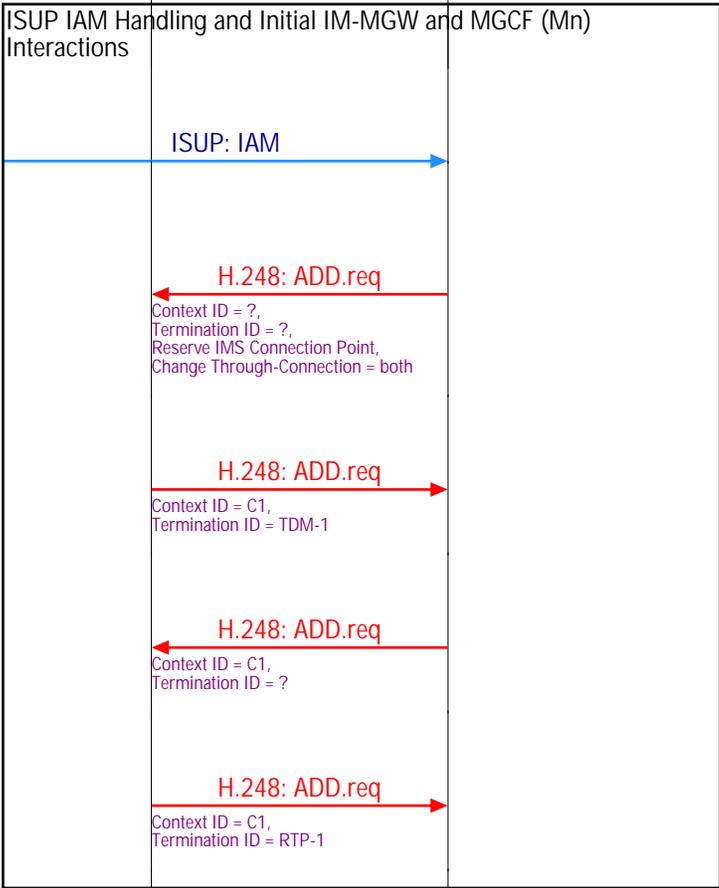


Processor Interfaces (PSTN-ISUP Originated Call; IM-MGW Megaco/H.248 Signaling; PSTN Initiated Release)				
PSTN	IMS Core Network		Called UE	Copyright © 2013 EventHelix.com
PSTN Equipment	PSTN Interface	CSCF Servers	Called User Equipment	10-Jan-13 16:23 (Page 1)

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 (<http://www.EventHelix.com/EventStudio>).



The CS Network establishes a bearer path to the IM-MGW, and signals to the MGCF with a IAM message, giving the trunk identity, destination information and optionally the continuity indication. The message is routed to MGCF via the Signaling Gateway (SGW).

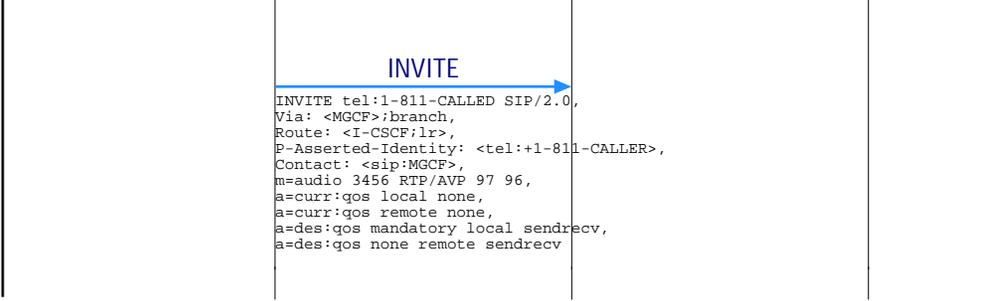
Request addition of a new context and termination. The MGCF uses the Reserve IMS Connection Point procedure. Within this procedure, the MGCF indicates the local codecs and requests a local IP address and UDP port from the IM-MGW. The local IP address and UDP port are used by the IM-MGW to receive user plane data from the IM CN subsystem.

