Cisco ASR 9000 Series 400G and 200G Modular Line Cards

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Product overview

The Cisco® ASR 9000 Series 400G (Figure 1) and 200G Modular Line Cards provide customers with a highly flexible solution. They support multiple combinations of Ethernet ports, all in a single slot of the Cisco ASR 9000 Series Aggregation Services Routers (ASR 9000 Series). These modular line cards have two open bays (bay 0 and bay 1) for plugging in ASR 9000 Series Modular Port Adapters (MPA), which gives network operators the flexibility to choose the ideal port density, speed, and optic based on their network requirements. With ASR 9000 Series modular line cards and the MPA portfolio, Cisco continues to focus on investment protection, along with consistent feature support, broad interface availability, and the latest technology. The latest additions to the MPA portfolio include the Cisco ASR 9000 Series 20-Port 10GE Modular Port Adapter, the 2-Port 100GE Modular Port Adapter, the 1-port 100G and 2-port 100G Modular Port Adapter and the MACSec enabled 32 port 1GE Modular Port Adapter.

Using modular line cards along with port adapters, the ASR 9000 Series can support a wide range of customer applications, including video on demand, Internet Protocol Television (IPTV), point-to-point video, Internet video, and cloud-based computing. The line cards can also be used to deliver economical, scalable, highly available, line rate Ethernet, and IP/Multiprotocol Label Switching (IP/MPLS) edge services. Cisco ASR 9000 Series line cards and routers are designed to provide the fundamental infrastructure for scalable Carrier Ethernet and IP/MPLS networks, supporting profitable business, residential, and mobile services.

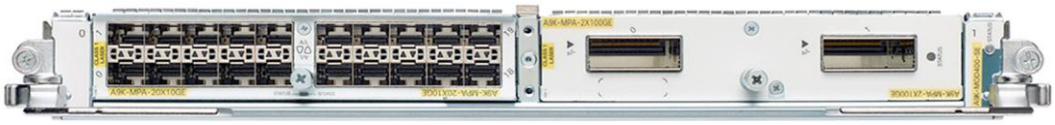

Figure 1.
Cisco ASR 9000 Series 400G modular line cards

Figure 2.
Cisco ASR 9000 Series 20-port 10G modular port adapter

Figure 3.
Cisco ASR 9000 Series 2-Port 100G modular port adapter

Figure 4.
Cisco ASR 9000 Series 1-port 100G modular port adapter

Figure 5.
Cisco ASR 9000 Series 1-port 200G modular port adapter

Figure 6.
Cisco ASR 9000 Series 32-port 1GE MACSec modular port adapter

Features and benefits

ASR 9000 Series Modular line cards are fully compatible with the Cisco ASR 9922 Router, ASR 9912 Router, ASR 9910 Router, ASR 9906, ASR 9904 Router, ASR 9010 Router, and ASR 9006 Router.

The 400G and 200G modular line cards deliver the ability to mix and match modular port adapters so that customers can customize each slot in the ASR 9000 to their specific port demands. For example, in the case of the 400G modular line cards, a 20-port 10 Gigabit Ethernet modular port adapter can be matched with a 2-port 100 Gigabit Ethernet modular port adapter, all in a single slot, for a total bandwidth of 400 gigabits per slot. In the case of a 200G modular line card, two 1-port 100 Gigabit Ethernet modular port adapters can be used per slot for a total of 200 gigabits per slot, or a single 2-port 100 Gigabit Ethernet or a single 20-port 10 Gigabit Ethernet modular port adapter can be used to get 200 gigabits per slot. Both the 200G and 400G modular cards are compatible with all earlier generations of port adapters. The new 32 port 1 Gigabit Ethernet modular port adapter in additional to all features, supports the hop by hop as well as WAN MACSec encryption. MACSec is the next-generation encryption technology in federal, enterprise, cloud and service provider transport networks. WAN MACSec provides capability to deploy seamlessly over any public carrier Ethernet, optical, DWDM/OTN transport network.

The Cisco ASR 9000 Series 400G and 200G Modular Line Cards provide simultaneous support for both Layer 2 and Layer 3 services and features. This capability helps operators qualify and stock a single line card that can be deployed in any combination of Layer 2 and Layer 3 applications. It also helps reduce Capital Expenditures (CapEx) and Operating Expenses (OpEx), as well as reduce the time required to develop and deploy new services. Cisco modular line cards set exceptional standards for service density, allowing operators to offer predictable, managed transport services while optimizing the use of network assets.

