SRC Series Session and Resource Control Software

Product Overview

In order to offer differentiated broadband subscriber plans and ensure high-quality delivery of IPTV, video on demand (VOD), gaming, and multimedia services, service providers must allocate and control network resources in real time. Juniper Networks Session and Resource Control (SRC) software elegantly addresses these requirements with high performance and reliability at carrier scale. Building on Juniper's long-standing technology and market leadership, the advanced SRC Series software offers a comprehensive, customizable, and automated policy management, subscriber management, bandwidth management, and resource control solution.

Product Description

Service providers are placing significant emphasis on and making significant investments in policy and control as the deployment of high-value multiplay services accelerates and the evolution to Third-Generation Partnership Project IP Multimedia Subsystem (3GPP IMS) and the European Telecommunications Standardization Institute's Telecoms and Internet Converged Services and Protocols for Advanced Networks (ETSI TISPAN) architectures continues. Key policy and control functions include policy management; subscriber management and authentication, authorization, and accounting (AAA); bandwidth management; and network resource control. The Juniper Networks Session and Resource Control portfolio provides these critical functions, harmonizing subscribers and applications with the network layer and integrating with operations support systems and business support systems (OSS/BSS).

The Juniper Networks Session and Resource Control (SRC) portfolio consists of sophisticated software that extends Juniper's network layer expertise to the policy and control layer. The SRC Series of advanced software modules—the SRC Policy Engine, the SRC Diameter Gateway, the SRC SOAP Gateway, and the SRC Volume Tracking Application—run on Commonly Off The Shelf (COTS) hardware and use widely adopted standards-based open interfaces to maximize interoperability with the broadest range of elements, applications, and platforms.

At the network layer, SRC Series software modules are fully integrated with Juniper Networks routing platforms and security solutions, extending support to third-party network elements via RADIUS CoA (change of authorization) and scripting services.

SRC Series software modules integrate easily with external repositories and related systems that support billing, customer care, order entry, provisioning, billing, and security.

SRC Series gateway modules use standards-based interfaces to integrate with a broad set of service layer applications, enabling application-driven control of network resources.

The SRC Series software modules offer a carrier-grade policy and control solution that, together with Juniper routing and security products and third-party applications, support the delivery of high-value, differentiated services across multivendor network infrastructures. This enables a smooth migration to next-generation network architectures such as Fixed Mobile Convergence (FMC) based on 3GPP Gx, giving Juniper customers a broad set of open, agile, and customizable policy and control options to address their diverse and unique business and technical requirements.

Architecture and Key Components

SRC Series Software

The SRC Series advanced software consists of:

- **The SRC Policy Engine (SRC PE)**, which maintains a directory of customer, network, and service configuration information that it uses to enable automated, policy-based service and subscriber provisioning. The SRC PE also allocates network resources in response to subscriber and application requests, to ensure quality of service (QoS) and quality of experience (QoE) and to protect the quality of previously accepted sessions.

  It collects usage information on a per-subscriber or per-service basis in order to implement usage-based billing, fair usage, or reporting. The SRC-PE integrates with a variety of Juniper products, including MX Series and E Series platforms, as well as third party network elements, leveraging protocols such as Diameter, COPS-PR, RADIUS/CoA, XML, and scripting.

- **The SRC Diameter Gateway (SRC DG)**, which provides a Diameter interface that enables the SRC PE to perform Access Resource and Admission Control Functions (A-RACF), and to provision policies for Session Initiation Protocol (SIP) services, across the IP/MPLS network infrastructure.
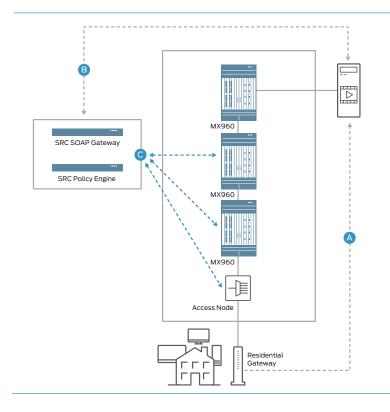
- **3GPP-Gateway**: SRC Series software can interface with third-party PCRFs leveraging 3GPP Gx reference point. In this architecture, the SRC Series can mediate between PCRF and non-3GPP compliant devices.

