

# Oracle® Communications

## Network Analytics Data Director

### Benchmarking Guide



Release 24.2.0.0.1

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ORACLE®

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# Acronyms

The following table provides information about the acronyms used in the document.

**Table    Acronyms**

| Acronym | Description                                                             |
|---------|-------------------------------------------------------------------------|
| OCNADD  | Oracle Communications Network Analytics Data Director                   |
| OCI     | Oracle Cloud Infrastructure                                             |
| SCP     | Oracle Communications Cloud Native Core, Service Communication Proxy    |
| SEPP    | Oracle Communications Cloud Native Core, Security Edge Protection Proxy |
| NDB     | Network Data Broker                                                     |
| NRF     | Oracle Communications Cloud Native Core, Network Repository Function    |
| NVME    | Non Volatile Memory Express                                             |
| OCPU    | Oracle Compute Unit                                                     |
| CNE     | Oracle Communications Cloud Native Core, Cloud Native Environment       |
| MPS     | Messages Per Second                                                     |
| XDR     | Extended Detection and Response                                         |

# What's New in This Guide

This section lists the documentation updates for Release 24.2.x in *Oracle Communications Network Analytics Data Director Benchmarking Guide*.

## Release 24.2.0.0.1 - G10054-02, February 2025

There are no updates to this document in this release.

## Release 24.2.0 - G10054-01, July 2024

Updated the following sections:

- Performed the following updates in [Resource Requirement](#) chapter:
  - Updated [Profile Resource Requirements](#) section with the following changes:
    - \* Added [Resource Profile for Database](#).
    - \* Added [Resource Profile for OCNADD OAM Services](#).
    - \* Updated [Resource Profile for OCNADD Worker Group Services](#).
    - \* Updated [Resource Profile for OCI Environment](#).
- Updated [Resource Profile for OCNADD Worker Group Services](#) with the following changes:
  - Added [Resource Profile for Message Sequencing and Metadata Enrichment](#).
  - Added [Resource Profile for HTTP2 Feed for 135K MPS](#).
  - Added [Resource Profile for Synthetic Feed For 135K MPS](#).
  - Added [Resource Profile for Aggregated Kafka Feed for 135K MPS](#).
  - Added [Resource Profile for Correlated Kafka Feed for 30K MPS](#).
  - Added [Resource Profile for Non-Oracle Network Function Feed for 5K MPS](#).
  - Updated [Resource Profile for Default Deployment](#)
- Updated the following [Resource Profile for OCI Environment](#):
  - [Profile Resource Requirements for HTTP2 Feed for 5K MPS in OCI Environment](#)
  - [Profile Resource Requirements for Synthetic Feed for 5K MPS in OCI Environment](#)
  - [Profile Resource Requirements for Aggregated Kafka Feed for 5K MPS in OCI Environment](#)
  - [Profile Resource Requirements for Correlated Kafka Feed for 5K MPS in OCI Environment](#)
- Updated the following sections in the [OCNADD Benchmarking Testing](#) chapter:
  - [Performance Benchmarking with 60K MPS SEPP Traffic with HTTP2 Feed Replication](#)
- Added the following sections in the [OCNADD Benchmarking Testing](#) chapter:
  - [Performance Benchmarking with 135K MPS Traffic and HTTP2 Feed Replication](#)
  - [Performance Benchmarking with 135K MPS SCP Traffic with Synthetic Feed Replication](#)

# 1

## Introduction

Oracle Communications Network Analytics Data Director (OCNADD) is a specialized Network Data Broker (NDB) in 5G Network Architecture.

OCNADD receives network traffic data from various sources, 5G network functions (NFs), Non-5G NFs, and third-party producers, performs filtering, replication, and aggregation on the received data according to the rules implemented by the subscribed third-party consumers. OCNADD then sends the filtered, replicated, or aggregated data to the subscribed third-party consumers (third-party consumer applications or platforms) securely.

### 1.1 Purpose and Scope

This document is designed to measure the performance and capacity of OCNADD deployment and resource requirements.

### 1.2 References

For more information about OCNADD, see the following documents:

- *Oracle Communications Network Analytics Data Director Installation, Upgrade, and Fault Recovery Guide*
- *Oracle Communications Network Analytics Data Director User Guide*
- *Oracle Communications Cloud Native Core OCI Adaptor, NF Deployment on OCI Guide*

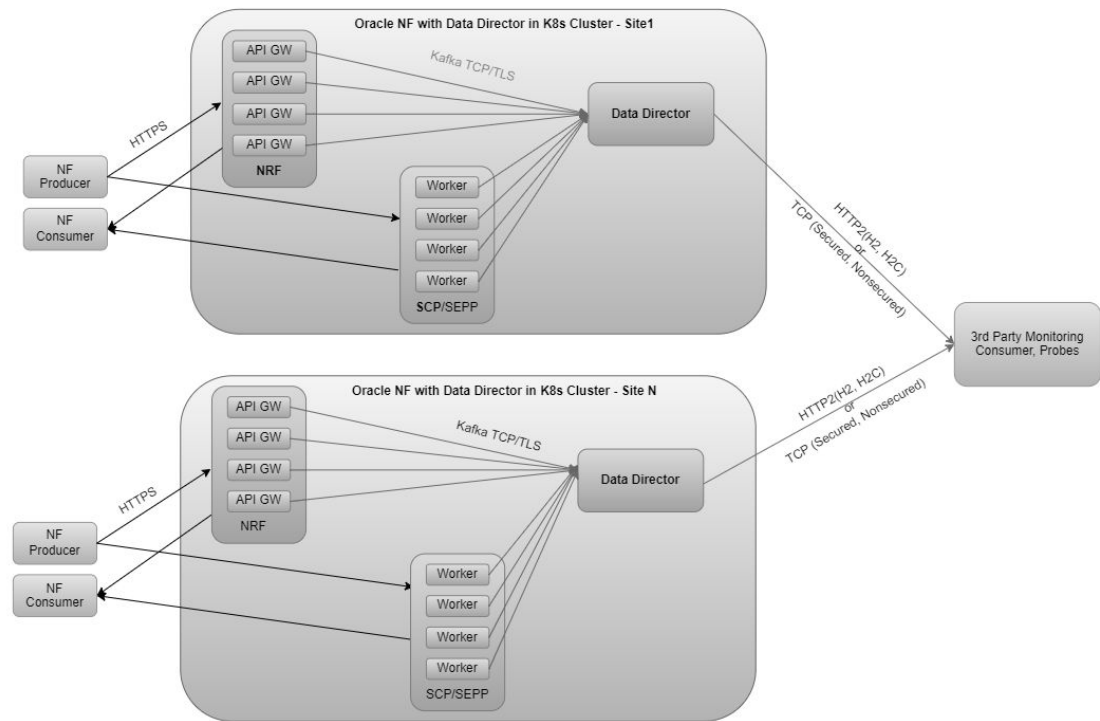
# 2

## Deployment

OCNADD supports CNE and OCI deployment. There are a few variations in the deployment process for both the platforms. For more information about OCNADD installation, see *Oracle Communications Network Analytics Data Director Installation, Upgrade, and Fault Recovery Guide*.

The following diagram depicts the OCNADD deployment in the 5G architecture:

**Figure 2-1 OCNADD Deployment**



### Note

From release 23.1.0 onwards OCNADD supports Synthetic Feeds along with HTTP2 Feeds.

OCNADD uses the following common services of CNE:

- Kubernetes
- Prometheus
- Metallb (Load balancer)
- cnDBTier



# 3

## Resource Requirement

This chapter provides information about the resource requirements to install and run Oracle Communications Network Analytics Data Director (OCNADD) with the desired Message Per Second (MPS) profiles.

### Resource Requirements for CNE Environment

Resource requirements for Baremetal (with NVM):

**Table 3-1 Bare Metal Environment**

| Type of Server | X9 Server and NVME |
|----------------|--------------------|
| Master node    | 3                  |
| Worker node    | 19                 |
| Storage Class  | Standard           |

### Resource Requirements for OCI Environment

- OCI block volume is attached to the PVC with auto-tune based performance from balanced to high performance. To change block volume to auto-tune based performance (Balance to High Performance), see [Changing the Performance of a Volume](#).
- All tests are performed with the default round-robin based ordering.
- Resource requirements may vary after enabling key or custom based ordering and running traffic with actual NFs.

**Table 3-2 OKE Worker Nodes**

| Type of Server        | X9 Server and NVME  |
|-----------------------|---------------------|
| Worker nodes          | 6                   |
| Instance Shape        | VM.Standard.E4.Flex |
| OCPUs in worker node  | 50 (CPU: 100)       |
| Memory in worker node | 194 GB              |

## 3.1 Profile Resource Requirements

This section provides information about the profile resource requirements to install and run Oracle Communications Network Analytics Data Director (OCNADD) with the desired Message Per Second (MPS) profiles.

**Note**

It is recommended to have the following configurations for Baremetal setup to achieve the required throughput:

- Jumbo frames should be enabled.
- Ring buffer size should be increased to avoid packet drop at interfaces.
- FluentD pods should not be in "CrashLoopBackOff" state due to Out of Memory error. For more information see "*High Latency in adapter feeds due to high disk latency*" section in *Oracle Communications Network Analytics Data Director Troubleshooting Guide*.

- [Resource Profile for Database](#)
- [Resource Profile for OCNADD OAM Services](#)
- [Resource Profile for OCNADD Worker Group Services](#)
- [Resource Profile for OCI Environment](#)

### 3.1.1 Resource Profile for Database

This section provides information about the database profile resource requirements to install and run Oracle Communications Network Analytics Data Director (OCNADD) with the desired Message Per Second (MPS) profiles.

**Table 3-3 Resource Requirement**

| cnDBTier Pods                                                                                                                                                                                                                                  | Replica | vCPU |     | Memory |       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------|-----|--------|-------|
|                                                                                                                                                                                                                                                |         | Min  | Max | Min    | Max   |
| <b>SQL</b> (ndbmysqld)<br><b>Kubernetes Resource Type:</b> StatefulSet                                                                                                                                                                         | 2       | 1    | 1   | 1Gi    | 1Gi   |
| <b>SQL</b> (ndbappmysqld)<br><b>Kubernetes Resource Type:</b> Statefulset                                                                                                                                                                      | 2       | 1    | 1   | 1Gi    | 1Gi   |
| <b>MGMT</b> (ndbmcmd)<br><b>Kubernetes Resource Type:</b> StatefulSet                                                                                                                                                                          | 2       | 1    | 1   | 1Gi    | 1Gi   |
| <b>Database</b> (ndbmtd)<br><b>Kubernetes Resource Type:</b> StatefulSet                                                                                                                                                                       | 2       | 1    | 1   | 4Gi    | 4Gi   |
| <b>Backup Manager Service</b><br>(db-backup-manager-svc)<br><b>Kubernetes Resource Type:</b> Deployment                                                                                                                                        | 1       | 0.1  | 0.1 | 128Mi  | 128Mi |
| <b>Monitor Service</b><br>(db-monitor-svc)<br><b>Kubernetes Resource Type:</b> Deployment                                                                                                                                                      | 1       | 0.2  | 0.2 | 500Mi  | 500Mi |
| EXTENDED STORAGE is ENABLED in CORRELATION Feed(Per Correlation Feed)<br>Rate Supported in current release: 1K MPS rate with 24 hours retention<br>Update "global.ndb.datamemory=96G" in custom-value.yaml of cndbTier<br>PVC of ndbmtd= 150GB |         |      |     |        |       |

Table 3-3 (Cont.) Resource Requirement

| cnDBTier Pods                                              | Replica | vCPU |     | Memory |       |
|------------------------------------------------------------|---------|------|-----|--------|-------|
|                                                            |         | Min  | Max | Min    | Max   |
| Database (ndbmtd)<br>Kubernetes Resource Type: StatefulSet | 4       | 8    | 8   | 128Gi  | 128Gi |

**Note**

Configure "**datamemory: 1G**" under "**ndbmtd**" section while deploying the CnDbTier for OCNADD. For more details on cnDBTier resource profile, see "cnDBTier Small Profile" section in *cnDBTier Resource Models Guide*.

### 3.1.2 Resource Profile for OCNADD OAM Services

The following profile is used for management group services in all the performance scenarios.

Table 3-4 Resource Requirement

| Service Name           | Resources |                      |               | Description                                                                                                                                                  |
|------------------------|-----------|----------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | vCPU      | Memory Required (Gi) | Total Replica |                                                                                                                                                              |
| ocnaddconfiguration    | 1         | 1                    | 1             |                                                                                                                                                              |
| ocnaddalarm            | 1         | 1                    | 1             |                                                                                                                                                              |
| ocnaddadmin            | 1         | 1                    | 1             |                                                                                                                                                              |
| ocnaddhealthmonitoring | 1         | 1                    | 1             |                                                                                                                                                              |
| ocnaddgui              | 1         | 1                    | 1             |                                                                                                                                                              |
| ocnadduirouter         | 1         | 1                    | 1             |                                                                                                                                                              |
| ocnaddexport           | 0.5       | 1                    | 1             | Resource requirement will increase when export is configured. For more details, see <a href="#">Resource Profile for Correlated Kafka Feed for 30K MPS</a> . |
| ocnaddredundancyagent  | 1         | 1                    | 1             | Required only when Georedundancy is enabled for OCNADD.                                                                                                      |

### 3.1.3 Resource Profile for OCNADD Worker Group Services

The following profile shall be used for worker group services. The resource profile for worker group services will vary based on the scenario to be executed.

**Note**

To support the increased throughput, the number of topic partitions should be increased. For more details on this, see "Adding Partitions to an Existing Topic" in the *Oracle Communications Network Analytics Data Director User Guide*.

### 3.1.3.1 Resource Profile for Message Sequencing and Metadata Enrichment

- **Replication Factor:** 2
- **Message Size:** 3500
- **Feed Type:** HTTP2/TCP/KAFKA

**Table 3-5 Resource Requirement**

| Service                                                                                                                         | vCPU | Total Replica | Memory Required (Gi) | Topic Partition |
|---------------------------------------------------------------------------------------------------------------------------------|------|---------------|----------------------|-----------------|
| Kafka with RF=2                                                                                                                 |      |               |                      |                 |
| ocnaddkafka                                                                                                                     | 6    | 6             | 164                  | -               |
| MESSAGE_SEQUENCING_TYPE = TRANSACTION,<br>TRANSACTION_MSG_SEQUENCING_EXPIRY_TIMER= 200ms and METADATA ENRICHMENT ON/OFF         |      |               |                      |                 |
| ocnaddscppaggregation                                                                                                           | 2    | 5             | 24                   | 30(SCP)         |
| MESSAGE_SEQUENCING_TYPE = TIME_WINDOW,<br>WINDOW_MSG_SEQUENCING_EXPIRY_TIMER=10ms                                               |      |               |                      |                 |
| ocnaddscppaggregation                                                                                                           | 2    | 5             | 24                   | 30(SCP)         |
| MESSAGE_SEQUENCING_TYPE = REQUEST_RESPONSE,<br>REQUEST_RESPONSE_MSG_SEQUENCING_EXPIRY_TIMER=10ms and METADATA ENRICHMENT ON/OFF |      |               |                      |                 |
| ocnaddscppaggregation                                                                                                           | 2    | 5             | 16                   | 30(SCP)         |
| INGRESS FILTER is ON                                                                                                            |      |               |                      |                 |
| MESSAGE_SEQUENCING_TYPE = TRANSACTION,<br>TRANSACTION_MSG_SEQUENCING_EXPIRY_TIMER= 200ms and METADATA ENRICHMENT ON/OFF         |      |               |                      |                 |
| ocnaddscppaggregation                                                                                                           | 2    | 6             | 36                   | 36(SCP)         |
| MESSAGE_SEQUENCING_TYPE = TIME_WINDOW,<br>WINDOW_MSG_SEQUENCING_EXPIRY_TIMER=10ms                                               |      |               |                      |                 |
| ocnaddscppaggregation                                                                                                           | 2    | 6             | 36                   | 36(SCP)         |
| MESSAGE_SEQUENCING_TYPE = REQUEST_RESPONSE,<br>REQUEST_RESPONSE_MSG_SEQUENCING_EXPIRY_TIMER=10ms and METADATA ENRICHMENT ON/OFF |      |               |                      |                 |
| ocnaddscppaggregation                                                                                                           | 2    | 6             | 24                   | 36(SCP)         |
| HTTP2 Feed (FILTER = OFF)                                                                                                       |      |               |                      |                 |
| ocnaddadapter                                                                                                                   | 3    | 15            | 24                   | 135(MAIN)       |
| SYNTHETIC Feed (TCP CONNECTION MESSAGE and/or MESSAGE SEGMENTATION = ON)<br>(FILTER=OFF)                                        |      |               |                      |                 |
| ocnaddadapter                                                                                                                   | 3    | 11            | 12                   | 66(MAIN)        |

