Network Repository Function Subscription to Notifications

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Feature Summary and 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
First introduced.	2020.01.0

Feature Description

PCF supports the following functions for the Network Repository Function (NRF) Subscription to Notifications feature:

- The NRF supports the 3GPP December 2018 specification for interface discovery, registration for renaming NRF, change type, and removal or addition of new API attributes. PCF supports the notification subscription from NRF. The notifications are for profile changes that are based on the service name.
- PCF supports the subscription of notifications from NRF. This support includes the following functions:
  - Use the NRFManagement service for subscriptions for changes in network function instances that are based on the subscribed service name.
  - Implement notifications callback URL for PCF to handle the notifications from NRF for subscribed service names.
  - Allow the resubscription during the validity subscription time.
  - Support unsubscription based on the subscribed ID.
  - Prioritize NF profiles from NRF over preconfigurations or configured local set for an NF type.
- Supports the following repository functions:
  - Allow the repository configuration with multiple endpoints, which are primary endpoints, secondary endpoints, and tertiary endpoints.
  - Allow configuration of the profile discovery, which is based on service name and other parameters.
  - Allow configuration of the registration repository.
- Handles notifications from NRF for the subscribed service name.
- Provides statistics and metrics to track the following tasks:
  - Manage notifications of NFProfile from NRF for a specific service name.
  - Manage subscriptions for a specific service name.
  - Manage resubscriptions for a specific service name.
  - Manage unsubscriptions and deletions for a specific service name.

Standards Compliance

This feature complies with the following standards specifications:

- *3GPP TS 29.510 V15.2.0 (2018-12) "Network Function Repository Services"*

Configuration Support for the NRF Subscription to Notifications

The configuration of NRF subscription to notifications involves performing the followings steps:

1. Configuring NRF with Multiple Base URLs
2. Configuring NRF for Registration
3. Configuring NRF for Discovery of Network Function

Configuring NRF with Multiple Base URLs

This section describes how to configure NRF that has multiple base URLs.

To configure NRF with multiple base URLs, use the following configuration:

```
config
   nf-services nf_services_name
      repository repository
         name repository_name
         services services_name
         api-version-in-uri api_version_uri_name
         base-urls
          primary primary_endpoints_url
          secondary secondary_endpoints_url
          tertiary tertiary_endpoints_url
          end
```

NOTES:

- **nf-services** *nf_services_name*—Specify network functions, such as registration, repository, and service discovery details.
- **repository** *repository*—Specify a repository for the network function services.
- **name** *repository_name*—Specify the repository with the name you specify.
- **services** *services_name*—Specify a service for the repository name that you configured. Select one of these options — **nchf-spendinglimitcontrol**, **nnrf-disc**, **nnrf-nfm**, and **nudr-dr**.
- **api-version-in-uri** *api_version_uri_name*—Specify a version for the API version in URI for discovery and subscription of service to NRF.
- **base-urls**—Specify the primary, secondary, or tertiary endpoint as the base URL.
  - **primary** *primary_endpoints_url*—Specify the base URL for the primary endpoint.
  - **secondary** *secondary_endpoints_url*—Specify the base URL for the secondary endpoint when the primary endpoint is unavailable.
  - **tertiary** *tertiary_endpoints_url*—Specify the base URL for the tertiary endpoint when both the primary and the secondary endpoints are unavailable.

Configuring NRF for Registration

This section describes how to enable NRF for registering the NFs.

To configure NRF for registration, use the following configuration:

```
config
  nf-services nf_services_name
    registration
    service-repository  service_repository_name
    heartbeat
     failure-threshold failure_threshold_in_secs
```

```
interval-in-secs interval_in_secs
end
```

NOTES:

- **nf-services** *nf_services_name*—Specify the network function service configuration mode. From this mode, you can configure the services such as registration, repository, and service discovery details.
- **registration** – Enters the registration configuration mode.
- **service-repository** *service_repository_name*—Specify the name of the repository from the repository configuration.
- **heartbeat** – Enters the heartbeat configuration mode.
- **failure-threshold** *failure_threshold_in_secs*—Specify the value for the number of failures before confirming the heartbeat failure. The acceptable value is an integer in the range of 1-3.
- **interval-in-secs** *interval_in_secs*—Specify the interval between two heartbeats in seconds. The acceptable value is an integer.

Configuring NRF for Discovery of Network Function

This section describes how to configure NRF to enable discovery of an NF.

To configure NRF for discovering an NF, use the following configuration:

```
config
  nf-services nf_services_name
   discovery [ nchf-spendinglimitcontrol | nudr-dr ]
  service-repository service_repository
    cache-forever [ true | false ]
    disable-subscription [ true | false ]
    subscription-extension-in-minutes subscription_extension
    end
```

NOTES:

- **nf-services** *nf_services_name*—Specify network functions, such as registration, repository, and service discovery details.
- **discovery**—Enters the discovery configuration mode.
- **service-repository** *service_repository*—Specify the name of the repository that you configured in repositories.
- **cache-forever [true | false]**—Specify the discovery of services as "true" or "false" value. If this parameter is set to "true", then the discovered NFProfile cache does not expire at PCF.
- **disable-subscription [true | false]** —Specify the services as "true" or "false" to disable a subscription. If this is set to "true", then no subscription request is sent to NRF for the NF profile type.
- **subscription-extension-in-minutes** *subscription_extension*—Specify the duration by when you want to extend the subscription. PCF shows this value as validityTime in resubscription when the subscription validity time expires.

Troubleshooting Information

For message routing failures, check the datastore pod health and the logs for any issues.

For more information on how to check the pod health and logs, see Troubleshooting Information.