Cloud Native BNG Control Plane Metrics Reference, Release 2025.03.0

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About this Guide

Note The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. While any existing biased terms are being substituted, exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

This preface describes how the *Cisco Cloud Native BNG Control Plane Metrics Reference* is organized and its document conventions.

- Conventions Used, on page iii

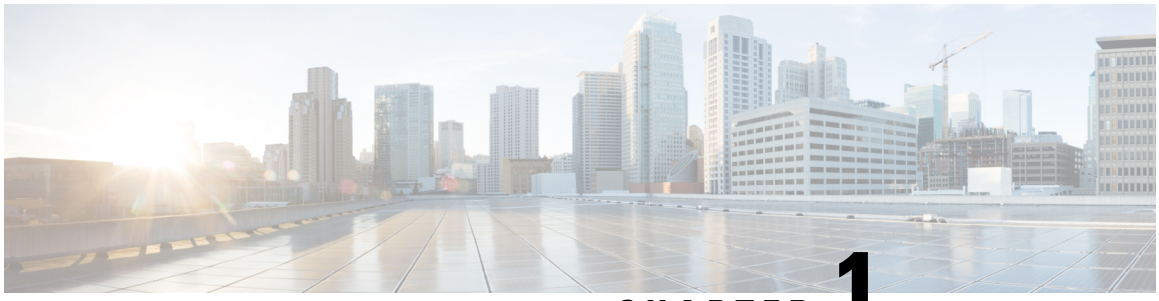
Conventions Used

The following tables describe the conventions used throughout this documentation.

Notice Type	Description
Information Note	Provides information about important features or instructions.
Caution	Alerts you of potential damage to a program, device, or system.
Warning	Alerts you of potential personal injury or fatality. May also alert you of potential electrical hazards.

Typeface Conventions	Description
Text represented as a `screen display`	This typeface represents displays that appear on your terminal screen, for example: `Login:`

Typeface Conventions	Description
Text represented as **commands**	This typeface represents commands that you enter, for example: **show ip access-list** This document always gives the full form of a command in lowercase letters. Commands are not case sensitive.
Text represented as a **command** *variable*	This typeface represents a variable that is part of a command, for example: **show card** *slot_number* *slot_number* is a variable representing the desired chassis slot number.
Text represented as menu or sub-menu names	This typeface represents menus and sub-menus that you access within a software application, for example: Click the **File** menu, then click **New**



CHAPTER 1

Cloud Native BNG Control Plane Interface for Metrics

- Summary Data, on page 1
- Feature Description, on page 1

Summary Data

Table 1: Summary Data

Applicable Product(s) or FunctionalArea	Cloud Native Broadband Network Gateway
Applicable Platform(s)	SMI
Feature Default Setting	Enabled – Always-on
Related Changes in this Release	Not Applicable
Related Documentation	Not Applicable

Feature Description

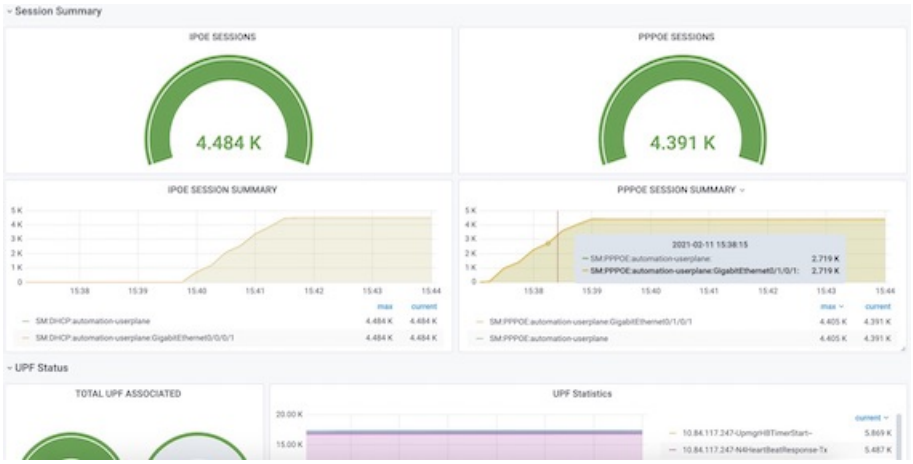
The Cisco Cloud Native Broadband Network Gateway uses Prometheus for gathering statistics/counters from its microservices.

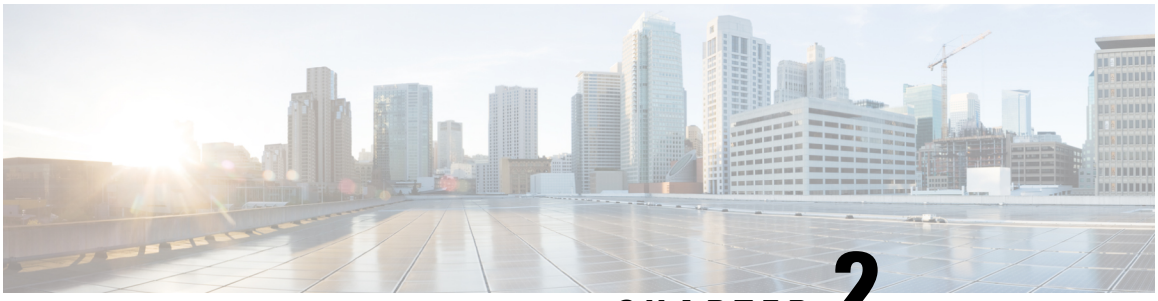
Grafana is used as the user interface to view metrics. It pulls the data from the Prometheus data store. Default graphs for KPI are available using Grafana for rendering a graphical view of the statistics with timelines.

For each microservice, counters and a set of labels are defined. Counters are incremented/decremented with the set of labels depending on the functionality.

The following snapshot is a sample of the Grafana dashboard.

Figure 1: Grafana Dashboard





CHAPTER 2

cnBNG Control Plane Metrics

- cnbng Metrics Reference, on page 3

cnbng Metrics Reference

CNBNG Accounting Statistics Category

Accounting_message_current

Description: Current number of Start/Stop/Interim Message triggered towards Server and Waiting for Response

Sample Query: `'Accounting_message_current{acct_type="Start",upf="asr9k-1",service_name="qos1"}'`

Labels:

- Label: `acct_type`

  Label Description: Accounting Packet type

  Example: Start, Interim, Stop

- Label: `acct_level`

  Label Description: Accounting category

  Example: Session, Service

- Label: `upf`

  Label Description: UPF Name

  Example: Any string

- Label: `service_name`

  Label Description: Name of service

  Example: Any string

Accounting_message_total

Description: Total number of Start/Stop/Interim Message trigger towards Radius Server

Sample Query: `'Accounting_message_total{acct_type="Start",upf="asr9k-1",service_name="qos1"}'`

Labels:

- Label: `acct_type`

  Label Description: Accounting Packet type

  Example: Start, Interim, Stop

- Label: `acct_level`

  Label Description: Accounting category

  Example: Session, Service

- Label: `upf`

  Label Description: UPF Name

  Example: Any string

- Label: `aaa_profile`

  Label Description: AAA profile used

  Example: Any string

- Label: `service_name`

  Label Description: Name of service

  Example: Any string

- Label: `status`

  Label Description: Status of accounting request

  Example: Attempt, Success, Failure

Charging_subscriber_total

Description: Total number of Subscriber regardless of accounting enable or not

Sample Query: `'Charging_subscriber_total{upf="asr9k-1"}'`

Labels:

- Label: `upf`

  Label Description: UPF Name

  Example: Any string

Service_usage_report_total

Description: Total number of Usage Report Coming from PFCP per service

Sample Query:
`'Service_usage_report_total{report_type="ChargingFinalUsageReport",upf="asr9k-1",service_name="qos1"}'`

Labels:

