

## Cisco ASR 9000v

Edge and access integrated as one network virtualized (nV) system. That's what you get with the Cisco<sup>®</sup> ASR 9000v and Cisco ASR 9000v-V2, which use the Cisco ASR 9000 Series nV technology to integrate access and edge functions. The Cisco ASR 9000v and Cisco ASR 9000v-V2 operate as an extension shelf of the Cisco ASR 9000 Series Aggregation Services Routers, providing delivery of Cisco ASR 9000 Series services from the Cisco ASR 9000v or Cisco ASR 9000v-V2. Using nV technology lets you dramatically reduce your operational costs by simplifying the access and edge network and by delivering tremendous service and network scale through the use of the Cisco ASR 9000 distributed control plane, which extends feature processing to the access layer.

### Product Overview

Deployed adjacent to, or remotely from, its Cisco ASR 9000 Series host, the environmentally hardened, front-access, low-power, ultra-compact **Cisco ASR 9000v and ASR 9000v-V2** delivers ASR 9000 Series services and scale at locations that are otherwise unachievable by either an access system or an edge system. Because the nV technology extends the Cisco ASR 9000 Series control plane and management interface over a fabric port that incorporates the Cisco ASR 9000v and Cisco ASR 9000v-V2 as a component of the Cisco ASR 9000 Series 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 (Figure 1).

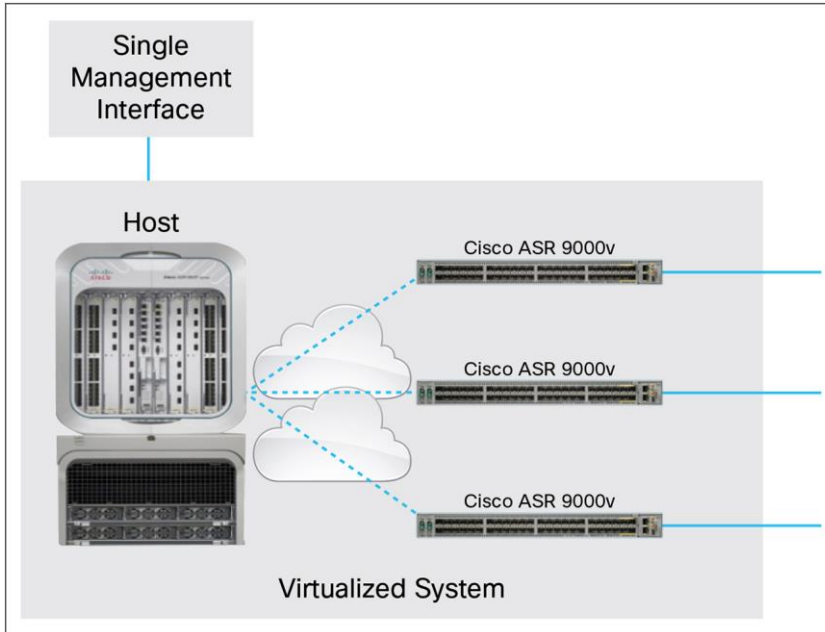
**Figure 1.** Cisco ASR 9000v



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

Features and benefits include the following (Figure 2).

**Figure 2.** Network Virtualized System



- **Feature alignment**

Because services and features of the nV technology are provided by the Cisco ASR 9000 Series host, the Cisco ASR 9000v and Cisco ASR 9000v-V2 reduce 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 and Cisco ASR 9000v-V2 can be deployed adjacent to, or remotely from their Cisco ASR 9000 Series host, supporting applications that require high-density ports, or many remote points of presence. The Cisco ASR 9000v and Cisco ASR 9000v-V2 can be directly connected to the Cisco ASR 9000 Series host, 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 Series edge system, the Cisco ASR 9000v and Cisco ASR 9000v-V2 redefines the relationship between service scale and packaging.

- **Resiliency**

The Cisco ASR 9000v and Cisco ASR 9000v-V2 can be connected to multiple Cisco ASR 9000 Series redundant hosts. The Cisco ASR 9000 Series control plane extension to the Cisco ASR 9000v delivers resiliency to Cisco 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 Series host using Cisco IOS® XR Software, the incremental effort for certification, operator training, network integration, and deployment of a Cisco ASR 9000v and Cisco ASR 9000v-V2 is dramatically reduced.

- **Ease of management**

Management of a Cisco ASR 9000v and Cisco ASR 9000v-V2 will be dramatically reduced relative to a standalone network element, because:

- The Cisco ASR 9000v and Cisco ASR 9000v-V2 are not deployed, configured, upgraded, or integrated into the EMS and NMS as an independent network element.
- The functions provided by the Cisco ASR 9000v and Cisco ASR 9000v-V2 are reduced relative to a standalone network element.
- Cisco ASR 9000v and Cisco ASR 9000v-V2 software images are managed through the Cisco ASR 9000 software Management infrastructure.

- **Ultra-low power and footprint**

With power requirements comparable to a light bulb and a physical profile comparable to a laptop, the Cisco ASR 9000v and Cisco ASR 9000v-V2 delivers the advanced features and services of the Cisco ASR 9000 Series at a tiny fraction of the power draw or the footprint of any comparable edge router.

- **Environmentally hardened design**

The Cisco ASR 9000v and Cisco ASR 9000v-V2 hardened design supports deployment of Cisco ASR 9000 Series services in cabinets and non-temperature-controlled buildings.

