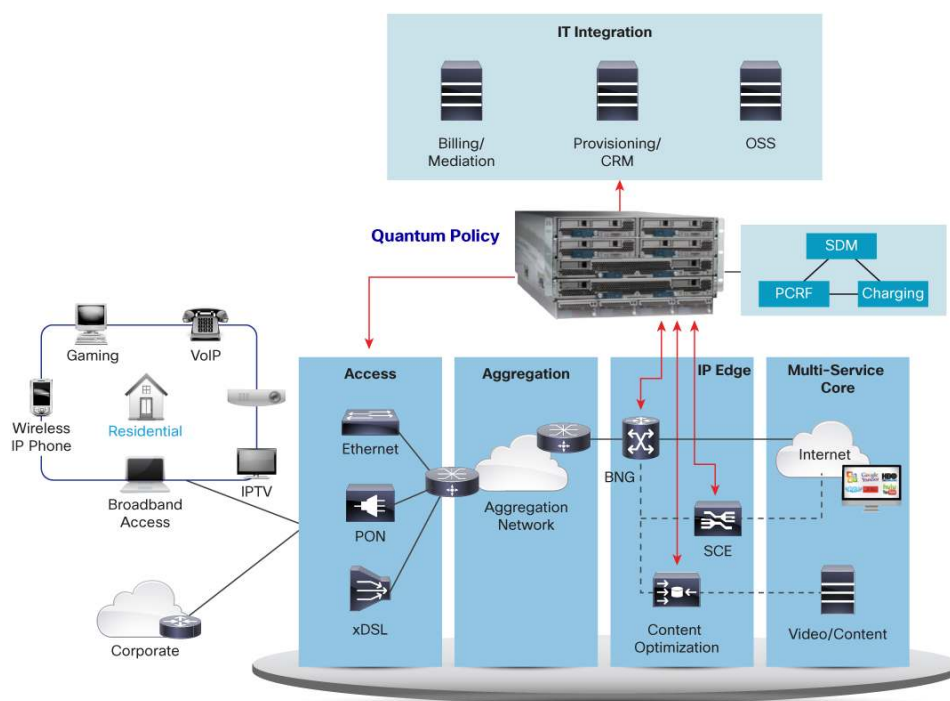# Cisco Quantum Policy Suite for BNG

Solution Overview

The Cisco® Quantum Policy Suite is a carrier-grade policy, charging, and subscriber data management software solution that enables service providers to control, monetize, and personalize the service offerings on their broadband networks (Figure 1). The Cisco Quantum Policy Suite for Broadband Network Gateway (BNG) is a multifaceted policy management solution that empowers service providers to:

- Rapidly roll out new services and promotions

- Deploy resource and admission control, validate available bandwidth, and automatically allocate real-time service

- Dynamically manage broadband performance

- Integrate advanced broadband, value-added, and third-party services

- Subscriber demands for new voice, video, and data applications are accelerating, and data transfers over broadband connections are reaching unprecedented levels. Operators will see increased revenue over the short term, but for the long term they face innumerable challenges as a result of the rapid pace of demand for broadband data access. They will need a solution that not only addresses network policy and bandwidth management, but also helps enable new applications within an easily customized, highly personalized experience

Figure 1.   Cisco Quantum Policy Suite Architecture

- Cisco Quantum Policy Suite for BNG provides dynamic subscriber management functions for both residential and business broadband subscribers, giving operators the capability to directly monetize their networks by mapping specific features to specific revenue streams. Cisco Quantum Policy Suite for BNG is ideal for use in all types of broadband deployments, enabling operators to deploy network- and application-centered policy technology that accommodates wholesale and retail broadband business models.

Features and Benefits

Features and Benefits

Cisco Quantum Policy Suite for BNG offers industry-leading performance, high availability, and disaster recovery, and it simplifies network architecture by using a single subscriber repository that draws from legacy data sources without conversion or revision. In addition, the solution is a fully virtualized platform with an open development architecture that provides significantly faster policy and service creation. It is the only purpose-built policy platform that has been independently validated for record-breaking performance and scalability.

Cisco Quantum Policy Suite for BNG enables service providers to:

- Reduce the time required to create new services and applications
- Boost revenue by rapidly rolling out new applications
- Avoid the need for custom code when rolling out tiered and personalized service packages by using premade templates and customized portals
- Help ensure network integrity by dynamically managing broadband performance
- Streamline network policy control by combining multiple services, such as Internet, email, triple-play (voice, video, and data services), and security, as well as easily integrate a range of advanced broadband, value-added, and third-party services

Additional features and benefits are included in Table 1.

