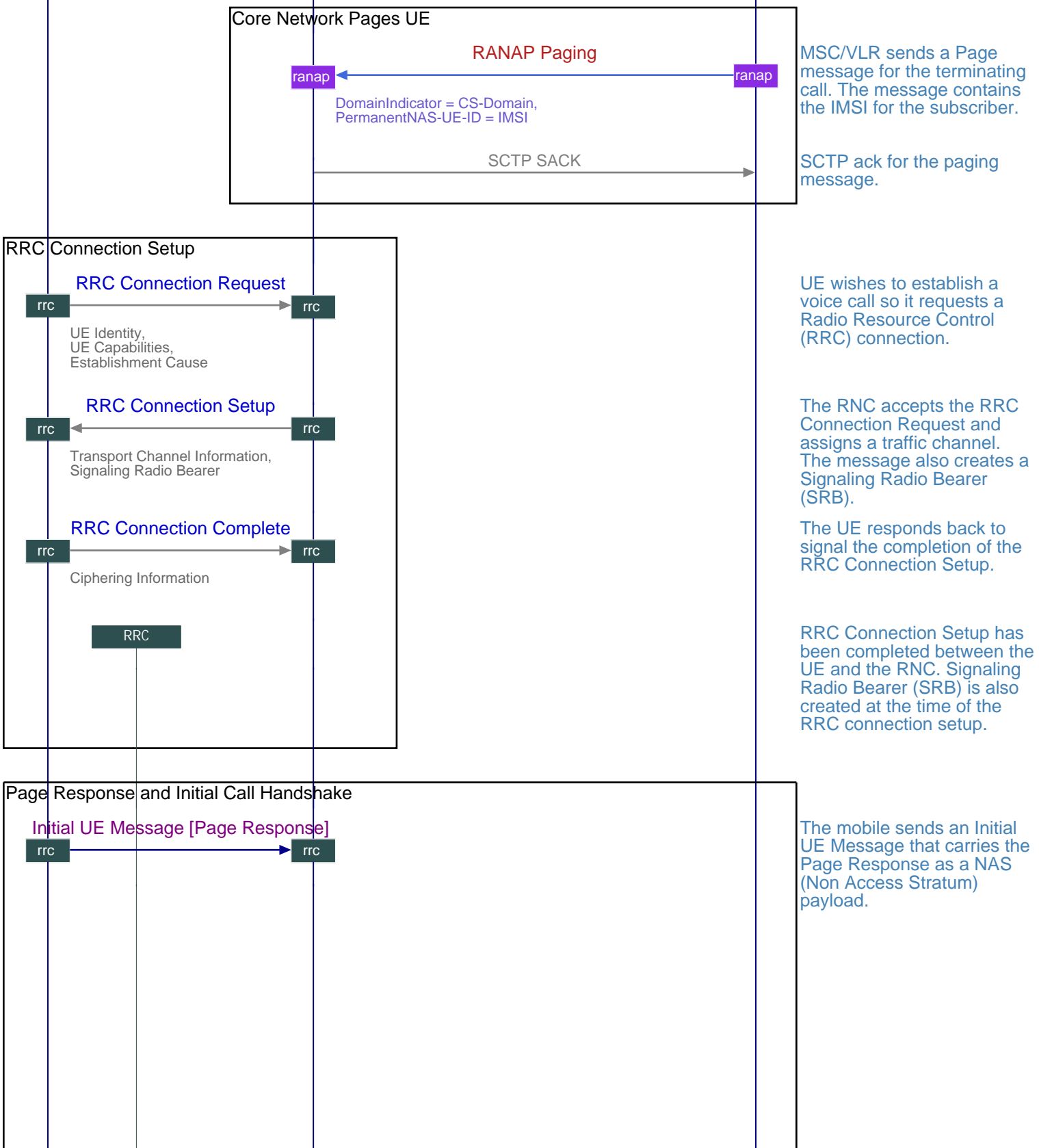


3G UMTS Mobile Terminating Call (SequenceProject)							
User Equipment	UE-RNC Sessions	UTRAN	RNC-Core Network Sessions			Core Network	EventStudio System Designer 6
UE		RNC				MSC/VLR	09-Feb-14 19:43 (Page 1)

A 3G-UMTS terminating call is described here. Setup radio bearers and RANAP signaling are covered in detail. You can click on most RANAP messages to see the full content of the message.

