

# VoLTE Support in CUPS


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## Revision History

**Note** Revision history details are not provided for features introduced before release 21.24.

| Revision Details | Release |
|---|---|
| First introduced | Pre 21.24 |

## Feature Description

VoLTE is now supported for P-GW (Pure-P) and SAE-GW (Collapsed) calls in the UPC CUPS Architecture.

With this release, the following functionalities are supported in this feature:

- SRVCC/CSFB support for VoLTE
- Support Suspend notification procedure
- Support Resume Notification procedure
- P-CSCF address selection.
- P-CSCF restoration.
- AF-Charging-ID support.
- Intelligent Graceful Shutdown support.
- PDN Reactivation support for IMS PDN

- Non-Standard QCI support

### Relationship

This feature is related to *Priority Recovery Support for VoLTE Calls*.

# How It Works

The functioning of VoLTE in CUPS is implemented at a minimal level in this release.

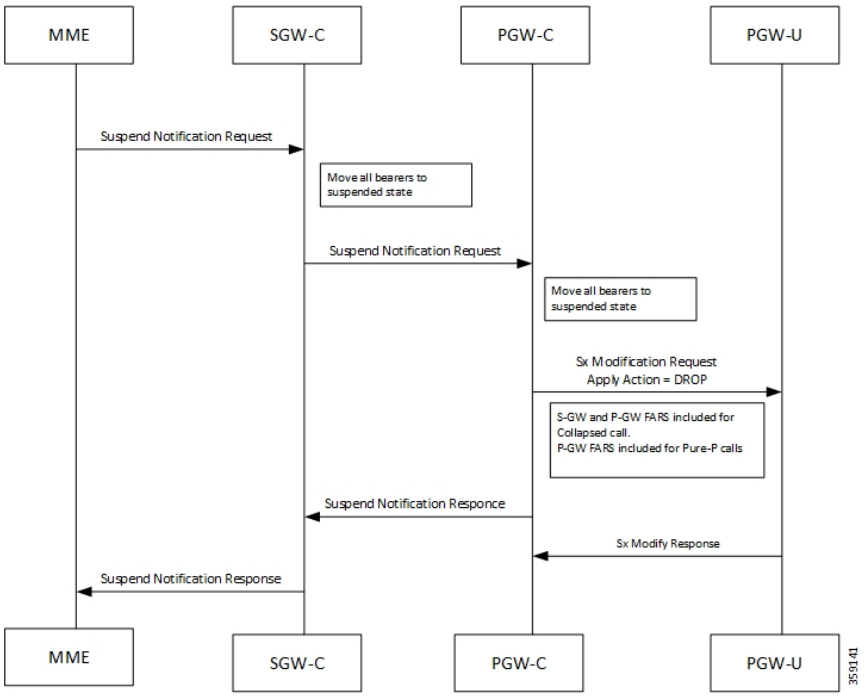
- Suspend Notification for Pure-P and Collapsed calls
- Resume Notification for Pure-P and Collapsed calls

# Call Flows VoLTE Support

The following section illustrates call flows that are in support of the VoLTE feature.

## Handling Suspend Notifications

The following call flow illustrates Suspend Notifications for Pure-P and Collapsed calls.




On receiving a Suspend Notification message, the PGW-C requests the PGW-U to discard packets received for the suspended PDN connection by setting the DROP flag in the Apply Action IE of the FARs of the corresponding PFCP session.

As part of the suspend notification, the following actions are sent for uplink and downlink data:

- S-GW uplink FARS - Forward Action

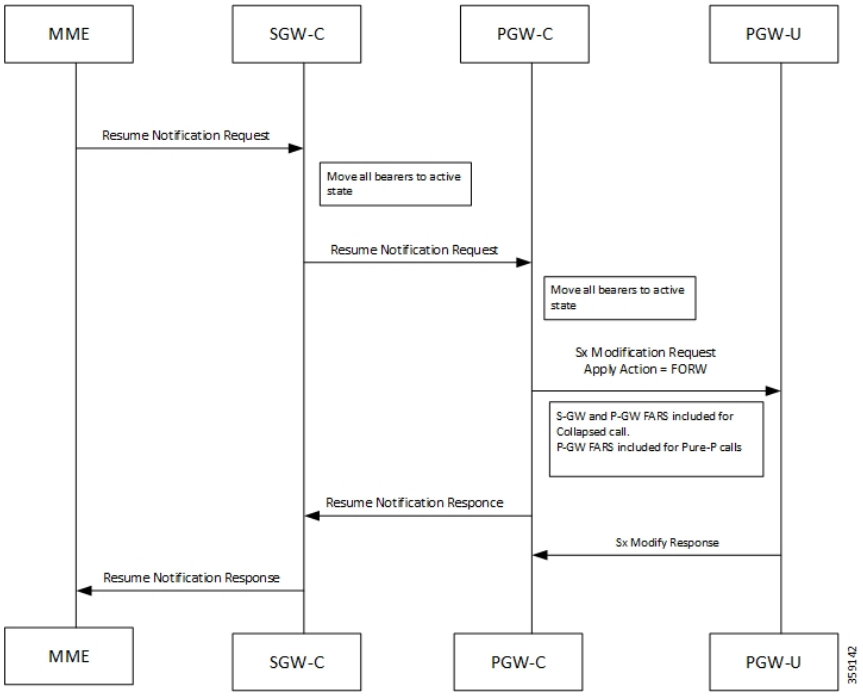
- S-GW downlink FARS - Drop Action
- P-GW uplink FARS - Drop Action
- P-GW downlink FARS - Drop Action

The following conditions are also implemented:

- If SGW receives ULI/RAT/TZ Reporting MBR in Suspended state, all bearers are moved in to active state and forwards MBR to PGW.
- If PGW receives ULI/RAT/TZ Reporting MBR in Suspended state, all bearers are moved in to active state.
- On Receiving suspend notification Session idle timeout is stopped. If PGW receives Empty MBR in Suspended state, all bearers are moved in to active state.

## Handling Resume Notifications

The following call flow illustrates Resume Notifications for Pure-P and Collapsed calls.




On receiving the request to resume the PDN connection, the PGW-C re-allows the PGW-U to forward the packets for the PDN connection by:

- setting the FORW flag in the Apply Action IE of the FARs of the corresponding PFCP session or
- setting the gate fields in the Gate Status IE of QERs to the value OPEN.

As part of the resume notification, the following actions are sent for uplink and downlink data:

- P-GW uplink FARS - Forward Action
- P-GW downlink FARS – Forward Action

- S-GW uplink FARS - Forward Action
- S-GW downlink FARS – Forward Action



**Note** On receiving Resume notifications, Session Idle timeout is restarted.

# Limitations

The VoLTE support in CUPS has the following limitations:

- VoLTE Call Identification support.
- Session Recovery enhancement for VoLTE.
- VoLTE statistics
- Multimedia Priority Service support.