Collision Handling

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Feature Summary

Summary Data

Table 1: Summary Data

Applicable Products or Functional Area	AMF
Applicable Platforms	SMI
Feature Default Setting	Enabled – Always-on
Related Documentation	Not Applicable

Feature Description

The AMF interacts and supports multiple nodes. A few of the nodes are as the following:

- UE/GNB
- UDM
- AUSF
- SMF

When multiple nodes send simultaneous request towards the AMF, there's a possibility of collision at the AMF node.

The AMF collision handling feature supports handling the collision between different procedures at the AMF node.

How it Works

When a collision is detected, any of the following AMF collisions resolver-based procedures get activated:

- Aborts an ongoing procedure and performs peer node cleanup when required.
- Aborts an ongoing procedure and cleans locally without informing peer nodes.
- Discards an incoming message without responding and paving a way for its timeout.
- Allows both procedures to continue and execute one at a time in the FIFO manner.

Examples:

The following are a few examples:

1. The AMF receives a note of the UE-initiated deregistration process, while the initial registration procedure activity is still in progress.

   In this case, the AMF aborts the initial registration procedure locally, without informing peer nodes such as UDM, PCF, and so on.

2. The AMF receives a note of another initial registration process, while the current one is still in progress.

   In this case, the AMF aborts the older initial registration procedure, and performs the peer node cleanup activity, if required (such as the `AMPolicyControl_Delete` activity).

OAM Support

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

Bulk Statistics Support

The following statistics is used in the AMF collision handling.

amf_collision_stats

Description:

This set of statistics is used for tracking and debugging the AMF collision. The statistics include the name of the colliding procedure and the action taken by the collision resolver.

Sample Query:

```
amf_collision_stats{action_type="abort_proc1",
app_name="amf",cluster="clu001",data_center="sys001",
instance_id="0",proc1="UERegistration",
proc2="Deregistration",service_name="amf-service"} 1
```

When the AMF receives the De-Registration while the UE Registration procedure is in progress, the collision resolver aborts the registration procedure. It includes the names of two colliding procedures and collision resolver actions.

Labels:

- Label: **action_type**

  Label Description: Type of the action associated with the AMF collision statistics

  Example: **abort_proc1**

- Label: **app_name**

  Label Description: The name of the NF-app associated with the AMF collision statistics

  Example: **amf**

- Label: **cluster**

  Label Description: The name of the cluster associated with the AMF collision statistics

  Example: **clu001**

- Label: **data_center**

  Label Description: The name of the data center associated with the AMF collision statistics

  Example: **sys001**

- Label: **instance_id**

  Label Description: The instance ID associated with the AMF collision statistics

  Example: **0**

- Label: **proc1**

  Label Description: The procedure type associated with the AMF collision statistics This label refers as one of the procedures or as the primary procedure.

  Example: **UERegistration**

- Label: **proc2**

  Label Description: The procedure type associated with the AMF collision statistics This label refers as one of the procedures or as the secondary procedure.

  Example: **Deregistration**

- Label: **service_name**

  Label Description: Name of the NF service associated with the AMF collision statistics

  Example: **amf-service**

For more information on bulk statistics support for AMF, see the *UCC 5G AMF Metrics Reference* document.