This call flow has been generated with from a Wireshark PCAP file using VisualEther (<http://www.eventhelix.com/VisualEther/>). The generated call flow was later modified with EventStudio (<http://www.eventhelix.com/EventStudio/>) to add comments and terminal level interactions.



MSC/VLR sends a Page message for the terminating call. The message contains the IMSI for the subscriber.

SCTP ack for the paging message.

UE wishes to establish a voice call so it requests a Radio Resource Control (RRC) connection.

The RNC accepts the RRC Connection Request and assigns a traffic channel. The message also creates a Signaling Radio Bearer (SRB).

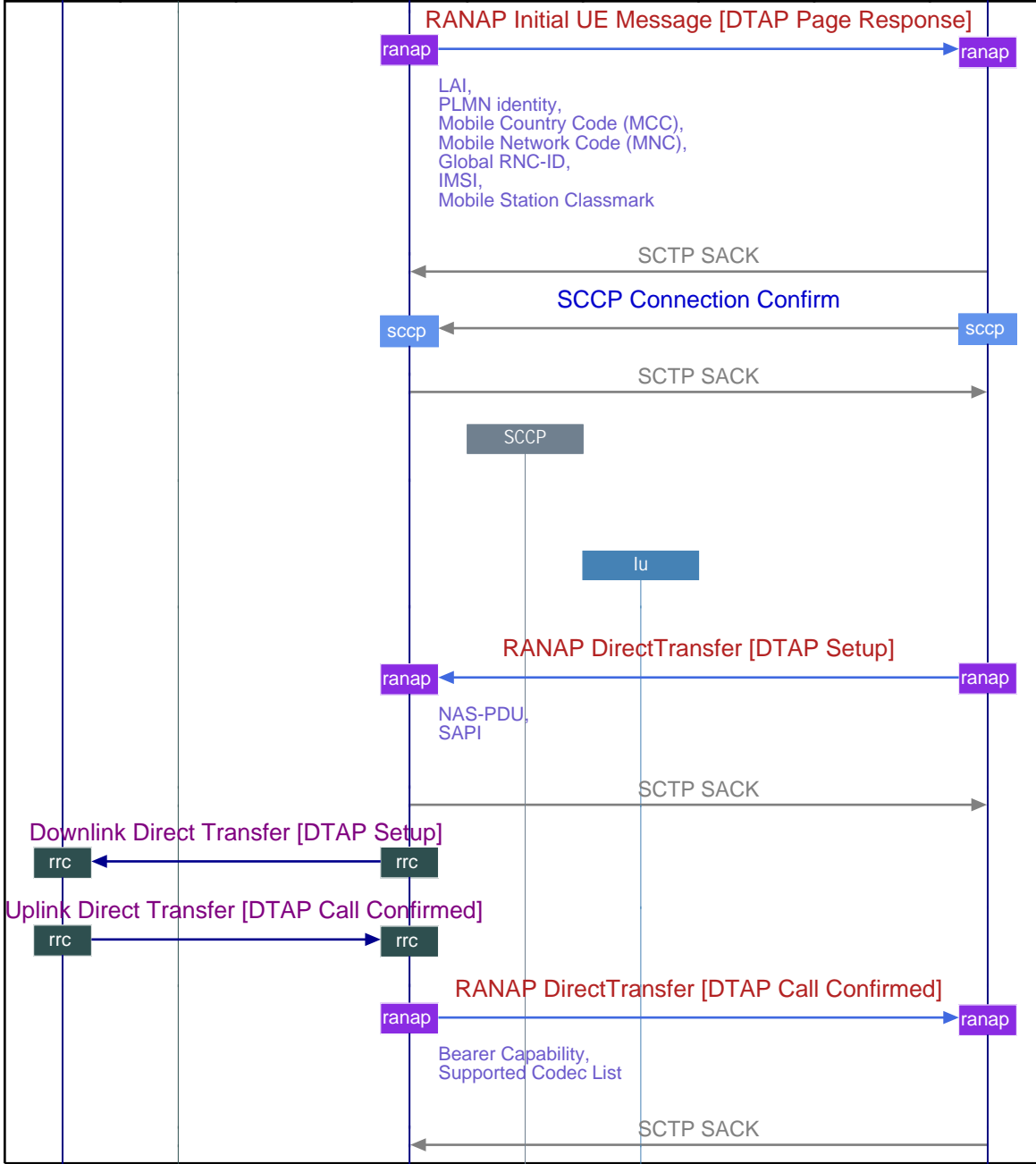
The UE responds back to signal the completion of the RRC Connection Setup.

