



CHAPTER 1

Cisco Services Ready Engine Virtualization Overview

Last Updated: September 17, 2012

This chapter provides an overview of the Cisco Services Ready Engine Virtualization (Cisco SRE-V) product. It includes information about the hardware and software requirements, feature licenses, and tasks that you must complete to set up Cisco SRE-V.

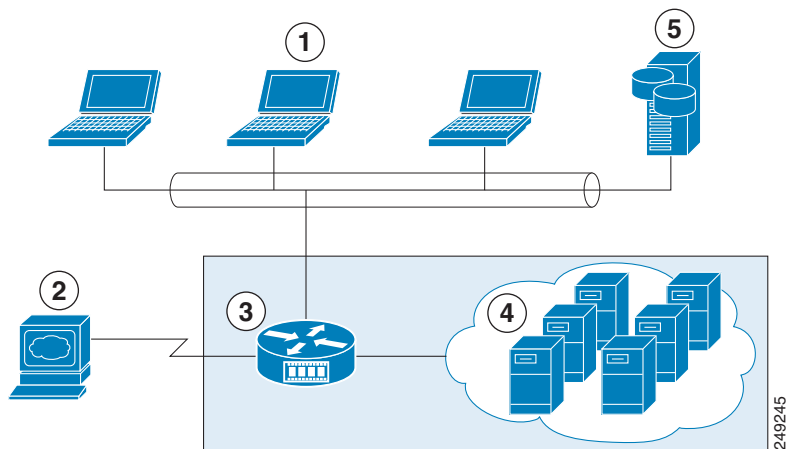
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Cisco SRE-V Overview

Cisco SRE-V is a branch-office infrastructure platform that combines computing, networking, storage access, virtualization, and unified management into a cohesive system. It enables the VMware vSphere Hypervisor to be provisioned on a Cisco Services Ready Engine (SRE) Service Module and host one or multiple virtual machines running the Microsoft Windows Server or Linux operating systems. The entire system is integrated with the Generation 2 of the Cisco Integrated Services Router (ISR G2).

Figure 1-1 provides an example of a Cisco SRE-V system deployment.

Figure 1-1 Example of a Cisco SRE-V System Deployment



1	Client Devices	4	Virtual Machines Hosted on Cisco SRE-V
2	Cisco SRE-V Management Console	5	Enterprise Storage Device
3	Cisco ISR G2 Router with Cisco SRE Service Module and Cisco SRE-V		

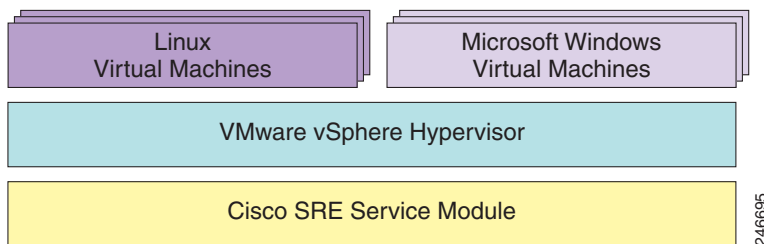
Cisco SRE-V Terms

The following Cisco SRE-V terms are used in this guide:

- Cisco SRE Service Module—Intel x86 architecture blade server that is hosted in a Cisco ISR G2. The Cisco SRE Service Module provides the dedicated processing, network, storage, and memory to run the VMware vSphere Hypervisor.
- VMware vSphere Hypervisor—Bare-metal hypervisor from VMware that provides the platform to host virtual machines.
- Virtual Machines—User-created virtual machines that run the Microsoft Windows Server or Linux operating systems.

See Figure 1-2 to understand the Cisco SRE-V terms.

Figure 1-2 Cisco SRE-V Terms



Differences Between Cisco SRE-V and VMware vSphere Hypervisor

The Cisco SRE-V product is different from the VMware vSphere Hypervisor in the following ways:

- Cisco SRE-V enables VMware vSphere Hypervisor to be provisioned on a Cisco SRE Service Module, which is integrated in the Cisco ISR G2.
- Configuration of the VMware vSphere Hypervisor IP address is done through the Cisco ISR G2.
- Redundant Array of Inexpensive Disks (RAID) management for Cisco SRE-V is done through the RAID management CLI.
- Software upgrade packages are obtained from Cisco.com.
- PCI passthrough settings are not applicable for the current generation hardware.

Hardware Requirements

The Cisco SRE-V software runs on the Cisco SRE Service Module, which is the hardware component of Cisco SRE-V. The Cisco SRE Service Module can reside either in the Cisco 2900 series or 3900 series ISR G2.

