# Cisco ASR 9000v

The Cisco® ASR 9000v employs the Cisco ASR 9000 Series Network Virtualization (nV) technology. The nV technology revolutionizes networks by integrating access and edge into one nV system. The Cisco ASR 9000v operates as an extension shelf of the Cisco ASR 9000 Series Aggregation Services Routers, providing delivery of Cisco ASR 9000 services from the ASR 9000v. This nV technology dramatically lowers operational costs by simplifying the access and edge network, and delivers tremendous service and network scale through the use of the Cisco ASR 9000 distributed control plane and feature processing.

## Product Overview

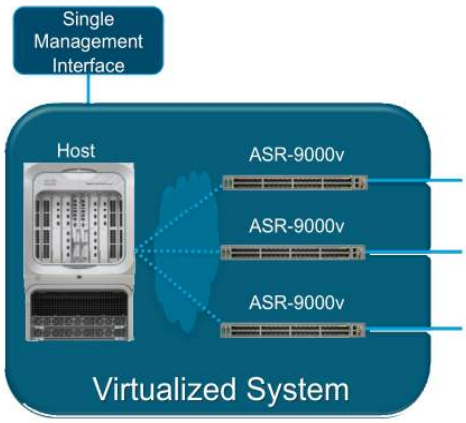
Deployed adjacent to, or remotely from, its Cisco ASR 9000 host, the environmentally hardened, front-access, low-power, ultra-compact Cisco ASR 9000v delivers ASR 9000 services and scale at locations that are otherwise unachievable by either an access system or an edge system. Because the nV technology extends the ASR 9000 control plane and management interface over a fabric port that incorporates the ASR 9000v as a component of the ASR 9000 host, installation, turn-up, Element Management System (EMS) and Network Management System (NMS) integration, and service activation can be accomplished in a matter of minutes (see Figure 1).

**Figure 1.** Cisco ASR 9000v

## Features and Benefits of the Cisco ASR 9000v and ASR 9000 nV Technology

Features and benefits include the following (see Figure 2).

**Figure 2.** Network Virtualized System

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- Feature alignment

  Because services and features of the nV technology are provided by the Cisco ASR 9000 host, the ASR 9000v reduces the error-prone and frustrating guesswork of aligning the continuously evolving features, services, and behavior of otherwise independently deployed access and edge systems.

- Flexible topologies

  The Cisco ASR 9000v can be deployed adjacent to, or remotely from its ASR 9000 host, enabling applications that require high-density ports, or many remote points of presence. The Cisco ASR 9000v can be directly connected to the ASR 9000, including over a dense wavelength-division multiplexing (DWDM) system, or evolve to operate over other topologies.

- Service scale

  By taking advantage of the industry-leading service and network scale of the Cisco ASR 9000 edge system, the ASR 9000v redefines the relationship between service scale and packaging.

- Resiliency

  The Cisco ASR 9000v can be connected to multiple ASR 9000 redundant hosts. The ASR 9000 control plane extension to the ASR 9000v delivers resiliency to ASR 9000v shelf, access port, and fabric port failures.

- Ease of certification, training, and deployment

  Because feature provisioning, command-line interface (CLI), management system integration, software maintenance, and feature processing are provided by the Cisco ASR 9000 host using Cisco IOS®-XR Software, the incremental effort for certification, operator training, network integration, and deployment of an ASR 9000v is dramatically reduced.

- Ease of management

  Because the Cisco ASR 9000v is not deployed, configured, upgraded, or integrated into the EMS and NMS system as an independent network element, because the functions provided by the ASR 9000v are minimized relative to a standalone network element, and because ASR 9000v software images are managed through the ASR 9000 software Management infrastructure, the management of an ASR 9000v will be dramatically reduced relative to a standalone network element.

- Ultra-low power and footprint

  With power requirements comparable to a lightbulb and a physical profile comparable to a laptop, the Cisco ASR 9000v delivers the advanced features and services of the ASR 9000 at tiny fraction of the power draw or the footprint of any comparable edge router.

- Environmentally hardened design

  The Cisco ASR 9000v hardened design supports deployment of ASR 9000 services in cabinets and non-temperature-controlled buildings.

- Front access

  The fully front-access Cisco ASR 9000v can be mounted against a wall or cabinet, or even back-to-back with other equipment in a single cabinet with complete serviceability through the front panel.

- Ease of EMS and NMS integration

  Because the Cisco ASR 9000 host presents the ASR 9000v to the EMS and NMS as a component of the ASR 9000, and because provisioning, services, and feature processing are delivered by the ASR 9000

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host using its existing schema, the incremental effort to integrate the ASR 9000v into a network with the ASR 9000 is dramatically reduced.

