Release Notes

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Juniper BNG CUPS 23.4R1 and 23.4R2

Table of Contents

Introduction | 1

Installation | 1

New and Changed Features | 3

Open Issues | 4

Requesting Technical Support | 6

Introduction

Juniper BNG CUPS disaggregates the broadband network gateway (BNG) function running in Junos OS into separate control plane and user plane components. The control plane is a cloud-native application that runs in a Kubernetes environment. The user plane component continues to run on Junos OS on a dedicated hardware platform.

In Juniper BNG CUPS, the BNG functions are split into the BNG CUPS Controller (control plane) functions and the BNG User Plane (user plane) functions. The management, state and control packet interfaces operate between the BNG CUPS Controller and the BNG User Planes.

The benefits of Juniper BNG CUPS are the following:

- A centralized BNG CUPS Controller provides for more efficient use of network resources. Following are some examples:
  - Address allocation
  - Load balancing
  - Management and control
- Increased scale—The cloud environment that Juniper BNG CUPS utilizes, enables you to increase the number of subscribers supported.
- Locational independence and separate life-cycle management and maintenance.
- Throughput and latency optimization—Because the BNG User Planes are closer to the subscribers, throughput and latency is optimized.

These release notes accompany the following Juniper BNG CUPS releases:

- Juniper BNG CUPS Release 23.4R1
- Juniper BNG CUPS Release 23.4R2

They describe new features and known problems.

Installation

Juniper BNG CUPS 23.4 installation requires the following minimum system requirements:

NOTE: These system requirements are for Juniper BNG CUPS Controller (BNG CUPS Controller).

- A Linux host (jump host) running Ubuntu 22.04 LTS (or later) required for running the `junos-bng-cups-controller` installation. The jump host must have the following resources allocated to it:
  - CPU cores—2
  - RAM—8 GB
  - Disk space—128 GB of free disk storage
- The cluster must have at least three worker nodes (either virtual or physical machines). A node is a Linux system running Ubuntu 22.04 LTS that has a management address and a domain name. The nodes must meet the following system requirements:
  - CPU cores—8 (hyperthreading preferred)
  - RAM—64 GB
  - Disk space—512 GB of free disk storage in the root partition

    We recommend that you use the storage space to partition your disk accordingly:
    - 128 GB to the root (/) partition for the operating system
    - 128 GB to **/var/lib/docker** for the Docker cache
    - 256 GB to **/mnt/longhorn** for the application data. This is the default location, you can specify a different location during configuration.
  - All cluster nodes must have a user account with sudo access.
  - You must have root-level SSH access using key-based authentication to all nodes.

For information on how to install Juniper BNG CUPS, see Juniper BNG CUPS Installation Guide.

New and Changed Features

IN THIS SECTION

- New and Changed Features | 3
- New Device Support | 4

Learn about new features or enhancements to existing features in Juniper BNG CUPS 23.4R1 and 23.4R2. For more information about a feature, click the link in the description. See the Juniper BNG CUPS Installation Guide and Juniper BNG CUPS User Guide for more details about new and changed features.

New and Changed Features

We've introduced the following in Juniper BNG CUPS 23.4R2:

- Support for Address Pool Manager (APM) Release 3.2.1. Juniper BNG CUPS can interoperate with APM Release 3.2.1.
- Support for Broadband Edge (BBE) Event Collection and Visualization Release 1.0.1. Juniper BNG CUPS is now optimized to interoperate with the Broadband Edge Event Collection and Visualization Release 1.0.1 application to provide a more powerful interface for monitoring Juniper BNG CUPS logs. See the Broadband Edge Event Collection and Visualization Installation Guide.
- Support for BBE Cloudsetup Release 2.1.0. Juniper BNG CUPS can utilize BBE Cloudsetup Release 2.1.0 to set up the Kubernetes cluster environment in to which the BNG CUPS Controller is deployed. See BBE Cloudsetup Installation Guide

We've introduced the following in Juniper BNG CUPS 23.4R1:

- Juniper BNG CUPS is now optimized to interoperate with the Broadband Edge Event Collection and Visualization Release 1.0 application to provide a more powerful interface for monitoring Juniper BNG CUPS logs. See the Broadband Edge Event Collection and Visualization Installation Guide.
- The cluster installation utility (BBE Cloudsetup), that was previously packaged with Juniper BNG CUPS is now packaged and distributed separately. The utility script aligns the defaults it uses during

setup with the Kubernetes cluster dimensions established by the `bbecloudsetup` 2.0.0 script. See BBE Cloudsetup Installation Guide.