The Cisco SRE-V software is supported on the following service modules:

- Cisco SRE 700 or 710 Service Module
- Cisco SRE 900 or 910 Service Module

Table 1-1 provides the hardware information for each of the supported service modules.

Table 1-1 Cisco SRE Service Module Hardware at a Glance

Feature	Cisco SRE 700 or 710 Service Module	Cisco SRE 900 or 910 Service Module
Form Factor	SM	SM
CPU	Intel Core 2 Solo (one core active), 1.86 GHz	Intel Core 2 Duo (two cores active), two 1.86 GHz
DRAM	4 GB	4 GB or 8 GB
eUSB Flash Memory	2-GB internal USB flash-memory module	2-GB internal USB flash-memory module
Hard Disk	1 x 500 GB	2 x 500 GB (1 TB)
Internal Network Interfaces	1 Layer 2 Gigabit Ethernet interface 1 Layer 3 Gigabit Ethernet interface	1 Layer 2 Gigabit Ethernet interface 1 Layer 3 Gigabit Ethernet interface
External Network Interfaces	1 USB connector 1 RJ-45 Gigabit Ethernet connector	1 USB connector 1 RJ-45 Gigabit Ethernet connector
Router Platforms	2911, 2921, 2951, 3925, 3925e, 3945, 3945e	2911, 2921, 2951, 3925, 3925e, 3945, 3945e

Table 1-2 shows the Cisco EtherSwitch Enhanced High-Speed WAN Interface Cards (EHWICs) and Cisco EtherSwitch service modules that are supported on the Cisco ISR G2.

Table 1-2 Supported Cisco EtherSwitch EHWIC and Cisco EtherSwitch Service Modules

Cisco EtherSwitch EHWIC	Cisco EtherSwitch Service Module
EHWIC-D-8ESG-P=, EHWIC-D-8ESG-P, EHWIC-D-8ESG=, EHWIC-D-8ESG, EHWIC-4ESG-P=, EHWIC-4ESG-P, EHWIC-4ESG=, and EHWIC-4ESG	SM-D-ES3G-48-P, SM-D-ES3-48-P, SM-D-ES2-48, SM-ES3G-24-P, SM-ES3-24-P, SM-ES2-24-P, SM-ES2-24, and SM-ES3G-16-P

Software Requirements

- [Feature Licenses, page 1-4](#)
- [Third-Party Software, page 1-5](#)
- [Cisco SRE-V Options, page 1-5](#)

Feature Licenses

[Table 1-3](#) provides the feature license Stock-Keeping Units (SKUs) that are available for Cisco SRE-V.

Table 1-3 Feature License SKUs

License SKUs	Description
Licenses Without the VMware vCenter Server Support	
FL-SRE-V-HOST	VMware vSphere Hypervisor Host paper license purchased with the software.
FL-SRE-V-HOST=	VMware vSphere Hypervisor Host paper license purchased without the software (spare).
L-FL-SRE-V-HOST=	VMware vSphere Hypervisor Host electronic license purchased without the software (spare).
Licenses With the VMware vCenter Server Support	
FL-SRE-V-HOSTVC	Feature license for the VMware vSphere Hypervisor software on the Cisco SRE Service Module, which includes VMware vCenter Server management support. This license can be purchased with the software.
FL-SRE-V-HOSTVC=	Feature license for the VMware vSphere Hypervisor software on the Cisco SRE Service Module, which includes VMware vCenter Server management support (spare).
L-FL-SRE-V-HOSTVC=	E-delivery feature license for the VMware vSphere Hypervisor software on the Cisco SRE Service Module, which includes VMware vCenter Server management support (spare).
Upgrade Licenses to Add VMware vCenter Server Support	
FL-SRE-V-VC-UPG=	Feature license to upgrade the VMware vSphere Hypervisor software on the Cisco SRE Service Module to enable VMware vCenter Server management support (spare).
L-FL-SRE-V-VC-UPG=	E-delivery feature license to upgrade the VMware vSphere Hypervisor software on the Cisco SRE Service Module to enable VMware vCenter Server management support (spare).

For more information about VMware vSphere Hypervisor licenses, see [Chapter 5, “Managing the VMware vSphere Hypervisor License.”](#)

Third-Party Software

Cisco SRE-V uses the following third-party software:

- VMware vSphere Hypervisor—For virtualization.
- Microsoft Windows Server—For the guest operating system in virtual machines.