- Label: `report_type`

Label Description: Usage report type

Example: ChargingFinalUsageReport, ChargingInterimUsageReport

Labels:

- Label: `upf`

  Label Description: UPF Name

  Example: Any string

- Label: `aaa_profile`

  Label Description: AAA profile used

  Example: Any string

- Label: `service_name`

  Label Description: Name of service

  Example: Any string

Session_usage_report_total

Description: Total number of Usage Report Coming from PFCP per session

Sample Query:
`'Session_usage_report_total{report_type="ChargingFinalUsageReport",upf="asr9k-1"}'`

Labels:

- Label: `report_type`

  Label Description: Usage report type

  Example: ChargingFinalUsageReport, ChargingInterimUsageReport

Labels:

- Label: `upf`

  Label Description: UPF Name

  Example: Any string

Labels:

- Label: `aaa_profile`

  Label Description: AAA profile used

  Example: Any string

db_records_total

Description: Current number of Subscriber regardless of accounting enable or not

Sample Query: `'db_records_total{session_type="Charging"}'`

Labels:

- Label: `session_type`

  Label Description: Session type

  Example: Charging, Charging:<upf>

CNBNG CP Audit Category

PPPoE_Audit_Confirmation_Total

Description: CP audit events in PPPoE

Sample Query: `'sum(PPPoE_Audit_Confirmation_Total) by (Event)'`

Labels:

- Label: `Event`

  Label Description: |

  type of event which can be no-session: Session audited in sm is not present in pppoe. session-fetch-failed: Session audited in sm is not present in pppoe. match: Session audited in sm is present in pppoe with matching audit id. mis-match: Session audited in sm is present in pppoe with wrong audit id.

PPPoE_ReconCP_Events_Total

Description: CP audit events in PPPoE

Sample Query: `'sum(PPPoE_ReconCP_Events_Total) by (Routername)'`

Labels:

- Label: `Routername`

  Label Description: UPF ID

  Example: asr9k-1

- Label: `Event`

  Label Description: |

  type of event which can be found: Audited session is present in sm. not-found: Audited session is not present in sm."

CNBNG Flowcontrol Statistics Category

metrics: incoming_drop_queued_total

Description: Total number of incoming queued request dropped

Sample Query:
`'incoming_drop_queued_total{interface="h4",local_address="10.1.0.1",protocol="Udp",peer_address="10.1.0.2",cause="DispatcherQueueFull",queue_id="1"}'`

Labels:

- Label: `interface`

  Label Description: |

Interface Name from the virtual queue config N4: PFCP Interface

- Label: `local_address`

  Label Description: Local Address

  Example: Any string

- Label: `peer_address`

  Label Description: Peer Address

  Example: Any string

- Label: `cause`

  Label Description: Drop Cause

  Example: DispatcherQueueFull, DispatcherQueueNotAvailable, DispatcherRetryRequestDrop, DispatcherThresholdRequestDrop

metrics: incoming_queued_rate_limit_reached_total

Description: Total number of incoming rate limit hit count

Sample Query: `'incoming_queued_rate_limit_reached_total{interface="n4", protocol="Udp",queue_id="1"}'`

Labels:

- Label: `interface`

  Label Description: |

  Interface Name from the virtual queue config N4: PFCP Interface

- Label: `local_address`

  Label Description: Local Address

  Example: Any string

- Label: `peer_address`

  Label Description: Peer Address

  Example: Any string

- Label: `cause`

  Label Description: Drop Cause

  Example: DispatcherQueueFull, DispatcherQueueNotAvailable, DispatcherRetryRequestDrop, DispatcherThresholdRequestDrop

metrics: virtual_message_rate_limit_reached_total

Description: Total number of times the rate limit is reached for virtual id queue

Sample Query: `'virtual_message_rate_limit_reached_total{interface="n4",msg_type="pfcpresponse",virtual_msg_id="1"}'`

Labels:

- Label: `interface`

Label Description: |

Interface Name from the virtual queue config n4: PFCP Interface

- Label: `msg_type`

  Label Description: |

  Message type from the virtual queue config all: This msg type falls under virtual id 1 pfcpresponse: This msg type falls under virtual id 2 lcpkeepalive: This msg type falls under virtual id 4 pfcpkeepalive: This msg type falls under virtual id 3 sessionreport: This msg type falls under virtual id 5

  Example: pfcpresponse, lcpkeepalive, pfcpkeepalive, sessionreport, all

- Label: `virtual_msg_id`

  Label Description: |

  Virtual Message Id of Queue 1: PFCP and GTPU msgs 2: N4 Session Establishment, Modification and Release Response msgs 3: N4 Heartbeat Request and Response, Association Update Response and Node Report Request msgs 4: PPP LCP Keepalive Timeout 5: N4 Session Report Request metrics: virtual_message_reject_total

  Description: Total number of rejected virtual messages

  Sample Query:
  `'virtual_message_reject_total{interface="n4",msg_type="pfcpresponse",virtual_msg_id="1"}'`

Labels:

- Label: `interface`

  Label Description: |

  Interface Name from the virtual queue config n4: PFCP Interface

Labels:

- Label: `msg_type`

  Label Description: |

  Message type from the virtual queue config all: This msg type falls under virtual id 1 pfcpresponse: This msg type falls under virtual id 2 lcpkeepalive: This msg type falls under virtual id 4 pfcpkeepalive: This msg type falls under virtual id 3 sessionreport: This msg type falls under virtual id 5

  Example: pfcpresponse, lcpkeepalive, pfcpkeepalive, sessionreport, all

- Label: `virtual_msg_id`

  Label Description: |

  Virtual Message Id of Queue 1: PFCP and GTPU msgs 2: N4 Session Establishment, Modification and Release Response msgs 3: N4 Heartbeat Request and Response, Association Update Response and Node Report Request msgs 4: PPP LCP Keepalive Timeout 5: N4 Session Report Request

- Label: `cause`

  Label Description: |

  Drop Cause VirtualMsgQueueFull: Virtual message queue (channel) is full PendingRequestsLimitReached: Pending requests limit is reached

- Label: `virtual_msg_reject_code`

  Label Description: drop code from the virtual queue config

CNBNG GR Statistics Category

geo_MaintenanceMode_info

Description: GR maintenanceMode gauge

Sample Query: `'geo_MaintenanceMode_info{MaintenanceMode="false"}'`

Labels:

- Label: `MaintenanceMode`

  Label Description: Maintenance Mode

  Example: true,false

geo_RejectedRoleChanged_total

Description: GR Rejected Request coming to standby instance

Sample Query:
`'geo_RejectedRoleChanged_total{GRInstanceNumber="Instance.1",RejectedCount="200"}'`

Labels:

- Label: `RejectedCount`

  Label Description: Rejected Count

  Labels:

- Label: `GRInstanceNumber`

  Label Description: GR Instance Number

geo_monitoring_total

Description: GR replication Operation

Sample Query: `'geo_monitoring_total{ControlActionNameType="TriggerGRApi"}'`

Labels:

- Label: `ControlActionType`

  Label Description: Control Action Type

  Example: AdminRemoteMessageActionType, AdminRoleChangeActionType, AdminMonitoringActionType

Labels:

- Label: `ControlActionNameType`

  Label Description: Control Action Name Type

Example: RemoteMsgGetSiteStatus, TriggerGRApi, GeoMonitoring, MonitorPod, RemoteMsgNotifyFailover, RemoteMsgGetSiteRoleDetails, RemoteMsgHeartbeat, ResetRoleApi, AutoStandbyErrorToStandbyRoleChangeActionType

- Label: `AdminNode`

  Label Description: Node name

  Example: all, 1, 2

- Label: `status`

  Label Description: Status

  Example: success,fail,remote status unavailable, unmarshalling error,geo maintenance DISABLED using CLI,geo maintenance ENABLE using CLI

