



The bridge to possible

Data sheet
Cisco public

Cisco Virtualized Policy and Charging Rules Function (vPCRF)

Contents

Product overview	3
Features and benefits	3
Prominent feature	4
Platform support information	5
Licensing	5
Product specifications	5
System requirements	6
Ordering information	7
Warranty information	7
Cisco and Partner Services	7
Cisco Capital	7
Call to action	8

The Cisco® Virtualized Policy and Charging Rules Function (vPCRF) is a virtualized comprehensive policy, charging, and subscriber data management solution that allows service providers to control and monetize their networks and profit from personalized services.

Product overview

Cisco vPCRF for Mobile provides intelligence to the control plane, managing session and subscriber state at carrier scale. It interfaces southbound to various Policy Control Enforcement Functions (PCEF) and IP Multimedia Subsystems (IMS) in the network. It integrates northbound to Operation Support Systems and Business Support Systems (OSS/BSS), subscriber applications, and web applications.

Virtualization infrastructure can simplify and automate the creation and scale-out of core network functions. The economies of scale provided by a Network Functions Virtualization (NFV) framework allow operators to adapt to real-world traffic patterns and business growth. Dynamic orchestration enables Cisco vPCRF to be deployed in a fraction of the time compared to traditional policy hardware architectures, which is critical as carriers pursue new market areas while supporting overall projected data growth.

Our vPCRF for Mobile solution is uniquely designed to scale in support of tier-1 mobile networks while maintaining low latency at high transaction rates. The vPCRF for Mobile architecture enables simultaneous sessions and Transactions-Per-Second (TPS) capacity to be scaled independently. This enables the solution to be efficiently sized for either high simultaneous sessions/low TPS or low session/high TPS scenarios, again resulting in lower total cost of ownership when compared to other policy vendor solutions.

Features and benefits

Table 1 outlines the features and benefits of vPCRF for Mobile.

Table 1. Features and benefits

Feature	Benefit
Powerful core rules engine	Gain a powerful rules engine that provides the framework for the policy rules as well as the APIs present on the system.
NFV orchestration	Use the CapEx and OpEx efficiencies of NFV. Rapidly deploy, configure, and scale vPCRF in an NFV environment for pursuit of vertical markets with vPCRF instances and network traffic demands.
Highly scalable and available	Support the scale required by large mobile networks while maintaining low latency at high transaction rates. Geographic high availability provides for geographical redundancy and disaster recovery configurations.
Web- and API-based service definition	Rapidly define new service plans using customizable policy building blocks that support bandwidth tiers, monthly fair use limits, breach rules, and more.
PCEF controls	Correlate, control, and coordinate policies across multiple policy enforcement points—for example, a Packet Data Network Gateway (PDN GW) and a Deep Packet Inspection (DPI) device for a subscriber’s session.
Quality of Service (QoS) control	Authorize and control the subscriber’s QoS across both default and dedicated bearers.

Feature	Benefit
Usage-based policies	Control and monetize bandwidth using internal quota or through integration with an external charging system.
Application detection control	Add application-level control to existing subscriber, time, location, and usage parameters.
Flexible subscriber data schema	Fit your data, not the other way around.
Simplified provisioning	SOAP/REST web services API support simplifies integration to OSS/BSS applications. An onboard subscriber management GUI provides a single interface for viewing data from multiple repositories.

Prominent feature

Cisco is a market leader in policy control solutions

Cisco understands the role that policy control plays in carriers' ability to monetize their networks. To compete in this rapidly changing environment, mobile operators need a policy solution that does more than contain network costs. You need to go beyond a traditional Policy and Charging Rules Function (PCRF) with a solution that can act as an intelligence layer for mobile data service innovation.

Cisco vPCRF for Mobile provides:

- NFV orchestration.** Our solution includes the resource management and orchestration intelligence you need to dynamically scale your policy solution to adapt to real-world traffic patterns and business growth, helping to reduce Capital Expenditures (CapEx) and Operating Expenses (OpEx). In an NFV model, Cisco vPCRF instances can be deployed in a fraction of the time compared to traditional policy architectures. This gives carriers the agility to pursue vertical markets with cost-effective and highly scalable services.
- Carrier-grade reliability.** Gain carrier-grade reliability, high availability, and fault tolerance with a virtual architecture that supports flexible, cost-effective carrier-grade strategies and a smooth transition into an NFV deployment environment. Virtual instances are spread across multiple servers for full hardware and software redundancy within a Cisco vPCRF for Mobile cluster. Should there be a software fault or hardware failure, requests are directed to available virtual instances. This helps ensure high availability and tolerance against both software faults and hardware failures.
- Industry-leading scalability.** Get increased scalability to support today's networks and upcoming next-generation networks, such as LTE with Voice over LTE (VoLTE), which are driving policy transactions per second (TPS) to unprecedented heights. Cisco vPCRF for Mobile is built to handle high TPS at low latencies. The solution can be sized to fit your network performance requirements. And it supports growth with the addition of virtual instances, for a lower total cost of ownership, compared to traditional PCRF models.
- Service creation velocity.** Accelerate service creation velocity with rapid solution rollout and extensibility. Prepackaged use case templates help speed time to market. The extensible Cisco vPCRF for Mobile lets operators go beyond standard policy definition to support nonstandard proprietary interfaces and customized service logic without affecting the core platform.