Table 1 lists the features and benefits of Cisco ASR 9000 Series modular line cards. Specific feature and scale support is hardware and software dependent.

Table 1. Features and Benefits of Cisco ASR 9000 Series modular line cards

Feature	Benefit
Interface Support	
Pluggable 1-Gigabit Small Form-Factor Pluggable (SFP), 10-Gigabit (SFP+ and XFP), 40-Gigabit Quad SFP (QSFP) and 100-Gigabit (CFP2-ER4/CPAK SR and LR) interfaces	Provide the capacity to mix and match interface types across a single line card (for a complete list of supported pluggable interfaces, see the Cisco Optics Compatibility Matrix)
G.709 and Advanced FEC	Standard G.709 providing transmission-layer operations, administration, and maintenance (OA&M); G.709 Standard FEC and Advanced FEC for enhanced transmission system performance
Scalable and Integrated Multiservice Support	
Layer 2 and Layer 3 services	Combined IP, MPLS, Ethernet, Layer 2 VPN (L2VPN), and Layer 3 VPN (L3VPN) services
Evolutionary Monitoring	
Carrier-class OA&M	NetFlow, IEEE 802.1ag, IEEE 802.3ah, ITU Y.1731, IP Service-Level Agreement (IP SLA), Virtual Circuit Connectivity Verification (VCCV), ping, and traceroute
Carrier-Grade OS	
Cisco IOS® XR Software	Modular, patchable, scalable, and highly available carrier-core and edge-proven operating system
Layer 2 Encryption	
MACsec encryption	IEEE 802.1AE [1] standards-based Layer 2 hop-by-hop encryption that provides data confidentiality and integrity for media access independent protocols MACsec is supported only on the 400G and 200G modular line cards when used with the following MPAs:* • 20-port 10 Gigabit Modular Port Adapter (A9K-MPA-20X10GE) • 1-port 100 Gigabit Modular Port Adapter (A9K-MPA-1X100GE) • 2-port 100 Gigabit Modular Port Adapter (A9K-MPA-2X100GE) • 32-port 1 Gigabit Modular Port Adapter (A9K-MPA-32x1GE) * Please note that there are minimum XR SW requirements to support MACsec in these MPAs.

Line card types

ASR 9000 Series modular line cards are available in service edge – optimized and packet transport – optimized variants.

- Service edge – optimized line cards are designed for customer deployments requiring enhanced Quality of Service (QoS).
- Packet transport – optimized line cards are designed for network deployments where basic QoS is required.

Different line card types may be mixed within the same system.

Feature licenses are also available to activate advanced features on the line cards, as described in the "Software Licensing" section of this document.

Product specifications

Table 2 provides product specifications for ASR 9000 Series modular line cards.

Table 2. Product specifications

Description	Specification
Chassis compatibility	Compatible with the Cisco ASR 9922, 9912, 9910, 9906, 9904, 9010, and 9006 routers
Port density	In the 400G modular line card, up to 2 modular port adapters are supported per line card for up to: • 40-port 10G or 64-port 1G interfaces • 4-port 40G interfaces • 4-port 100G interfaces In the 200G modular line card, two modular port adapters are supported per line card, except for the 2-port 100 Gigabit modular port adapter and the 20-port 10 Gigabit modular port adapter. The 2-port 100 Gigabit and 20-port 10 Gigabit modular adapters are supported only in bay 0 of the 200G modular line card. The achievable port density on this line card is as follows: • 20-port 10G or 64-port 1G interfaces • 4-port 40G interfaces • 2-port 100G interfaces
Ethernet	• IEEE 802.3 compliant • 10 Gigabit Ethernet PHY monitoring • IEEE 802.x flow control • Full-duplex operation • Per-port byte and packet counters for policy drops, oversubscription drops, Cyclic Redundancy Check (CRC) error drops, packet sizes, and unicast, multicast, and broadcast packets

