

MGCF Interfaces (PSTN-ISUP Originated Call; IM-MGW Megaco/H.248 Signaling; PSTN Initiated Release)						
PSTN	IMS Core Network				Called UE	EventStudio System Designer 4.0
PSTN Equipment	PSTN Interface	CSCF Servers			Called User Equipment	
IM-MGW	MGCF	I-CSCF	Term S-CSCF	Term P-CSCF	Called	

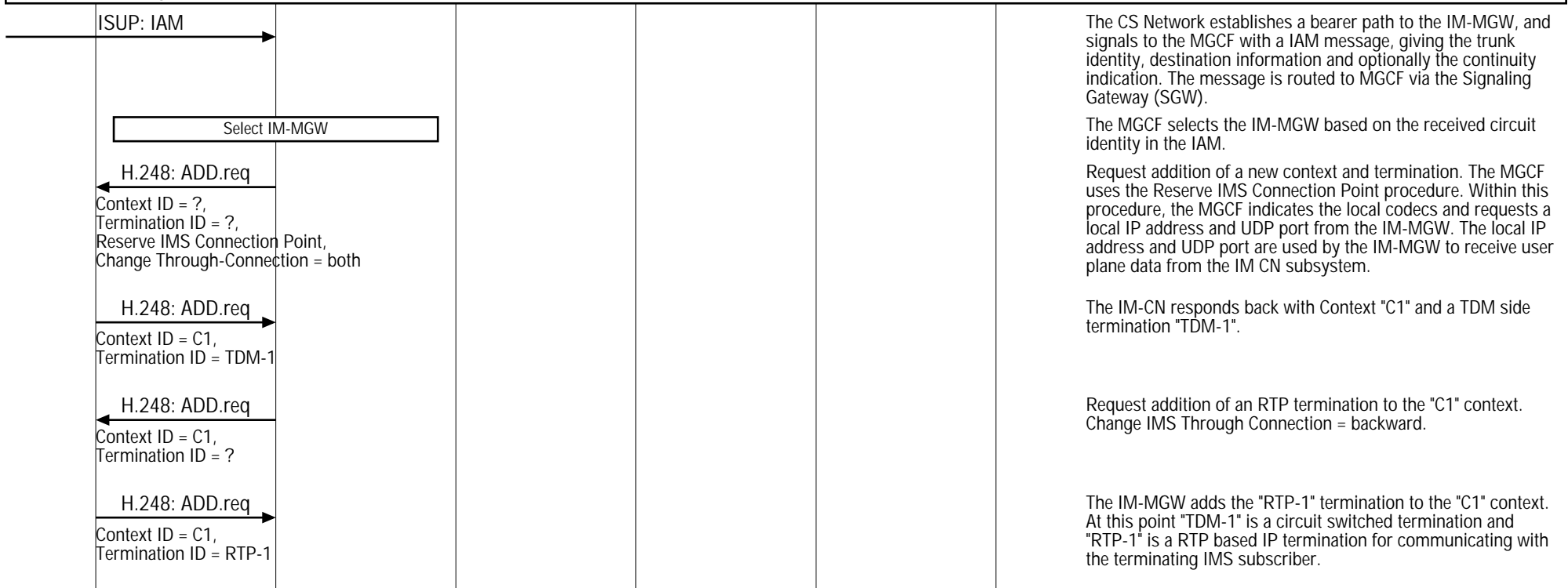
10-Feb-08 10:59 (Page 1)

This call flow covers the handling of a CS network originated call with ISUP. In the diagram the MGCF requests seizure of the IM CN subsystem side termination and CS network side bearer termination. When the MGCF receives an answer indication, it requests the IM-MGW to both-way through-connect the terminations.