RRC Connection Setup has been completed between the UE and the RNC. Signaling Radio Bearer (SRB) is also created at the time of the RRC connection setup.

The mobile sends an Initial UE Message that carries the Page Response as a NAS (Non Access Stratum) payload.

3G UMTS Mobile Terminating Call (SequenceProject)

User Equipment	UE-RNC Sessions	UTRAN	RNC-Core Network Sessions	Core Network	EventStudio System Designer 6
UE	RRC	RNC		MSC/VLR	09-Feb-14 19:43 (Page 2)



The Page Response is sent in a RANAP message.

SCCP connection setup is confirmed.

The SCCP connection has been established between the RNC and the Core Network.

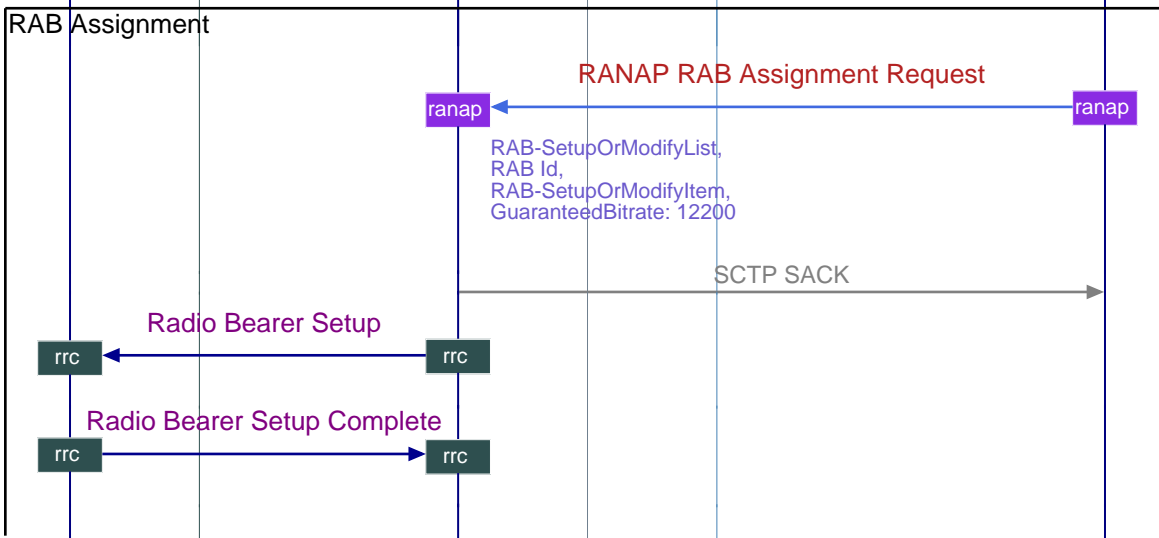
An lu signaling connection is now active between the RNC and the Core Network.