Description	Specification
Card density	Maximum number of line cards per system: • Cisco ASR 9922: 20 • Cisco ASR 9912: 10 • Cisco ASR 9910: 8 • Cisco ASR 9906: 4 • Cisco ASR 9904: 2 • Cisco ASR 9010: 8 • Cisco ASR 9006: 4
Options	Each line card is available as either a service edge – optimized line card (enhanced QoS) or a packet transport – optimized line card (basic QoS)
Reliability and availability	Line card Online Insertion and Removal (OIR) support without system impact
Network Equipment Building Standards (NEBS)	Cisco ASR 9000 Series Routers are designed to meet: • SR-3580: NEBS Criteria Levels (Level 3) • GR-1089-CORE: NEBS EMC and Safety • GR-63-CORE: NEBS Physical Protection
Operating temperature (nominal)	41 to 104°F (5 to 40°C)
Operating temperature (short-term)1	23 to 131°F (-5 to 55°C)
Operating humidity (nominal) relative humidity	10 to 85%
Storage temperature	-40 to 158°F (-40 to 70°C)
Storage relative humidity	5 to 95% **Note:** Not to exceed 0.024 kg of water per kg of dry air
Operating altitude	-60 to 4000m (up to 2000m conforms to IEC, EN, UL, and CSA 60950 requirements)
ETSI standards	Cisco ASR 9000 Series Routers are designed to meet: • EN300 386: Telecommunications Network Equipment (EMC) • ETSI 300 019 Storage Class 1.1 • ETSI 300 019 Transportation Class 2.3 • ETSI 300 019 Stationary Use Class 3.1 • EN55022: Information Technology Equipment (Emissions) • EN55024: Information Technology Equipment (Immunity) • EN50082-1/EN-61000-6-1: Generic Immunity Standard

Description	Specification
EMC standards	Cisco ASR 9000 Series Routers are designed to meet: • FCC Class A • ICES 003 Class A • AS/NZS 3548 Class A • CISPR 22 (EN55022) Class A • VCCI Class A • BSMI Class A • IEC/EN 61000-3-2: Power Line Harmonics • IEC/EN 61000-3-3: Voltage Fluctuations and Flicker
Immunity	Cisco ASR 9000 Series Routers are designed to meet: • IEC/EN-61000-4-2: Electrostatic Discharge Immunity (8kV Contact, 15kV Air) • IEC/EN-61000-4-3: Radiated Immunity (10V/m) • IEC/EN-61000-4-4: Electrical Fast Transient Immunity (2kV Power, 1kV Signal) • IEC/EN-61000-4-5: Surge AC Port (4kV CM, 2kV DM) • IEC/EN-61000-4-5: Signal Ports (1kV) • IEC/EN-61000-4-5: Surge DC Port (1kV) • IEC/EN-61000-4-6: Immunity to Conducted Disturbances (10Vrms) • IEC/EN-61000-4-8: Power Frequency Magnetic Field Immunity (30A/m) • IEC/EN-61000-4-11: Voltage DIPS, Short Interruptions, and Voltage Variations
Safety	Cisco ASR 9000 Series Routers are designed to meet: • UL/CSA/IEC/EN 60950-1 • IEC/EN 60825 Laser Safety • ACA TS001 • AS/NZS 60950 • FDA: Code of Federal Regulations Laser Safety

[1] Short-term refers to a period of not more than 96 consecutive hours and a total of not more than 15 days in 1 year. (This number refers to a total of 360 hours in any given year, but no more than 15 occurrences during that 1-year period.)

Weights and dimensions

Table 3 shows the different physical dimensions and associated weight of ASR 9000 Series modular line cards and modular port adapters, which are identified by their product ordering numbers.

Table 3. Physical dimensions

Part Number	Physical Dimensions	Weight
A9K-MOD400-SE	14.5 W x 1.72 H x 24.25 L (including ejector levers)	21 lb (9.5 kg)
A9K-MOD400-TR	14.5 W x 1.72 H x 24.25 L (including ejector levers)	21 lb (9.5 kg)
A9K-MOD200-SE	14.5 W x 1.72 H x 24.25 L (including ejector levers)	19 lb (8.62 kg)
A9K-MOD200-TR	14.5 W x 1.72 H x 24.25 L (including ejector levers)	19 lb (8.62 kg)

