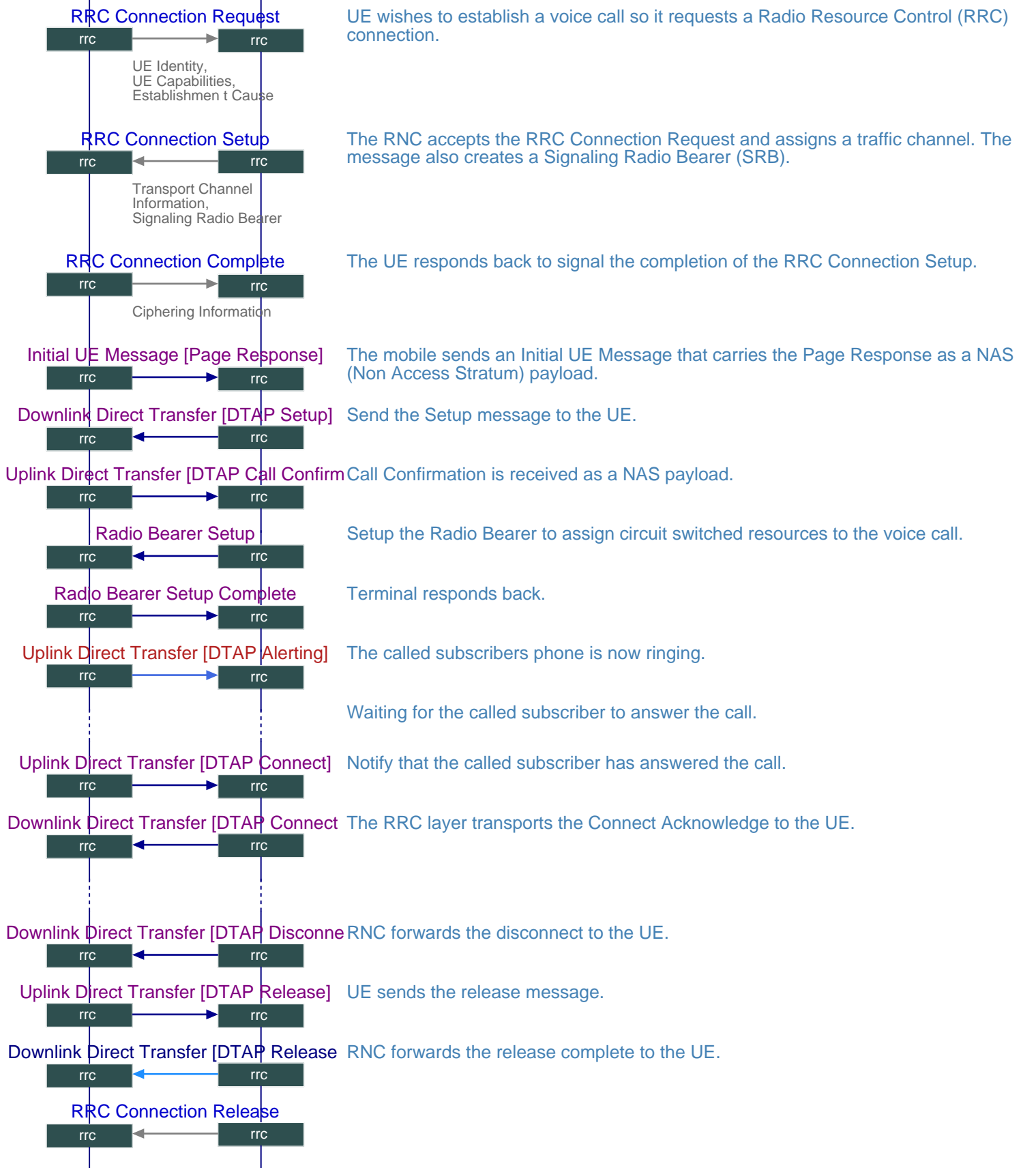A 3G-UMTS terminating call is described here. Setup radio bearers and RANAP signaling are covered in detail. You can click on most RANAP messages to see the full content of the message.

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.

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

UE Identity,
UE Capabilities,
Establishmen t Cause

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

Transport Channel Information,
Signaling Radio Bearer

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

Ciphering Information

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

Downlink Direct Transfer [DTAP Setup]
Send the Setup message to the UE.

Uplink Direct Transfer [DTAP Call Confirm
Call Confirmation is received as a NAS payload.

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

Radio Bearer Setup Complete
Terminal responds back.

Uplink Direct Transfer [DTAP Alerting]
The called subscribers phone is now ringing.

Waiting for the called subscriber to answer the call.

Uplink Direct Transfer [DTAP Connect]
Notify that the called subscriber has answered the call.

Downlink Direct Transfer [DTAP Connect
The RRC layer transports the Connect Acknowledge to the UE.

Downlink Direct Transfer [DTAP Disconne
RNC forwards the disconnect to the UE.

Uplink Direct Transfer [DTAP Release]
UE sends the release message.

Downlink Direct Transfer [DTAP Release
RNC forwards the release complete to the UE.

RRC Connection Release

RRC Connection Release Complete

rrc → rrc

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Explore more call flow diagrams at: http://www.eventhelix.com/realtimemantra/telecom/