**Note**

- Update value of parameter "numIoThreads" to 128 in custom-value.yaml file
- The performance run has been completed with 90% success rate of transactions (Success Transaction = All 4 message of Transaction ("RxRequest, TxRequest.RxResponse,TxResponse") are received from SCP NF)
- The number of instances for SCP aggregation may increase from defined number in resource profile based on message sequencing timer expiry configuration (using Max timer expiry value) and Transaction success rate.
- Additional memory is required for SCP aggregation service if Metadata Enrichment feature is enabled and value of properties "METADATA\_MAP\_CACHE\_EXPIRY\_TIME\_MS" and "METADATA\_MAP\_CACHE\_SCHEDULER\_TIME\_MS" is increased to a higher value.
- The end-2-end latency may increase based on "**Timer Expiry Value + Processing Time+ RF2 Processing Time+ 3rd party response time (For HTTP2 Feed)**"

### 3.1.3.2 Resource Profile for HTTP2 Feed for 135K MPS

- **Replication Factor:** 1
- **Message Size:** 3500
- **Feed Type:** HTTP2

Table 3-6 Resource Requirement

| Service                      | 15K NRF Profile |               |                      |                   | 90K SCPP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCPP Profile |      |               |                      |                   |      |               |                      |                   |      |               |                      |                   |  |  |
|------------------------------|-----------------|---------------|----------------------|-------------------|------------------|------------------|--------------------------------------------|-------------------|------|---------------|----------------------|-------------------|------|---------------|----------------------|-------------------|------|---------------|----------------------|-------------------|--|--|
|                              | vCPU            | Total Replica | Memory Required (Gi) | Topics Partitions | vCPU             | Total Replica    | Memory Required (Gi)                       | Topics Partitions | vCPU | Total Replica | Memory Required (Gi) | Topics Partitions | vCPU | Total Replica | Memory Required (Gi) | Topics Partitions | vCPU | Total Replica | Memory Required (Gi) | Topics Partitions |  |  |
| zookeeper                    | 1               | 3             | 1                    |                   | 1                | 3                | 1                                          |                   | 1    | 3             | 1                    |                   | 1    | 3             | 1                    |                   | 1    | 3             | 1                    |                   |  |  |
| ocnaddkafka                  | 2               | 3             | 24                   |                   | 6                | 4                | 48                                         |                   | 5    | 3             | 18                   |                   | 6.5  | 6             | 48                   |                   | 6.5  | 6             | 48                   |                   |  |  |
| Replicated Feed              |                 |               |                      |                   |                  |                  |                                            |                   |      |               |                      |                   |      |               |                      |                   |      |               |                      |                   |  |  |
| ocnaddkafka                  | 2               | 3             | 24                   |                   | 7                | 4                | 48                                         |                   | 6    | 3             | 24                   |                   | 7.5  | 6             | 96                   |                   | 7.5  | 6             | 96                   |                   |  |  |
| WLB is ON/OFF, FILTER is OFF |                 |               |                      |                   |                  |                  |                                            |                   |      |               |                      |                   |      |               |                      |                   |      |               |                      |                   |  |  |

Table 3-6 (Cont.) Resource Requirement

| Service              | 15K NRF Profile |                |                      |                  | 90K SSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SSCP Profile |      |                |                      |                  |      |                |                      |                                     |      |                |                      |                                     |
|----------------------|-----------------|----------------|----------------------|------------------|------------------|------------------|--------------------------------------------|-------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|-------------------------------------|------|----------------|----------------------|-------------------------------------|
|                      | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU             | Total Replicas   | Memory Required (Gi)                       | Topic Partitions  | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    |
| ocnaddscpaggregation | -               | -              | -                    | -                | 2                | 5                | 4                                          | SCP=30            | -    | -              | -                    | -                | 2    | 5              | 4                    | SCP=30 (Each Instance 6 partitions) | 2    | 8              | 4                    | SCP=48 (Each instance 6 partitions) |

Table 3-6 (Cont.) Resource Requirement

| Service | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      |                  |      |                |                      | ion)             |

Table 3-6 (Cont.) Resource Requirement

| Service              | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                                    |      |                |                      |                  |
|----------------------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------------------------|------|----------------|----------------------|------------------|
|                      | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
| ocnaddnrfaggregation | 2               | 1              | 2                    | NRF=6            | -                 | -                | -                                          | -                  | -    | -              | -                    | -                | 2    | 1              | 2                    | NRF=6 (Each Instance 6 partitions) | -    | -              | -                    | -                |

Table 3-6 (Cont.) Resource Requirement

| Service | 15K NRF Profile |                |                      |                  | 90K SCPP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCPP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|------------------|------------------|--------------------------------------------|-------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU             | Total Replicas   | Memory Required (Gi)                       | Topic Partitions  | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                  |                  |                                            |                   |      |                |                      |                  |      |                |                      |                  |      |                |                      | ion)             |

Table 3-6 (Cont.) Resource Requirement

| Service               | 15K NRF Profile |               |                      |                  | 90K SCS CP Profile | 30K SEP Profile | 135K Profile (SCP: 90K NRF: 15K SEP: 30K) | 135K SCS CP Profile |       |               |                      |                 |       |               |                      |                                |       |               |                      |                 |
|-----------------------|-----------------|---------------|----------------------|------------------|--------------------|-----------------|-------------------------------------------|---------------------|-------|---------------|----------------------|-----------------|-------|---------------|----------------------|--------------------------------|-------|---------------|----------------------|-----------------|
|                       | v CPU           | Total Replica | Memory Required (Gi) | Topic Partitions | v CPU              | Total Replica   | Memory Required (Gi)                      | Topic Partition     | v CPU | Total Replica | Memory Required (Gi) | Topic Partition | v CPU | Total Replica | Memory Required (Gi) | Topic Partition                | v CPU | Total Replica | Memory Required (Gi) | Topic Partition |
| ocnaddseppaggregation | -               | -             | -                    | -                | -                  | -               | -                                         | -                   | 2     | 2             | 4                    | SEP=12          | 2     | 2             | 4                    | SEP=12 (Each Instance 6 partit | -     | -             | -                    | -               |

Table 3-6 (Cont.) Resource Requirement

| Service | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      | ion)             |      |                |                      |                  |

Table 3-6 (Cont.) Resource Requirement

| Service       | 15K NRF Profile |               |                      |                  | 90K SCS CP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCS CP Profile |       |               |                      |                 |       |               |                      |                                       |       |               |                      |                                       |
|---------------|-----------------|---------------|----------------------|------------------|--------------------|------------------|--------------------------------------------|---------------------|-------|---------------|----------------------|-----------------|-------|---------------|----------------------|---------------------------------------|-------|---------------|----------------------|---------------------------------------|
|               | v CPU           | Total Replica | Memory Required (Gi) | Topic Partitions | v CPU              | Total Replica    | Memory Required (Gi)                       | Topic Partition     | v CPU | Total Replica | Memory Required (Gi) | Topic Partition | v CPU | Total Replica | Memory Required (Gi) | Topic Partition                       | v CPU | Total Replica | Memory Required (Gi) | Topic Partition                       |
| ocnaddadapter | 3               | 2             | 3                    | MAIN=18          | 3                  | 10               | 16                                         | MAIN=90             | 3     | 4             | 8                    | MAIN=36         | 3     | 15            | 24                   | MAIN=135 (Each instance 9 partitions) | 3     | 15            | 24                   | MAIN=135 (Each instance 9 partitions) |

Table 3-6 (Cont.) Resource Requirement

| Service | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      | ion)             |      |                |                      | ion)             |

When Weighted Load Balancing is ON/OFF and Filter is ON

Table 3-7 Resource Requirement

|                      |                 |               |                      |                  |                |                 |                                            |                 |      |               |                      |                 |      |               |                      |                 |      |               |                      |                 |
|----------------------|-----------------|---------------|----------------------|------------------|----------------|-----------------|--------------------------------------------|-----------------|------|---------------|----------------------|-----------------|------|---------------|----------------------|-----------------|------|---------------|----------------------|-----------------|
| SERVICE              | 15K NRF Profile |               |                      |                  | 90KSCP Profile | 30KSEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135KSCP Profile |      |               |                      |                 |      |               |                      |                 |      |               |                      |                 |
|                      | vCPU            | Total Replica | Memory Required (Gi) | Topic Partitions | vCPU           | Total Replica   | Memory Required (Gi)                       | Topic Partition | vCPU | Total Replica | Memory Required (Gi) | Topic Partition | vCPU | Total Replica | Memory Required (Gi) | Topic Partition | vCPU | Total Replica | Memory Required (Gi) | Topic Partition |
| Ingress Filter is ON |                 |               |                      |                  |                |                 |                                            |                 |      |               |                      |                 |      |               |                      |                 |      |               |                      |                 |

Table 3-7 (Cont.) Resource Requirement

| SERVICE              | 15K NRF Profile |                |                      |                  | 90K SSCP Profile | 30K SEP Profile | 135K Profile (SCP: 90K NRF: 15K SEP: 30K) | 135K SSCP Profile |      |                |                      |                  |      |                |                      |                                     |      |                |                      |                                     |  |  |
|----------------------|-----------------|----------------|----------------------|------------------|------------------|-----------------|-------------------------------------------|-------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|-------------------------------------|------|----------------|----------------------|-------------------------------------|--|--|
|                      | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU             | Total Replicas  | Memory Required (Gi)                      | Topic Partitions  | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    |  |  |
| ocnaddscpaggregation | -               | -              | -                    | -                | 2                | 6               | 4                                         | SCP=36            | -    | -              | -                    | -                | 2    | 6              | 4                    | SCP=36 (Each Instance 6 partitions) | 2    | 9              | 4                    | SCP=54 (Each instance 6 partitions) |  |  |

Table 3-7 (Cont.) Resource Requirement

| SERVICE | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      | ion)             |      |                |                      | ion)             |

Table 3-7 (Cont.) Resource Requirement

| SERVICE              | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                                     |      |                |                      |                  |
|----------------------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|-------------------------------------|------|----------------|----------------------|------------------|
|                      | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
| ocnaddnrfaggregation | 2               | 2              | 2                    | NRF=12           | -                 | -                | -                                          | -                  | -    | -              | -                    | -                | 2    | 2              | 2                    | NRF=12 (Each Instance 6 partitions) | -    | -              | -                    | -                |

Table 3-7 (Cont.) Resource Requirement

| SERVICE | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      |                  |      |                |                      | ion)             |

Table 3-7 (Cont.) Resource Requirement

| SERVICE               | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                                      |      |                |                      |                  |  |  |
|-----------------------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|--------------------------------------|------|----------------|----------------------|------------------|--|--|
|                       | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                     | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |  |  |
| ocnaddseppaggregation | -               | -              | -                    | -                | -                 | -                | -                                          | -                  | 2    | 3              | 2                    | SEPP=18          | 2    | 3              | 4                    | SEPP=18 (Each Instance 6 partitions) | -    | -              | -                    | -                |  |  |

Table 3-7 (Cont.) Resource Requirement

| SERVICE             | 15K NRF Profile |               |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |               |                      |                 |      |               |                      |                 |      |               |                      |                 |
|---------------------|-----------------|---------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|---------------|----------------------|-----------------|------|---------------|----------------------|-----------------|------|---------------|----------------------|-----------------|
|                     | VCPU            | Total Replica | Memory Required (Gi) | Topic Partitions | VCPU              | Total Replica    | Memory Required (Gi)                       | Topic Partition    | VCPU | Total Replica | Memory Required (Gi) | Topic Partition | VCPU | Total Replica | Memory Required (Gi) | Topic Partition | VCPU | Total Replica | Memory Required (Gi) | Topic Partition |
|                     |                 |               |                      |                  |                   |                  |                                            |                    |      |               |                      |                 |      |               |                      |                 |      |               |                      |                 |
|                     |                 |               |                      |                  |                   |                  |                                            |                    |      |               |                      |                 |      |               |                      | ion)            |      |               |                      |                 |
| Egress Filter is ON |                 |               |                      |                  |                   |                  |                                            |                    |      |               |                      |                 |      |               |                      |                 |      |               |                      |                 |

Table 3-7 (Cont.) Resource Requirement

| SERVICE       | 15K NRF Profile |               |                      |                  | 90K SCS CP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCS CP Profile |       |               |                      |                 |       |               |                      |                                       |       |               |                      |                                       |  |  |
|---------------|-----------------|---------------|----------------------|------------------|--------------------|------------------|--------------------------------------------|---------------------|-------|---------------|----------------------|-----------------|-------|---------------|----------------------|---------------------------------------|-------|---------------|----------------------|---------------------------------------|--|--|
|               | v CPU           | Total Replica | Memory Required (Gi) | Topic Partitions | v CPU              | Total Replica    | Memory Required (Gi)                       | Topic Partition     | v CPU | Total Replica | Memory Required (Gi) | Topic Partition | v CPU | Total Replica | Memory Required (Gi) | Topic Partition                       | v CPU | Total Replica | Memory Required (Gi) | Topic Partition                       |  |  |
| ocnaddadapter | 3               | 3             | 3                    | MAIN=27          | 3                  | 11               | 3                                          | MAIN=99             | 3     | 5             | 3                    | MAIN=45         | 3     | 16            | 24                   | MAIN=144 (Each instance 9 partitions) | 3     | 16            | 24                   | MAIN=144 (Each instance 9 partitions) |  |  |

Table 3-7 (Cont.) Resource Requirement

| SERVICE | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      | ion)             |      |                |                      | ion)             |

**Note**

- When advanced features such as Ingress filtering, Egress filtering, and Weighted load balancing are enabled simultaneously, the resource requirement for "ocnaddadapter" service may vary at higher throughput.
- Filter is not tested with replicated feed enabled due to disk I/O limitation.
- Resource requirement may vary when Filter is ON based on % data allowed after filtering and number of filter conditions with configured values.
- Five or Six instances of Kafka brokers might be required when running RF=2, based on the setup performance. The end-to-end latency might increase when DISK I/O is slow.
- For DISK I/O, see [Disk Throughput Requirements](#).
- For Kafka PVC-Storage, see [Kafka PVC Storage Requirements](#).

### 3.1.3.3 Resource Profile for Synthetic Feed For 135K MPS

- **Replication Factor:** 1
- **Message Size:** 3500
- **Feed Type:** SYNTHETIC

Table 3-8 Resource Requirement

| Service                                                         | 15K NRF Profile |               |                      |                  | 90K SCS CP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCS CP Profile |       |               |                      |                 |       |               |                      |                 |       |               |                      |                 |
|-----------------------------------------------------------------|-----------------|---------------|----------------------|------------------|--------------------|------------------|--------------------------------------------|---------------------|-------|---------------|----------------------|-----------------|-------|---------------|----------------------|-----------------|-------|---------------|----------------------|-----------------|
|                                                                 | v CPU           | Total Replica | Memory Required (Gi) | Topic Partitions | v CPU              | Total Replica    | Memory Required (Gi)                       | Topic Partition     | v CPU | Total Replica | Memory Required (Gi) | Topic Partition | v CPU | Total Replica | Memory Required (Gi) | Topic Partition | v CPU | Total Replica | Memory Required (Gi) | Topic Partition |
| zookeeper                                                       | 1               | 3             | 1                    |                  | 1                  | 3                | 1                                          |                     | 1     | 3             | 1                    |                 | 1     | 3             | 1                    |                 | 1     | 3             | 1                    |                 |
| ocnaddkafka                                                     | 2               | 3             | 24                   |                  | 6                  | 4                | 48                                         |                     | 5     | 3             | 18                   |                 | 6.5   | 6             | 48                   |                 | 6.5   | 6             | 48                   |                 |
| Replicated Feed                                                 |                 |               |                      |                  |                    |                  |                                            |                     |       |               |                      |                 |       |               |                      |                 |       |               |                      |                 |
| ocnaddkafka                                                     | 2               | 3             | 24                   |                  | 7                  | 4                | 48                                         |                     | 6     | 3             | 24                   |                 | 7.5   | 6             | 96                   |                 | 7.5   | 6             | 96                   |                 |
| WEIGHTED-LB is ON/OFF, L3L4 Mapping is ON/OFF and FILTER is OFF |                 |               |                      |                  |                    |                  |                                            |                     |       |               |                      |                 |       |               |                      |                 |       |               |                      |                 |

Table 3-8 (Cont.) Resource Requirement

| Service              | 15K NRF Profile |                |                      |                  | 90K SSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SSCP Profile |      |                |                      |                  |      |                |                      |                                     |      |                |                      |                                     |  |  |
|----------------------|-----------------|----------------|----------------------|------------------|------------------|------------------|--------------------------------------------|-------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|-------------------------------------|------|----------------|----------------------|-------------------------------------|--|--|
|                      | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU             | Total Replicas   | Memory Required (Gi)                       | Topic Partitions  | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    |  |  |
| ocnaddscpaggregation | -               | -              | -                    | -                | 2                | 5                | 4                                          | SCP=30            | -    | -              | -                    | -                | 2    | 5              | 4                    | SCP=30 (Each Instance 6 partitions) | 2    | 8              | 4                    | SCP=48 (Each instance 6 partitions) |  |  |