Part Number	Physical Dimensions	Weight
A9K-MPA-20X10GE	6.37 W x 1.36 H x 6.70 L 6.37 W x 1.36 H x 8.30 L (including Jackscrew)	35.2 oz (0.99 kg)
A9K-MPA-1X200GE	6.37 W x 1.36 H x 6.70 L 6.37 W x 1.36 H x 8.30 L (including jackscrew)	38.4 oz (1.09 kg)
A9K-MPA-2X100GE	6.37 W x 1.36 H x 6.70 L 6.37 W x 1.36 H x 8.30 L (including Jackscrew)	38.4 oz (1.09 kg)
A9K-MPA-1X100GE	6.37 W x 1.36 H x 6.70 L 6.37 W x 1.36 H x 8.30 L (including jackscrew)	32.4 oz (0.91 kg)
A9K-MPA-32X1GE	6.37 W x 1.36 H x 6.70 L 6.37 W x 1.36 H x 8.30 L (including jackscrew)	32.8 oz (0.93 kg)
A9K-MPA-20X1GE	6.37 W x 1.36 H x 6.70 L 6.37 W x 1.36 H x 8.30 L (including jackscrew)	34 oz (0.96 kg)
A9K-MPA-2X10GE	6.37 W x 1.36 H x 6.70 L 6.37 W x 1.36 H x 8.30 L (including jackscrew)	28 oz (0.7 kg)
A9K-MPA-4X10GE	6.37 W x 1.36 H x 6.70 L 6.37 W x 1.36 H x 8.30 L (including jackscrew)	31 oz (0.87 kg)
A9K-MPA-8X10GE	6.37 W x 1.36 H x 6.70 L 6.37 W x 1.36 H x 8.30 L (including jackscrew)	28 oz (0.79 kg)
A9K-MPA-1X40GE	6.37 W x 1.36 H x 6.70 L 6.37 W x 1.36 H x 8.30 L (including jackscrew)	26 oz (est.) (0.7 kg)
A9K-MPA-2X40GE	6.37 W x 1.36 H x 6.70 L 6.37 W x 1.36 H x 8.30 L (including jackscrew)	28 oz (0.79 kg)

Ordering information

The ASR 9000 Series 400G and 200G Modular Line Cards are available to order through two commercial models, the Flexible Consumption Model (FCM) and the Traditional Business Model.

The Flexible Consumption Model offers a built-in “pay-as-you-grow” structure that lowers initial start-up costs with the ability to add more capacity overtime as needed. Software subscription provides feature upgrades and helps defer the payment of software value for the initial purchase.

Table 4 provides ordering information for the ASR 9000 Series 400G and 200G Modular Line Cards with the Flexible Consumption Model

Table 4. Ordering information for the ASR 9000 Series 400G and 200G Modular Line Cards with the Flexible Consumption Model

Part number	Feature description
Hardware - Line Cards	
A9K-MOD400-FC	ASR 9000 Modular 400GE Flexible Consumption Model Line Card
A9K-MOD200-FC	ASR 9000 Modular 200G Flexible Consumption Model Line Card
Hardware - Modular Port Adapters	
A9K-MPA-1X200GE	ASR 9000 1-port 200GE Modular Port Adapter
A9K-MPA-2X100GE	ASR 9000 2-port 100-Gigabit Ethernet Modular Port Adapter, requires CFP2 or CPAK optics
A9K-MPA-1X100GE	ASR 9000 1-port 100-Gigabit Ethernet Modular Port Adapter, requires CFP2 or CPAK optics
A9K-MPA-2X40GE	ASR 9000 2-port 40-Gigabit Ethernet Modular Port Adapter, requires QSFP optics
A9K-MPA-1X40GE	ASR 9000 1-port 40-Gigabit Ethernet Modular Port Adapter, requires QSFP optics
A9K-MPA-20X10GE	ASR 9000 20-port 10-Gigabit Ethernet Modular Port Adapter, requires SFP+ optics
A9K-MPA-8X10GE	ASR 9000 8-port 10-Gigabit Ethernet Modular Port Adapter, requires SFP+ optics
A9K-MPA-4X10GE	ASR 9000 4-port 10-Gigabit Ethernet Modular Port Adapter, requires XFP optics
A9K-MPA-2X10GE	ASR 9000 2-port 10-Gigabit Ethernet Modular Port Adapter, requires XFP optics
A9K-MPA-32X1GE	ASR 9000 32-port 1-Gigabit Ethernet Modular Port Adapter with MACSec, requires cSFP or SFP optics
A9K-MPA-20X1GE	ASR 9000 20-port 1-Gigabit Ethernet Modular Port Adapter, requires SFP optics

