3GPP TSG_CN#7   **NP-000047**

ETSI SMG3 Plenary Meeting #7,
Madrid, Spain
13th – 15th March 2000

Agenda item: **5.3.3**

Source: **TSG_N WG3**

Title: **CRs to 3G Work Item Point to Point Services**

Introduction:

This document contains **"1"** CR on **Work Item Point to Point Services,** that have been agreed by **TSG_N WG3,** and are forwarded to **TSG_N Plenary** meeting #7 for approval.

WG Tdoc	Spec	CR	Rev	Cat	Phase	Current V.	New V.	Subject
N3-000098	29.061	010		F	R99	3.2.0	3.3.0	Support for the IP-Multicast protocol

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

29.061	CR	010	Current Version:	3.2.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to:	TSG_CN#7	for approval	X	strategic		(for SMG
list expected approval meeting # here ↑		for information		non-strategic		use only)

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects:
(at least one should be marked with an X)

(U)SIM ☐   ME ☐   UTRAN / Radio ☐   Core Network **X**

Source:	TSG_CN WG3		**Date:**	2000-02-22

Subject:	Support for the IP-Multicast protocol

Work item:	Point to Multipoint Services

Category: F Correction   **X**   **Release:**
(only one category
shall be marked
with an X)

				Release:	
F	Correction	**X**		Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	**X**
				Release 00	

Reason for change:	To be able to support IP-Multicast the packet Domain must route multicast traffic coming from the internet via the Gi interface, along with the multicast traffic originating from the mobiles and targeted at a multicast group within the PLMN. A multicast destination address is a class D IP address, the GGSN cannot assign it to the PDP context of a mobile. The CR describes a mechanism that maps these class D addresses to PDP addresses assigned to mobiles that are part of a multicast group.

Clauses affected:	2, 3.2, New Section 11.7

Other specs affected:

			List of CRs:	
Other 3G core specifications	**X**	→	List of CRs:	23-060 CR 092
Other GSM core specifications		→	List of CRs:	
MS test specifications		→	List of CRs:	
BSS test specifications		→	List of CRs:	
O&M specifications		→	List of CRs:	

Other comments:	

help.doc

<--------- double-click here for help and instructions on how to create a CR.

2   References

[RFC1112]   IETF RFC1112 (1989), S.E. Deering: "Host extensions for IP multicasting"

[RFC2236]   IETF RFC2236 (1997), W. Fenner: "Internet Group Management Protocol, Version 2"

[RFC2362]   IETF RFC2362 (1998), D. Estrin and al: "Protocol Independent Multicast-Sparse Mode (PIM-SM)"

[RFC1075]   IETF RFC1075 (1988), D. Waitzman and al: "Distance Vector Multicast Routing Protocol"

[RFC1585]   IETF RFC1585 (1994), J. Moy: "MOSPF"

3.2   Abbreviations

IGMP   Internet Group Management Protocol

DVMRP   Distance Vector Multicast Routing Protocol

MOSPF   Multicast Open Shortest Path First

PIM-SM   Protocol Independant Multicast – Sparse Mode

11.7   IP Multicast access

The Packet Domain could allow access to IP Multicast traffic coming from an external network. The support of IP-Multicast in the Packet Domain is optional.

In order for the Packet Core Network to support Multicast traffic that will allow the MS to subscribe to multicast groups from outside the PLMN, the GGSN shall support IGMP and one or more Inter-Router Multicast protocols, such as DVMRP, MOSPF, or PIM-SM.

IGMP is an integral part of IP. All hosts wishing to receive IP multicasts are required to implement IGMP (or equivalent) and class-D IP addresses. IGMP messages are encapsulated in IP datagrams

To be able to deliver IP-Multicast packets to the appropriate TEs, the GGSN may have an IP-Multicast proxy functionality.

The IP-Multicast proxy will perform the following tasks:

Note. In this example it is assumed that IGMP is used as a Host-Router Multicast protocol.

- Maintain a list of mobiles that joined one or more Multicast groups. This list is built/updated each time the GGSN receives an IGMP Join Message from the mobile.

- Send, based on this maintained list of mobiles, multicast routing information to the routers attached to the Packet Domain, allowing them to route multicast packets.

- Upon reception by the GGSN of multicast packets, make and send a copy as Point-to-Point packets, to each mobile of the group.

IP-Multicast traffic can only be handled after an MS has attached to the Packet Domain, and Activated PDP context(s) (including possibly authentication) to the preferred ISP/external network. The Multicast traffic is handled at the application level from a Packet Domain perspective and is sent over UDP/IP.

The following Figure XX depicts the protocol configuration for handling Multicast traffic (control plane). The Multicast traffic handling affects the GGSN by the introduction of the IP-Multicast proxy and the support for an Inter-Router Multicast protocol and a host-router multicast protocol.

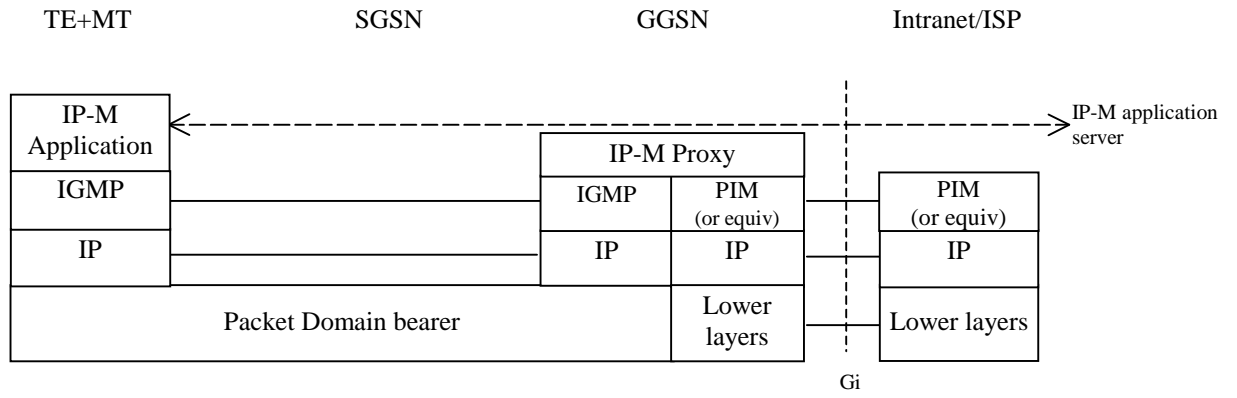| TE+MT	SGSN	GGSN	Intranet/ISP

Figure xx: Protocol configuration for IP-Multicast handling (control plane)