The MSC sends a Setup message as NAS payload in a Direct Transfer message.

Send the Setup message to the UE.

Call Confirmation is received as a NAS payload.

Call Confirmed message with Bearer and Codec information is sent from the RNC to the MSC/VLR.



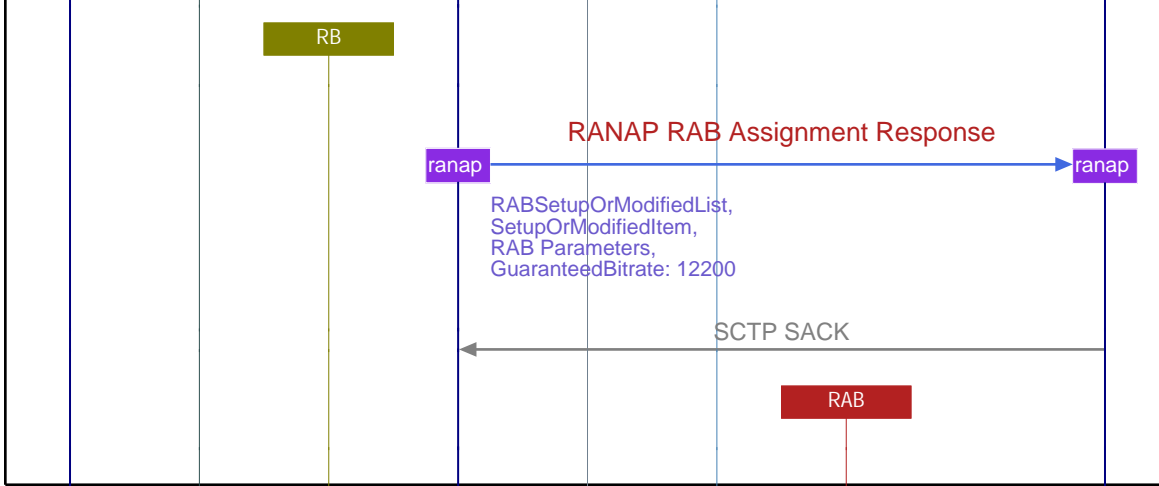
Core Network initiates a Radio Access Bearer (RAB) Assignment. The message specifies the Quality of Service parameters.

Setup the Radio Bearer to assign circuit switched resources to the voice call.

Terminal responds back.

3G UMTS Mobile Terminating Call (SequenceProject)

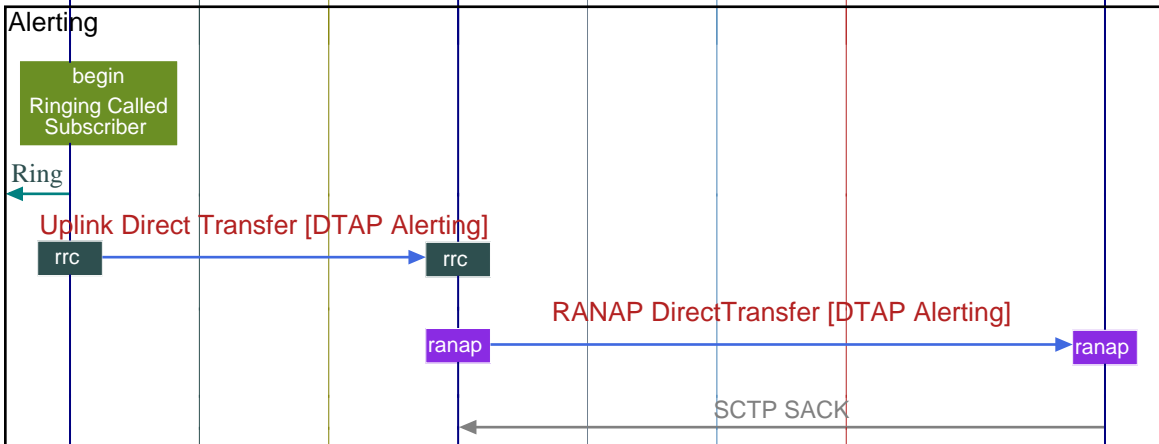
User Equipment	UE-RNC Sessions		UTRAN	RNC-Core Network Sessions			Core Network	EventStudio System Designer 6
UE	RRC		RNC	SCCP	Iu		MSC/VLR	09-Feb-14 19:43 (Page 3)



Radio Bearer has now been established between the UE and the RNC.