Part number	Feature description
Software RTU Licenses	
ESS-ED-100G-RTU1	Edge Essentials Software RTU License per 100G
ADV-ED-100G-RTU1	Edge Advantage w/o Essentials Software RTU License per 100G
ADN-ED-100G-RTU1	Edge Advantage w/ Essentials Software RTU License per 100G
Subscriptions	
ESS-ED-100G-SIA5	Edge Essentials SIA per 100G 60-120 months
ESS-ED-100G-SIA3	Edge Essentials SIA per 100G 36-59 months
ADV-ED-100G-SIA5	Edge Advantage w/o Essentials SIA per 100G for 60-120 months
ADV-ED-100G-SIA3	Edge Advantage w/o Essentials SIA per 100G for 36-59 months
ADN-ED-100G-SIA5	Edge Advantage w/ Essentials SIA per 100G for 60-120 months
ADN-ED-100G-SIA3	Edge Advantage w/ Essentials SIA per 100G for 36-59 months

For more information, please refer to the Cisco IOS XR Software Flexible Consumption Model Data Sheet.

Table 5 provides ordering information for the ASR 9000 Series 400G and 200G Modular Line Cards with the Traditional Business Model. Optional per-line-card feature licenses are available to turn on advanced features. Layer 3 VPN licenses provide access to VPN routing and forwarding (VRF) instances on a per-line-card basis. They include the infrastructure VRF license to support up to eight VRF instances and advanced IP licenses to support up to full-scale VRF instances.

Cisco modular line card offer two optimization versions. In addition, optional per-line-card feature licenses can be used to turn on advanced features. Layer 3 VPN licenses provide access to VPN Routing and Forwarding (VRF) instances on a per-line-card basis. They include the Infrastructure VRF license to support up to 8 VRF instances and Advanced IP licenses to support up to full-scale VRF instances. The Advanced Optical license activates G.709 and FEC capabilities for Dense Wavelength-Division Multiplexing (DWDM) systems on a per-line-card basis. The Advanced Video license activates the inline video monitoring feature on a per-line-card basis.

Table 5. Ordering information for ASR 9000 Series 400G and 200G Modular Line Cards with the Traditional Business Model

Part number	Feature description
Hardware – Line Cards	
A9K-MOD400-SE	ASR 9000 400G Modular Line Card, Service Edge Optimized, requires modular port adapters
A9K-MOD400-TR	ASR 9000 400G Modular Line Card, Packet Transport Optimized, requires modular port adapters
A9K-MOD200-SE	ASR 9000 200G Modular Line Card, Service Edge Optimized, requires modular port adapters
A9K-MOD200-TR	ASR 9000 200G Modular Line Card, Packet Transport Optimized, requires modular port adapters

Part number	Feature description
Hardware – Modular Port Adapters	
A9K-MPA-1X200GE	ASR 9000 1-port 200GE Modular Port Adapter, requires CFP2-ER4 or CPAK optics
A9K-MPA-2X100GE	ASR 9000 2-port 100-Gigabit Ethernet Modular Port Adapter, requires CFP2 or CPAK optics
A9K-MPA-1X100GE	ASR 9000 1-port 100-Gigabit Ethernet Modular Port Adapter, requires CFP2 or CPAK optics
A9K-MPA-2X40GE	ASR 9000 2-port 40-Gigabit Ethernet Modular Port Adapter, requires QSFP optics
A9K-MPA-1X40GE	ASR 9000 1-port 40-Gigabit Ethernet Modular Port Adapter, requires QSFP optics
A9K-MPA-20X10GE	ASR 9000 20-port 10-Gigabit Ethernet Modular Port Adapter, requires SFP+ optics
A9K-MPA-8X10GE	ASR 9000 8-port 10-Gigabit Ethernet Modular Port Adapter, requires SFP+ optics
A9K-MPA-4X10GE	ASR 9000 4-port 10-Gigabit Ethernet Modular Port Adapter, requires XFP optics
A9K-MPA-2X10GE	ASR 9000 2-port 10-Gigabit Ethernet Modular Port Adapter, requires XFP optics
A9K-MPA-32X1GE	ASR 9000 32-port 1-Gigabit Ethernet Modular Port Adapter with MACSec, requires cSFP or SFP optics
A9K-MPA-20X1GE	ASR 9000 20-port 1-Gigabit Ethernet Modular Port Adapter, requires SFP optics
Smart Licenses	
S-A9K-400G-IVRF	ASR 9K Smart License I-VRF for 4x100GE Line Card
S-A9K-400G-AIP-SE	ASR 9K Smart License L3 VPN for 4x100GE SE Line Card
S-A9K-400G-AIP-TR	ASR 9K Smart License L3 VPN for 4x100GE TR Line Card
S-A9K-400G-CGN	ASR 9K Smart License In-line CGv6 Transformation for 4x100GE
S-A9K-400G-OPTLIC	ASR 9K Smart License Advanced Optical for 4x100GE Line Card
S-A9K-200G-IVRF	A9K Smart License to activate 8 VRFs on MOD200 Line Card
S-A9K-200G-AIP-SE	A9K Smart License for L3VPN on MOD200 SE Line Card
S-A9K-200G-AIP-TR	A9K Smart License for L3VPN on MOD200 TR Line Card
S-A9K-200G-CGN	A9K Smart License: Carrier Grade NAT license for MOD200 Line Card
S-A9K-200G-OPT	A9K Smart License: Adv Optical license for MOD200 Line Card
S-A9K-MACSEC-10	ASR 9000 MACSEC 10G Right to use license
S-A9K-MACSEC-40	ASR 9000 MACSEC 40G Right to use license
S-A9K-MACSEC-100	ASR 9000 MACSEC 100G Right to use license
S-A9K-BNG-LIC-8K	ASR 9K Smart License BNG 8K Sessions