The IM-CN responds back with Context "C1" and a TDM side termination "TDM-1".

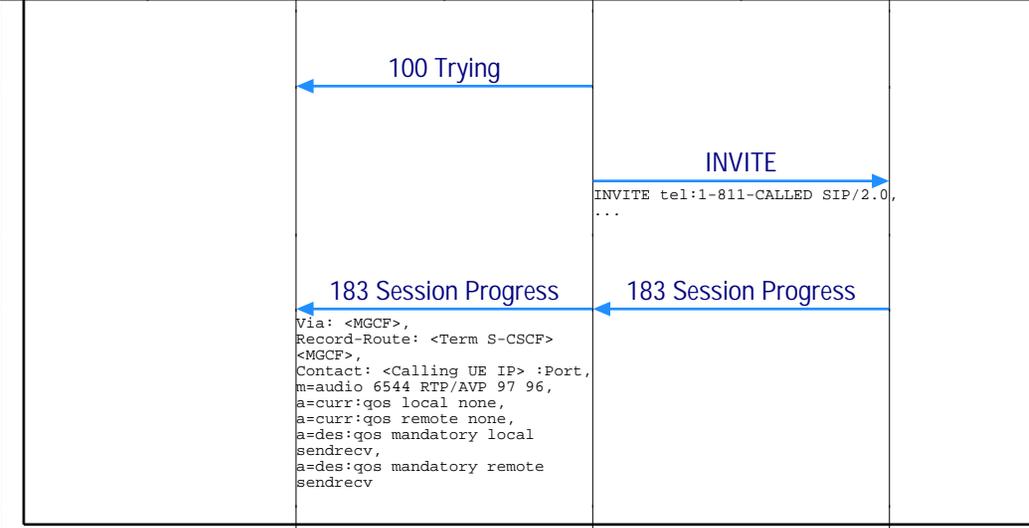
Request addition of an RTP termination to the "C1" context. Change IMS Through Connection = backward.

The IM-MGW adds the "RTP-1" termination to the "C1" context. At this point "TDM-1" is a circuit switched termination and "RTP-1" is a RTP based IP termination for communicating with the terminating IMS subscriber.

Initial Handshake between MGCF and IMS CSCF Servers



The MGCF initiates an INVITE request, containing an initial SDP, as per the proper S-CSCF to S-CSCF procedure. The INVITE is first sent to the I-CSCF to identify the S-CSCF serving the called user.