Core Modules

Policy Module

- Tiered services and per-user quality of service (QoS) that facilitates subscriber base segmentation to offer differentiated services and pricing - for example, premium high-speed access that is targeted to business users and gamers versus basic access speeds for email and browsing users
- Bandwidth on demand and turbo boost, allowing subscribers to increase their bandwidth either on a predetermined schedule or on demand - such as for a streaming video session or business demonstration
- Session usage data record generation
- Subscriber account creation and service selection portal API that interfaces with a service provider's portal, helping give end users secure control over their service experience

Charging Module

- Flexible charging detail record (CDR) generation with rule-based filters - for example, to strip out non-billing-related fields or augment accounting records with data from other sources
- Aggregation of partial CDRs and correlation of CDRs from multiple sources
- Ability to dynamically charge services based on real-time rating rules
- Real-time and/or offline charging and policy enforcement
- Prepaid, postpaid, and hybrid payment models

Optional Feature Modules

Subscriber Management Module

- Subscriber data management and user data persistence
- Account, subaccount, and user group management
- Identity management
- Association with service plans
- Account balance management
- Provisioning integration
- Subscriber self-registration

Quota Module

- Tracking of subscriber session- and/or application-specific usage against daily, weekly, or monthly billing cycle fair use usage limits; provides the ability to block, downgrade, or restrict subscriber usage when exceeding usage limits
- Alerts for subscribers when they are approaching limits based on user-personalized (or plan default) threshold
- Options to extend a user's quotas, including pay-as-you-go (PAYG) top-ups
- Ability to give users an incentive to perform data-intensive transfers, such as online backups, during off-peak hours by using time-of-day windows
- Premium, value-added options to up-sell subscribers - for example, exemptions of specific traffic, such as social networking, from plan usage limits
- Subscriber usage balance management, including daily, weekly, monthly recurring, rollover, and single-use plans, and top-ups
- Quota management portal API that allows subscribers to view their quota usage and prevent bill shock by tracking and extending quotas

Geographic High Availability

- Geographical redundancy and disaster recovery and can be deployed in active-active mode and active-passive mode

Table 1. Features and Benefits

Feature	Benefit
Policy Engine	
Web-based service definition manager	Tool for rapid definition of new service plans using customizable, policy-building blocks, enabling, for example, bandwidth tiers and monthly fair use limits and breach rules.
Powerful core rules engine	Powerful rules engine binds the various Quantum Policy Suite applications. Provides the framework for the policy rules as well as the APIs present on the system.
Highly scalable, carrier-grade architecture, including geographic availability	Supports 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.
Extensive multivendor interoperability	Proven interoperability across numerous authentication, authorization, and accounting (AAA) servers, broadband remote access servers (B-RASs), broadband network gateways (BNGs), mobile packet core, deep packet inspection (DPI), intelligent network (IN), online charging systems (OCSs), billing applications, and provisioning vendors.

Feature	Benefit
Policy Services	
Session management	Authorize, manage, and terminate (as necessary) a subscriber's session and its associated bearers.
Multiple Policy and Charging Enforcement Function (PCEF) controls	Correlate, control, and coordinate policies across multiple policy enforcement points.
Quality-of-service control	Authorize and control the subscriber's bandwidth.
Time-based triggers	Recognize time of day, day of week, month, year, weekday, workday, weekend, and so forth, as inputs for policy decisions.
Multiple balance types	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).
User notification	Notify subscribers through Short Message Service (SMS), email, Apple Push, browser redirect, or other notification extensions.
Subscriber Data Management	
Flexible schema	Flexible data schema helps enable Quantum Policy Suite to fit the service provider's data, not the other way around.
Group accounts	Support for multiple users in a single account, along with shared as well as individually assigned services and multiple identities (and credentials). Helps enable quota sharing, parental controls, and multiuser plans.
Seamless provisioning	Simple Object Access Protocol/Representative State Transfer (SOAP/REST) web services API support for simplified integration to OSS/BSS applications. Onboard subscriber management GUI provides a single interface for viewing data from multiple repositories.

System Requirements

The Cisco Quantum Policy Suite for BNG is certified for many commercial blade-server platforms, including Cisco Unified Computing System™ (Cisco UCS®) B-Series. The specifications listed in Table 2 are the minimum hardware requirements. Please consult with your account manager for your specific deployment requirements.

Table 2.   System Requirements

CPU	2 Intel® Xeon® X5650s or higher speed
Disk space	2 100-GB or higher solid state disks (SSDs) with hardware Redundant Array of Independent Disks (RAID) 1
Virtualization	Must be listed on the VMware Hardware Compatibility List (HCL): http://www.vmware.com/resources/compatibility/search.php
Hardware	4 commercial blade servers; for example, 4 Cisco UCS B-Series blade servers or equivalent
Memory	24 GB RAM for 0 to 500,000 subscribers 48 GB RAM for 500,001 to 1,000,000 subscribers 72 GB RAM for greater than 1,000,000 subscribers
Network interface	Dual Gigabit Ethernet ports

Why Cisco?

Cisco leads the industry in policy management deployments, with the only policy platform to offer 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 enable service providers to 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.

For More Information

For more information about the Cisco Quantum Policy Suite for BNG, contact your local account representative.