

Major Differences Between Catalyst 8540 CSR and Catalyst 8540 MSR

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Introduction

Cisco Catalyst 8500 series routers consist of the five-slot Cisco Catalyst 8510 and the 13-slot Cisco Catalyst 8540. Originally, two models of each system was offered:

- Campus Switch Router (CSR) Supported Layer-3 (L3) Ethernet, fast Ethernet, and Gigabit Ethernet interfaces only.
- Multiservice Switch Router (MSR) Supported ATM interfaces only.

A single Cisco Catalyst 8540 now supports both Ethernet and ATM interfaces in a single chassis when used with an ATM Router Module (ARM).

This document clarifies the differences between the MSR model and CSR model of the Cisco Catalyst 8540. It starts with a brief description of the architecture of CSR and MSR and then explains how to use the L3 ATM module in the same system. The last section contains a comparison table of CRS versus MSR.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Cisco Catalyst 8540 CSR and MSR Architecture

Cisco Catalyst 8540 CSR is designed to scale campus distribution and core networks. This Slot-13 chassis also provides support for Layer 2 (L2) bridging and L3 routing as well as future capabilities for ATM uplink

capacity. The Cisco Catalyst 8540 Switch Processor requires two slots, with a third slot needed for redundancy. Should either of the switch processors fail, the third will take over. One slot is required for the route processor, which handles system management and control plane functions. A second route processor slot is reserved for redundancy. The remaining eight slots are used for connectivity modules. The C8541CSR–RP and C8542CSR–SP modules run L3 Cisco IOS® Software.

Cisco Catalyst 8540 MSR can be equipped with ARM functionality which provides Ethernet–ATM and ATM–ATM bridging and routing capabilities. When the ATM router module is installed, you can have both L3 and ATM technologies in the same multiservice ATM switch router chassis.

Using Layer–3 and ATM Modules in the Same System

The ARM enables the interworking or frame forwarding between ATM and Ethernet interfaces in the same Cisco Catalyst 8540. Cisco IOS Software Release 12.0(4)W5(11a) introduced support for the ARM and for CSR modules in an MSR chassis. For more information, refer to Release Notes for the Catalyst 8540 MSR for Cisco IOS Release 12.0(10)W5(18c).) An MSR chassis is defined as a system with the MSR switch processor and route processor cards. (See Table 1 for part numbers.)

If a system uses Ethernet modules only, load the CSR software image on the MSR processor cards. The MSR processors support all CSR modules except the ATM Uplink with Enhanced Gigabit Ethernet interface module (C85–1OC12 and C85–1OC3). For more information, refer to the Hardware and Software Compatibility Matrix.

Major Differences Between 8540 MSR and CSR

Although they share the same chassis and reserve the five middle slots for processor cards, the MSR and CSR systems use different sets of switch processor cards and different images. The following table lists the key functional differences between a Cisco Catalyst 8540 MSR and CSR system.

MSR

CSR

Functional Purpose

- Provides integrated ATM cell switching and L3 frame switching and routing in a single chassis. Support both modules types in a single chassis with the ARM.
- Provides a multiservice ATM switch with circuit emulation, inverse multiplexing over ATM (IMA) and Frame Relay interworking interfaces.
- Provides L3 Ethernet features.
- Provides ATM and Packet over SONET (POS) uplinks for connecting to high–speed campus and metropolitan–area networks.

Route Processor Model

C8545MSR–MRP–MRP3CLK, C8545MSR–MRP–MRP4CLK

C8541CSR–RP

Switch Processor Model

C8546MSR–MSP–FCL

C8542CSR–SP

Cisco IOS Images

cat8540m–wp–mz

cat8540c–in–mz

Supported Interface Modules

All MSR and CSR interfaces except the ATM with enhanced Gigabit Ethernet

All CSR modules (with a cat8540c image)

Support for Network Clock Module

Yes (with C8545MSR–MRP–MRP3CLK). Critical for timing–sensitive applications, such as Circuit Emulation Services.

No

In other words:

- With a C8541–RP route processor and C8542–SP switch processor, a Cisco 8540 operates as a L3 switch only.
- With a C8545–MRP multiservice route processor and C8546–MSP multiservice switch processors, a Cisco 8540 operates as a multiservice ATM switch that supports ATM, circuit emulation, IMA, and Frame Relay interworking interfaces.
- With an ARM and supporting Cisco IOS image, an 8540 with C8545–MRP and C8546–MSP supports both ATM and L3 interfaces in a single chassis.

Note: Although the MSR processors support a Cisco IOS "C" image and CSR processors support an "M" image, such configurations are not recommended or supported. For more information, refer to the Hardware and Software Compatibility Matrix for officially supported configurations.

Related Information

- [Upgrading Redundant Route Processors on the Catalyst 8540](#)
- [Configuring and Traffic Policing Point–to–Multipoint PVC Connections on LightStream 1010, Catalyst 8510MSR and Catalyst 8540MSR Switches](#)
- [Clocking Requirements for the LightStream 1010, Catalyst 8510–MSR and Catalyst 8540–MSR](#)
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