



JCS1200 CONTROL SYSTEM

Product Overview

Service providers are scaling and converging multiple networks into a single intelligent network, capable of handling high-revenue applications such as multiplay and video over IP.

Creating and maintaining a clear separation of services while at the same time converging those services onto a shared infrastructure is a serious challenge for providers. The Juniper Networks JCS1200 Control System enables service providers to maintain a distinct separation between services, easily allocate additional resources as services grow, and quickly deploy new services—all while protecting their investment in expensive forwarding hardware.

Product Description

The Juniper Networks® JCS1200 Control System is an innovative system for scaling the control plane of routers and allowing the clean partitioning of services or network elements. JCS1200 enables unprecedented levels of scalability in a consolidated routing platform, while at the same time reducing the expenses associated with implementing and operating a multiservice network. In addition, JCS1200 allows increased control of services, rapid service enablement and high operational efficiency. An architecture built on JCS1200 creates a future-proofed IP/MPLS network.

JCS1200 is a chassis accommodating up to twelve Routing Engines (REs) and connecting to one or more Juniper Networks T Series Core Routers with redundant Gigabit Ethernet connections. It enables the creation of up to six dual-RE routers, twelve single-RE routers, or any combination of the two. Because the system provides purpose-built slots for the REs, all of the high-throughput Flexible PIC Concentrator (FPC) slots on the T Series routers can be used for forwarding. This architecture allows the control plane to scale independently to enable unprecedented control plane scaling with no impact on the forwarding plane capacity.

The JCS1200 delivers two major advantages:

- The dedicated RE chassis eliminates any need to use expensive, high-speed router slots for control plane support. All 40 G and 100 G slots on the routers are preserved for forwarding.
- The JCS1200 works with existing Juniper routers and their FPCs, protecting your capital investment. There is no need to install new forwarding hardware in order to gain the advantages of virtualized routers; the simple addition of a control board in the T Series for connection to the JCS1200 is all that is required.

Architecture and Key Components

Each of the virtualized routers—called protected system domains (PSDs)—consists of one or two REs in the JCS1200 chassis and a designated number of interfaces and forwarding resources in the T Series chassis. Each PSD runs its own copy of Juniper Networks Junos® operating system. Each PSD can be upgraded, managed and restarted independent of the other PSDs and without interfering with the other PSDs. This complete isolation means that PSDs can be assigned to and managed independently by different groups within your organization, each with its own mission, priorities and schedules. You realize the benefits of physically separate routers while simultaneously minimizing capital investment, rack space and power consumption.

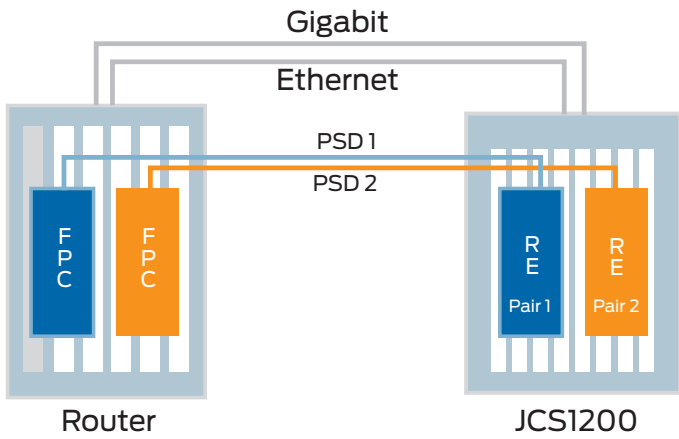


Figure 1: JCS1200 Architecture

Junos OS has long supported the creation of logical routers, which are software-based routers with internal, logical interconnections and shared physical interfaces. With up to 12 physical PSDs in each JCS1200, each supporting up to 16 logical routers, as many as 192 logical routers can be implemented on one JCS1200 for unprecedented scalability and flexibility.

Redundant power supplies, cooling and switch modules maintain high availability (HA).

There are numerous application examples for the control plane scaling and virtualization capabilities of the JCS1200. Service separation and rapid deployment can be realized for voice, video, VPN applications, gaming, or any consumer or business service. Network virtualization capabilities include collapsed point of presence (POP) architectures, consolidated networks or “carrier of carrier” services. The JCS1200 can also be used as a high-capacity route reflector or a peering policy processor.

JCS1200 allows a faster and risk-free introduction of new services. As mentioned earlier, each protected system domain (PSD) is a separate physical entity, guaranteeing complete security and isolation between each PSD, and thus each service. This dramatically reduces the risk of adversely impacting existing customers.

This reduced risk translates into much faster time to market, and thus to revenue, because the testing in the lab closely matches the testing in the field and the way the network will run in production. JCS1200 gives you service isolation benefits without additional capital expenditures.