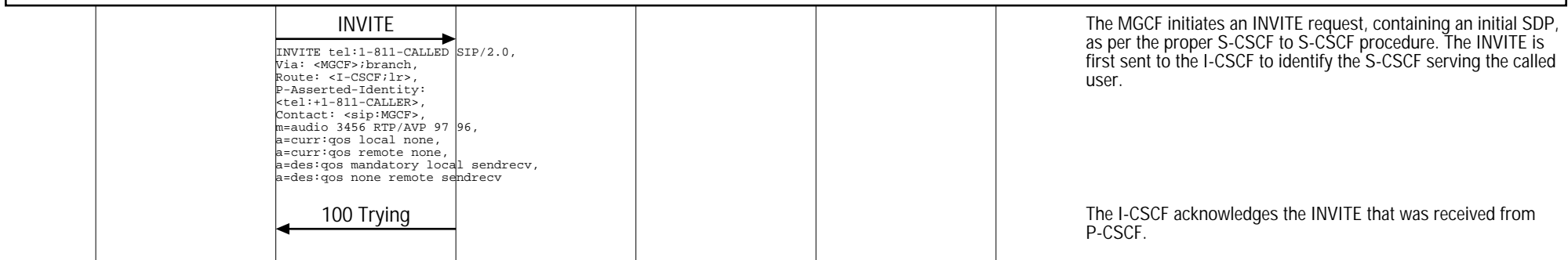
This sequence diagram was generated with EventStudio System Designer 4.0 (<http://www.EventHelix.com/EventStudio>). Copyright © 2008 EventHelix.com Inc. All Rights Reserved. The EventStudio source files for this document can be downloaded from <http://www.eventhelix.com/call-flow/pstn-ims-call.zip>.

LEG: Detailed PSTN to IMS Call Setup

ISUP IAM Handling and Initial IM-MGW and MGCF (Mn) Interactions



Initial Handshake between MGCF and IMS CSCF Servers



MGCF Interfaces (PSTN-ISUP Originated Call; IM-MGW Megaco/H.248 Signaling; PSTN Initiated Release)						
PSTN	IMS Core Network				Called UE	EventStudio System Designer 4.0
PSTN Equipment	PSTN Interface	CSCF Servers			Called User Equipment	
IM-MGW	MGCF	I-CSCF	Term S-CSCF	Term P-CSCF	Called	10-Feb-08 10:59 (Page 2)

183 Session Progress

```

Via: <MGCF>,
Record-Route: <Term
S-CSCF> <MGCF>,
Contact: <Calling UE
IP> :Port,
m=audio 6544 RTP/AVP 96,
a=curr:qos local none,
a=curr:qos remote none,
a=des:qos mandatory
local sendrecv,
a=des:qos mandatory
remote sendrecv

```

The UE replies indicating that the session is in progress. The contact address is set its own IP address. The Via and the Record-Route headers are copied from the received INVITE.

Mn Interactions for Codec selection

H.248: MOD.req

Context ID = C1,
Termination ID = RTP-1

H.248: MOD.resp

Context ID = C1,
Termination ID = RTP-1

PRACK

```

a=curr:qos local sendrecv,
a=curr:qos remote none,
a=des:qos mandatory local sendrecv,
a=des:qos mandatory remote sendrecv

```

200 OK (PRACK)

180 Ringing

PRACK

200 OK (PRACK)

The MGCF indicates the remote IP address and UDP port, i.e. the destination IP address and UDP port for RTP messages sent towards the terminating IMS UE. It also identifies the codec to be used in the IM-MGW to Terminating UE RTP communication.

Reply to MGCF. The final codec selection is indicated.

The Caller now sends a PRACK to inform the called subscriber about the selected Codec. The message also indicates that currently the resources needed for meeting the quality of service requirements of the session are already available ("a=curr:qos local sendrecv").

This "200 OK" just acknowledges PRACK.

Inform the caller that the called subscriber is being rung. This serves as an implicit indication to the caller that the QoS at the called side has also been met.

The caller acknowledges the ringing message.

The called subscriber acknowledges the PRACK.

ISUP ACM related interactions on Mn interface.

