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Legacy Mobile Station Domain (LMSD) Step 1

Revision: 0

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1 Revision History

2	Revision		Date
3	Rev. 0	Initial Publication	May 2003
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Revision History

Revision	Changes	Date
0	Initial Publication	May 2003

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1 Introduction

This standard specifies the necessary interfaces to support the bearer traffic between Media Gateways in the initial step of the Legacy Mobile Station Domain (LMSD). The requirements for this work are defined in [6], and the overall architecture model is defined in [5].

This standard defines bearer support of G.711 PCM encoded voice over IP as defined in RFC 1890 at a minimum, for use between media gateways in a cdma2000^{®1} Legacy Mobile Station Domain. This standard utilizes existing IETF and 3GPP2 protocols when applicable to minimize the new work needed. The necessary signaling needed to setup the bearer paths is defined in [3].

For the initial release of this standard, the following basic capabilities defined in [6] are supported. Enhanced capabilities may be defined in future versions of this standard:

- The yy interface spans across a managed IP network.
- The QoS mechanism for the yy interface is not defined in this version of the standard.
- All Security issues between Media Gateways are not defined in this version of the standard.
- TrFO support over the yy interface is not defined in this version of the standard.
- Handoffs between LMSD networks are not supported over the yy interface. Handoffs must be supported using existing TIA/EIA-41 signaling and Inter MSC Trunks.

¹ cdma2000[®] is the trademark for the technical nomenclature for certain specifications and standards of the Organizational Partners (OPs) of 3GPP2. Geographically (and as of the date of publication), cdma2000[®] is a registered trademark of the Telecommunications Industry Association (TIA-USA) in the United States.

1 **2 Acronyms**

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AAA	Authorization, Authentication, and Accounting
BSC/RNC	Base Station Controller/Radio Network Controller
BTS	Base Transmission Station
FA	Foreign Agent
HA	Home Agent
IOS	Inter-Operability Specification
IP	Internet Protocol
ITU - T	International Telecommunications Union - Telephony
LMSD	Legacy MS Domain
MGW	Media Gateway
MRFP	Media Resource Function Processor
MS	Mobile Station
MSCe	Mobile Switching Center emulation
PCF	Packet Control Function
PCM	Pulse Code Modulation
PDSN	Packet Data Service Node
PSTN	Public Switched Telephone Network
PT	Payload Type
QoS	Quality of Service
RFC	Request for Comment
R-SGW	Roaming Signaling Gateway
RTP	Real-time Transport Protocol
SIP	Session Initiated Protocol
TrFO	Transcoder Free Operation
TSG	Technical Specification Group
T-SGW	Trunk Signaling Gateway
UDP	User Datagram Protocol

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1 **3 References**

2 **3.1 TIA/3GPP2 References**

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- 1 A.S0012-0 v2.0 Interoperability Specification (IOS) for cdma2000 Access Network Interfaces — Part 2 Transport, May 2002
- 2 A.S0014-0 v2.0 Interoperability Specification (IOS) for cdma2000 Access Network Interfaces — Part 4 (A1, A2, and A5 Interfaces), May 2002
- 3 X.P0012 IP Network for cdma2000 Spread Spectrum Systems 3GPP2 All-IP Core Network Enhancements For Legacy MS Domain, December 2002
- 4 X.P0011 cdma2000 Wireless IP Network Standard, September 2002
- 5 S.R0037 IP Network Architecture Model for cdma2000 Spread Spectrum Systems version 2.0, May 2002
- 6 S.R0059 Legacy MS Domain – Step 1 System Requirements, May 2002

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5 **3.2 IETF References**

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- RFC 1890 RTP Profile for Audio and Video Conferences with Minimal Control, January 1996