- Label: `status_code`

  Label Description: Status Code

  Example: 1002,1001,1010,1011

CNBNG IPAM Statistics Category

IPAM_AlarmsStats

Description: IPAM Alarm notification

- Label: `dnn`

  Label Description: This is the tag that is passed to IPAM it can be poolName or any group-tag string

  Example: Any string

- Label: `pool`

  Label Description: name of the pool associated with the request

  Example: Any string

- Label: `upf`

  Label Description: upf identifier associated with the request

  Example: Any string

- Label: `addressType`

  Label Description: address type associated with the request

  Example: IPv4/IPv6NA/IPv6PD

- Label: `grInstId`

  Label Description: GR instance ID

  Example: GR instance ID

- Label: `StatsType`

  Label Description: Type of alarm this is triggered

Example: AlarmAddrRangeExhaust

IPAM_Quarantine_Chunks_Statistics

Description: Counter for chunks quarantine

- Label: `IPAM_RPC_Counter_Type`

  Label Description: Type of request Buffered/Processed

- Label: `pool`

  Label Description: name of the pool associated with the request

  Example: Any string

- Label: `addressType`

  Label Description: address type associated with the request

  Example: IPv4/IPv6NA/IPv6PD

- Label: `upf`

  Label Description: upf identifier associated with the request

  Example: Any string

- Label: `grInstId`

  Label Description: GR instance ID

  Example: GR instance ID

- Label: `qtLabel`

  Label Description: Reason for quarantine route_sync_failed/quarantined_chunk

IPAM_Quarantine_Statistics

Description: Total number of IP's that are quarantined in IPAM

- Label: `pool`

  Label Description: name of the pool associated with the request

  Example: Any string

- Label: `addressType`

  Label Description: address type associated with the request

  Example: IPv4/IPv6NA/IPv6PD

- Label: `upf`

  Label Description: upf identifier associated with the request

  Example: Any string

- Label: `grInstId`

  Label Description: GR instance ID

Example: GR instance ID

- Label: `type`

  Label Description: Total address in quarantine queue and the queue sizes

  Example: start_batch_qsize/end_batch_qsize/avg_qtime_secs/pop_count_qtime/pop_count_qsize

IPAM_Role_Switch_Over

Description: Stats for Geo Role switch over happens

Sample Query: `'IPAM_Role_Switch_Over{grInstId="1"}'`

Labels:

- Label: `grInstId`

  Label Description: GR instance ID

  Example: GR instance ID

- Label: `eventType`

  Label Description: Set based on the GR becomes Active or StandBy on cluster

  Example: Active/StandBy

IPAM_Static_Request_Statistics

Description: Total Static-ip Mapping Requests received

- Label: `eventType`

  Label Description: type of event associated with the request

  Example: Allocation/Release

IPAM_address_allocations_current

Description: Current state of IPAM Address allocations

Sample Query:
`'IPAM_address_allocations_current{pool="p1",allocationType="dynamic",addressType="IPv4",upf="dp1"}'`

Labels:

- Label: `pool`

  Label Description: name of the pool associated with the request

  Example: Any string

- Label: `allocationType`

  Label Description: type of allocation associated with the request

  Example: static/dynamic

- Label: `addressType`

  Label Description: address type associated with the request

Example: IPv4/IPv6NA/IPv6PD

- Label: `upf`

  Label Description: upf identifier associated with the request

  Example: Any string

- Label: `grInstId`

  Label Description: GR instance ID

  Example: GR instance ID

- Label: `dnn`

  Label Description: This is the tag that is passed to IPAM it can be poolName or any group-tag string

  Example: Any string

- Label: `forRemoteSmf`

  Label Description: Set to true when the allocation is for GR that this is non-local cluster

  Example: true/false

IPAM_address_events_total

Description: Total number of IPAM Address events

Sample Query:

```
'IPAM_address_events_total{pool="p1",eventType="Allocation",allocationType="dynamic",addressType="IPv4",upf="dp1"}'
```

Labels:

- Label: `pool`

  Label Description: name of the pool associated with the request

  Example: Any string

Labels:

- Label: `eventType`

  Label Description: type of event associated with the request

  Example: Allocation/Release

- Label: `allocationType`

  Label Description: type of allocation associated with the request

  Example: static/dynamic

- Label: `addressType`

  Label Description: address type associated with the request

  Example: IPv4/IPv6NA/IPv6PD

- Label: `upf`

  Label Description: upf identifier associated with the request

Example: Any string

- Label: `grInstId`

  Label Description: GR instance ID

  Example: GR instance ID

- Label: `dnn`

  Label Description: This is the tag that is passed to IPAM it can be poolName or any group-tag string

  Example: Any string

- Label: `forRemoteSmf`

  Label Description: Set to true when the allocation is for GR that this is non-local cluster

  Example: true/false

IPAM_address_pool_total

Description: Total address configured for Pool

- Label: `dnn`

  Label Description: This is the tag that is passed to IPAM it can be poolName or any group-tag string

  Example: Any string

- Label: `pool`

  Label Description: name of the pool associated with the request

  Example: Any string

- Label: `addressType`

  Label Description: address type associated with the request

  Example: IPv4/IPv6NA/IPv6PD

- Label: `grInstId`

  Label Description: GR instance ID

  Example: GR instance ID

IPAM_chunk_allocations_current

Description: Current state of IPAM Address Chunk allocations

Sample Query: `'IPAM_chunk_allocations_current{pool="p1",addressType="IPv4",upf="dp1"}'`

Labels:

- Label: `pool`

  Label Description: name of the pool associated with the request

  Example: Any string

Labels:

- Label: `addressType`

  Label Description: address type associated with the request

  Example: IPv4/IPv6NA/IPv6PD

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

  Example: Any string

- Label: `grInstId`

  Label Description: GR instance ID

  Example: GR instance ID

- Label: `dnn`

  Label Description: This is the tag that is passed to IPAM it can be poolName or any group-tag string

  Example: Any string

- Label: `forRemoteSmf`

  Label Description: Set to true when the allocation is for GR that this is non-local cluster

  Example: true/false

- Label: `quarantined`

  Label Description: When chunk operation on UP fails and the chunk is not released/allocated on IPAM

  Example: true/false

IPAM_chunk_events_total

Description: Total number of IPAM Address Chunk events

Sample Query:

```
'IPAM_chunk_events_total{pool="p1",eventType="Allocation",addressType="IPv4",upf="dp1"}'
```

Labels:

- Label: `pool`

  Label Description: name of the pool associated with the request

  Example: Any string

Labels:

- Label: `eventType`

  Label Description: type of event associated with the request

  Example: Allocation/Release

Labels:

- Label: `addressType`

Label Description: address type associated with the request

Example: IPv4/IPv6NA/IPv6PD

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

  Example: Any string

- Label: `grInstId`

  Label Description: GR instance ID

  Example: GR instance ID

- Label: `dnn`

  Label Description: This is the tag that is passed to IPAM it can be poolName or any group-tag string

  Example: Any string

- Label: `forRemoteSmf`

  Label Description: Set to true when the allocation is for GR that this is non-local cluster

  Example: true/false

- Label: `quarantined`

  Label Description: If the chunk delete is failed on UP then the chunk is marked quarantined

  Example: true/false

IPAM_reconcile_with_cdl

Description: Total number of IP that are reconciled with CDL

Sample Query: `'sum(IPAM_reconcile_with_cdl{}) by (addressType)'`

Labels:

- Label: `pool`

  Label Description: name of the pool associated with the request

  Example: Any string

Labels:

- Label: `addressType`

  Label Description: address type associated with the request

  Example: IPv4/IPv6NA/IPv6PD

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

Example: Any string

Labels:

- Label: `grInstId`

  Label Description: GR instance ID

  Example: GR instance ID

Labels:

- Label: `dnn`

  Label Description: This is the tag that is passed to IPAM it can be poolName or any group-tag string

  Example: Any string

Labels:

- Label: `IPAM_Reconcile_Trigger`

  Label Description: Origin for the reconcile trigger can be NM Restart or via cli(Audit) or role switchover(RoleSwitchOver)

  Example: Restart/Audit/RoleSwitchOver

- Label: `quarantined`

  Label Description: When chunk operation on UP fails and the chunk is not released/allocated on IPAM

  Example: true/false

CNBNG L2TP Statistics Category

L2TPMgr_IPC_Events_total

Description: Total IPC events

Sample Query:
```
'L2TPMgr_IPC_Events_total{MessageType="SessionIDAllocReq",Routername="lps_lns_asr9k-1",Status="Success"}'
```

Labels:

- Label: `Routername`

  Label Description: Name of user-plane

- Label: `MessageType`

  Label Description: |

  Type of Message
  BGIPCRequest,BGIPCResponse,SessionDeleteReq,SessionIDReleaseReq,SessionIDReleaseRsp,SessionIDAllocReq,SessionIDAllocRsp,BGIPCCDNResponse,L2TPTunnelFailover

- Label: `Status`

  Label Description: |

Status of Message IPC-failure: IPC Failure Message Success: IPC Success Message Failure: IPC Failure Message

L2TPMgr_Packet_Events_total

Description: Total L2TP packets

Sample Query:
```
'L2TPMgr_Packet_Events_total{Direction="Rx",PacketType="CDN",Routername="lps_lns_asr9k-1"}'
```

Labels:

- Label: `Routername`

  Label Description: Name of user-plane

Labels:

- Label: `PacketType`

  Label Description: |

  L2TP Packet Type CDN,HELLO,ICCN,ICRQ,PPP,SCCCN,SCCRQ,StopCCN,ZLB ACK,ICRP,SCCRP

- Label: `Direction`

  Label Description: |

  Direction of Packet Rx: Packet Received Tx: Packet Transmitted

L2TPMgr_Retransmit_Packet_Events_total

Description: Total L2TP Retransmit packets

Sample Query:
```
'L2TPMgr_Retransmit_Packet_Events_total{PacketType="HELLO",Routername="lps_lns_asr9k-1"}'
```

Labels:

- Label: `Routername`

  Label Description: Name of user-plane

Labels:

- Label: `PacketType`

  Label Description: |

  Type of Packet CDN,HELLO,ICCN,ICRQ,PPP,SCCCN,SCCRQ,StopCCN,ZLB ACK,ICRP,SCCRP

L2TPMgr_disconnect_events_total

Description: Total L2TP Disconnect Events

Sample Query:
```
'L2TPMgr_disconnect_events_total{MessageType="NoSessionTimeout",Routername="lps_lns_asr9k-1"}'
```

Labels:

- Label: `Routername`

  Label Description: Name of user-plane

Labels:

- Label: `MessageType`

  Label Description: |

  Type of Message NoSessionTimeout: Nosessiontimeout message RxStopCCNfromLAC: ReceiveStopCCN message from LAC

CNBNG PFCP and GTPU packet statistics Category

bng_proto_dhcp_total

Description: Total number of GTPU DHCP packets received/transmitted

Sample Query: `'bng_proto_dhcp_total{pkt_type="Gtpu",message_name="IPoE", upf="asr9k-1"}'`

Labels:

- Label: `pkt_type`

  Label Description: Type of packet, Value: Gtpu

- Label: `message_direction`

  Label Description: |

  Transmitted or received packet type inbound: Received outbound: Transmitted

- Label: `status`

  Label Description: Status of packet processing with values: send, IPCFailure, accepted

- Label: `message_name`

  Label Description: Message Type, Value: IPoE, Dhcpv6OverPPPoE, Dhcpv6OverL2TPLNS

- Label: `upf`

  Label Description: upf identifier associated with the request

  Example: Any string

bng_proto_l2tp_total

Description: Total number of GTPU L2TP packets received/transmitted

Sample Query: `'bng_proto_l2tp_total{pkt_type="Gtpu",message_name="L2TP", upf="asr9k-1"}'`

Labels:

- Label: `pkt_type`

  Label Description: Type of packet, Value: Gtpu

Labels:

- Label: `message_direction`

  Label Description: |

Transmitted or received packet type inbound: Received outbound: Transmitted

- Label: `status`

  Label Description: Status of packet processing with values: send, IPCFailure, accepted

- Label: `message_name`

  Label Description: Message Type, Value: L2TP

- Label: `upf`

  Label Description: upf identifier associated with the request

  Example: Any string

bng_proto_pppoe_total

Description: Total number of GTPU PPPOE packets received/transmitted

Sample Query: `'bng_proto_pppoe_total{pkt_type="Gtpu",message_name="PPPoE", upf="asr9k-1"}'`

Labels:

- Label: `pkt_type`

  Label Description: Type of packet, Value: Gtpu

Labels:

- Label: `message_direction`

  Label Description: |

  Transmitted or received packet type inbound: Received outbound: Transmitted

- Label: `status`

  Label Description: Status of packet processing with values: send, IPCFailure, accepted

- Label: `message_name`

  Label Description: Message Type, Value: PPPoE, Icmpv6OverPPPoE

- Label: `upf`

  Label Description: upf identifier associated with the request

  Example: Any string

bng_proto_udp_total

Description: Total number of PFCP/GTPU packets received/transmitted

Sample Query:
`'bng_proto_udp_total{pkt_type="Pfcp",message_name="n4_session_establishment_req"}'`

Labels:

- Label: `pkt_type`

Label Description: |

Type of packet which can be Pfcp: Packet Forwarding Control Protocol packets Gtpu: GPRS Tunnelling Protocol packets

Labels:

- Label: `message_direction`

  Label Description: |

  Transmitted or received packet type inbound: Received outbound: Transmitted

- Label: `status`

  Label Description: Status of packet processing with values: accepted, discarded, ignore-response, decode-error, encode-error, IPCFailure, Invalid, Timeout, proxy-rsp-error, request-nil, response-nil, upfinfo-nil, GetMsgobj-error, response-error, received, send, resend, retrans-accepted, retrans, rsp-rcvd-after-timeout, failed, unsupported, getcon-nil, upf-inactive, av-sla-lt-1sec, BGIPCFailure

- Label: `transport_type`

  Label Description: |

  Initial or retransmitted request original: First request initiated retransmitted: resend on failure

- Label: `message_name`

  Label Description: |

  pfcp/gtpu message types n4_session_establishment_req: Session Establishment Request n4_session_establishment_res: Session Establishment Response n4_session_modification_req: Session Modification Request n4_session_modification_res: Session Modification Response n4_session_report_req: Session Report Request n4_session_report_res: Session Report Response n4_session_ppp_lcp_timeout_req: PPP LCP Timeout Request n4_session_ppp_lcp_timeout_res: PPP LCP Timeout Response n4_session_deletion_req: Session Release Request n4_session_deletion_res: Session Release Response n4_association_setup_req: Association Setup Request n4_association_setup_res: Association Setup Response n4_association_update_req: Association Update Request n4_association_update_res: Association Update Response n4_association_release_req: Association Release Request n4_association_release_res: Association Release Response n4_heartbeat_req: Heartbeat Request n4_heartbeat_res: Heartbeat Response n4_node_report_req: Node Report Request n4_node_report_res: Node Report Response

- Label: `upf`

  Label Description: upf identifier associated with the request

  Example: Any string

CNBNG PPPOE L2TP Statistics Category

L2TP_Packet_Events_total

Description: Total L2TP packets

Sample Query: `'L2TP_Packet_Events_total{Routername="asr9k-1",PacketType="ICRQ"}'`

Labels:

- Label: `Routername`

  Label Description: Router Name

- Label: `PacketType`

  Label Description: Packet Type

  Example: ICRQ, ICRP, ICCN, CDN, ZLB ACK

- Label: `Direction`

  Label Description: Transmitted or Received packet

  Example: Tx, Rx

CNBNG PPPOE or PPP Statistics Category

PPPOE_packet_events_total

Description: Total number of PPPoE packets transmitted and received

Sample Query:
`'PPPOE_packet_events_total{PacketType="PADI",Routername="asr9k-1",PortID="Bundle-Ether1.1"}'`