ISUP: ACM

H.248: MOD.req

Context ID = C1,
Termination ID = TDM-1,
procedure = Send TDM Tone

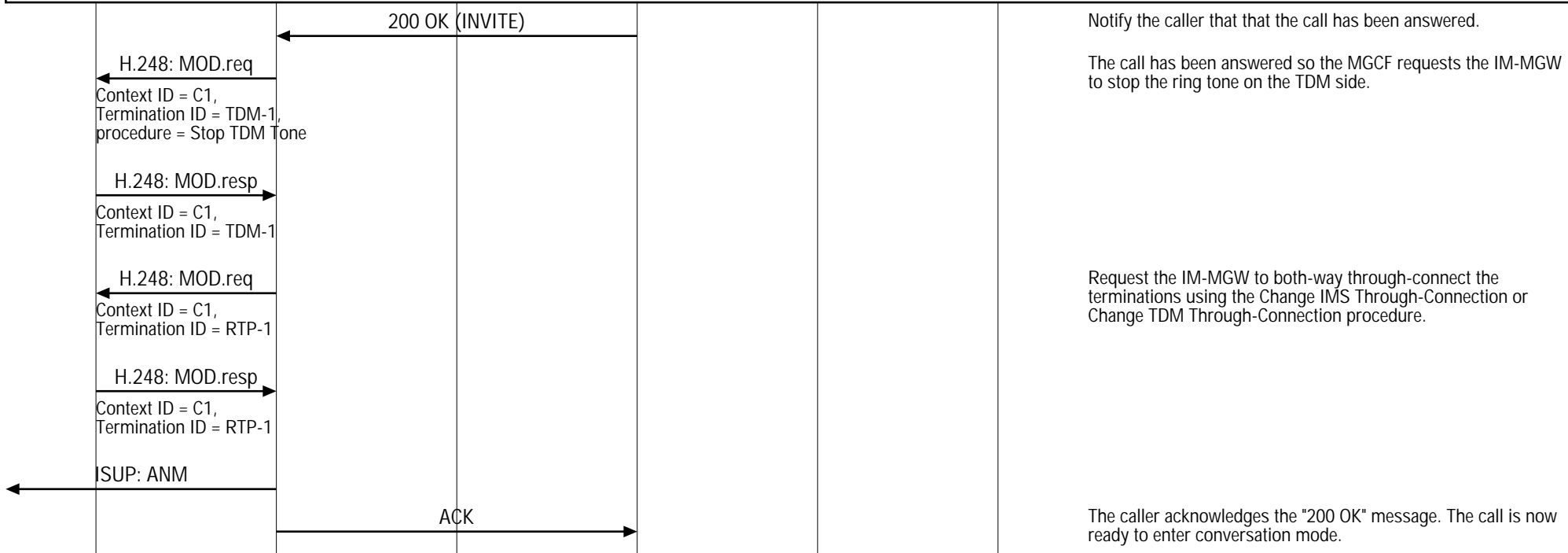
H.248: MOD.resp

Context ID = C1,
Termination ID = TDM-1

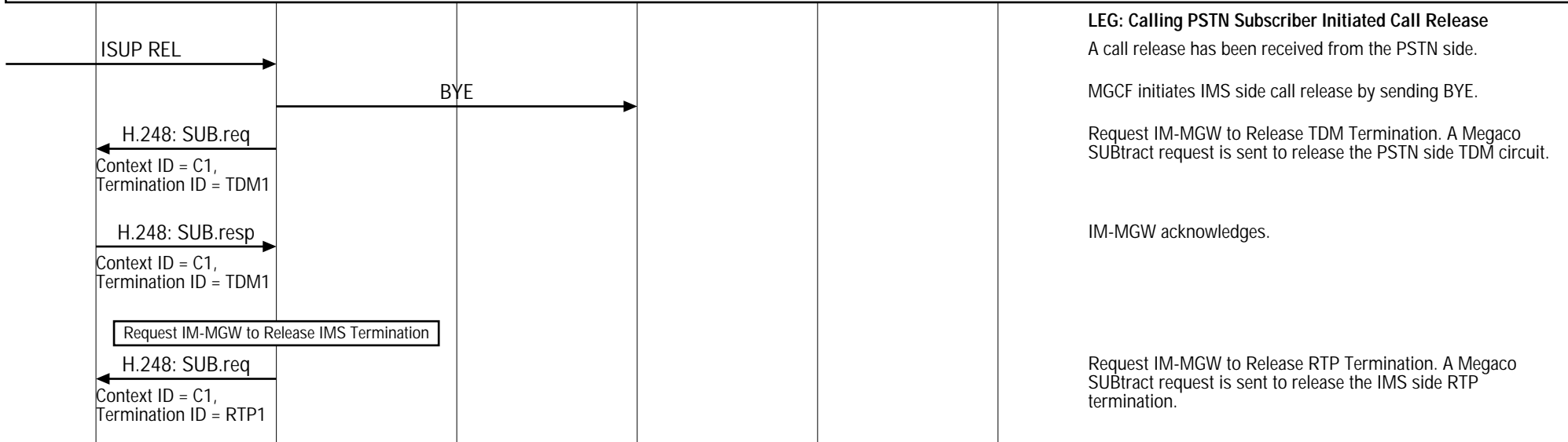
The MGCF requests the IM-MGW to provide a ringing tone to the calling party using the Send TDM Tone procedure.

MGCF Interfaces (PSTN-ISUP Originated Call; IM-MGW Megaco/H.248 Signaling; PSTN Initiated Release)						
PSTN	IMS Core Network				Called UE	EventStudio System Designer 4.0
PSTN Equipment	PSTN Interface	CSCF Servers			Called User Equipment	
IM-MGW	MGCF	I-CSCF	Term S-CSCF	Term P-CSCF	Called	10-Feb-08 10:59 (Page 3)