- **IMS-Gateway**: SRC Series software can perform Access Resource and Admission Control Functions (A-RACF), integrating with SPDF over Rq reference interface. The SRC Series provides network resource management and dynamic policies for multimedia services.

- **The SRC SOAP Gateway (SRC SG)**, which uses the SOAP Protocol to provide a simple, straightforward, and standards-based interface that allows non-SRC Series applications to integrate with, and make use of, SRC Series software.

- **The SRC Volume Tracking Application (SRC VTA)**, which tracks subscribers, sessions, and applications based on granular, customer configurable thresholds for volumes and durations, enabling fair resource usage. The SRC VTA supports tiered service offerings and can invoke policy-driven actions based on predefined thresholds, including rate limiting of traffic, activation of additional resources, and removal of abusive users.

Features and Benefits

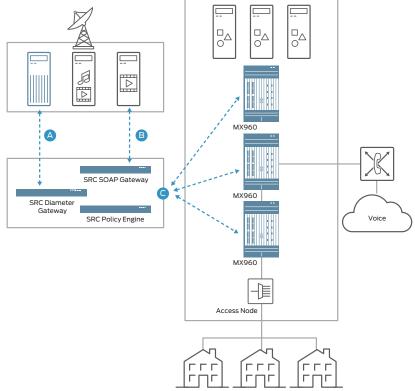| Features	Advantages	Benefits
Prepackaged solution	Easy to dimension, test, install, configure, upgrade, troubleshoot, and spare	Simplifies the operating environment
Intelligent call admission control	Considers multiple criteria (subscriber privileges, service profile, application requirements, network availability) to make per-session admission control decisions	Ensures high service quality for requested and preexisting sessions, and provides subscriber QoE
Service-level accounting	Tracks and accounts for dynamically initiated services for OSS/BSS handoff	Supports unique service models
Flexible service activation	Provides identity-based, application-based, and subscriber self-service selection	Provides mass service customization, stronger customer relationships, and competitive differentiation without increasing operating complexity or costs
Open interfaces	Integrates with third-party network elements and applications to enable end-to-end, application-driven network resource control	Enables application-driven resource control over multivendor networks
Subscriber self-provisioning and service creation tools	Provides policy-driven subscriber and service automation at carrier scale	Enables decreased time to market and reduced costs to roll out new services
Virtualized software (vSRC)	Takes advantage of commonly available off-the-shelf hardware.	Provides flexibility to customize and expand based on need and current conditions.

Use Cases

The SRC Series Session and Resource Control Software supports a suite of applications that enable the creation of myriad services limited only by the creativity of service providers, system integrators, and the enterprise. Several examples are described here.
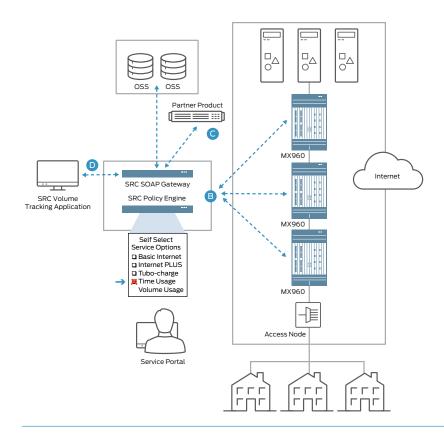

Multiplay Services: Assured Video

When a subscriber requests a video service (A), the video server notifies the SRC Policy Engine via the SRC SOAP Gateway (B). The SRC Policy Engine monitors the network (C) to determine whether adequate resources are available to support the request. If the resources exist, the SRC Policy Engine reserves them (C) and notifies the video server to initiate the service (B); if sufficient resources are not available, the SRC Policy Engine can resize existing LSPs or create new ones to handle the additional traffic, or gracefully reject the request and notify the subscriber, depending on the service provider's defined policy. The SRC Policy Engine also dynamically rate-limits other services that the subscriber may concurrently consume to assure high video QoE.

Multiplay Services: Assured Voice

In this example, the service provider has implemented a multiplay network that supports both IMS and non-IMS services over a converged infrastructure. The policy and control solution consists of the SRC Policy Engine, the SRC SOAP Gateway, and the SRC Diameter Gateway, in addition to OSCP partner products. Video and data applications communicate with the SRC Policy Engine via the SRC SOAP Gateway (A), and voice over IP (VoIP) service requests are conveyed to the SRC Policy Engine by a Session Border Controller via the SRC Diameter Gateway (B). The SRC Policy Engine provides traffic engineering for VoIP and video sessions based on real-time LSP awareness and can allocate, resize, and create network resources in response to application requirements (C). The sessions are gracefully rejected if sufficient resources are unavailable.