Labels:

- Label: `PacketType`

  Label Description: Packet type

  Example: PADI, PADO, PADR, PADS, PADT

- Label: `Direction`

  Label Description: Transmitted or Received packet

  Example: Tx, Rx

- Label: `Routername`

  Label Description: UPF Name

  Example: Any string

- Label: `PortID`

  Label Description: Access interface Name

  Example: Any string

- Label: `Status`

  Label Description: Status of packet processing

  Example: Processed | Dropped

PPP_ICMPV6_packet_events_total

Description: Total PPPoE ICMPv6 packets

Sample Query: `'PPP_ICMPV6_packet_events_total{Routername="asr9k-1",PortID="Bundle-Ether1.1"}'`

Labels:

- Label: `PacketType`

  Label Description: Packet type

  Example: RouterSolicitation, RouterAdvertisement

- Label: `Direction`

  Label Description: Transmitted or Received packet

  Example: Tx, Rx

- Label: `Routername`

  Label Description: UPF Name

  Example: Any string

- Label: `PortID`

  Label Description: Access interface Name

  Example: Any string

PPP_IPCP_packet_events_total

Description: Total number of PPP IPCP packets transmitted and received

Sample Query:
`'PPP_IPCP_packet_events_total{PacketType="Conf-Req",Routername="asr9k-1",PortID="Bundle-Ether1.1"}'`

Labels:

- Label: `PacketType`

  Label Description: Packet type

  Example: Conf-Req, Conf-Ack, Conf-Nak, Term-Req, Term-Ack, Proto-Rej, Code-Rej, Conf-Rej

Labels:

- Label: `Direction`

  Label Description: Transmitted or Received packet

  Example: Tx, Rx

- Label: `Routername`

  Label Description: UPF Name

  Example: Any string

- Label: `PortID`

  Label Description: Access interface Name

  Example: Any string

PPP_IPV6CP_packet_events_total

Description: Total number of PPP IPv6CP packets transmitted and received

Sample Query:
`'PPP_IPV6CP_packet_events_total{PacketType="Conf-Req",Routername="asr9k-1",PortID="Bundle-Ether1.1"}'`

Labels:

- Label: `PacketType`

  Label Description: Packet type

  Example: Conf-Req, Conf-Ack, Conf-Nak, Term-Req, Term-Ack, Proto-Rej, Code-Rej, Conf-Rej

Labels:

- Label: `Direction`

  Label Description: Transmitted or Received packet

  Example: Tx, Rx

Labels:

- Label: `Routername`

  Label Description: UPF Name

  Example: Any string

- Label: `PortID`

  Label Description: Access interface Name

  Example: Any string

PPP_LCP_CHAP_packet_events_total

Description: Total number of PPP LCP CHAP packets transmitted and received

Sample Query:
`'PPP_LCP_CHAP_packet_events_total{PacketType="Challenge",Routername="asr9k-1",PortID="Bundle-Ether1.1"}'`

Labels:

- Label: `PacketType`

  Label Description: Packet type

  Example: Challenge, Response, Rep-Success, Rep-Fail

Labels:

- Label: `Direction`

  Label Description: Transmitted or Received packet

  Example: Tx, Rx

Labels:

- Label: `Routername`

Label Description: UPF Name

Example: Any string

Labels:

- Label: `PortID`

  Label Description: Access interface Name

  Example: Any string

PPP_LCP_PAP_packet_events_total

Description: Total number of PPP LCP PAP packets transmitted and received

Sample Query:

```
'PPP_LCP_PAP_packet_events_total{PacketType="Request",Routername="asr9k-1",PortID="Bundle-Ether1.1"}'
```

Labels:

- Label: `PacketType`

  Label Description: Packet type

  Example: Request, Ack, Nack

Labels:

- Label: `Direction`

  Label Description: Transmitted or Received packet

  Example: Tx, Rx

Labels:

- Label: `Routername`

  Label Description: UPF Name

  Example: Any string

Labels:

- Label: `PortID`

  Label Description: Access interface Name

  Example: Any string

PPP_LCP_packet_events_total

Description: Total number of PPP LCP packets transmitted and received

Sample Query:

```
'PPP_LCP_packet_events_total{PacketType="Conf-Req",Routername="asr9k-1",PortID="Bundle-Ether1.1"}'
```

Labels:

- Label: `PacketType`

Label Description: Packet type

Example: Conf-Req, Conf-Ack, Conf-Nak, Conf-Rej, Term-Req, Term-Ack, Proto-Rej, Code-Rej, Echo-Req, Echo-Rep

Labels:

- Label: `Direction`

  Label Description: Transmitted or Received packet

  Example: Tx, Rx

Labels:

- Label: `Routername`

  Label Description: UPF Name

  Example: Any string

Labels:

- Label: `PortID`

  Label Description: Access interface Name

  Example: Any string

CNBNG Radius Statistics Category

Radius_CoaDM_Requests_Current

Description: Current outstanding radius COA/DM requests

Sample Query: `'Radius_CoaDM_Requests_Current{radSvrIp="1.1.1.1",radMsgCode="CoaReq"}'`

Labels:

- Label: `radSvrIp`

  Label Description: Radius Server IP (v4/v6) address

- Label: `radMsgCode`

  Label Description: |

  Type of Radius Dynamic Authotization (CoA/DM) Messages DisconnectRequest: Packet of disconect request from CoA Client received on cnBNG. DisconnectACK: Packet of disconnect request accepted by cnBNG and ACK sent to CoA client. DisconnectNAK: Packet of disconnect request rejected by cnBNG and NACK sent to CoA client. CoAReq: CoA request from CoA client received on cnBNG. CoAACK: CoA request accepted by cnBNG and ACK sent to CoA client. CoANAK: CoA request rejected by cnBNG and NACK sent to CoA client.

- Label: `radPacketType`

  Label Description: |

Direction of Radius message from cnBNG perspective Tx: Outboung message to the CoA client Rx: Inbound message from the CoA client

- Label: `radResult`

  Label Description: |

  Results of Radius handshake for CoA/DM during dynamic authorization with CoA client Success: Successful transaction Failure_Invalid_Request: Invalid request coming from CoA client Failure_Unknown_MsgType: Invalid message type from CoA client Failure_Bad_Authenticator: Mismatch in preshared secret between CoA client cnBNG Failure_Drop_Retry_Coa: Retried CoA packet is dropped by cnBNG

Radius_CoaDM_Requests_Statistics

Description: Total number of radius COA and DM packets

Sample Query: `'Radius_CoaDM_Requests_Statistics{radSvrIp="1.1.1.1",radMsgCode="CoaReq"}'`

Labels:

- Label: `radSvrIp`

  Label Description: Radius Server IP (v4/v6) address

Labels:

- Label: `radMsgCode`

  Label Description: |

  Type of Radius Dynamic Authotization (CoA/DM) Messages DisconnectRequest: Packet of disconect request from CoA Client received on cnBNG. DisconnectACK: Packet of disconnect request accepted by cnBNG and ACK sent to CoA client. DisconnectNAK: Packet of disconnect request rejected by cnBNG and NACK sent to CoA client. CoAReq: CoA request from CoA client received on cnBNG. CoAACK: CoA request accepted by cnBNG and ACK sent to CoA client. CoANAK: CoA request rejected by cnBNG and NACK sent to CoA client.