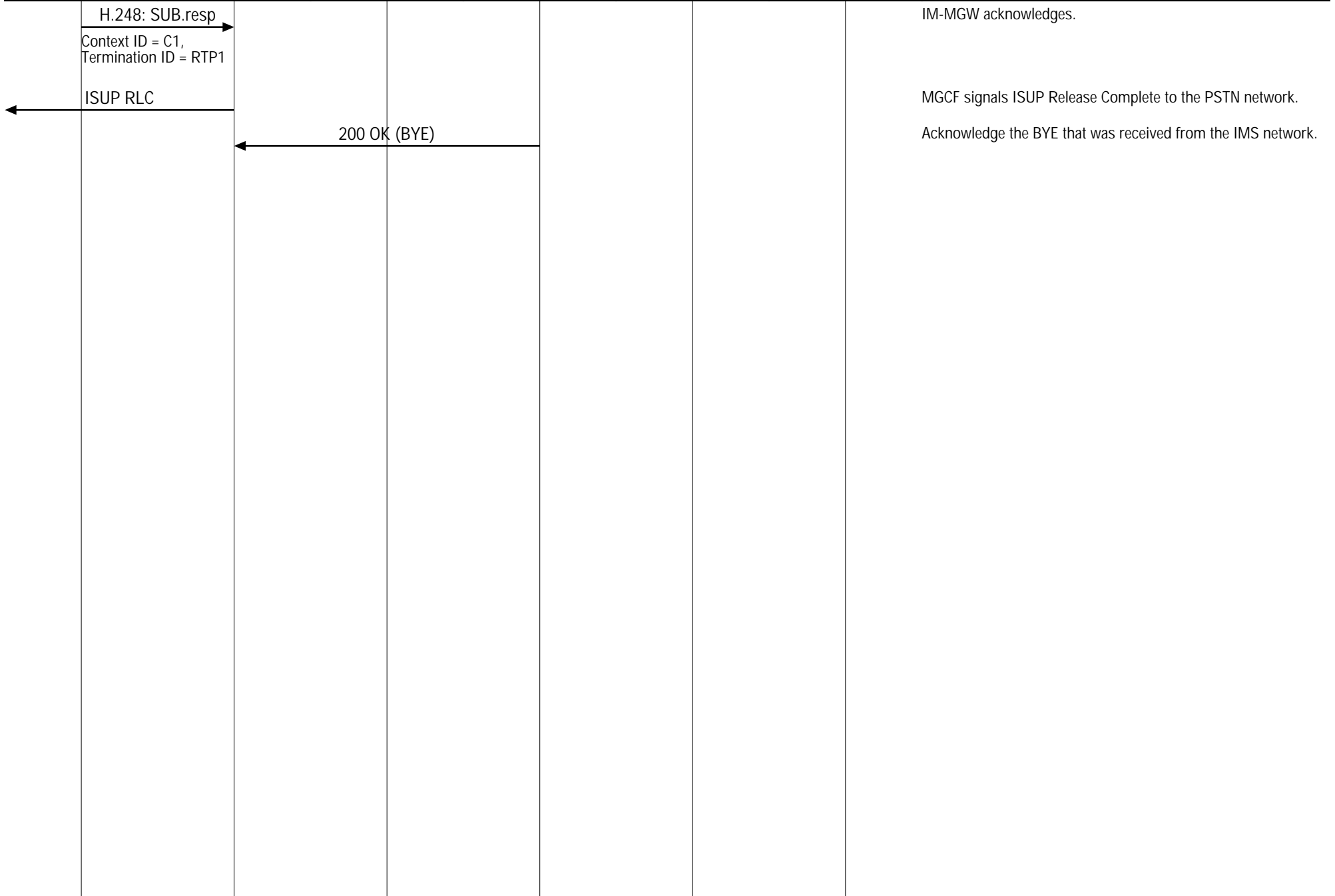
IMS Answer to ISUP ANM Handling



Conversation Mode



MGCF Interfaces (PSTN-ISUP Originated Call; IM-MGW Megaco/H.248 Signaling; PSTN Initiated Release)						
PSTN	IMS Core Network				Called UE	EventStudio System Designer 4.0
PSTN Equipment	PSTN Interface	CSCF Servers			Called User Equipment	
IM-MGW	MGCF	I-CSCF	Term S-CSCF	Term P-CSCF	Called	10-Feb-08 10:59 (Page 4)



MGCF Interfaces (Called IMS Subscriber Initiated Call Release)						
PSTN	IMS Core Network				Called UE	EventStudio System Designer 4.0
PSTN Equipment	PSTN Interface	CSCF Servers			Called User Equipment	
IM-MGW	MGCF	I-CSCF	Term S-CSCF	Term P-CSCF	Called	10-Feb-08 10:59 (Page 5)

