Priority Recovery Support for VoLTE Calls

Feature Summary and 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

This feature helps to priorities the active and nonactive VoLTE calls over the normal calls. The priority is for the recovery of calls due to the failure of the User Plane.

Relationship

This feature is related to *VoLTE Support in CUPS*.

How It Works

There are two types of sessions in the User Plane:

- Normal Session

• Prioritized session

Prioritized session - The MP (message priority) bit set in PFCP header received from the Control Plane during the Sx Session establishment/modification request. The prioritized sessions take precedence in case of recovery. Normal calls recover only after the completion of the recovery of the prioritized calls.

The Control Plane sets the message priority (upper nibble of the 16th octet) in the PFCP header along with the MP (second bit of the first Octet). Currently for EMPS calls, Message Priority is 1. Similarly, message priority is 2 for VoLTE active calls and Message priority is 3 for VoLTE nonactive calls. Following figure describes the message priority in PFCP header format for the various calls.

	Bits							
Octets	8	7	6	5	4	3	2	1
1	Version			Spare	Spare	Spare	MP = 1	S=1
2	Message Type							
3	Message Length (1st Octet)							
4	Message Length (2nd Octet)							
5	Session Endpoint Identifier (1st Octet)							
6	Session Endpoint Identifier (2nd Octet)							
7	Session Endpoint Identifier (3rd Octet)							
8	Session Endpoint Identifier (4th Octet)							
9	Session Endpoint Identifier (5th Octet)							
10	Session Endpoint Identifier (6th Octet)							
11	Session Endpoint Identifier (7th Octet)							
12	Session Endpoint Identifier (8th Octet)							
13	Sequence Number (1st Octet)							
14	Sequence Number (2nd Octet)							
15	Sequence Number (3rd Octet)							
16	Message Priority = 1 EMPS/EMERGENCY = 2 for VoLTE active call = 3 for VoLTE nonactive				Spare			

On receipt of SX Session establish/modification request, the User Plane marks the session as prioritized session. The priority is based on nonzero (EMPS=1, VoLTE Active=2, VoLTE nonactive =3) value of the message priority filled in the PFCP header.

This feature supports the following aspects for the Priority Recovery of VoLTE calls.

On Control Plane: (P-GW, S-GW, SAE-GW, GGSN)

• VoLTE call configuration under APN

- Sets the MP priority Bit and Message Priority in the PFCP header of SX session establishment request

- Sets MP priority Bit and Message Priority in the PFCP header of SX session modification request

On User Plane:

- Checks the Message Priority of the PFCP header for the earlier messages

- If the message priority is nonzero, mark the session as priority session.

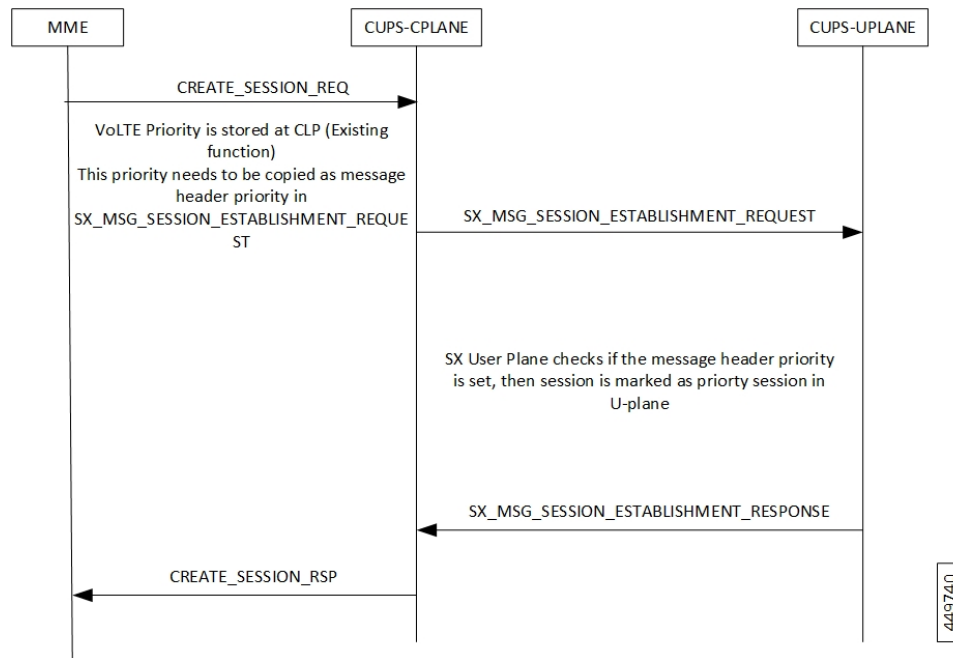- These prioritized sessions are recovered before the nonprioritized sessions after SR /ICSR.