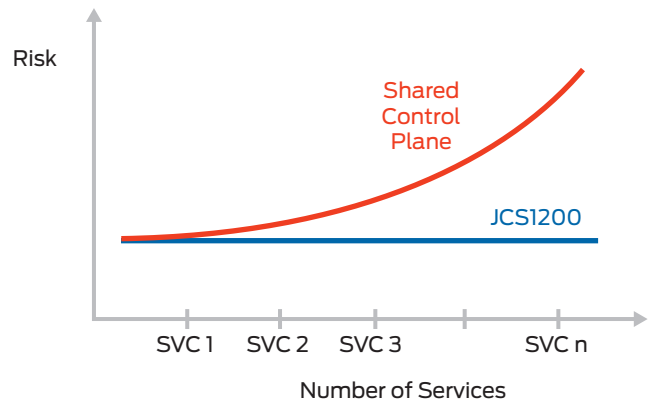


Figure 2: JCS1200 offers reduced risk as services are added

JCS1200 can also be used to consolidate a POP architecture. Core, aggregation, peering and edge control planes remain separate but virtualized. High-capacity FPC slots of the physical routing platform can be flexibly allocated to high-density customer-facing interfaces or high-bandwidth core uplinks as demand dictates.

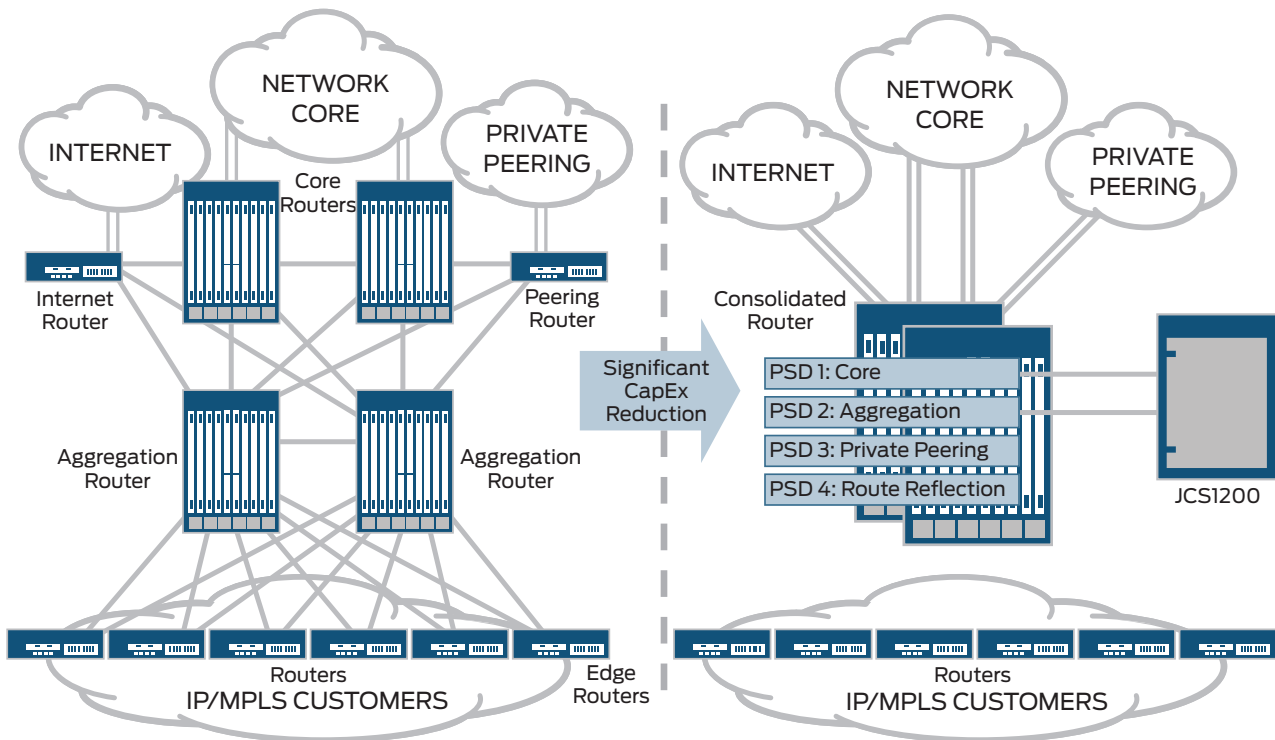


Figure 3: Example of network consolidation

Features and Benefits

Features	Feature Description	Benefits
Purpose-built "Routing Engine chassis"	The JCS1200 is created to accommodate up to twelve REs, and to flexibly associate these REs with designated Forwarding Plane resources in one or more T Series chassis.	All high-performance slots on the connected T Series routers are preserved for interfaces, assuring investment protection and maximizing interface density.
Hardware-based router virtualization	Each PSD consisting of a single or redundant REs and designated forwarding plane resources, is completely isolated from the other PSDs, resulting in the equivalent functionality of a standalone router.	Different administrative groups can manage their own PSDs, including restarting, upgrading and maintaining their own software version, without interfering with other PSDs.
Control plane extension to T Series	The JCS1200 connects to existing T Series models – T320, T640 and T1600.	Investments in existing T Series hardware are protected.
High availability hardware	Component level redundancy is available for REs, switches, management modules, power supplies and cooling.	High availability and continuous operation is critical in a consolidated routing platform. There is no single point of failure in the JCS1200.
High availability software	Non Stop Routing (NSR) provides the foundation for seamless system upgrade, as well as JUNOScript commit script capabilities, mean continuous operation under maintenance conditions and topological changes.	High availability requirements in core networks include the elimination of planned downtime.
Solid, modular, feature-rich software	Each release of Junos OS runs consistently across all Juniper Networks routing platforms and feature sets. Junos OS was conceived and implemented as a modular design. Advanced features include point to multipoint MPLS, MPLS VPN, IPv6 PE, and many more unique features in core routers.	Each Junos OS process runs in protected memory to guard against system crashes and to ensure that applications do not interfere with each other. Junos OS provides the greatest breadth of features and most stable network operating system in the industry.
Wide range of interfaces	The full range of T Series interfaces, from DS3 to OC-768, is available to the PSDs. Juniper provides the largest variety of interfaces among core routing platforms. This interface variety (both optical and copper) is unique in the market.	Combining the functions of previously disparate network elements offers greater network simplicity, and retains the service-building advantages of the overlay networks being replaced by the converged network.
Logical routing capability	Using logical routers, the applications, configurations, protocols and routing tables assigned to a logical router belong to that one logical router. Juniper's state-of-the-art logical routing support is the only implementation with shared uplink support.	Each JCS1200 PSD can support up to 16 logical routers, providing tremendous service scaling potential in a single consolidated system.



