Xn Handover

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Feature Summary and Revision History

Summary Data

Table 1: Summary Data

Applicable Product(s) or Functional Area	AMF
Applicable Platform(s)	SMI
Feature Default Setting	Enabled - Always-on
Related Documentation	Not Applicable

Revision History

Table 2: Revision History

Revision Details	Release
First introduced.	2021.04.0

Feature Description

AMF now supports Xn Handover. In Xn Handover, the source and destination gNBs are interconnected. The gNB communicates with each other to complete some aspects of the handover and the destination gNB sends

a path switch request. The path switch request contains the source UE AMF NGAP ID used by the AMF to search the UE which is being handed over.

Supported Scenarios

Path switch request is supported for:

- Single PDU resource
- Multiple PDU resources
- Multiple, with some failed to handover at the target gNB
- Multiple, with some failing at the SMF
- Requests timing out at the SMF
- Expiry of guard timer
- Error conditions at the SMF: handling of the error and sending the right errors so that resources are cleared at the UE
- Error condition at the AMF: If invalid Session ID comes in Path Switch Request Ack, in either ToBeSwithched or FailedToSetup, AMF sends Path Switch Request Failure with Unknown Session ID as the cause.
- If SMF rejects all PDUs, then AMF sends Path Switch Request Failure with cause as HO-Failure-in-target-5GC-ngran-node-or-target-system.

How it Works

This section describes how this feature works.

Call Flows

This section describes the key call flows for this feature.

Xn Handover Call Flow

This section describes Xn Handover call flow.

Figure 1: Xn Handover Call Flow

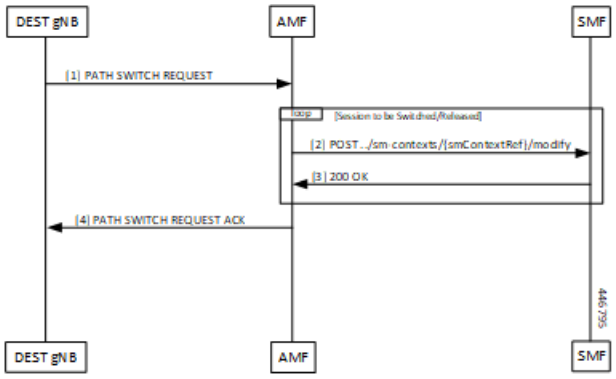

Table 3: Xn Handover Call Flow Description

Step	Description
1	Once signaling that involves the UE, source and destination gNB have taken the decision to handover, the destination gNB constructs a PATH SWITCH REQUEST with the list of PDU sessions that have successfully switched and the list of PDU sessions that were not successful.
2	For each of the PDU Sessions, the AMF constructs a SmContext Modify request and sends it to the corresponding SMF to update the tunnel endpoint ID for the gNB.
3	The SMF responds with either 200 OK or an appropriate cause code.
4	The AMF creates a PATH SWITCH REQUEST ACKNOWLEDGEMENT including PDU sessions that are successful in a success list and the PDU sessions that have failed in a failure list and sends them to the destination gNB. The AMF clears the source gNB context and attaches the destination gNB context to the UE context.

OAM Support

This section describes operations, administration, and maintenance information for this feature.

Bulk Statistics Support

- Support for message level statistics for PATH SWITCH REQUEST and PATH SWITCH REQUEST ACKNOWLEDGEMENT, on a per peer gNB basis.
- Support for procedure level statistics for Xn Handover, with Attempted, Success and Failure.