Call Flows

The following call flows explain about the:

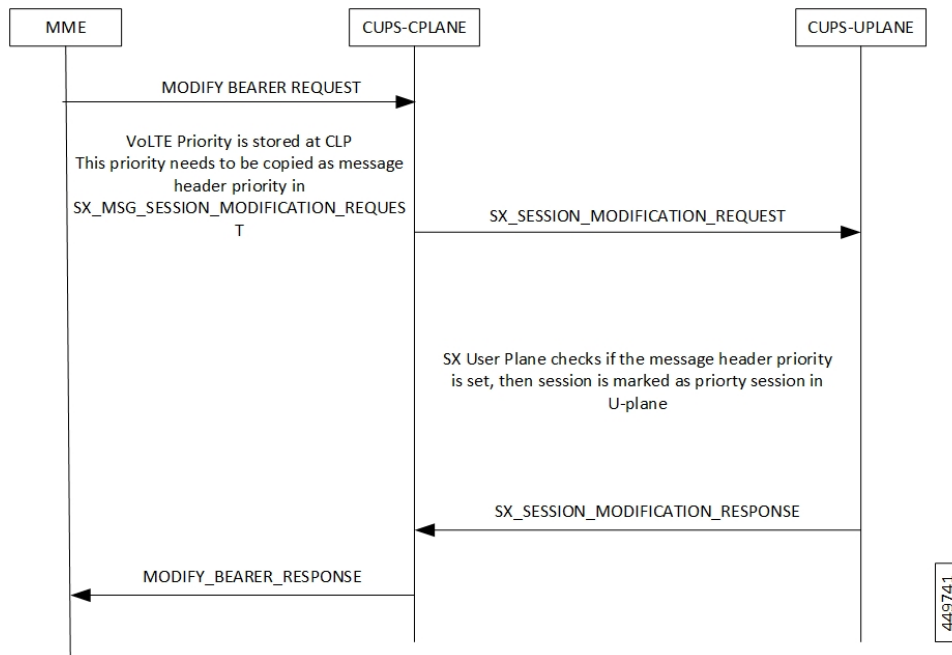- Session Establishment Handling

- Session Modification Handling

Session Establishment Handling Call Flow

The following call flow explains about the Session Establishment.

Session Modification Handling Call Flow

The following call flow explains about the Session Modification.

Configuration

Following are the configurations for the Pure-P/Collapsed calls and Pure-S calls.

Configuring Pure-P or Collapsed Calls

Following are the configurations to mark the calls as VoLTE in Control Plane for Pure-P/Collapsed calls.

```
configure
        context ingress
            apn vrf.com
            qci1 ims-media
            end
```

Configuring Pure-S Calls

Following are the configurations to mark the calls as VoLTE in Control Plane for Pure-S/Collapsed calls.

```
configure
        apn profile apn_1
        qci1 ims-media
configure
  operator-policy name intershat
  apn default-apn-profile apn_1
  end
configure
  lte-policy
  subscriber-map map_name
    precedence 1 match-criteria all operator-policy-name intershat
  end
```

```
configure
  context ingress
  sgw-service sa_sgw_service
  associate subscriber-map map_name
  end
```

Monitoring and Troubleshooting

This section provides information on CLI commands that are available for monitoring and troubleshooting for priority recovery of VoLTE calls.

Show Commands and Outputs

This section provides information about show CLI commands that are available in support of priority recovery of VoLTE calls in User Plane.

show session subsystem facility sessmgr instance 1 debug-info

```
AAA TCP Connect Succeeded with   : 0    Retries
fetched_from_aaamgr                       : 1    pror_to_audit                      : 1

passed_audit                              : 1    calls_recovered                    : 1

calls_recovered_by_tmr                    : 1    calls_recovered_by_med         : 0

priority_calls_recoverd_by_med            : 0    non_priority_calls_ignored_by_med: 0
```

show session subsystem facility aaamgr instance 1 debug-info

```
1 Current recovery archives 1 Current valid recovery records
1 Current valid priority recovery records
```

Show Commands and Outputs