RNC responds to Core Network after completing RB Setup with the Terminal.

The voice radio access bearer has been successfully created.

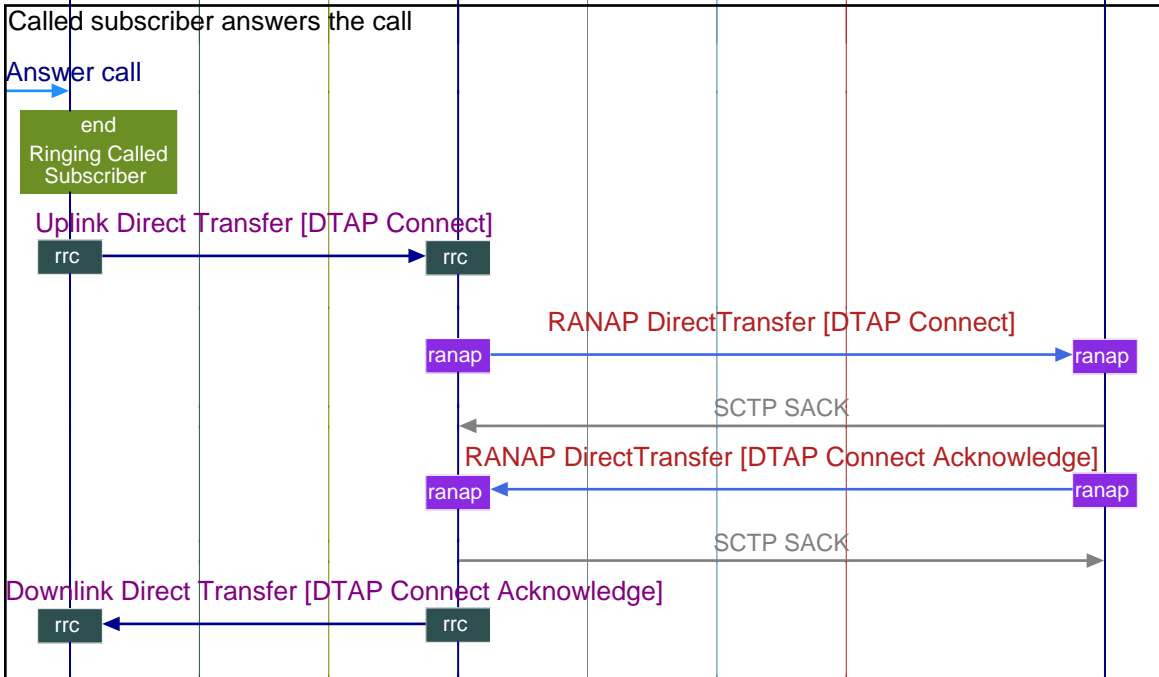


The called subscribers phone is now ringing.

The called subscribers phone is now ringing.

Notify the Core Network that the called subscriber is being rung.

Waiting for the called subscriber to answer the call.



Notify that the called subscriber has answered the call.

