Chapter 1
SRC Product Overview

This chapter provides a general overview of the Session and Resource Control (SRC) software, formerly the Service Deployment System (SDX) software, and of the C-series Controllers. Topics include:

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SRC Product Description

The Juniper Networks C2000 and C4000 systems, collectively referred to as C-series Controllers, are self-contained units with known capacity designed to optimize delivery of the features in the Juniper Networks Session and Resource Control (SRC) software. The model in use determines the number of service session licenses and concurrent subscribers allowed.

The SRC software is a robust, customizable product that allows a service provider's customers to dynamically activate SAE services in real time. Consequently, service providers can instantly realize gains in revenue without significant effort from sales, operations, and provisioning teams.

By using the SRC software, service providers can rapidly create and deploy many new SAE services to hundreds of thousands of business and residential subscribers. These Internet services, such as video on demand, IP television, or integrated voice and data, are offered over a variety of broadband access technologies, such as wireless Internet service provider roaming (WISPr), wireless fidelity (Wi-Fi) 802.11, digital subscriber line (DSL), cable, Ethernet, asynchronous transport mode (ATM), Frame Relay, SONET, and fixed wireless.

The SRC software offers a service-optimized architecture, which ensures quick time to revenue, flexible subscriber service management, and reliable service delivery. The management products use a modular design, which gives service providers the ability to select the components that meet their network requirements and business needs.

The SRC software can manage policies on Juniper Networks routers and cable modem termination system (CMTS) devices and can activate policies on other systems to provide end-to-end service quality.
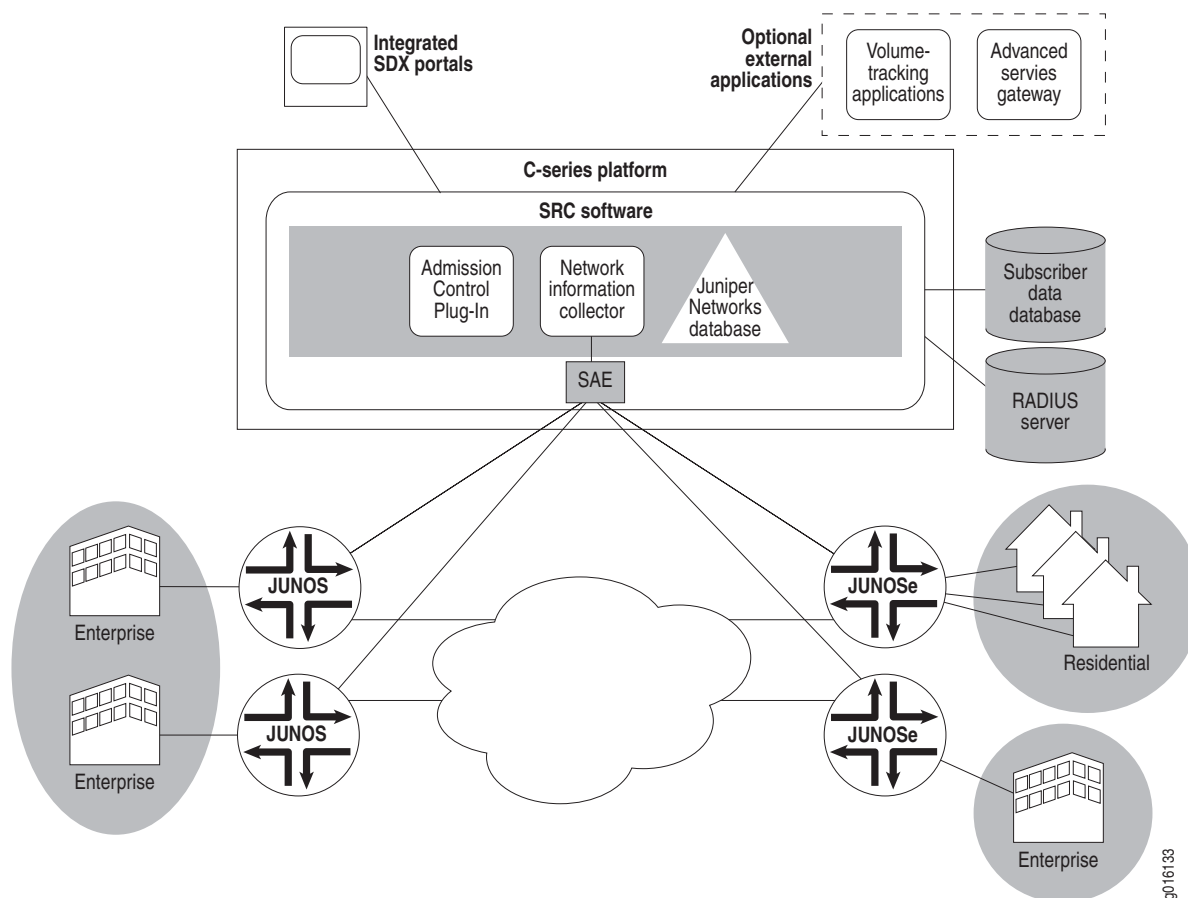
When integrated with the Juniper Networks Intrusion Detection and Prevention (IDP) system by using the SRC application library, an SRC-managed network can protect against malicious traffic that can affect overall network performance. When integrated with Juniper Networks Instant Virtual Extranet (IVE) Host Checker integration application, an SRC-managed network can verify that the subscriber systems used to connect to a service provider comply with a service provider's policies.