- Label: `radPacketType`

  Label Description: |

  Direction of Radius message from cnBNG perspective Tx: Outboung message to the CoA client Rx: Inbound message from the CoA client

- Label: `radResult`

  Label Description: |

  Results of Radius handshake for CoA/DM during dynamic authorization with CoA client Success: Successful transaction Failure_Invalid_Request: Invalid request coming from CoA client Failure_Unknown_MsgType: Invalid message type from CoA client Failure_Bad_Authenticator: Mismatch in preshared secret between CoA client cnBNG Failure_Drop_Retry_Coa: Retried CoA packet is dropped by cnBNG

Radius_LeastOutStandingServer

Description: Display Least Outstanding Radius Server statistics

Sample Query:
`'Radius_LeastOutStandingServer{LeastOutstandingServer="1.1.1.1:1812",BatchSize="25"}'`

Labels:

- Label: `LeastOutstandingServer`

  Label Description: Radius Server IP (v4/v6) in the form of ip_port

Labels:

- Label: `BatchSize`

  Label Description: BatchSize in number of messages. Default value is 25

Radius_Server_Rtt_ms

Description: Display Radius Server RTT

Sample Query:
`'Radius_Server_Rtt_ms{radSvrIp="1.1.1.1",radSvrPort="1812",radSvrPortType="Auth"}'`

Labels:

- Label: `radSvrIP`

  Label Description: Radius Server IP (v4/v6) address

Labels:

- Label: `radSvrPort`

  Label Description: Radius Server Port number (e.g. 1812/1813)

Labels:

- Label: `radSvrPortType`

  Label Description: Type of server (Auth/Acct)

Radius_Server_Status

Description: Display active/inactive status of radius-server. Server status values are UP/Down/Deleted

Sample Query:
`'Radius_Server_Status{radSvrIp="1.1.1.1",radSvrPort="1812",radSvrPortType="Auth"}'`

Labels:

- Label: `radSvrIP`

  Label Description: Radius Server IP (v4/v6) address

Labels:

- Label: `radSvrPort`

  Label Description: Radius Server Port number (e.g. 1812/1813)

Labels:

- Label: `radSvrPortType`

  Label Description: Type of server (Auth/Acct)

Radius_requests_current

Description: Current outstanding radius packets

Sample Query:
`'Radius_requests_current{radSvrIp="1.1.1.1",radSvrPort="1812",radSvrPortType="Auth"}'`

Labels:

- Label: `radSvrIp`

  Label Description: Radius Server IP (v4/v6) address

Labels:

- Label: `radSvrPort`

  Label Description: Radius Server Port number (e.g. 1812/1813)

Labels:

- Label: `radSvrPortType`

  Label Description: Type of server (Auth/Acct)

Labels:

- Label: `radMsgCode`

  Label Description: |

  Type of Radius Messages AAAAuthReq: Radius Authentication Request Message AAAAcctReq: Radius Accounting Request Message TestAuth: Radius Authentication Test message TestAcct: Radius Accounting Test message

Radius_requests_statistics

Description: Total number of radius packets sent and received

Sample Query:
`'Radius_requests_statistics{radSvrIp="1.1.1.1",radSvrPort="1812",radSvrPortType="Auth"}'`

Labels:

- Label: `radSvrIp`

  Label Description: Radius Server IP (v4/v6) address

Labels:

- Label: `radSvrPort`

  Label Description: Radius Server Port number (e.g. 1812/1813)

Labels:

- Label: `radSvrPortType`

Label Description: Type of server (Auth/Acct)

Labels:

- Label: `radMsgCode`

  Label Description: |

  Type of Radius Messages AAAAuthReq: Radius Authentication Request Message AAAAcctReq: Radius Accounting Request Message TestAuth: Radius Authentication Test message TestAcct: Radius Accounting Test message

Labels:

- Label: `radPacketType`

  Label Description: |

  Direction of Radius message from cnBNG perspective Tx: Outboung message to the server Retry_Tx: Retry Outbound Tx message to the server Rx: Inbound message from the server

Labels:

- Label: `radResult`

  Label Description: |

  Results of Radius handshake Failed: Transation failed Failure_No_Server: No server could be found Failure_Bad_Authenticator: pre-shared secret between cnBNG and Radius server is not matching. Success: Successful transaction Timeout: Radius handshake is timed out Failure_Reject: Radius handshake rejected by the server

CNBNG SRG Statistics Category

metrics: SRGEventsTotal

Description: Total number of Srg Add/Remove Events

Sample Query: `'SRGEventsTotal{peerID="Peer1",upfID="asr9k-1",event="Add"}'`

Labels:

- Label: `peerID`

  Label Description: Peer ID

  Example: Any String

- Label: `groupID`

  Label Description: ID of Group

  Example: Any String

- Label: `upfID`

  Label Description: ID of UPF

  Example: Any String

- Label: `event`

  Label Description: event Add/Remove

Example: Add, Remove

metrics: SRGRoleReqTotal

Description: Total number of Role change Request

Sample Query: `'SRGRoleReqTotal{peerID="Peer1", upfID="asr9k-1", groupID="group1", role="Active"}'`

Labels:

- Label: `peerID`

  Label Description: Peer ID

  Example: Any String

- Label: `upfID`

  Label Description: ID of UPF

  Example: Any String

- Label: `groupID`

  Label Description: ID of group

  Example: Any String

- Label: `role`

  Label Description: SRG Role

  Example: Active, Standby, Invalid, NotReady

- Label: `create`

  Label Description: is first role change request

  Example: yes, no

metrics: SRGRoleRspTotal

Description: Total number of Role change Response

Sample Query: `'SRGRoleRspTotal{peerID="Peer1", upfID="asr9k-1", groupID="group1", role="Active", state="Up", result="Success"}'`

Labels:

- Label: `peerID`

  Label Description: Peer ID

  Example: Any String

Labels:

- Label: `upfID`

  Label Description: ID of UPF

  Example: Any String

- Label: `groupID`

Label Description: ID of group

Example: Any String

- Label: `role`

  Label Description: SRG Role

  Example: Active, Standby, Invalid, NotReady

- Label: `state`

  Label Description: SRG state of UPF

  Example: Up, Down, NotReady

- Label: `result`

  Label Description: result of role change request

  Example: Success, Failure

- Label: `inprogress`

  Label Description: SRG Role change state of UPF

  Example: yes, no

metrics: SRGStateChangeTotal

Description: Total number of Srg Node Report received

Sample Query: `'SRGStateChangeTotal{peerID="Peer1", upfID="asr9k-1", groupID="group1", role="Active", state="Up"}'`

Labels:

- Label: `peerID`

  Label Description: Peer ID

  Example: Any String

Labels:

- Label: `upfID`

  Label Description: ID of UPF

  Example: Any String

Labels:

- Label: `groupID`

  Label Description: ID of group

  Example: Any String

- Label: `role`

  Label Description: SRG Role

  Example: Active, Standby, Invalid, NotReady

- Label: `state`

  Label Description: SRG state of UPF

  Example: Up, Down, NotReady

- Label: `inprogress`

  Label Description: SRG Role change state of UPF

  Example: yes, no

metrics: SRGUpfN4StateChangeTotal

Description: Total number of Upf n4 state change

Sample Query: `'SRGUpfN4StateChangeTotal{peerID="Peer1", groupID="group1", upfID="asr9k-1", active="yes"}'`

Labels:

- Label: `peerID`

  Label Description: Peer ID

  Example: Any String

Labels:

- Label: `groupID`

  Label Description: ID of group

  Example: Any String

Labels:

- Label: `upfID`

  Label Description: ID of UPF

  Example: Any String

Labels:

- Label: `active`

  Label Description: N4 state

  Example: yes, no

metrics: db_records_total

Description: Total number of Groups and their Srg Role, Srg State and N4 Connection State

Sample Query:
`'avg(db_records_total{session_type=~\"SRG:${srgUpfID}:(Active:Connected:Up|Standby:Connected:(Up|Down))\"})'`

Labels:

- Label: `session_type`

  Label Description: Type of session

Example: SRG:ASR9K-1:Active:Connected:Up

CNBNG Session Manager Statistics Category

db_records_total

Description: Current number of IPOE/PPPOE sessions

Sample Query: `'db_records_total{session_type="SM:DHCP"}'`

Labels:

- Label: `session_type`

  Label Description: Type of session

  Example: SM:DHCP, SM:DHCP:<upf>, SM:PPPOE, SM:PPPOE:<upf>

smc_pre_events_status_total

Description: Total number of execution status of PRE-events.