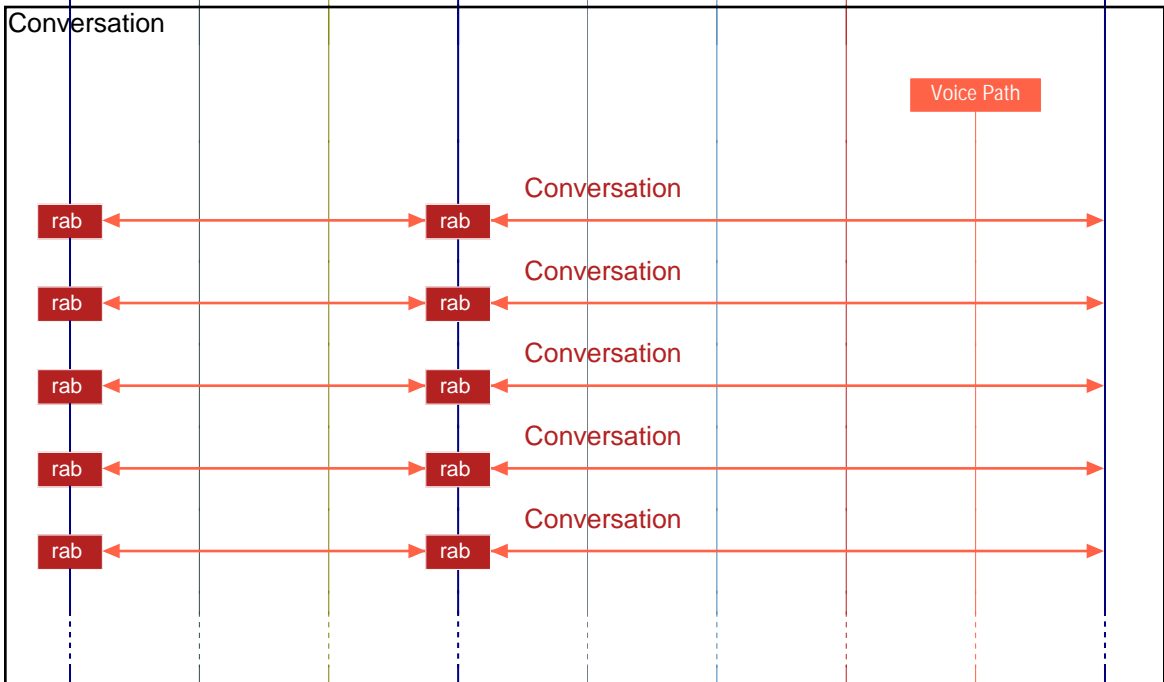
Notify the MSC/VLR that the call has been answered.

Core Network acknowledges the call connect.

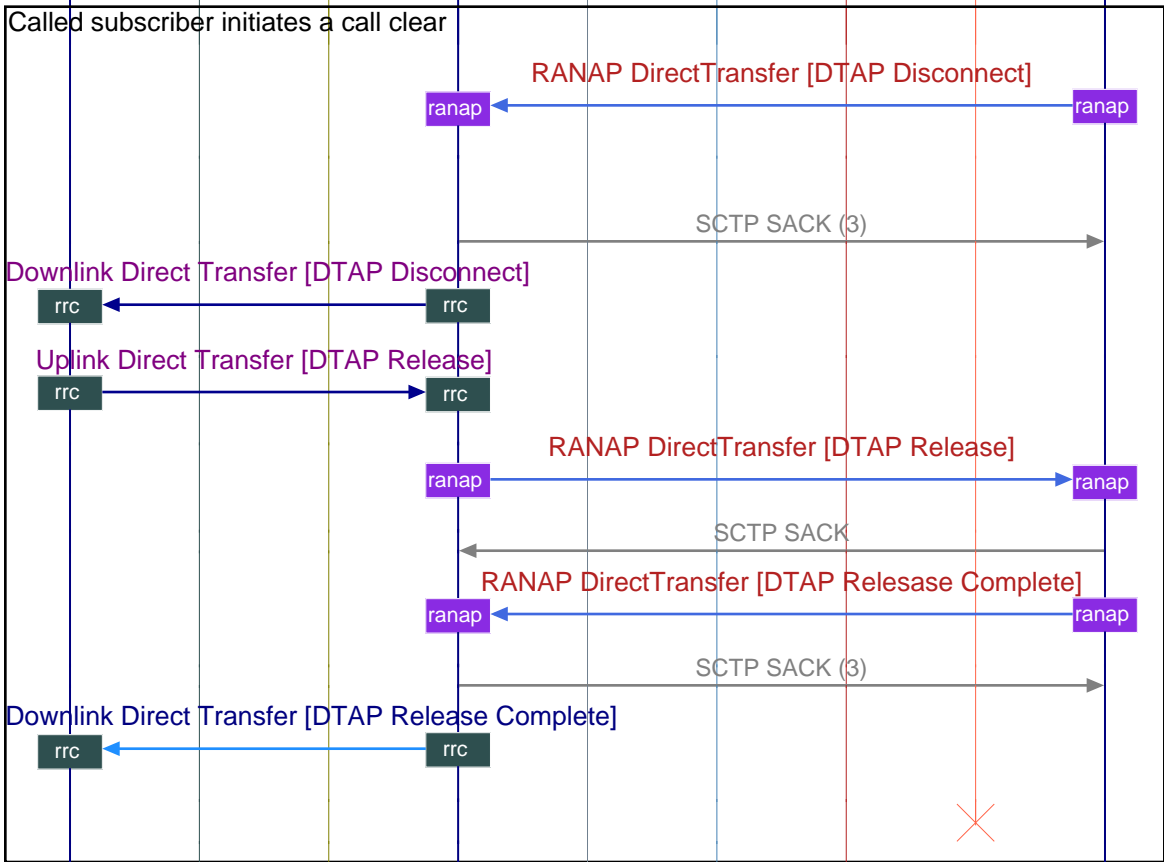
The RRC layer transports the Connect Acknowledge to the UE.