The SRC software is designed to simplify the three major steps in the IP service life-cycle process:

1.   Creating innovative, revenue-generating services

2.   Delivering numerous on-demand services to subscribers

3.   Tracking services with intelligent accounting applications

Figure 1 illustrates how the SRC software manages JUNOSe routers and JUNOS routing platforms in an SRC network.

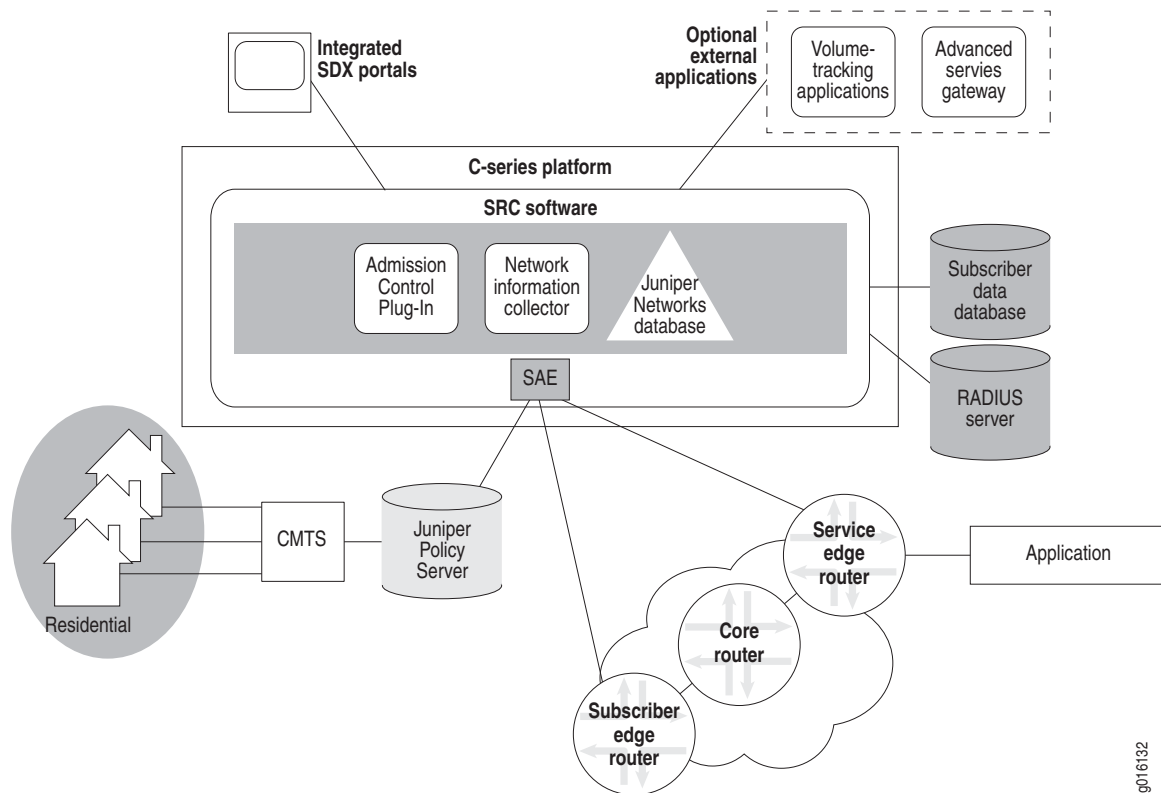**Figure 1: SRC Network with C-series Controllers**