- ACT support

  The Cisco ASR 9000 Craft Tool (ACT) that is available with Cisco ASR 9000 host provides a graphical representation of the Cisco ASR 9000v status as part of the ASR 9000, as well as administration of the ASR 9000v software.

- Cisco Prime™ support

  The Cisco ASR 9000v is supported under Cisco Prime, Cisco's advanced Element Management System (EMS). Support includes discovery, maintenance, provisioning, and fault management.

- Chassis options:
  - AC – AC chassis with three-pronged connector
  - DC ANSI – DC chassis with A/B-power feeds and ANSI connectors
  - DC ETSI – DC chassis with A/B power feeds and ETSI connectors

- Field-replaceable fan tray and filter

  The Cisco ASR 9000v includes a front-accessed field-replaceable fan tray, as well as a field-replaceable filter.

## Product Interfaces

Table 1 lists the interfaces supported by the Cisco ASR 9000v Series Routers. Some feature availability is dependent on Cisco ASR 9000 software releases.

**Table 1.** Interfaces

| Interface | Description |
|---|---|
| 44 Small Form-Factor Pluggable (SFP) ports (10, 100 and 1000 Mbps) | SFP ports deliver 10, 100, and 1000 Mbps services. See the Cisco Optical Pluggable Modules for ASR 9000v Data Sheet for details on the supported pluggable ports. |
| 4 SFP+ 10-GE Pluggable Ports | SFP+ interfaces provide mix-and-match interface types. For a complete list of supported interfaces, see the Cisco Optical Pluggable Modules for ASR 9000v Data Sheet for details on the supported pluggable ports. |
| AC | Cisco ASR 9000v AC Chassis only, this three-connector receptacle is intended for use with external AC cables. |
| ANSI DC-A and DC-B | Cisco ASR 9000v DC-A Chassis only, these two redundant DC power inputs are ANSI compliant. |
| ETSI DC-A and DC-B | Cisco ASR 9000v DC-E Chassis only, these two redundant DC power inputs are ETSI compliant. |
| EOBC | Ethernet management port that can be optionally used for local Cisco ASR 9000v management. |
| Console | Serial port that can be optionally used for local Cisco ASR 9000v management. |
| Time of day (ToD) and packets per second (PPS) | IEEE 1588v2. |

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## Product Specifications

Table 2 lists specifications for the Cisco ASR 9000v.

**Table 2.** Product Specifications

| Description | Specification |
|---|---|
| Physical dimensions (H x W x D); weight | AC:<br>1.560 in. x 17.417 in. x 9.095 in.; 8.95 lbs. (3.96 cm x 44.24 cm x 23.10 cm; 4.06 kg)<br>DC ANSI & DC ETSI:<br>1.560 in. x 17.417 in. x 9.095 in.; 9.30 lbs (3.96 cm x 44.24 cm x 23.10 cm; 4.22 kg) |
| Power | Nominal power: 159W<br>Maximum power: 210W |
| AC input voltage (ASR 9000v AC Chassis Option) | 100–240V AC, 50 and 60 Hz |
| DC input voltage (ASR 9000v DC-A/DC-E Chassis Option) | –48V DC |
| Network Equipment Building Standards (NEBS) | GR-1089 Issue 5 and GR-63 Issue 3 |
| Operating temperature (nominal) | –40ºC to +65ºC |
| Operating humidity (nominal) (relative humidity) | 5-85% noncondensing operation is guaranteed up to 95% noncondensing |
| Storage temperature | –40ºC to +70ºC |
| Storage (relative humidity) | 93% noncondensing |
| Operating altitude | 13,123 ft (4000m) |

## Warranty Information

Find warranty information on Cisco.com at the Product Warranties page.

## Ordering Information

To place an order, visit the Cisco Ordering Home Page. To download software, visit the Cisco Software Center. See Table 3 for part numbers.

**Table 3.** Ordering Information

| Part Number | Product Description |
|---|---|
| ASR-9000V-AC= | 44-Port GE + 4-Port 10-GE ASR 9000v, AC Power |
| ASR-9000V-DC-A= | 44-Port GE + 4-Port 10-GE ASR 9000v, DC Power ANSI Chassis |
| ASR-9000V-DC-E= | 44-Port GE + 4-Port 10-GE ASR 9000v, DC Power ETSI Chassis |
| ASR-9000V-FAN= | ASR 9000v Fan Tray with Filter |
| CPT-50-FTF= | CPT-50 Fan Tray Filter |

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## For More Information

For more information about the Cisco ASR 9000v, visit http://www.cisco.com/en/US/products/ps9853/index.html or contact your local account representative.


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