

## Cisco Policy Suite for Mobile

Cisco<sup>®</sup> Policy Suite for Mobile is an industry-leading carrier policy solution. It is a fully virtualized, carrier-grade policy, charging, and subscriber data management solution, deployable in Network Functions Virtualization (NFV) architectures. The solution allows service providers to rapidly create and bring new services to market, deliver a better user experience, optimize resource usage, and generate new monetization opportunities.

Working in conjunction with policy enforcement points in the network, Cisco Policy Suite for Mobile is a standards-compliant solution for the real-time, dynamic management of subscribers, applications, and network resources. It uses network, session and subscriber data to deliver subscriber-centric services based on service provider-configured business rules across third-generation (3G) and LTE access networks, as well as IP multimedia subsystem (IMS) service architectures.

### Challenge

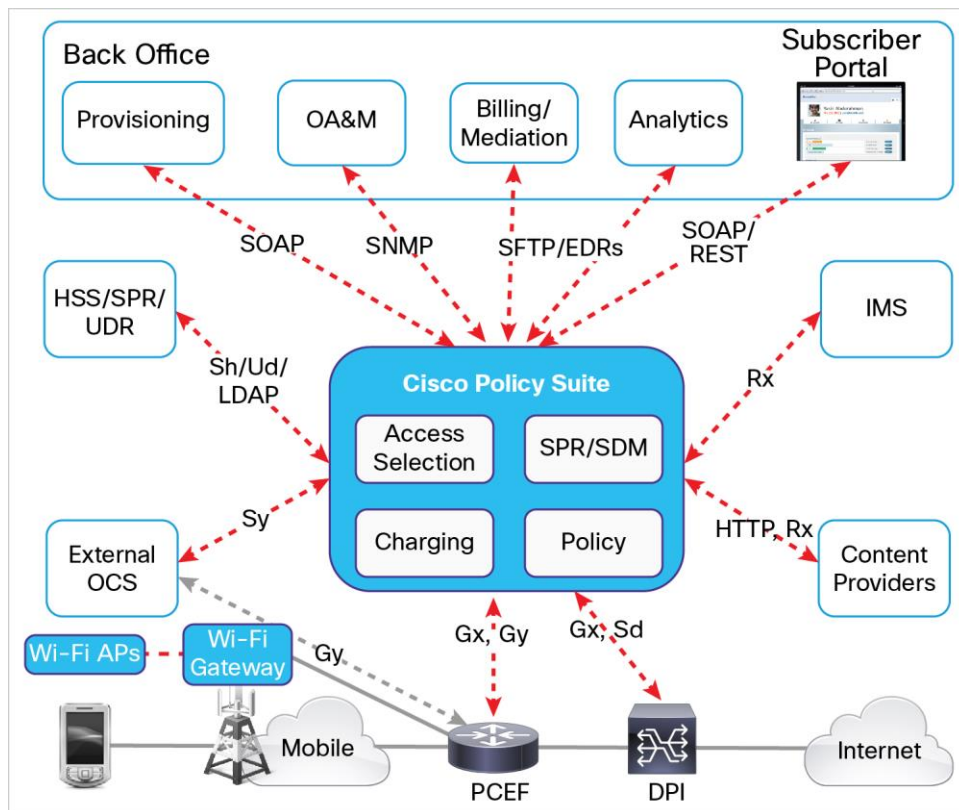
The Cisco Visual Networking Index™ (Cisco VNI™) predicts that, by 2019, global mobile IP traffic will increase from 30 exabytes in 2014 to 292 exabytes per year. There will be more than 11.4 billion mobile-ready devices and connections, almost three billion more than in 2014. The average mobile connection speed will increase more than 2.4-fold, from 1.7 Mbps in 2014 to 4.0 Mbps by 2019. 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. That way, you can provide a personalized and optimized experience for your subscribers.

### Solution

Cisco Policy Suite 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 (PCEFs) 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 (Figure 1).

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

**Figure 1.** Cisco Policy Suite Solution Architecture



### Cisco Policy Suite Components

The core modules of Cisco Policy Suite for Mobile can be used individually or deployed as an integrated end-to-end policy, charging, subscriber-management, and service-creation solution.

The **Policy Module** implements PCRF, which provides real-time management of subscribers, applications, and network resources, based on service provider-configured business rules. Policy Module controls and coordinates the subscriber's session across multiple enforcement points in the network, including gateways, deep packet inspection (DPI) devices, and optimization servers. Policy control actions include:

- Subscriber session authorization and management
- Service selection and personalization
- Quality of service (QoS) and bandwidth control
- Session- and application-specific quota authorization and tracking

The **Charging Module** supports online charging services (OCS) with real-time rating rules. The Cisco Charging Server offers an easily deployed, prepaid OCS solution, including integration with external intelligent network systems. One-time, recurring, rollover, and top-up balances are supported, against which both default and user-personalized thresholds may be defined. Quotas may also be shared across groups, such as family, corporate, or multiple-device plans.

