Multiple Replica Support for cnBNG Services

Feature Summary and Revision History

Summary Data

Table 1: Summary Data

Applicable Product(s) or Functional Area	cnBNG
Applicable Platform(s)	SMI
Feature Default Setting	Disabled - Configuration Required
Related Documentation	*Cloud Native BNG Control Plane Command Reference Guide*

Revision History

Table 2: Revision History

Revision Details	Release
First introduced.	2021.03.0

Feature Description

The Multiple Replica Support for cnBNG Services is designed to support multiple instances of the cnBNG services and load balance the session transactions to address the following requirements:

- Higher scalability

• Calls per Second (CPS) [CEPS - Call Events per Second (CEPS), TPS - Transactions per Second (TPS)]

• Redundancy

The following services must be configured to support multiple instances for load-balancing the session transactions.

• bng-dhcp

• bng-pppoe

• bng-sm

• bng-n4-protocol

• radius-ep

• udp-proxy

• bng-node-manager

How it Works

In a microservices architecture, a service mesh refers to a network of microservices that make up an application and the interactions they have among them. Istio is an open source service mesh that layers transparently on existing distributed applications.

Istio makes it easy to create a network of deployed services with load balancing, service-to-service authentication, monitoring, and so on. Therefore, Istio support is added to the cnBNG services, which intercepts all network communication between the microservices. The CP functionality is used to configure and manage Istio.

The cnBNG pod layout ensures that instances of a service are distributed across vitual machines (VMs) to ensure VM level redundancy.

Configuring Multiple Replica Support for cnBNG Services

This section describes how to configure Multiple Replica Support for cnBNG Services.

Configuring Multiple Replica Support for cnBNG Services involves the following procedure:

Replicating Multiple cnBNG Service Instances

Replicating Multiple cnBNG Service Instances

Use the following commands to replicate multiple cnBNG service instances.

```
config
  instance instance_id
    endpoint { dhcp | geo | l2tp-tunnel | n4-protocol | nodemgr | pppoe
 | radius | sm | udp-proxy }
    nodes node_replicas_for_resiliency
    replicas replicas_per_node
    commit
```

NOTES:

- **instance** *instance_id*: Configures multiple instances for the specified instance and enters instance sub-mode.

- **endpoint { dhcp | geo | l2tp-tunnel | n4-protocol | nodemgr | pppoe | radius | sm | udp-proxy }**: Configures parameters for the selected endpoint. The endpoint options are dhcp, geo, l2tp-tunnel, n4-protocol, nodemgr, pppoe, radius, sm, and udp-proxy.

- **nodes** *node_replicas_for_resiliency*: Specifies the number of node replicas for resiliency. *node_replicas_for_resiliency* must be an integer. The minimum number of nodes supported per replica is one and the maximum is 2. The default value is 1.

- **replicas** *replicas_per_node*: Specifies the number of replicas per node. *replicas_per_node* must be an integer. The minimum number of replicas supported is one and the maximum is 2. The default value is 1.

Note

- The number of replicas depend on the cluster resources and number of nodes assigned to bring up the service pods.

- Currently one replica is supported per node. Therefore, for two nodes the total number of replicas suppored are 2 * 1.