- Adds the new `show health` command. This command can be used to display health information for BNG CUPS Controller subsystems, as well as related BNG User Plane endpoint information.
- Adds stateful High Availability support for BNG User Planes. Juniper BNG CUPS uses a new subscriber groups feature to help achieve stateful High Availability.
- Adds maintenance support for BNG User Planes. Maintenance can be performed on BNG User Planes without losing data or reducing performance.
- The `show subscribers` command adds additional options to adapt to the increased scale of Juniper BNG CUPS. See `show subscribers`.
- The `show user-plane` command is expanded to give you a number of options that enable you to view detailed information about BNG User Planes. Following are a few examples:
  - `show user-plane class-of-service scheduler up-name`
  - `show user-plane firewall filter up-name`
  - `show user-plane route summary up-name`
  - `show user-plane statistics up-name`
  - `show user-plane maintenance up-name`

New Device Support

Juniper BNG CUPS 23.4R1 adds support for the following devices:

- MPC10E-10C-MRATE Line Card
- MPC10E-15C-MRATE line Card

Open Issues

This section lists the known issues in the following Juniper BNG CUPS releases:

- Juniper BNG CUPS Release 23.4R1

- Juniper BNG CUPS Release 23.4R2

The following known issues exist in Juniper BNG CUPS Release 23.4R1:

- The following features are not supported in this release:
  - Layer 2 Tunneling Protocol (L2TP) client (LAC) subscribers, PR1772094
  - BNG User Plane load balancing, PR1753940
  - Subscriber session steering, PR1771270
  - Multicast with multiple BNG User Planes, PR1750447
  - DHCP reauthentication, PR1746803
  - BNG CUPS Controller warm restart, PR1771848
  - Datagram Transport Layer Security (DTLS) for SCI and CPRI, PR1776508
- Load balancing using ifl-set weight does not work correctly. PR1710447
- Some subscribers may not be able to login or logout during a BNG User Plane switchover. PR1764810
- Subscriber group configuration commit validation is not performed if the same port is configured in multiple subscriber groups. PR1771290
- A configured subscriber group cannot be deleted if the user plane is not in the Connected state. PR1774717
- Unable to bind clients using static address allocation after changing from dynamic to static allocation, by disabling Address Pool Manager through the `delete groups bbe-common-0 access address-pool-manager` command. PR1770724
- PFCP proxy endpoints are showing incorrect statistics. PR1770387, PR1770390

The following known issues exist in Juniper BNG CUPS Release 23.4R2:

- BNG User Planes do not validate if the BNG User Plane line card supports subscriber groups subscriber over subscription. PR1791676
- BNG CUPS Controller command processing issue when commands are entered incorrectly. PR1806751
- PFCP association is stuck in a disconnecting state for a BNG User Plane when the BNG CUPS Controller becomes unreachable to other BNG User Planes. PR1812890
- When running over long periods of time, jdhcp service cores are seen. PR1813783

- Unable to commit any configuration changes. Also, no change commits are failing in a BNG User Plane with active subscribers. PR1814006
- The show system subscriber-management route summary command displays a negative gateway route count in the new master Route Engine after a BNG User Plane GRES. PR1814125
- The gateway route is incorrectly installed in the subscriber group's backup BNG User Plane's backup Route Engine. PR1814279
- After back to back subscriber group switchovers, discard and gateway routes are removed in the active BNG User Plane's backup Route Engine. PR1814342
- jdhcpd cores occur when the show dhcpv6 server binding command is executed. PR1816995
- When using the BNG User Plane: mode user-plane transport routing-instance configuration, a reboot is required. PR1819336

Requesting Technical Support

IN THIS SECTION

- Self-Help Online Tools and Resources | 7
- Creating a Service Request with JTAC | 7

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active Juniper Care or Partner Support Services support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the JTAC User Guide located at https://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf.
- Product warranties—For product warranty information, visit https://www.juniper.net/support/warranty/.
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: https://www.juniper.net/customers/support/
- Search for known bugs: https://prsearch.juniper.net/
- Find product documentation: https://www.juniper.net/documentation/
- Find solutions and answer questions using our Knowledge Base: https://supportportal.juniper.net/s/knowledge
- Download the latest versions of software and review release notes: https://www.juniper.net/customers/csc/software/
- Search technical bulletins for relevant hardware and software notifications: https://supportportal.juniper.net/s/knowledge
- Join and participate in the Juniper Networks Community Forum: https://www.juniper.net/company/communities/
- Create a service request online: https://supportportal.juniper.net/

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: https://entitlementsearch.juniper.net/entitlementsearch/

Creating a Service Request with JTAC

You can create a service request with JTAC on the Web or by telephone.

- Visit https://support.juniper.net/support/requesting-support/
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see https://support.juniper.net/support/requesting-support/.