio Service
IM	IP Multimedia
IP	Internet Protocol
MExE	Mobile Execution Environment
OSA	Open Service Architecture
OA&M	Operations, Administration and Maintenance
QoS	Quality of Service
SAT	SIM Application Toolkit
SIP	Session Initiation Protocol
UE	User Equipment
VHE	Virtual Home Environment
WWW	World Wide Web

5 High level requirements

Support for IP multimedia sessions shall be provided in a flexible manner to allow operators to differentiate their services in the market place as well customise them to meet specific user needs. This shall be provided by the use of service capabilities in both networks and terminals, for the creation and support of IP multimedia applications.

The following high level requirements shall be supported for IP multimedia applications:-

- negotiable QoS for IP multimedia sessions both at the time of a session establishment as well as during the session by the operator and the user

- negotiable QoS for individual media components in an IP multimedia session both at the time of establishing a media component as well as when the media component is active by the operator and the user

- end to end QoS for voice at least as good as that achieved by the circuit-switched (e.g. AMR codec based) wireless systems shall be enabled

- support of roaming, negotiation between operators for QoS and for Service Capabilities is required. Such negotiation should be automated rather than manual, e.g., when another operator adds new service capabilities.

- possibility for a network operator to implement IP Policy Control for IP multimedia applications.

- IP multimedia sessions shall be able to support a variety of different media types. A set of media types shall be identified to ensure interoperability (e.g. default codec selection and header compression).

- within each IP multimedia session, one or more IP multimedia applications shall be supported

- the possibility for IP multimedia applications to be provided without a reduction in privacy, security, or authentication compared to corresponding GPRS and circuit switched services

- support for interworking with Internet

- support for ~~interworking between the packet and circuit switched services, and with PSTN, ISDN and Internet~~ basic voice calls between IMS users and users in CS domain/PSTN-style networks,
  In R5, the boundary interworking shall be able to convey the information associated with the services listed below:

    - CLIP/CLIR

    - Call Forwarding.

    Also due to regulatory reasons the subscriber identity may be required to be conveyed via the IMS-CS/PSTN boundary to enable calling line identification services on both sides.

    The support of:

    - Call barring

    - Call waiting/hold

    - MPTY

    on the boundary interface is for further study. Please note that some of the listed services could turn out to have no impact on the boundary. Therefore, they could then be considered to be supported already with R5.

- roaming shall be supported enabling users to access IP multimedia services provisioned by the:-

- Home Environment

- Serving Network

- access independence shall be supported. It is desirable that an operator should be able to offer services to their subscribers regardless of how they obtain an IP connection (e.g. GPRS, fixed lines, LAN).

- It shall be possible to support session-related internet applications that have been developed outside the 3GPP community.

- It shall be possible to limit the view of an operator's network topology to authorised entities.

7 User service requirements

IP multimedia sessions provide the ability for users to invoke IP multimedia applications to send and receive (where applicable) voice and data communications, even when roaming. This includes interworking with existing voice and data networks for both fixed (e.g. PSTN, ISDN, internet etc.) and mobile users.

The IM CN subsystem shall support interworking with existing fixed and mobile voice and IP data networks, including PSTN, ISDN, Mobile and Internet.

It shall be possible to have basic voice calls between IMS users and users in CS domain/PSTN-style networks. When an IM session originates or terminates in a CS telephony call, the experience of the CS telephony network user should not substantially differ from that of a call between two CS telephony network users in terms of aspects such as the delay to set-up communications and the total permissible delay in transporting speech between the end users. The IM CN subsystem does not necessarily have to support all services offered by the CS telephony network.

Visited network provided services give the opportunity for the visited network to offer services of a local nature to the visiting user and gain additional revenue from their usage by inbound roamers.