Support for EPS Fallback

Feature Summary and Revision History

Summary Data

Table 1: Summary Data

Applicable Products or Functional Area	PCF
Applicable Platform(s)	SMI
Feature Default Setting	Enabled
Related Documentation	Not Applicable

Revision History

Table 2: Revision History

Revision Details	Release
First introduced.	2023.03.0

Feature Description

The PCF communicates with the SMF on the N7 interface subscribing to the EPS Fallback. The following describes about the Evolved Packet System (EPS) Fallback Report:

- Support for EPS Fallback Report

- Requesting SMF for EPS Fallback Report

- Subscription for EPS Fallback Event

- Reporting EPS Fallback to Application Function (AF)

Support for EPS Fallback Report:

PCF negotiates with the SMF for the EPS Fallback Report feature and supports the EPS Fallback Report on the N7 interface. If the SMF supports the EPS Fallback Report feature, PCF enables it for the PDU session.

The AF negotiates for the EPS Fallback Report feature on N5 and Rx interfaces. The EPS Fallback Report feature for the Rx interface and N5 interface gets enabled, only if the feature is active for the PDU session. If SMF doesn't support this feature, then PCF disables the feature for the AF session.

Requesting SMF for EPS Fallback Report:

PCF requests the SMF to report EPS_FALLBACK for the installed or modified PCC rules corresponding to the AF session as follows:

- Add EPS_FALLBACK to **policyControlReqTriggers.**

- Add EPS_FALLBACK and references to PCC rule IDs to **lastReqRuleData** only for voice media type(5QI=1)

Subscription for EPS Fallback Event:

N5 Interface: The AF subscribes to the EPS Fallback event and provides the **EventsSubscReqData** in the N5 Create or Update request message. The subscription for EPS Fallback event doesn't support the N5 delete requests.

Rx Interface: The AF subscribes to the EPS Fallback event and provides the EPS_FALLBACK within the Specific-Action AVP in AAR. The subscription for the EPS Fallback event doesn't support the STR.

Reporting EPS Fallback to AF:

N5 Interface: The PCF notifies the AF, and the EPS Fallback event gets added to the **evNotifs** attribute. The PCF doesn't include the EPS_FALLBACK event in the N5 Delete Response sent to AF in N5 Delete.

Rx Interface: The PCF notifies the AF and EPS Fallback gets added to the Specific-Action AVP in the RAR. The PCF doesn't include the EPS_FALLBACK Specific-Action AVP in the STA in the case of STR.

How It Works

This section describes how this feature works.

Call Flows

This section describes the call flows for this feature.

N5 Interface Call Flow

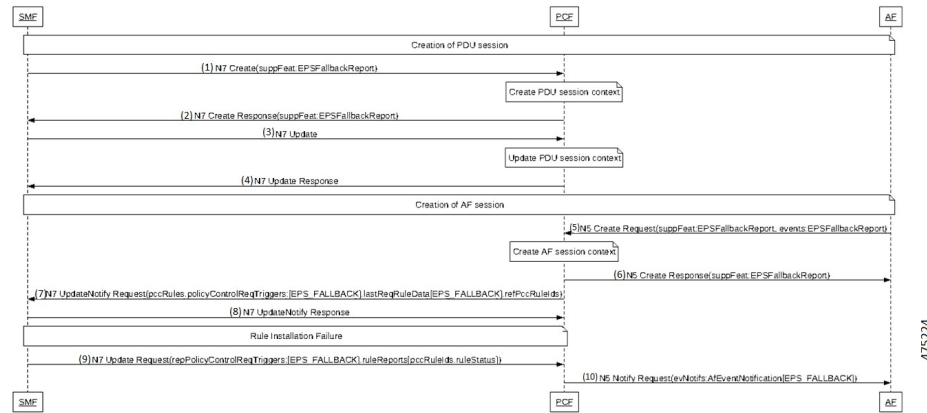This section describes the N5 Interface call flow.