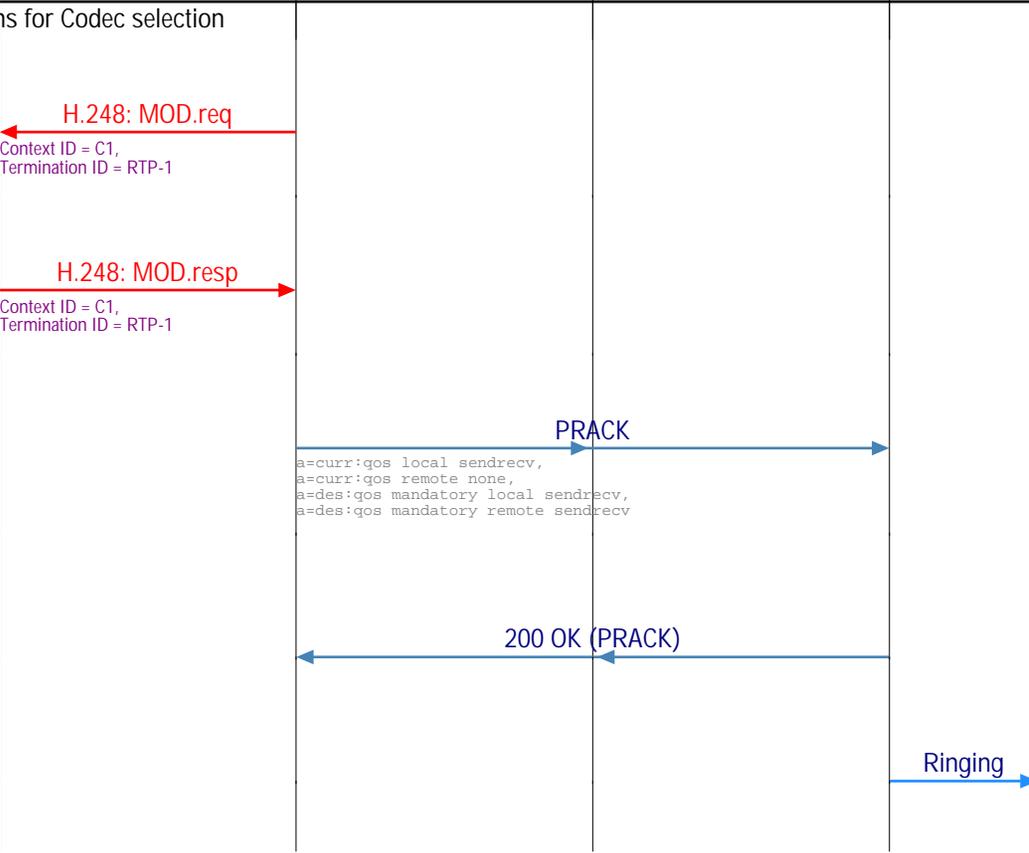


The I-CSCF acknowledges the INVITE that was received from P-CSCF.

The P-CSCF updates the Via and Route-Record headers and forwards the request to the Called UE. Note that the secure port is included in the Via address specification.

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



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.

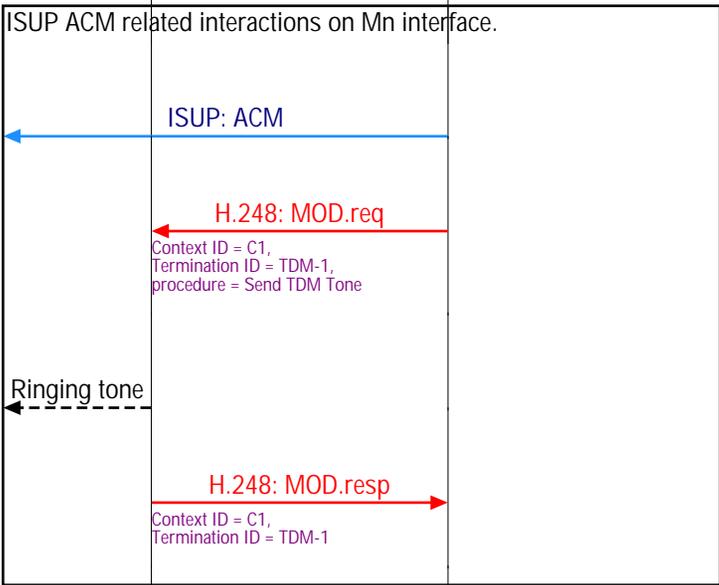
The Caller now sends a PRACK to inform the called subscriber about the selected Codec. The message also indicates that currently the resources needed for meeting the quality of service requirements of the session are already available ("a=curr:qos local sendrecv").

This "200 OK" just acknowledges PRACK.