3G UMTS Mobile Terminating Call (SequenceProject)

User Equipment	UE-RNC Sessions		UTRAN	RNC-Core Network Sessions				Core Network	EventStudio System Designer 6
UE	RRC	RB	RNC	SCCP	Iu	RAB	MSC/VLR	09-Feb-14 19:43 (Page 4)	



Voice path is now active between the User Terminal and the Called Subscriber.
Voice communication in progress.



The called subscriber has initiated a call release. This results in a Disconnect message from the MSC/VLR to the RNC.

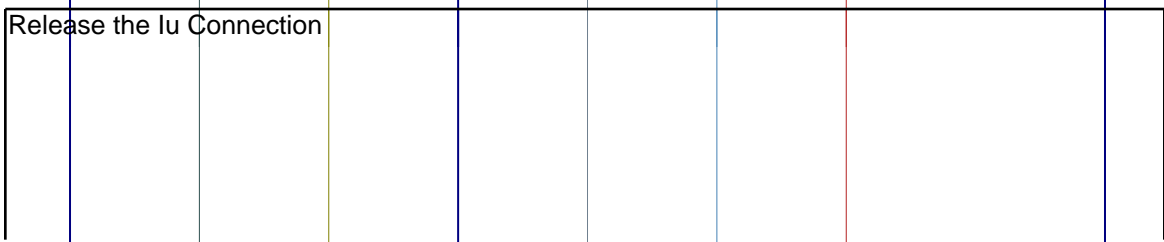
RNC forwards the disconnect to the UE.

UE sends the release message.

Call release is sent to the MSC/VLR.