Figure 1: N5 Interface Call Flow

Table 3: N5 Interface Call Flow Description

Step	Description
1	The SMF sends a N7 Create to the PCF with SuppFeat bit 35 for EPS Fallback Report.
2	After Create PDU session context, the PCF sends N7 create Response with SuppFeat bit 35 for EPS Fallback Report.
3	The SMF sends N7 Update to the PCF.
4	After Update PDU session context, the PCF sends N7 Update Response to the SMF.
5	The AF sends N5 Create request to the PCF with SuppFeat bit 22 for EPS Fallback Report.
6	After Create AF session context, the PCF sends N5 Create Response to the AF with SuppFeat bit 22 for EPS Fallback Report.
7	The PCF sends the N7 Notify Request to the SMF with EPS_FALLBACK in "policyControlReqTriggers" and in PCC rule IDs in "lastReqRuleData".
8	The SMF sends the N7 Update Notify Response to the PCF.
9	After Rule Installation Failure, the SMF sends the N7 Update Request to the PCF with EPS_FALLBACK in "repPolicyControlReqTriggers" and the affected PCC rules in the "ruleReports".
10	The PCF sends the N5 Notify Request to the AF with EPS_FALLBACK event.

Rx Interface Call Flow

This section describes the Rx Interface call flow.
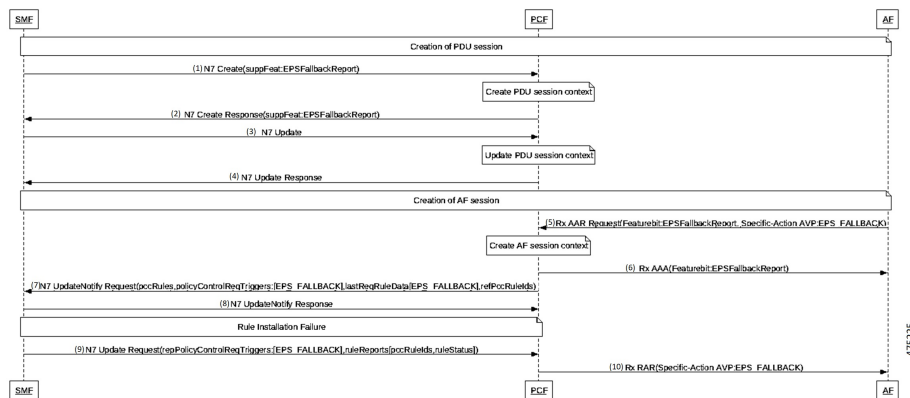
Figure 2: Rx Interface Call Flow

Table 4: Rx Interface Call Flow Description

Step	Description
1	The SMF sends a N7 Create to the PCF with SuppFeat bit 35 for EPSFallbackReport
2	After Create PDU session context, the PCF sends N7 create Response with SuppFeat bit 35 for EPS Fallback Report.
3	The SMF sends N7 Update to the PCF.
4	After Update PDU session context, the PCF sends N7 Update Response to the SMF.
5	The AF sends Rx AAR request to the PCF with SuppFeat bit 8 for EPS Fallback Report.
6	After Create AF session context, the PCF sends Rx AAA to the AF with SuppFeat bit 8 for EPS Fallback Report.
7	The PCF sends the N7 Notify Request to the SMF with EPS_FALLBACK in "policyControlReqTriggers" and in PCC rule IDs in "lastReqRuleData".
8	The SMF sends the N7 Update Notify Response to the PCF.
9	After Rule Installation Failure, the SMF sends the N7 Update Request to the PCF with EPS_FALLBACK in "repPolicyControlReqTriggers" and the affected PCC rules in the "ruleReports".
10	The PCF sends the Rx RAR to the AF with EPS_FALLBACK Specific-action AVP.

Standards Compliance

This feature complies with the following standards specifications:

- 3GPP 29.214 version 16.15.0 "Policy and charging control over Rx reference point"
- 3GPP 29.512 version 16.7.0 "Session Management Policy Control Service"
- 3GPP 29.514 version 16.5.0 "Policy Authorization Service"