Table 3-8 (Cont.) Resource Requirement

| Service | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                 |      |                |                      |                 |      |                |                      |                 |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|-----------------|------|----------------|----------------------|-----------------|------|----------------|----------------------|-----------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partition    | vCPU | Total Replicas | Memory Required (Gi) | Topic Partition | vCPU | Total Replicas | Memory Required (Gi) | Topic Partition | vCPU | Total Replicas | Memory Required (Gi) | Topic Partition |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                 |      |                |                      | ion)            |      |                |                      | ion)            |

Table 3-8 (Cont.) Resource Requirement

| Service              | 15K NRF Profile |               |                      |                  | 90K SCS CP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCS CP Profile |       |               |                      |                 |       |               |                      |                                    |       |               |                      |                 |
|----------------------|-----------------|---------------|----------------------|------------------|--------------------|------------------|--------------------------------------------|---------------------|-------|---------------|----------------------|-----------------|-------|---------------|----------------------|------------------------------------|-------|---------------|----------------------|-----------------|
|                      | v CPU           | Total Replica | Memory Required (Gi) | Topic Partitions | v CPU              | Total Replica    | Memory Required (Gi)                       | Topic Partition     | v CPU | Total Replica | Memory Required (Gi) | Topic Partition | v CPU | Total Replica | Memory Required (Gi) | Topic Partition                    | v CPU | Total Replica | Memory Required (Gi) | Topic Partition |
| ocnaddnrfaggregation | 2               | 1             | 2                    | NRF=6            | -                  | -                | -                                          | -                   | -     | -             | -                    | -               | 2     | 1             | 2                    | NRF=6 (Each Instance 6 partitions) | -     | -             | -                    | -               |

Table 3-8 (Cont.) Resource Requirement

| Service | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      |                  |      |                |                      | ion)             |

Table 3-8 (Cont.) Resource Requirement

| Service               | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                                      |      |                |                      |                  |
|-----------------------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|--------------------------------------|------|----------------|----------------------|------------------|
|                       | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                     | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
| ocnaddseppaggregation | -               | -              | -                    | -                | -                 | -                | -                                          | -                  | 2    | 2              | 4                    | SEPP=12          | 2    | 2              | 4                    | SEPP=12 (Each Instance 6 partitions) | -    | -              | -                    | -                |

Table 3-8 (Cont.) Resource Requirement

| Service | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      |                  |      |                |                      | ion)             |

Table 3-8 (Cont.) Resource Requirement

| Service       | 15K NRF Profile |                |                      |                  | 90K SCCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCCP Profile |      |                |                      |                  |      |                |                      |                                 |      |                |                      |                                 |
|---------------|-----------------|----------------|----------------------|------------------|------------------|------------------|--------------------------------------------|-------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|---------------------------------|------|----------------|----------------------|---------------------------------|
|               | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU             | Total Replicas   | Memory Required (Gi)                       | Topic Partitions  | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                |
| ocnaddadapter | 3               | 2              | 3                    | MAIN=12          | 3                | 8                | 3                                          | MAIN=48           | 3    | 3              | 3                    | MAIN=18          | 3    | 11             | 6                    | MAIN=66 (Each instance 6 partit | 3    | 11             | 6                    | MAIN=66 (Each instance 6 partit |

Table 3-8 (Cont.) Resource Requirement

| Service | 15K NRF Profile |               |                      |                  | 90K SCS CP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCS CP Profile |      |               |                      |                 |      |               |                      |                 |      |               |                      |                 |
|---------|-----------------|---------------|----------------------|------------------|--------------------|------------------|--------------------------------------------|---------------------|------|---------------|----------------------|-----------------|------|---------------|----------------------|-----------------|------|---------------|----------------------|-----------------|
|         | vCPU            | Total Replica | Memory Required (Gi) | Topic Partitions | vCPU               | Total Replica    | Memory Required (Gi)                       | Topic Partition     | vCPU | Total Replica | Memory Required (Gi) | Topic Partition | vCPU | Total Replica | Memory Required (Gi) | Topic Partition | vCPU | Total Replica | Memory Required (Gi) | Topic Partition |
|         |                 |               |                      |                  |                    |                  |                                            |                     |      |               |                      |                 |      |               |                      | ion)            |      |               |                      | ion)            |

When Weighted Load Balancing is ON/OFF, L3L4 Mapping is ON/OFF, and Filter is ON

Table 3-9 Resource Requirement

| Service              | 15K NRF Profile |               |                      |                  | 90K SCPP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCPP Profile |      |               |                      |                 |      |               |                      |                 |      |               |                      |                 |
|----------------------|-----------------|---------------|----------------------|------------------|------------------|------------------|--------------------------------------------|-------------------|------|---------------|----------------------|-----------------|------|---------------|----------------------|-----------------|------|---------------|----------------------|-----------------|
|                      | vCPU            | Total Replica | Memory Required (Gi) | Topic Partitions | vCPU             | Total Replica    | Memory Required (Gi)                       | Topic Partition   | vCPU | Total Replica | Memory Required (Gi) | Topic Partition | vCPU | Total Replica | Memory Required (Gi) | Topic Partition | vCPU | Total Replica | Memory Required (Gi) | Topic Partition |
| Ingress Filter is ON |                 |               |                      |                  |                  |                  |                                            |                   |      |               |                      |                 |      |               |                      |                 |      |               |                      |                 |

Table 3-9 (Cont.) Resource Requirement

| Service              | 15K NRF Profile |                |                      |                  | 90K SSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SSCP Profile |      |                |                      |                  |      |                |                      |                                     |      |                |                      |                                     |      |                |                      |                  |
|----------------------|-----------------|----------------|----------------------|------------------|------------------|------------------|--------------------------------------------|-------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|-------------------------------------|------|----------------|----------------------|-------------------------------------|------|----------------|----------------------|------------------|
|                      | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU             | Total Replicas   | Memory Required (Gi)                       | Topic Partitions  | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
| ocnaddscpaggregation | -               | -              | -                    | -                | 2                | 6                | 4                                          | SCP=36            | -    | -              | -                    | -                | 2    | 6              | 4                    | SCP=36 (Each Instance 6 partitions) | 2    | 9              | 4                    | SCP=54 (Each Instance 6 partitions) |      |                |                      |                  |

Table 3-9 (Cont.) Resource Requirement

| Service | 15K NRF Profile |               |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |               |                      |                 |      |               |                      |                 |      |               |                      |                 |
|---------|-----------------|---------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|---------------|----------------------|-----------------|------|---------------|----------------------|-----------------|------|---------------|----------------------|-----------------|
|         | vCPU            | Total Replica | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replica    | Memory Required (Gi)                       | Topic Partition    | vCPU | Total Replica | Memory Required (Gi) | Topic Partition | vCPU | Total Replica | Memory Required (Gi) | Topic Partition | vCPU | Total Replica | Memory Required (Gi) | Topic Partition |
|         |                 |               |                      |                  |                   |                  |                                            |                    |      |               |                      |                 |      |               |                      | ion)            |      |               |                      | ion)            |

Table 3-9 (Cont.) Resource Requirement

| Service              | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                                     |      |                |                      |                  |
|----------------------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|-------------------------------------|------|----------------|----------------------|------------------|
|                      | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
| ocnaddnrfaggregation | 2               | 2              | 2                    | NRF=12           | -                 | -                | -                                          | -                  | -    | -              | -                    | -                | 2    | 2              | 2                    | NRF=12 (Each Instance 6 partitions) | -    | -              | -                    | -                |

Table 3-9 (Cont.) Resource Requirement

| Service | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      | ion)             |      |                |                      |                  |

Table 3-9 (Cont.) Resource Requirement

| Service               | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                                      |      |                |                      |                  |
|-----------------------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|--------------------------------------|------|----------------|----------------------|------------------|
|                       | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                     | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
| ocnaddseppaggregation | -               | -              | -                    | -                | -                 | -                | -                                          | -                  | 2    | 3              | 4                    | SEPP=18          | 2    | 3              | 4                    | SEPP=18 (Each Instance 6 partitions) | -    | -              | -                    | -                |

Table 3-9 (Cont.) Resource Requirement

| Service             | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |  |  |
|---------------------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|--|--|
|                     | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |  |  |
|                     |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |  |  |
| Egress Filter is ON |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |  |  |

Table 3-9 (Cont.) Resource Requirement

| Service       | 15K NRF Profile |               |                      |                  | 90K SCS CP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCS CP Profile |       |               |                      |                 |       |               |                      |                                 |       |               |                      |                 |  |  |
|---------------|-----------------|---------------|----------------------|------------------|--------------------|------------------|--------------------------------------------|---------------------|-------|---------------|----------------------|-----------------|-------|---------------|----------------------|---------------------------------|-------|---------------|----------------------|-----------------|--|--|
|               | v CPU           | Total Replica | Memory Required (Gi) | Topic Partitions | v CPU              | Total Replica    | Memory Required (Gi)                       | Topic Partition     | v CPU | Total Replica | Memory Required (Gi) | Topic Partition | v CPU | Total Replica | Memory Required (Gi) | Topic Partition                 | v CPU | Total Replica | Memory Required (Gi) | Topic Partition |  |  |
| ocnaddadapter | 3               | 3             | 3                    | MAIN=18          | 3                  | 9                | 3                                          | MAIN=54             | 3     | 3             | 3                    | MAIN=18         | 3     | 11            | 6                    | MAIN=66 (Each instance 6 partit | 3     | 11            | 6                    | MAIN=66 (Eac    |  |  |

Table 3-9 (Cont.) Resource Requirement

| Service | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      | ion)             |      |                |                      | ion)             |

**Note**

- When advance OCNADD features like Ingress filtering, Egress filtering, L3-L4 and Weighted load balancing are enabled simultaneously, then resource requirement for "ocnaddadapter" may vary at higher throughput.
- Resource requirement may vary when Filter is ON based on % data allowed after filtering and number of filter condition with values configured.
- Resource requirement may vary when L3L4 is ON and size of global I3L4 configuration is big.
- Five/Six instances of Kafka broker might require while running RF=2 based on setup performance and end-2-end latency might get increased when DISK I/O is slow,
- For DISK I/O refer to [Disk Throughput Requirements](#)
- For Kafka PVC-Storage refer to [Kafka PVC Storage Requirements](#)

### 3.1.3.4 Resource Profile for Aggregated Kafka Feed for 135K MPS

- **Replication Factor:** 1
- **Message Size:** 3500
- **Feed Type:** KAFKA

Table 3-10 Resource Requirement

| Service               | 15K NRF Profile |                |                      |                   | 90K SSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SSCP Profile |      |                |                      |                   |      |                |                      |                   |      |                |                      |                   |  |  |  |  |
|-----------------------|-----------------|----------------|----------------------|-------------------|------------------|------------------|--------------------------------------------|-------------------|------|----------------|----------------------|-------------------|------|----------------|----------------------|-------------------|------|----------------|----------------------|-------------------|--|--|--|--|
|                       | vCPU            | Total Replicas | Memory Required (Gi) | Topics Partitions | vCPU             | Total Replicas   | Memory Required (Gi)                       | Topics Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topics Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topics Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topics Partitions |  |  |  |  |
| zookeeper             | 1               | 3              | 1                    |                   | 1                | 3                | 1                                          |                   | 1    | 3              | 1                    |                   | 1    | 3              | 1                    |                   | 1    | 3              | 1                    |                   |  |  |  |  |
| ocnaddkafka           | 2               | 3              | 24                   |                   | 6                | 4                | 24                                         |                   | 5    | 3              | 18                   |                   | 6.5  | 6              | 48                   |                   | 6.5  | 6              | 48                   |                   |  |  |  |  |
| Replicated Feed       |                 |                |                      |                   |                  |                  |                                            |                   |      |                |                      |                   |      |                |                      |                   |      |                |                      |                   |  |  |  |  |
| ocnaddkafka           | 2               | 3              | 24                   |                   | 7                | 4                | 48                                         |                   | 6    | 3              | 24                   |                   | 7.5  | 6              | 96                   |                   | 7.5  | 6              | 96                   |                   |  |  |  |  |
| Ingress FILTER is OFF |                 |                |                      |                   |                  |                  |                                            |                   |      |                |                      |                   |      |                |                      |                   |      |                |                      |                   |  |  |  |  |

Table 3-10 (Cont.) Resource Requirement

| Service              | 15K NRF Profile |                |                      |                  | 90K SSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SSCP Profile |      |                |                      |                  |      |                |                      |                                     |      |                |                      |                                     |  |  |
|----------------------|-----------------|----------------|----------------------|------------------|------------------|------------------|--------------------------------------------|-------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|-------------------------------------|------|----------------|----------------------|-------------------------------------|--|--|
|                      | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU             | Total Replicas   | Memory Required (Gi)                       | Topic Partitions  | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    |  |  |
| ocnaddscpaggregation | -               | -              | -                    | -                | 2                | 5                | 4                                          | SCP=30            | -    | -              | -                    | -                | 2    | 5              | 4                    | SCP=30 (Each Instance 6 partitions) | 2    | 8              | 4                    | SCP=48 (Each instance 6 partitions) |  |  |

Table 3-10 (Cont.) Resource Requirement

| Service | 15K NRF Profile |               |                      |                  | 90K SCS CP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCS CP Profile |       |               |                      |                 |       |               |                      |                 |       |               |                      |                 |
|---------|-----------------|---------------|----------------------|------------------|--------------------|------------------|--------------------------------------------|---------------------|-------|---------------|----------------------|-----------------|-------|---------------|----------------------|-----------------|-------|---------------|----------------------|-----------------|
|         | v CPU           | Total Replica | Memory Required (Gi) | Topic Partitions | v CPU              | Total Replica    | Memory Required (Gi)                       | Topic Partition     | v CPU | Total Replica | Memory Required (Gi) | Topic Partition | v CPU | Total Replica | Memory Required (Gi) | Topic Partition | v CPU | Total Replica | Memory Required (Gi) | Topic Partition |
|         |                 |               |                      |                  |                    |                  |                                            |                     |       |               |                      |                 |       |               |                      | ion)            |       |               |                      | ion)            |

Table 3-10 (Cont.) Resource Requirement

| Service              | 15K NRF Profile |               |                      |                  | 90K SCS CP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCS CP Profile |       |               |                      |                 |       |               |                      |                                    |       |               |                      |                 |
|----------------------|-----------------|---------------|----------------------|------------------|--------------------|------------------|--------------------------------------------|---------------------|-------|---------------|----------------------|-----------------|-------|---------------|----------------------|------------------------------------|-------|---------------|----------------------|-----------------|
|                      | v CPU           | Total Replica | Memory Required (Gi) | Topic Partitions | v CPU              | Total Replica    | Memory Required (Gi)                       | Topic Partition     | v CPU | Total Replica | Memory Required (Gi) | Topic Partition | v CPU | Total Replica | Memory Required (Gi) | Topic Partition                    | v CPU | Total Replica | Memory Required (Gi) | Topic Partition |
| ocnaddnrfaggregation | 2               | 1             | 2                    | NRF=6            | -                  | -                | -                                          | -                   | -     | -             | -                    | -               | 2     | 1             | 2                    | NRF=6 (Each Instance 6 partitions) | -     | -             | -                    | -               |

Table 3-10 (Cont.) Resource Requirement

| Service | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      |                  |      |                |                      | ion)             |

Table 3-10 (Cont.) Resource Requirement

| Service               | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                                      |      |                |                      |                  |
|-----------------------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|--------------------------------------|------|----------------|----------------------|------------------|
|                       | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                     | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
| ocnaddseppaggregation | -               | -              | -                    | -                | -                 | -                | -                                          | -                  | 2    | 2              | 4                    | SEPP=12          | 2    | 2              | 4                    | SEPP=12 (Each Instance 6 partitions) | -    | -              | -                    | -                |

Table 3-10 (Cont.) Resource Requirement

| Service              | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|----------------------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|                      | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|                      |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
| Ingress Filter is ON |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |

Table 3-10 (Cont.) Resource Requirement

| Service              | 15K NRF Profile |                |                      |                  | 90K SSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SSCP Profile |      |                |                      |                  |      |                |                      |                                     |      |                |                      |                                     |  |  |
|----------------------|-----------------|----------------|----------------------|------------------|------------------|------------------|--------------------------------------------|-------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|-------------------------------------|------|----------------|----------------------|-------------------------------------|--|--|
|                      | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU             | Total Replicas   | Memory Required (Gi)                       | Topic Partitions  | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    |  |  |
| ocnaddscpaggregation | -               | -              | -                    | -                | 2                | 6                | 4                                          | SCP=36            | -    | -              | -                    | -                | 2    | 6              | 4                    | SCP=36 (Each Instance 6 partitions) | 2    | 9              | 4                    | SCP=54 (Each instance 6 partitions) |  |  |