JCS1200

Specifications

Physical Dimensions (W x H¹ x D²)

- 17.4 x 211 x 27.82 in
(44.2 x 53.31 x 70.62 cm)

Maximum Weight

- Fully loaded with Routing Engines: 350 lb / 158.8 kg
- Empty chassis without Routing Engines or modules: 144 lb / 65.3 kg

Mounting

- Front or center
- Rack mount

DC System Input Power

- Four inputs at 60 A rating each
- Minimum: -40 VDC
- Maximum: -72 VDC
- DC isolated

DC System Thermal Output

- Minimum configuration: 4270 BTU per hour (1251 Watts)
- Maximum configuration: 19680 BTU per hour (5766 Watts)

AC System Input Power

- Four inputs at 16 A rating each
- Minimum: 180 VAC
- Maximum: 256 VAC
- Sine-wave input (50/60 Hz single-phase)

AC System Thermal Output

- Minimum configuration: 4175 BTU per hour (1223 Watts)
- Maximum configuration: 21850 BTU per hour (6400 Watts)

Air Temperature (JCS1200 Platform On)

- Altitude of -197 to 6,000 ft (-60 to 1,800 m): 41° to 104° F (5° to 40° C)
- Altitude of 6,000 to 13,000 ft (1,800 to 4,000 m): 41° to 86° F (5° to 30° C)

Air Temperature (JCS1200 Platform Off)

- -40° to 158° F (-40° to 70° C)

Humidity

- 5% to 85%

Acoustics

- 7.8 bels

Media Trays (On Front)

- Minimum: One hot-swappable media tray
- Maximum: Two hot-swappable media trays
- Each Media Tray consists of:
 - Two USB v2.0 ports (output power 500 mA maximum)
- Front system LED panel

Blade Trays (On Front)

- Twelve hot-swappable Routing Engine bays
- Module Bays
 - Four hot-swappable power module bays
 - Two hot-swappable switch module bays
 - Two hot-swappable management module bays
 - One hot-swappable alarm panel module bay
 - Direct serial connector for Routing Engines
 - LED panel
 - Four hot swappable DC or AC power modules that provide redundancy to all JCS1200 components
- Redundant cooling: Four hot-swappable fan module bays (N+1 redundant)

Management Module

- Minimum: One hot-swappable management module
- Maximum: Two hot-swappable management modules (one active, one standby)

Security Features

- Login password for remote connection
- SSL security for remote management access

Agency Approvals

- EMC
- AS/NZS 3548 Class A (Australia/New Zealand)
- ICES 003 Class A (Canada)
- BSMI Class A (Taiwan)
- EN 55022 Class A emissions (Europe)
- FCC Class A (USA)
- VCCI Class A (Japan)

¹Height is 12 U, minus .8 cm for clearance

²Depth without optional bezel is 24.2 in (61.4 cm)

Juniper Networks Services and Support

Juniper Networks is the leader in performance-enabling services that are designed to accelerate, extend, and optimize your high-performance network. Our services allow you to maximize operational efficiency while reducing costs and minimizing risk, achieving a faster time to value for your network. Juniper Networks ensures operational excellence by optimizing the network to maintain required levels of performance, reliability, and availability. For more details, please visit www.juniper.net/us/en/products-services.

Ordering Information

Model Number	Description
JCS1200BASE-DC JCS1200BASE-AC	JCS1200 base system
RE-JCS-1x2330-4096-S	Route Engine blades

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

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