In addition, the SRC software can be used in a PacketCable MultiMedia (PCMM) environment to simplify other management tasks, such as:

1. Creating end-to-end service quality for subscribers in a PCMM environment

2. Marking traffic forwarded from specified systems, such as video servers

In general, service offerings supported by the SRC can be used in a cable environment.

Figure 2 illustrates how the SRC software can be used in a PCMM environment to manage JUNOSe routers, JUNOS routing platforms, and CMTS devices. The SRC software can use the Juniper Policy Server as shown in Figure 2, or a policy server embedded in the SAE.

Figure 2: SRC-Managed PCMM Network

SRC Product Features and Benefits

The SRC software provides a host of features for today's Internet service challenges. Table 4 lists some of the many features and benefits that service providers need.

Table 4: SRC Software Features and Benefits

Feature	Benefit
Carrier-class architecture	■ Provides a distributed architecture for flexibility. ■ Integrates with provider subscriber databases and supports customer profiles to define subscriber groups. ■ Instantiates each key server multiple times for either load distribution or failover. ■ Facilitates a variety of wholesale and retail models. ■ Uses CLI and GUI management and monitoring.
Seamless integration with operations support systems (OSS)	■ Uses modular design and standards-based interfaces such as HTML/XML, RADIUS, LDAP, Common Object Request Broker Architecture (CORBA), and Simple Object Access Protocol (SOAP). ■ Supports open interfaces and mediation mechanisms to facilitate system integration with diverse OSS applications, including systems for subscriber management, customer care, order entry, provisioning, billing, security, and sales support. ■ Ensures smooth integration with back office solutions. (We partner with leading providers of telecommunications, RADIUS/authentication, authorization, and accounting (AAA), and billing systems to offer these services.)
Financial advantages	■ Avoids the misconception of a one-size-fits-all Internet access model by offering compelling content options with the appropriate level of bandwidth, quality of service (QoS), and network functions (for example, security, traffic prioritization, and filtering). ■ Allows providers to hold down on capital expenditures and operating expenses by offering a wide range of flexible services, tools, billing models, and revenue streams, and by using the same network infrastructure.
Optimal scalability	■ Scales for rapidly growing networks and subscriber bases. ■ Works with JUNOSe routers, JUNOS routing platforms, and PCMM-compliant CMTS devices to automatically provision and support thousands to millions of subscribers in a distributed environment. ■ Uses zero-touch subscriber provisioning, which removes the roadblocks that can slow large-scale broadband subscriber acquisition.
Easy-to-build wholesale-retail model	■ Provides a transparent infrastructure to Internet service provider (ISP), application service provider (ASP), and content partners, which lets partners retain ownership and management of their subscriber bases. ■ Frees partners from the responsibility of handling network operations so that they can focus solely on service delivery.
Intelligent accounting	■ Tracks service usage to enable rich and creative tariff models. ■ Supports customer care, rating and billing, security, and sales support systems. ■ Simplifies the task of collecting and managing retailer and subscriber accounting data. ■ Uses a configuration interface to choose the policy rules to be used for accounting per interface direction (ingress and egress). ■ Activates multiple service sessions simultaneously for a given subscriber; each session can be tracked separately. ■ Supports plug-in software that gives service providers the ability to extend system capabilities. ■ Allows for flexible accounting rules.