Table 3-10 (Cont.) Resource Requirement

| Service | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      |                  |      |                |                      | ion)             |

Table 3-10 (Cont.) Resource Requirement

| Service              | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                                     |      |                |                      |                  |
|----------------------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|-------------------------------------|------|----------------|----------------------|------------------|
|                      | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                    | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
| ocnaddnrfaggregation | 2               | 2              | 2                    | NRF=12           | -                 | -                | -                                          | -                  | -    | -              | -                    | -                | 2    | 2              | 2                    | NRF=12 (Each Instance 6 partitions) | -    | -              | -                    | -                |

Table 3-10 (Cont.) Resource Requirement

| Service | 15K NRF Profile |               |                      |                  | 90K SCS CP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCS CP Profile |      |               |                      |                 |      |               |                      |                 |      |               |                      |                 |
|---------|-----------------|---------------|----------------------|------------------|--------------------|------------------|--------------------------------------------|---------------------|------|---------------|----------------------|-----------------|------|---------------|----------------------|-----------------|------|---------------|----------------------|-----------------|
|         | vCPU            | Total Replica | Memory Required (Gi) | Topic Partitions | vCPU               | Total Replica    | Memory Required (Gi)                       | Topic Partition     | vCPU | Total Replica | Memory Required (Gi) | Topic Partition | vCPU | Total Replica | Memory Required (Gi) | Topic Partition | vCPU | Total Replica | Memory Required (Gi) | Topic Partition |
|         |                 |               |                      |                  |                    |                  |                                            |                     |      |               |                      |                 |      |               |                      |                 |      |               |                      | ion)            |

Table 3-10 (Cont.) Resource Requirement

| Service               | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                                      |      |                |                      |                  |  |  |
|-----------------------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|--------------------------------------|------|----------------|----------------------|------------------|--|--|
|                       | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions                     | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |  |  |
| ocnaddseppaggregation | -               | -              | -                    | -                | -                 | -                | -                                          | -                  | 2    | 3              | 4                    | SEPP=18          | 2    | 3              | 4                    | SEPP=18 (Each Instance 6 partitions) | -    | -              | -                    | -                |  |  |

Table 3-10 (Cont.) Resource Requirement

| Service | 15K NRF Profile |                |                      |                  | 90K SCSCP Profile | 30K SEPP Profile | 135K Profile (SCP: 90K NRF: 15K SEPP: 30K) | 135K SCSCP Profile |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |
|---------|-----------------|----------------|----------------------|------------------|-------------------|------------------|--------------------------------------------|--------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|------|----------------|----------------------|------------------|
|         | vCPU            | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU              | Total Replicas   | Memory Required (Gi)                       | Topic Partitions   | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions | vCPU | Total Replicas | Memory Required (Gi) | Topic Partitions |
|         |                 |                |                      |                  |                   |                  |                                            |                    |      |                |                      |                  |      |                |                      |                  |      |                |                      |                  |

① **Note**

The number of partitions for MAIN topic can be configured similar to the partition count recommended for Synthetic Feed. However, the partition count may increase or decrease as per the design of consumer application.

## 3.1.3.5 Resource Profile for Correlated Kafka Feed for 30K MPS

**Note**

- Creating a CORRELATED or CORRELATED\_FILTERED ACL feed is mandatory before making a correlation configuration.
- Calculate the PVC size of a Kafka broker in advance, as each new CORRELATED ACL feed type correlation configuration creates one new topic, and each new CORRELATED\_FILTERED ACL feed type correlation configuration creates two new topics.
- The CPU and memory requirement in Kafka increase based on the number of CORRELATED or CORRELATED\_FILTERED configurations; the resources mentioned in the below table are for a maximum of two configurations.
- Resource requirements for correlation service vary when all the transaction messages are not received and the value of *maxTransactionWaitTime* is set to higher value (it is recommended to have a lower value for this scenario).

- **Replication Factor:** 1
- **Message Size:** 3500
- **Feed Type:** CORRELATED

**Table 3-11 Resource Requirement**

| Service                                                                               | 15K NRF Profile |               |                      |                  | 30 K SC P Profile | 30 K SE PP Profile | 30 K Profile (SCP:15K NRF:5K SEPP:10K) |                  |       |               |                      |                  |       |               |                      |                  |
|---------------------------------------------------------------------------------------|-----------------|---------------|----------------------|------------------|-------------------|--------------------|----------------------------------------|------------------|-------|---------------|----------------------|------------------|-------|---------------|----------------------|------------------|
|                                                                                       | vC PU           | Total Replica | Memory Required (Gi) | Topic Partitions | vC PU             | Total Replica      | Memory Required (Gi)                   | Topic Partitions | vC PU | Total Replica | Memory Required (Gi) | Topic Partitions | vC PU | Total Replica | Memory Required (Gi) | Topic Partitions |
| zookeeper                                                                             | 1               | 3             | 1                    |                  | 1                 | 3                  | 1                                      |                  | 1     | 3             | 1                    |                  | 1     | 3             | 1                    |                  |
| ocnaddkafka                                                                           | 3               | 4             | 24                   |                  | 4                 | 4                  | 24                                     |                  | 4     | 4             | 24                   |                  | 4     | 4             | 24                   |                  |
| EXPORT/TRACE(1K MPS rate is supported for inbound DD data) for 3 export configuration |                 |               |                      |                  |                   |                    |                                        |                  |       |               |                      |                  |       |               |                      |                  |

Table 3-11 (Cont.) Resource Requirement

| Service               | 15K NRF Profile |               |                      |                  | 30 K SC P Profile | 30 K SE PP Profile | 30 K Profile (SCP:15 K NRF:5 K SE PP:10 K) |                  |       |               |                      |                  |       |               |                      |                                    |
|-----------------------|-----------------|---------------|----------------------|------------------|-------------------|--------------------|--------------------------------------------|------------------|-------|---------------|----------------------|------------------|-------|---------------|----------------------|------------------------------------|
|                       | vC PU           | Total Replica | Memory Required (Gi) | Topic Partitions | vC PU             | Total Replica      | Memory Required (Gi)                       | Topic Partitions | vC PU | Total Replica | Memory Required (Gi) | Topic Partitions | vC PU | Total Replica | Memory Required (Gi) | Topic Partitions                   |
| ocnaddexport          | 3               | 1             | 24                   |                  |                   |                    |                                            |                  |       |               |                      |                  |       |               |                      |                                    |
| Replicated Feed       |                 |               |                      |                  |                   |                    |                                            |                  |       |               |                      |                  |       |               |                      |                                    |
| ocnaddkafka           | 3               | 4             | 24                   |                  | 5                 | 4                  | 32                                         |                  | 5     | 4             | 32                   |                  | 5     | 4             | 32                   |                                    |
| ocnaddscppaggregation | -               | -             | -                    | -                | 2                 | 2                  | 2                                          | SCP=12           | -     | -             | -                    | -                | 2     | 1             | 2                    | SCP=6 (Each Instance 6 partitions) |
| ocnaddnrfaggregation  | 2               | 1             | 2                    | NRF=6            | -                 | -                  | -                                          | -                | -     | -             | -                    | -                | 2     | 1             | 2                    | NRF=6 (Each Instance 6 partitions) |

Table 3-11 (Cont.) Resource Requirement

| Service                | 15K NRF Profile |                      |                                                |                                     | 30 K<br>SCP<br>Profile | 30 K<br>SEPP<br>Profile | 30 K<br>Profile<br>(SCP:15 K<br>NRF:5 K<br>SEPP:10 K) |                                |          |                      |                                                |                                |          |                      |                                                |                                       |
|------------------------|-----------------|----------------------|------------------------------------------------|-------------------------------------|------------------------|-------------------------|-------------------------------------------------------|--------------------------------|----------|----------------------|------------------------------------------------|--------------------------------|----------|----------------------|------------------------------------------------|---------------------------------------|
|                        | vC<br>PU        | Total<br>Repli<br>ca | Me<br>mo<br>ry<br>Re<br>qui<br>red<br>(Gi<br>) | To<br>pic<br>Pa<br>rtit<br>ion<br>s | vC<br>PU               | Total<br>Repli<br>ca    | Me<br>mo<br>ry<br>Re<br>qui<br>red<br>(Gi<br>)        | To<br>pic<br>Pa<br>rtit<br>ion | vC<br>PU | Total<br>Repli<br>ca | Me<br>mo<br>ry<br>Re<br>qui<br>red<br>(Gi<br>) | To<br>pic<br>Pa<br>rtit<br>ion | vC<br>PU | Total<br>Repli<br>ca | Me<br>mo<br>ry<br>Re<br>qui<br>red<br>(Gi<br>) | To<br>pic<br>Pa<br>rtit<br>ion        |
| ocnaddseppaggregation  | -               | -                    | -                                              | -                                   | -                      | -                       | -                                                     | -                              | 2        | 2                    | 2                                              | SEPP=12                        | 2        | 1                    | 2                                              | SEPP=6<br>(Each Instance 6 partition) |
| Feed TYPE = CORRELATED |                 |                      |                                                |                                     |                        |                         |                                                       |                                |          |                      |                                                |                                |          |                      |                                                |                                       |

Table 3-11 (Cont.) Resource Requirement

| Service                                                                 | 15K NRF Profile |               |                      |                                                       | 30 K SC P Profile | 30 K SE PP Profile | 30 K Profile (SCP:15 K NRF:5 K SE PP:10 K) |                                                       |       |               |                      |                                                       |       |               |                      |                                                       |
|-------------------------------------------------------------------------|-----------------|---------------|----------------------|-------------------------------------------------------|-------------------|--------------------|--------------------------------------------|-------------------------------------------------------|-------|---------------|----------------------|-------------------------------------------------------|-------|---------------|----------------------|-------------------------------------------------------|
|                                                                         | vC PU           | Total Replica | Memory Required (Gi) | Topic Partitions                                      | vC PU             | Total Replica      | Memory Required (Gi)                       | Topic Partitions                                      | vC PU | Total Replica | Memory Required (Gi) | Topic Partitions                                      | vC PU | Total Replica | Memory Required (Gi) | Topic Partitions                                      |
| ocnaddcorrelation                                                       | 3               | 3             | 64                   | MAIN=18, <feed-name>-CORRELATED=18 or as per consumer | 3                 | 4                  | 64                                         | MAIN=24, <feed-name>-CORRELATED=24 or as per consumer | 3     | 4             | 64                   | MAIN=24, <feed-name>-CORRELATED=24 or as per consumer | 3     | 4             | 64                   | MAIN=24, <feed-name>-CORRELATED=24 or as per consumer |
| Feed TYPE = CORRELATED_FILTERED (Minimum 20% data filter is configured) |                 |               |                      |                                                       |                   |                    |                                            |                                                       |       |               |                      |                                                       |       |               |                      |                                                       |

Table 3-11 (Cont.) Resource Requirement

| Service      | 15K NRF Profile |                              |                                                |                                                                                 | 30<br>K<br>SC<br>P<br>Pr<br>ofil<br>e | 30<br>K<br>SE<br>PP<br>Pr<br>ofil<br>e | 30<br>K<br>Pr<br>ofil<br>e<br>(S<br>CP<br>:15<br>K<br>NR<br>F:5<br>K<br>SE<br>PP<br>:10<br>K) |                                                                                 |          |                              |                                                |                                                                                 |          |                              |                                                |                                                                                 |
|--------------|-----------------|------------------------------|------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------|------------------------------|------------------------------------------------|---------------------------------------------------------------------------------|----------|------------------------------|------------------------------------------------|---------------------------------------------------------------------------------|
|              | vC<br>PU        | Tot<br>al<br>Re<br>pli<br>ca | Me<br>mo<br>ry<br>Re<br>qui<br>red<br>(Gi<br>) | To<br>pic<br>Pa<br>rtit<br>ion<br>s                                             | vC<br>PU                              | Tot<br>al<br>Re<br>pli<br>ca           | Me<br>mo<br>ry<br>Re<br>qui<br>red<br>(Gi<br>)                                                | To<br>pic<br>Pa<br>rtit<br>ion                                                  | vC<br>PU | Tot<br>al<br>Re<br>pli<br>ca | Me<br>mo<br>ry<br>Re<br>qui<br>red<br>(Gi<br>) | To<br>pic<br>Pa<br>rtit<br>ion                                                  | vC<br>PU | Tot<br>al<br>Re<br>pli<br>ca | Me<br>mo<br>ry<br>Re<br>qui<br>red<br>(Gi<br>) | To<br>pic<br>Pa<br>rtit<br>ion                                                  |
| ocnaddfilter | 2               | 3                            | 3                                              | MA<br>IN=<br>18,<br><fe<br>ed-<br>na<br>me<br>>-<br>FIL<br>TE<br>RE<br>D=<br>18 | 2                                     | 4                                      | 3                                                                                             | MA<br>IN=<br>24,<br><fe<br>ed-<br>na<br>me<br>>-<br>FIL<br>TE<br>RE<br>D=<br>24 | 2        | 4                            | 3                                              | MA<br>IN=<br>24,<br><fe<br>ed-<br>na<br>me<br>>-<br>FIL<br>TE<br>RE<br>D=<br>24 | 2        | 4                            | 3                                              | MA<br>IN=<br>24,<br><fe<br>ed-<br>na<br>me<br>>-<br>FIL<br>TE<br>RE<br>D=<br>24 |

Table 3-11 (Cont.) Resource Requirement

| Service                                                        | 15K NRF Profile |               |                      |                                                       | 30 K SC P Profile | 30 K SE PP Profile | 30 K Profile (SCP:15K NRF:5K SE PP:10K) |                                                       |       |               |                      |                                                       |       |               |                      |                                                       |
|----------------------------------------------------------------|-----------------|---------------|----------------------|-------------------------------------------------------|-------------------|--------------------|-----------------------------------------|-------------------------------------------------------|-------|---------------|----------------------|-------------------------------------------------------|-------|---------------|----------------------|-------------------------------------------------------|
|                                                                | vC PU           | Total Replica | Memory Required (Gi) | Topic Partitions                                      | vC PU             | Total Replica      | Memory Required (Gi)                    | Topic Partition                                       | vC PU | Total Replica | Memory Required (Gi) | Topic Partition                                       | vC PU | Total Replica | Memory Required (Gi) | Topic Partition                                       |
| ocnaddcorrelation                                              | 3               | 3             | 48                   | <feed-name>-FILTERED-CORRELATED=18 or as per consumer | 3                 | 4                  | 64                                      | <feed-name>-FILTERED-CORRELATED=24 or as per consumer | 3     | 4             | 64                   | <feed-name>-FILTERED-CORRELATED=24 or as per consumer | 3     | 4             | 64                   | <feed-name>-FILTERED-CORRELATED=24 or as per consumer |
| Per Correlation Feed(1K MPS supported with 24 hours retention) |                 |               |                      |                                                       |                   |                    |                                         |                                                       |       |               |                      |                                                       |       |               |                      |                                                       |
| storageadapter                                                 | 3               | 1             | 16                   |                                                       |                   |                    |                                         |                                                       |       |               |                      |                                                       |       |               |                      |                                                       |

**Note**

- Resource requirement may vary for filter service based on % data allowed after filtering and number of filter condition with values configured.
- Resource requirement for correlation service may vary when all messages of transaction are not received and value of "maxTransactionWaitTime" is set to higher (It is recommended to have lower value for these scenario).
- Kafka broker resource requirement will increase in case of rf=2 and/or replicated feed is running and end-2-end latency might get increased when DISK I/O is slow,
- The above resource requirement of correlation service is mentioned for single feed and in case of replicated feed, Additional resource will be required in kafka.
- Filter service memory and cpu requirement may need to increase based on number of CORRLATION\_FILTERED feed is/are configured. Above requirement is given for single configuration.
- For DISK I/O refer to [Disk Throughput Requirements](#)
- For Kafka PVC-Storage refer to [Kafka PVC Storage Requirements](#)

### 3.1.3.6 Resource Profile for Non-Oracle Network Function Feed for 5K MPS

- **Replication Factor:** 1
- **Message Size:** 3500
- **Feed Type:** Non-Oracle Network Function Feed

**Table 3-12 Resource Requirement**

| Service                    | 5K NON ORACLE NF Profile |               |                      |                  |
|----------------------------|--------------------------|---------------|----------------------|------------------|
|                            | vCPU                     | Total Replica | Memory Required (Gi) | Topic Partitions |
| ocnaddingressadapter       | 3                        | 1             | 8                    |                  |
| zookeeper                  | 1                        | 3             | 1                    |                  |
| ocnaddnonoracleaggregation | 2                        | 1             | 2                    | NON_ORACLE=6     |
| ocnaddkafka                | 2                        | 3             | 16                   |                  |
| ocnaddadapter              | 3                        | 1             | 6                    | MAIN=9           |
| Replicated Feed            |                          |               |                      |                  |
| ocnaddkafka                | 2                        | 3             | 24                   |                  |
| ocnaddadapter              | 3                        | 2             | 6                    | MAIN=18          |

### 3.1.3.7 Resource Profile for Default Deployment

This profile can stream NFs (SCP, NRF, SEPP) data up to 15K MPS and can be scaled to handle up to 100K MPS for HTTP2 feed when *weighted\_lb* and Filter (Ingress and Egress) are "OFF".