The following Microsoft Windows Servers are certified:

- Windows Server 2003 SP2 Standard 32-bit and 64-bit
 - Windows Server 2003 SP2 Enterprise 32-bit and 64-bit
 - Windows Server 2008 R2 Standard 64-bit
 - Windows Server 2008 R2 Enterprise 64-bit
- Linux—For the guest operating system in virtual machines.

For a list of supported Linux distributions, see the *VMware Compatibility Guide* at:

<http://www.vmware.com/resources/compatibility/search.php?deviceCategory=software>

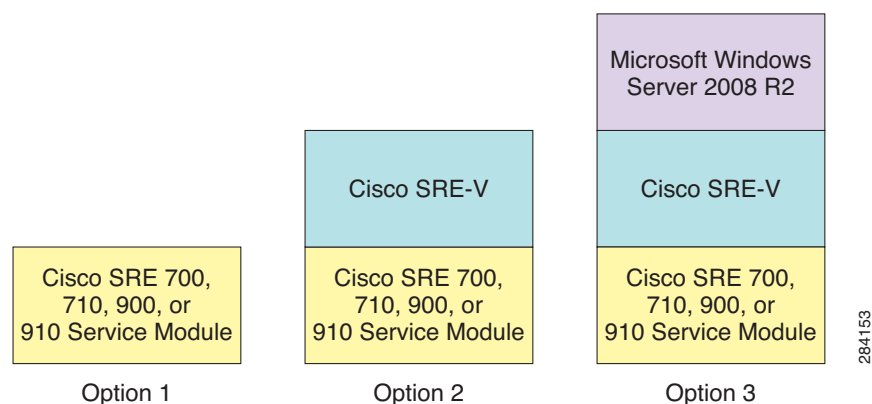
Cisco SRE-V Options

The software required depends on the Cisco SRE-V option that you choose.

- [Option 1: Hardware Only \(Cisco SRE 700, 710, 900, or 910 Service Module\)](#), page 1-5
- [Option 2: Hardware Plus Virtualization Software \(Cisco SRE 700, 710, 900, or 910 Service Module plus Cisco SRE-V\)](#), page 1-6
- [Option 3: Hardware Plus Virtualization Software and Microsoft Windows Software \(Cisco SRE 700, 710, 900, or 910 Service Module plus Cisco SRE-V plus Microsoft Windows Server 2008 R2\)](#), page 1-6

Figure 1-3 shows the Cisco SRE-V options.

Figure 1-3 Cisco SRE-V Release 2.0 Options



Option 1: Hardware Only (Cisco SRE 700, 710, 900, or 910 Service Module)

This is a Cisco SRE Service Module without any software installed on it. See option 1 in [Figure 1-3](#).

If you purchase this option, you must do the following:

- Download and install the Cisco SRE-V software.
- Download and install your own version of the Microsoft Windows Server 2003 software, Microsoft Windows Server 2008 software, or Linux distribution.
- Purchase a “spare” VMware vSphere Hypervisor license from Cisco.com; otherwise, the Cisco SRE-V software will stop functioning after the 60-day evaluation period expires. After you purchase the license, you must register and activate it.

For more information about VMware vSphere Hypervisor licenses, see [Chapter 5, “Managing the VMware vSphere Hypervisor License.”](#)

Option 2: Hardware Plus Virtualization Software (Cisco SRE 700, 710, 900, or 910 Service Module plus Cisco SRE-V)

This is the Cisco SRE Service Module with the Cisco SRE-V software preinstalled. See option 2 in [Figure 1-3](#).



Note

At the time of purchase, you can choose the RAID option that you want enabled on the Cisco SRE-V software. RAID is *not supported* on the Cisco SRE 700 or 710 Service Module. It is supported on the Cisco SRE 900 and 910 Service Modules only.

Purchase this option if you have your own version of Microsoft Windows Server 2003 software, Microsoft Windows Server 2008 software, or Linux distribution that you want to use.

If you purchase this option, you must do the following:

- Download and install your own version of the Microsoft Windows Server 2003 software, Microsoft Windows Server 2008 software, or Linux distribution.
- Activate your VMware vSphere Hypervisor license.

If you purchase the VMware vSphere Hypervisor license at the same time you purchase the Cisco SRE Service Module, a VMware license key is shipped to you in an envelope. This envelope is in the same package as the Cisco SRE Service Module. To use the Cisco SRE-V software, you must activate the VMware license key using the vSphere Client GUI; otherwise, the Cisco SRE-V software will stop functioning after the 60-day evaluation period expires.