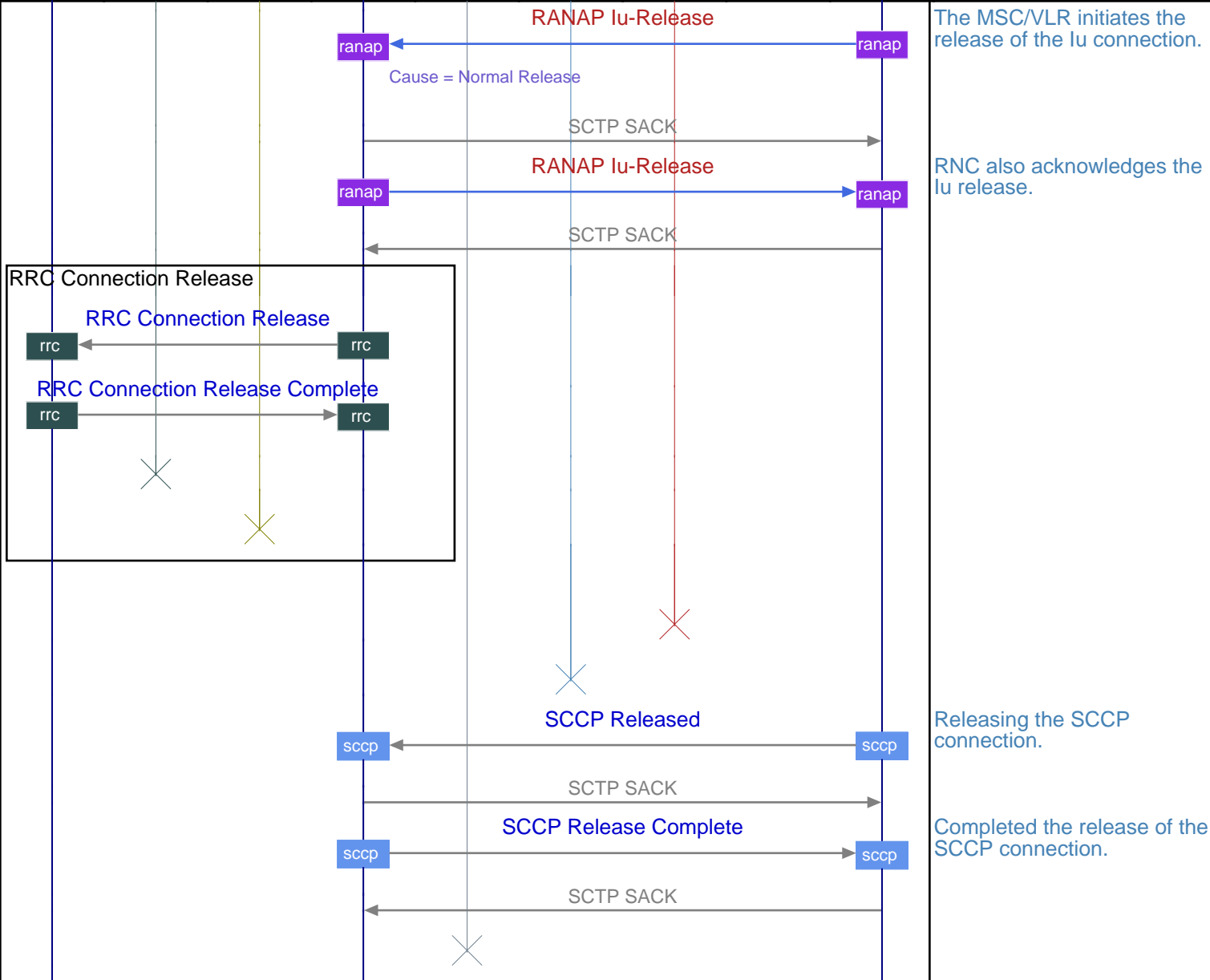
This message signals the completion of call release.

RNC forwards the release complete to the UE.



3G UMTS Mobile Terminating Call (SequenceProject)

User Equipment	UE-RNC Sessions		UTRAN	RNC-Core Network Sessions			Core Network	EventStudio System Designer 6
UE	RRC	RB	RNC	SCCP	Iu	RAB	MSC/VLR	09-Feb-14 19:43 (Page 5)



This call flow has been generated with from a Wireshark PCAP file using VisualEther (<http://www.eventhelix.com/VisualEther/>). The generated call flow was later modified with EventStudio (<http://www.eventhelix.com/EventStudio/>) to add comments and terminal level interactions.

Explore more call flow diagrams at: <http://www.eventhelix.com/realtimeantra/telecom/>