Service Portal

Tiered Access Services and Subscriber Self-Provisioning

In this example, the service provider uses the SRC Policy Engine with the built-in, self-service portal, the SRC SOAP Gateway, and the SRC Volume Tracking Application to offer tiered subscriber selectable service packages based on traffic volume, connection speed, and duration. Subscribers use the self-service portal (A) to make a service selection that the SRC Policy Engine configures on the network (B). A partner application monitoring the xDSL train rate is integrated into the solution via the SRC SOAP Gateway (C). Changes in the train rate trigger the SRC Policy Engine to make changes to the subscriber's service profile. The SRC Volume Tracking Application monitors and accounts for subscriber use, and this accounting information is also provided to OSS/BSS accounting, billing, and customer care systems (D).

Specifications

CPU Requirements:

- You must allocate at least one CPU core for virtualized SRC Series software. For comparison purposes, here are the equivalent CPU characteristics of previously available C Series hardware:
  - C2000: 4
  - C3000: 8
  - C5000: 24

Storage:

- The qcow2 image and vmdk image (of subtype monolithicSparse) grow in size up to 250 GB when used on a virtual machine, so there must be more than 250 GB of disk space available in the host operating system to use the qcow2 or vmdk image. If using an SRC Series iso image, it is recommended that 250 GB of disk space be allocated to the virtualized SRC Series software to ensure enough space is available for system and component logs.

Network

- 1GbE or 10GbE interface card (one or more)

Hypervisors

- VMware, Centos 6.5 KVM

Image Formats:

- qcow2
- iso
- vmdk
- img (for installation on legacy C Series C3000 and C5000 hardware)

Heap Memory Requirements:

SRC Component	Default Heap Size for vSRC	Heap Size Adjustable	Stack Size
ACP	64 MB	Yes	1024 KB
SNMP agent	160 MB	No	1024 KB
Web application server	616 MB	No	1024 KB
CLI	200 MB	No	1024 KB
Diameter server	600 MB	No	1024 KB
External subscriber monitor	160 MB	Yes	1024 KB
3GPP gateway	200 MB	No	1024 KB
IMS services gateway	200 MB	No	1024 KB
JPS	400 MB	Yes	1024 KB
License server	1 GB or less than ¼ of physical memory	No	1024 KB
NIC	128 MB	Yes	1024 KB
SAE	70% of free memory	Yes	228 KB
C-Web interface	200 MB	No	1024 KB

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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.

About Juniper Networks

Juniper Networks challenges the status quo with products, solutions and services that transform the economics of networking. Our team co-innovates with customers and partners to deliver automated, scalable and secure networks with agility, performance and value. Additional information can be found at Juniper Networks or connect with Juniper on Twitter and Facebook.

Ordering Information

Product Number	Description
SRC-PE-SW-VSRC	Virtualized SRC Policy Engine Software
SRC-COA-LIC	COA engine licenses for third-party support; one license required per server
SRC-PE-ACP-LIC	Feature license for admission control plug-In on virtualized SRC; one required per SRC Policy Engine
SRC-PE-GY	Gy interface
SRC-PE1000K-LIC	1,000,000 service session license for SRC Policy Engine
SRC-PE500K-LIC	500,000 service session license for SRC Policy Engine
SRC-PE200K-LIC	200,000 service session license for SRC Policy Engine
SRC-PE100K-LIC	100,000 service session license for SRC Policy Engine
SRC-PE50K-LIC	50,000 service session license for SRC Policy Engine
SRC-PEACP-LIC	Feature license for admission control plug-in; one required per SRC Policy Engine
SRC-CXKDG-LIC	SRC Diameter (A-RACF Rq Interface) gateway software license for use with SRC software (required for Gx interface)
SRC-CXKSG-LIC	SRC SOAP Gateway software license for use SRC software; one per instance running SOAP GWrunning SRC SOAP Gateway software
SRC-VTA-APP	SRC Volume Tracking application software lifetime license, for Solaris platforms

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