If you choose to purchase the VMware vSphere Hypervisor license after you purchase the Cisco SRE Service Module, you must purchase a “spare” VMware vSphere Hypervisor license from Cisco Systems. After you purchase the license, you must register and activate it; otherwise, the Cisco SRE-V software will stop functioning after the 60-day evaluation period expires.

For more information about VMware vSphere Hypervisor licenses, see [Chapter 5, “Managing the VMware vSphere Hypervisor License.”](#)

Option 3: Hardware Plus Virtualization Software and Microsoft Windows Software (Cisco SRE 700, 710, 900, or 910 Service Module plus Cisco SRE-V plus Microsoft Windows Server 2008 R2)

This is the Cisco SRE Service Module with both Cisco SRE-V and Microsoft Windows Server 2008 R2 Standard Edition 64-bit virtual machine preinstalled. See option 3 in [Figure 1-3](#).

**Note**

At the time of purchase, you can choose the RAID option that you want enabled on the Cisco SRE-V software. RAID is *not supported* on the Cisco SRE 700 or 710 Service Module. It is supported on the Cisco SRE 900 and 910 Service Modules only.

If you purchase this option, you must activate your VMware vSphere Hypervisor license.

If you purchase the VMware vSphere Hypervisor license at the same time that you purchase the Cisco SRE Service Module, a VMware license key is shipped to you in an envelope. This envelope is in the same package as the Cisco SRE Service Module. To use the Cisco SRE-V software, you must activate the VMware license key using the vSphere Client GUI; otherwise, the Cisco SRE-V software will stop functioning after the 60-day evaluation period expires.

If you choose to purchase the VMware vSphere Hypervisor license after you purchase the Cisco SRE Service Module, you must purchase a “spare” VMware vSphere Hypervisor license from Cisco Systems. After you purchase the license, you must register and activate it; otherwise, the Cisco SRE-V software will stop functioning after the 60-day evaluation period expires.

For more information about VMware vSphere Hypervisor licenses, see [Chapter 5, “Managing the VMware vSphere Hypervisor License.”](#)

**Note**

With this option, the Microsoft Windows Server 2008 R2 license is preactivated. With this option, you also receive a Microsoft Windows Server 2008 R2 recovery DVD, which you can use if you lose or delete the Microsoft Windows virtual machine from your system.

Managing Cisco SRE-V

Cisco SRE-V uses several management interfaces.

- [Cisco IOS CLI, page 1-7](#)
- [RAID Management CLI, page 1-7](#)
- [VMware vSphere Client, page 1-8](#)
- [VMware vCenter Server, page 1-8](#)

Cisco IOS CLI

Use the Cisco IOS CLI to configure the host router and Cisco SRE Service Module interfaces. Cisco SRE-V resides on a Cisco SRE Service Module, which fits into a host Cisco router that runs the Cisco IOS software. For information about the supported Cisco IOS software, see the [“Verifying the Router, Cisco SRE Service Module, and Cisco IOS Software Version Compatibility”](#) section on page 2-1.

RAID Management CLI

Use the RAID management CLI to add or modify the RAID configuration. See [Managing RAID, page 7-1](#) for more information about RAID.

VMware vSphere Client

Use the VMware vSphere Client to manage the virtual machines.

VMware vCenter Server

Use the VMware vCenter Server to manage the virtual machines.

Basic Workflow

Table 1-4 lists the basic workflow steps and the options and network types for which each step applies.

Table 1-4 Basic Workflow

Step	Task	For option 1	For option 2	For option 3
1	Install the Cisco SRE Service Module into the ISR G2. See Chapter 2, “Installing the Cisco SRE Service Module into the Router.”	X	X	X
2	Use the Cisco IOS commands to configure the Cisco SRE Service Module interfaces. See Chapter 3, “Configuring the Cisco SRE Service Module Interfaces.”	X	X	X
3	Download and install the Cisco SRE-V software. See Chapter 4, “Installing and Managing the Cisco SRE-V Software.”	X		
4	Register and activate the VMware vSphere Hypervisor license. See Chapter 5, “Managing the VMware vSphere Hypervisor License.”	X	X	X
5	Install the vSphere Client, and then use the vSphere Client GUI to create and manage the virtual machines. See Chapter 6, “Managing Virtual Machines.”	X	X	X
6	Install your own version of the Microsoft Windows Server 2003 software, Microsoft Windows Server 2008 software, or Linux distribution, and then activate the software license.	X	X	
7	Install VMware tools. See the “Installing VMware Tools” section on page 6-7.	X	X	X