Sample Query: `'smc_pre_events_status_total{session_type="DHCP", Upf="asr9k-1", preEvent="session-start", status="success"}'`

Labels:

- Label: `SessType`

  Label Description: Type of session

  Example: DHCP, PPPOE

- Label: `Upf`

  Label Description: UPF Name

  Example: Any string

- Label: `PortID`

  Label Description: Port Identifier

  Example: Any string

- Label: `preEvent`

  Label Description: PRE event name

  Example: session-start, session-activate, session-update, session-disconnect, account-update

- Label: `status`

  Label Description: PRE event status

  Example: success, error

- Label: `status_code`

  Label Description: PRE event status code

Example: policySuccess, policySvmApplyFailed, policySubsProfNotFound, policyActionAuthenFailure, policyActionAuthorFailure

smc_pre_events_total

Description: Total number of PRE-events started.

Sample Query: `'smc_pre_events_total{session_type="DHCP", Upf="asr9k-1", preEvent="session-start"}'`

Labels:

- Label: `SessType`

  Label Description: Type of session

  Example: DHCP, PPPOE

Labels:

- Label: `Upf`

  Label Description: UPF Name

  Example: Any string

- Label: `PortID`

  Label Description: Port Identifier

  Example: Any string

- Label: `preEvent`

  Label Description: PRE event name

  Example: session-start, session-activate, session-update, session-disconnect, account-update

CNBNG UPF Status Category

UPF_Status

Description: UPF status

Sample Query: `'UPF_Status{Status="Active", UpIp="asr9k-1"}'`

Labels:

- Label: `Status`

  Label Description: |

  Status values Active: Active state UPF InActive: InActive state UPF Deleting: Deleting state UPF Deleted: Deleted state UPF

- Label: `UpIp`

  Label Description: Userplane ip-address associated with the request

UPMGR_Statistics

Description: UPF Related Statistics

Sample Query: `'UPMGR_Statistics{UpIp="asr9k-1",MessageType="N4AssocRequest",CounterType="Rx"}'`

Labels:

- Label: `UpIp`

  Label Description: User-plane ip-address associated with the request

Labels:

- Label: `MessageType`

  Label Description: |

  UPF related Messages Info N4AssocRequest: UPF Association Request N4AssocResponse: UPF Association Response N4UpdateRequest: UPF Association Update Request N4UpdateResponse: UPF Association Update Response N4ReleaseRequest: UPF Association Release Request N4ReleaseResponse: UPF Association Release Response N4HeartBeatRequest: UPF Heartbeat Request N4HeartBeatResponse: UPF Heartbeat Response

- Label: `CounterType`

  Label Description: |

  Direction of message Rx: Message Received Tx: Message Transmitted

DHCP Statistics Category

DHCP_HA_packet_drop_stats

Description: DHCP HA Packet Drop stats

Sample Query: `'sum(DHCP_HA_packet_drop_stats{} by (pkt_type)'`

Labels:

- Label: `pkt_type`

  Label Description: |

  Type of packet which can be v4_Unspecified, v4_Discover, v4_Offer, v4_Request, v4_Decline, v4_Ack, v4_Nak, v4_Release, v4_Inform, v4_Unknown v6_INVALID, v6_SOLICIT_Rx , v6_REQUEST_Rx , v6_DECLINE_Rx , v6_RELEASE_Rx, v6_INFORM_Rx, v6_RENEW_Rx, v6_REBIND_Rx, v6_DELETE, v6_FAILURE, v6_TIMER_EXPIRY

- Label: `upf`

  Label Description: upf identifier associated with the request

- Label: `port_id`

  Label Description: Access Interface

- Label: `SrgPeerID`

  Label Description: srg peer id

- Label: `vrf`

  Label Description: Access vrf

DHCP_HA_stale_sess_stats

Description: DHCP HA stale session stats

Sample Query: `'sum(DHCP_HA_stale_sess_stats{} by (pkt_type)'`

Labels:

- Label: `pkt_type`

  Label Description: |

  Type of packet which can be Unspecified, Discover, Offer, Request, Decline, Ack, Nak, Release, Inform, Unknown INVALID, SOLICIT_Rx , REQUEST_Rx , DECLINE_Rx , RELEASE_Rx, INFORM_Rx, RENEW_Rx, REBIND_Rx, DELETE, FAILURE, TIMER_EXPIRY

- Label: `upf`

  Label Description: upf identifier associated with the request

- Label: `port_id`

  Label Description: Access Interface

- Label: `SrgPeerID`

  Label Description: srg peer id

- Label: `vrf`

  Label Description: Access vrf

- Label: `stale_action`

  Label Description: |

  stale action can be untagged, tagged

DHCP_NM_Recon_AFI_Total

Description: Total number DHCP NM recon Afi type

Sample Query: `'sum(DHCP_NM_Recon_AFI_Total{} by (afi)'`

Labels:

- Label: `afi`

  Label Description: |

  Afi type String can be ipv4, IANA, IAPD

- Label: `upf`

  Label Description: upf identifier associated with the request

- Label: `SrgPeerID`

Label Description: srg peer id

DHCP_ReconCP_Events_Total

Description: Total number recon events

Sample Query: `'sum(DHCP_ReconCP_Events_Total{} by (upf)'`

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

Labels:

- Label: `SrgPeerID`

  Label Description: srg peer id

Labels:

- Label: `event`

  Label Description: |

  event can be success_found, failure_audit_id_mismatch, failure_session_notfound, success_hold, failure_sm_not_connected

DHCP_UP_inactive_packet_drop_stats

Description: DHCP UP Inactive Packet Drop stats

Sample Query: `'sum(DHCP_UP_inactive_packet_drop_stats{} by (pkt_type)'`

Labels:

- Label: `pkt_type`

  Label Description: |

  Type of packet which can be (with or without v4_/v6_ prefix) v4_Unspecified, v4_Discover, v4_Offer, v4_Request, v4_Decline, v4_Ack, v4_Nak, v4_Release, v4_Inform, v4_Unknown v6_INVALID, v6_SOLICIT_Rx , v6_REQUEST_Rx , v6_DECLINE_Rx , v6_RELEASE_Rx, v6_INFORM_Rx, v6_RENEW_Rx, v6_REBIND_Rx, v6_DELETE, v6_FAILURE, v6_TIMER_EXPIRY

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

Labels:

- Label: `port_id`

  Label Description: Access Interface

Labels:

- Label: `SrgPeerID`

Label Description: srg peer id

- Label: `vrf`

  Label Description: Access vrf

DHCP_miscellaneous_failure_stats

Description: DHCP miscellaneous failure stats

Sample Query: `'sum(DHCP_miscellaneous_failure_stats {}) by (pkt_type, fail_reason)'`

Labels:

- Label: `afi`

  Label Description: |

  Afi type String AFIINVAL, IPV4, IPV6

Labels:

- Label: `pkt_type`

  Label Description: |

  session type can be invalid, ipoe, pppoe, l2tp_lns

Labels:

- Label: `fail_reason`

  Label Description: |

  fail reason can be get_request, unmarshal, validation, decode, emptyRequest, get_request, session_key, leaseReservation_request, get_session, dhcp_profile, basic_validation, pppoe_sublabel, pppoe_sess_cfg, sublabel, sess_attr, sm_create_err, sess_create_auth, sm_state, fsm, sm_action, send, early_trigger, fsm_v4, v4_sess_invalid_holdtimer_expiry, v6_sess_invalid_holdtimer_expiry, v4_sess_invalid_int_holdtimer_expiry, v6_sess_invalid_int_holdtimer_expiry, lease_reservation, err_rsp, v4_sess_invalid, v6_sess_invalid