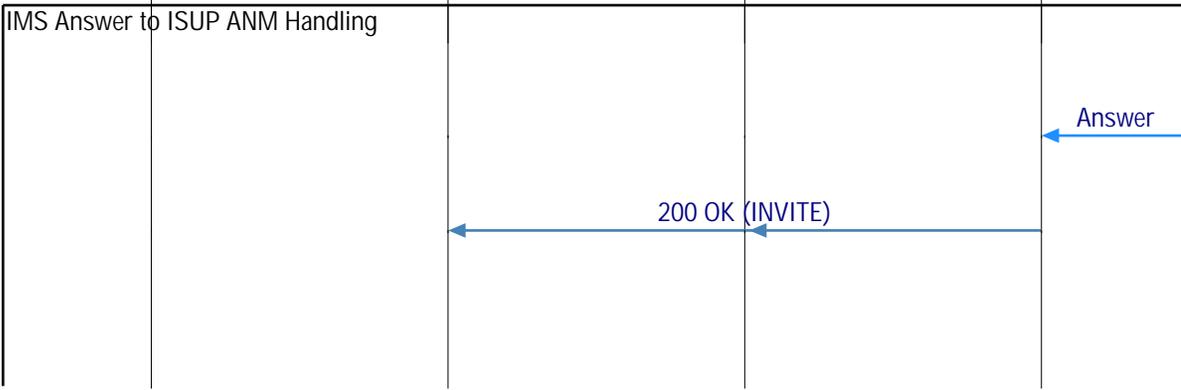
Now all the resources for the call are in place. Ring the called subscriber to notify the user about the incoming call.

Processor Interfaces (PSTN-ISUP Originated Call; IM-MGW Megaco/H.248 Signaling; PSTN Initiated Release)

PSTN	IMS Core Network		Called UE	Copyright © 2013 EventHelix.com
PSTN Equipment	PSTN Interface	CSCF Servers	Called User Equipment	10-Jan-13 16:23 (Page 3)



