



CSE2000 CARRIER SERVICES ENGINE

Product Overview

As carrier networks are increasingly built around a simple transport layer surrounded by software-driven services, they generate demand for carrier-grade x86 appliances suitable for collocation with telecommunication equipment. The CSE2000 Carrier Services Engine is leading the market in this direction as a premier, general-purpose, scaling and services platform capable of running both Juniper and third-party software packages. The offload capabilities of the CSE2000 improve both the scale and richness of network services at a fraction of the cost normally reserved for specialized proprietary hardware platforms.

Product Description

Juniper Networks® CSE2000 Carrier Services Engine is a high-performance service provider appliance for a wide range of controller, scaling, and Network Functions Virtualization (NFV) applications. This appliance meets and in many ways exceeds NEBS/ETSI standards, and it provides the robust foundation for Juniper and third-party services like route reflection, traffic sampling, flow monitoring, path computation, distributed denial of service (DDoS) protection, and many others. With the CSE2000, a service provider can save money by collocating services with transport and edge devices, and simplify service architectures by deploying a network controller in any convenient location. This “just in time” service processing complements the data center-based network services model pioneered by Juniper Networks Contrail for robust and flexible SDN component deployment.

Software for the CSE2000 comes in the form of Juniper and third-party applications and is user-installable. System throughput is up to 40 Gbps per blade, with stacking available for higher performance clustering. The appliance has been designed with the highest reliability standards and supports redundant hot-swappable power supplies, front-to-back airflow, and a hardware alarm interface. Services are supported over multiple parallel 10GbE links, with automatic failover in the event of a link loss.

Architecture and Key Components

The CSE2000 Carrier Services Engine is a hardened 2 RU chassis designed to carry two blades. Blades can come in computing (x86) and switch (62x 10GbE) form factors. Power is provided by AC or DC supplies in active/active redundancy configuration, with cooling delivered by hot-swappable fans (front-to-back air intake). Computing blades come with an I/O card (IOC) supporting up to four 10GbE interfaces. The key hardware features are listed in Table 1.

Table 1: CSE2000 Key Hardware Features

X86 Blade	CPU Type	CPU Scale	Management Ports	Data Ports
Hot-swappable	Intel Xeon	8 cores @ 1.8Ghz	4x1GbE (one IPMI port), 1x RJ45 console	2x10GbE 4x10GbE (option)
Switch Blade	Hardware	Media	Management Ports	Data Ports
Hot-swappable	Broadcom 56846	SFP pluggable optics	1x RJ45 IPMI port	62x dual-rate 1GbE/10GbE
CSE2000 Chassis	Power Supplies	Cooling	Dimensions (W x H x D)	Other Ports
Two blade bays	Two (active/active) AC and DC versions	Front-to-back NEBS compliant, hot-swappable	17.28 x 3.5 x 20 in (43.88 x 8.8 x 50.8 cm) 2 Rack Units	3-pin Telco Alarm



Features and Benefits

CSE2000 is engineered for seamless interaction with carrier-grade platforms such as Juniper Networks PTX Series Packet Transport Routers. For maximum performance, the appliance can be tethered directly to management ports of the active and backup Routing Engines (REs) of the connected devices, with the data path automatically forming over dedicated 10GbE interfaces on x86 blade (IOC) and a router (FPC). Once physical configuration is complete, CSE2000 may act in multiple roles supporting the service provider platform with computing resources.

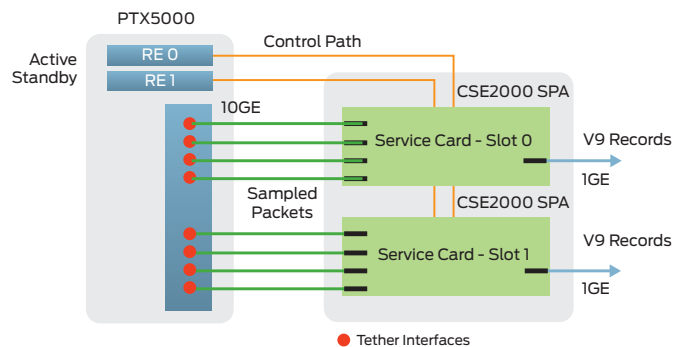


Figure 1: CSE2000 to PTX5000 interconnect

Control Plane Scaling

One application of CSE2000 is scaling the network control plane by dedicating computing resources to route reflection services. This application takes advantages of the powerful multicore execution environment of x86 blades, and it delivers the acceleration of route updates in complex IP/MPLS and VPN environments. All features of a Juniper Networks Junos® operating system BGP implementation are supported.

Services Plane Scaling

When tethered to a transport router, CSE2000 is recognized as a multiservice PIC, with numerous features available for offload. For example, traffic sampling can run on the CSE2000 with speeds up to 40 Gbps (when using a limit on sample size) or up to 18 Gbps when sampling full-size packets.

Third-Party Application Support

The virtualization and API capabilities of CSE2000 allow for third-party applications to run on the platform with or without router integration. One example of such an application would be DDoS mitigation. Another example would be WAN controller software for label-switched path (LSP) planning, monitoring, and placement.

Specifications

Table 2: CSE2000 Physical Specifications

Parameter	Description
Form factor	2 RU, rack mountable (supports 19 in. rack, front-flush and recessed mounting)
System cooling	Front to back (no side intake), 12/40 mm hot-swappable fans, smart fan control
Operating temperature	Long term 5° to 50° C; Short term -5° to 61° C
Power supply	Redundant, AC and DC versions, 80 plus rated, nominal output 1,200 W
Compliance	NEBS/ETSI

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Ordering Information

Model Number	Name
CSE2000-1RE-AC	CSE2000 chassis, one x86 blade, 32 GB RAM, redundant AC power supply
CSE2000-1RE-DC	CSE2000 chassis, one x86 blade, 32 GB RAM, redundant DC power supply
CSE2000-2RE-AC	CSE2000 chassis, two x86 blades, 32 GB RAM, redundant AC power supply
CSE2000-2RE-DC	CSE2000 chassis, two x86 blades, 32 GB RAM, redundant DC power supply
RE-CSE2000-32G-S	Spare x86 blade, 32 GB RAM
S-JFLOW-V9-license	Software application: J-Flow

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