- **Front access**

The fully front-access Cisco ASR 9000v and Cisco ASR 9000v-V2 can be mounted against a wall or cabinet or back-to-back with other equipment in a single cabinet with complete serviceability through the front panel.

- **Ease of EMS and NMS integration**

The incremental effort to integrate the Cisco ASR 9000v and Cisco ASR 9000v-V2 into a network with the Cisco ASR 9000 Series is dramatically reduced because the Cisco ASR 9000 Series host presents the Cisco ASR 9000v and Cisco ASR 9000v-V2 to the EMS and NMS as a component of the Cisco ASR 9000 Series and because provisioning, services, and feature processing are delivered by the Cisco ASR 9000 Series host using its existing schema.

- **ACT support**

The Cisco ASR 9000 Series Craft Tool (ACT) that is available with the Cisco ASR 9000 Series host provides a graphical representation of the Cisco ASR 9000v and Cisco ASR 9000v-V2 status as part of the Cisco ASR 9000 Series, as well as administration of the ASR 9000v software.

- **Cisco Prime™ support**

The Cisco ASR 9000v is supported under Cisco Prime for Service Providers, 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 and Cisco ASR 9000v-V2 include 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 and Cisco ASR 9000v-V2. Some feature availability is dependent on Cisco ASR 9000 Series software releases.

Cisco ASR 9000v-V2 requires minimum version IOS-XR 5.2.2 to be supported as Satellite.

**Table 1.** Cisco ASR 9000v and Cisco ASR 9000v-V2 Interfaces

Interface	Description
<b>44 Small Form-Factor Pluggable (SFP) ports (10, 100 and 1000 Mbps)</b>	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.
<b>4 SFP+ 10-GE Pluggable Ports</b>	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.
<b>AC</b>	Cisco ASR 9000v AC Chassis only, this three-connector receptacle is intended for use with external AC cables.
<b>ANSI DC-A and DC-B</b>	Cisco ASR 9000v DC-A Chassis only, these two redundant DC power inputs are ANSI compliant.
<b>ETSI DC-A and DC-B</b>	Cisco ASR 9000v DC-E Chassis only, these two redundant DC power inputs are ETSI compliant.
<b>EOBC</b>	Ethernet management port that can be optionally used for local Cisco ASR 9000v management.
<b>Console</b>	Serial port that can be optionally used for local Cisco ASR 9000v management.
<b>Time of day (ToD) and packets per second (PPS)</b>	Reserved for future use.

## Product Specifications

Table 2 lists specifications for the Cisco ASR 9000v and Cisco ASR 9000v-V2.

**Table 2.** Product Specifications

Description	ASR 9000v Specification	ASR 9000v-V2 Specification
<b>Physical dimensions (H x W x D); weight</b>	AC: 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)  DC ANSI & DC ETSI: 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)	AC: 1.56 in. x 17.42 in. x 9.1 in.; 8.95 lbs (39.62 mm x 442.39 mm x 231.01 mm; 4.06 kg)  DC ANSI & DC ETSI: 1.56 in. x 17.42 in. x 9.1 in.; 9.30 lbs (39.62 mm x 442.39 mm x 231.01 mm; 4.22 kg)
<b>Power</b>	Nominal power: 159W Maximum power: 210W	Nominal Power: 120W Maximum Power: 170W
<b>AC input voltage (ASR 9000v AC Chassis Option)</b>	100-240V AC, 50 and 60 Hz	100-240V AC, 50 and 60 Hz
<b>DC input voltage (ASR 9000v DC-A/DC-E Chassis Option)</b>	-36V to -74V DC	-36V to -74V DC
<b>Network Equipment Building Standards (NEBS)</b>	GR-1089 Issue 5 and GR-63 Issue 3	GR-1089 Issue 5 and GR-63 Issue 3

Description	ASR 9000v Specification	ASR 9000v-V2 Specification
Operating temperature (nominal)	-40°C to +65°C	DC ANSI/ETSI: -40°C to +65°C AC: -5°C to +55°C
Operating humidity (nominal) (relative humidity)	5-85% noncondensing operation is guaranteed up to 95% noncondensing	5-85% noncondensing operation is guaranteed up to 95% noncondensing
Storage temperature	-40°C to +70°C	-40°C to +70°C
Storage (relative humidity)	93% noncondensing	93% noncondensing
Operating altitude	13,123 ft (4000m)	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
<b>ASR-9000V-AC=</b>	44-Port GE + 4-Port 10-GE ASR 9000v, AC Power
<b>ASR-9000V-DC-A=</b>	44-Port GE + 4-Port 10-GE ASR 9000v, DC Power ANSI Chassis
<b>ASR-9000V-DC-E=</b>	44-Port GE + 4-Port 10-GE ASR 9000v, DC Power ETSI Chassis
<b>ASR-9000V-FAN=</b>	ASR 9000v Fan Tray with Filter
<b>CPT-50-FTF=</b>	CPT-50 Fan Tray Filter
<b>A9KV-V2-AC=</b>	44-Port GE + 4-Port 10GE ASR 9000v-V2, AC Power
<b>A9KV-V2-DC-A=</b>	44-Port GE + 4-Port 10GE ASR 9000v-V2, DC Power ANSI Chassis
<b>A9KV-V2-DC-E=</b>	44-Port GE + 4-Port 10GE ASR 9000v-V2, DC Power ETSI Chassis
<b>A9KV-V2-FAN=</b>	ASR-9000V2 Fan Tray with Filter

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### For More Information

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



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