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

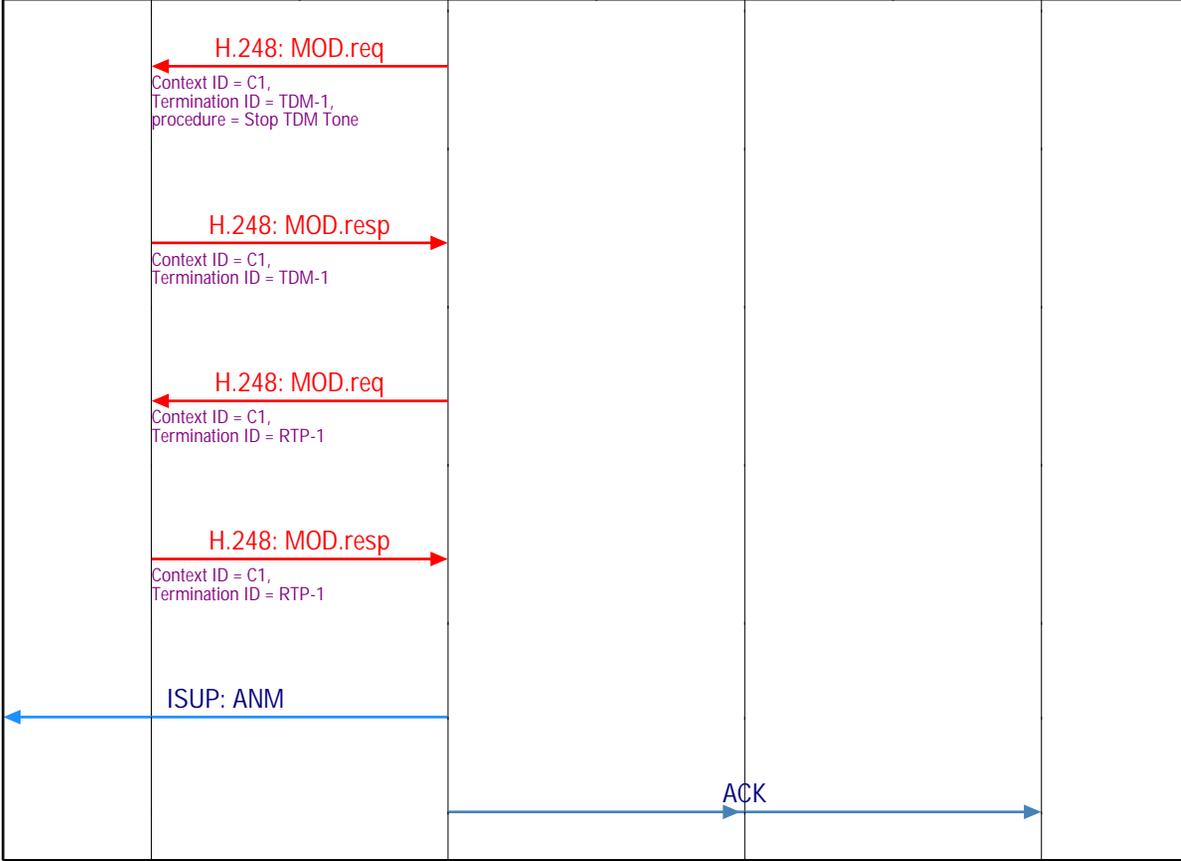


The called subscriber answers the call.

Notify the caller that that the call has been answered.

Processor Interfaces (PSTN-ISUP Originated Call; IM-MGW Megaco/H.248 Signaling; PSTN Initiated Release)

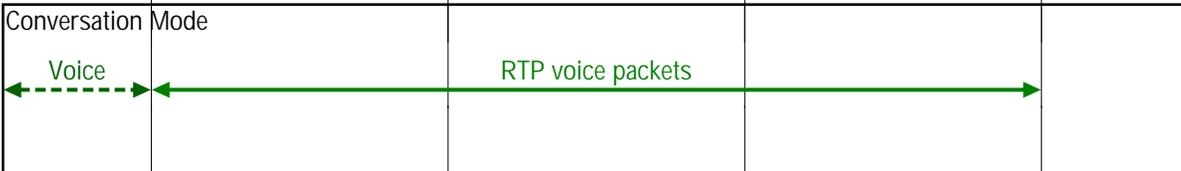
PSTN	IMS Core Network		Called UE	Copyright © 2013 EventHelix.com
PSTN Equipment	PSTN Interface	CSCF Servers	Called User Equipment	10-Jan-13 16:23 (Page 4)



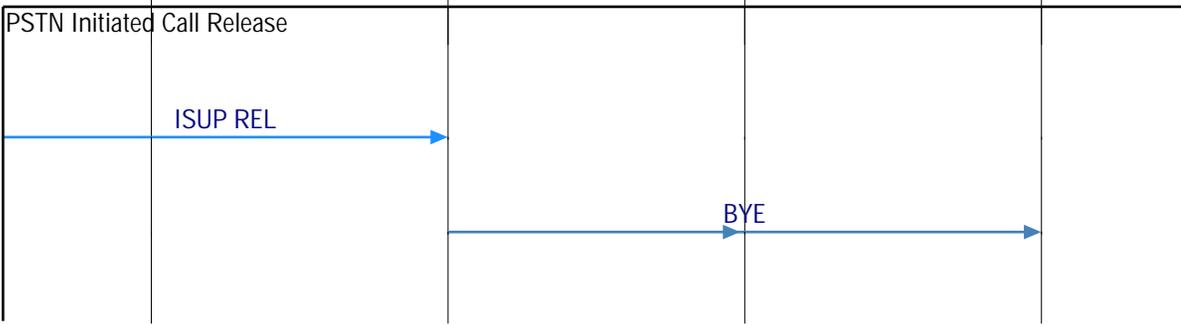
The call has been answered so the MGCF requests the IM-MGW to stop the ring tone on the TDM side.

Request the IM-MGW to both-way through-connect the terminations using the Change IMS Through-Connection or Change TDM Through-Connection procedure.

The caller acknowledges the "200 OK" message. The call is now ready to enter conversation mode.