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8 **3.3 ITU References**

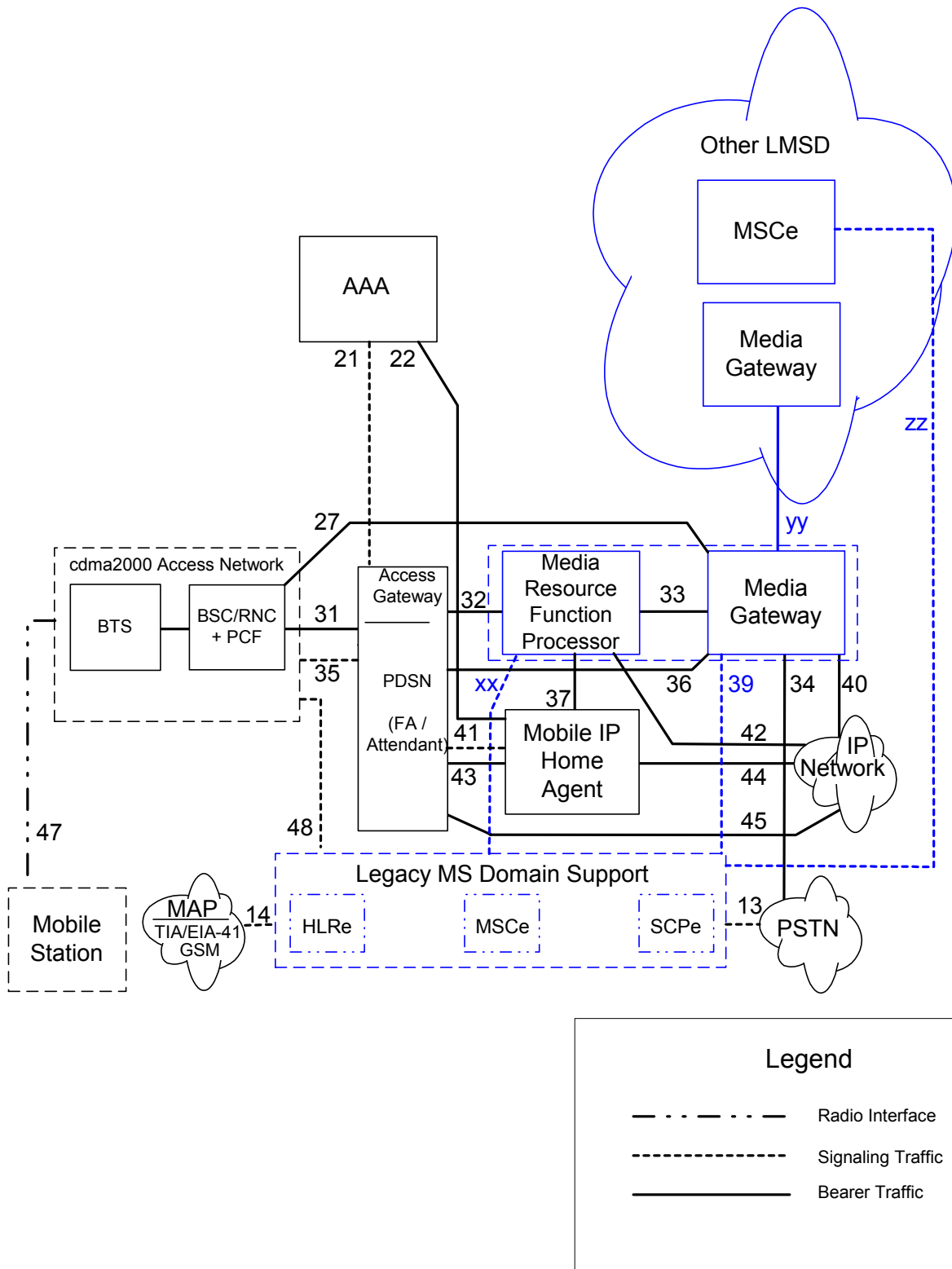
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- G.711 Pulse code modulation (PCM) of voice frequencies, November 1988

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4 LMSD – Step 1 Network Reference Model

Figure 1 shows the LMSD – Step 1 network reference model. The LMSD – Step 1 network reference model consists of the following entities: MGW, MRFP, MSCe, HLRe and SCPe. The functional description of the entities is specified in [5]. The PDSN, HA, and AAA shown in Figure 1 for architecture completeness are not used in this standard, nor are they required to support LMSD – Step 1. This standard specifies the interface for the reference point yy, which is the bearer path between the MGWs. Other reference points required for LMSD – Step 1 support include reference points xx, zz and 39. The interfaces for xx, zz and 39 between the controlling entities (MRFP and MSCe) and the MGWs are defined in [3]. Any other reference points shown in Figure 1 are not required to support LMSD – Step 1 and are therefore not defined in this standard.



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Figure 1: LMSD -- Step 1 Network Reference Model

5 yy Interface Protocol Reference Model

Figure 2 shows the protocol stack required on the LMSD – Step 1 bearer path between MGWs (interface yy) using G.711 as an example. The protocol stack for the control plane on the MGW is defined in [3].

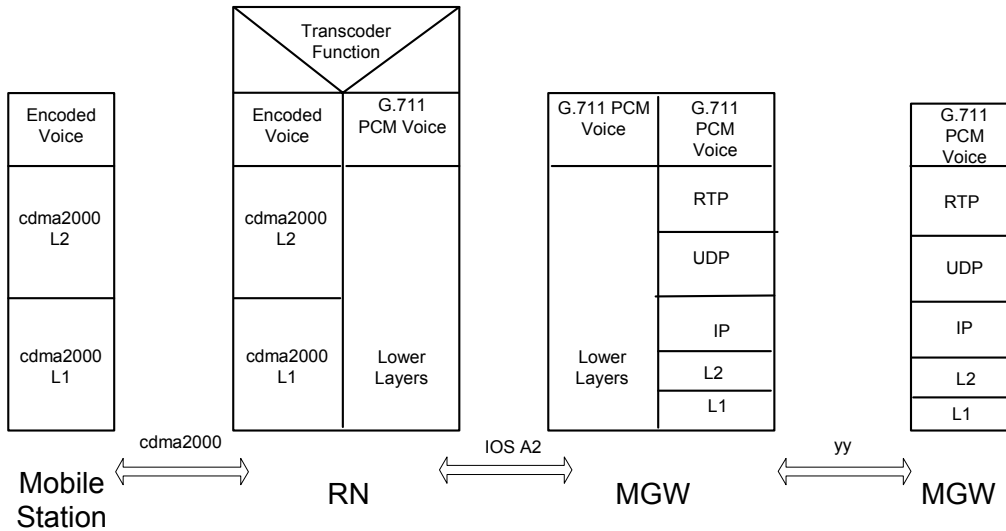


Figure 2: Reference Point yy Protocol Reference Model

6 RTP Protocol

The bearer traffic between the MGWs is defined as G.711 PCM at a minimum. This bearer traffic shall be transported using RTP [RFC 1890] as defined in section 6, Table 2: Payload Types (PT) for standard audio and video encoding.

Payload Type 0 is assigned for PCMU, and Payload Type 8 is assigned for PCMA. PCMA and PCMU are specified in ITU-T recommendation G.711. Both PT 0 and PT 8 shall be supported on interface reference point yy.