Replication Factor should be "1" and the incoming message size on OCNADD should be less than or equal to 3500K.

- **Replication Factor:** 1
- **Message Size:** 3500
- **Feed Type:** HTTP2, SYNTHETIC

**Table 3-13 Default Deployment Profile**

| Service                     | vCPU Req | vCPU Limit | Memory Req (Gi) | Memory Limit (Gi) | Min Replica           | Max Replica            | Partitions | Topic Name |
|-----------------------------|----------|------------|-----------------|-------------------|-----------------------|------------------------|------------|------------|
| ocnaddconfiguration         | 1        | 1          | 1               | 1                 | 1                     | 1                      |            |            |
| ocnaddalarm                 | 1        | 1          | 1               | 1                 | 1                     | 1                      |            |            |
| ocnaddadmin                 | 1        | 1          | 1               | 1                 | 1                     | 1                      |            |            |
| ocnaddhealthmonitoring      | 1        | 1          | 1               | 1                 | 1                     | 1                      |            |            |
| ocnaddscppaggregation (55K) | 2        | 2          | 4               | 4                 | 1                     | 4                      | 24         | SCP        |
| ocnaddnrfaggregation (15K)  | 2        | 2          | 2               | 2                 | 1                     | 1                      | 6          | NRF        |
| ocnaddseppaggregation (30k) | 2        | 2          | 4               | 4                 | 1                     | 2                      | 12         | SEPP       |
| ocnaddadapter               | 3        | 3          | 6               | 6                 | HTTP:2<br>SYNTHETIC:1 | HTTP:13<br>SYNTHETIC:9 | 117        | MAIN       |
| ocnaddkafka                 | 6        | 6          | 48              | 48                | 4                     | 4                      |            |            |
| zookeeper                   | 1        | 1          | 1               | 2                 | 3                     | 3                      |            |            |
| ocnaddgui                   | 1        | 2          | 1               | 1                 | 1                     | 1                      |            |            |
| ocnadduirouter              | 1        | 2          | 1               | 1                 | 1                     | 1                      |            |            |

**Note**

- Four instances of Kafka brokers might be required when running Replication Factor (RF) =2, based on the setup performance. The end-to-end latency might increase when DISK I/O is slow.
- For DISK I/O, see [Disk Throughput Requirements](#).
- For Kafka PVC-Storage, see [Kafka PVC Storage Requirements](#).

## 3.1.4 Resource Profile for OCI Environment

This section displays the profile resource requirements in OCI environment.

### 3.1.4.1 Profile Resource Requirements for HTTP2 Feed for 5K MPS in OCI Environment

The following table displays the profile resource requirements for HTTP2 feed in OCI environment.

**Note**

- This test is performed without enabling the Ingress or Egress features.
- The replicated HTTP2 feed's end-to-end latency is between 2ms to 8ms.
- The single HTTP2 feed's end-to-end latency is between 1ms to 3ms.

- **Replication Factor = 1**
- **Message Size = 3500**
- **Feed Type: HTTP2**

**Table 3-14 Resource Requirement**

| Service                            | 5K Profile<br>(SCP:3K NRF:1K SEPP:1K) |                  |                                |                                               | 5K SCP<br>Profile |                  |                                |                                                |
|------------------------------------|---------------------------------------|------------------|--------------------------------|-----------------------------------------------|-------------------|------------------|--------------------------------|------------------------------------------------|
|                                    | vCPU                                  | Total<br>Replica | Memory<br>Require<br>d<br>(Gi) | Topic<br>Partitio<br>n                        | vCPU              | Total<br>Replica | Memory<br>Require<br>d<br>(Gi) | Topic<br>Partitio<br>n                         |
| ocnaddconfiguration                | 1                                     | 1                | 1                              |                                               | 1                 | 1                | 1                              |                                                |
| ocnaddalarm                        | 1                                     | 1                | 1                              |                                               | 1                 | 1                | 1                              |                                                |
| ocnaddadmin                        | 1                                     | 1                | 1                              |                                               | 1                 | 1                | 1                              |                                                |
| ocnaddhealthmonitoring             | 1                                     | 1                | 1                              |                                               | 1                 | 1                | 1                              |                                                |
| ocnaddgui                          | 2                                     | 1                | 1                              |                                               | 2                 | 1                | 1                              |                                                |
| ocnadduirouter                     | 2                                     | 1                | 1                              |                                               | 2                 | 1                | 1                              |                                                |
| zookeeper                          | 1                                     | 3                | 1                              |                                               | 1                 | 3                | 1                              |                                                |
| ocnaddkafka                        | 2                                     | 4                | 24                             |                                               | 2                 | 4                | 24                             |                                                |
| Replicated Feed (Avg Latency: 1ms) |                                       |                  |                                |                                               |                   |                  |                                |                                                |
| ocnaddkafka                        | 3                                     | 4                | 32                             |                                               | 3                 | 4                | 32                             |                                                |
| Single Feed (Avg Latency: 1ms)     |                                       |                  |                                |                                               |                   |                  |                                |                                                |
| ocnaddscppaggregation              | 2                                     | 1                | 2                              | SCP=6<br>(Each<br>Instance<br>6<br>partition) | 2                 | 2                | 2                              | SCP=12<br>(Each<br>instance<br>6<br>partition) |
| ocnaddnrfaggregation               | 2                                     | 1                | 2                              | NRF=6<br>(Each<br>Instance<br>6<br>partition) | -                 | -                | -                              | -                                              |

Table 3-14 (Cont.) Resource Requirement

| Service               | 5K Profile<br>(SCP:3K NRF:1K SEPP:1K) |                  |                                |                                        | 5K SCP<br>Profile |                  |                                |                                        |
|-----------------------|---------------------------------------|------------------|--------------------------------|----------------------------------------|-------------------|------------------|--------------------------------|----------------------------------------|
|                       | vCPU                                  | Total<br>Replica | Memory<br>Require<br>d<br>(Gi) | Topic<br>Partitio<br>n                 | vCPU              | Total<br>Replica | Memory<br>Require<br>d<br>(Gi) | Topic<br>Partitio<br>n                 |
| ocnaddseppaggregation | 2                                     | 1                | 2                              | SEPP=12<br>(Each Instance 6 partition) | -                 | -                | -                              | -                                      |
| ocnaddadapter         | 3                                     | 2                | 3                              | MAIN=18<br>(Each instance 9 partition) | 3                 | 2                | 3                              | MAIN=18<br>(Each instance 9 partition) |

### 3.1.4.2 Profile Resource Requirements for Aggregated Kafka Feed for 5K MPS in OCI Environment

The following table displays the profile resource requirements for Aggregated feed in OCI environment.

**Note**

- This test is performed without enabling the Ingress or Egress features.

- Replication Factor:** 1
- Message Size:** 3500
- Feed Type:** AGGREGATED KAFKA

Table 3-15 Resource Requirement

| Service             | 5K Profile<br>(SCP:3K NRF:1K SEPP:1K) |                  |                                |                        | 5K SCP<br>Profile |                  |                                |                        |
|---------------------|---------------------------------------|------------------|--------------------------------|------------------------|-------------------|------------------|--------------------------------|------------------------|
|                     | vCPU                                  | Total<br>Replica | Memory<br>Require<br>d<br>(Gi) | Topic<br>Partitio<br>n | vCPU              | Total<br>Replica | Memory<br>Require<br>d<br>(Gi) | Topic<br>Partitio<br>n |
| ocnaddconfiguration | 1                                     | 1                | 1                              |                        | 1                 | 1                | 1                              |                        |
| ocnaddalarm         | 1                                     | 1                | 1                              |                        | 1                 | 1                | 1                              |                        |
| ocnaddadmin         | 1                                     | 1                | 1                              |                        | 1                 | 1                | 1                              |                        |

Table 3-15 (Cont.) Resource Requirement

| Service                    | 5K Profile<br>(SCP:3K NRF:1K SEPP:1K) |                  |                                |                                                     | 5K SCP<br>Profile |                  |                                |                                                |
|----------------------------|---------------------------------------|------------------|--------------------------------|-----------------------------------------------------|-------------------|------------------|--------------------------------|------------------------------------------------|
|                            | vCPU                                  | Total<br>Replica | Memory<br>Require<br>d<br>(Gi) | Topic<br>Partitio<br>n                              | vCPU              | Total<br>Replica | Memory<br>Require<br>d<br>(Gi) | Topic<br>Partitio<br>n                         |
| ocnaddhealthmonit<br>oring | 1                                     | 1                | 1                              |                                                     | 1                 | 1                | 1                              |                                                |
| ocnaddgui                  | 2                                     | 1                | 1                              |                                                     | 2                 | 1                | 1                              |                                                |
| ocnadduirouter             | 2                                     | 1                | 1                              |                                                     | 2                 | 1                | 1                              |                                                |
| zookeeper                  | 1                                     | 3                | 1                              |                                                     | 1                 | 3                | 1                              |                                                |
| ocnaddkafka                | 2                                     | 4                | 24                             |                                                     | 2                 | 4                | 24                             |                                                |
| Replicated Feed            |                                       |                  |                                |                                                     |                   |                  |                                |                                                |
| ocnaddkafka                | 3                                     | 4                | 32                             |                                                     | 3                 | 4                | 32                             |                                                |
| Single Feed                |                                       |                  |                                |                                                     |                   |                  |                                |                                                |
| ocnaddscppaggrega<br>tion  | 2                                     | 1                | 2                              | SCP=6<br>(Each<br>Instance<br>6<br>partition)       | 2                 | 2                | 2                              | SCP=12<br>(Each<br>instance<br>6<br>partition) |
| ocnaddnrfaggregati<br>on   | 2                                     | 1                | 2                              | NRF=6<br>(Each<br>Instance<br>6<br>partition)       | -                 | -                | -                              | -                                              |
| ocnaddseppaggrega<br>tion  | 2                                     | 1                | 2                              | SEPP=1<br>2<br>(Each<br>Instance<br>6<br>partition) | -                 | -                | -                              | -                                              |

### 3.1.4.3 Profile Resource Requirements for Synthetic Feed for 5K MPS in OCI Environment

The following table displays the profile resource requirements for Synthetic feed in OCI environment.

#### ① Note

- This test is performed without enabling the Ingress or Egress features.
- The replicated TCP feed's end-to-end average latency is 3ms. The Block Volume Performance is 50% Balanced and 50% High Performance.
- The single TCP feed's end-to-end average latency is 3ms. The Block Volume Performance is "Balanced".

- **Replication Factor:** 1
- **Message Size** = 3500
- **Feed Type:** TCP

**Table 3-16 Resource Requirement**

| Service                              | 5K Profile<br>(SCP:3K NRF:1K SEPP:1K) |                  |                                |                                                     | 5K SCP<br>Profile |                  |                                |                                                     |
|--------------------------------------|---------------------------------------|------------------|--------------------------------|-----------------------------------------------------|-------------------|------------------|--------------------------------|-----------------------------------------------------|
|                                      | vCPU                                  | Total<br>Replica | Memory<br>Require<br>d<br>(Gi) | Topic<br>Partitio<br>n                              | vCPU              | Total<br>Replica | Memory<br>Require<br>d<br>(Gi) | Topic<br>Partitio<br>n                              |
| ocnaddconfiguration                  | 1                                     | 1                | 1                              |                                                     | 1                 | 1                | 1                              |                                                     |
| ocnaddalarm                          | 1                                     | 1                | 1                              |                                                     | 1                 | 1                | 1                              |                                                     |
| ocnaddadmin                          | 1                                     | 1                | 1                              |                                                     | 1                 | 1                | 1                              |                                                     |
| ocnaddhealthmonitoring               | 1                                     | 1                | 1                              |                                                     | 1                 | 1                | 1                              |                                                     |
| ocnaddgui                            | 2                                     | 1                | 1                              |                                                     | 2                 | 1                | 1                              |                                                     |
| ocnadduirouter                       | 2                                     | 1                | 1                              |                                                     | 2                 | 1                | 1                              |                                                     |
| zookeeper                            | 1                                     | 3                | 1                              |                                                     | 1                 | 3                | 1                              |                                                     |
| ocnaddkafka                          | 3                                     | 4                | 24                             |                                                     | 3                 | 4                | 24                             |                                                     |
| Replicated Feed (Avg Latency: 0.3ms) |                                       |                  |                                |                                                     |                   |                  |                                |                                                     |
| ocnaddkafka                          | 4                                     | 4                | 32                             |                                                     | 4                 | 4                | 32                             |                                                     |
| Single Feed (Avg Latency: 0.3ms)     |                                       |                  |                                |                                                     |                   |                  |                                |                                                     |
| ocnaddscppaggregation                | 2                                     | 1                | 2                              | SCP=6<br>(Each<br>Instance<br>6<br>partition)       | 2                 | 2                | 2                              | SCP=12<br>(Each<br>instance<br>6<br>partition)      |
| ocnaddnrfaggregation                 | 2                                     | 1                | 2                              | NRF=6<br>(Each<br>Instance<br>6<br>partition)       | -                 | -                | -                              | -                                                   |
| ocnaddseppaggregation                | 2                                     | 1                | 2                              | SEPP=1<br>2<br>(Each<br>Instance<br>6<br>partition) | -                 | -                | -                              | -                                                   |
| ocnaddadapter                        | 3                                     | 2                | 3                              | MAIN=1<br>2<br>(Each<br>instance<br>6<br>partition) | 3                 | 2                | 3                              | MAIN=1<br>2<br>(Each<br>instance<br>6<br>partition) |

### 3.1.4.4 Profile Resource Requirements for Correlated Kafka Feed for 5K MPS in OCI Environment

The following table displays the profile resource requirements for Correlated Kafka feed in OCI environment.

- **Replication Factor:** 1
- **Message Size:** 3500
- **ACL Feed Type:** CORRELATED

**Table 3-17 Resource Requirement**

| Service                       | 5K SCP Profile |               |                      |                                     | 5K Profile (SCP:3K NRF:1K SEPP:1K) |      |               |                                    |                 |
|-------------------------------|----------------|---------------|----------------------|-------------------------------------|------------------------------------|------|---------------|------------------------------------|-----------------|
|                               | vCPU           | Total Replica | Memory Required (Gi) | Topic Partition                     |                                    | vCPU | Total Replica | Memory Required (Gi)               | Topic Partition |
| ocnaddconfiguration           | 1              | 1             | 1                    |                                     | 1                                  | 1    | 1             |                                    |                 |
| ocnaddalarm                   | 1              | 1             | 1                    |                                     | 1                                  | 1    | 1             |                                    |                 |
| ocnaddadmin                   | 1              | 1             | 1                    |                                     | 1                                  | 1    | 1             |                                    |                 |
| ocnaddhealthmonitoring        | 1              | 1             | 1                    |                                     | 1                                  | 1    | 1             |                                    |                 |
| ocnaddgui                     | 2              | 1             | 1                    |                                     | 2                                  | 1    | 1             |                                    |                 |
| ocnadduirouter                | 2              | 1             | 1                    |                                     | 2                                  | 1    | 1             |                                    |                 |
| zookeeper                     | 1              | 3             | 1                    |                                     | 1                                  | 3    | 2             |                                    |                 |
| ocnaddkafka                   | 3              | 4             | 32                   |                                     | 3                                  | 4    | 32            |                                    |                 |
| <b>Feed TYPE = CORRELATED</b> |                |               |                      |                                     |                                    |      |               |                                    |                 |
| ocnaddscppaggregation         | 2              | 1             | 2                    | SCP=6 (Each Instance 6 partition)   | 2                                  | 2    | 2             | SCP=12 (Each instance 6 partition) |                 |
| ocnaddnrfaggregation          | 2              | 1             | 2                    | NRF=6 (Each Instance 6 partition)   | -                                  | -    | -             | -                                  |                 |
| ocnaddseppaggregation         | 2              | 1             | 2                    | SEPP=12 (Each Instance 6 partition) | -                                  | -    | -             | -                                  |                 |

Table 3-17 (Cont.) Resource Requirement

| Service                                                                        | 5K SCP Profile |               |                      |                                                       | 5K Profile<br>(SCP:3K<br>NRF:1K<br>SEPP:1K) |      |               |                                                       |                 |
|--------------------------------------------------------------------------------|----------------|---------------|----------------------|-------------------------------------------------------|---------------------------------------------|------|---------------|-------------------------------------------------------|-----------------|
|                                                                                | vCPU           | Total Replica | Memory Required (Gi) | Topic Partition                                       |                                             | vCPU | Total Replica | Memory Required (Gi)                                  | Topic Partition |
| ocnaddcorrelation                                                              | 3              | 3             | 24                   | MAIN=18,<feed-name>-CORRELATED=18 or as per consumer  | 3                                           | 3    | 24            | MAIN=18,<feed-name>-CORRELATED=18 or as per consumer  |                 |
| <b>Feed TYPE = CORRELATED_FILTERED (Minimum 20% data filter is configured)</b> |                |               |                      |                                                       |                                             |      |               |                                                       |                 |
| ocnaddfilter                                                                   | 2              | 3             | 3                    | MAIN=18,<feed-name>-FILTERED=18                       | 2                                           | 3    | 3             | MAIN=18,<feed-name>-FILTERED=18                       |                 |
| ocnaddcorrelation                                                              | 2              | 3             | 16                   | <feed-name>-FILTERED-CORRELATED=18 or as per consumer | 2                                           | 3    | 16            | <feed-name>-FILTERED-CORRELATED=18 or as per consumer |                 |

**Note**

- The filter service's resource requirements may vary based on the percentage of data allowed post-filtering and the number of filter conditions with configured values.
- The correlation service's resource requirements may vary when all transaction messages are not received and the value of "maxTransactionWaitTime" is set to a higher value (Use a lower value for such scenarios).
- The Kafka broker's resource requirement increases if the Replication Factor is "2" and (or) the Replicated Feed is running, and the end-to-end latency increases when DISK I/O is slow.
- The resource requirement in the above table is for a single feed. Additional Kafka resources are required for replicated feeds.
- Depending on the number of CORRLATION\_FILTERED feeds configured, you might have to increase the filter service memory and CPU requirements. The requirements mentioned in the above table are for a single configuration.