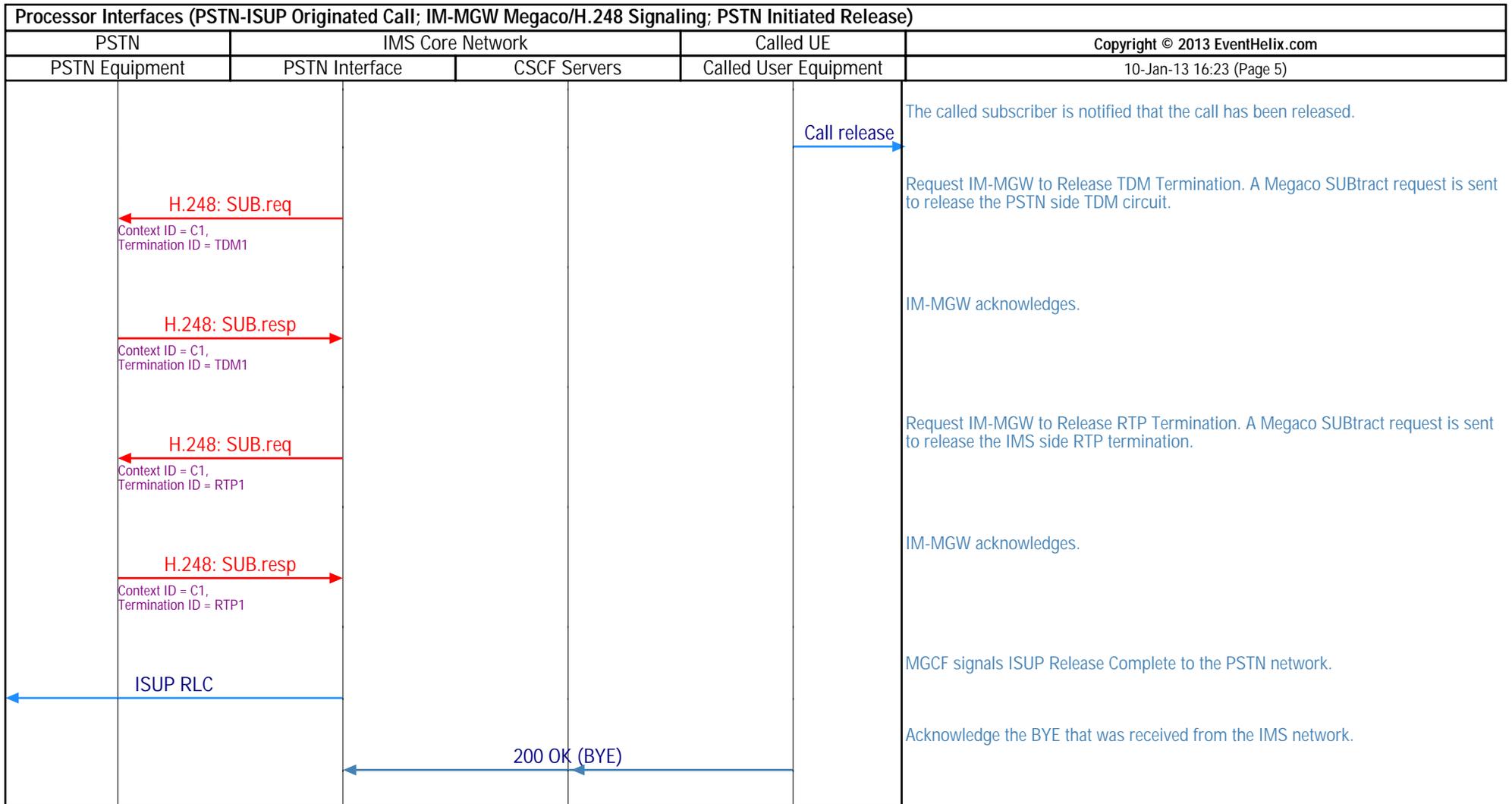


Conversation is now in progress. The voice is carried as PCM between the PSTN and IM-MGW. The IM-MGW converts the speech into RTP packets and back. The RTP communication takes place directly between the IM-MGW and Called IMS subscriber.



A call release has been received from the PSTN side.

MGCF initiates IMS side call release by sending BYE.

