Cisco IOS XR Software Release 4.3.1 for Cisco ASR 9000 Series Routers

PB728250

Product Overview

Cisco® ASR 9000 Series Aggregation Services Routers offer unmatched scale and performance in service provider edge routing. With Cisco IOS® XR Software Release 4.3.1, Cisco ASR 9000 Series Routers further extend their leadership in service provider routing. by consolidating and expanding the capability of the Cisco ASR 9000 in many service provider market segments. Pseudowire headend (PW-HE) capabilities were initially supported on the Cisco ASR 9000 in Cisco IOS XR Software Release 4.3.0. Cisco IOS XR Software Release 4.3.1 further expands the PW-HE capabilities to include IPv6 support. The Broadband Network Gateway (BNG) portfolio is further enhanced by delivery of service accounting, enabling newer revenue models for service providers. The Data Center Interconnect (DCI) segment benefits from features such as access-control-list (ACL) chaining and templating.

New Hardware Features

Cisco IOS XR Software Release 4.3.1 introduces support for the following new hardware:

- Cisco ASR 9001-S Router (ASR9001-S): This router is a 60-Gbps variant of the Cisco ASR 9001 Router. Similar to other routers in the Cisco ASR 9000 Series running Cisco IOS XR Software images, the Cisco ASR 9001-S delivers the features and services found on the ASR 9000 Series platforms, allowing customers to standardize on the same Cisco IOS XR Software image. The Cisco ASR 9001-S Router comes standard with one modular bay (BAY 0) that supports 1, 10, or 40 Gigabit Ethernet modular port adapters (MPAs). The chassis also is usable with two fixed 10 Gigabit Ethernet Small Form-Factor Pluggable Plus (SFP+) ports (SFP+0 and SFP+1). The chassis can be upgraded to have capabilities similar to those of the ASR 9001 with the purchase of a Cisco license that enables an additional MPA slot (BAY 1) and two 10 Gigabit Ethernet SFP+ ports (SFP+2 and SFP+3).
- Cisco 8-Port 10 Gigabit Ethernet MPA for Cisco ASR 9000 Series (A9K-MPA-8x10G): The Cisco ASR 9000 Series continues to dominate the dense Gigabit Ethernet market with this 8-port 10 Gigabit Ethernet MPA. This MPA will be supported on the Cisco ASR 9000 Mod 160 Modular Line Card (A9K-MOD-160-SE or A9K-MOD160-TR).
- Cisco SIP-700 Series Line Card for Cisco ASR 9000 (A9K-SIP-700-8G): The Cisco ASR 9000 builds upon its time-division multiplexing (TDM) capability by adding a higher memory version of the Cisco ASR 9000 Series SPA Interface Processor 700 Line Card (A9K-SIP-700). With the introduction of Cisco IOS XR Software 4.3.1, this line card will also support 8 Gbps of memory for achieving higher scalability.

Table 1 lists the new hardware support added in Cisco IOS XR Software Release 4.3.1.

Table 1. New Hardware Supported on Cisco ASR 9000 in Cisco IOS XR Software Release 4.3.1

Part Number	Description
ASR9001-S	The Cisco ASR 9001-S Router is a 60-Gbps variant of the Cisco ASR 9001 Router. Similar to other routers in the Cisco ASR 9000 Series running Cisco IOS XR Software images, the Cisco ASR 9001-S Router delivers the features and services found on the ASR 9000 Series platforms, allowing customers to standardize on the same Cisco IOS XR image.
A9K-MPA-8x10G	The Cisco 8-Port 10 Gigabit Ethernet MPA for Cisco ASR 9000 Series will now support 16-port 10 Gigabit Ethernet on Cisco ASR 9000 Mod 160 Modular Line Cards (A9K-MOD160-SE and ASR9K-MOD160-TR).
A9K-SIP-700-8G	This Session Initiation Protocol (SIP)-700 line card for the Cisco ASR 9000 Series has 8-GB memory.

New Software Features

Cisco IOS XR Software Release 4.3.1 is feature-rich, enhancing all of the applications where the Cisco ASR 9000 is deployed. Carrier Ethernet deployments bring breakthrough technology for Multiprotocol Label Switching (MPLS) ring resiliency providing carrier-class high availability. Residential deployments with BNG capability are enriched with a complete IPv6 set and service accounting features. Carrier-Grade IP Version 6 **(**CGv6) capabilities provide an attractive IPv6 migration solution. DCI technology expands both Layer 2 and Layer 3 operations with the support of load balancing. The simplicity of the DCI solution is further enhanced with the addition of features such as Interchassis Communication Protocol (ICCP)-based Virtual Private LAN Services (VPLS) multihoming. The CGv6 solution continues to be industry-leading with the addition of Mapping of Address and Port - Encapsulation (MAP-E) and IPv6 rapid deployment (6RD) support on the Cisco ASR 9000 Series.

Table 2 lists new software features in Cisco IOS XR Software Release 4.3.1 supported on the Cisco ASR 9000 Series Aggregation Services Routers.