## 3.2 Pod Affinity (or Anti-affinity) Rules

The ocnaddkafka and Zookeeper services use the POD anti-affinity rules. The rules are intended to support even distribution of Kafka and Zookeeper pods across the available nodes.

### Zookeeper Service Anti-affinity Rules

Zookeeper service anti-affinity rules are listed below:

```
spec:
  affinity:
    podAntiAffinity:
      preferredDuringSchedulingIgnoredDuringExecution:
        - weight: 100
          podAffinityTerm:
            labelSelector:
              matchExpressions:
                - key: app
                  operator: In
                  values:
                    - zookeeper
            topologyKey: topology.kubernetes.io/zone
```

### ocnaddkafka Service Anti-affinity Rules

ocnaddkafka service anti-affinity rules are listed below:

```
spec:
  topologySpreadConstraints:
    - maxSkew: 1
      topologyKey: kubernetes.io/hostname
      whenUnsatisfiable: ScheduleAnyway
      labelSelector:
```

```
matchLabels:
  app1 : nodeselection
```

The configuration ensures the scheduler keeps equal number of pods matching the constraint on every node. However, the parameter `whenUnsatisfiable` set to `ScheduleAnyway`, helps to schedule the pod, but the scheduler prioritizes honoring the skew to not make the cluster more imbalanced.

## 3.3 Ephemeral Storage Requirements

The following table describes the Ephemeral Storage requirements for OCNADD:

**Table 3-18 Ephemeral Storage Requirements**

| Service Name               | Ephemeral Storage (Request) in Mi | Ephemeral Storage (Limit) in Mi | Description                                                             |
|----------------------------|-----------------------------------|---------------------------------|-------------------------------------------------------------------------|
| OAM Services               |                                   |                                 |                                                                         |
| ocnaddadminservice         | 200                               | 200                             |                                                                         |
| ocnaddalarm                | 100                               | 500                             |                                                                         |
| ocnaddhealthmonitoring     | 100                               | 500                             |                                                                         |
| ocnaddconfiguration        | 100                               | 500                             |                                                                         |
| ocnadduirouter             | 500                               | 500                             |                                                                         |
| ocnaddexport               | 100                               | 2000                            |                                                                         |
| ocnaddredundancyagent      | 100                               | 500                             | Required only when Georedundancy is enabled for OCNADD.                 |
| Worker Group Services      |                                   |                                 |                                                                         |
| <app-name>-adapter         | 1000                              | 1000                            |                                                                         |
| ocnaddscppaggregation      | 500                               | 500                             |                                                                         |
| ocnaddseppaggregation      | 500                               | 500                             |                                                                         |
| ocnaddnrffaggregation      | 500                               | 500                             |                                                                         |
| ocnaddnonoracleaggregation | 100                               | 500                             | Required only when Data processing is enabled from Non-Oracle NFs.      |
| ocnaddcorrelation          | 400                               | 800                             |                                                                         |
| ocnaddstorageadapter       | 400                               | 800                             |                                                                         |
| ocnaddingressadapter       | 400                               | 800                             |                                                                         |
| ocnaddfilter               | 500                               | 800                             | Required only when "Filtered" or "Correlated Filtered" feed is created. |

## 3.4 Disk Throughput Requirements

The following table describes the disk throughput requirements in OCNADD:

**Table 3-19 Disk Throughput Requirements**

| Avg Size (in Bytes) | Rate  | RF (Kafka Replication Factor) | Topic (NF+MAIN) | Consumer Feed | Total Write Throughput (MB/s) | Total Read Throughput (MB/s) | No. of Broker | Per Broker Write Throughput (MB/s) | Per Broker Read Throughput (MB/s) | Total per Broker Throughput (MB/s) with 10% buffer | Total Disk Throughput (MB/s) for the Cluster with 10% Buffer |
|---------------------|-------|-------------------------------|-----------------|---------------|-------------------------------|------------------------------|---------------|------------------------------------|-----------------------------------|----------------------------------------------------|--------------------------------------------------------------|
| 1941                | 39000 | 1                             | 2               | 1             | 145                           | 145                          | 3             | 54                                 | 54                                | 108                                                | 324                                                          |
| 1941                | 39000 | 2                             | 2               | 1             | 289                           | 289                          | 3             | 106                                | 106                               | 212                                                | 636                                                          |
| 3769                | 39000 | 1                             | 2               | 1             | 281                           | 281                          | 3             | 104                                | 104                               | 208                                                | 624                                                          |
| 3769                | 39000 | 2                             | 2               | 1             | 561                           | 561                          | 3             | 206                                | 206                               | 412                                                | 1236                                                         |

**Note**

- The average size of OCNADD Ingress message captured in the table includes the size of metadata list + header list of original 5G HTTP2 header frame + 5G-SBI-Message.
- Currently, it is recommended to set the Replication Factor (RF) value to **1** with the assumption that the underlying storage provides data redundancy. RF value of "2" will be supported in a future release.

The disk throughput calculations are as follows:

Writes:  $W * RF * T$   
 Reads:  $((RF * T) + C - 1) * W$   
 Disk Throughput (Write + Read):  $(W * RF * T) + (L * W)$   
 W -> MB/sec of data that will be written  
 RF -> Replication factor  
 T -> No of topics to which data copied. As of now, each message will be copied into two topics.  
 C -> Number of consumer groups, that is the number of readers for each write  
 L ->  $(RF * T) + C - 1$

**Average Message in Table:**

Average Message Size =  $(a_1b_1 + a_2b_2 + \dots + a_nb(n)) / (a_1 + a_2 + \dots + a(n))$   
 a1 -> SCP MPS  
 b1 -> SCP message size  
 a2 -> NRF MPS  
 b2 -> NRF message size

a(n) -> NF(n) MPS  
b(n) -> NF(n) message size

**Example:**

Average message size for row 1 =  $((1624*30000)+(3000*9000))/(30000+9000) = 1941$  Bytes (approx)

Average message size for row 4 =  $((4000*30000)+(3000*9000))/(30000+9000) = 3769$  Bytes (approx)

The following table describes the disk throughput for SCP and NRF:

**Table 3-20 SCP, NRF, and SEPP Disk Throughput**

| SCP Message         |       | NRF Message         | SEPP Message |                     | RF (Kafka Replication Factor) | Topic (NF+MA IN) | Consumer Feed | Total Write Throughput (MB/s) | Total Read Throughput (MB/s) | No. of Broker | Per Broker Write Throughput (MB/s) | Per Broker Read Throughput (MB/s) | Total per Broker Throughput (MB/s) with 10% buffer | Total Disk Throughput (MB/s) for Cluster with 10% Buffer | Rate |
|---------------------|-------|---------------------|--------------|---------------------|-------------------------------|------------------|---------------|-------------------------------|------------------------------|---------------|------------------------------------|-----------------------------------|----------------------------------------------------|----------------------------------------------------------|------|
| Avg Size (in Bytes) | Rate  | Avg Size (in Bytes) | Rate         | Avg Size (in Bytes) |                               |                  |               |                               |                              |               |                                    |                                   |                                                    |                                                          |      |
| 1624                | 30000 | 3000                | 9000         | 3000                | 15000                         | 1                | 2             | 1                             | 145                          | 145           | 3                                  | 54                                | 54                                                 | 108                                                      | 324  |
| 1624                | 30000 | 3000                | 9000         | 3000                | 15000                         | 2                | 2             | 1                             | 289                          | 289           | 3                                  | 106                               | 106                                                | 212                                                      | 636  |
| 4000                | 30000 | 3000                | 9000         | 3000                | 15000                         | 1                | 2             | 1                             | 281                          | 281           | 3                                  | 104                               | 104                                                | 208                                                      | 624  |
| 4000                | 30000 | 3000                | 9000         | 3000                | 15000                         | 2                | 2             | 1                             | 561                          | 561           | 3                                  | 206                               | 206                                                | 412                                                      | 1236 |

**Note**

- The average size of OCNADD Ingress message captured in the table includes the size of metadata list + header list of original 5G HTTP2 header frame + 5G-SBI-Message.
- Currently, it is recommended to set the Replication Factor (RF) value to **1** with the assumption that the underlying storage provides data redundancy.

## 3.5 Kafka PVC Storage Requirements

The following table describes the retention period per topic for different NFs:

**Table 3-21 Retention Period Per Topic**

| Topic Name | Retention Period |
|------------|------------------|
| SCP        | 5 Minutes        |
| NRF        | 5 Minutes        |
| SEPP       | 5 Minutes        |
| MAIN       | 6 Hours (Max)    |

The following calculation is for storage requirements for a topic:

**! Important**

For the 6 hrs storage in the MAIN topic, the storage requirement must be calculated using the following information:

Storage Requirement for a topic = MPS \* Retention Period \* RF \* Average Message Size

Where,

MPS is "Message Per Second"

RF is "Replication Factor"

**Examples:**

**1. Average Message Size = 1941 Bytes**

The following example uses the values from the first row of the [Table 3-20](#) table. For more information about the table, see [Disk Throughput Requirements](#):

Storage Requirement for SCP and NRF Topics = MPS \* Retention Period \* RF \* Message Size = 39000 \* 5 Minutes \* 3 \* 1941

= 39000 \* 5 \* 60 \* 3 \* 1941

= ~ 63.45 GB

Storage Requirement for MAIN = MPS \* Retention Period \* RF \* Message Size = 39000 \* 6 Hours \* 3 \* 1941

= 39000 \* 6 \* 60 \* 60 \* 3 \* 1941

= ~ 4.46 TB

Total Storage Requirement for the Broker Cluster = Storage for SCP + Storage for NRF + Storage for MAIN

= 63.45 GB + 4.46 TB

= ~ 4.53 TB

Total Storage for each broker = (4.53/Number of Brokers) TB = (4.53/3) TB = ~ 1.51 TB [Assuming 3 Broker cluster]

**2. Average Message Size = 3769 Bytes**

The following example uses the values from the fourth row of the [Table 3-20](#) table. For more information about the table, see [Disk Throughput Requirements](#):

Storage Requirement for SCP and NRF Topics = MPS \* Retention Period \* RF \* Message Size  
= 39000 \* 5 Minutes \* 3 \* 3769

$$= 39000 * 5 * 60 * 3 * 3769$$

$$= \sim 123.20 \text{ GB}$$

Storage Requirement for MAIN = MPS \* Retention Period \* RF \* Message Size  
= 39000 \* 6 Hours \* 3 \* 3769

$$= 39000 * 6 * 60 * 60 * 3 * 3769$$

$$= \sim 8.66 \text{ TB}$$

Total Storage Requirement for the Broker Cluster = Storage for SCP + Storage for NRF + Storage for MAIN

$$= 123.20 \text{ GB} + 8.66 \text{ TB}$$

$$= \sim 8.79 \text{ TB}$$

Total Storage for each broker = (8.79/Number of Brokers) TB = (8.79/3) TB  
=  $\sim 2.93$  TB [Assuming 3 Broker cluster]

# OCNADD Benchmarking Testing

This section describes the performance testing scenarios and results for the Message Feed functionality provided by Oracle Communications Network Analytics Data Director. The message feed feature is tested with SCP, NRF, and SEPP as the source of the message feed.

- [Performance Benchmarking with Synthetic Feed with Replication](#)
- [Performance Benchmarking with Correlated Feed for XDR Generation](#)
- [Performance Benchmarking with Synthetic Feed with Replication in OCI Environment](#)
- [Performance Benchmarking with 60K MPS SEPP Traffic with HTTP2 Feed Replication](#)
- [Performance Benchmarking with 135K MPS Traffic and HTTP2 Feed Replication](#)
- [Performance Benchmarking with 135K MPS SCP Traffic with Synthetic Feed Replication](#)

## 4.1 Performance Benchmarking with Synthetic Feed with Replication

The performance benchmarking test is performed on OCNADD with 110K MPS traffic (feed replication enabled) which includes 65K MPS SCP traffic (32.5K TPS with 2 traffic copy trigger points on SCP), 15K MPS NRF traffic (7.5K TPS with 2 traffic copy trigger points on NRF) and 30K MPS SEPP traffic (15K TPS with 2 traffic copy trigger points on SEPP). The benchmarking results are provided below:

### Note

One Ingress message from a NF is "1" MPS for OCNADD.

### Benchmark Test Environment

The test environment specifications are listed below:

- Ingress Traffic Rate: 110K MPS
- The latency, resource utilization, and MPS is observed for the period of 3 hrs or more.
- OCNADD single site deployment with ASM disabled
- OCNADD Release 24.1.0 deployed over CNE (Bare metal) 23.3.4 version
- Kafka Replication Factor (RF): 1
- OCNADD TCP Feed: TCP/TLS
- OCNADD Kafka PVC: 400GB  
For more information about PVC requirements, see [Kafka PVC Storage Requirements](#).
- 3rd Party Application: With 2 End-points
- cnDBTier Release 24.1.0
- NRF Release 24.1.0

- SCP Release 24.1.0
- SEPP Release 24.1.0
- SASL/SSL, enabled between NRF/SCP/SEPP and OCNADD
- CNCC Release 24.1.0
- Message Size: 3450 Bytes
- Environment: CNE (Bare metal), "3" Master Nodes (X9 Server and NVME), "3" Worker Nodes (X9 Server and NVME).
- Execution time: 12 Hours
- NRF: IGW and EGW messageCopy feature is enabled
- SCP: Default configuration
- cSEPP: PLMN IGW messageCopy feature is enabled
- pSEPP: The messageCopy feature is disabled

### Benchmark Testcase Specifications

The testcase parameters are as follows:

- **OCNADD**
  - A feed is configured using the OCNADD Console with aggregation rules set for SCP, NRF and SEPP.
  - Message Ingestion Rate: 110K MPS

Resource Specifications:

**Table 4-1 OCNADD Resource Specifications**

| Services               | CPU Request Per Pod | CPU Limit Per Pod | Memory Request Per Pod (Gi) | Memory Limit Per Pod (Gi) | min Replicas | max Replicas | Kafka Topic Partitions and Retention |
|------------------------|---------------------|-------------------|-----------------------------|---------------------------|--------------|--------------|--------------------------------------|
| ocnaddconfiguration    | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddalarm            | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddadmin            | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddhealthmonitoring | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddrouter           | 2                   | 2                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddsc aggregation   | 2                   | 2                 | 4                           | 4                         | 2            | 2            | 24 (SCP)/ retention. ms = 300000     |
| ocnaddnrf aggregation  | 2                   | 2                 | 2                           | 2                         | 1            | 1            | 6 (NRF)/ retention. ms = 300000      |

**Table 4-1 (Cont.) OCNADD Resource Specifications**

| Services              | CPU Request Per Pod | CPU Limit Per Pod | Memory Request Per Pod (Gi) | Memory Limit Per Pod (Gi) | min Replicas | max Replicas | Kafka Topic Partitions and Retention |
|-----------------------|---------------------|-------------------|-----------------------------|---------------------------|--------------|--------------|--------------------------------------|
| ocnaddsep aggregation | 2                   | 2                 | 4                           | 4                         | 2            | 2            | 12 (SEPP)/ retention. ms = 300000    |
| ocnaddad apter        | 3                   | 3                 | 6                           | 6                         | 9            | 9            | 54 (MAIN)/ retention. ms = 300000    |
| ocnaddkafka           | 7                   | 7                 | 96                          | 96                        | 6            | 6            | -                                    |
| zookeeper             | 1                   | 1                 | 2                           | 2                         | 3            | 3            | -                                    |
| ocnaddgui             | 2                   | 2                 | 1                           | 1                         | 1            | 1            | -                                    |

- **SCP**  
SCP Traffic: 65K TPS using two trigger points.
- **NRF**  
NRF Traffic: 15K TPS using two trigger points.
- **SEPP**  
SEPP Traffic: 30K TPS using two trigger points.