Part number	Feature description
S-A9K-BNG-ADV-8K	ASR 9K Smart License BNG license for Advance Features
Standard Licenses	
A9K-400G-IVRF	Infrastructure VRF license to activate up to 8 VRF instances per 400G modular line card
A9K-400G-AIP-SE	Advanced IP license to activate full-scale VRF instances per 400G service edge optimized line card
A9K-400G-AIP-TR	ASR 9000 4-port 100GE Advanced IP license for TR Line Card
A9K-400G-CGN-LIC	ASR 9000 4-port 100GE IPv6 Inline Carrier Grade NAT License
A9K-400G-OPT-LIC	Advanced Optical license to activate G.709 and FEC per 400G modular line card
A9K-200G-IVRF	Infrastructure VRF license to activate up to 8 VRF instances per 200G modular line card
A9K-200G-AIP-SE	Advanced IP license to activate full-scale VRF instances per 200G service edge optimized line card
A9K-200G-AIP-TR	Advanced IP license to activate full-scale VRF instances per 200G packet transport optimized line card
A9K-200G-CGN-LIC	ASR 9000 MOD200 IPv6 Inline Carrier Grade NAT License
A9K-200G-OPT-LIC	Advanced Optical license to activate G.709 and FEC per 200G modular line card
A9K-MACSEC-10	ASR 9000 MACSEC 10G Right to Use License - PAK
A9K-MACSEC-40	ASR 9000 MACSEC 40G Right to Use License - PAK
A9K-MACSEC-100	ASR 9000 MACSEC 100G Right to Use License - PAK
A9K-BNG-LIC-8K	BNG License Unit for 8,000 subscribers

Downloading the Software

Visit the Cisco Software Center to download Cisco IOS Software.

Cisco Services for the Cisco ASR 9000 series

Through a lifecycle services approach, Cisco delivers comprehensive support to service providers to help them successfully deploy, operate, and optimize their IP Next-Generation Networks (IP NGNs). Cisco Services for Cisco ASR 9000 Series Aggregation Services Routers provide the services and proven methodologies that help assure service deployment with substantial return on investment, operational excellence, optimal performance, and high availability. These services are delivered using leading practices, tools, processes, and lab environments developed specifically for Cisco ASR 9000 Series deployments and post-implementation support. The Cisco Services team addresses your specific requirements, mitigates risk to existing revenue-generating services, and helps accelerate time to market for new network services.

Product sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment Sustainability" section of Cisco's Corporate Social Responsibility (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the "Environment Sustainability" section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

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For more information

For more information on ASR 9000 Series routers

For more information about Cisco Services, contact your local Cisco account representative or visit.

Document history

Table 6. Document history:

New or Revised Topic	Described In	Date
Updated the Ordering information section with new license SKU content for both Traditional and FCM models. Updated relevant features and technical specifications across document.	Ordering information	August 12, 2021

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

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