## Optional Feature Modules

- Subscriber Management
  - Centralized, highly scalable subscriber data management
  - Comprehensive data-storage engine, coupled with a virtualized bridge to federate existing subscriber databases into a unified access layer
  - Standalone or fully integrated subscriber profile repository (SPR)
- Quota
  - Store monetary and usage balances for fair-use caps, bill-shock thresholds, and roaming caps
  - Assign multiple recurring, group, and one-time balances to subscribers with a capability for top-up, directly by the subscriber
  - Support shared wallet and group accounts in support of family or corporation, or across multiple devices (with separate thresholds per subaccount)
  - Track and compare subscriber usage to user-defined thresholds, as set up in the policy rules
  - Support subscriber notification, browser redirects, and bandwidth downgrades
- VoLTE
  - 3GPP Rx interface to IMS voice over LTE (VoLTE) integration
  - Voice and conversational video call QoS authorization and control
- External Policy and Charging Integration
  - 3GPP Sy interface for integration with an external OCS
  - Define policy counters and statuses and reference counter statuses in policy rules
- External SPR Integration
  - Query subscribers from an external subscription profile repository (SPR), Home Subscriber Server (HSS), or provisioning system
  - 3GPP Sh and Ud interfaces for external SPR integration
  - Lightweight Directory Access Protocol (LDAP), SQL, and Diameter integration can be configured in service-definition GUI

## Service Provider Benefits

Cisco Policy Suite for Mobile provides the following benefits.

- **NFV Orchestration**

Cisco Policy Suite provides the resource management and orchestration intelligence 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 Policy Suite instances can be deployed in a fraction of the time compared to traditional policy architectures, giving carriers the agility to pursue bespoke vertical markets with cost-effective, but highly scalable services.

- **Carrier-Grade Reliability**

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 blade servers for full hardware and software redundancy within a Cisco Policy Suite 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.

- **Unmatched Scalability**

Get increased scalability to support today's networks and upcoming next-generation networks, such as LTE with VoLTE, which are driving policy transactions per second (TPS) to unprecedented heights. Cisco Policy Suite 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 Policy Suite for Mobile lets operators go beyond standard policy definition to support nonstandard, proprietary interfaces and customized service logic without affecting the core platform.

Table 1 summarizes the features and benefits of Cisco Policy Suite for Mobile.

**Table 1.** Features and Benefits

Feature	Benefit
<b>Carrier-Grade NFV Platform</b>	
<b>Powerful core rules engine</b>	Gain a powerful rules engine that binds the various Cisco Policy Suite applications. It provides the framework for the policy rules as well as the APIs present on the system.
<b>NFV orchestration</b>	Use the CapEx and OpEx efficiencies of NFV. Rapidly deploy, configure, and scale CPS in an NFV environment for pursuit of vertical markets with bespoke CPS instances and network traffic demands.
<b>Highly scalable, fully virtualized architecture, including geographic availability</b>	Support the scale required by large mobile networks while maintaining low latency at high transaction rates. Operators can easily add capacity simply by adding blades. In addition, carrier-grade geographic high availability is available as an option. Geographic high availability provides for geographical redundancy and disaster recovery and can be deployed in active-active mode and active-passive mode.
<b>Extensive multivendor interoperability</b>	Get proven interoperability across numerous mobile packet core, DPI devices, VoLTE/IMSs, OCSs, AAA servers, broadband remote access servers (B-RASs), broadband network gateways (BNGs), billing applications, and provisioning vendors.
<b>Policy Services</b>	
<b>Web and API-based service definition</b>	Rapidly define new service plans using customizable policy building blocks, supporting, for example, bandwidth tiers and monthly fair use limits and breach rules.
<b>PCEF controls</b>	Correlate, control, and coordinate policies across multiple policy enforcement points, for example, a Packet Data Network Gateway (PDN GW) and/or a DPI device for a subscriber's session.
<b>QoS control</b>	Authorize and control the subscriber's QoS across both default and dedicated bearers.
<b>Time-based triggers</b>	Recognize time of day, day of week, month, year, weekday, workday, weekend, and so forth, as inputs for policy decisions.
<b>User notification</b>	Notify subscribers through Short Message Service (SMS), email, browser redirect, or other notification extensions.
<b>Location awareness</b>	Use the subscriber's location as an input for policy decisions. Apply policy rules based on the serving time zone for the subscriber.

Feature	Benefit
<b>Subscriber Data Management</b>	
<b>Flexible schema</b>	Fit your data, not the other way around.
<b>Group accounts</b>	Support multiple users in a single account, along with shared and individually assigned services and multiple identities and credentials. Helps enable quota sharing, parental controls, and multiuser plans.
<b>Multiple balance types</b>	Provide one-time, recurring, rollover, and top-up balances. Service providers determine how recurring and rollover balances are replenished (such as daily, weekly, monthly, or per billing cycle).
<b>Simplified provisioning</b>	Simple Object Access Protocol/Representative State Transfer (SOAP/REST) web services API support simplifies integration to OSS/BSS applications. Onboard subscriber management GUI provides a single interface for viewing data from multiple repositories.

## Why Cisco?

Cisco is an industry leader in policy management deployments, offering one of the only policy platforms that include network control, subscriber awareness, application integration, and service monetization. Cisco is committed to promoting innovation in the service provider market and continues to develop new products and solutions to help service providers transform their networks to more profitable, service-rich, and flexible IP next-generation networks (IP NGNs). Cisco provides world-class networking solutions that help service providers dramatically boost sales, improve customer satisfaction, and increase profitability.

## Service and Support

Using the Cisco lifecycle services approach, Cisco and its 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.

## Cisco Capital

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## For More Information

For more information about Cisco Policy Suite for Mobile, contact your local account representative.

[cisco.com/go/mobilepolicy](http://cisco.com/go/mobilepolicy)



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