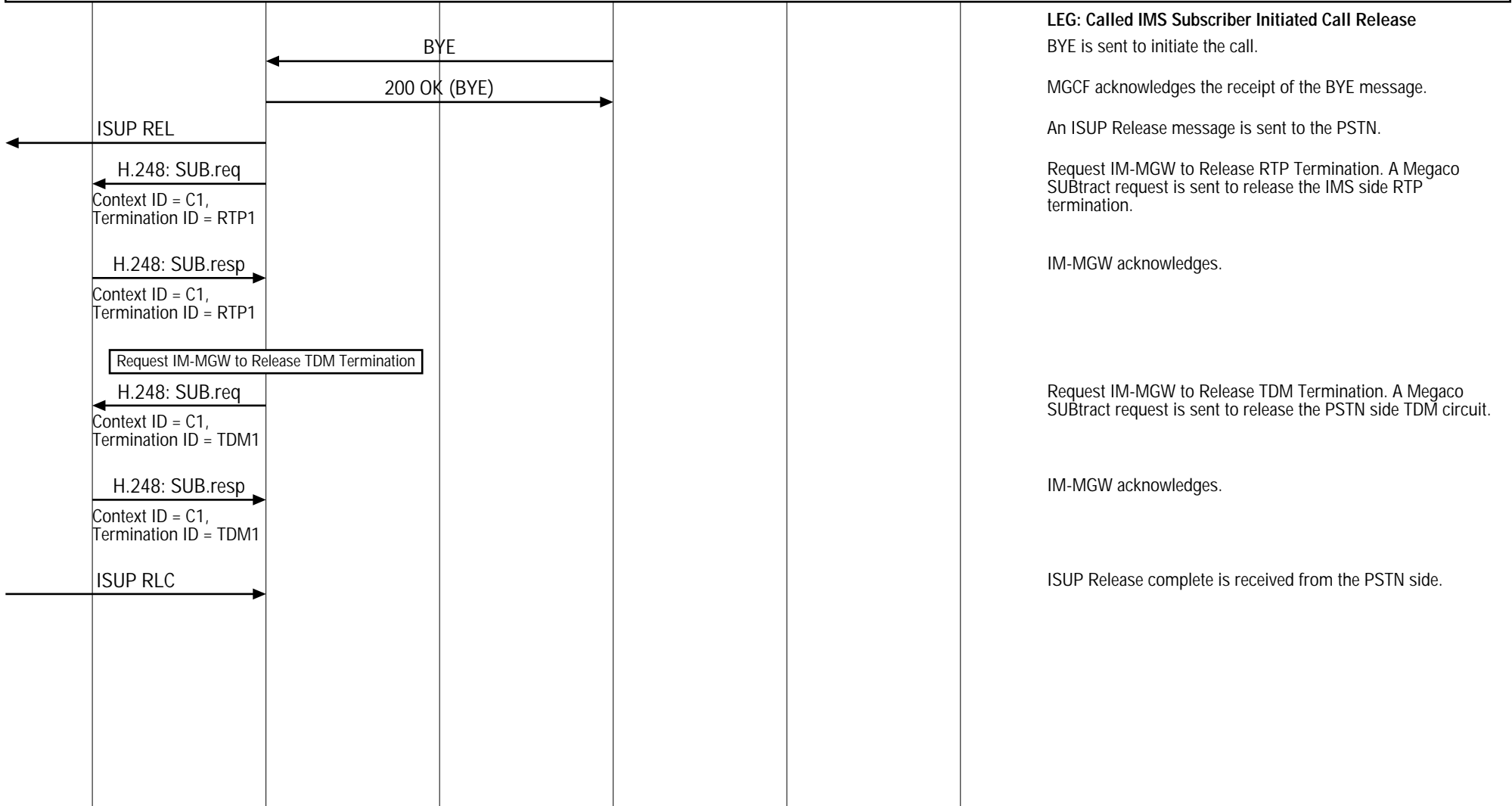
This call flow covers the handling of a CS network originated call with ISUP. In the diagram the MGCF requests seizure of the IM CN subsystem side termination and CS network side bearer termination. When the MGCF receives an answer indication, it requests the IM-MGW to both-way through-connect the terminations.

This sequence diagram was generated with EventStudio System Designer 4.0 (<http://www.EventHelix.com/EventStudio>). Copyright © 2008 EventHelix.com Inc. All Rights Reserved. The EventStudio source files for this document can be downloaded from <http://www.eventhelix.com/call-flow/pstn-ims-call.zip>.

LEG: Summary PSTN to IMS Call Flow

Call Setup (Same as Previous Scenario)

Conversation Mode



LEG: Called IMS Subscriber Initiated Call Release
 BYE is sent to initiate the call.

MGCF acknowledges the receipt of the BYE message.

An ISUP Release message is sent to the PSTN.

Request IM-MGW to Release RTP Termination. A Megaco SUBtract request is sent to release the IMS side RTP termination.

IM-MGW acknowledges.

Request IM-MGW to Release TDM Termination. A Megaco SUBtract request is sent to release the PSTN side TDM circuit.

IM-MGW acknowledges.

ISUP Release complete is received from the PSTN side.