DHCP_session_current

Description: current DHCP sessions count

Sample Query: `'sum(DHCP_session_current{}) by (sess_type, afi,upf)'`

Labels:

- Label: `sess_type`

  Label Description: |

  session type can be invalid, ipoe, pppoe, l2tp_lns

Labels:

- Label: `afi`

  Label Description: |

  Afi type String afi:dual, afi:ipv4, afi:ipv6

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

Labels:

- Label: `port_id`

  Label Description: Access Interface

Labels:

- Label: `SrgPeerID`

  Label Description: srg peer id

DHCP_stale_sess_packet_drop_stats

Description: DHCP stale session packet Drop stats

Sample Query: `'sum(DHCP_HA_packet_drop_stats{} by (pkt_type)'`

Labels:

- Label: `pkt_type`

  Label Description: |

  Type of packet which can be v4_Unspecified, v4_Discover, v4_Offer, v4_Request, v4_Decline, v4_Ack, v4_Nak, v4_Release, v4_Inform, v4_Unknown v6_INVALID, v6_SOLICIT_Rx , v6_REQUEST_Rx , v6_DECLINE_Rx , v6_RELEASE_Rx, v6_INFORM_Rx, v6_RENEW_Rx, v6_REBIND_Rx, v6_DELETE, v6_FAILURE, v6_TIMER_EXPIRY

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

Labels:

- Label: `port_id`

  Label Description: Access Interface

Labels:

- Label: `SrgPeerID`

  Label Description: srg peer id

Labels:

- Label: `vrf`

  Label Description: Access vrf

DHCPv4_packet_error_stats

Description: DHCPv4 Packet Error stats

Sample Query: `'sum(DHCPv4_packet_error_stats{} by (pkt_type)'`

Labels:

- Label: `pkt_type`

  Label Description: |

  Type of packet which can be Unspecified, Discover, Offer, Request, Decline, Ack, Nak, Release, Inform, Unknown

Labels:

- Label: `fail_reason`

  Label Description: |

  fail reason can be sm_disconnect, pppoe_no_sublabel, pppoe_subcfg_read, sublabel_alloc, session_attr_set, sm_create_exchange, sm_create_reject, sm_not_connected, TokenAllocateFailure, fail_sm_action, fail_encode, SessionLess_PacketRx, NAK_Request_in_Init_State, NAK_Failure_in_Init_State, NAK_Failure_in_Offered_State, NAK_Failure_in_Bound_State, packet_encode, get_session, get_profile, timer_set, no_pool_or_tag_name, ip_alloc, release_ip, sublabel_coversion " TODO.. infraErrorCodeStr..[recordPacketErrorDropStats] there are many infra error codes!"

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

Labels:

- Label: `port_id`

  Label Description: Access Interface

Labels:

- Label: `SrgPeerID`

  Label Description: srg peer id

DHCPv6_packet_error_stats

Description: DHCPv6 Packet Error stats

Sample Query: `'sum(DHCPv6_packet_error_stats{} by (pkt_type)'`

Labels:

- Label: `pkt_type`

  Label Description: |

  Type of packet which can be Unspecified, Solicit, Adverstise, Request, Confirm, Renew, Rebind, Reply, Release, Decline, Reconfigure, InformationRequest, RelayForward, RelayReply, Unknown

Labels:

- Label: `fail_reason`

  Label Description: |

  fail reason can be sm_disconnect, pppoe_no_sublabel, pppoe_subcfg_read, sublabel_alloc, session_attr_set, sm_create_exchange, sm_create_reject, sm_not_connected, TokenAllocateFailure, fail_sm_action, fail_encode, SessionLess_PacketRx, NAK_Request_in_Init_State, NAK_Failure_in_Init_State, NAK_Failure_in_Offered_State, NAK_Failure_in_Bound_State, packet_encode, get_session, get_profile, timer_set, no_pool_or_tag_name, ip_alloc, release_ip, sublabel_coversion Additional infra error codes. " TODO.. infraErrorCodeStr..[recordPacketErrorDropStats] there are many infra error codes!"

Labels:

- Label: `ia_type`

  Label Description: |

  IA Type String IANA, IAPD

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

Labels:

- Label: `port_id`

  Label Description: Access Interface

Labels:

- Label: `SrgPeerID`

  Label Description: srg peer id

DHCPv4_packet_stats

Description: Total number of DHCPv4 packets received and transmitted

Sample Query: `'sum(DHCPv4_packet_stats{}) by (pkt_type)'`

Labels:

- Label: `pkt_type`

  Label Description: |

  Type of packet which can be Unspecified, Discover, Offer, Request, Decline, Ack, Nak, Release, Inform, Unknown

Labels:

- Label: `direction`

  Label Description: |

  Packet direction In, Out

Labels:

- Label: `upf`

Label Description: upf identifier associated with the request

Labels:

- Label: `port_id`

  Label Description: Access Interface

Labels:

- Label: `SrgPeerID`

  Label Description: srg peer id

Labels:

- Label: `vrf`

  Label Description: Access vrf

DHCPv4_session_current

Description: current DHCPv4 sessions count

Sample Query: `'sum(DHCPv4_session_current{upf="upf-name"}) by (state)'`

Labels:

- Label: `state`

  Label Description: |

  session state can be v4init, v4offered, v4bound

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

Labels:

- Label: `port_id`

  Label Description: Access Interface

Labels:

- Label: `SrgPeerID`

  Label Description: srg peer id

DHCPv6_IA_type_packet_stats

Description: Total number of DHCPv6 na/pd packets received and transmitted

Sample Query: `'sum(DHCPv6_IA_type_packet_stats{}) by (pkt_type, ia_type)'`

Labels:

- Label: `pkt_type`

Label Description: |

Type of packet which can be Unspecified, Solicit, Adverstise, Request, Confirm, Renew, Rebind, Reply, Release, Decline, Reconfigure, InformationRequest, RelayForward, RelayReply, Unknown

Labels:

- Label: `ia_type`

  Label Description: |

  IA Type String IANA, IAPD

Labels:

- Label: `direction`

  Label Description: |

  Packet direction In, Out

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

Labels:

- Label: `port_id`

  Label Description: Access Interface

Labels:

- Label: `SrgPeerID`

  Label Description: srg peer id

Labels:

- Label: `vrf`

  Label Description: Access vrf

DHCPv6_packet_stats

Description: Total number of DHCPv6 packets received and transmitted

Sample Query: `'sum(DHCPv6_packet_stats{}) by (pkt_type)'`

Labels:

- Label: `pkt_type`

  Label Description: |

  Type of packet which can be Unspecified, Solicit, Adverstise, Request, Confirm, Renew, Rebind, Reply, Release, Decline, Reconfigure, InformationRequest, RelayForward, RelayReply, Unknown

Labels:

- Label: `direction`

Label Description: |

Packet direction In, Out

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

Labels:

- Label: `port_id`

  Label Description: Access Interface

Labels:

- Label: `SrgPeerID`

  Label Description: srg peer id

Labels:

- Label: `vrf`

  Label Description: Access vrf

DHCPv6_session_current

Description: current DHCPv6 sessions count

Sample Query: `'sum(DHCPv6_session_current{upf="upf-name"}) by (state)'`

Labels:

- Label: `sess_type`

  Label Description: |

  session type can be invalid, ipoe, pppoe, l2tp_lns

Labels:

- Label: `ia_type`

  Label Description: |

  IA Type String IANA, IAPD

Labels:

- Label: `state`

  Label Description: |

  session state can be v6Init, v6Advertised, v6Bound

Labels:

- Label: `upf`

  Label Description: upf identifier associated with the request

Labels:

- Label: `port_id`

  Label Description: Access Interface

Labels:

- Label: `SrgPeerID`

  Label Description: srg peer id