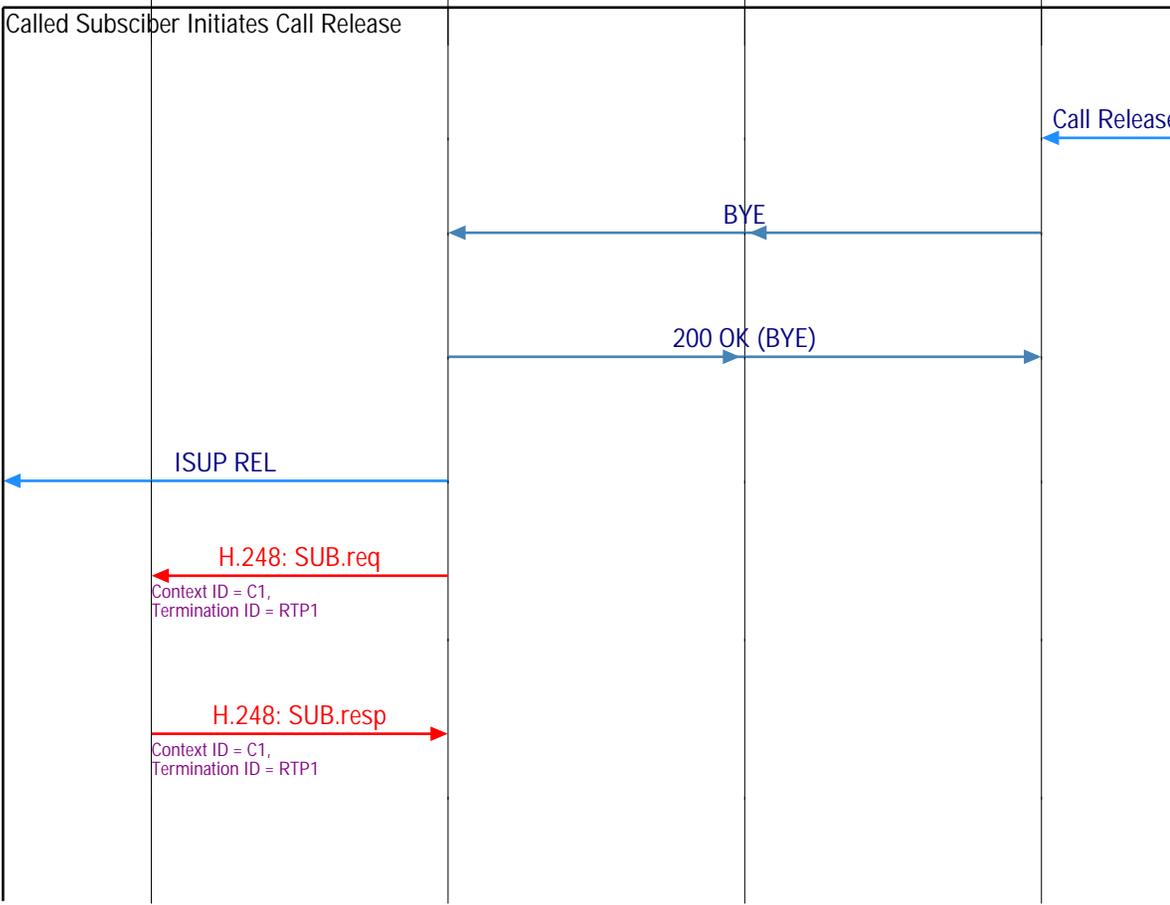
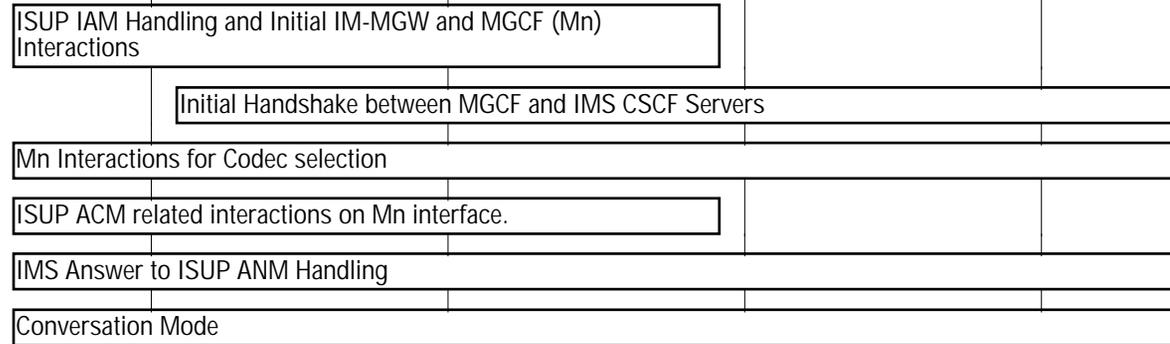


