New Features

This chapter describes the new hardware and software features that are supported on the Cisco NCS 4201 and Cisco NCS 4202 Series routers.

New Hardware Features in Cisco IOS XE Amsterdam 17.1.1

The following optics are supported for the Cisco IOS XE Amsterdam 17.1.1 release:

- ONS-SI+-10G-SR
- ONS-SI+-10G-LR
- ONS-SI+-10G-ER
- ONS-SI+-10G-ZR

For more information, see the NCS 4201-02 Optics Matrix

New Software Features in Cisco IOS XE Amsterdam 17.1.1

- **EVPN Single-Homing**

  The EVPN Single-Homing feature utilizes the functionality defined in RFC 7432 (BGP MPLS-based Ethernet VPN), to achieve single-homing between a Provider Edge (PE) and a Customer Edge (CE) device.

  For more information, see the MPLS Layer 2 VPNs Configuration Guide, Cisco IOS XE 17 (NCS 4200 Series).

- **EVPN-VPWS Single Homing over Segment Routing**

  EVPN-VPWS single homing is a BGP control plane solution for point-to-point services. It has the ability to forward traffic from one network to another using Ethernet Segment without MAC lookup. EVPN-VPWS single homing works on both IP and SR core. IP core is used to support BGP while the SR core is used to switch packets between the endpoints.

For more information, see the Segment Routing Configuration Guide, Cisco IOS XE 17 (Cisco NCS 4200 Series).

- **Facility Protocol Status Support**

  The routers report the protocol status using syslog or trap alarm notifications. Few syslogs and traps are not cleared when the router gets disconnected or reloaded. As a result, the alarms are not notified.

  To avoid this, a new command, **show facility protocol status**, is introduced that displays the output of the following routing protocols status at any interval of time:

  IS-IS, OSPF, BGP, LDP, PTP, HSRP, BFD, TE tunnels, Bundles, pseudowires, EVPN pseudowires, CFM, SYncE, and sensor threshold violations.

  For more information, see the Cisco NCS 4200 Series Software Configuration Guide, Cisco IOS XE 17 (Cisco NCS 4200 Series).

- **Programmability Features**

  The following Programmability features are supported from this release:

  - gRPC Network Management Interface (gNMI)—Model-driven configuration and retrieval of operational data using the gNMI capabilities, GET and SET RPCs.
  - Model Driven Telemetry - gNMI Dial-In—Support for telemetry subscriptions and updates over a gRPC Network Management Interface (gNMI).
  - TLS for gRPC Dial-Out—Support for TLS for gRPC dial-out.

  For more information, see the Programmability Guide, Cisco IOS XE Amsterdam 17.1.x.

- **PTP Multiprofile**

  The Precision Time Protocol (PTP) is a protocol used to synchronize clocks throughout a network. The PTP Multiprofile support is configured on a PTP boundary clock by translating one PTP profile at PTP slave port to other PTP profile at PTP master port. To translate PTP properties from one profile to other, a special type of **inter-op** clock-port is introduced. This special clock-port is configured with the required profile and domain information.

  For more information on PTP Multiprofile, see the Timing and Synchronization Configuration Guide, Cisco IOS XE 17 (Cisco NCS 4200 Series).

- **SADT Overhead Accounting**

  FPGA measures parameters such as throughput, frame loss, jitter, and delay for SADT.

  FPGA has the capability to generate and measure only 1 Gbps traffic rate and hence maximum throughput cannot be achieved.

  To overcome this limitation, use the **platform y1564 shadow-session-enable** command to replicate the packets 10 times in FPGA.

  For more information, see the IP SLAs Configuration Guide, Cisco IOS XE 17 (Cisco NCS 4200 Series).

- **Segment Routing Low Latency Network Slice**

  This feature allows the advertisement and reception of the extended TE link delay metrics without any additional configuration required in IS-IS, OSPF or BGP-IS. When the link delay values are configured, they are flooded in the PCE topology and when the path computation is requested, these values are used for path calculation.

For more information, see the Segment Routing Configuration Guide, Cisco IOS XE 17 (Cisco NCS 4200 Series).

- **Segment Routing Performance Measurement Link Delay Metrics**

  Network performance metrics such as packet loss, delay, delay variation, and bandwidth utilization is a critical measure for traffic engineering (TE) in service provider networks. These metrics provide network operators with information about characteristics of their networks for performance evaluation and helps to ensure compliance with service level agreements. The service-level agreements (SLAs) of service providers depend on the ability to measure and monitor these network performance metrics.

  For more information, see the Segment Routing Configuration Guide, Cisco IOS XE 17 (Cisco NCS 4200 Series).

- **SR-TE Policy for MPLS TE**

  The routers with Cisco RSP2 module support the newer segment routed Traffic Engineering (SR-TE) policy and you can enbale the policy using the **segment-routing traffic-eng** command.

  For more information, see the Segment Routing Configuration Guide, Cisco IOS XE 17 (Cisco NCS 4200 Series).

- **SR-TE ODN Color Extended Community for Layer 3 VPN**

  The routers with Cisco RSP2 module support the color extended community with the following feature support:

  - An egress router adds the color extended community to the BGP updates that require a Traffic-Engineered path.
  - An SR-TE policy is created on the ingress router for the color-endpoint pair.

  For more information, see the Segment Routing Configuration Guide, Cisco IOS XE 17 (Cisco NCS 4200 Series).

- **Virtual Container over Packet Smart Small Form-factor Pluggable for DS1**

  The VCoP smart SFP is now supported on DS1.

  For more information on VCoP Smart SFP, see the Time Division Multiplexing Configuration Guide, Cisco IOS XE 17 (Cisco NCS 4200 Series).