Platform support information

Product Family	Platforms Supported
Cisco Virtualized Policy and Charging Rules Function	VMware 6.7 OpenStack

Licensing

Cisco PCRF is licensed based on concurrent IP-CAN sessions. The number of subscribers that can be supported by a set number of IP-CAN sessions will depend on the average number of IP-CAN sessions per active subscriber. For example, a subscriber with internet access and VoLTE will have two IP-CAN sessions, one for each APN.

License Level: Number of Sessions
10K Concurrent IP-CAN Sessions
100K Concurrent IP-CAN Sessions
1M Concurrent IP-CAN Sessions
10M Concurrent IP-CAN Sessions

Product specifications

Supported hypervisor	VMware, OpenStack
HA mode	Local High Availability Active/Standby and Active/Active, Geographic Redundancy (Active/Standby and Active/Active)
Key supported interfaces	3GPP 29.212 (Gx/Sd) 3GPP 29.214 (Rx) 3GPP 29.219 (Sy) 3GPP 29.328 (Sh) 3GPP 29.335 (Ud) 3GPP 29.299 (Gy)
Rx services	VoLTE, QoS Selection, Dynamic QoS, SRVCC, NPLI, Dynamic PCC, VoLTE Emergency Calls, Sponsored Data, Multi-Media Priority Services, Wireless Priority Services (WPS)
Notification services	Apple Push Notifications, Email, SMS, SOAP/XML, REST/JSON, GCM

System requirements

vPCRf is optimized for standard Commercial Off-The-Shelf (COTS) blade servers.

Hardware	<p>Minimum of 4 servers per site with high availability.</p> <p>CPU must be a high-performance Intel x86 64-bit chipset with CPU benchmark of at least 13,000 rating per chip and 1365 rating per thread.</p> <p>Large deployments can require significantly more hardware.</p> <p>Geographic redundancy will require more hardware in both locations.</p>
Disk space	<p>The total size of disk space for a server should be sufficient to meet the disk space needs for all the Virtual Machines (VMs) installed in the server (100GB per VM), plus the disk space needed by the customer-supplied hypervisor. Two disk drives supporting RAID 1 are required for redundancy.</p> <p>Disk storage must support less than 2-ms average latency and greater than 5000 Input/Output Operations Per Second (IOPS) per VM. Disks must provide redundancy and speed such as RAID 0+1.</p>
Memory	<p>The total size of memory for a server should be sufficient to meet the memory needs for all the VMs installed in the server, plus the memory needed by the customer-supplied hypervisor.</p> <p>RAM latency must be lower than 15 ns. RAM must be error-correcting ECC memory.</p>
Virtual CPUs	<p>The total number of virtual CPUs (vCPU) for a server should be sufficient to meet the vCPU needs for all the VMs installed in the server, plus at least 2 vCPUs reserved for the customer-supplied hypervisor.</p>
Software	<p>Customer-supplied OpenStack or VMware ESXi.</p>
Interconnect	<p>Dual Gigabit Ethernet ports independently routed for high availability.</p>
Power	<p>Redundant AC or DC power supplies for high availability.</p>
Cooling	<p>Redundant cooling support for high availability.</p>
VM configuration	<ul style="list-style-type: none">• Hyper-threading: Enabled• CPU pinning: Disabled• CPU reservation: Yes• Memory reservation: Yes
<p>Consult the installation guide for detailed memory, and vCPU requirements per VM type depending on the number of vCPUs on the server.</p> <p>Scaling and higher performance are achieved by adding more VMs, not by adding more system resources to VMs.</p>	

Ordering information

Part #	Product Description
CISCO-POLICY	Cisco Policy Suite
Software (option)	Pick the latest software version available
POL-PLATFORM (option)	CPS Platform Base License (One per customer)
POL-PCRF-INIT (option)	CPS PCRF Application License - First Application
POL-PCRF-ADD (option)	CPS PCRF Application License - Additional Applications
POL-P-ALL-10K	CPS All-Inclusive Feature Pack - 10K sessions
POL-P-ALL-100K	CPS All-Inclusive Feature Pack - 100K sessions
POL-P-ALL-1M	CPS All-Inclusive Feature Pack - 1M sessions
POL-P-ALL-10M	CPS All-Inclusive Feature Pack - 10M sessions

Warranty information

Cisco Virtualized Policy and Charging Rules Function has the standard Cisco software warranty.

Cisco and Partner Services

Using the Cisco lifecycle services approach, Cisco and our partners provide a broad portfolio of end-to-end services and support that can help increase your network's business value and return on investment. This approach defines the minimum set of activities needed, by technology and by network complexity, to help you deploy and operate Cisco technologies and optimize their performance throughout the network lifecycle. For more information, please visit <https://www.cisco.com/go/services>.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. [Learn more](#).

Call to action

Position your network for success with Cisco Virtualized Policy and Charging Rules Function. For more information, contact your local account representative.

Americas Headquarters

Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters

Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters

Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at <https://www.cisco.com/go/offices>.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <https://www.cisco.com/go/trademarks>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)