Table 4: SRC Software Features and Benefits (continued)

Feature	Benefit
Easy subscriber management	■ Uses configuration interfaces for service definition and subscriber management.
	■ Uses a directory that acts as a central repository of customer information and service portal configurations. The directory stores router information.
	■ Works with JUNOSe routers, JUNOS routing platforms, and PCMM-compliant CMTS to collect subscribers' credentials and queries the RADIUS server for authentication and authorization.
	■ Accommodates and manages a very large number of subscribers (for example, a typical subscriber base may be in the millions).
Dynamic policy management	■ Gives subscribers consistent service experience across the network, regardless of the actual network deployment and the mode of connection to the network.
	■ Enables real-time provisioning and collection of subscriber usage data.
	■ Offers high availability based on seamless failover.
	■ Uses configuration interfaces to define policies and store them in a central repository.
	■ Provides robust support for access, QoS, and activation of new services on demand with configurable policies.
	■ Performs dynamic policy decisions while services are activated, leveraging on the directory content to make policy decisions.
	■ Provides end-to-end service levels across the network.
Web-based portal	■ Creates dynamic Web pages, giving subscribers personalized displays to select services on demand.
	■ Offers branding opportunities for network provider/service provider partners.
	■ Identifies subscribers, grants them access to defined services, and maps their selected service(s) to the network by means of dynamically provisioned policies.
	■ Allows portals to be deployed in any application server with support for CORBA or SOAP.
	■ Provides a starting point for rapid portal development through documented sample portals supplied for Java 2 Enterprise Edition (J2EE) application servers.
Easy service creation	■ Uses a policy editor to enable the definition of various policy objects.
	■ Uses configuration interfaces to define new services and to create service templates for future use. Service templates provide the service-provisioning information that configures the router for efficient, real-time delivery of that service.
	■ Provides flexible service creation, a reusable service library, and automated service implementation.
	■ Allows providers to define policies once and apply them network-wide.
Service activation engine (SAE)	■ Translates services into lists of policies to be enforced on the router.
	■ Initiates the service-usage data-collection process.
	■ Customizes services with differentiated QoS and policies.
	■ Collects usage data (time and volume) by subscriber and service to enable differentiated rating and billing.

Table 4: SRC Software Features and Benefits   (continued)

Feature	Benefit
Flexible open interface support	■ Allows an external entity or system to control the SRC software's behavior.
	■ Uses application programming interfaces (APIs) to authenticate managers; to navigate among retailers, enterprises, and sites; and to create, delete, activate, and deactivate service sessions.
	■ Provides a Common Open Policy Service for policy provisioning (COPS-PR) interface.
	■ Integrates into a PCMM environment with support for CableLabs PCMM specification.
	■ Extends policies to systems that do not have a supported router driver.
	■ Integrates with IDP to protect network traffic.
	■ Integrates with IVE to verify that the subscriber systems used to connect to a service provider comply with the service provider's policies.
	■ Integrates with the Ellacoya Networks Deep Packet Inspection (DPI) platform to provide a traffic management solution that combines the advanced traffic identification and reporting features of the Ellacoya DPI with the SRC software's intelligent service policy enforcement. With this solution, providers can identify, monitor, and control traffic on a per-application or per-subscriber basis.
	■ Integrates into an IP multimedia system (IMS) environment. The SRC software provides a Diameter protocol-based interface that allows the SRC software to integrate with services found on the application layer of IMS.