Cisco ASR 9000 Series Virtualized Services Module

Product Overview

Unlock the benefits of virtualization to make your network more flexible, agile, and simpler to manage. The Cisco® Aggregation Services Router (ASR) 9000 Series Virtualized Services Module (VSM) makes it easy for service providers to transition network infrastructure services to virtual workloads. The VSM provides the capability to host Cisco, third-party, and custom applications in a virtualized environment much like a server blade on a router.

This flexible, elastic approach lets you increase or decrease service capacity as needed, so there is no need to design for maximum capacity. Simplified provisioning and upgrades help you save time and reduce costly truck rolls for upgrades or troubleshooting. You can also use the Cisco ASR 9000 Series VSM to help you maximize the availability of services through virtual machine migration in the event of hardware failures. The module has its own processors, network interfaces, and memory that operate independently of the host router resources, helping ensure maximum concurrent routing and application performance.

Figure 1 shows the Cisco ASR 9000 VSM and Table 1 summarizes features and benefits of the module.

Figure 1. Cisco ASR9000 Series VSM

Table 1. Features and Benefits

Feature	Benefit
High-performance processing	X86-based compute resources offering capability to host a multiple applications.
Hardware assist	On-board hardware based assist for cryptographic and regular expression functions.
Integrated application forwarding plane architecture	Integration with router forwarding infrastructure (no external ports), as well as backplane connectivity of 120 Gbps.
Service management	Service instantiation, activation, and facilitation via the “service-enablement architecture” supported on Cisco IOS® XR (beginning with Cisco IOS XR 5.1.1).
Single form factor for multiple applications in a virtualized environment	• Efficient power load sharing and redundancy benefit from router integration, delivering high power with space efficiency. • Hardware once certified, can be used for hosting multiple applications. • Ability to repurpose the module by loading a different application on the hypervisor. • Agility in turning up newer services and improved monetization.
Service flexibility	• Ability to scale applications based on the customer’s requirements by increasing compute resources allocated, offering “Pay as you grow” flexibility. • Improved and simplified operations offering lower total cost of ownership. • Ability to perform Service Chaining.
Redundancy	Application high-availability through virtualization.

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Platform Support and Compatibility

The Cisco ASR 9000 Series VSM is supported on these Cisco ASR 9000 Series routers:

- Cisco ASR 9904 Router
- Cisco ASR 9006 Router
- Cisco ASR 9010 Router
- Cisco ASR 9912 Router
- Cisco ASR 9922 Router

Product Specifications

Specifications for the Cisco ASR 9000 Series VSM are provided in Table 2.

Table 2. Cisco ASR 9000 Series VSM Product Specifications

Feature	Description
Physical specifications	Occupying one slot, the Cisco ASR 9000 Series VSM can be inserted in any line-card slot within the chassis. • Height: 1.65 in. (4.19 cm) • Width: 15.86 in. (40.28 cm) • Depth: 23.91 in. (60.73 cm) • Weight: 20.06 lb (9.1 kg)
Power input	• Worldwide ranging AC: 100 to 240V, 50 to 60 Hz, and 16A nominal • Worldwide ranging DC: -48 to -60V, -54V, and 50A nominal
Environmental conditions	• Operating temperature: 41 to 104°F (5 to 40°C) • Storage temperature: -40 to 167°F (-40 to 75°C) • Relative humidity: 10 to 90% noncondensing
Power consumption	• Typical: 750W (@30°C) • Maximum: 850W (@50°C)
Processing	High-performance from 40 physical CPU cores to deliver high performance for computationally intensive tasks.
Memory	128 G (32 G per CPU socket) • 10 G RAM for infrastructure and management of applications • 118 G RAM for use by the applications hosted on the card
Storage	The 128 G (2 x 64 G Serial ATA (SATA)) usable storage capacity allows storing of the application operating system, application image, and application databases. • 10 G disk for infrastructure and management of applications • 118 G disk for use by the applications
Front-panel LEDs	LEDs provide show the module status (active or standby) and power management.
Front-panel 10 Gigabit Ethernet ports	Four 10 Gigabit Ethernet ports are available on the front panel for connecting to a storage-area network (SAN) or network-attached storage (NAS).
Environmental specifications	
Operating temperature (nominal)	41 to 104ºF (5 to 40ºC)
Operating temperature (short-term)	23 to 131ºF (-5 to 55ºC) Short-term refers to a period of not more than 96 consecutive hours and a total of not more than 15 days in one year (total of 360 hours in any given year, but no more than 15 occurrences during that one-year period).
Operating humidity (nominal) (relative humidity)	10 to 85%
Operating humidity (short-term)	5 to 90% Not to exceed 0.024 kg water or dry air
Storage temperature	-40 to 158ºF (-40 to 70ºC)

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Feature	Description
Storage (relative humidity)	5 to 95% Not to exceed 0.024 kg water or dry air
Operating altitude	-60 to 4000m (up to 2000m conforms to IEC/EN/UL/CSA 60950 requirements).
Compliance	
NEBS compliance	Carrier-grade resiliency and temperature hardening to meet your demanding central office requirements. Cisco ASR 9000 Series VSM is designed to meet: • SR-3580: NEBS Criteria Levels (Level 3) • GR-1089-CORE: NEBS EMC and Safety • GR-63-CORE: NEBS Physical Protection

Warranty Information

Warranty information is available on Cisco.com at the Product Warranties page.

Ordering Information

To place an order, visit the Cisco Ordering Home Page and use the information provided in Table 3. To download software, visit the Cisco Software Center.

Table 3. Ordering Information

Product Name	Part Number
Cisco ASR 9000 Series Virtualized Service Module	A9K-VSM-500
Cisco ASR 9000 Series Virtualized Service Module Spare	A9K-VSM-500=

Cisco Services

Through a lifecycle services approach, Cisco delivers comprehensive support to service providers. We help you successfully deploy, operate, and optimize your IP Next-Generation Networks (IP NGNs). Cisco Services for Cisco ASR 9000 Series Aggregation Services Routers provide the services and approach needed to help assure effective deployment. We will help you get the most out of your network investment, with the best possible performance and availability. We deliver our services using leading best practices, tools, processes, and lab environments developed specifically for Cisco ASR 9000 Series deployments and post-implementation support. Our Cisco Services team addresses your specific requirements and works to mitigate risk to your existing services, while helping you accelerate time to market for new network services.

For More Information

For more information about the Cisco ASR 9000 Series VSM, visit http://www.cisco.com/go/asr9000 or contact your local account representative.

For more information about Cisco Services, contact your local Cisco account representative or visit http://www.cisco.com/go/spservices.

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Printed in USA C78-730521-00 02/14

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