Charging Function Selection Based on NSSAI

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Feature Summary Revision History

Summary Data

Table 1: Summary Data

Applicable Product(s) or Functional Area	PCF
Applicable Platform(s)	SMI
Feature Default Setting	Enabled – Configuration required to disable
Related Documentation	Not Applicable

Revision History

Table 2: Revision History

Revision Details	Release
Enhancement introduced. PCF - CHF selection based on NSSAI.	2022.03.0
First introduced.	2022.03.0

Feature Description

The Cisco PCF supports the Charging Function (CHF) selection with the availability of slice ID in the N7/N5 session. The PCF identifies and specifies the slice information for Protocol buffers messages that are meant for CHF, and the REST endpoint maintains a map for CHF with the slice-id among the keys. PCF configures slice information through a slice-id counter in the Policy Engine and REST endpoint to select the CHF.

How it Works

This section describes how this feature works.

Call Flows

This section describes the key call flow for this feature.

CHF Selection with Slice Information Call Flow

This section describes the CHF Selection with Slice Information call flow.

Figure 1: CHF Selection with Slice Information Call Flow

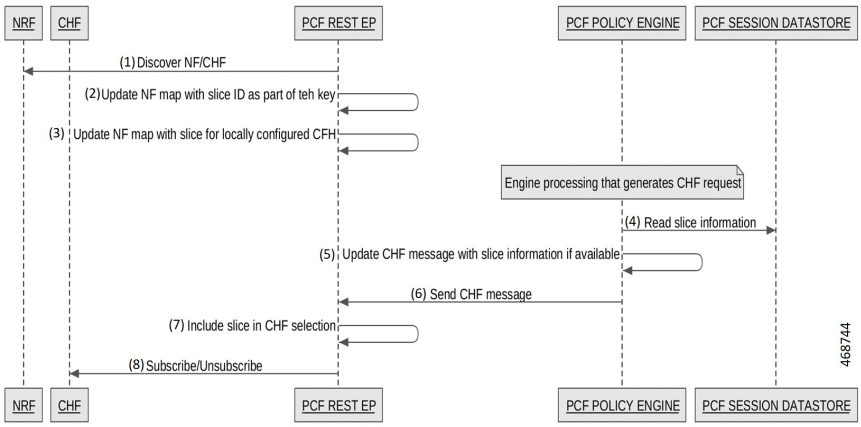

Table 3: CHF Selection with Slice Information Call Flow Description

Step	Description
1	The PCF-REST-EP sends a Discover NF and CHF to the NRF.
2	The PCF-REST-EP performs the updating of the NF map with slice ID as part of the key.
3	The PCF-REST-EP adds the update of the NF map with a slice for locally configured CFH.
4	After Engine Processing generates the CHF request, the PCF-POLICY-ENGINE sends Read slice information to the PCF-SESSION-DATASTORE.

Step	Description
5	The PCF-POLICY-ENGINE performs an update CHF message with slice information if available.
6	The PCF-POLICY-ENGINE sends the CHF message to the PCF-REST-EP.
7	The PCF-REST-EP performs Include slice in CHF selection.
8	The PCF-REST-EP sends Subscribe or Unsubscribe to the CHF.

Standards Compliance

This feature complies with the following standards specifications:

- *3GPP 29.510 "Network function repository services"*
- *3GPP 29.512 "Session Management Policy Control Service"*
- *3GPP 29.513 "Policy and Charging Control signaling flows and QoS parameter mapping"*

Feature Configuration

To configure this feature, use the following configuration:

Configuring to Enable or Disable Slice Based CHF Selection

This section describes how to configure the slice-based CHF selection commands.

To configure the slice-based CHF selection, use the following configuration:

```
config
   advance-tuning slice-based-nf-selection chf [enabled | disabled]
   end
```

NOTES:

- **advance-tuning slice-based-nf-selection chf [enabled | disabled]** *error_codes*—Enable or disable CHF with slice information. The configuration displays CHF as an option, the scope is limited to CHF, and the CHF option is disabled.

Configuring SNSSAIS of a Locally Configured CHF Client Profile

This section describes how to configure the CHF client profile.

To configure the snssais of a locally configured CHF client profile, use the following configuration:

```
config
   profile
   nf-client
   nf-type
```

```
chf
chf-profile [name]
endpoint-profile [name]
allowed-nssais slice value sst sst_value [sd sd_value]
end
```

NOTES:

- **chf-profile [name]** – Configures the locality for the CHF profile.
- **endpoint-profile [name]** – Configures the endpoint name.
- **allowed-nssais slice value sst sst_value [sd sd_value]** – Configures the SNSSAI. The snssai_name is a logical identifier that is local to PCF. To configure multiple slices per service, configure SNSSAI with an identical SST and different SD values.

OAM Support

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

Statistics

This section provides the counter that gets generated for the PCF-CHF selection that based on NSSAI scenarios.

- outbound_request_slice_nf_selection—Indicates the outbound requests initiated from PCF for specific slices.

The outbound_request_slice_nf_selection counter supports the following labels:

- interface_name—Indicates the name of the Service Based Interface (SBI) such as N28.

  service_name—Indicates the name of the service such as nchf-spendinglimitcontrol.

  operation_name—Indicates the name of the service operation such as Nchf_SpendingLimitControl_Subscribe

  command—Indicates the command type such as Subscribe.

  slice—Indicates the allowed-nssais that corresponds to the slice such as 1:0000ab

- outbound_request_slice_nf_unavailable—The outbound_request_slice_nf_unavailable counter monitors requests that contain the slice information. Indicates the outbound requests for specific slices, which are rejected from PCF. This counter increments if there is no NF available with the required slice.

The outbound_request_slice_nf_unavailable counter supports the following labels:

- interface_name—Indicates the name of the Service Based Interface (SBI) such as N28.

  service_name—Indicates the name of the service such as nchf-spendinglimitcontrol.

  operation_name—Indicates the name of the service operation such as Nchf_SpendingLimitControl_Subscribe

  command—Indicates the command type such as Subscribe.

  slice—Indicates the allowed-nssais that corresponds to the slice such as 1:0000ab