**Benchmark Test Results****Traffic Feed Details****Table 4-2 Traffic Feed Details**

| NF     | NF Traffic Copy Trigger Points      | Traffic Rate | Duration in hours | E2E Traffic Feed Average Latency       | E2E Traffic Feed Success Rate    |
|--------|-------------------------------------|--------------|-------------------|----------------------------------------|----------------------------------|
| OCNADD | NA                                  | 110K MPS     | 12                | Feed-1: 15.5 msec<br>Feed-2: 14.4 msec | Feed-1: 99.94%<br>Feed-2: 99.96% |
| NRF    | 2 - IGW/EGW (Request and Response)  | 15K MPS      | 12                | NA                                     | 99.94%                           |
| SCP    | 2 (Request Ingress/ Request Egress) | 65K MPS      | 12                | NA                                     | 99.97%                           |
| SEPP   | 2 (PLMN IGW) (Request and Response) | 30K MPS      | 12                | NA                                     | 99.93%                           |

**CPU and Memory Utilization**

The following table describes the OCNADD CPU and memory utilization:

**Table 4-3 OCNADD CPU and Memory Utilization**

| Microservice/<br>Container | Pod Count | CPU Utilization (%) | Memory Utilization (%) |
|----------------------------|-----------|---------------------|------------------------|
| ocnaddadminservice         | 1         | 0.09%               | 28.80%                 |
| ocnaddalarm                | 1         | 0.08%               | 18.10%                 |
| ocnaddconfiguration        | 1         | 0.09%               | 36.60%                 |
| ocnaddgui                  | 1         | 0.00%               | 1.79%                  |
| ocnaddhealthmonitoring     | 1         | 0.17%               | 33.90%                 |
| ocnadduirouter             | 1         | 0.01%               | 29.10%                 |
| ocnaddfilter               | 1         | 48.70%              | 12.70%                 |
| ocnaddnrfaggregation       | 1         | 82.80%              | 34.00%                 |
| ocnaddscpaggregation       | 4         | 74.50%              | 23.10%                 |
| ocnaddseppaggregation      | 2         | 72.40%              | 21.00%                 |
| feed-dd11-adapter          | 9         | 84.80%              | 24.30%                 |
| kafka-broker               | 6         | 72.20%              | 18.40%                 |
| zookeeper                  | 3         | 0.13%               | 21.80%                 |
| feed-dd22-adapter          | 9         | 83.30%              | 23.70%                 |

## 4.2 Performance Benchmarking with Correlated Feed for XDR Generation

The performance benchmarking test is performed on OCNADD with correlated feed for XDR generation in a centralized deployment. The traffic includes 20K MPS SCP traffic (10K TPS with 2 traffic copy trigger points on SCP), 4K MPS NRF traffic (2K TPS with 2 traffic copy trigger points on NRF), and 6K MPS SEPP traffic (3K TPS with 2 traffic copy trigger points on SEPP). The benchmarking results are provided below:

### Note

One Ingress message from a NF is "1" MPS for OCNADD.

### Benchmark Test Environment

The test environment specifications are listed below:

- Ingress Traffic Rate: 100K MPS
  - The latency, resource utilization, and MPS is observed for the period of 3 hrs or more.
  - OCNADD single site deployment with ASM disabled
  - OCNADD Release 23.4.0 deployed over CNE (Bare metal) 22.3.0 version
  - Kafka Replication Factor (RF): 1
  - OCNADD Correlated Feed: HTTP2/TLS
  - OCNADD Kafka PVC: 400GB
- For more information about PVC requirements, see [Kafka PVC Storage Requirements](#).

- 3rd Party Application: With 2 End-points
- cnDBTier Release 23.4.0
- NRF Release 23.4.0
- SCP Release 23.3.0
- SEPP Release 23.4.0
- SASL/SSL, enabled between NRF/SCP/SEPP and OCNADD
- CNCC Release 23.4.0
- Message Size: 3300 bytes
- Environment: CNE (Bare metal)
- Execution time: 12 Hours
- NRF: IGW and EGW messageCopy feature is enabled
- SCP: Default configuration
- cSEPP: PLMN IGW messageCopy feature is enabled
- pSEPP: The messageCopy feature is disabled

### Benchmark Testcase Specifications

The testcase parameters are as follows:

- **OCNADD**
  - A feed is configured using the OCNADD Console with aggregation rules set for SCP, NRF and SEPP.
  - Message Ingestion Rate: 100K MPS

Resource Specifications:

**Table 4-4 OCNADD Resource Specifications**

| Services               | CPU Request Per Pod | CPU Limit Per Pod | Memory Request Per Pod (Gi) | Memory Limit Per Pod (Gi) | min Replicas | max Replicas | Kafka Topic Partitions and Retention |
|------------------------|---------------------|-------------------|-----------------------------|---------------------------|--------------|--------------|--------------------------------------|
| ocnaddconfiguration    | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddalarm            | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddadmin            | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddhealthmonitoring | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddrouter           | 2                   | 2                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddsc aggregation   | 2                   | 2                 | 2                           | 2                         | 2            | 2            | 18 (SCP)/ retention. ms = 300000     |

**Table 4-4 (Cont.) OCNADD Resource Specifications**

| Services               | CPU Request Per Pod | CPU Limit Per Pod | Memory Request Per Pod (Gi) | Memory Limit Per Pod (Gi) | min Replicas | max Replicas | Kafka Topic Partitions and Retention |
|------------------------|---------------------|-------------------|-----------------------------|---------------------------|--------------|--------------|--------------------------------------|
| ocnaddnrf aggregation  | 2                   | 2                 | 2                           | 2                         | 1            | 1            | 6 (NRF)/ retention. ms = 300000      |
| ocnaddsepp aggregation | 2                   | 2                 | 2                           | 2                         | 2            | 2            | 12 (SEPP)/ retention. ms = 300000    |
| ocnaddadappter         | 3                   | 3                 | 4                           | 4                         | 9            | 9            | 54 (MAIN)/ retention. ms = 300000    |
| ocnaddkafka            | 8                   | 8                 | 64                          | 64                        | 4            | 4            | -                                    |
| zookeeper              | 1                   | 1                 | 2                           | 2                         | 3            | 3            | -                                    |
| ocnaddgui              | 2                   | 2                 | 1                           | 1                         | 1            | 1            | -                                    |

- **SCP**  
SCP Traffic: 20K TPS using two trigger points.
- **NRF**  
NRF Traffic: 4K TPS using two trigger points.
- **SEPP**  
SEPP Traffic: 6K TPS using two trigger points.

**Benchmark Test Results****Traffic Feed Details****Table 4-5 Traffic Feed Details**

| NF     | NF Traffic Copy Trigger Points      | Traffic Rate | Duration in hours | E2E Traffic Feed Average Latency | E2E Traffic Feed Success Rate |
|--------|-------------------------------------|--------------|-------------------|----------------------------------|-------------------------------|
| OCNADD | NA                                  | 30K MPS      | 12                | NA                               | 99.99%                        |
| NRF    | 2 - IGW/EGW (Request and Response)  | 4K MPS       | 12                | NA                               | 99.99%                        |
| SCP    | 2 (Request Ingress/ Request Egress) | 20K MPS      | 12                | NA                               | 99.99%                        |
| SEPP   | 2 (PLMN IGW) (Request and Response) | 6K MPS       | 12                | NA                               | 99.99%                        |

**CPU and Memory Utilization**

The following table describes the OCNADD CPU and memory utilization:

**Table 4-6 OCNADD CPU and Memory Utilization**

| Microservice/<br>Container | Pod Count | CPU Utilization (%) | Memory Utilization (%) |
|----------------------------|-----------|---------------------|------------------------|
| ocnaddadminservice         | 1         | 0.13%               | 29.40%                 |
| ocnaddalarm                | 1         | 0.34%               | 21.80%                 |
| ocnaddconfiguration        | 1         | 0.14%               | 34.80%                 |
| ocnaddgui                  | 1         | 0.00%               | 5.09%                  |
| ocnaddhealthmonitoring     | 1         | 0.29%               | 35.30%                 |
| ocnadduirouter             | 1         | 0.06%               | 29.20%                 |
| kafka-broker               | 4         | 52.10%              | 35.90%                 |
| zookeeper                  | 4         | 0.14%               | 18.10%                 |
| ocnaddfilter               | 4         | 49.50%              | 15.40%                 |
| ocnaddnrffaggregation      | 1         | 63.60%              | 55.50%                 |
| ocnaddscppaggregation      | 3         | 49.20%              | 46.60%                 |
| ocnaddseppaggregation      | 2         | 39.00%              | 39.10%                 |
| feed-dd1-correlation       | 16        | 23.40%              | 26.50%                 |

## 4.3 Performance Benchmarking with Synthetic Feed with Replication in OCI Environment

The performance benchmarking test is performed on OCNADD with 5K MPS traffic, which includes 3K MPS SCP traffic, 1K MPS NRF traffic, and 1K MPS SEPP traffic, in a centralized deployment with one worker group. The benchmarking results are provided below:

### Note

An ingress message from a NF is '1' MPS for OCNADD.

### Benchmark Test Environment

The test environment specifications are listed below:

- Ingress Traffic Rate: 5K MPS
- The latency, resource utilization, and MPS is observed for the period of 3 hrs or more.
- OCNADD single site deployment with ASM disabled
- OCNADD Release 24.1.0 deployed over OCI.
- Kafka Replication Factor (RF): 1
- OCNADD TCP Feed: TCP/TLS
- OCNADD Kafka PVC: 50GB
- 3rd Party Application: OCNADD Simulator with one endpoint
- cnDBTier Release 24.1.0
- NRF Release: NA

- SCP Release: NA
- SEPP Release: NA
- SASL/SSL, enabled between OCNADD Simulator and OCNADD
- CNCC Release 24.1.0
- Message Size: 3330 Bytes
- Environment: OCI environment, "6" Worker Nodes, "VM.Standard.E4.Flex" Instance Shape, "194 GB" memory in Worker Node, "50 (CPU: 100)" OCPUs in the Worker Nodes
- Execution time: 16 Hours

### Benchmark Testcase Specifications

The testcase parameters are as follows:

- **OCNADD**
  - Message Ingestion Rate: 5K MPS

Resource Specifications:

**Table 4-7 OCNADD Worker Group Resource Specifications**

| Services               | CPU Request Per Pod | CPU Limit Per Pod | Memory Request Per Pod (Gi) | Memory Limit Per Pod (Gi) | min Replicas | max Replicas | Kafka Topic Partitions and Retention |
|------------------------|---------------------|-------------------|-----------------------------|---------------------------|--------------|--------------|--------------------------------------|
| ocnaddconfiguration    | 1                   | 1                 | 2                           | 2                         | 1            | 1            | -                                    |
| ocnaddalarm            | 1                   | 1                 | 2                           | 2                         | 1            | 1            | -                                    |
| ocnaddadmin            | 1                   | 1                 | 2                           | 2                         | 1            | 1            | -                                    |
| ocnaddhealthmonitoring | 1                   | 1                 | 2                           | 2                         | 1            | 1            | -                                    |
| ocnaddrouter           | 0                   | 0                 | 0                           | 0                         | 0            | 0            | -                                    |
| ocnaddscppaggregation  | 2                   | 2                 | 4                           | 4                         | 1            | 1            | 6 (SCP)/retention.ms = 300000        |
| ocnaddnrffaggregation  | 2                   | 2                 | 4                           | 4                         | 1            | 1            | 6 (NRF)/retention.ms = 300000        |
| ocnaddseppaggregation  | 2                   | 2                 | 4                           | 4                         | 1            | 1            | 12 (SEPP)/retention.ms = 300000      |

**Table 4-7 (Cont.) OCNADD Worker Group Resource Specifications**

| Services          | CPU Request Per Pod | CPU Limit Per Pod | Memory Request Per Pod (Gi) | Memory Limit Per Pod (Gi) | min Replicas | max Replicas | Kafka Topic Partitions and Retention       |
|-------------------|---------------------|-------------------|-----------------------------|---------------------------|--------------|--------------|--------------------------------------------|
| ocnaddad<br>apter | 3                   | 3                 | 5                           | 5                         | 2            | 2            | 12 (MAIN)/<br>retention.<br>ms =<br>300000 |
| ocnaddkaf<br>ka   | 4                   | 4                 | 32                          | 32                        | 4            | 4            | -                                          |
| zookeeper         | 1                   | 1                 | 3                           | 3                         | 3            | 3            | -                                          |
| ocnaddgui         | 0                   | 0                 | 0                           | 0                         | 0            | 0            | -                                          |

- **SCP**  
SCP Traffic: 3K TPS in a centralized deployment having one worker group.
- **NRF**  
NRF Traffic: 1K TPS in a centralized deployment having one worker group.
- **SEPP**  
SEPP Traffic: 1K TPS in a centralized deployment having one worker group.

## Benchmark Test Results

### Traffic Feed Details

**Table 4-8 Traffic Feed Details**

| NF                  | NF Traffic Copy Trigger Points      | Traffic Rate | Duration in hours | E2E Traffic Feed Average Latency | E2E Traffic Feed Success Rate |
|---------------------|-------------------------------------|--------------|-------------------|----------------------------------|-------------------------------|
| OCNADD Worker Group | NA                                  | 5K MPS       | 16                | Feed-1: 5 msec<br>Feed-2: 4 msec | 99.99%                        |
| NRF                 | 2 - IGW/EGW (Request and Response)  | 1K MPS       | 16                | NA                               | NA                            |
| SCP                 | 2 (Request Ingress/ Request Egress) | 3K MPS       | 16                | NA                               | NA                            |
| SEPP                | 2 (PLMN IGW) (Request and Response) | 1K MPS       | 16                | NA                               | NA                            |

### CPU and Memory Utilization

The following table describes the OCNADD CPU and memory utilization:

Table 4-9 OCNADD CPU and Memory Utilization

| Microservice/<br>Container | Pod Count | CPU Utilization (%) | Memory Utilization (%) |
|----------------------------|-----------|---------------------|------------------------|
| ocnaddadminservice         | 1         | 54.764%             | 53.423%                |
| ocnaddalarm                | 1         | 0.205%              | 60.424%                |
| ocnaddconfiguration        | 1         | 0.214%              | 64.145%                |
| ocnaddhealthmonitoring     | 1         | 0.275%              | 54.615%                |
| kafka-broker               | 4         | 74.323%             | 59.958%                |
| zookeeper                  | 3         | 0.430052465%        | 53.955%                |
| ocnaddnrfaggregation       | 1         | 40.833%             | 78.980%                |
| ocnaddscpaggregation       | 1         | 60.754%             | 82.635%                |
| ocnaddseppaggregation      | 1         | 44.205%             | 84.717%                |

## 4.4 Performance Benchmarking with 60K MPS SEPP Traffic with HTTP2 Feed Replication

The performance benchmarking test is performed on OCNADD with SEPP HTTP2 feed (replication enabled) in a centralized deployment with one worker group. The traffic includes 60K MPS SEPP traffic (15K TPS with 4 traffic copy trigger points on SEPP). The benchmarking results are provided below:

### Note

One Ingress message from a NF is "1" MPS for OCNADD.