This sequence diagram was generated with EventStudio System Designer (<http://www.EventHelix.com/EventStudio>).

Processor Interfaces (Alternate Scenario: Called IMS Subscriber Initiated Call Release)				
PSTN	IMS Core Network		Called UE	Copyright © 2013 EventHelix.com
PSTN Equipment	PSTN Interface	CSCF Servers	Called User Equipment	10-Jan-13 16:23 (Page 6)

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 (<http://www.EventHelix.com/EventStudio>).



Called subscriber decides to release the call.

Call Release

BYE is sent to initiate the call.

BYE

MGCF acknowledges the receipt of the BYE message.

200 OK (BYE)

An ISUP Release message is sent to the PSTN.

ISUP REL

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

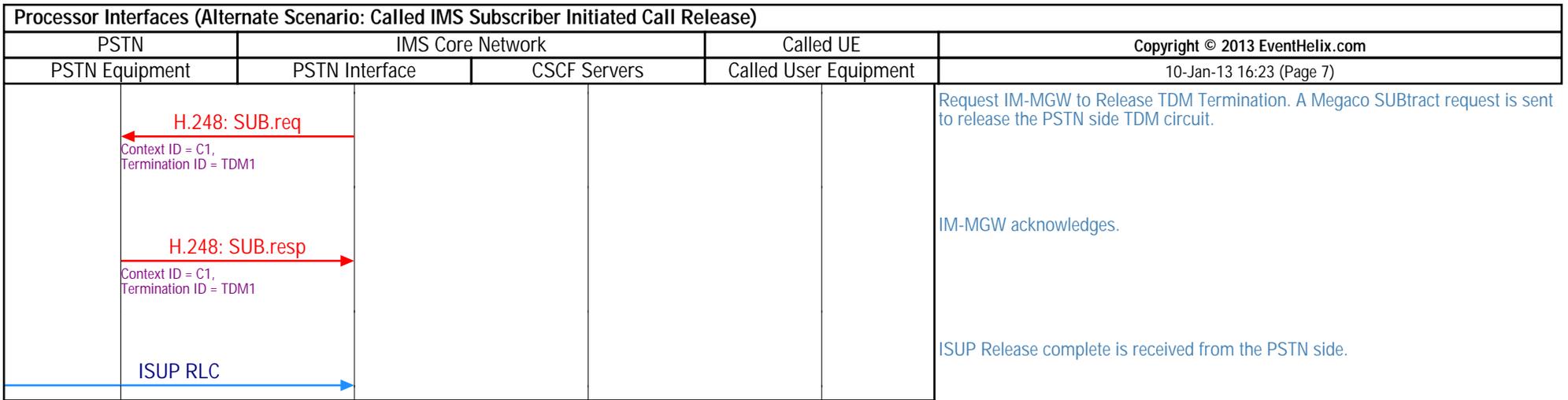
H.248: SUB.req

Context ID = C1, Termination ID = RTP1

H.248: SUB.resp

Context ID = C1, Termination ID = RTP1

IM-MGW acknowledges.



This sequence diagram was generated with EventStudio System Designer (<http://www.EventHelix.com/EventStudio>).