Table 2. New Software Features Supported on Cisco ASR 9000 in Cisco IOS XR Software Release 4.3.1

Feature	Description
Carrier Ethernet features	Cisco IOS XR Software Release 4.3.1 brings breakthrough technology for MPLS ring resiliency - Remote Loop Free Alternate (LFA), simple subsecond resiliency for access rings for all services. The release also includes significant enhancements for PW-HE with the support of Bidirectional Forwarding Detection (BFD) for failure detection and IPv6. Ethernet operations, administration, and maintenance (EOAM) solutions benefit from the first phase of Connectivity Fault Management (CFM) offload with the support for a 10-ms Continuity Check Manager (CCM) timer. Y.1731 Loss Measurement (LMM) is added to enhance performance-management capabilities, along with NetFlow support for the Integrated Routing and Bridging (IRB) solution.
DCI feature	In Cisco IOS XR Software Release 4.3.1, the load balancing and simplicity of the DCI solution is further enhanced with the addition of features such as ICCP-based VPLS multihoming. The ACL scale required for the data center backbone peering role is enhanced with the scaled ACL feature. In terms of delivering operational simplicity, the Cisco IOS XR Software Release 4.3.1 brings the flexible command-line interface (CLI) feature. The introduction of configuration groups and auto inheritance simplifies feature configuration for end users.
BNG IPv6 support and BNG features	With Cisco IOS XE Software Release 4.3.1, the BNG solution is the most comprehensive solution with support for IPv4 and IPv6 address families and support for IPv4 and IPv6 dual stack. In this release, advanced features such as accounting granularity at a per-service level enable service providers to deploy revenue-generating services.
Network virtualization features	Cisco Network Virtualization (Satellite nV) Service, was first introduced in Cisco IOS XR Software Release 4.2.1. It provided significant operational advantages with zero-touch provisioning, faster time to market, and simplified network design. Satellite nV has added several new capabilities, including new platform support on the Cisco ASR 9001 and ASR 9003, satellite support on the ASR 9001 and ASR 9922, as well as support for Cisco nV Cluster on the ASR 9001. The Cisco IOS XR Software Release 4.3.1 stabilizes and scales the innovative nV architecture.
Multicast features	Existing integrated video monitoring support on the Cisco ASR 9000 has been enhanced in this release. Cisco IOS XR Software Release 4.3.1 supports the Multicast Source Discovery Protocol (MSDP) under Cisco IOS Multicast VPN (MVPN Virtual Route Forwarding (VRF).
Carrier-Grade NAT (CGN) features	The following features are being added to the existing CGv6 capabilities on the Cisco Integrated Services Module (ISM) (A9K-ISM-100) in the Cisco IOS XR Software Release 4.3.1: • Support for MAP-E based on http://tools.ietf.org/html/draft-mdt-softwire-map-encapsulation-00. This feature will be supported inline on the newest generation of Ethernet line cards. • The 6RD mechanism allows a service provider to provide a unicast IPv6 service to customers over its IPv4 network. It is a stateless protocol and allows for tunneling IPv6 packets (not routed) through an IPv4 network.

Feature	Description
Mobile feature	Cisco IOS XR Software Release 4.3.1 adds many optimizations for Cisco IP RAN backhaul deployment. It supports Cisco Any Transport over MPLS (AToM) Cell Relay virtual path mode. It adds support for IEEE 1588 timing over link aggregation (LAG), and also supports IEEE 1588v2 and SyncE MIBs.

Ordering Information

Table 3 lists ordering information for Cisco IOS XR Software Release 4.3.1 for Cisco ASR 9000 Series Aggregation Services Routers. When future rebuilds of Cisco IOS XE Software Release 4.3.1 are available, the latest release is automatically shipped when this part is ordered.

Table 3. Ordering Information for Cisco IOS XR Software Release 4.3.1 for Cisco ASR 9000 Series Aggregation Services Routers

Product Name	Part Number
A9K-04.03	Cisco IOS-XR IP/MPLS Core Software
A9K-K9-04.03	Cisco IOS-XR IP/MPLS Core Software 3DES

Release 4.3.1 Lifecycle

The Cisco IOS XR Software release strategy is time-based, with a fixed release date and lifecycle, as opposed to being a feature-based release strategy with a variable release date. Table 4 lists the major milestones of Cisco IOS XR Software Release 4.3.1 and later.

Table 4. Major Milestones for Cisco IOS XR Software Release 4.3.1 and Later

Milestone	Definition	Date
Availability date	The date that the Cisco IOS XR Software Release 4.3.1 information is published on Cisco.com and becomes available to the general public.	May 15, 2013
End-of-life announcement date	The date that the official end-of-life document that announces the end of sale and end of life of Cisco IOS XR Software 4.3.1 is distributed to the general public.	Feb. 15, 2014
End-of-sale date	The last date to order Cisco IOS XR Software 4.3.1 through Cisco point-of-sale mechanisms. The product is no longer for sale after this date.	Feb. 15, 2014
Last ship date: OS software	The last-possible ship date that can be requested of Cisco and/or its contract manufacturers. Actual ship date is dependent on lead time.	May 15, 2015
End of software maintenance releases date: OS software	The last date that Cisco Engineering may release any final software maintenance releases or bug fixes. After this date, Cisco Engineering will no longer develop, repair, maintain, or test the product software.	Aug. 28, 2016
End of vulnerability and security support: OS software	The last date that Cisco Engineering may release a planned maintenance release or scheduled software remedy for a security vulnerability problem.	Aug. 28, 2018
Last date of support	The last date to receive applicable service and support for the product as entitled by active service contracts or by warranty terms and conditions. After this date, all support services for the product are unavailable and the product becomes obsolete.	Aug. 31, 2019

For official end-of-life and end-of-sale announcements for Cisco IOS XR Software, please visit: http://www.cisco.com/en/US/products/ps5845/prod_eol_notices_list.html or contact your local Cisco account representative.

For More Information

For more information about the Cisco ASR 9000 Series or Cisco IOS XR Software, visit http://www.cisco.com/ or contact your local Cisco account representative.

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