### Benchmark Test Environment

The test environment specifications are listed below:

- Ingress Traffic Rate: 60K MPS
- The latency, resource utilization, and MPS is observed for the period of 3 hrs or more.
- OCNADD single site deployment with ASM disabled
- OCNADD Release 24.2.0 deployed over CNE (Bare metal) 23.3.4 version
- Kafka Replication Factor (RF): 1
- OCNADD Data Feed: HTTP2/TLS
- OCNADD Kafka PVC: 400GB  
For more information about PVC requirements, see [Kafka PVC Storage Requirements](#).
- 3rd Party Application: With 2 End-points
- cnDBTier Release 24.2.0
- SEPP Release 24.2.0
- SASL/SSL, enabled between NRF, SCP, SEPP and OCNADD
- CNCC Release 24.2.0
- Message Size: 3550 bytes

- Environment: CNE (Bare metal)
- Execution time: 12 Hours
- cSEPP: PLMN IGW and N32 EGW messageCopy feature enabled
- pSEPP: The messageCopy feature is disabled

### Benchmark Testcase Specifications

The testcase parameters are as follows:

- **OCNADD**
  - A feed is configured using the OCNADD Console with aggregation rules set for SCP, NRF and SEPP.
  - Message Ingestion Rate: 60K MPS

Resource Specifications:

**Table 4-10 OCNADD Resource Specifications**

| Services               | CPU Request Per Pod | CPU Limit Per Pod | Memory Request Per Pod (Gi) | Memory Limit Per Pod (Gi) | min Replicas | max Replicas | Kafka Topic Partitions and Retention |
|------------------------|---------------------|-------------------|-----------------------------|---------------------------|--------------|--------------|--------------------------------------|
| ocnaddconfiguration    | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddalarm            | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddadmin            | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddhealthmonitoring | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddrouter           | 2                   | 2                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddsc aggregation   | 2                   | 2                 | 2                           | 2                         | 4            | 4            | 6 (SCP)/ retention. ms = 300000      |
| ocnaddnrf aggregation  | 2                   | 2                 | 2                           | 2                         | 1            | 1            | 6 (NRF)/ retention. ms = 300000      |
| ocnaddsepp aggregation | 2                   | 2                 | 2                           | 2                         | 5            | 5            | 24 (SEPP)/ retention. ms = 300000    |
| ocnaddadapter          | 3                   | 3                 | 24                          | 24                        | 15           | 15           | 126 (MAIN)/ retention. ms = 300000   |

**Table 4-10 (Cont.) OCNADD Resource Specifications**

| Services    | CPU Request Per Pod | CPU Limit Per Pod | Memory Request Per Pod (Gi) | Memory Limit Per Pod (Gi) | min Replicas | max Replicas | Kafka Topic Partitions and Retention |
|-------------|---------------------|-------------------|-----------------------------|---------------------------|--------------|--------------|--------------------------------------|
| ocnaddkafka | 7.5                 | 7.5               | 96                          | 96                        | 6            | 6            | -                                    |
| zookeeper   | 1                   | 1                 | 2                           | 2                         | 3            | 3            | -                                    |
| ocnaddgui   | 2                   | 2                 | 1                           | 1                         | 1            | 1            | -                                    |

- SEPP**

SEPP Traffic: 60K TPS using four trigger points.

**Benchmark Test Results****Traffic Feed Details****Table 4-11 Traffic Feed Details**

| NF     | NF Traffic Copy Trigger Points                                            | Traffic Rate | Duration in hours | E2E Traffic Feed Average Latency      | E2E Traffic Feed Success Rate    |
|--------|---------------------------------------------------------------------------|--------------|-------------------|---------------------------------------|----------------------------------|
| OCNADD | NA                                                                        | 60K MPS      | 12                | Feed-1: 2.42 msec<br>Feed-2: 2.42 sec | Feed-1: 99.97%<br>Feed-2: 99.96% |
| SEPP   | 2 (PLMN IGW) (Request and Response)<br>2 - N32 EGW (Request and Response) | 60K MPS      | 12                | NA                                    | 99.99%                           |

**CPU and Memory Utilization**

The following table describes the OCNADD CPU and memory utilization:

**Table 4-12 OCNADD CPU and Memory Utilization**

| Micro-Service/ Container | Pod Count | CPU Utilization (%) | Memory Utilization (%) |
|--------------------------|-----------|---------------------|------------------------|
| ocnaddfilter             | 1         | 0.07%               | 15.60%                 |
| ocnaddnrfaggregation     | 1         | 0.06%               | 18.30%                 |
| ocnaddscpaggregation     | 1         | 0.06%               | 10.20%                 |
| ocnaddseppaggregation    | 5         | 80.10%              | 35.60%                 |
| feed-dd1-adapter         | 15        | 41.70%              | 20.50%                 |
| kafka-broker             | 6         | 62.10%              | 10.70%                 |
| zookeeper                | 3         | 0.15%               | 18.20%                 |
| feed-dd2-adapter         | 15        | 41.90%              | 17.20%                 |
| ocnaddadminservice       | 1         | 0.12%               | 27.80%                 |
| ocnaddalarm              | 1         | 0.14%               | 18.60%                 |

Table 4-12 (Cont.) OCNADD CPU and Memory Utilization

| Micro-Service/<br>Container | Pod Count | CPU Utilization (%) | Memory Utilization (%) |
|-----------------------------|-----------|---------------------|------------------------|
| ocnaddconfiguration         | 1         | 0.15%               | 38.70%                 |
| ocnaddexport                | 1         | 0.02%               | 2.03%                  |
| ocnaddgui                   | 1         | 0.00%               | 2.23%                  |
| ocnaddhealthmonitoring      | 1         | 0.27%               | 38.20%                 |
| ocnadduirouter              | 1         | 0.01%               | 31.00%                 |

## 4.5 Performance Benchmarking with 135K MPS Traffic and HTTP2 Feed Replication

The performance benchmarking test is performed on OCNADD with 135K MPS traffic and feed replication enabled. The traffic includes:

- **SCP Traffic:** 90K MPS (32.5K TPS with 2 trigger points)
- **NRF Traffic:** 15K MPS (7.5K TPS with 2 trigger points)
- **SEPP Traffic:** 30K MPS (15K TPS with 2 trigger points)

The benchmarking results are provided below:

### Note

One Ingress message from a NF is "1" MPS for OCNADD.

### Benchmark Test Environment

The test environment specifications are listed below:

- Ingress Traffic Rate: 135K MPS
- The latency, resource utilization, and MPS is observed for the period of 3 hrs or more.
- OCNADD single site deployment with ASM disabled
- OCNADD Release 24.2.0 deployed over CNE (Bare metal) 23.3.4 version
- Kafka Replication Factor (RF): 1
- OCNADD Data Feed: TCP/TLS
- OCNADD Kafka PVC: 400GB  
For more information about PVC requirements, see [Kafka PVC Storage Requirements](#).
- 3rd Party Application: With 2 End-points
- cnDBTier Release 24.2.0
- SEPP Release 24.2.0
- SASL/SSL, enabled between NRF, SCP, SEPP and OCNADD
- CNCC Release 24.2.0
- Message Size: 3550 bytes

- Environment: CNE (Bare metal)
- Execution time: 12 Hours
- cSEPP: PLMN Ingress Gateway messageCopy is enabled
- pSEPP: The messageCopy feature is disabled

### Benchmark Testcase Specifications

The testcase parameters are as follows:

- **OCNADD**
  - A feed is configured using the OCNADD Console with aggregation rules set for SCP, NRF and SEPP.
  - Message Ingestion Rate: 135K MPS

Resource Specifications:

**Table 4-13 OCNADD Resource Specifications**

| Services               | CPU Request Per Pod | CPU Limit Per Pod | Memory Request Per Pod (Gi) | Memory Limit Per Pod (Gi) | min Replicas | max Replicas | Kafka Topic Partitions and Retention |
|------------------------|---------------------|-------------------|-----------------------------|---------------------------|--------------|--------------|--------------------------------------|
| ocnaddconfiguration    | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddalarm            | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddadmin            | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddhealthmonitoring | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddrouter           | 2                   | 2                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddscppaggregation  | 2                   | 2                 | 4                           | 4                         | 6            | 6            | 36 (SCP)/retention. ms = 300000      |
| ocnaddnrffaggregation  | 2                   | 2                 | 2                           | 2                         | 2            | 2            | 12 (NRF)/retention. ms = 300000      |
| ocnaddseppaggregation  | 2                   | 2                 | 4                           | 4                         | 3            | 3            | 18 (SEPP)/retention. ms = 300000     |
| ocnaddadapter          | 3                   | 3                 | 24                          | 24                        | 15           | 15           | 135 (MAIN)/retention. ms = 300000    |

**Table 4-13 (Cont.) OCNADD Resource Specifications**

| Services    | CPU Request Per Pod | CPU Limit Per Pod | Memory Request Per Pod (Gi) | Memory Limit Per Pod (Gi) | min Replicas | max Replicas | Kafka Topic Partitions and Retention |
|-------------|---------------------|-------------------|-----------------------------|---------------------------|--------------|--------------|--------------------------------------|
| ocnaddkafka | 7.5                 | 7.5               | 96                          | 96                        | 6            | 6            | -                                    |
| zookeeper   | 1                   | 1                 | 2                           | 2                         | 3            | 3            | -                                    |
| ocnaddgui   | 2                   | 2                 | 1                           | 1                         | 1            | 1            | -                                    |

- **SEPP**  
SEPP Traffic: 30K TPS using two trigger points.
- **SCP**  
SCP Traffic: 90K TPS using two trigger points.
- **NRF**  
NRF Traffic: 15K TPS using two trigger points.

**Benchmark Test Results****Traffic Feed Details****Table 4-14 Traffic Feed Details**

| NF     | NF Traffic Copy Trigger Points                                                        | Traffic Rate | Duration in hours | E2E Traffic Feed Average Latency      | E2E Traffic Feed Success Rate    |
|--------|---------------------------------------------------------------------------------------|--------------|-------------------|---------------------------------------|----------------------------------|
| OCNADD | NA                                                                                    | 135K MPS     | 12                | Feed-1: 8.9 msec<br>Feed-2: 7.44 msec | Feed-1: 99.97%<br>Feed-2: 99.97% |
| NRF    | 2 Ingress Gateway (Request and Response)<br>2 - Egress Gateway (Request and Response) | 15K MPS      | 12                | NA                                    | 99.99%                           |
| SCP    | 2 Ingress Gateway (Request and Response)<br>2 Egress Gateway (Request and Response)   | 90K MPS      | 12                | NA                                    | 99.96%                           |
| SEPP   | 2 PLMN Ingress Gateway (Request and Response)                                         | 30K MPS      | 12                | NA                                    | 99.98%                           |

**CPU and Memory Utilization**

The following table describes the OCNADD CPU and memory utilization:

**Table 4-15 OCNADD CPU and Memory Utilization**

| Microservice/<br>Container | Pod Count | CPU Utilization (%) | Memory Utilization (%) |
|----------------------------|-----------|---------------------|------------------------|
| ocnaddfilter               | 1         | 0.14%               | 13.20%                 |
| ocnaddnrfaggregation       | 2         | 60.50%              | 42.50%                 |
| ocnaddscpaggregation       | 6         | 79.90%              | 27.80%                 |
| ocnaddseppaggregation      | 3         | 68.60%              | 24.00%                 |
| feed-dd1-adapter           | 15        | 80.20%              | 22.40%                 |
| kafka-broker               | 6         | 91.40%              | 27.40%                 |
| zookeeper                  | 3         | 0.12%               | 32.80%                 |
| feed-dd2-adapter           | 15        | 82.70%              | 16.60%                 |
| ocnaddadminservice         | 1         | 0.07%               | 35.20%                 |
| ocnaddalarm                | 1         | 0.06%               | 21.70%                 |
| ocnaddconfiguration        | 1         | 0.09%               | 41.70%                 |
| ocnaddexport               | 1         | 0.01%               | 2.27%                  |
| ocnaddgui                  | 1         | 0.00%               | 2.48%                  |
| ocnaddhealthmonitoring     | 1         | 0.18%               | 36.70%                 |
| ocnadduirouter             | 1         | 0.01%               | 30.90%                 |

## 4.6 Performance Benchmarking with 135K MPS SCP Traffic with Synthetic Feed Replication

The performance benchmarking test is performed on OCNADD with 135K MPS SCP traffic (67.5K TPS with 2 trigger points):

The benchmarking results are provided below:

### Note

One Ingress message from a NF is "1" MPS for OCNADD.

### Benchmark Test Environment

The test environment specifications are listed below:

- Ingress Traffic Rate: 135K MPS
- The latency, resource utilization, and MPS is observed for the period of 3 hrs or more.
- OCNADD single site deployment with ASM disabled
- OCNADD Release 24.2.0 deployed over CNE (Bare metal) 23.3.4 version
- Kafka Replication Factor (RF): 1
- OCNADD Data Feed: TCP/TLS
- OCNADD Kafka PVC: 400GB

For more information about PVC requirements, see [Kafka PVC Storage Requirements](#).

- 3rd Party Application: With 2 End-points
- cnDBTier Release 24.2.0
- SCP Release 24.2.0
- SASL/SSL, enabled between NRF, SCP, SEPP and OCNADD
- CNCC Release 24.2.0
- Message Size: 3550 bytes
- Environment: CNE (Bare metal)
- Execution time: 12 Hours

### Benchmark Testcase Specifications

The testcase parameters are as follows:

- **OCNADD**
  - A feed is configured using the OCNADD Console with aggregation rules set for SCP, NRF and SEPP.
  - Message Ingestion Rate: 135K MPS

Resource Specifications:

**Table 4-16 OCNADD Resource Specifications**

| Services               | CPU Request Per Pod | CPU Limit Per Pod | Memory Request Per Pod (Gi) | Memory Limit Per Pod (Gi) | min Replicas | max Replicas | Kafka Topic Partitions and Retention |
|------------------------|---------------------|-------------------|-----------------------------|---------------------------|--------------|--------------|--------------------------------------|
| ocnaddconfiguration    | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddalarm            | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddadmin            | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddhealthmonitoring | 1                   | 1                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddrouter           | 2                   | 2                 | 1                           | 1                         | 1            | 1            | -                                    |
| ocnaddsc aggregation   | 2                   | 2                 | 4                           | 4                         | 8            | 8            | 48 (SCP)/ retention. ms = 300000     |
| ocnaddnrf aggregation  | 2                   | 2                 | 2                           | 2                         | 2            | 2            | 6 (NRF)/ retention. ms = 300000      |
| ocnaddsepp aggregation | 2                   | 2                 | 4                           | 4                         | 3            | 3            | 6 (SEPP)/ retention. ms = 300000     |

**Table 4-16 (Cont.) OCNADD Resource Specifications**

| Services          | CPU Request Per Pod | CPU Limit Per Pod | Memory Request Per Pod (Gi) | Memory Limit Per Pod (Gi) | min Replicas | max Replicas | Kafka Topic Partitions and Retention      |
|-------------------|---------------------|-------------------|-----------------------------|---------------------------|--------------|--------------|-------------------------------------------|
| ocnaddad<br>apter | 3                   | 3                 | 6                           | 6                         | 11           | 11           | 66(MAIN)/<br>retention.<br>ms =<br>300000 |
| ocnaddkaf<br>ka   | 7.5                 | 7.5               | 96                          | 96                        | 6            | 6            | -                                         |
| zookeeper         | 1                   | 1                 | 2                           | 2                         | 3            | 3            | -                                         |
| ocnaddgui         | 2                   | 2                 | 1                           | 1                         | 1            | 1            | -                                         |

- **SCP**  
SCP Traffic: 67.5K TPS using two trigger points.

## Benchmark Test Results

### Traffic Feed Details

**Table 4-17 Traffic Feed Details**

| NF     | NF Traffic Copy Trigger Points                            | Traffic Rate | Duration in hours | E2E Traffic Feed Average Latency       | E2E Traffic Feed Success Rate    |
|--------|-----------------------------------------------------------|--------------|-------------------|----------------------------------------|----------------------------------|
| OCNADD | NA                                                        | 135K MPS     | 12                | Feed-1: 26.9 msec<br>Feed-2: 26.5 msec | Feed-1: 99.98%<br>Feed-2: 99.98% |
| SCP    | 2 Ingress Gateway (Request)<br>2 Egress Gateway (Request) | 135K MPS     | 12                | NA                                     | 99.98%                           |

## CPU and Memory Utilization

The following table describes the OCNADD CPU and memory utilization:

**Table 4-18 OCNADD CPU and Memory Utilization**

| Micro-Service/ Container | Pod Count | CPU Utilization (%) | Memory Utilization (%) |
|--------------------------|-----------|---------------------|------------------------|
| ocnaddfilter             | 1         | 50.00%              | 45.80%                 |
| ocnaddnrfaggregation     | 2         | 0.06%               | 16.20%                 |
| ocnaddscppaggregation    | 6         | 78.50%              | 28.40%                 |
| ocnaddseppaggregation    | 3         | 0.06%               | 10.70%                 |
| feed-dd1-adapter         | 11        | 76.40%              | 31.70%                 |
| kafka-broker             | 6         | 81.40%              | 37.90%                 |

**Table 4-18 (Cont.) OCNADD CPU and Memory Utilization**

| Micro-Service/<br>Container | Pod Count | CPU Utilization (%) | Memory Utilization (%) |
|-----------------------------|-----------|---------------------|------------------------|
| zookeeper                   | 3         | 0.13%               | 19.90%                 |
| feed-dd2-adapter            | 11        | 75.50%              | 29.80%                 |
| ocnaddadminservice          | 1         | 0.12%               | 32.20%                 |
| ocnaddalarm                 | 1         | 0.18%               | 20.50%                 |
| ocnaddconfiguration         | 1         | 0.11%               | 41.70%                 |
| ocnaddexport                | 1         | 0.02%               | 2.04%                  |
| ocnaddgui                   | 1         | 0.00%               | 2.24%                  |
| ocnaddhealthmonitoring      | 1         | 0.19%               | 36.30%                 |
| ocnaddrouter                | 1         | 0.01%               | 30.40%                 |