Cisco 8000 Hardware Emulator Datasheet

Software Release

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Contents

Product Overview 3
Benefits 3
Emulated Platforms 3
8000 Emulator Architecture 4
Deploying the Emulator 5
Runtime Requirements 5
Limitations 6

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Product Overview

The Cisco 8000 Series Hardware Emulator is a groundbreaking virtual router platform that emulates the physical hardware design of Cisco's router series. Thus, a focus on accurate modeling of the router chassis, whether fixed form factor or modules chassis, and accurate ASIC models deployed in dataplane and fabric roles. Designed to be Network Operating System (NOS) agnostic, the emulator can run IOS-XR ISO or SONIC NOS on the same virtual hardware, functioning like a hypervisor.

Benefits

Key benefit for customers:

- Early access to virtual hardware for testing and integration
- Integration with network emulation environments
- Integration into CI/CD development pipelines
- Evaluation of next generation IOS-XR.

Emulated Platforms

Currently Supported Platforms:

Fixed and centralized chassis:

- 8201
- 8201-32FH
- 8202
- 8202-32FH-M
- 8212-48FH-M
- 8223-64EF-M
- 8101-32H
- 8102-64H
- 8111-32EH

8808 and 8804 modular chassis with different linecards:

- 88-LC1-36EH
- 88-LC1-5Y8H-EM
- 8K-MPA-4H
- 86-MPA-14H2FH-M
- 8K-MPA-16H

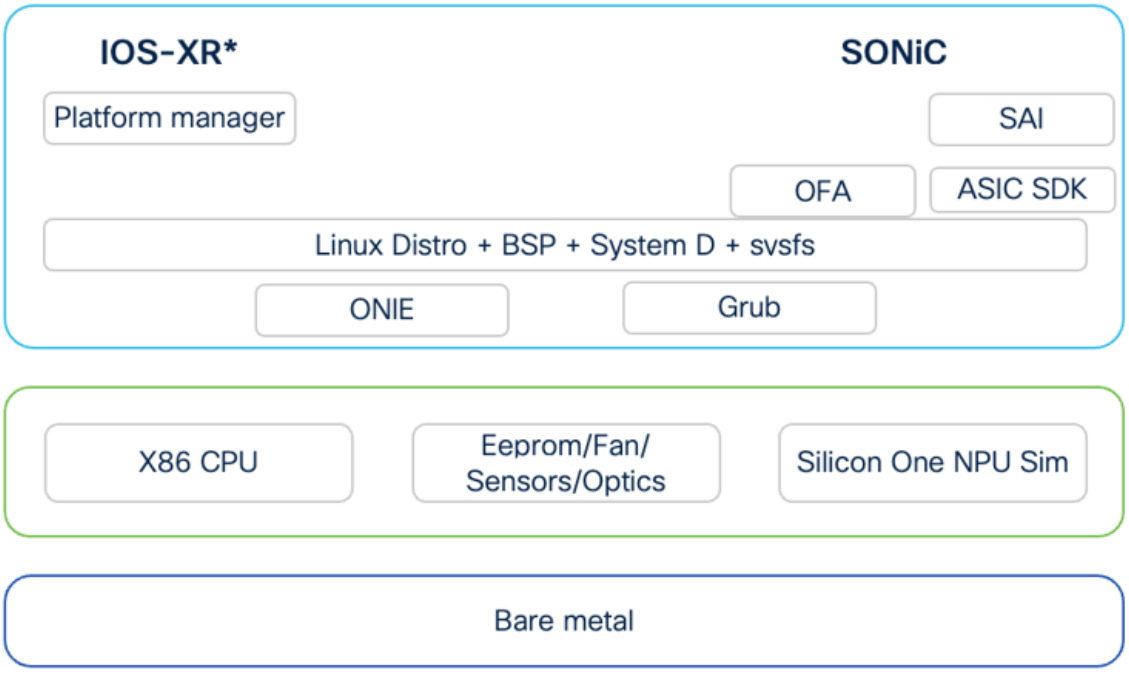
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- 8K-MPA-16Z2D
- 8K-MPA-4D
- 8711-32FH-M
- 8800-RP
- 88-LC0-36FH-M
- 88-LC0-36FH
- 8800-LC-48H
- 8808-FC
- 88-LC0-34H14FH

Note 1: Additional emulated platforms will be released coinciding with the introduction of new 8000 routing hardware.

8000 Emulator Architecture

The 8000e product line leverages type 2 hardware accelerated hypervisor technology and benefits from running on BareMetal servers. Being a hardware emulator, the 8000e is a distinct software product and is independent of the guest operating system.



While single board/CPU platforms can be represented with an instance of the hypervisor, modular chassis such as the 8808 require multiple instances. For this reason, the computational requirement for a populated modular chassis grows with the number route

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processors, Line cards, and Fabric cards simulated in the system. This also implies the use of a custom orchestrator for network topologies.

Deploying the Emulator

The software package comes with complete toolset required to create and run topologies of emulated routers. Using our solution, users can orchestrate different 8000 platform emulators, other virtual routers, traffic generators. The topology specification in YAML notation. The toolset includes a python library to manage the simulation lifecycle.

Alternatively, users are enabled to build docker wrapped versions of each platform. With this approach the 8000 routers can be integrated into any orchestration system that supports docker virtual routers, such Cisco Modeling Labs, ContainerLab, GNS3, or EVE-NG.

Deployment options are:

Deployment	ase System	OS	What is provided	Note
ux Server installation	vcpu 256G+ Mem	ıntu22	ux packages + install scripts	ommended configuration is 128 VCPUs and 512G+ memory to support later topologies
ker env	PU per board + 20G memory	ıntu22+ or Redhat8+ with docker support	s to build Docker instance	e server recommendation as above.
S	metal ınce	ıntu22	omation scripts to create AMI images	

Note 1: Resource requirements cover ability to run single instances in nested virtualization mode.

Runtime Requirements

Emulator	Operating System	VCPU	Memory	Disk	Comment
d Chassis	-XR		32G	+i	

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dular Chassis	-XR	board	32G/board	+/board
d Chassis	NIC		+	+

Limitations

While 8000 emulators attempt to model the hardware router, there are limitations:

Feature	Emulator limitation
ffic shaping and rate limiting	ctionality is limited and does not match hardware.
a Throughput	aplane throughput is in the thousands of packets a second and cannot handle line rate traffic.
nters	ne hardware counters are not supported by the emulator.

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